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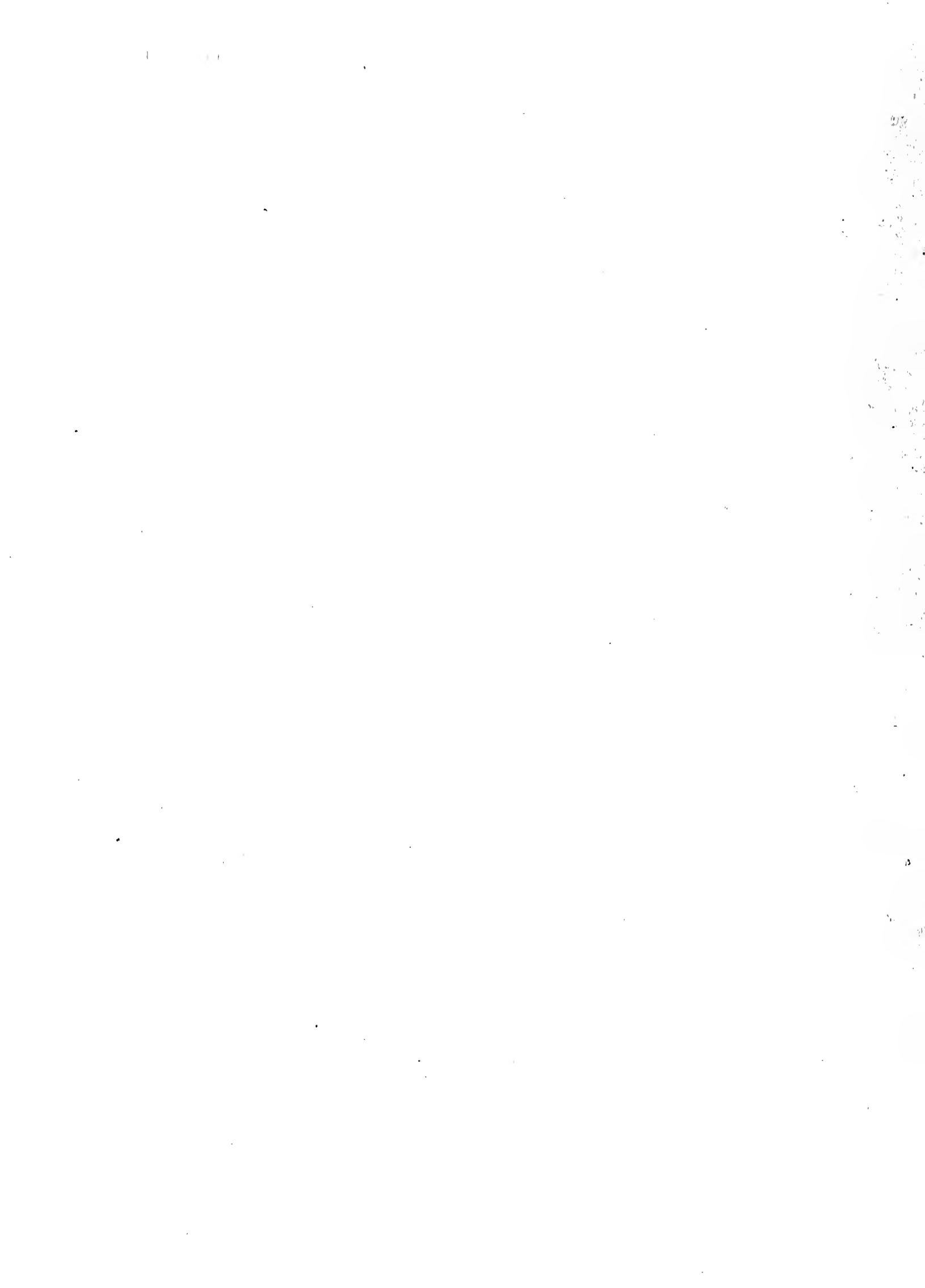


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INDEX OF CONTENTS.

JANUARY TO JUNE, 1911.

(FOR SPECIAL HEADINGS SEE UNDER BOOKS; CERTIFICATES; LAW NOTES; NURSERY NOTES; OBITUARY; PLANT PORTRAITS; PLANTS, NEW; SCIENTIFIC COMMITTEE; SOCIETIES, AND ILLUSTRATIONS.)

A

ABERDEEN College of Agriculture, 261
 Aberdeen Cruickshank Botanic Gardens, 367
 Aberdeen Sweet Pea Show, proposed, 188, 293
 Abutilon *Thompsonii* and *A. Thompsonii* *spurius*, 29; *A. Thompsonii* *flora plena*, 29, 170
 Acanthopanax *ricinifolium*, 213
 Acer *pennsylvanicum*, 235
 Acorn producing two plants, 400
 Adiantum *Farleyense* raised from spores, 72
 Adiantum *Gloria of Moordrecht*, 77, 172
 Agricultural Congress at Madrid, 281
 Agricultural education, 153; in Canada and the United States, 81
 Agriculture, Aberdeen College of, 261; International Institute of, 41; in the West Indies, 78, 82, 101; Tobacco for use in, 382
 Alderman, Mr. A., presentation to, 281
 Allan, Mr. John P., retirement of, 75
 Allotment gardens, improving the soil of, 12
 Allotments, 203
 Almond, date of flowering of the, 170
 Alpine garden, the, 65, 100, 117, 164, 189, 195, 211, 250, 261, 343, 414
 Alpine plants, a frame for wintering, 212; new work on European, 90
 Alps, European, *Primulas* of the, 344, 364, 385, 413
 American blight on Apple trees, 192
 American Gooseberry-mildew, 13, 58, 156; outbreak of summer stage of, 298
 American Hawthorn, 17; new arborescent species of, 36
 Amelanchier, the genus, 340
 Ampelopsis *Vitifolia* in America, 131
 Anemones, St. Bridget, at Blackpill Nurseries, Swansea, 328
 Augreum *pellucidum*, 18
 Anthracite coal and coke for heating greenhouses, 64
 Ants, to destroy, 288
 Aphides and ladybirds, 169
 Apiary, the, 23, 71, 119, 135, 183, 215, 246, 263, 311, 349, 369, 399, 409, 425
 Apios *tuberosa*, 4, 25, 91
 Apple Cox's Orange Pippin, 309; Miller's Seedling, 85; Newtown Pippin as a late variety, 157; Samson, 16
 Apple cultures for profit, 158; in Devonshire, 76; in Dorsetshire, 53, 51
 Apple trees, American blight on, 192; in hedges, 271; the use of ties in training, 146
 Apples, shipments of Australian, 138; British *var.* Foreign, 45, 58, 76, 92, 123; for market, 105; late dessert, 139; late keeping varieties of, 4, 157, 190; on stiff soils, 85
 Appointments abroad, 90; at Kew, 169; to London public parks, 330
 Aquilegia *flabellata*, 199
 Aquilegias, the culture of, 266
 Arbor day at Grantown, 261
 Arboriculture in Germany, 114
 Arkway, a floral, erected at J. Jamesburg, 155

Arley, specimen trees at, 11
 Armeria *caespitosa*, 211
 Armillaria *melles* attacking Willows, 100
 Arnold Arboretum, the, 391
 Arundinaria *fastuosa* at Gummerbury House Gardens, 252
 Ashton Court, Bournemouth, Rhododendrons at, 392
 Asimina *triloba*, 252
 Asparagus bed, to prepare an, 400
 Asparagus *Hatcheri*, 170
 Atmospheric impurities and vegetation, 426
 Aubrietia, Mrs. E. M. Crosfield, 261
 Auricula, the, 164
 Australia, *Pinus insignis* in South, 314; the Pines of, 243
 Australian Apple season, the, 158
 Avery Hill, L.C.C. nursery, extension of, 250

B

BACTERIALS *solanacearum*, a disease of Potatoes, 186
 Bacterial disease of Potato, a, 186
 Bazetelle, a trial of Roses at, 169
 Bayley, Mr. F. Manson, honour for, 9
 Baker, R. T., and H. G. Smith, *A Research on the Pines of Australia*, 243
 Ballantine, Mr. Henry, retirement of, 202
 Bamboos at Kew, 115; for a Leicestershire garden, 123; in tubs, 307
 Banana culture in England, 13, 23
 Band contest in Glasgow public parks, 293
 Banks, Sir J. seph, 201
 Barassie, garden city at, 42
 Bardswell, Frances A., *The Herb Garden*, 374
 Barnard, Mr. H. A., 298
 Baron Hill, Beaumaris, 122
 "Barr" Memorial Fund, 170
 Bartlett, Mr. A. C., appointment of, 217
 Basic slag, effect of, on pastures, 91
 Bateson, Professor W., to deliver the "Herbert Spencer" lecture, 350
 Beach, transplanting a large, 133
 Bee stings, a remedy for, 315
 Bees, the epidemic amongst, 265; the management of, 23, 71, 119, 135, 183, 215, 246, 263, 311, 349, 369, 389, 409, 425
 Begonia *Gloria de Sceaux* at Bryanston Gardens, Blandford, 372
 Begonias, winter flowering, 202
 Belgian horticultural society, the oldest, 218
 Belladonna plaster a remedy for bee-stings, 313
 Belvedere, Isle of Wight, rare plants at, 10
 Belvoir Castle, Grantham, spring-bedding at, 184, 264
 Benary, Ernest, *Die Erziehung der Pflanzen aus Samen*, 308
 Benevolent Institution, Gardeners' Royal, 25, 29, 41, 56, 153, 313, 427; (annual election), 46; (annual meeting), 60; (festival dinner), 339
 Bequests to gardeners, 28, 281, 307
 Berberis *Silver Beauty*, 10
 Berlin Rose show, 217
 Biochemists at Rothamsted, 410
 Biology, economic, and museums, 170

Bird sanctuary, the Brent Valley, lecture on, 254
 Birds, and fruit buds, 229, 304; and fruit-nets, 394; the coming of the warbler, 323; the protection of, 137
 Birmingham, flower shows at, 298
 Black Currant, big-bud in, 64; Boskoop Giant and big bud, 91; buds and bullfinches, 171, 190
 Black Currants as a market crop, 132
 Blackman, Prof. V. H., appointment of, 121
 Blairgowrie fruit-carriage dispute, 210
 Blue-berry, taming the wild, 367
 Boiler, which is the best? 380, 400
 Bomarea *patatocensis*, 372; fruits of, 227
 Bongardia *Rauwolfii*, 235

BOOKS, NOTICES OF:— **A** Course of Practical Work in Agricultural Chemistry for Senior Students (*T. E. Wood*), 116; **A** Flora of Western Middle California (*Willis Linn Jepson*), 179; **A** Monograph of the British Lichens (*A. L. Smith*), 371; **A** Research on the Pines of Australia (*R. T. Baker and H. G. Smith*), 243; **B**otanical Magazine, 89, 155, 217, 313; **B**ritish Fern Gazette (*Charles T. Drury*), 217; **B**ritish Ferns and their Varieties (*Charles T. Drury*), 131; **C**arnations and Pinks (*T. H. Cook, J. Douglas, and J. P. McLeod*), 238; **C**hloris *Platanis Argentina* (*Cristobal M. Hicken*), 308; **C**ontributions from the United National Herbarium (*Henry Patton*), 344; **C**rown Gall of Plants: Its Causes and Remedy (*Erwin F. Smith*), 312; **C**oming of Evolution (*John W. Judd*), 49; **E**ie Erziehung der Pflanzen aus Samen (*Ernst Benary*), 308; **E**nglishwoman's Year Book and Directory (*G. E. Mitton*), 41; **F**lora of Buenos Aires (*Cristobal M. Hicken*), 308; **F**lora of Jamaica (*William Fawcett*), 82; **G**arden Foes (*T. W. Sanders*), 115; **G**ardening Year Book (*G. Gordon*), 41; **G**uide to Mr. Worthington G. Smith's Drawings of Field and Cultivated Mushrooms and Poisonous or Worthless Fungi often Mistaken for Mushrooms (*Worthington G. Smith*), 116; **I**rish Farming World Directory and Annual, 41; **J**ournal of the New York Botanical Gardens, 329; **K**ew Guild Journal (*Herbert Cowley*), 121; **L**ive Stock Journal Almanac, 41; **M**y Garden Diary for 1911 (*Sutton & Sons*), 41; **O**rchid Review, 91; **O**rchids (*James O'Brien*), 4; **O**rchids for Everyone (*C. H. Curtis*), 164; **O**rchid World, 232; **P**lant Animals: a Study in Symbiosis (*Professor Frederick Kobb*), 277; **P**ears' Cyclopaedia (*James Burdley*), 41; **P**hytopathological Society's Journal, 260; **P**opular Greenhouse Flowers (*Walther P. Wright*), 373; **P**ractical Plant Physiology (*Frederick Kobb*), 384; **P**rofitable Bee-keeping (*H. Georg*), 293; **P**ublications received, 9, 26, 41, 74, 91, 106, 170, 186, 202, 253, 265, 281, 298, 351, 371, 391; **R**ecords of the Botanical Survey of India (*Majur*

J. P. Gage), 325; **R**eport of a deputation appointed by the Council of University College, Reading, to visit selected centres of agricultural education and research in Canada and in the United States, 81; **S**chlich's Manual of Forestry (*Sir W. Schlich*), 216; **S**imple Lessons in Nature Teaching (*John O'Neill*), 131; **S**weet Pea Annual, 1911 (*Chas. H. Curtis and Horace J. Wright*), 105; **T**he Book of Roses (*Louis Durand*), 259; **T**he British Journal Photographic Almanac (*George E. Brown*), 41; **T**he Charm of Gardens (*Dion Clayton Calthorp*), 147; **T**he Development of British Forestry (*A. C. Forbes*), 98; **T**he Evolution of Plants (*Dr. D. H. Scott*), 370; **T**he Garden Annual (*W. Robinson*), 41; **T**he Herb Garden (*Frances A. Bardswell*), 374; **T**he Liverworts, British and Foreign (*Rt. Hon. Sir Edward Fry*), 131; **T**he Modern Culture of Sweet Peas (*Thomas Stevenson*), 344; **T**he Open Book of Nature (*Rev. Chas. A. Hall*), 292; **T**he Raising of Plants from Seed (*Ernest Benary*), 308; **T**he Rose Annual, 1911, 202; **T**he Seminarium (*T. O. Weigel*), 412; **T**he Subantarctic Islands of New Zealand (*Chas. Chilton*), 209, 226; **T**he Vegetation of Mount Fuji (*Dr. B. Hayata*), 390; **T**rees and Shrubs in Calcutta Botanic Garden (*Majur J. P. Gage*), 325; **V**inton's Agricultural Almanac and Diary, 41; **W**ebster's Foresters' Diary and Pocket Book (*A. D. Webster*), 41; **W**ho's Who, 1911, 41; **W**illing's Press Guide, 41; **W**riters' and Artists' Year Book, 41
 Boskoop Jubilee flower show, 90, 121, 186, 239
 Boston, U.S.A., flower show, 297
 Botanical expedition to Lower Siam, a, 361, 385, 406
 Botanic garden, a national, for South Africa, 8
 Botanists, British, lectures on, 88, 113, 152, 232, 328
 Botany, the rise of systematic, in England, 113
 Botrytis *cinerea* on greenhouse plants, 154
 Bonnyville, cottage gardens at, 281
 Bowling greens, Edinburgh public, 132
 Boyd, Mr. William, presentation to, 281
 Brasso-Cattleya *Senateur de Bast*, 137; *B. C. Vilhormiana*, 98, 146, 180
 Bread, whole meal, 74
 Brent Valley Bird Sanctuary, the, lecture on, 254
 Britain as a market for French fruit, 24
 British botanists, 88, 113, 152, 232, 328
 British forestry, the development of, 170, 220, 253, 985
 British horticulturists in America, 219
 Broom, early flowering of the, 253
 Brown, Mr. John, presentation to, 58
 Brown rot on Plums, 324
 Brussels Sprouts, the culture of, 156
 Brussels State Botanical Gardens, 366
 Bryanston Gardens, Blandford, *Begonia de Sceaux* at, 372
 Buddleia *officinalis*, 201

Bulb garden, the, 98, 211, 189, 347, 386
 Bulb industry of the Netherlands, 9
Bulbophyllum cylindraceum, 5; *B. tremulum*, 291
 Bulb show, a children's, 183; R.H.S., 173
 Bulbs, manures for, 176
 Bulfinches and Black Currant buds, 171, 190
 Burbage nurseries, experimental station at the, 233
 Button hole holder, a new, 360

C

CABBAGES, a trial of, 423
Calanthe Veitchii, 50
Calanthes, at Cavenham Park gardens, Mildenhall, 83; the culture of, 163
 Calcutta Botanic Gardens, trees and shrubs in, 323
 Calthrop, Dion Clayton, *The Charm of Gardens*, 147
 Cambridgeshire, American Gooseberry-mildew in, 24; spraying demonstrations in, 350
 Camellias, the culture of, 80
 Canadian nursery, a, 177
Canarina Campanula, 249, 266
 Canker, Rose, 295, 343
 Carbon bisulphide as a ground insecticide, experiments with, 351
 Cardiff, gift of a public park to, 315
 Cardiff public parks, 234, 244, 334
 Carnations, forcing, to flower in May, 360; novelties in, 26, 393; perpetual-flowering, 13
 Carrot-fly, the, to combat, 304
 Castlewellan, Co. Down, early-flowering *Rhododendrons* at, 157
Catasetum Rodigasianum, 291
Cattleya Warscewiczii alba, 412
Cattleyas, hybrid, 323
 Cavenham Park gardens, *Calanthes* at, 83
 Census, gardeners and the, 201; of vegetation, 391.

CERTIFICATED FRUITS AND VEGETABLES:—*Asparagus* Early French, 301; *A. Green Canadian*, 301; *Cabbage Harbinger*, 301; *Cucumber Pride of the Market*, 430; *C. Improved Telegraph*, 430; *Kale Labrador*, 301; *The Newberry*, 431

CERTIFICATED PLANTS:—*A dianium* *Glory of Moordrecht*, 77, 172; *Anthurium Scherzerianum maculatum*, 319; *Asplenium decorum*, 300; *Aubrietia* Mrs. Lloyd Edwards, 319; *Auricula* *Emmie*, 318; *A. Juliet*, 318; *A. Kingswood*, 318; *A. Mrs. Gardiner*, 236; *A. Mrs. Harry Veitch*, 236; *A. Mrs. Simonite*, 318; *A. Miss Mary Chamberlain*, 318; *A. Raven's Plum*, 318; *A. Richard Holding*, 318; *A. Sulphur Queen*, 319; *A. Umpire*, 268; *Azalea amena* var., 191; *Begonia* *Lady Cromer*, 431; *B. Mrs. Peter Blair*, 431; *Brasso* *Cattleya* *Queen Alexandra* *superba*, 191; *B.-C. Senateur de Bast*, 108; *B.-C. Euterpe*, 78; *Bulbophyllum galbinum*, 46; *Carnation* *Charlotte Bronte*, 430; *C. Coronation*, 107; *C. Edith Waters*, 287; *C. Empire Day*, 205; *C. F. W. Goodfellow*, 430; *C. Snowstorm*, 319; *Cattleya Mendellii* *Dainty*, 255; *C. Mossiae aureola*, 376; *C. M. var. G. M. Males*, 333; *Cologyne burfordensis*, 333; *Colax Charlesworthii*, 255; *Crinum Johnstonii*, 376; *Cyclamen* (*Papilio* strain), 14; *Cymbidium* *Alexanderi*, 174; *C. Gottianum*, 174; *C. Langleyense*, 142; *C. Pauwelsii*, 108; *Cypripedium aureum laekenense*,

108; *C. Bridgeri*, 191; *C. Carola*, 108; *C. Charles Sladdin*, 46; *C. Duke of Connaught*, 78; *C. Lawrenceanum* *Hyeannum* *G. S. Ball's* variety, 255; *C. niveum* *Oakdene* variety, 255; *C. Vogelzang*, 46; *Davidia involucreta*, 338; *Delphinium* *Manve Queen*, 430; *D. Primrose Queen*, 430; *Dendrobium delicatum*, 142; *D. plumptonenae*, 191; *Dia-Cattleya Sanderi*, 269; *Eria lanata*, 142; *Grevillea robusta* *compacta*, 376; *Grobya fascifera*, 142; *Haberlea Ferdinandii* *Coburgii*, 338; *Heuchera sanguinea* "Nancy Perry," 376; *Hippeastrum* *Queen Mary*, 172; *Hydrangea hortensis* *Mme. E. Moullière*, 205; *Iris* *variegata* "Miss Eardley," 376; *Ismene festalis*, 300; *Laelio-Cattleya* *Canhamiana*, 319; *L.-C. Cranstone* *Westonbirt* variety, 14; *L.-C. Dominiana* *Monkend* variety, 174; *L. C. Germania*, 333; *L. C. Morningtonia*, 333; *Lewisia* *Cotyledon*, 339; *Lilium* *Martagon* *Hon. Mrs. Petre*, 431; *L. tenuifolium* *Golden Gleam*, 338; *Lycaste* *Mary Gratrix*, 191; *Miltoma* *Blonana* *Pectersiae*, 237; *M. Hyeana*, 301; *Myosotis alpestris* *Marie Raphael*, 319; *Narcissus* *Ajax* *Money-maker*, 378; *N. Crocus*, 237; *N. Elegy*, 287; *N. incomparabilis* *plenus*, *Queen of Phoenix*, 378; *N. Jacob Maris*, 378; *N. King George V.*, 378; *N. Matthew Arnold*, 287; *N. Middleton Favourite*, 287; *N. Miss Willmott*, 268, 287; *N. Mrs. Cato* *Boog*, 378; *N. Mrs. Lizzie Krelage*, 378; *N. Ormoh*, 287; *N. poetaz* *Aspasia*, 191; *N. Queen of Hearts*, 268; *N. Richard Strauss*, 378; *N. Seicle*, 378; *N. Sheba*, 287; *N. Socrates*, 268, 287; *N. Sonata*, 500; *Nephrolepis* *Batchelorii*, 255; *N. Marshallii* *compacta*, 236; *Odontioda* *Bradshawie* *Gatton* *Park* variety, 333; *O. Cooksoniae*, 14; *O. Coronation*, 333; *O. ignea*, 206; *O. Keighleyensis* var. *gloriosa*, 191; *O. Lambaiana*, 333; *O. rosefieldensis*, 237, 301; *O. r. Crawshayanum*, 430; *O. Vuystekeae* var. *Lady Colman*, 206; *Odontoglossum* *amabile* *Empress of India*, 333; *O. Black Prince* *Dell* variety, 333; *O. crispum* *Peacock*, 78; *O. Europa*, 430; *O. eximium* var. *Lady Wilkinson*, 191; *O. Godmani*, 46; *O. Halseyanum*, 46; *O. harvengtense* *Crawshayanum*, 301; *O. Harwoodii*, 78; *O. illustrissimum* var. *Queen Mary*, 301; *O. Jasper*, 255; *O. Jeanette*, 174; *O. Mansella*, 191; *O. Maria*, 78; *O. mirum* *Brugense*, 174; *O. Ossulstonii*, 237; *O. Phoebe* *Glenburn* variety, 191; *O. ramos-Edwardii*, 269; *O. rosefieldense*, 46; *O. Swietenicolor*, 206; *Odontodia* *Lairesii*, 255; *Oncidioda* *Cybele*, 376; *Oncidium* *Claesii*, 333; *O. Mulleri*, 333; *Oncoba* *Routledgei*, 236; *Pelargonium* *Maxim* *Kovalesky*, 236; *Philadelphus* *hybridus* *Lemoinei* *virginal*, 430; *Platyclinus* *glumacea* *valida*, 142; *Plocoglotis* *javanica*, 46; *Polyanthus* *Springfield* *Perfection*, 318; *Primula* *Auricula* *plena*, 255; *P. Chenies* *Excelsior*, 268; *P. pulverulenta* *Hidecote* strain, 376; *P. Winteri*, 141; *Rhododendron* *Corona*, 338; *R. Dawn's Delight*, 300; *R. Glory of Littleworth*, 339; *R. Littleworth* *Coralina*, 339; *R. Loder's* *White*, 338; *R. Mrs. Kingsmill*, 205; *R. Penger*, 268; *R. sinense* *Duchess of Portland*, 338; *R. (Azalea)* *sublanceolatum*, 338; *Rose* *Mar-*

cella, 236; *R. Mrs. Geo. Shawyer*, 300; *R. Orleans* *Rose*, 300; *R. Portia*, 339; *R. Sylvia*, 339; *Saxi* *fraga* *Bursiculata*, 141; *S. Petra* *s.iii*, 172; *Sophro-Cattleya* *Wellesleyae*, 191; *Sweet Pea* *R. F. Felton*, 430; *Trollius* *Derby* *Day*, 319; *T. Elsie* *Harkness*, 319; *Tulip* *Yellow* *Murillo*, 173; *Viola* *Moseley* *Perfection*, 300; *Xylobrium* *leontoglossa*, 108

D

Ceylon Botanic Garden, research work at the, 350
 Challis, Mr. Thomas, 50 years service, 26
 Charlcombe Grange, Grapes at, 313
 Charlock, the destruction of, 329, 394; by spraying with sulphate of iron, 400
 Chaucer and Gower, the flowers of, 401
 Chelsea Hospital, 154
 Cherry, insect pests of the, 256; the double flowered, 306
 Chicory, the forcing of, 212
 Chilton, Charles, *The Subantarctic Islands of New Zealand*, 209, 226
 Chinese trees and shrubs, seeds of, presented to Kew Gardens, 371
Chrysanthemum *Madame R. Oberthur*, 152
Chrysanthemums, incurved, 44; some of the best market varieties of, 26; some of the newer varieties of, 147
Cineraria *Beauty of Cambridge*, 307
Cinerarias, the culture of, 10
Citrus decumana, 208
Cladanthus *campanulatus*, 188
Clematis roots, nodules on, 360, 374
Clinanthus *panicus* at East Oakley House, Hampshire, 390
 Climbers suitable for a north-west wall, 16
Clintonia borealis, 98
 Clivia, a seedling, 163
 Clover, romance of a, 159
 Collin moth, the, in South Africa, 314
Colebicum hydrophilum, 98
 Cold storage of *Lilium* bulbs, 160
 Cole, Mr. Silas, appointment of, 217
Collabium nebulosum, 97
Columella on graft hybrid, 203
 Conifers of Australia, 243
Coniothyrium *Fackelii*, a disease of *Roses*, 293, 343
 Cook, T. H., *Carnations and Pinks*, 228
 Cornwall, the weather in, 252
Coronation bouquet, *Queen Mary's*, 152, 298, 427
Coronation, memorial tree for the, 266, 293, 316, 354
Coronilla glauca and *Veronicas* in Ireland, 156
 Cottage gardens, the value of, 281
 Crabs, ornamental, 13
Crassulus, the culture of, 80
Crataegus, new American species of, 17, 36
 Creosoted timber in greenhouses, 266, 420
 Cricket match, a gardeners', 351
 Cross-fertilisation, natural, 217
 Crown-gall disease of plants, 312
 Crown or Mummy Pea, the, 272
 Croys, Kirkcudbrightshire, fire in the garden at, 261
 Cruickshank Botanic Garden, Aberdeen, 367
 Cruickshank, the late Miss Annie H., 261
 Crystal Palace, the future of the, 190
 Cucumbers, the culture of, for market, 132
 Cultural memoranda, 10, 52, 165, 181, 387
 Curtis, C. H., *Orchids for Everyone*, 164
 Cyananthus, garden species of, 42
 Cycler industry, the, 305, 354
Cymbidium *Gottianum*, 180; *C. insignis* (syn. *Sanderi*), 194; *C. langleyense* (*Veitchii*), 146
Cypripedium *Charles Sladdin*, 50; *C. Duke of Connaught*, 83; *C. Miss Alice Wallace*, 50; *C. Vogelzang*, 308
Cypripediums as winter flowers, 18

E

EARTHWORMS in pots, 112
 East Burnham Park, visit of R.H.S. Committees to, 371
 Edgworthia chrysantha, 170
 Edinburgh, autumn show at, 307; golf course at Braid Hills, 210; public parks at, 132, 293; spring flower show at, 132, 245
 Edinburgh Town Council and the Scottish Horticultural Association, 58
 Electric current and trees, 324
 Electricity and plant growth, 210
 Elliott, Sir Thomas, 281
 Elm tree, injury caused by an. falling at Hampton Court, 250
 Elsholtzia *Stantonii*, 240
 Emigration scheme, a fraudulent, 74, 91
 Entomology, Dutton Memorial Chair of, 351

- Epi-Cattleya salmonicolor, 308
 Epilendrum Stamfordianum Wal. lacel, 290
 Erica Mackaili, the double-flowered form of, 372
 Eucas, propagating, 80
 Eutypella paunastrii, Plum trees killed by, 329
 Evolution of plants, the, 367
 Exhibition of Rhododendrons by Messrs. J. Waterer & Sons, 352
 Exhibitions, specimen plants at, 157
 Experimental results, the interpretation of, 105
 Experiment station, a new, 233
 Exportation of plants to New Zealand, regulations concerning the, 157
- F**
- "FAIRCHILD" lecture, the, 372
 Farnyard manure for Red Currants, 165
 Fawcett, William, *Flora of Jamaica*, 82
 Fernery, the, 242, 346
 Ferns, a recently discovered collection of, 346; the spring treatment of hardy, 242
 Festival of Empire exhibition, the, 185; horticulture at, 217; awards at, 390, 411, 427
 Finlaystone Yew, the, 293
 Fire in the gardens at Croys, Kirkcudbrightshire, 261
 Fir, the Douglas, 307
 Fixtures for 1911, 24
 Floral archway erected at Johannesburg, 155
 Flower gardening in Walworth, 250
 Flower show at Boston, U.S.A., 297; in aid of the League of Mercy, 250
 Flower shows, tents at, 354
 Flour, whole-meal, 74
 Florists' flowers, 26, 34, 99, 131, 164, 197, 393
 Flower garden, the management of, 6, 23, 39, 55, 71, 87, 103, 119, 134, 150, 166, 182, 199, 215, 231, 246, 263, 278, 294, 310, 327, 349, 367, 388, 408, 425
 Flowers, packing of cut, 169; in season, 26, 73, 168, 233, 328, 390; moth-trapping, 351, 394; of Chaucer and Gower, 401; out of season, 9
 Fog and frost in the Glasgow district, 91
 Fokienia Hodginsii, 66, 84, 138, 253
 Fomes igniarius, the false Tinder fungus, 25
 Forbes, A. C., *The Development of British Forestry*, 98
 Forced shrubs, 156
 Forcing border Carnations to flower in May, 360; flowering plants, 16; Strawberries, 195; vines, 170, 203, 235, 255, 284, 418
 Forest management, 216
 Forestry association, an English, 26
 Forestry, the development of British, 138, 170, 220, 253, 285; exhibit at the Glasgow Show, 416; in Scotland, 265; instruction in, at Edinburgh, 188, 367
 Formalin, seed sterilisation by, 265
 Formosa, the Stinging Tree of, 154, 221, 314
 Forsythias, the, 189
 Fertilising, manurial value of, 160
 Frost for wintering Alpine plants, 212
 Frostia, a magenta-coloured, 196; Dr. Robinson's strain of, 233
 Fuchsia from Britain as a market for, 24
 "French" garden, work in the, 23, 54, 71, 105, 135, 167, 193, 231, 263, 235, 369, 409
 Fruit birds and birds, 304
 Fruit crops in Scotland, the, 416
 Fruit garden, the market, 96, 136, 165, 228, 291, 309, 341
 Fruit growers, Perthshire, train arrangements for, 391
 Fruit imports into the Transvaal, restriction of, 314
 Fruit prospects in North Wales, 316; in Scotland, 416; in May, 291, 341
 Fruit register, the, 85, 195
 Fruit season, the, 229
 Fruit, the setting of, affected by drought, 365
 Fruits under glass, the culture of, 7, 23, 39, 54, 70, 86, 102, 118, 134, 151, 166, 183, 197, 214, 230, 246, 262, 278, 295, 311, 327, 349, 368, 389, 408, 425
 Fruit trees, stocks for, 58, 76; insect pests of, 309; manure for, 97; planting of, 146; self-sterility in, 312; spraying, 341, with lime-sulphur, 165; the False Tinder fungus on, 25
 Fry, Sir Edward, *The Liverworts, British and Foreign*, 131
 Fungi, a lecture on, 191
 Fungicide, liver of sulphur as a, 41
- G**
- GALANTHUS Melvillei major, 34; G. William Thomson, 34
 Garden city at Batavia, 42
 Garden cities and suburbs, 210
 Garden suburb for Clydebank, Glasgow, 28
 Gardens and window boxes, prizes for, 132
 Gardens at the White City Exhibition, 138
 Gardens, cottage, the value of, 281
 Gardeners, legacies to, 201, 217, 307, 390; and the Census, 201; at cricket, 351; presentations to, 281; should young, travel? 324, 374
 Gardeners, L.C.C. parks, and their wages, 121
 Gardeners' Royal Benevolent Institution, 25, 29, 41, 56, 153, 313, 427; (donations from Queen Mary and Queen Alexandra, 217; (Liverpool Auxiliary), 160
 Gardener's silver wedding, a, 5
 Gardening in Moravia, reminiscences of, 346; in Shetland, 28
 Gas, street trees and, 44, 139
 Gattin Park, Surrey, 73
 Geary, H., *Profitable Beekeeping*, 293
 Genistas, propagating, 80
 "Geo. Munro" concert, the, 57, 298
 Gerberas, hybrid, 186
 German Dendrological Society the, 184
 Ghent Quinquennial Exhibition, 1913, 391
 Gillanders, Mr. A. T., 89
 Gladiolus Society, a proposed, 93
 Gladiolus tristis, 386
 Glasgow and West of Scotland College of Agriculture, 233
 Glasgow, band contest in public parks of, 293; hardy plants at the Botanic Garden, 188; flower show, 73, 211; fog and frost at, 91; garden suburb for, 28; parks in spring, 261
 Goodrich Court, Herefordshire, 257
 Gooseberry crop, the, 330
 Gooseberry-mildew, American, 13, 53; in Cambridgeshire, 24; outbreak of summer stage of, 293; spread of, 156
 Gooseberry planting in market gardens, 99
 Gooseberry, the best market variety of, 374
 Gower and Chaucer, the flowers of, 401
 Graft hybrids, 170
 Grafting Rhododendrons, 80
 Grantown, arbor day at, 261
 Grape fruit, the, culture of, 268
 Grape vine, suitable manures for the, 219
 Grapes, at Charlecombe Grange, 313; black spots on, 400; record bunch of, 320
 Grass, the romance of a, 113
 Greenhouse plants, Botrytis cinerea on, 154
 Greenhouses, creosoted timber for, 266, 420; the erection of commercial, 176
 Greenwich Park, appointment of superintendent to, 330
 Griffith, William, lecture on, 232, 386
 Gumbleton, bequests by the late William E., 412
 Gunnersbury House gardens, Bamboos, at, 252
 Gypsophila paniculata, the propagation of, 32
- H**
- HALES, Stephen, lecture on, 88
 Hall, Rev. Charles A., *The Open Book of Nature*, 202
 Hamamelis mollis, 93
 Hampton Court, falling Elm tree causes injury at, 250
 Hardenbergia Comptoniana in New South Wales, 242
 Hardy fruit garden, work in the, 5, 22, 38, 55, 70, 87, 103, 118, 135, 150, 167, 183, 199, 215, 230, 246, 263, 279, 294, 311, 326, 348, 368, 389, 408, 425
 Hardy plants at Glasgow Botanic Garden, 188
 Hawthorns, American, 17, 36
 Hayata, Dr. B., *The Vegetation of Mount Fuji*, 390
 Hay, Mr. Thomas, appointed superintendent of Greenwich Park, 330
 Heather, propagating, 80
 Helianthus cucumerifolius purpureus, 201
 Helianthus, a red-flowered, 201, 220
 Helminthosporium syringae, a disease of Lilac, 313
 Hemsley, Mr. W. Botting, honour for, 391
 Hepaticae, distribution of, in Scotland, 153
 Herbert Spencer lecture, the, 350
 Hicken, Dr. Cristobal M., *Chloris Platensis Argentina*, 308
 Hippeastrums, the culture of, 428
 Holdings, small, 153
 Hooker, Sir William, lecture on the life of, 152
 Hopetoun House gardens, 307
 Horticultural instruction in the West of Scotland, 233
 Horticultural instructor for Durham, 252
 Horticulture at the Festival of Empire, 217
 Horticulture, instruction in, 74
 Horticulturists, British, in America, 219
 Hot-bed, making a, 168
 Hutchinsia alpina, 164; the habitat of, 189
 Hybrids, graft, 170; raised at Kew Gardens, 19, 35, 69
 Hydrangea hortensis, Mme. E. Moulère variety of, 220; new French and German varieties of, 412; to produce blue flowers in, 412; warm water treatment of, 412
 Hymenanthera crassifolia, 351
- I**
- IRELAND Poppies as cut blooms for market, 228
 Importation of Potatoes into Jersey, 218
 Indian flower show, 233; garden, 188
 Innes, John, Horticultural Institution, the, 179
 Insecticide, experiments with carbon-bisulphide as a soil, 351; nicotine as an, 153
 Insect pests of fruit-trees, 309
 Insects and Pests Act, Destructive, 136
 International Horticultural Exhibition, 1912, 121, 250, 415, 428; and the R.H.S., 90; (King George's cup), 371; (Mansion House meeting), 296, 303
 Invention, new, 360
- Ireland, notes from Lambay Island, 211; Olearias in, 52
 Iris excursion, an, 381
 Iris histrioides, 13; I. Luna, 365; I. pumila, 277; I. unguicularis, 251
 Irises, notes on, 180, 251
 Ivy attacked by Lichtensia viburnii, 160; skin irritation from, 139, 157, 170, 190
- J**
- JAPAN, a journey to, 85, 116, 148
 Jepson, Willis Linn, *A Flora of Western Middle California*, 179
 Jersey, importation of Potatoes in, 218
 Johnson, Mr. Henley, bequest for, 281
 Jubilee of a nursery employé, 298; of Mr. Thomas Challis, 26
 Judd, John W., *The Coming of Evolution*, 49
- K**
- KALANCHOE flammula, 343
 Keeble, Professor Frederick, *Plant Animals, a Study in Symbiosis*, 277; *Practical Plant Physiology*, 384
 Kenmore Castle Gardens, 91
 Kew Gardens and the Coronation holidays, 411; appointments at, 169; Bamboos at, 115; foremen appointed Civil Servants, 169; gardeners at cricket, 351; gardeners' social evening, 41; hybrids raised at, 19, 35, 69; new trees and shrubs at, 90; Royal visitors to, 313; terms of employment at, 400; visitors to, 90
 Kew Guild, 340; (annual dinner), 281, 356
 King Edward, and the gardener's child, 354
 King Edward memorial, proposed site for, in St. James's Park, 200, 217
 King of Portugal visits the R.H.S. Show, 185
 Kingswear, South Devon, weather at, 428
 Kitchen garden, the management of the, 6, 22, 39, 55, 70, 86, 102, 118, 134, 151, 167, 183, 198, 214, 230, 247, 262, 278, 295, 310, 326, 348, 369, 388, 409, 425
- L**
- LACHENALIAS, the culture of, 181
 Lackey moth, the, 271
 Ladybirds and aphides, 169
 Laelia-Cattleya Bella alba, 18; L.-C. Cranstonæ Westonsbirt variety, 18; L.-C. Fascinator Mossie, 422; L.-C. Perripal, 18; L.-C. teignmouthiensis, 18
 Lagenophora Forsteri, 69
 Lambay Island, Ireland, notes from, 211, 235, 428
 Laportea crenulata, 221; L. pterostigma, the Stinging Tree of Formosa, 154, 221, 314
 Lapwing, the, 190
 Lasiandra macrantha at Springburn Park, Glasgow, 59
 Lathyrus pubescens, 324, 353
- LAW NOTES**;—Alleged fraudulent representation, 239; Claim for a gardener's death, 75, 416; Destructive Insects and Pests Act, 136; Duke of Bedford *versus* L.C.C., 207; Emigration fraud on gardeners, 74; Failure of a market gardener, 319; Failure of a nurseryman, 16, 224; Fruit-carriage dispute, 210; Gardener or odd man? 399; Gardener's notice, 380; Jobbing gardener not a male servant, 44; Lavender a vegetable? 175; Nursery tenancy dispute, 239; Orchard sale dispute, 112; Prosecution under the Pharmacy Act, 31; Sale of Gooseberry bushes, 224, 359

- Lawrence, Mr. C. R., presentation to, 197
Lead "ribbon" for tying purposes, 360
League of Mercy flower show, 250, 395
Leaves, propagating plants from, 266, 298, 400
Legacies to gardeners, 201, 217, 390
Leonardslee, a moraine garden at, 343; Rhododendrons at, 194
Lettuce, Lamb's, 68
Lewis Workhouse garden, 188
Lichens, British, 371
Lilac, treatment of, after forcing, 304
Lilies, notes on, 145, 189
Lilium leucanthum, 265
Liliums, the cold storage of, 160
Lime spraying, 132
Lime-sulphur for spraying fruit trees, 165; how to prepare, 304
Lime, testing soil for, 176
Links, tree planting on, 415
Lithospermum prostratum and lime, 253, 266, 298, 316, 353
Liver of sulphur as a fungicide, 41
Llanover, Monmouthshire, 273
Lockerbie, gift of a public park to, 165
Loganberry, origin of the, 195
London County Council, cost of maintaining the parks, 313; nursery extension at Avery Hill, 250; wages of gardeners employed by the, 121
Lycaste locusta, 260
Lyons horticultural show, 233
- M**
- MICHE or Lamb's Lettuce, 68
Mackenzie, Mr. Donald, presentation to, 412
McKenzie, Donald, the late, 250
McLeod, J. F., *Carnations and Pinks*, 228
Madrid International Agricultural Congress, 281
Manchester Corporation manure, 64
Manganese manures, 329
Mangolds, Sclerotinia disease of, 329
Mansion House meeting in support of the Royal International Horticultural Exhibition, 296
Manure, for fruit trees, 97; the value of fowl's dung, 160
Manures for bulbs, 176; for vines, 219; manganese, 329
Manurial value of soot, the, 57
Market Apples, 165
Market culture of Cucumbers, 132; of Tomatos, 144
Market fruit garden, the, 97, 146, 165, 228, 291, 309, 341
Market fruit year, the, 4
Market gardening, 99, 132, 228, 261, 391; in Cambridge-hire, 266
Masters's memorial lectures, 142
Mayes, Mr. George, fifty years service of, 156
Medinilla magnifica, 227
Melons, the flavour of, 165
Mendel's laws and Orchids, 272
Mertensia maritima, the culture of, 208
Mildew, American Gooseberry, 13, 24, 156, 293
Mice and Rhubarb, 48, 64
Mid-Kent nurseries, vines at the, 423
Miltonia Bleuana Peetersia, 275
"Monro" concert, the, 57, 298
Monte Baldo, the flora of, 197
Moraine garden, at Leonardslee, 343; how to build a, 100, 117, 162; in March, 211
Moravia, reminiscences of gardening in, 346
Morison, Professor, and systematic botany, 113
Mormodes Cognianxii, 97
Moschosma riparium, 48
Mosquito bites, a remedy for, 412
Moth-trapping flowers, 351, 394
Mummy or Crown Pea, the, 272
Municipal gardeners of London and their wages, 121, 201
Museums and economic biology, 170
Mushroom spawn, 112
Mushrooms, out-door culture of, by amateurs, 392
- N**
- NARCISSUS Coronation, 286; N. Jonquilla, 347; N. ovularis var. robusta, 112; N. Queen of Hearts, 275; N. Socrates, 275; N. Victoria for market purposes, 132
National Rose Society's catalogue, 284
Natural History Museum, South Kensington, 302; and the proposed Museum for Physical Science, 350
Nectarines and Peaches, disbudding and thinning the fruits of, 259, 276
Nelumbium speciosum and Pontederia hastata in the Botanical Gardens, Udaipur, 89
Nets, fruit, and birds, 394
New South Wales, a note from, 242; Papsalum dilatatum in, 113
New Zealand, flora of the outlying islands South of, 209, 226; notes from, 29; some new plants from, 58; the exportation of plants to, 157
Nicotine as an insecticide, 153
Nitrates in the soil, the influence of crops on, 154
Nodules on Clematis roots, 360, 374
Novelties of 1910, I, 26, 42
Novelty, what is a? 203
Nursery employes, entertainment of, 90
Nursery employe's, jubilee, a, 156
- NURSERY NOTES:**— Bull, William, & Sons, Chelsea, 314; Carter, James, & Co., Forest Hill, 155, Raynes Park, 12; Charlesworth & Co., Hayward's Heath, 363; Delgany Nurseries, Co. Wicklow, 155; Elliott, Clarence, Stevenage, 393; St. John's Nursery, Worcester, 138; Sutton & Sons, Reading, 162, 423; Veitch, James, & Sons, Chelsea, 101
- O**
- OAK timber, a sale of, 74; brown, 74, 140; green and brown, 170
OBITUARY:— Baker, R. N. G., 240; Baddome, Colonel R. H., 143; Bernard, Professor Noel, 192; Blake, George, 47; Boddie, James, 320; Bolus, Dr. Harry, 358; Bossche, Leon van den, 96; Bryce, Thomas, 288; Brydges, C. E., 400; Chaffin, James, 313; Chambers, Benjamin Ellis Coates, 222; Cheales, Rev. Alan, 400; Chilcott, Jonathan, 192; Collins, C. R., 304; Cooke, John Newbold, 143; Corderoy, Justus, 288; Cross, Robert Mackenzie, 176; Daniels, George, 128; Dilke, Sir Charles, 72; Dorner, Frederick, 96; Duff, Thomas, 79; Fassotte, J. Antoine, 256; Finlay, William, 256; Foster, Charles, 127; Fox, John, 47; Gadd, Henry, 192; Galton, Sir Francis, 56; George, Henry Hammond, 79; George, J., 175; Gormley, John J., 79; Graaff, Simon A. de, 288; Gumbleton, William Edward, 240, 255; Hal, Florent van, 400; Hart, J. H., 176, 184; Herrin, Charles, sen., 378; Hobday, George, 62; Hordebise, J. N., 271; Lambert, Mrs. John, 192; Lock, George, 304; MacMahon, Philip, 358; MacMillan, Hector, 304; McCarthy, Timothy, 176; McKenzie, Donald, 240; Mathison, Fred. R., 400; Marhae, B. Latour, 271; Melville, John, 256; Murr, J. H., 222; Murray, David, 175; Pember, E. H., 240; Plateau, Professor Felix, 192; Pringle, Dr. Cyrus G., 420; Rawlings, Arthur, 143; Rowland, Walter, 256; Seaton, James, 47; Service, Robert, 304; Smet-Duvivier, Louis de, 240; Sullivan, Miss Charlotte A., 240; Sutton, Mrs. Martin J., 96; Suzuki, Uhei, 96; Tranter, John Richard, 271; Walker, James (Ham), 111; Walker, James (Rivalsgreen), 432; Webster, William, 222; Weeks, Alfred W. G., 111; Wells, Thomas, 240; White, William, 271; Wilson, Thomas C., 432
O'Brien, James, *Orchids*, 4
Ochna multiflora, 343
Odontioda rosefieldensis, 308; O. Vuylstekeae var. Lady Colman, 213
Odontoglossum Ceres maculatum, 12; O. crispum Lynwood variety, 323; O. c. Peacock, 92; O. Groganite, 72; O. Harwoodii, 93; O. illustrissimum var. Queen Mary, 363; O. Jeanette, 194; O. rosefieldense, 163; O. Swietenicolor, 210
Oenothera ovata, 418
Oenarias in Ireland, 52
Olympia show, the, 72, 89, 427
Oncidioda Cybele, 404
O'Neill, John, *Simple Lessons in Nature Study*, 131
Onion smut, the prevention of, 391
Orange, the Otaheite, 340
Orchards, neglected, in Devonshire, 76; in Dorsetshire, 33, 51
Orchid houses, the management of the, 6, 22, 38, 54, 71, 86, 102, 119, 135, 150, 166, 182, 198, 214, 231, 247, 262, 279, 294, 310, 326, 343, 368, 368, 407, 424
Orchid notes and gleanings, 3, 18, 36, 50, 83, 97, 146, 163, 180, 194, 243, 275, 290, 308, 325, 363, 422
Orchid plants, large, 123
Orchid sales during Temple Show week, 363
Orchids and Mendel's Laws, 272
Orchids at Messrs. Charlesworth & Co.'s nursery, 363; at the Belg ways, Haslemere, 243; novelties of 1910, I; the root-fungus of, 272
Ornithogalum lacteum, 26
Orphan Fund, Royal Gardeners', 265, 316, 319, 350, 418, 428; annual festival dinner, 301; annual meeting, 110
Ostrowskia magnifica, culture of, 360
Omisia macrophylla, 240
Oxalis enneaphylla, 414
- P**
- PANSIES, 197
Papaver nudicaule as cut blooms for market, 228
Papsalum dilatatum in New South Wales, 113
Park presented to Insh, Aberdeenshire, 9
Parks and gardens, public, the management of, 6, 39, 199
Parks, appointments to the L.C.C., 330; cost of maintaining the London public, 313; of Cardiff, 234, 244, 315, 334; planting names in public, 13
Pastures, effect of basic slag on, 91
Payne, Mr. Harman, honour for, 202
Peaches and Nectarines, disbudding and thinning the fruits of, 259, 276
Peach trees gumming and casting their buds, 340
Pea, Crown or Mummy, 272
Pearson, Mr. R. Hooper, honour for, 202
Peas, culinary, select varieties of, 115, 139
Pentland, Lord, on gardens and parks, 189
Pezadeniya Botanic Garden, Ceylon, research work at, 350
Persimmon, the, at Kew Gardens, 40
Pests, garden, law on, 136
Peterborough County Council refuse to provide small holdings, 41
Pharmacy Act in Scotland, 91
Phyllostachys Castillonis at Gurnersbury House Gardens, 252
Phytopathological Society, an American, 260
Phytophthora infestans, recent investigations on, 248; resting spores of, 316, 374
Pictures at the Modern Gallery, 186, 330; at the Royal Academy, 289; at Westminster, 371
Pigeons, wild, the destruction of, 165
Pinguicula, Mexican, 292
Pinks, propagating, 394
Pinus insignis from seed, 144; attacked by Retinia Buoliana, 432; in South Australia, 314
Pitmen as gardeners, 190
Pittier, Henry, *The Genus Castilleja*, 344
Plant diseases, society for the study of, 260
Plant-growing by artificial light, 210
Plant names in public parks, 13
Plant notes, 187, 196, 343
Plant novelties, awards to, 58
Plant physiology, 384; and pathology, appointment of Professor Blackman to chair of, 121
- PLANT PORTRAITS:**— *Cirrhopetalum longissimum*, 153; *Clematis aristata* var. *Dennise*, 217; *C. montana* var. *Wilsoni*, 153; *Deinantha caerulea*, 313; *Dendrobium muricatum* var. *munificum*, 217; *Elaeagnus argentea*, 217; *Felicia petiolata*, 217; *Kennedyia Beckxiana*, 89; *Lonicera Henryi*, 313; *Massevadalia pachyura*, 89; *Mecopopsis simplicifolia*, 153; *Meliosma cuneifolia*, 89; *Oncidium Sanderae*, 313; *Primula Maximowiczii*, 153; *Prunus microcarpa*, 89; *Pseuderanthemum malaccense*, 217; *Rhododendron lacteum*, 313; *R. sutchuenense*, 153; *Ureochloa edentata*, 89; *Villaresia mucronata*, 313
Plants, diploma for diligent interest in, 90; dispatching, to South Africa, 366; for summer bedding, 144; large Orchid, 123
PLANTS, NEW OR NOTEWORTHY: *Beaumontia fragrans*, 306; *Cypripedium luteum* and *C. tibeticum*, 492; *Fokienia Hodginsii*, 66, 84, 138, 253; *Iris chrysographes*, 362; *Oncoba Rattledgei*, 322
Plants, the protection of native, 170
Plants under glass, 7, 22, 38, 54, 70, 87, 103, 119, 134, 151, 166, 182, 199, 215, 230, 247, 262, 279, 294, 311, 327, 349, 368, 388, 408, 425
Pinguicula Rosei, 82
Pinguicula, Mexican, 292
Planting fruit trees, 146
Pleiocarpa nutica in Glasgow Botanic Gardens, 242
Plumbago rosea, 188
Plum, the Japanese Date, *Diospyros Kaki*, 40
Plum trees, an uncommon disease of, 374; aphid attack of, 309; brown rot on, 324; killed by *Eutypella prunastri*, 329
Podalyria calyptata in New South Wales, 242
Poisoning by Ivy, 139, 157, 170, 190
Poisonous shrubs, 13
Polytechnic, the Regent Street, 91
Ponds, scum on, 340
Poppies, Iceland, as cut blooms for market, 228
Potassium sulphide or liver of sulphur, 41

Potato blight, 248, 316; recent investigations on, 248; resting spores of, 374
 Potato scab, treatment for, 91
 Potatoes, a bacterial disease of, 186; disease-resisting, 181; high prices for, 250; importation of, into Jersey, 218; "seed," 152; varieties affected by scab, 186; wart disease of, 120, 122, 138
 Poultry industry, the, 153
 Poultry manure, the value of, 160
 Powerscourt, Co. Wicklow, 218
 Primula obconica and cats, 112; P. Reidii, 195; P. sinensis varieties, 153; P. vittata, 283; P. Winteri, 150
 Primulas of the European Alps, 344, 364, 385, 413
 Propagating, Genistas, 80; Heather, 80; Pinks, 394; plants from leaves, 266, 293, 400; vines from "eyes," 32
 Pruning of Roses, the, 129, 161, 193
 Prunus serrulata var. James H. Veitch, 306
 Pseudotsuga Douglasii, coast and mountain forms of, 307
 Pyrethrum Queen Mary as a market variety, 391
 Pyrus Tschonoskii, 213

Q

QUEEN Mary's Coronation bouquet, 169, 298, 427; basket of Roses, 423

R

RAINFALL, how to measure the, 372; in 1910, 25, 44, 59
 Ranunculus, the garden-, 138
 Ray, John, and systematic botany, 113, 136
 Red spider attacking vines, 284, 394
 Rhododendron barbatum at Castlewellan, Co. Down, 157; R. campylocarpum, 321; R. Cynthia, 406; R. Edgeworthii, 306; R. irroratum, 359; R. "Pengaer," 427; R. sublancolatum, 342
 Rhododendron at Ashton Court, Bournemouth, 392; at Leonardlee, 194; grafting, 80; Messrs. J. Waterer & Sons' exhibition of, 352; new, 313; parents of hardy hybrid, 416; shows, 217
 Rhubarb, and mice, 48, 64; forcing by amateurs, 53
 Roadways, Haslemere, Orchids at, 242
 Ridley, H. N., botanical expedition to Lower Siam, 361, 383, 406
 Roadside fruit trees, 9
 Rocco Longa, the home of Daphne nymphaea, 148
 Romance of a Clover, 139; of a grass, 113
 Root pruning in market gardens, 99
 Roots and soil, 40
 Rosa hendersonii, 418
 Rosary, the, 2, 19, 35, 63, 101, 114, 145, 187, 210, 253, 295, 315, 342, 364, 382, 417
 Rose canker, 343
 Rose disease, a mysterious, 343; a serious, 245
 Rose show at Berlin, 217
 Roses: Baron Job and Paul's Single White, 101; Beante de Lyon, 364; Henriette de Beauvean, 23; Jubet, 382; Marcella, 251; President Taft, 101; Rayon d'Or, 140, 210; Spidire, 101; William Allen Richardson, 417
 Roses: a trial of at Bagatelle, 169; basket of, presented to Queen Mary, 423; crimson colored, 55;

difficult, 19; for foliage, 321; fragrant, 315; hybrid Wichuriana, 5; novelties in, 26; some dwarf-growing single, 145; some very dark coloured, 35; supports for weeping standard, 203; the classification of garden, 225; the effect of the sun on the colour of, 421; the pruning of, 129; the pruning of China, 194; the pruning of Hybrid Tea, 161; the pruning of Noisette, 194; the pruning of Tea, 193; under glass, 2, 68, 115, 259, 343
 Rothamsted Experimental Station, bio-chemists meeting at, 410
 Royal Academy, pictures at the, 289
 Royal Cornwall Show, St. Austell, 412
 Royal Horticultural Society: Committee's visit to East Burnham Park, 371; Journal, 123; Medal awards, 418; Olympia Show, 72, 89; School of Horticulture, 89
 Royal Horticultural Society's Garden Club, 41, 201, 313
 Royal Warrants for nursery and seed firms, 75, 90, 105, 121, 153, 153, 169, 185
 Rubber exhibition at the Agricultural Hall, Islington, 371

S

ST. JAMES'S PARK and the proposed memorial to King Edward, 200, 217
 St. John's Nursery, Worcester, sale at, 153
 St. Tudy, shrubs in flower at, 59
 Sale of Oak timber, 74
 Sandalwood tree, the, 20
 Sanders, T. W. (*Garden Vees*), 115
 Santalum album, the Sandalwood tree, 20
 Sargent, Prof. Charles S., awarded the "White" medal, 11; Irish honour for, 202
 Saxifraga aizoon baldensis, 251; S. × Clibranii, 123; S. Elizabethae, 250; S. × Haagii, 345; S. × kesoniensis at Monneith, 74; S. laevis, 345; S. lingulata and S. lantoscana 65; S. × pungens, 343; S. × Obristii, 228; S. × Sundermannii, 228
 Saxifrages, new hybrid, 345
 Saughton Park, Edinburgh, 53
 Saunderson, Mr. J., presentation to, 264
 Scab, varieties of, in Potato, 186
 Scale on Peach trees, to destroy, 288
 Schlich, Sir W. (*Manual of Forestry*), 216
 School gardens in London, 105; in Staffordshire, 105
 SCIENTIFIC COMMITTEE:—Achillea millefolium var. rubra, 124; Aleyrodes and scab insects attacked by a fungus, 221; Asparagus, fasciation in, 317; Azalea gall, Exobasidium japonicum, 59; Bean seeds, coloration of, 59; beetle boring bark of Pinus austriacus, 158; Begonias, sporting in, 30; Botrytis cinerea on Jasminum, 221; Brassica, fasciation in, 158; Cecidomyia salicis on Willow, 158; Cedar cones, 94; Celery, a disease of, 190; certificates to plants of scientific interest, 190, 221; cones, Cedar, 94; Crocus Imperati, a white form of, 94; Crocus sport, 221; Daffodil sport, 285; Daffodils, twin-flowered, 317; Dasylium glaucophyllum, 124; Elm trees, sap exudation in, 59; Exobasidium japonicum, Azalea gall, 59; Fungus disease of insect pests, 221; Galanthus, a fine, 124;

Galanthus, hybrid, 158; gall on Willow, 158; Gongora, a new species of, 285; G. Tracyana, 316; Hymenocallis festalis, 317; H. macrostaphana, 124; Hippeastrum, a hybrid, 158; H. calyptratum, 158; Iris pumila attacked with "rhizome rot," 394; Jasminum primulinum diseased, 221; Lopezia racemosa, 153; Mandevilla suaveolens, fruits of, 30; Narcissus cyclamineus × N. minimus, 158; Odontioda × Craveniana, 124; Odontoglossum, a malformed, 316; Oneida Routhledgei, 285, 316; Orchid, a fasciated, 153; Pear crossed with Quince, 285; Phragmites communis, cutting the reeds of, 94; Pineapples with rotten cores, 30; Pinus austriaca attacked by Hyabastes ater, 158; Polypodium vulgare var., 124; Primrose, a green-flowered, 190; Primula malacoides, fasciation in, 158; P. sinensis (stellata), abnormalities in, 190; Primroses, double-flowered, 285; Pyromia × Sedemii, 221, 285; Quince crossed with Pear, 285; Rhododendron concinnum, 317; R. Fargesii, 221; R. grande, 190; R. Pengaer, 285; R. rufescens, 317; Richardia africana with a double spathe, 94, 158; Rosa hemisphaerica, 394; Sap exudation in Elm trees, 59; Saxifraga × Bursiculata, 158; Septoria petroselinii var. Apii, a disease of Celery, 190; Snowdrop, a fine, 124; Sporting in Begonias, 30; Tulip disease, 317; Variation in Wheat, 124; Viburnum Davidii, 317; Wallflower, fasciation in, 124; Wheat, variation in, 124; Willow, galls formed by Cecidomyia salicis on, 158; Sclerotinia disease of Mangolds, 329; Sclerotinia fructigena on Plums, 324
 Scotland, notes from, 9, 42, 58, 74, 91, 132, 165, 188, 210, 233, 245, 261, 293, 307, 367, 354, 391, 415; forestry in, 265
 Scottish gardeners, bequests to, 28
 Scott, Dr. D. H. (*The Evolution of Plants*), 367
 Scum on ponds, 340
 Sedum pilosum, 347
 Seed pans, retaining moisture in, 261
 Seed protector, the Dunsmore, 121
 Seed selection, 139
 Seeds, protecting, 121
 Seed-sterilisation by formalin, 265
 Seeds of Chinese trees and shrubs presented to Kew Gardens, 371
 Shetland, gardening in, 28
 Shill, Mr. J. E., appointment of, 8
 Shirley Poppies, 394
 Shrubs, forced, 156; in flower at Kew in October, 9; in flower at St. Tudy, 59; poisonous, 13; spring-flowering, 154; winter-flowering, 93
 Siam, Lower, a botanical expedition to, 361, 383, 406
 Simple life, conference and exhibition on the, 57
 Singapore, note from, 386
 Skin irritation from Ivy, 139, 157, 170, 190
 Small holdings, exhibition of, 57; Peterborough County Council refuse to provide, 41
 Smith, A. L. (*A Monograph of the British Lichens*), 371
 Smith, Erwin F. (*Crown-gall of Plants: Its Causes and Remedy*), 312
 Smith, H. G., and R. T. Baker, (*A Research on the Pines of Australia*), 243
 Smith, Worthington G. (*Guide to Mushrooms*), 116
 Smut of Onions, the prevention of, 391
 Snow in April in a London park, 235
 Snowden, Mr. Joseph D., appointment of, 265
 Snowdrops, two garden-raised, 34

SOCIETIES:—Aberdeen Chrys., 96; Alton Hort., 79; Altrincham and Dist. Gardeners', 380; Bath and West and Southern Counties, 328, 358, 378; Bath Gardeners', 224; Birmingham and Dist. Gardeners', 79; Birmingham Botanical and Hort., 395; Boskoop Pomological, 90, 121, 186, 239; Bournemouth Hort., 221; Brighton Hort., 62; Bristol and Dist. Gardeners', 15, 224, 380; British Gardeners' Association, 40, 75, 95, 105, 319; (Birmingham Branch), 255; (London Branch), 110, 255, 358; Chelmsford and Dist. Chrys., 63; Chelmsford Gardeners', 128; Chester Paxton, 128, 224; Cornwall Daffodil and Spring Flower, 238; Coventry Chrys., 142; Croydon and Dist. Hort., 79, 128, 142, 380; Daffodil Society, proposed National, 90, 104, 109; Debating, 128, 206, 380; Devon Daffodil and Spring Flower, 270; Dutch Bulb Growers', 378; Edinburgh Market Gardeners', 95; Egham (Surrey) Gardeners', 63; Elstree and Boreham Wood Hort., 128, 206; Florence International Hort., 376; Forest Hill Chrys., 30; Grange-over-Sands Hort., 378; Guildford and Dist. Chrys., 63; Guildford and Dist. Gardeners', 79; Haslemere Chrys., 62; Horticultural Club, 61, 154, 191, 254, 281, 318; (annual dinner), 124; Huntingdonshire Daffodil and Spring Flower, 270; Ipswich and East Suffolk Hort., 378; Irish Gardeners' Association and Benevolent, 126; Kent, Surrey, and Sussex Daffodil, 287; Kew Guild, 340; Leeds Gardeners' Friendly Benefit, 142; Limeau, 78, 158, 190; Liverpool Hort., 95, 238; Madras Agri. Hort., 233; Manchester and North of England Orchid, 30, 79, 142, 191, 221, 358; Midland Carnation, 90; Midland Daffodil, 285; Nat. Anricula and Primula (Midland), 317; (Southern), 269; Nat. Chrys., 47, 281; (annual meeting), 94; Nat. Dahlia (conference), 191; Nat. Fruit Growers' Federation, 126; Nat. Gladiolus, 206, 427; Nat. Hardy Plant, 40, 160, 378; Nat. Rose, 232, 427; (conference), 264, 271; Nat. Sweet Pea, 25, 47, 90, 349, 427; Nat. Tulip, 358; Nat. Vegetable, 61, 121, 419; Newbury and Dist. Gardeners', 79; North of England Hort., 9, 15, 26, 105, 191, 255, 318; Nursery and Seed Trade Association, 221; Nurserymen, Market Gardeners' and General Hailstorm Insurance Corporation, Ltd., 239; Oebl'saire Hort., 30; Perpetual-flowering Carnation, 287; Reading Gardeners', 128, 206; River Thames Flower Show, 395; Royal (conversazione), 398; Royal Agri., 105, 430; Royal Caledonian Hort., 28, 42, 47, 121, 222; Royal Hort., 13, 30, 45, 59, 77, 93, 106, 124, 140, 158, 171, 190, 203, 221, 267, 281, 285, 171, 190, 203, 221, 267, 281, 285, 299, 313, 317, 355, 394; (annual meeting), 104, 109, 236, 375, 428; Royal Meteorological, 25, 62, 90, 254, 277, 298, 420; Royal Photographic, 355; Royal Scottish Arboricultural, 42, 89, 95, 378; Royal Scottish Hort. Association, 42, 61, 95, 110, 124, 159, 175, 238, 245, 318, 394; Royal Society for the Protection of Birds, 137; S-I-borne, 249; Shropshire Hort. (annual meeting), 206; Societe Francaise d'Hort. de Londres (annual meeting), 62; Southampton Royal Hort., 62; Southern Counties Gardeners' (Scotland), 126; Stirling Chrys., 47; Surveyors' Institu-

- tion, 9, 105, 250; United Hort. Benefit and Provident, 301, 395; (annual meeting), 174; Ventnor Hort., 95; Wargrave and Dist. Gardeners', 79; Watford Amateurs' and Gardeners' 128; Western New York Hort., 314; West of England, Chrys., 124; Woolton Chrys., 95; Yorkshire Gala, 396
- Soil, and roots, 40; nitrates, 154; of allotment gardens, improving the, 12; testing for lime, 176; weeds in relation to, 370
- Solandra Hartwegii*, 383
- Soot, the manurial value of, 57
- South Africa, a national botanic garden for, 8; dispatching plants to, 306; gardening employment in, 196; new gardening paper for, 351
- South-west, spring flowers in the, 404
- Specimen plants at exhibitions, 157
- Spraying, a season's plan of, 229; demonstrations in Cambridgeshire, 350; fruit trees, 341; fruit trees with lime-sulphur wash, 165; with lime, 132
- Spring flowers at Belvoir Castle Gardens, 264; in the south-west, 404
- Squashes, twin fruits of, 256
- Stachyurus præcox*, 213
- Staffordshire, school gardens in, 105
- Sterility, self, in fruit trees, 312
- Stevenson, Thomas (*The Modern Culture of Sweet Peas*), 344
- Stinging tree of Formosa, the, 154, 221, 314
- Stocks for fruit trees, 58, 76
- Storm at Compton Bassett, Wiltshire, 316
- Strawberry leaf spot, 74
- Strawberries for market, 132, hints on forcing, 195
- Street trees and gas, 44, 139
- Sullivan, the late Miss Charlotte, 250
- Sulphate of iron, destruction of Charlock by, 400
- Sunflower, a red-flowered, 201, 220
- Sutton Place, Guildford, 386
- Sweet Pea exhibition at Aberdeen, 188, 293
- Sweet Peas: lecture on, 159; doubled-flowered, 132; in 1911, 34; new colours in, 170; new varieties of, 99; novelties in, 26; £1,000 prize for, 120; the culture of, for market, 261
- Symphoricarpos occidentalis*, 105
- T**
- TEMPLE Show, the, 328, 331, 355, 394
- Tents at flower shows, 354
- Timber, Oak, green and brown, 170; sale of Oak, 74
- Tinder fungus, false, on fruit trees, 25
- Tobacco for agricultural purposes, 382
- Tomato a fruit or vegetable? 176
- Tomatos, the culture of, for market, 144
- Trachymene cornuta, the culture of, 114
- Train arrangements for Perthshire fruit-growers, 391
- Tranent, gift of a park to, 416
- Transplanting a large Beech tree, 133
- Transvaal, restriction of fruit imports into the, 314
- Tree planting on links, 415
- Trees and shrubs, 11, 115, 100, 189, 213, 233, 252, 306, 351, 366; at Kew, new, 90; in Calcutta Botanic Gardens, 323; seeds of Chinese, presented to Kew Gardens, 371; spring-flowering, 154
- Trees, attaching wires to, 292, 324; memorial, for the Coronation, 266, 298, 316, 354; specimen, at Arley, 11; street, and gas effects, 44, 139
- Trifolium fragiferum* in Victoria, 139
- Tropaeolum speciosum*, 394, 418
- Tubs, Bamboos grown in, 307
- Tulipa *Batalium* in Mr. Bowles's garden, 382; *T. Kaufmanniana*, 203
- Tulipa, some garden species of, 241, 261
- Turin International Exhibition, 121
- Twin Squashes, 256
- U**
- ULSTER flower show, 74
- Umbellularia californica*, 366
- United Horticultural Benefit and Provident Society and the National Insurance Bill, 374
- University College, Reading, new hostel for women students at, 391
- V**
- VACCINIUM corymbosum, experiments in the culture of, 367
- Vancouver Island, horticulture in, 64
- Variety, what is a? 28
- Vegetables, 68, 115, 156, 212, 423
- Vegetation, a census of, 391
- Veltheimia viridifolia*, 161, 164, 235
- Veronica filifolia*, 250; *V. macrocarpa*, 235
- Veronics in Ireland, 156
- Viburnum Tinus* var. *lucidum*, 304; *V. tomentosum* var. *Mariesii*, 235
- Vine mystery, a, 298, 316, 353
- Vines failing to fruit, 320
- Vines, manures for, 219; red spider attacking, 284, 394; the forcing of, 170, 203, 235, 253, 284, 353, 418; the propagation of, from "eyes," 32; at the Mid Kent Nurseries, 428
- Vitis megalophylla*, 213
- W**
- WALFES, North, drought in, 353
- Walworth, flower gardening in, 250
- Wallace, Sir Matthew G., 9
- Wallflowers, the culture of, 387
- Warblers, the coming of the, 323
- Ward, Professor Marshall, biographical notice of, 411
- Warrants, Royal, for nursery and seed firms, 73, 90, 121, 138, 153, 169, 185
- Wart disease of Potatos, 120, 122, 138
- Waterlow Park, an April snow-scene in, 235
- Waverley Market, Edinburgh, and the public, 367
- Weather at Lambay Island, 285, 428; at Rothausted in 1910, 45; in Cornwall, 252; at Kingswear, South Devon, 428; in North Wales, 418
- Weeds in relation to soil, 370
- Weevils, to destroy, 288
- West Indies, Imperial Department of Agriculture in the, 75, 82, 101
- Wheat, the improvement of, 9
- White City exhibition, gardens at the, 138
- "White" medal of honour presented to Mr. Jackson T. Dawson, 73; to Prof. Charles S. Sargent, 11
- Williamson, William, lecture on, 328
- Willow timber for cricket bats, 48
- Willow trees killed by *Armillaria mellea*, 100
- Window boxes, prizes for, 132
- Winter-flowering shrubs, 65
- Wires attached to trees, 292, 324
- Wisley Gardens in spring, 334
- Wisley school of horticulture, 89
- Wistaria in South-west Scotland, 416; treatment of, 400
- Women gardeners' social gathering, 105
- Wood pigeons, the destruction of, 185
- Wood, T. B. (*A Course of Practical Work in Agricultural Chemistry for Senior Students*), 116
- Workhouse garden at Lewis, N.B., 188
- Worms in pots, to destroy, 16
- Worshipful Company of Gardeners and Queen Mary's Coronation bouquet, 152, 169; presentation to the Lord Mayor of London, 412; visit to Holland, 298
- Wright, Prof. Sir R. Patrick, 416
- Wright, Walter P. (*Popular Garden Flowers*), 373
- Y**
- YEW, poisonous properties of, 13; the Finlaystone, 293
- Yorkshire Gala, 57
- Young gardeners travel? should, 324, 374

SUPPLEMENTARY ILLUSTRATIONS.

BARON HILL, BEAUMARIS (February 25)
 BEAUMONTIA FRAGRANS (May 20)
 BELVOIR CASTLE, GRANTHAM, SPRING FLOWER-GARDENING AT (March 25)
 BRASS-CATTLEYA DIGBYANO-MOSSLE "WESTONBIRT VARIETY" (Coloured Plate) (January 7)
 BRUSSELS STATE BOTANICAL GARDENS, VIEWS IN (June 10)
 BUDDLEIA OFFICINALIS (April 1)
 CARDIFF, VIEWS IN CATHAYS AND ROATH PARKS (April 15)
 CHELSEA ROYAL HOSPITAL, VIEWS OF THE GROUNDS AND PENSIONERS GARDENS AT (March 11)
 CYPRIPEDIUM TIBETICUM IN ITS CHINESE HABITAT (June 24)
 DIOSPYRUS KAKI FRUITING IN THE SUCCULENT HOUSE, NEW GARDENS (January 21)

LILIUM LEUCANTHUM (April 29)
 LLANOVER, MONMOUTHSHIRE (May 6)
 NELUMBUM SPECIOSUM AND PONTEDERIA HASTATA IN THE BOTANICAL GARDEN, UDAIPUR, INDIA (February 11)
 ODONTOGLOSSUM GROGANIÆ (February 4)
 OLEARIA SEMIDENTATA (January 28)
 ONCOBA ROUTLEDGEI (May 27)
 POWERSCOURT, CO. WICKLOW, VIEWS OF (April 8)
 RHODODENDRON IRBORATUM (June 3)
 RHODODENDRON "PENGARR" (July 1)
 SUTTON PLACE, GUILDFORD (June 17)
 SYMPHORICARPUS OCCIDENTALIS (February 18)

(For List of General Illustrations in the text see next page.)

LIST OF ILLUSTRATIONS

- A**
- ADIANTUM tenerum*, a fertile plant of, 75; frond of, which developed indusia, 75
- Alexander, Mr. H. G., portrait of, 6
- Allsop, Mr. A. J., portrait of, 6
- Alpine plants, a frame for wintering, 212
- Angraecum pellucidum*, 18
- Apios tuberosa*, 4
- Archway decorated with flowers at Johannesburg, 155
- Armeria caespitosa* in the Royal Botanical Garden, Edinburgh, 211
- Ashton Court, Bournemouth, Rhododendrons at, 392
- Auricula* Henry Wilson, 317
- B**
- BARNARD, Mr. H. A., portrait of, 298
- Baron Hill, Beaumaris, views in the gardens at, 122, 123
- Beaumontia grandiflora* at Los Angeles, California, 306
- Beckett, Mr. E., portrait of, 7
- Beech tree, removing a large, at Warren House, Minley, Hampshire, 133
- Begonia Gloire de Sceaux*, large plants of, 373
- Belvoir Castle, Grantham, entrance to the kitchen garden at, 185
- Berberis Thunbergii* "Silver Beauty," 10
- Bernard, Professor Noël, portrait of the late, 192
- Blake, George, portrait of the late, 47
- Bomarea pataocensis*, inflorescence of, 227; fruits of, 372
- Brasso-Cattleya* *Senateur de Bast*, 157
- Brotherston, Mr. R. P., portrait of, 7
- Buitenzorg Botanic Garden, plant shelters at, 143; the *Canarium* walk in, 149
- Buitenzorg, Java, view in, 85
- Bulbophyllum cylindraceum*, 3; *B. tremulum*, 291
- C**
- CANARINA *Campanula*, 249
- Canker of Rose caused by *Coniothyrium Fuckelii*, 293
- Cardiff public parks, views in the, 244, 245, 245
- Carnations, basket of, presented to Queen Mary, 427
- Carter's, Messrs. James & Co., exhibit at the R.H.S. show, 187
- Cattleya Trianae* variety *Hydra*, 103
- Cineraria Beauty of Cambridge*, 307
- Coleogyne burfordensis*, 331
- Coniothyrium Fuckelii* causing canker in Rose, 293
- Crataegus gemmosa* flowering in Genesee Valley Park, Rochester, U.S.A., 37
- Cup presented by Messrs. Clay & Son at the Festival of Empire exhibition, 411
- Cyananthus microphyllus*, 42
- Cymbidium Cochranii*, 180
- Cymbidium langleyense* (Vitchell), 146
- Cypripedium* Charles Shadlin, 50; *C. Duke of Camaragd*, 83; *C. luteum*, 402; *C. tibeticum*, 403; *C. Vogelzang*, 309
- D**
- DAHLIA Mrs. Douglas Fleming, 282; *D. Sweetbairn*, 282; *D. Mne. van den Dael*, 284
- Dahlias in Mr. Edward Mawley's garden at Berkhamstead, 276, 277
- Dale Nurseries, Bampton, Canada, views of the, 177, 178
- Daniels, George, portrait of the late, 128
- Davidia involucreata*, a flowering spray of, 329
- Dendrobium Goldiei*, 36
- Dia-Cattleya Sanderae*, 290
- Dianthus neglectus*, 415
- Dutch garden, exhibited at Boston, U.S.A. flower show, 293
- Dunn, Mr. John, portrait of, 6
- F**
- FLORAL archway erected at Johannesburg, 155
- Fokienia Hodginsii*, 66, 67; structure of wood of, 84; seedling of, 253
- Foster, Charles, portrait of the late, 127
- Frame for wintering Alpine plants, 212
- Freesia Conquest*, 196
- G**
- GADD, Henry, portrait of the late, 192
- Galanthus Melvillei* major, 34; *G. William Thomson*, 35
- Gardeners' Company presenting the Lord Mayor of London with garden produce, 412
- George, James, portrait of the late, 175
- Goodrich Court, Herefordshire, 257; views in the gardens at, 253, 259
- Graff, portrait of the late Simon de, 288
- Grevillea robusta compacta*, 375
- Gumbleton, William E., portrait of the late, 266
- H**
- HALES, Stephen, portrait of, 88
- Hippeastrum Queen Mary*, 169
- Hippeastrums* in Messrs. W. Bull & Sons' nursery, Chelsea, 315
- Horticultural traders, British, in America, 219
- Hudson, Mr. James, portrait of, 7
- Hydrangea hortensis* Mne. E. Moul here, 204
- I**
- IRIS Lour, 365
- J**
- JAPANESE garden exhibited by Messrs. J. Carter & Co. at the Temple Show, 355
- Java, view in Buitenzorg, 85
- L**
- LACKEY meth. the, 274
- Lachia anceps* Chamberlainiana, a fine specimen of, 78
- Laelio-Cattleya* *Cranstoniae* "Westonhit variety," 27
- Laelio-Cattleya Fascinator-Mossiae*, 422
- Laelio-Cattleya Germania*, 325
- Lagenophora Forsteri* in the Royal Botanic Garden, Edinburgh, 69
- Lantana*, roots of, attacked by *Sandal*, 21
- Lewisia* *Cotyledon*, 337
- Lilium tenuifolium* Golden Gleam, 336
- Lily of the Valley*, a house of, at the Dale Nurseries, Canada, 177
- Lycaste Locusta*, 260
- M**
- MALAYA, map illustrating the flora of, 362
- Mandevilla suaveolens*, seed-pods of, 30
- Map of Malaya illustrating a botanical expedition, 362
- Marliac, B. Latour, portrait of the late, 271
- Masdevallia pachyura*, 89
- Massic, Mr. W. H., portrait of, 61
- Mawley, Mr. Edward, inspecting his Single Dahlias, 276
- Mayes, Mr. George, portrait of, 156
- Medal, the "White," 11
- Medinilla magnifica* in Springburn Park, Glasgow, 226
- Mitonia Bleuana* Peetersiae, 274
- Moraine garden details of the construction of a, 100; plants on a, 116, 117
- Mummy or Crown Pea, the, 272
- N**
- NARCISSUS *Coronation*, 286; *N. Miss Willmott*, 275; *N. Queen of Hearts*, 275; *N. Socrates*, 275
- Nesting boxes used by the Selborne Society in the Brent Valley Bird Sanctuary, 254
- O**
- ODONTODA *rosefieldensis*, 308; *O. Vuylstekeae* var. *Lady Colman*, 213
- Odontoglossum* *Black Prince* The Dell variety, 332; *O. Ceres magnificum*, 12; *O. Coronation*, 315; *O. crispum* Peacock, 92; *O. Harwoodii*, 98; *O. illustrissimum* Queen Mary, 363; *O. Jeanette*, 194; *O. rosefieldense*, 163; *O. Swietenicolor*, 210
- Oenothera ovata*, 418
- Olearia Forsteri*, 51; *O. Haastii*, 52; *O. insignis*, 53; *O. macrodonta* in Glasnevin Botanic Garden, 57; *O. myrsinodes*, 59
- Oncidioida Cybele*, 404
- Oncoba Routhledgei*, 322; hermaproditic flower of, 323
- Oxalis enneaphylla*, 414;
- P**
- PEA, the Mummy or Crown, 272
- Pinguicula Rosei*, 82
- Pleiocarpa nutica*, a flowering plant of, 242
- Powerscourt, Co. Wicklow, view in the Japanese garden at, 213
- Primula Riddii* in the Royal Botanical Gardens, Edinburgh, 195; *P. Winteri*, 130
- R**
- RHODODENDRON *corona*, 334; *R. Cynthia*, 406; *R. indicum*, an exhibition group of, 159; *R. Littleworth corallina*, 335; *R. Smirnowii*, 417; *R. sublancoletum*, 342
- Rhododendron exhibition at the R.H.S. Hall, Messrs. J. Waterer & Sons, 352
- Rhododendrons at Ashton Court, Bournemouth, 392
- Roath Park, Cardiff, view in the, 234
- Rock-gardens exhibited at the Temple Show, 354, 357
- Rose canker caused by *Coniothyrium Fuckelii*, 293
- Rose garden at Sutton Place, Guildford, 387
- Rose house in the Dale Nurseries, Bampton, Canada, 178
- Rose Marcella, 251; *R. Orleans* Rose, 324; *R. Portia*, 353; *R. Sylvia*, 344
- Roses, basket of, presented to Queen Mary, 423
- S**
- St. JAMES'S Park, London, views in, 200, 201
- Sandalwood trees in Southern India, 20; seedlings of, 21
- Santalum album* in Southern India, 20; seedlings of, 21; branch of, with "Spike" disease, 21
- Saxifraga* × *Bursiculata*, 158; *S. Obristii*, 229; *S. oppositifolia* on a Swiss moraine, 117; *S. Petraschii*, 172; *S. Sundermannii*, 228
- Sedum pilosum*, 347
- Sherwood, Mr. N. N., portrait of, 302
- Snow scene in a London park in April, 235
- Solandra Hartwegii*, flower of, 383
- Spoon for pouring melted bees-wax, 71
- Sterilisation of soil by heating, Tomatos showing the effects of, 410
- Sutton Place, Guildford, views in the gardens at, 385, 386, 387
- T**
- TEMPLE Show, exhibits at the, 344, 345, 347, 354, 355, 356, 357
- Thlaspi rotundifolium* growing on a Swiss moraine, 116
- Tomatos grown in sterilised and non-sterilised soil, 410
- Trachymene corulea*, 114
- Transplanting a large Beech tree, 133
- Frees, methods of attaching wires to, 292
- Tulipa Batalinii* in Mr. Bowles' garden, 382
- V**
- VELTHEIMIA *viridifolia*, 164
- W**
- WALKER, James, portrait of the late, 111
- Warren, Mr. W. Hedley, portrait of, 5
- Waterlow Park, London, an April snow-scene in, 235
- "White" medal, the, 11
- Wires, attaching, to trees, 292
- Worshipful Company of Gardeners' gift to Queen Mary, 427; to the Lord Mayor of London, 412

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CONTENTS.

American notes— The "White" medal of honour .. 11 Apice tuberosa .. 4 Apple "Saunson" .. 16 Bailey, Mr. F. Manson .. 9 Banana culture in England .. 13 Belvedere, rare plants at .. 10 Berberis "Silver Beauty" .. 10 Books, notices of— Orchids .. 4 Publications received .. 9 Botanic garden for South Africa, proposed .. 8 Bulb industry of the Netherlands, the .. 9 Carnation, the perpetual-flowering .. 13 Crab Apple, the .. 13 Cultural memoranda— Cinerarias .. 10 Flowering plants, the forcing of .. 16 Flowers out of season .. 9 Fruit trees by road-sides .. 9 Gardener's silver wedding, a .. 5 Gooseberry-mildew, American .. 13 Iris histrioides .. 13 Law notes— Failure of a nurseryman .. 16 Market fruit garden, the .. 4 The past year .. 1 Novelties of 1910 .. 1	Nursery notes— Carter, Jas. & Co. .. 12 Odontoglossum ceres magnificum .. 12 Orchid notes and gleanings .. 9 Bulbophyllum cylindricum .. 3 Plant names in public parks .. 13 Poisonous shrubs .. 13 Rosary, the— Cultural notes for January .. 2 Hybrid Wichuraiana .. 3 Roses .. 3 Scotland, notes from .. 9 Shill, Mr. J. E. .. 8 Societies— North of England Horticultural .. 9 Royal Horticultural .. 13 Surveyors' Institution .. 9 Soil, improving, of allotment gardens .. 12 Trade notes .. 15 Trees and shrubs .. 9 Specimens at Arley .. 11 Week's work, the— Flower garden, the .. 7 Fruits under glass .. 7 Hardy fruit garden .. 5 Kitchen garden, the .. 6 Orchid houses, the .. 6 Plants under glass .. 7 Public parks and gardens .. 6 Wheat, the improvement of .. 9
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ILLUSTRATIONS.

Alexander, Mr. H. G., portrait of .. 6 Allsop, Mr. A. J., portrait of .. 6 Apice tuberosa .. 4 Beckett, Mr. E., portrait of .. 7 Berberis Thunbergii "Silver Beauty" .. 10 Brasso-Cattleya Digbyano-Mossie "Westonbirt variety" (coloured plate) .. 10 Brotherston, Mr. R. P., portrait of .. 7 Bulbophyllum cylindricum .. 3 Dunn, Mr. J., portrait of .. 6 Hudson, Mr. James, portrait of .. 7 Medal, the "White" .. 11 Odontoglossum ceres magnificum .. 12 Warren, Mr. W. Hedley, portrait of .. 5
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NOVELTIES OF 1910.

A CONSIDERATION of the Orchids certificated by the Royal Horticultural Society during 1910 clearly indicates that the hybridist and the importer of natural species have shared the honours in fairly equal proportions. It may also be noted with pleasure that many species of the class usually denominated "botanical," to distinguish them from the more showy sorts, have been presented at the exhibitions by such renowned growers as Sir Trevor Lawrence, Bart., K.C.V.O., Sir Jeremiah Colman, Bart., and Messrs. Sander & Sons.

The hybridist has produced some excellent Cypripediums, Cattleyas and Laelio-Cattleyas, but no new hybrids have been obtained of sufficient merit to distinguish them from the general collection. The Odontoglossums which have furnished beautiful hybrids in several previous years have been less productive of novelties possessing superlative merit.

Lieut.-Col. Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), has led by a long way in the matter of showing, this being true both in the quality and in the number of his certificated plants. His honours include nine First-class Certificates and 18 Awards of Merit. The certificates were awarded for Cattleya Dusseldorfii Undine and C. Robert de Wavrin, both Westonbirt varieties; C. Warszewiczii Low's variety, of very fine colour, and Lycaste Skinneri hellebensis, the largest and richest coloured Lycaste; Orlontioda Bradshawii Westonbirt variety, like a scarlet flaked Orlontoglossum; Cypripedium Minotaur and C. Shogun; Laelio-Cattleya Berthe Fournier magnifica, and Vanda corulea "Westonbirt variety." This Westonbirt variety of Vanda corulea, like its companion V. corulea "Bluebeard," which received an Award of Merit on December 6, has flowers almost entirely of a bright indigo-blue. Other Westonbirt Orchids which received Awards of Merit were Cypripedium Atlas and C. Pantum, both good and distinct hybrids; Cattleya Miranda "Westonbirt variety," C. Hardyana Holford's variety, C. Ardens, C. Dree magnifica, C. Warszewiczii Othella, C. Pauline, and C. Percivaliana "Westonbirt variety." Cypripedium Dante rotundilobum; Laelio-Cattleya Goldfinch "Westonbirt variety," and L.C. Golden Oriole variety, both these Laelio-Cattleyas having yellow flowers suffused with red; L.C. Ortrude magnifica, L.C. Olivia; Miltonia vexillaria "Snowflake;" and Odontoglossum crispum "Magnum Bonum." All these plants, like others staged by Mr. Alexander, were fine examples of good culture, and in several cases Cultural Commendations were awarded by the Orchid Committee.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), constant in his partiality for pretty species, although not unminimally of the claims of the hybrids, showed about a dozen interesting and rare species, which gained Botanical Certificates. Megacalanium triste, M. fuscum, Bulbophyllum Rhizophora and Polystachya paniculata were singular species from Africa; Dendrobium Karwinskii and Bulbophyllum polyblepharis were miniature curiosities of great interest; B. exaltatum had sprays of feather-tipped flowers. Lyparis rhodochila bore erect spikes of small flowers with orange-scarlet lip. Other certificated plants included Dendrobium Bullianum, Theclora gomezoides and Polystachya bracteosa. Or hybrids, Sir Trevor Lawrence exhibited some very good crosses of Dendrobium signatum with yellow flowers of an uncommon tint, and several Cattleyas and Laelio-Cattleyas; Awards of Merit being awarded for L.C. Trinyra and Epi-Cattleya Nebo. In the matter of fine growth, his clever Orchid grower, Mr. W. H. White, received Cultural Commendations for Habenaria Uganda, Scrochilus Hartmanni, Oncidium incurvum (for a specimen cultivated at Burford for over 25 years), Platyclinis filiformis, Dendrobium Hookerianum and Lycaste costata.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), also favouring both species and hybrids, with a leaning towards rare species, has a good record to his credit for plants shown before the Orchid Committee. He received an Award of Merit for Calanthe densiflora, a fine yellow species, and Botanical Certificates for Dendrobium arcuatum, a pretty and distinct Javan species, probably not in any other collection; Dendrobium speciosum nitidum, the large specimen shown having 46 spikes, and gaining another Cultural Commendation to several similar awards Mr. Collier has won during the year, and Dimris longifolia, a yellow and purple Australian terrestrial. During the past year, some interesting hybrids of Dacryma bicolor-

tum, Spathoglottis, Sobralias and Dendrobiums raised at Gatton Park have been shown, Awards of Merit being obtained by Dendrobium Duchess of Albany and D. Mrs. Arnton Fenton, both fine productions, and Odontoglossum Thompsonianum "Gatton Park variety."

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), whose collection is rich in showy Orchids, secured First-class Certificates for Cattleya Rhoda "Fairlawn variety," and C. Iris "King Edward VII.," both among the finest coloured hybrids of their class, and Awards of Merit for Orlontioda Goodsoniae of a rich scarlet colour, Orlontoglossum Ceres "Goodson's variety," and Cattleya Schroderae "The Prince." Mr. Goodson showed the richly coloured Sophro-Laelio-Cattleya Alethica and other good hybrid Orchids at most of the meetings of the year.

J. GURSEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), received Awards of Merit for Odontoglossum Arnoldianum, a pretty hybrid, and Catasetum fimbriatum aureum. Among other novelties, he showed the prettily-spotted Odontoglossum ardentissimum "Starlight," the finely coloured Sophro-Laelio-Cattleya Olive and the handsome Cypripedium Priscilla.

DE BARR CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), has shown many new Odontoglossums during the past year, his very fine Orlontioda Charlesworthii "Theodora" gaining a First-class Certificate. The new Orlontioda gattoniensis rosefieldensis (the type of which was first shown by Sir Jeremiah Colman, Bart.) and Odontoglossum regale rosefieldense secured Awards of Merit, while the quaint beauty of Orlontioda Senenaca (C. Neesiana x O. Hunnewellianum) seemed to promise a desirable hybrid when it is matured.

H. J. BROMLOW, Esq., Rann Lea, Rainhill, Lancashire (gr. Mr. Morgan), a great lover of good Cypripediums, secured Awards of Merit for C. Lord Wolmer, C. Lecanum Excelsior, and C. Reginald Young, all fine hybrids, well worthy of Mr. Bromlow's collection; F. MEXTETH OGLVIE, Esq., Oxford, obtained a First-class Certificate for Lycaste Skinneri armeniana; His Grace the Duke of Marlborough (gr. Mr. G. Hunter) showed Laelio-Cattleya limosa magnifica, TARBOT CLIFFES, Esq. (gr. Mr. Floate), L.C. Aphrodite "Mark Hambourg," W. P. BURKINSHAW, Esq., Healy, Hull, obtained a First-class Certificate for Miltonia vexillaria "Hesse variety;" Mrs. NORMAN COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman), a First-class Certificate for Orlontioda ardentissimum "Norman Cookson," and Awards of Merit for the pretty Cypripedium Angela, and the large white Orlontioda Cooksonae gigantea.

Mrs. BISHOFFSHEIM, The Warren House, Stanmore (gr. Mr. Taylor), obtained a Botanical Certificate for a blue Disa of great interest—Disa mustii, and this has been crossed with D. grandiflora in the Warren House Gardens with success; J. S. BERGHEIM, Esq., Belsize Court (gr. Mr. H. A. Page), gained a Botanical Certificate for Angreocum pellucidum, and GRANEY WILSON, Esq., a similar award for Pleurothallis ardentata.

R. G. THWAITES, Esq., Chislington, Streetly, Loughborough (gr. Mr. J. M. Black), reiser of the beautiful scarlet Sophro-Cattleya Dora, the mauve-tinted Orlontioda Thwaitesii, and many

other fine hybrids, received Awards of Merit for Cattleya Adula "Thwaites' variety," a finely-coloured hybrid, and Odontioda Cecilia, a very distinct flower with cream-white ground and red markings.

WALTER COBB, Esq., Normanhurst (gr. Mr. C. J. Salter), was awarded a First-class Certificate for *Sophro-Cattleya Doris* "Cobb's variety," the largest and best scarlet *Sophro-Cattleya*; and an Award of Merit for *Odontoglossum Lawrenceanum* "Cobb's variety."

WILLIAM THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevens), scored with *Odontioda Vuylstekeae* "Walton Grange variety;" H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), with *Cymbidium Lowgrinum* "Rosslyn variety;" SAMUEL LARKIN, Esq., Haslemere (gr. Mr. Hale), for *Cattleya lucida*, a very pretty and floriferous hybrid; and W. R. LEE, Esq., Plumpton Hall, Heywood, gained Awards of Merit for the fine reddish-claret-coloured *Odontoglossum Rouge Dragon* and *O. Ceres* "Plumpton Hall variety."

A pathetic interest attaches to the fine claret, purple-lipped *Phaio-Calanthe Schröderiana* raised at the Dell Gardens by Mr. Ballantine, and for which a First-class Certificate was given on March 8, it being the last Award given during the lifetime of Baron Schröder.

NURSERYMEN.

MESSRS. SANDER & SONS, St. Albans, both in the number of the awards obtained and in the quality of their exhibits, stand first in rank amongst nurserymen exhibitors. This firm secured First-class Certificates for *Vanda cœrulea Sanderæ*, the first variety with pink flowers; *Phalenopsis casta superbissima*, one of the best natural hybrids; *Odontoglossum splendens* and *O. Memoria King Edward VII.*, both fine enough to satisfy the most exacting taste; *Miltonia vexillaria Lambeauiana*, M. v. *Memoria Baron Schröder*, one of the attractions of the Temple Show; *Cypripedium "Princess Mary"* (*C. niveum* × *C. Helen II.*), and the large and handsome *Cypripedium Charlesworthii Temeraire*. Awards of Merit were recommended for *Phaius Cooperi*, which also obtained a Botanical Certificate; *Oncidium Sanderæ*, a distinct addition to the class of Butterfly Orchids; the white *Houlletia Sanderæ*, *Sobralia Cliftonii*, *Lycaste peruviana*, *Cypripedium Curtisii* "Sanders' variety," the largest and richest coloured yet shown; *Cattleya Triamæ* "Magali, Sander," *C. Mendelii* "King George V.," *C. Dietrichiana*, *Odontoglossum Black Prince*, *O. eximium* "Emperor," and the showy *Cypripedium Britannia*. *Bifrenaria bicornaria* and *Brassia Forgetiana*, two interesting species, gained Botanical Certificates.

MESSRS. CHARLESWORTH & CO., Haywards Heath, Sussex, on January 25, were awarded a First-class Certificate for *Anguloa Cliftonii* with citron-yellow flowers marked with violet-purple and quite distinct from any other species. At the Temple Show the firm gained a similar award for *Cattleya Lawrenceana* "Mary Regina," the first albino of this species, and *Sobralia Ruckeri Charlesworthii*. An Award of Merit was given at the Temple for *Cattleya Mendelii* "Queen Maud," and similar awards at other times were obtained for *Odontoglossum Ceres*, whilst the variety "magnificum" gained a First-class Certificate at the last meeting of the year. Further Awards of Merit were granted for *Odontoglossum Cravenianum*, *O. Ceres*, *Disa lacera multifida*, *Pescatorea lamellosa*, which appears not to have been shown before; *Cattleya Linegea*, *C. Basil*, *Sophro-Cattleya Hon.* Barbara Wilson, a very finely-coloured and distinct flower; and *Miltonia Warszewiczii leucocila*. A Certificate of Appreciation was awarded for the very remarkable hybrid *Oncidioida Charlesworthii* (*Oncidium incurvum* × *Coelioda Noezliana*), a singular cross which, like others raised by Messrs. Charlesworth,

were thought to be impossible only a few years ago.

MESSRS. JAS. VEITCH & SONS, Royal Exotic Nurseries, Chelsea, showed many interesting hybrids, especially *Cypripediums*, one of the best being *C. Iolanthe*, which gained an Award of Merit on November 22.

MESSRS. STUART LOW & CO., Bush Hill Park, constant exhibitors of good things, were awarded First-class Certificates for *Cattleya Mendelii* "Stuart Low," one of the best of pure white *Cattleyas*, and *C. O'Brieniana alba*, an equally good albino. Messrs. Low & Co. were also awarded Botanical Certificates for *Stanhoepa saccata* and *Cyrtopodium Andersonii*, not new, but interesting, plants.

MESSRS. J. & A. A. McBEAN, Cooksbridge, the great *Odontoglossum* growers, received Awards of Merit for *Odontoglossum Gladys* "W. H. Cheal," an elegant and showy hybrid; *Miltonia Phalenopsis* "McBean's variety," large and of fine colour, and *Cattleya Mendelii* "Pearl McBean." They also showed *C. Dowiana alba* and *Odontoglossum Ardentissimum* "Doris," which were exceptionally good.

Mr. E. V. Low, Vale Bridge, Haywards Heath, obtained a First-class Certificate for *Cypripedium King George V.*, which was pronounced to be one of the finest *Cypripediums* of the year, and Awards of Merit for the scarcely less stately *C. Waterloo* and *Oncidium Mantinii Lowii*.

MESSRS. MANSELL & HATCHER, Rawdon, Yorks., secured, at the Temple Show, a First-class Certificate for the very pretty white, rose-tinted *Cattleya Mendelii* "Princess Victoria."

CONTINENTAL EXHIBITS.

Mons. CHAS. VUYLSTEKE, Loochristy, Ghent, showed some grand hybrid *Odontoglossums* at the Temple Show, and four of these received awards, but, unfortunately, the flowers were not given to the R.H.S. for the purpose of painting, therefore, the awards were withheld.

The following new and noteworthy Orchids have been illustrated in the *Gardeners' Chronicle*, during 1910:—

- Bulbophyllum Binnendijkii*, Feb. 5, p. 84.
- Calanthe lilacina*, Jan. 29, p. 66.
- Cattleya Emil Karlhausi*, Supp. May 28.
- Cattleya Mendelii* "Stuart Low," July 15, p. 35.
- Cattleya Rhodia* "Fairlawn variety," Sept. 3, p. 174.
- Cattleya Portia* "Larkins variety," Nov. 26, p. 386.
- Cattleya Warszewiczii alba*, July 16, p. 34.
- Colognye Lawrenceana*, May 21, p. 335.
- Cypripedium Charlesworthii Temeraire*, Dec. 10, p. 424.
- Cypripedium Gaston Bultel*, Dec. 31, p. 485.
- Cypripedium King George V.*, Dec. 17, p. 412.
- Cypripedium Minotaur*, Dec. 10, p. 425.
- Cypripedium Britannia*, Nov. 5, p. 331.
- Cypripedium Princess Mary*, Nov. 5, p. 330.
- Cypripedium Mrs. F. Sander*, Jan. 8, p. 19.
- Cypripedium Reginald Young*, Dec. 3, p. 406.
- Cypripedium Shogun*, Oct. 1, p. 250.
- Cymbidium Dunlop-Lowianum*, June 18, p. 407.
- Cymbidium Dundas of Albany*, Feb. 26, p. 139.
- Dendrobium Mrs. Fenton Arntson*, Mar. 5, p. 119.
- Eria phycostylodes*, June 11, p. 378.
- Laelio-Cattleya Deceatiana*, Oct. 15, p. 274.
- Laelio-Cattleya Berthe Fournier* "magnifica," Sept. 17, p. 250.
- Laelio-Cattleya Olivia*, Dec. 10, p. 431.
- Laelio-Cattleya Walter Gatt*, Nov. 19, p. 375.
- Miltonia Blenana* "Queen Mary," May 28, p. 351.
- Miltonia vexillaria Snowflake and virginala*, Supp. Sept. 17.
- Miltonia vexillaria "Memoria Baron Schröder"*, May 28, p. 375.
- Odontioda King George V.*, May 28, p. 349.
- Odontoglossum ardentissimum* "Norman Cookson," April 16, p. 242.
- Odontoglossum Memoria King Edward VII.*, May 28, p. 353.
- Odontoglossum Rouge Dragon*, Dec. 24, p. 463.
- Polystachya paniculata*, Dec. 24, p. 462.
- Sobralia macrantha alba*, Supp. Sept. 3.
- Vanda cœrulea Sanderæ*, Dec. 3, p. 415.
- Vanda suavis pulchra Clifton's variety*, Supp. May 7.

A review of the work of the past year takes the mind back to the much earlier days of Orchid hybridisation, when Messrs. Jas. Veitch & Sons produced good batches of the handsome *Laelio-Cattleya Canhamiana*, *L.-C. Dominianum*, and many others which are still amongst the best hybrids. If these are compared with subsequent productions in the same class, and especially with those raised during the past year, it proves that Messrs. Veitch had some justification for despairing of ever raising future hybrids of greater floral beauty.

(To be continued.)

THE ROSARY.

CULTURAL NOTES FOR JANUARY.

THE mild weather and general humidity of the season caused a late ripening of the shoots, and cuttings of many varieties may still be rooted. This applies especially to the Wichuriana varieties, and the strong-growing Tea and China Roses. Suitable shoots of almost all sorts of the dwarf-growing *Polyantha* type may still be rooted, although it would have been better to have inserted them earlier in the season. *Crimson Rambler*, *Blush Rambler* and *Dorothy Perkins* with its numerous sports, may still be increased from cuttings; in many cases the wood was none too ripe for the purpose before this date. Frau Karl Druschki, Conrad Ferdinand Meyer, and its sweet-scented white sport *Nova Zembla*, strike from cuttings as freely as the Brier and Manetti stocks. Do not remove the lower buds, as is done with shoots intended for stocks, for the sucker-like growths resulting from these will form the most valuable part of the plant. It is well to insert the cuttings deeply, leaving only about an inch out of the ground, as the soil will be sure to sink considerably.

All arrears of planting should have been finished, otherwise it will be better to delay the work until the end of February, or the most favourable time in that month. Planting on wet and soddened ground should be avoided as far as possible. Planks or wide boards are very serviceable when planting in freshly-trenched ground, especially during a wet season such as the present one.

Much good will result by cutting away superfluous wood from Roses trained on arbours and pergolas during suitable weather in January, thus lessening the work during the ordinary pruning season, and exposing the shoots to the light and air. Sufficient importance is not usually attached to the cleansing of the stems of old standard Roses. Oftentimes these are infested with mosses and lichens, which may be removed if the bark is rubbed with a piece of coarse sacking, using the back of the knife to scrape the main branches near to the stem. If, in addition to this, the plants are dusted over with a little fresh lime, the cleansing will be more complete. Great advantages also result from lifting and replanting old and deteriorated standard Roses. Frequently a plant is unhealthy through exhaustion caused by the presence of sucker-like roots, which need to be cut away.

It often happens, too, that a few standards are killed by frost in early spring, notwithstanding they have apparently passed through the winter unharmed by cold. But the late frosts often have the worst effect on standard Roses, especially those with stems that are hidden to such an extent that the sap cannot circulate freely. Where standard plants fail, they leave a gap that is difficult to furnish, and I would recommend that a few plants be potted up at once and plunged in a cool, sheltered border for filling up such blanks at pruning time.

ROSES UNDER GLASS.

January is one of the most important months in the Rose house, for great care and attention will be needed to keep the plants healthy. Often there is a regrettable delay in using remedies against mildew and insect pests. Mild measures will do if they are adopted early, and will be less harmful to the tender shoots. It is far better to give two or three weak applications of any specific than one powerful dose that may harm the tender growth. Flowers of sulphur is not used so largely as it should be in most insecticides, and I would advise a little more of this to be stirred in the various specifics used for syringing. Always keep the solution well stirred during its application, so as to get a slight deposit

of sulphur on both surfaces of the foliage. The affording of proper ventilation is an important detail in growing Roses under glass, and especially at this stage. It sometimes happens that the fires are mended too late in the morning to secure the requisite heat before the sun becomes powerful. This necessitates ventilation, which exposes the plants to a chill early in the morning. Liquid manures should not be given until the plants are in an active condition of growth; nor is it wise to use strong doses of liquid fertilisers, it being better to apply them weak and more often. Mildew is not always caused by draughts; my own observations have convinced me that it follows a check of any kind. Dry conditions at the roots, or the use of strong stimulants, may cause a predisposition in the plants to

favour as this type. An exceptionally fine effect has been produced in a remarkably short space of time at Aldenham House Gardens, where an iron fence 4 feet high and fully a quarter of a mile long has been covered mainly with these Roses; the neat growth and glossy green foliage of the plants form an admirable covering for a fence of this description. One of the best is Dorothy Dennison, a pink sport of Dorothy Perkins; the plant is free in flowering, and a vigorous grower, the blooms lasting fresh for a long time. White Dorothy is also a valuable variety, as it is later coming into flower than any others of the type. Mme. Alice Garnier is another desirable sort, the blooms being pale pink on a yellowish ground, and they are produced from July until October. Other excellent varieties include Alberic Bar-

ORCHID NOTES AND GLEANINGS.

BULBOPHYLLUM CYLINDRACEUM.

At the meeting of the Royal Horticultural Society on December 5 last, Messrs. Sander & Sons, St. Albans, exhibited the curious species, illustrated in fig. 1. It is the *Bulbophyllum cylindraceum* of Lindl. *Gen. et Sp. Orch.*, 53; *B. Khasyanum* Griff. *Notul.* iii., 284, and *B. imbricatum* of the same author, 289. The last name has been applied to it in English gardens, although the *B. imbricatum* Lindl. is a tropical African species, whereas *B. cylindraceum* is Indian, the plant illustrated being imported from Burma. This locality is not given in *Flora of British India* v., 765, whilst the

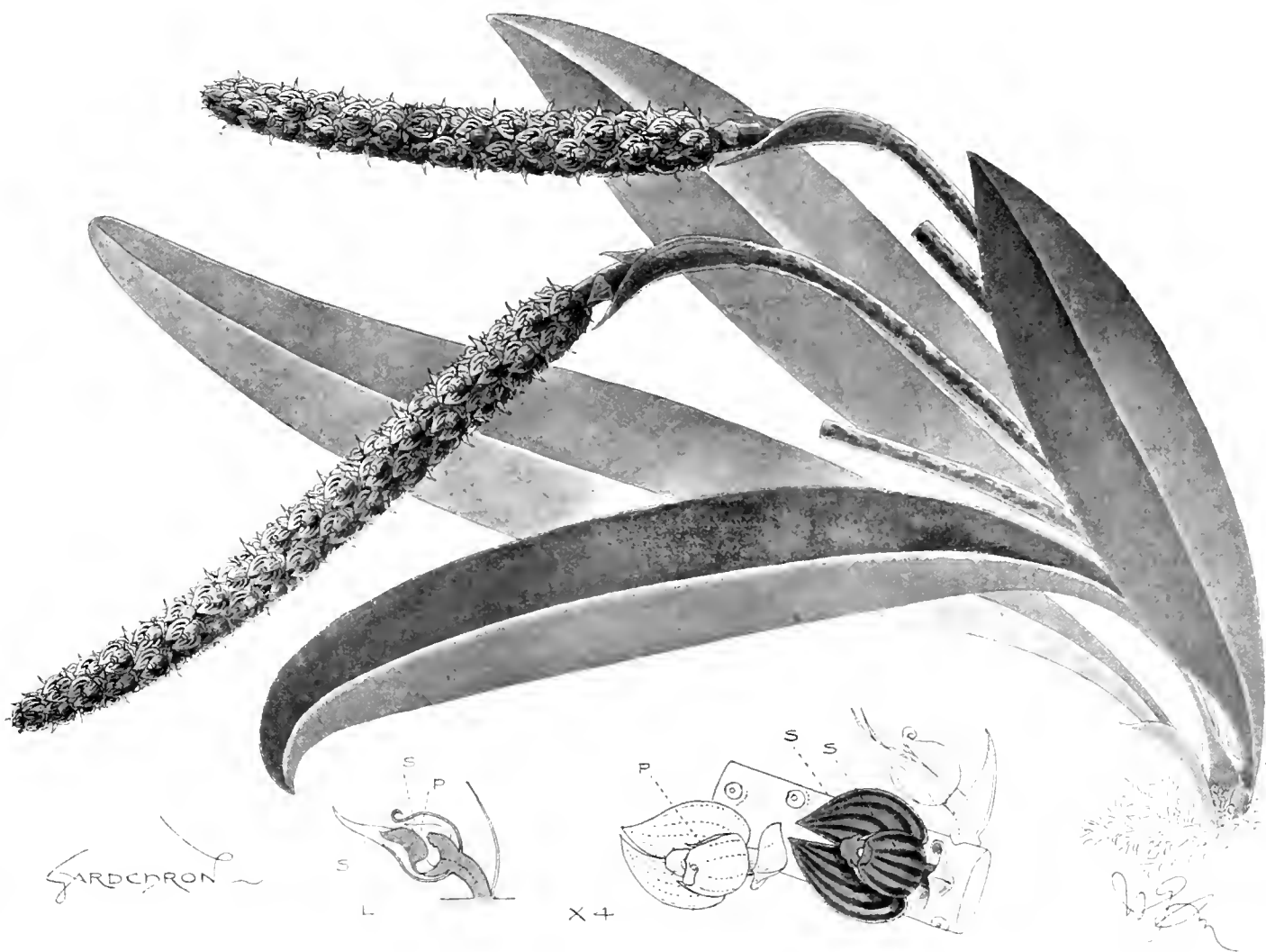


FIG. 1.—BULBOPHYLLUM CYLINDRACEUM: FLOWERS COLOURED PINK TO DEEP PURPLE.

become affected. Liquid manure may be given freely to plants that are root-bound, but it should not be applied to newly-potted plants until the roots have thoroughly permeated the fresh soil. Maintain an atmospheric temperature as near to 50° at night time and 65° at midday as can be managed, never hurrying the plants until growth is active. Undue haste in the early stages of forcing is often responsible for "blind" or flowerless growths. *Practice.*

HYBRID WICHURAIANA ROSES.

In addition to the varieties named by *A. P.* (see vol. xlviii., October 8, p. 261), the sorts enumerated below are deserving a place in any collection. As *A. P.* states, no other section of climbing Roses has advanced so quickly into

bier, creamy-white to canary-yellow with darker yellow buds; Pink Roamer, having exceptionally showy silvery-white blooms, the single flowers being freely produced; René André, a shade of saffron-yellow with red buds; Sweetheart, pure white, small double blossoms, showing to advantage against the dark foliage; Excelsa, crimson; Cougina, pink; and Shower of Gold, of the shade found in W. Allen Richardson but paler.

I was pleased to see *A. P.* refer favourably to *Gardenia* in a recent issue. I have long regarded this Rose as very valuable, both for the charming buds, which are of a rich yellow tint, and for the continuous manner in which the blooms are produced from June until November. *E. M.*

species is recorded as non-Burman in Grant's *Orchids of Burma*. Its pseudo-bulbs are rudimentary, and in habit the plant resembles *B. spathaceum*. The flowers are curiously flattened and closely arranged. They vary in colour in different plants from pink to deep purple; those of the specimen illustrated having a whitish ground heavily marked with deep claret-purple. An interesting feature in the structure of the flower is the manner in which the tip of the upper sepal curls back as the flower approaches maturity, thus opening up the passage over the labellum to the column and facilitating pollination by insects visiting the flower in search of food. The species is not showy, but the structural arrangement of the flowers will amply reward those who examine them with a good lens.

NOTICES OF BOOKS.

ORCHIDS.*

(See Supplementary Illustration. Coloured Plate.)

THERE are numbers of people anxious to attempt the culture of Orchids. Mr. James O'Brien's volume will encourage them, first, by proving that Orchids, like other plants, are capable of being understood by anyone who really desires to understand them; and, secondly, that when once understood, the cool species, at any rate, are not less tractable than common greenhouse plants. So much is this the case, that the author of this book declares that even the householders in suburban districts who have but one conservatory, may, if they choose, keep that structure furnished with Orchids at a less expenditure of time and money than is necessary for the Palms, Ferns, and other species usually employed for the purpose.

Chapter I. is devoted to an account of the rise and progress of Orchid culture. Commencing in 1735, with *Bletia verecunda*, which was the first exotic Orchid to flower in the British Isles, the important dates are enumerated and historical notes given in a clear and brisk style.

Following a short account of the structure of Orchid flowers, and a chapter on the difficulties to be overcome in respect to cultivation, there is a chapter on the structure of the Orchid house. One of the notable improvements in structure is warmly commended by Mr. O'Brien, namely, the abolition of all side glass and hinged ventilators on a level with the plants. The greatest success in growing Orchids has been obtained in houses where the brick side-wall is carried up to the eaves, and the floor is formed of the natural earth covered with an open wood-work trellis. Short articles on the methods of heating, the best kind of staging, and the various means of preventing the sun's rays from scorching the plants are given in a manner which the amateur will appreciate.

The uses of baskets and pots and the methods of staking and fixing Orchids are explained in detail, and amateurs are warned, when watering suspended pots or pans, not to allow the water to drip on to other plants. It is just as necessary to warn them against the somewhat common habit of allowing suspended plants to become so dry as to greatly hinder their power of growth.

Amateurs will get much information from the remarks on watering. The danger of applying manures cannot be impressed too much on the mind of the grower. Unless the subject is thoroughly understood and the practice carried out by experienced hands, failure will more probably result than success. Mr. O'Brien's statement that no Orchid grower should undertake manual experiments without first obtaining his employer's concurrence is worthy of special note.

The treatment of resting Orchids is often misunderstood, the term "resting" being taken to mean either a severe drying off which causes shrivelling, or the placing of the plant in an out-of-the-way spot where there is little chance of it receiving attention. The correct manner of resting Orchids and the treatment of specially rare plants is fully dealt with in this book, which, although written mainly for amateurs, contains much that will prove useful to more advanced growers.

In respect of the treatment of freshly imported non-pseudo-bulbous plants, it is probable that more imported plants are killed through over-attention than neglect. Mr. O'Brien recommends a treatment that appears at first sight somewhat drastic, but the method has much to recommend it. He says: "But good results, and a quicker establishment may be secured, if the plants are recoverable, by immersing them for five minutes in a

rain-water tank immediately on arrival, suspending them head downwards from the roof of the house afterwards, and repeating the dipping two or three times a week. This method has the advantage at least that those which were not recoverable are quickly discovered, while the sound plants soon plump up."

During the last 50 years, an increasing desire to raise seedlings has caused many to examine more fully the structure of the flowers. Those anxious to make their first attempt at cross-breeding may acquire all the necessary information from the chapters devoted to hybridising, seed-raising, and treatment of seedlings.

There are eight excellent coloured plates, reproduced from photographs, and each represents a first rate specimen in the collection of Lieut.-Col. Sir George Holford, K.C.V.O., at Weston-

ever-popular species *Odontoglossum crispum* is represented by a plate showing two well-flowered spikes.

One of the finest specimens of colour photography yet seen is the plate of *Brasso-Cattleya Digbyano-Mossie* "Westonbirt variety." The plant bears seven grand flowers, and they are depicted in the exact shade of colour. This plate alone is worth the small sum charged for the volume. *Gurney Wilson, F.L.S.*

[We are indebted to Messrs. T. C. & E. C. Jack for permission to reproduce the plate which forms the Supplementary Illustration to this issue.—Eds. *Gard. Chron.*]

APICE TUBEROSA.

THIS is a very elegant, little, hardy, twining perennial, bearing, in autumn, clusters of sweet-scented brownish-purple flowers in axillary racemes. It is very little known outside botanic gardens, but nothing could be more charming for an odd corner where a twiner is needed. In the herbaceous grounds at the Botanic Garden, Cambridge, supported by a few sticks, it grows to a height of about 5 feet, and is 5 feet through. It does best in an open position, and is increased quite easily by division of the tubers. The tubers are numerous, farinaceous, and edible, and, on account of them, the plant is sometimes known as the "Ground Nut." The native habitat of the plant extends from Pennsylvania to Carolina. For the accompanying photograph (see fig. 2) I am indebted to Mr. E. J. Allard. *R. Irwin Lynch.*

THE MARKET FRUIT GARDEN.

THE PAST YEAR.

FOR the fruit farmer, the reminiscences of 1910 are, in many respects, unpleasant. He calls to mind the spring frosts which seriously damaged the Gooseberry and Black Currant crops, and the prevalence of strong winds from the north-east, or a similarly cold quarter, which prevailed during the blossoming season of Pears, Cherries, and Plums, doing far greater damage than the frosts. There has seldom been a more miserable Pear crop, Cherries were very scarce, and Plums, on the whole, were not half an average. The grower calls to mind the capricious blossoming of Apples, and the more remarkable dropping of embryo fruits after they had set, both probably attributable mainly to the sunless character of the preceding season. The Apple crop, on mature trees, however, turned out less deficient than the expectations entertained at midsummer. At least, this is the conclusion drawn from the state of the markets, where the prices of Apples were very little higher than they are in a season of moderate abundance. Other kinds of fruit, on the contrary, realised better prices than usual.

With respect to fruit pests, the year was remarkable for a great measure of exemption from attacks of the leaf-curling aphid, and for an almost complete absence of wasps. Fungous attacks were about as usual. There was a good deal of brown rot among Plums, but less of this disease on Apple trees than occurred in 1909. The scab fungus has often been more in evidence in Apples than it was last year, although the legacy left by the very wet portions of the year is to be seen too plainly on the young wood of some varieties.

As for the autumn and early winter planting seasons, the land was sodden with the heavy rainfall of November and the first 16 days of December. On the whole, fruit growers were glad to bid farewell to 1910.

A RAINFALL RECORD.

The following is a record of the rainfall of 1910 at my station in the southern part of the south-



FIG. 2.—APICE TUBEROSA: FLOWERS PURPLISH-BROWN.

birt. The quality of these may be judged by the supplementary illustration to this issue.

Cypripedium insigne Sandrae is depicted with 18 flowers, and *Dendrobium Wardianum* with 264 flowers. One of the most beautiful plates is *Miltonia vexillaria* "Empress Augusta Victoria," a noble plant, cultivated from a single growth, and bearing 126 flowers—an instance of exceedingly good cultivation. *Cattleya Trianae* var. *Hydra*, a good winter-blooming plant, is shown with 83 flowers. *Cymbidium Lowii-churnum* is represented with numerous flowers, and the specimen has been commended for its good culture by the Orchid Committee of the Royal Horticultural Society on two separate occasions. Those who are fond of the yellow *Oncidiums* will find a splendid example in *Oncidium Marshallianum*, which looks like a shower of golden butterflies, while the

* *Orchids*, by James O'Brien, V.M.H., Vol. V, in a uniform series called *Present-Day Gardening*. (T. C. and E. C. Jack, Edinburgh and London.) Price 1s. 6d.

east of England, where the quantity in October and November was much greater than in most other parts of the country:—

Month.	No of Rainy Days.	Fall in inches.
January ...	16 ...	3.56
February ...	22 ...	4.28
March ...	6 ...	1.52
April ...	17 ...	1.84
May ...	16 ...	2.04
June ...	13 ...	2.28
July ...	12 ...	2.28
August ...	16 ...	1.72
September ...	3 ...	0.30
October ...	13 ...	3.69
November ...	14 ...	6.14
December ...	14 ...	3.65
Totals ...	162 ...	35.50

In 1909 the total was 34.54 inches, and in 1903 it was 37.95 inches; but in the rest of the eight years preceding 1909 the range was only 19.32 inches to 29.35 inches. My record extends for ten years, during which time the annual average was 28.11 inches.

KEEPING APPLES.

It might have been supposed that, if it ever pays to keep Apples, it would have paid well to keep them this season. Results indicate, however, that, unless a grower is prepared to keep his fruit until January, he might as well market them directly they are gathered. Fruits of Lane's Prince Albert marketed on September 10 made 5s. a bushel, and some which were kept until November 18 were sold in the same market at 6s. This was the best result of keeping, and, perhaps, it paid slightly, although the waste in weight must have gone far to reduce the extra profit. But, taking the Board of Agriculture's quotations for London, Warner's King firsts were quoted on September 15 at 5s. 6d. per bushel, and on December 1 at 6s. This was the latest date at which that variety was quoted. "Other cooking" Apples, firsts were quoted at 4s. 6d. on September 15, and at 5s. on December 15. Sixpence a bushel for keeping for three months, with all the risk of waste and damage from mice, can hardly be regarded as profitable. As it happened, Apples kept exceptionally well. The fruits of Lane's Prince Albert, for which I had only 6s. per bushel returned on November 18, with 6d. commission to deduct, were all large fruits. Beyond comparison, they were superior to any American cooking Apples, and yet the best of those latter, at the time, were making 22s. per barrel of three bushels. Probably those growers who have good Apples yet to sell will obtain higher prices before the end of the current month; but there seems to be a poor demand for English Apples when the markets are full of American fruits.

DELUSIVE COX'S ORANGE PIPPIN.

The word "delusive" is applied to this variety because it breaks its early promise. Nothing could have looked better than the trees raised by me a few years ago (some on the Crab stock and others on the donchin) as they stood in their nursery bed when two years from the grafting. They had been topped as maidens, and had branched out splendidly. After being planted in their final quarters and cut back sufficiently, they made vigorous growth. Some were planted five years ago, and others four years. This winter there was scab on the upper parts of the great majority of the shoots of last summer's growth, and these had all to be cut back more or less severely below the scabby parts. But this is not all, for a great many of the fruit spurs were cankered, and these also had to be sacrificed. Again, some trees, now 10 years from the planting, grew vigorously, and fruited well for two or three seasons after the third year; but in the eighth year they were injured by spraying, although the operation did not harm other varieties close to them in the slightest degree. They bore no fruit of any consequence

—only a few miserable little specimens—in the eighth and ninth seasons, and in 1910 they bore only about half a crop of small Apples. Two points seem to me essential to observe in growing this Apple. In the first place, unless the soil is a very fertile one, and not too heavy, profuse manuring is necessary; and, secondly, the trees must be well sheltered from wind. My young trees of this variety at the bottom of the field, where the soil is excellent, and where there is plenty of shelter, are very fine specimens; while those at the top of the field, near a sheltering hedge of great height, but on less good soil, are only fair trees. Those in the middle of the field, across which the south-west gales sweep, are greatly inferior. In respect of scabby wood, the stock on which the trees were raised does not appear to make any difference. Some of them are on the crab, some on the donchin, and some on the free stock, and scab development is about equal on all three lots.

ARRIERS OF PLANTING.

The last fortnight in December—or part of it—was the best time for planting enjoyed this season. The soil had been run into a compact mass by the deluge of the preceding six weeks, but it was firm and dry, instead of being waterlogged, as it had been before. A great deal of planting remains to be done, probably three-fourths of the acreage laid out for the operation in the country at large. Let us hope that there will not be a prolonged hard frost, or much rain or snow before this work is completed.

QUESTIONABLE ADVICE.

At the Fruit Conferences held in the latter part of last year at Hexham and Wye, some of the recommendations of varieties of Apples for market growers were astonishing. These varieties included King of the Pippins and Stirling Castle, two of the worst for canker, while Stirling Castle is of such a dwarf habit, and endowed with such a propensity to "crop itself to death," that it is one of the varieties which need extra expenditure in manuring. In my opinion, King of the Pippins is hardly worth growing anywhere, for, in a market plantation, its liability to be eaten up by canker condemns it, while the lack of flavour in its fruit renders it a negligible variety for a private orchard. Stirling Castle, if grown at all, is suitable only for a garden, where its dwarf habit of growth is a recommendation. Conversely, the warning against planting Worcester Pearmain, given at Wye, seems to me a mistake. It was described by two speakers as a worn-out variety; but I agree with Mr. Mount, a man of extensive experience, in classing it as one of the most profitable of Apples for the market grower, although I do not care to eat it. Mr. Mount condemned Gascoyne's Scarlet, without giving any reason. This variety is one of the most vigorous growers on my land, and a regular cropper; but I fear it is not a great bearer. The unqualified recommendation of non-returnable boxes, in place of salesmen's baskets, made by several speakers at Wye, seems to me a mistake. The expense is far too great for low-priced fruit, which forms the bulk of the consignments in a fairly productive season. Another recommendation with which I disagree is that in favour of the general adoption of the auction system for fruit. My experience shows that this system tends to the reduction of prices. *A Southern Grower.*

GARDENERS SILVER WEDDING.—Mr. and Mrs. G. DYKE, of Garston Manor Gardens, celebrated their silver wedding on Christmas Day. They received a present of a silver tea and coffee service, bearing the inscription: "Presented to Mr. and Mrs. G. DYKE, on the occasion of their Silver Wedding, December 25, 1910, from Mr. and Mrs. CLAUDE WATNEY, Garston Manor"; also a clock, from the Staff at Garston Manor and Charles Street, London.



The Week's Work.

THE HARDY FRUIT GARDEN.

By W. HILDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

MANURE FOR MULCHING.—The recent rains have necessitated the postponement of much of the work in this department, owing to the soddened condition of the soil. With the advent of more seasonable weather, these arrears must be wiped out, and the work pushed forward with all possible speed.

During frosty weather, advantage may be taken for wheeling out manure, in preparation for mulching all the autumn-planted trees. A like dressing may also be given to those trees which have borne heavy crops of fruit during the past season, or that show signs of deterioration in any way. These later may be gradually improved by the stimulating and protective properties of the mulch, and especially so in cases where the trees are growing in a hungry and unusually porous soil.



CLEANSING THE TREES.—The cleansing of all the trees should now be taken in hand. American blight, which is easily get-able owing to the leafless state of the trees, should be destroyed by the application of one of the many insecticides now obtainable. Where the fruit walls are built of rough material—and in some remote districts such walls are still to be found—or the surface is roughened by age, so as to form a harbour for insects, much good may be done by washing or syringing them with a weak solution of paraffin, afterwards applying a dressing of fresh lime-wash, but taking care not to injure the trees during the operation. This will, to a large extent, destroy any insects or eggs that may be secreted in the holes and crevices. In some cases, old trees growing on walls may, to some extent, be renovated by cutting back the elongated spurs to one or two buds; but this severe treatment causes the loss of a crop the following season, consequently but few trees can be so dealt with at a time. Care should be taken to gather up and burn all the prunings from old, insect-infested trees before the latter are dressed with an insecticide.

PREPARATIONS FOR PLANTING.—When the soil is in a workable condition, ground intended to be planted with fruit trees should either be trenched or dug, as circumstances may require. In gardens where the subsoil is cold or retentive, deep digging is to be preferred to trenching, nor during the latter operation too much of the subsoil is often brought near the surface, and the roots of most trees are not quick to enter such soil. Every means should be employed to encourage the roots towards the surface of the soil, for, if this is done, the trees make less strong growths, and there is a consequent increase of fruit-buds. Existing fruit borders should be examined, and if insufficiently drained, the defect should be remedied even if the border has to be renewed. During mild weather, plantations of Raspberries, Gooseberries and Currants may be made, although, for choice, the autumn is by far the better time for planting these fruits. On cold, heavy soils, planting must be deferred until February. In the meantime make every possible preparation, in order that there may be no delay, when the correct moment for planting arrives.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

SOPHRONITIS GRANDIFLORA.—The brilliant scarlet blossoms of this delightful little Orchid being now expanded they greatly brighten the cool house, and they last for more than a month. It is surprising the amount of blossom that small plants of this species produce year after year without suffering any apparent harm, and the flowers are very large in comparison with the size of the pseudo-bulbs; they are produced from the tops of these just at the time the bulb is maturing. The strain thus placed upon the roots makes it imperative that these should be well looked after, especially as regards the supply of moisture. Whilst many Orchids require much less water at this season, the *Sophronitis* needs the full supply to be maintained.

After the flowers have passed and the pseudo-bulbs have swollen to their full size, there is usually a period of inactivity when a lesser supply of water suffices, but even then it is detrimental to the well-being of the plants if the rooting material is allowed to become absolutely dry. How often



and what quantity of water is required depends entirely upon the class of rooting material employed and the size of the receptacles containing the plants.

REPOTTING.—When this is necessary it should be done soon after the flowering period, as new roots are then being produced from the partially-developed growths. Shallow pans are the best receptacles, using a size just large enough to allow about $\frac{1}{2}$ inch of compost to be placed around the roots, for these latter do not extend far as a rule, being happier clinging closely together in a sweet, open compost in a restricted area. The potting compost may consist of *Osmunda* fibre (one half), *Polypodium* fibre (one quarter), and clean, freshly-picked *Sphagnum*-moss (one quarter), the materials being chopped up and mixed together. Make provision for good drainage, and fix the roots firmly in the compost already described. Plants of this species are not difficult of cultivation when once a suitable place is found for them, and this will be not in quite the coolest house, but in one having, what I term, a good intermediate temperature. They thrive best suspended from the roof rafters, where they are well exposed to the light and where plenty of fresh air circulates.

CATLEYA.—This is the quietest time in the year for *Cattleyas*, not many species being in flower. Where hybrid *Cattleyas* and *Laelio-Cattleyas* are grown, however, some plants are nearly always in bloom. *Cattleya Percivaliana* and *C. Trianae* will be the next of the popular species to display their flowers. Already the buds of *C. Percivaliana* and early-flowering varieties of *C. Trianae* are nearly through the tops of their sheaths, and in a week or so the flowers will be in full beauty. But not only is there a scarcity of bloom at the present time, but many of the plants themselves are at rest, or nearly so. The late spring and summer blooming-species and their numerous hybrids having about completed their growths sponging and cleaning of the plants should be begun as early in the winter as possible, the first kinds to receive attention being those showing for flower. If possible, the whole stock should be treated, as there is no better or more suitable time for this operation. The house should be thoroughly cleaned down, and the plants rearranged. The atmosphere of the *Cattleya* house should not be overcharged with moisture at this

season, and, although the plants will not stand much drying at the root just now, they need less water than at any other season. Especial care is necessary with the smaller-growing roots, as these are more easily injured by drought or excess of moisture. It is always the safer plan at this season to delay watering until the following day, in cases where there is doubt as to whether or not a plant is dry. A day's drying will do no harm, but a weak plant already moist may be injured by a fresh supply of water.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

THE SEED ORDER.—There should be no further delay in making out the list of seeds required for 1911. The preparation of the list needs some consideration, and it should not be hurried over. Do not attribute too much importance to new varieties which have not been given a trial, even on a small scale.



At the same time, the improved varieties of vegetables raised in recent years should cause every gardener to try a limited number of novelties each season, so that the older varieties may be gradually discarded in favour of better sorts. It must be remembered

that there is as much labour attached to the cultivation of a bad variety as to a good one.

CARROTS IN PITS.—A bed should be prepared for sowing Carrots, if this has not been done already, so that young roots may be available as early as possible. The best way to proceed is to form a bed of leaves 4 feet deep, treading the leaves as tightly as possible, and placing over them a layer of soil to the depth of 9 inches or more. The soil may be allowed to remain loose for a few days until it has become moderately dry, when it should be spread, and beaten with the back of a wooden rake. When the surface has been made smooth, sow the seeds broadcast over the bed, and lightly cover it with finely-sifted soil. If the soil is in a sufficiently moist condition at the time of sowing, very little water will be necessary until the young plants appear, when the bed should receive a gentle application of soft water through a fine rose. From this stage, air should be freely given whenever the weather is favourable, or the plants will become drawn. Fire-heat is not necessary, provided a sufficient covering is applied to keep out frost. Slugs are often troublesome, and, in the case of neglect, they may destroy the crop. A good method of trapping them is to sprinkle the bed lightly with slaked lime, either in the early morning or late at night while the slugs are feeding. The slightest dusting is sufficient to kill any slugs which the lime reaches.

FRENCH BEANS.—A sowing of French Beans may now be made with a good prospect of getting a remunerative crop. Sow the seeds in 7-inch pots, using a compost of fibrous loam (two-thirds) and leaf mould (one-third). The pots should be crocked and filled with compost to within 2 inches of the top, and the soil made moderately firm. Seven seeds are sufficient for each pot, and the plants may be thinned to five. A top-dressing of loam should be applied when the plants are a few inches high. Place a few twigs round each pot to keep the growths from becoming entangled. An atmospheric temperature of 60° should be maintained at night, and 65° by day. The crop should be ready to gather by the end of February. Good reliable varieties of Beans for pot culture are *No. Plus Ultra*, *Osborn's Forcing*, and *Canadian*

Wonder. If a regular supply is desired, sow a certain number of pots each week through the spring months. The plants may then be thrown away directly the bulk of the crop is gathered, and there will be but little danger of red spider infesting other plants.

PUBLIC PARKS AND GARDENS.

By A. J. ALLSOP, Superintendent of Public Parks, Leeds.

HERBACEOUS PLANTS.—The value of herbaceous, flowering plants in public parks cannot be over-estimated, and, being ideal town plants, they are becoming year by year a source of greater interest and pleasure to park visitors. By carefully selecting early, mid-season, and late-blooming kinds, these old favourites yield flowers from early spring until late in autumn. There



is no other class of flowering plants which is capable of affording such a wealth of bloom, and of thriving in such adverse atmospheric conditions as herbaceous plants. In these days of heavy rates, it behoves each one to do his utmost to keep down unnecessary expenditure, whilst maintain-

ing efficiency, and herbaceous plants commend themselves to all who are anxious to make a display at little expense, for, after the first cost, a small outlay each year suffices to add new or improved varieties to the stock. The borders set apart for herbaceous plants should be sheltered from rough winds and clear of the drip of trees. The ground should be trenched, and, if the soil is heavy, some spent Hops or leaf-mould should be worked into it. In arranging the plants, no hard or fast rule can be followed, but, at least, rows may be avoided, and straight edgings in front of the border. In this matter the planter should carefully note some of the groups of plants exhibited at the leading shows.

ARRANGEMENT OF PLANTS.—The best artists in this work adopt a natural style, and arrange the plants in irregular groups. Therefore, the planter should not make a straight line along the front with some low-growing plant, or make the further mistake of placing, at regular intervals, some other contrasting species. This latter arrangement is unnatural, and I mention it in order to emphasise the fact that the herbaceous borders lend themselves to the natural style, their effect being most pleasing when formality is avoided. Take the front of a border for example. Irregular groups of *Arabis*, *Thrift*, *Aubrietia*, or *Saxifragas*, are effective, allowing the gravel to run back in the recesses. The educational side should not be neglected, but, on the contrary, where it is possible, at least one specimen of each variety of plant should be labelled, stating the botanical and common names and the Natural Order. Annuals may be planted in groups in the herbaceous borders, and they will serve to provide a display of bloom at a time when there are but few herbaceous plants in flower. If hardy flowering plants were more generally planted, in the public parks in place of the orthodox bedding, they would be greatly appreciated by the general public. Moreover, if the arrangement of the plants is a good one, it will assist visitors in making selections of suitable plants for their own gardens, thus creating a love for flowers which will never be forthcoming if visitors are shown merely tender bedding plants, which they have not the necessary means to cultivate. The uses and, I may add, abuses of public parks are numerous, but if a love for flowers can be instilled into the hearts of those who frequent these places, then it may be claimed that one useful purpose is achieved.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

FOREWORDS.—In undertaking, after an interval of many years, to write once again the weekly calendar on indoor plant-cultivation, I am encouraged by the appreciation shown by many fellow craftsmen in the past. My aim will be to assist the younger gardeners. It is not possible to write specially for every gardener each week, but I hope that my notes will appeal to all in turn.

CLEANLINESS.—In all departments of garden cultivation cleanliness is desirable, but it is not more essential to any department than the plant houses. In most establishments the present season affords one of the best opportunities for a general cleaning up prior to repotting, re-arrangement of the plants, and a general putting in order before active growth commences. The stove stands in need of this as much as any house, for it is frequently overcrowded up to the turn of the year with late-flowering subjects. Now that other and cooler houses are possibly available, let the pot plants be taken out, so



as to afford room for a thorough cleansing of the glass, the woodwork, the path and the water pipes. Meanwhile, see that the plants do not suffer by being placed in a lower temperature in another house. If, after a good cleansing of the woodwork with hot water, it is thought desirable to repaint the wood, proceed with the painting at once. If possible, I advise that every stovehouse be painted each spring, as this method is better than applying three separate coats every three or four years. After several years experience, I find that nothing beats white paint for interior use; if not white, then a pale green should be the next choice. Let the water-pipes be painted, and in doing this work look out for symptoms of a leakage, and carry out what repairs are necessary. The best preservative is black Japan varnish applied when the pipes are hot. Do not be induced on any account to use the odds and ends of paint kettles. This is done, I know, even by those who ought to know better, and injury often-times happens to tender foliage. A smooth, shining, glossy surface, such as that imparted by the Japan varnish has a good effect, and it improves the radiation given off by the pipes. Let all the brickwork be cleansed and then white-washed, using a wash made of freshly-slacked lime and just enough sulphur to be discernible.

STOVE CLIMBERS.—Care must be extended to all the permanent plants, and the present opportunity should be taken to prune, re-tie, and top-dress any plants that need such attention. Allamandas, for instance, can very well be attended to now, also any permanent plants of *Stephanotis floribunda*. The Allamanda may be pruned hard, and the *Stephanotis* only moderately, adopting, in the latter case, more of a thinning process than pruning. Climbers trained to the roof, but which have their roots in pots, should be removed, and the wires cleansed, such species, for instance, as *Dipladenia*, than which there are no prettier climbing plants grown. If there is a damp wall in the stove, I advise that it be covered with *Ficus repens* or *F. minima*, its smaller form. *Hoya carnea* and Ferns also do very well on a damp wall. A good Fern for this purpose is *Adiantum Capillus-veneris*, and it is not at all difficult to establish. The fronds are very useful for cutting, especially when they have become hard with comparative age. Once or twice in a season this *Adiantum* may be cleared of all its fronds, and any scale insects present will be destroyed at the same time.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

A GOOD START.—To obtain the best results with forced fruits it is essential that a good start be made, and the houses, trees, and all that appertain to them thoroughly cleansed in the most effective manner. The importance of this work can hardly be over-estimated, especially when the houses have to accommodate other subjects (as is the case in many establishments)



than the permanent crop, such as Tomatos, Ferns, bedding and forcing plants. These are apt to be infested with insect pests, notwithstanding that they are subjected to a careful scrutiny before they are placed in the fruit houses. The woodwork and glass should be thoroughly cleansed each

year with scrubbing brushes, using warm water, with a small quantity of soft soap dissolved in it. This will be found much more efficacious than the use of water alone, provided it is not used so strong as to injure the paint. Rinse down afterwards with clear water, applied with as much force as possible, either by means of a garden engine or hose pipe. Whether the interior of the houses are to be painted or not, they should first be well washed, and while it may not be possible to have all the houses painted each year, they should be painted as frequently as circumstances allow, as this affords the best means of destroying all insect life, and, whilst the appearance is improved, the woodwork is preserved. Though we have not used cyanide of potassium up to the present, I learn on the best authority of the excellent results to be obtained from this specific in houses badly infested with such obnoxious pests as mealy bug and scale insects. Cyanide of potassium is a most effective fumigant, but, owing to its deadly qualities, requires using with the utmost caution. Well wash all brickwork with a hot lime wash, and let the water pipes in the house be blackened. For this latter purpose I prefer to use lamp-black and oil rather than any of the paints and varnishes, which so often give off disagreeable odours when warmth is circulated in the pipes.

PRUNING.—After the houses have been cleansed, the cleaning and pruning of the fruit trees should be commenced. In the case of vines, only that portion of the bark should be removed that comes easily away without the use of a knife or scraper, excepting in cases where mealy bug has been prevalent, when rather more drastic measures may be taken. Wash the rods with a fairly strong solution of some good insecticide, taking great care not to injure the buds, and, when these have dried well, paint the rods all over with the following mixture, which I have used for a number of years, with good results. Mix together 3 pints of clay (sufficiently thin to be stirred), 1 pint of gas tar, two wine-glasses of paraffin, and a large 60-sized pot of flowers of sulphur, and boil the mixture for some time. Then add sufficient water to thin the preparation down for painting, so that it will be capable of penetrating all the crevices. For cleansing Peach trees, Figs, Cherries and fruit trees other than vines, I prefer to wash all the old wood with a stiff brush, using a strong solution of soft soap and warm water or Gishurst Compound. Scale insects are often troublesome to dislodge, and in cases where there are bad infestations of this pest on Peaches and Nectarines, it is desirable to syringe them with water heated to near the boiling point. If this is applied when the trees are quite dormant it will not do any harm. The surface soil should be allowed to dry and then be scraped up and wheeled away, together with any loose rubbish, before fresh compost is

introduced. The interior of the houses often escapes consideration, but the glass should be washed so as to admit the maximum amount of light. In houses where tanks are made to catch the rain water, it is well to see that the pipes from the gutters are first blocked in order to prevent the dirty water reach the tanks. A good supply of soft rain water is a most valuable asset in fruit culture, especially for syringing, and every care should be taken to keep the soft water supply clean.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HADDINGTON, Tynninghame, East Lothian.

RENOVATING SHRUBS AND TREES.—The present is a suitable time to examine the Laurels and other common shrubs which screen unsightly objects. Repeated surface cleanings under shrubs leave the soil exhausted, and occasional surface dressings of decayed vegetable matter become necessary for affording fresh nourishment. Do not apply less than a 6-inch thick layer of the



materials. Dead branches on old bushes should be cut out, leaving the pruning of the live shoots till the spring-time. Isolated shrubs and trees, which are seen to be getting less nourishment than they need, may also be refreshed at the present time more readily than at any other.

Some Conifers do not thrive on light soils unless they are regularly manured. A few, such as *Picea pungens* and its varieties, also *P. Nordmanniana*, *Abies Menziesii* and *Sciadopitys verticillata*, are benefited by cow manure, either laid on the surface or beneath the turf, which can be removed for the purpose and afterwards relaid. *Picea polita*, *P. nobilis*, *P. lasiocarpa*, *Pinus cembra*, *P. halepensis*, *Thuvas*, *Cupressus macrocarpa*, *C. sempervirens*, and the *Retinosporas* are examples of those that succeed on very poor soils and need not be manured. Deciduous trees often suffer from exhaustion of the soil, and I have known cases where as much as 150 loads of fresh compost have been laid over the roots of a single tree. Of Evergreen trees none responds more readily than the Holly to a heavy top-dressing of soil. Flowering shrubs which need attention in this respect include Azaleas, *Rhododendrons*, *Andromedas*, and those which in general require a moist soil. Cow manure after being stacked for 12 months and well broken exerts a wonderful influence on these plants. In the pleasure grounds the manure should be covered at once to hide what would otherwise be an eyesore, and to protect it from birds.

IRISES.—Eastern Irises which are now beginning to extend their shoots should be protected during frost, but during fine weather the covering should be removed.

CARNATIONS.—Where pheasants are troublesome Carnations will be in danger, and the only certain method of warding off the birds is to place wire netting around the beds. Then place strands of wire or rope across the beds—wire is the better—and cover all with an old herring net. Rats also are very fond of Carnations, and the frames in which plants are being wintered must be watched; if the presence of rats is suspected steps must be taken to destroy the rodents. In our case it is necessary to winter Carnations in a rat-proof house in which the plants occasionally require water at the roots. But water should be used very sparingly during winter, as excessive moisture is often the cause of failure with these plants. The atmosphere of pit or house should also be kept fairly dry.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens or of remarkable plants, flowers, trees, etc., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JANUARY 9—
Southampton Royal Hort. Soc. annual meeting.

FRIDAY, JANUARY 13—
Kent County Chrys. Soc. annual meeting.
Kew Gardeners' Social Evening, at Kew.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—37.9°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, January 4 (6 P.M.): Max. 41°; Min. 34°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, January 5 (10 A.M.): Bar. 30.1; Temp. 40°; Weather—Dull.

PROVINCES.—Wednesday, January 4: Max. 40° Cambridge; Min. 36° Ireland North.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Herbaceous Plants, Hardy Bulbs, Lilies, at 12, Roses and Plants at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe and Morris.

WEDNESDAY—
Perennials, Lilies and Hardy Bulbs, at 12, Roses, at 1.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe and Morris.

FRIDAY—
Imported and established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe and Morris, at 12.45.

A National Botanic Garden for S. Africa.

A little more than 60 years ago a group of far-sighted men founded the Botanic Garden of Cape Town. They did more than this, for the founders formulated the policy and defined the objects of the garden. It was to serve to introduce from all parts of the globe useful, ornamental, and fruit-bearing trees, shrubs, plants, flowers, and vegetables and to promote their distribution and culture throughout Southern Africa, to afford an acclimating resting-place and dépôt for exotics; to afford facilities for the study of Botany as a science and in connection with the horticulture and agriculture of the Cape and for training practical gardeners; and to provide, for the recreation and amusement of the public and strangers, a garden with shady walks, arbours, seats, fountains, greenhouses and a display of the choicest and most delicate flowers.

Despite the sagacity displayed in the drafting of this "charter," and despite the ability and devotion of the successive directors of the Botanic Garden Ludwig Pappé, Karl Zeyher, and Peter MacOwan, the Botanic Garden has failed of its high purpose and has become merely the Municipal Gardens of Cape Town.

It has ceased to be a Botanic Garden in the true sense of the word, and now serves only the last purpose which it was destined to fulfil, offering to the citizens of Cape Town common pleasures, to walk abroad and recreate themselves.

Scarcely less pitiable, though not quite so parochial, is the state of the Natal Botanic Garden. Founded to serve purposes of State, it ekes out a paltry grant of some £1,800 a year by the sale of garden produce, from which it derives more than half its income. Waging as it does a perpetual fight against insolvency, it is remarkable that the Natal garden has been able to do anything in the direction of the scientific investigation of plants. It is as though the advancement of Genetics were entrusted by the State to an under-paid and hard-worked gardener. Scattered over S. Africa are other smaller isolated gardens, but these are all inadequately endowed and, therefore, of restricted scope and usefulness.

The one bright spot in an otherwise dismal picture is the admirable Department of Agriculture in the Transvaal, which has already done much for the farming community of S. Africa. Apart from this institution, the horticultural needs of S. Africa are unprovided for, and such work as is done is sporadic and inadequate. Let us turn for a moment from the real to—we will not say an ideal, but a reasonably proper state of affairs. S. Africa has a wonderful series of floras, some unique and all interesting. They have not as yet been fully explored. With a Botanic Garden in being, the survey of the country would proceed regularly and systematically.

The Cape Heaths, Proteas, Pelargoniums and Gladioli, which constitute the glory of the southern extremity of the sub-continent, find no place in native gardens, and are left to the European nurseryman to exploit. A Botanic Garden would bring the native plants under cultivation, improve them by hybridisation, and prepare the way for a national horticulture and a national art of landscape gardening. Notwithstanding the golden opportunity presented by a wonderful flora, notwithstanding the imperious necessity of determining the economic values of native and of introduced plants, and notwithstanding the vital importance of increasing the area under cultivation, there is at the present time no systematic investigation of the botanical resources and possibilities of S. Africa.

This is a reproach which no patriotic member of the Union will consent to endure. He knows that the future of S. Africa depends less on its mineral wealth than on its power to feed a large population, and that such power in turn depends on the scientific investigation and exploitation of the plants which grow in or may be introduced into the country. He recognises the profound truth of the oft-quoted words of Swift:—"Whoever could make two blades of Grass grow upon a spot of ground where only one grew before would deserve better of mankind and do more essential service to his country than the whole race of politicians put together." He knew, further, from the example of the home country of Kew, for instance—of Canada, of America, of Ceylon and of Java, that it is only by the State organisation and endowment of botanical science in its application to horticulture

and agriculture that Swift's aspiration can be achieved. Fortunately, the men of science in S. Africa are alive to the imperative necessity of setting their botanical house in order, and we rejoice to find that Professor H. H. W. Pearson, on the occasion of his presidential address to the Biological Section of the S. African Association for the Advancement of Science, urged upon his hearers the pressing need for the formation of a National Botanic Garden for United S. Africa.

The arguments which he used in support of his plea were put by Professor Pearson so cogently and yet with such moderation that we are convinced that they will meet with ready acceptance throughout S. Africa. These arguments we have already outlined; nor need we fill in the details, for what was remarkable prescience in 1848 is commonplace fact among the instructed of the present day.

We believe that Professor Pearson could not have chosen a more opportune time for launching his scheme. Not only has he proved its worth, but he has seized the golden hour of opportunity. Union is in the hearts of our S. African kindred, and it is now possible, by ten years of energetic and concerted action, to retrieve the misfortunes of the past and by taking advantage of the most recent advances in scientific knowledge to create an institution which shall be of untold value to the Union.

A National Botanic Garden is no luxury, but a vital necessity, and this fact must be brought home to those responsible for the Government of S. Africa. Nor do we fear that this will prove a difficult task. There is an open-mindedness and a spirit of enterprise among the men of the dominions beyond the sea, so quick to realise opportunity and so contemptuous of difficulty that the new nation will see the need for this thing and do it. Inasmuch, therefore, as it is certain that the formation of a National Botanic Garden will enhance the prosperity of S. Africa, we believe confidently that Professor Pearson's able and temperate advocacy will prevail and that a great, endowed, national institution will come into existence. It would be a splendid thing for the Union if Professor Pearson's dream could be realised and if the National Botanic Garden could take its place side by side with the new National University, and if both could find a home in the Groote Schuur Estate, under the benign shadow of the Rhodes' Memorial: the one the symbol, the other the sign and seal of a united S. Africa.

OUR ALMANAC.—We shall present with our next issue, a *Gardeners' Chronicle Almanac* for the year 1911. In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical and Allied Societies, or any of our correspondents, will send us IMMEDIATE INTIMATION of all fixtures for the year.

MR. J. E. SHILL, late Orchid grower to SAMUEL GRATRIX, Esq., has been appointed Orchid grower to Baron BRUNO SCHRÖDER, The Dell, Egham. Abundant proof of Mr. SHILL's skill was given during the time he cultivated the famous collection of the late G. W. LAW-SCHOFIELD, and since in the excellent progress made by the many rare and handsome Orchids in the collection of SAMUEL GRATRIX, Esq. Mr. SHILL is one of the newly-elected members of the Orchid Committee of the Royal Horticultural Society.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held at the Institution on January 9, at 8 p.m., when a paper will be read by Mr. E. H. BLAKE on "Notes on Highway Law as Affecting Property Owners."

THE NORTH OF ENGLAND HORTICULTURAL SOCIETY.—In respect of this newly-formed Society, which is to have its headquarters at Leeds, we are informed that the committee has appointed the Rev. J. BERNARD HALL, R.N., to the position of secretary. We congratulate the Society on the choice it has made, for Mr. HALL showed such energy and ability in promoting the fruit show and conference which took place at Hexham in October last that we are confident the important work of forming the organisation of the new Society will be in very good hands.

NEW YEAR'S HONOUR.—We are pleased to notice on the list of Honours, published on Monday last, the name of Mr. F. MANSON BAILEY, Colonial botanist, Queensland, and author of *The Flora of Queensland* and other botanical works. Mr. BAILEY is appointed a Commander in the Most Distinguished Order of St. Michael and St. George.

FLOWERS OUT OF SEASON.—In a recent issue of the *Kew Bulletin* Mr. W. J. BEAN says that although mild, the past autumn was not exceptionally so. Yet an unprecedented number of shrubs which flower normally in spring were more or less in blossom in October. These unseasonable flowers open poorly, or often get scarcely beyond the bud state. Some, like the varieties of common Lilac, have pushed many young inflorescences just beyond the protecting winter scales, and they are thus left exposed to the inclemencies of the winter. On October 21, 1910, the following shrubs were noted with fully open flowers; some, like the Laburnum, with entire inflorescences; they were all from three to seven months before their proper season:—*Berberis Gagnepainii*, *Ceanothus thyrsiflorus*, *Deutzia setchuenensis*, *Erica hybrida* and *E. lusitanica*, *Escallonia Philippiana*, *Forsythia suspensa*, *Fothergilla major*, *Genista virgata*, *Glas tonbury Thorn*, *Hamamelis arborea* and *H. Zaccariniana*, *Laburnum alpinum*, *Spirea bracteata*, *S. Thunbergii* and *S. Van Houttei*, *Syringa villosa*, *Viburnum Tinus*, *V. rhytidophyllum*, and *V. utile*.

THE IMPROVEMENT OF WHEAT.—“The Home-Grown Wheat Committee of the Incorporated Association of British Millers recommend the distribution of Burgoyne's Fife as an improvement on any known variety of English Wheat so far as quality is concerned, and as a Wheat which is likely to succeed as regards yield under many conditions, both for autumn and spring sowing.” The foregoing somewhat prescient announcement indicates the recognition of the commercial success of a great plant-breeding experiment carried out by Professor BIFFEN, of the Agricultural Department of the University of Cambridge. The dilemma in which the British farmer found himself was as follows:—A “strong” wheat produces a larger and better shaped loaf than a weak Wheat. Most high yielding British Wheats are weak in comparison with foreign Wheats. Strong Wheats from Canada, &c., are, when grown in this country, poor croppers. The problem before Professor BIFFEN was, therefore, to produce a strong Wheat of high yield. Applying Mendelian methods to Wheat—Burgoyne's Fife was raised at Cambridge, which, in the opinion of those most competent to judge, namely, the MILLERS, fulfills the conditions, and hence solves the problem. In the course of the experimental plant-breeding which led to this successful result, Professor WOOD and other workers discovered

that it is possible to confer on the white loaf the nutritive powers of the brown loaf. Thus it was found that flour acted on by a watery extract of bran—which substance is rich in phosphates and other mineral bodies—becomes of increased “strength.” As a consequence, flour is now sprayed with solutions of mineral salts similar to those contained in bran, with the result that the loaf pleases the baker and nourishes the consumer better. If Burgoyne's Fife, when generally cultivated, fulfills the expectations which it has raised—and there is every reason why it should—the Cambridge Agricultural Department will have performed a notable and brilliant piece of work.

THE BULB INDUSTRY OF THE NETHERLANDS.—In the course of an interesting article on the growth of the bulb export trade in Holland, our American contemporary *Gardening* quotes the following figures, provided by Mr. FRANK W. MALIN, American Consul in Amsterdam, which show to what gigantic proportions this trade has reached:—

		IMPORTS.	
From:—		1908.	1909.
France	Belgium		
Spain, Portugal and Greece		743,040	1,008,040
Germany and Austria		82,250	114,400
Russia		880	2,200
Scandinavia		11,220	3,960
United Kingdom		690,680	1,110,560
United States		458,240	396,440
All other countries		53,020	75,480
		EXPORTS.	
To:—		1908.	1909.
France	Belgium		
Spain, Portugal and Greece		1,654,600	2,079,220
Germany and Austria		9,194,020	10,415,700
Russia		945,340	1,142,020
Scandinavia		2,600,840	5,760,680
United Kingdom		11,062,920	14,555,360
United States		6,006,000	7,663,040
All other countries		85,580	117,400

It will be seen from these statistics that Great Britain is by far Holland's best customer for bulbs; taking nearly 40 per cent. of her total exports, and that, judging from the years 1908 and 1909, the trade, which has been carried on for upwards of 150 years, is still expanding with great rapidity.

ROAD-SIDE FRUIT TREES.—Few sights are more astonishing to the untravelled Briton than the roadside fruit trees of various German states; and though conditions would need to alter much before this delightful—and profitable—practice could be introduced into this country, there would appear to be no overwhelming reason why what has proved successful in Germany should not become a custom here. It is a striking testimony to the thriftiness of the German and to his integrity that it is possible to plant long rows of fruit trees on the public highways, and for the State to realise a handsome profit on the venture. Thus, according to an article in the *Journal* of the Department of Agriculture (Ireland) and reproduced in *Irish Gardening*, the State of Hanover alone derives a net annual profit of over £6,000 from its highway orchards. Particularly pleasing is the custom in Wurttemberg and elsewhere, whereby certain of the trees are set apart and labelled to indicate that their fruit is for general use. Many changes would have to come about before we could hope to see our country roads bordered by Apples and Cherries with their fruits intact and awaiting the gathering by a County Council official; changes both in the roads themselves, which then would be dustless, and changes in the habits of the people. But he who has observed the most reckless butcher boy pull

up his horse in a London street obedient to an uplifted hand, would not be surprised even by fugacious urbins coming to respect the inviolability of roadside fruit trees. In any case the roadside orchards of Germany cause a pleasant feeling of respect for the rural population, whose good sense and discipline render them possible.

DAHLIAS PARISIENS. Under the above name, writes Mr. W. E. Gumbleton, Messrs. Millet, the well-known Violet specialists, of Bourg-la-Reine, Seine, have this year sent out for the first time a most beautiful set of medium-sized single bicolor Dahlias, the centres of the ray petals being pure white, broadly and evenly bordered with some other colour and presenting a most novel and attractive appearance. The habit of the plants is dwarf, and the flowers look very straight in the face, the petals are also beautifully reflexed at their tips, which is quite a new feature. The *Revue Horticole*, for April 16 of this year, gave a charming coloured plate of four varieties of these pretty flowers, named, respectively, Paris, Océra, Observatoire and Tour St. Jacques. The first named is the prettiest and most distinct single Dahlia I have ever seen. The second named, when it comes true, is also most beautiful, with alternations of clear canary-yellow and the purest white, but it is, unfortunately, so apt to sport and come all yellow or all white (the only one of the set that does so) that Messrs. Millet intend to discard it.

PUBLICATIONS RECEIVED.—*The Journal of the British Gardeners' Association*, January, 1911 (Brentford: The Brentford Printing and Publishing Co., Ltd.) Price 1d.—*The Agricultural Gazette of New South Wales*, November, 1910. (Sydney: W. A. Gulluck) Price 6d.—*Congres International d'Horticulture, Bruxelles*, Vol. II. Report of the Proceedings of the Sectional Committees. (Brussels: J. Goemaere).—*Department of Agriculture, Trinidad*, Bulletin October. (Trinidad: Government Printing Office, Port of Spain)

SCOTLAND.

SIR MATTHEW G. WALLACE.

AMONG the New Year Honours announced is that of a knighthood to Mr. Matthew G. Wallace, Terregles-town, Dumfries, the President of the Scottish Chamber of Agriculture, and a well-known authority on the cultivation of Potatoes. Sir Matthew Wallace has done excellent work in connection with the Irish Board of Agriculture. He is amongst the most energetic and able of the South of Scotland agriculturists.

THE ROYAL SCOTTISH ARBORICULTURAL SOCIETY

The annual meeting of the northern branch of the Royal Scottish Arboricultural Society was held in the Council Chamber, Inverness, on December 31, under the chairman-ship of ex-Provost Gossip. A letter from Mr. Galloway, secretary of the Royal Scottish Arboricultural Society, was submitted to the effect that it was suggested that there might be a competition for the best-kept private nursery in the district in connection with the forestry department of the Highland Show in Inverness in 1911. The meeting approved of the suggestion, and a remit was made to a committee to make the necessary arrangements. Office-bearers were appointed, those including Brodie as president, ex-Provost Gossip and Mr. Scott, Darnaway, vice-presidents; and Mr. A. Fraser, schooler, Inverness, secretary and treasurer.

PLEASURE PARK FOR INSCH, ABERDEENSHIRE.

The inhabitants of Insch, Aberdeenshire, have received as a gift, from Mr. C. E. Leith-Hay, of Leith Hall, the common of the town, under the conditions that they fence it and use it for purposes of recreation. Its area is about 12½ acres.

CULTURAL MEMORANDA.

CINERARIAS.

GREATLY-IMPROVED strains of this popular florists' flower have been sent out by seed firms during recent years, whilst the "star," or stellata type marked a distinct break. The free-flowering habit and tall growth of the "stellate" Cinerarias are two of its most valuable attributes, and the inflorescences are very useful as cut blooms. For some years past we have obtained fine specimens of these plants measuring

containing the seedlings are placed in a cold frame under a north wall, where shading is not necessary, and, in consequence, the plants do not become drawn. A few days after transplanting, fresh air is admitted, and the amount of ventilation afterwards gradually increased, until the lights are removed altogether, being only replaced to ward off rain or strong winds. Under these conditions the plants grow sturdily. In about a month from the time of transplanting, the seedlings are ready for their first potting in 60-sized pots. A suitable compost is formed of loam broken up small, with

or the beginning of October the plants are ready for their final potting. At this stage the majority will require 9½-inch pots. The compost should consist of two parts loam, in a rough state, and one of leaf-soil, with some coarse sand and a little dried cow dung.

The plants are kept in cold frames as long as the weather will permit, giving plenty of air on all favourable occasions, and covering the lights with mats when frost prevails.

About the end of November or the beginning of December they are housed in a greenhouse or similar structure, from which frost can be excluded. An abundance of fresh air is admitted whenever the weather permits, and fire-heat is never used unless it is absolutely necessary. As the pots become filled with roots, liquid manure and soot water are given, with alternate waterings.

The plants are very susceptible to attacks of aphid, but this pest can easily be kept in check by fumigating occasionally. A leaf-miner sometimes attacks Cinerarias, and prompt measures should be adopted to kill the pest as soon as it appears. *Wilmot H. Yates, Rotherfield Park Gardens, Alton, Hants.*

BERBERIS SILVER BEAUTY.

This variegated variety of Berberis (see fig. 10) appeared in a batch of seedlings of *B. Thunbergii*, in America. Mr. M. J. van Leeuwen, of the Continental Nurseries, Franklin, Massachusetts, who sent us the photograph, also supplied the following particulars. The leaves have a silver variegation, the young, lateral growths being tipped with pink; but in the autumn the stems assume a light purple shade. Numerous plants have been propagated from cuttings, and the variegation has remained constant in these, so that the character may be regarded as fixed. The plant is of a compact habit of growth, and produces a large crop of coral-red berries, which provide an additional attraction in the autumn. The variety should prove a welcome addition in the shrubbery and pleasure grounds, as *B. Thunbergii* is perfectly hardy in this country, and succeeds generally in gardens.

RARE PLANTS AT BELVEDERE.

LAST summer I paid a visit to Belvedere, St. Lawrence, Isle of Wight, Lady Walsingham's interesting and beautiful garden, which is full of rare and tender plants, which Lord Walsingham has for years been collecting on the Continent and elsewhere. Much damage has been done in late winters by the frost, and four years ago 13 were registered for several days in succession (a very rare occurrence in that usually mild locality), this creating havoc among the plants. One of the most serious losses was that of a splendid specimen of the very rare *Lagunaria Patersonii*, from Norfolk Island, which was 6 feet in height and as much in diameter, and was covered with flowers every summer. This plant is very rarely met with in English gardens, and I believe it is not in commerce. The Bouvardias, of which there are a dozen plants, the sorts grown being *B. triphylla* (with scarlet flowers) and *B. Alfred Neuner* (with white blossoms), were badly cut, and, though alive, were much smaller than they were five years ago. The *Echiums* also were killed, as was a fine bush of *Sparmannia africana*, 10 feet in height. However, in spite of these losses, there are still a large number of rare and interesting plants in the garden. The handsome *Salvia dichroa*, introduced by Lord Walsingham from the Atlas Mountains in North Africa, was commencing to perfect its tall, purple-blue and white flower-spikes. It is a splendid plant, and, when in full bloom, is the glory of the garden. It dies down early in the autumn, and throws up new growth in October. This is sometimes injured by the frost, but the



FIG. 10.—BERBERIS THUNBERGII "SILVER BEAUTY."

3 feet in height, and as much through. These never fail to attract attention by their beauty, and are in great demand for embellishing dwelling rooms, where the plants remain in a good condition for one or even two months.

The seeds are sown in pans about the first week in May, a light compost being employed. They germinate readily in a greenhouse temperature. When the seedlings appear they are exposed to the light, but shade is provided from bright sunshine. In the course of a few weeks, the seedlings are pricked out into boxes at a distance of 2 inches or 3 inches apart. The boxes

a liberal addition of leaf-mould and sand. Return the plants to the frames, and follow the same conditions as to ventilating advised above. Attend to the watering of the plants with care, and, on very bright days, give a light spraying overhead.

Afford the plants larger pots as required, and for the second shift use 6-inch pots, and a similar compost as before, but in a coarser condition. As the autumn advances, our plants are placed in a cold frame facing south, and fully exposed, the sun at that time of year rarely being too strong for them. About the end of September

Supplement to the "Gardeners' Chronicle," Jan. 7, 1911.



BRASSO-CATTLEYA DIGBYANO-MOSSIE, "WESTONBERT VARIETY."

A Hybrid from *Brassavola Digbyana* and *Cattleya Mossie*. (See page 4.)

IN THE COLLECTION OF LIEUT.-COL. SIR GEORGE HOLFORD, K.C.V.O.

plants are never killed in South Devon, though entirely unprotected. *Fuchsia boliviana hybrida*, with clusters of long, drooping, crimson flowers, was an exceedingly pretty plant, and one seldom cultivated out-of-doors in English gardens. Large shrubs of the South African *Bowkeria Gerardiana*, formerly *B. triphylla*, were setting their buds. These were many feet in height, and had not been injured by the frost; it is apparently a fairly hardy subject. The leaves are sometimes browned in the winter, but no further damage occurs. *Cantua dependens*, from the Peruvian Andes, grown against a wall, flowers fairly well. This plant is to be found in a few Cornish gardens, but it appears not to bloom very freely.

Dianella nemorosa is a pretty plant, throwing up flower-spikes over 2 feet in height, and bearing lavender-blue blossoms. A group of seven fine bushes of *Citrus trifoliata* should make a fine show if they bloom well. Great clumps of *Agapanthus umbellatus* were in splendid health, and were throwing up numerous flower-spikes. *Panacratium illyricum* was evidently quite at home, as it flowers very freely, and is surrounded by numbers of self-sown seedlings. *Cyclamen latifolium*, which is generally treated as a greenhouse plant, flourishes at Beldere on a sloping bank in the open, and as many as 200 flowers have been borne by a single corm, while *Ixias*, *Freeseias*, *Babianias*, *Sparaxis*, and *Tritonias* thrive to perfection. *Cassia floribunda* appeared very similar to *C. eorymbosa*, so largely grown in Devon and Cornwall against open walls, but it flowers earlier. The Mexican *Fendlera rupicola* was covered with countless narrow-petalled, white blossoms, about an inch across, and was a very attractive sight; it seeds here freely, while another pretty shrub which was perfecting bright-yellow flowers was *Cytisus elongatus*. *Drimys Winteri*, 8 feet in height, had passed out of bloom; but *Sophora flavescens* was bearing clusters of yellow blossoms, and *Purshia* (*Onosmodium*) *tridentata* had its stems studded with pale-yellow flowers. In a pond in front of the house, in which the best of Marliac's Water Lilies are grown, was *Thalia dealbata* and *Crinum aquaticum*, which bears pink flowers. *Edwardia* (*Sophora*) *microphylla*, 8 feet in height, was said not to flower freely, but with me, in South Devon, it is a sheet of bloom every year. *Lavatera maritima bicolor*, common in the south-west, where it is often grown as *L. assurgentiflora*, was doing well, and *Rekmania angulata*, which remains out all the winter, was in full flower and very healthy.

There is a fine collection of climbers at Beldere. A curious creeper was *Ephedra altissima*, from Northern Africa. This is a prodigiously rampant grower, and had entirely smothered, with a tangled maze of slender shoots, a broken-down tree to a height of 8 feet. Several plants of *Clematis tangutica* were grown. One large specimen has never flowered, and this spring, when I was at Burncoose, in Cornwall, Mr. P. W. Rogers showed me a very large plant which had never bloomed, so that there is evidently a shy-flowering form of this *Clematis*. Other plants at Beldere, however, which were raised from imported seed, have flowered freely. *Stamtonia latifolia* had grown into an impenetrable thicket over some rockwork, and *Muehlenbeckia complexa* had clambered up a tree in a tangle of twining shoots to a height of 20 feet. *Salpichroa rhomboides*, a native of Buenos Ayres, was a pretty climber, studded with numberless small, white flowers, and *Polygonum baldschuanicum* had rambled for a long distance along the top of a pergola, and created a charming picture, with its numerous drooping, flesh-pink flower-clusters. The Himalayan *Thladiantha dubia*, which is very effective, with its brightly-coloured fruit, was doing well, and *Vitis Thunbergii*, which assumes such gorgeous colouring in the autumn, was growing strongly, as was *Akebia quinata*. *Bignonia Tweediana* was clambering over a summer-house, and *Actinidia chinensis* had made shoots

over 15 feet in length; but one of the prettiest climbers was *Actinidia arguta*, which had grown to the eaves of the house, and was covered with countless clusters of white flowers with black-tipped stamens. Other creepers were *Mandevilla suaveolens*, *Clematis Nellie Moser* and *The Gem* (blue), *Jasminum primulinum* and *Ampelopsis sempervirens*, which, for some unknown reason, died completely down last year, and is now about 7 feet in height. A very fine plant of the New Zealand *Solanum aviculare*, about 10 feet in height, and many feet through, was growing in front of a summer-house, and was bearing its violet, golden-centred blossoms in abundance. This is a tender plant, and has been killed several times in South Devon. *Mesembryanthemums* provided a glorious colour-picture, and there was an admirable collection of succulents growing in the crannies and fissures of the natural rock, which here and there crops out in the garden. Among these were noted *Agave Victoria Regina*, *Cereus peruvianus*, *C. flagelliformis*, *Echinopsis Zuccariniana*, *E. Eyriesii*, *Opuntia glauca*, *O. Salmiana*, *O. arborescens*, *O. Rafinesqui*, *O. humilis*, *Mammillaria centricirra*, *M. missouriensis*, *Gasteria verrucosa*, and numbers of other plants of the same section, many of which were in bloom. *Wyndham Fitzherbert*.

AMERICAN NOTES.

THE WHITE MEDAL OF HONOUR.

As important event in American horticulture during the past year was the establishment of the George Robert White Medal of Honour to be awarded by the Massachusetts Horticultural Society through its executive.

Mr. George Robert White, of Boston, in his deed of trust accompanying the fund, stated that



FIG. 11.—THE "WHITE" MEDAL.

he thought some suitable recognition should be made of those persons who have accomplished important work in horticulture; the award to be made independently of, or in addition to, any prizes or certificates of merit that may be bestowed by the Massachusetts Society in the course of its regular duties.

He, therefore, founded the George Robert White Medal of Honour Fund, the income of which is to be devoted annually for the specific purpose of providing a gold medal, to be awarded to the man or woman, commercial firm, or institution that has done the most during the year, or in recent years, to advance the interest in horticulture in its broadest sense.

While the medal is intended principally to recognize work accomplished by a resident of the United States, it may be awarded also to a person, commercial firm, or institution of some other country, the results of whose work in horticulture may be of direct benefit to the interests of horticulture in the United States.

The medal was struck at the United States Mint in Philadelphia, from 24 carat gold. It is 2½ inches in diameter, 5-32nds of an inch thick, and weighs between seven and eight ounces. It

was executed by Mr. John Flanagan, a native of Newark, N.J.

The first award of the medal has just been made to Prof. Charles S. Sargent, Director of the Arnold Arboretum, and very well known to readers of the *Gardeners' Chronicle*, whose eminent service in horticulture is generally recognised both in the United States and abroad. His great work has included the introduction of many ornamental trees and shrubs into New England, and experiments for testing their hardiness. *W. P. Rich, Secretary, Massachusetts Horticultural Society.*

TREES AND SHRUBS.

SPECIMENS AT ARLEY.

A SPECIMEN of *Thuja occidentalis*, which was blown down in the Arboretum here last month, was 42 feet 7 inches in height, 4 feet 1 inch in girth at the base, and 3 feet 2 inches at 5 feet from the ground. The age of the tree, counting the rings at the base as near as could be ascertained, was 75 years. The centre of the trunk was rotten for 5 feet up.

The largest specimen of *Thuja occidentalis* catalogued* is 45 feet high and 7 feet 6 inches in girth near the ground, where it divides into three stems. The soil here is a stiffish loam. Two self-sown seedlings have been found, one growing under the limbs of a tree of *Carpinus caroliniana*† which are lying on the ground has thus been protected from the mower's scythe, and the other on the top of a brick garden wall from where it has been removed and planted in the nursery. These two seedlings are growing extremely slowly, and though now six and four years old respectively are only 6 inches and 4 inches high.‡

A tree of *Juniperus virginiana* which has been lying in the last three years and has just been cut down, gives the following dimensions: Height 54 feet; girth at base 4 feet ½ inches; girth at 5 feet 3 feet 11 inches; girth at 27 feet 2 feet ½ inch. The age of the tree by counting the annual rings was as near as could be ascertained 75 years. This tree was growing on light loam, and was fastigate in habit. It also had three complete twists in the trunk from the base to the top, which turned the opposite way to the hands of a watch, namely, opposite to the sun. This tree furnishes the ordinary pencil Cedar of commerce.

The largest *Juniperus virginiana* growing here§ is 70 feet high and 4 feet 10 inches in girth at 5 feet. The highest price paid for the timber of this tree by pencil makers is, I understand, between 6s. and 10s. per cubic foot. Those who are thinking of planting it for profit may be interested in these dimensions and the yields the trees have taken to grow. *Robert W. Bailey, Junr., Arley Castle, Buntingford.*

* *Horticulturist*, Nov. 341, p. 12; Nov. 342, p. 102; § No. 4.

NURSERY NOTES.

A NEW SEED ESTABLISHMENT.

THE business of Messrs. James Carter & Co., nurserymen and seedsmen, has been conducted at Holborn since it was founded by the late Mr. James Carter in 1836. But with 1911 the firm commenced a new era, for its headquarters have been transferred to Raynes Park, a suburb close to Wimbledon, although premises at High Holborn and Queen Victoria Street, City, will still be retained.

Several disadvantages existed in having the main establishment in the Metropolis, the principal difficulty being that of obtaining sufficient space for extending the premises. Moreover, the trial grounds (so important an adjunct in conducting a business of this nature) were, if necessary, detached from the central organisation. The firm, therefore, decided to build a new warehouse, with accommodation for all the various branches of a great seed and nursery business.

A site of about 25 acres was selected at Raynes Park, and a start made in September last to

The building is heated by one mile of 4-inch hot-water pipes, 48 radiators, and a boiler with a capacity of 1,250,000 British thermal units has been installed.

It is lighted by electricity, and the same power is employed for driving the machinery used in seed cleansing and other purposes, for which installation $8\frac{1}{2}$ miles of insulated cable were necessary to conduct the energy of 300,000 candle power.

The main entrance to the building is reached from the road by a circular gravel drive and two flights of Portland stone steps, ornamented on either side by marble lions, 7 feet 6 inches high, that weigh 25 cwt. each. The portico, supported by four Portland stone columns, 14 feet high and 6 feet in circumference, is decorated with the Royal Arms, wrought in copper.

The private and general offices occupy a considerable space, and the seed and bulb warehouse is reached by passing through a pair of folding doors, the clerical and executive departments being quite separate. Our first impression on entering the seed stores was that we were in a

what look like Wardian cases. Warmth and other conditions suitable for germination are provided, and the germinating capacity of the various stocks ascertained. The main stock of seeds is stored in the spacious basement. It was no light task to transfer the countless heavy sacks, with the thousand-and-one other things, from Holborn to Raynes Park, nevertheless the work was accomplished in the short space of one week. During the coming season, the grounds will be planted with trial plots of the various plants, so that the large grounds originally devoted to this purpose at Mortlake will be no longer needed.

The necessities of the large staff have been studied in every respect, and suitable accommodation provided.

The best season of the year to pay a visit to Raynes Park will be that extending from June to September, as the various trials may be expected to be in progress at that time.

ODONTOGLOSSUM CERES MAGNIFICUM.

THIS beautiful hybrid is the result of a cross between *Odontoglossum Rossii rubescens* and *O. Rolfeae*, and it is the finest variety of this cross yet shown. The large flowers have handsome, claret-red markings, the tips of the petals being tinged with rose, and this colour is also present in the labellum. On December 20, the Orchid Committee of the Royal Horticultural Society awarded the plant a First-class Certificate when it was shown by Messrs. Charlesworth & Co., Haywards Heath.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

IMPROVING SOIL OF ALLOTMENT GARDENS.—

There is still room for much improvement in the cultivation and general management of allotments. In many cases it is the custom, after one crop is secured during the summer, to leave much of the ground not only uncropped, but uncultivated until the following spring. Not much can be done now in the way of planting vegetables, but there should be no delay while the weather remains open to clear the different sites of decaying refuse, applying manure, and turning the ground over in order that frosts may sweeten and pulverise it. Many have to contend with soil of an unfavourable nature, and to dress such land heavily with crude manure is not always the best means of improving its staple. The value of all manures is practically lost upon land that is sour and waterlogged during most of the winter months. Moisture in the ground is necessary to sustain crops, and air in the soil is equally necessary. The best land or site is not always available for allotment or vegetable gardens, and to bring the ground into a thoroughly fertile state much labour and expense are often necessary. Land which is naturally heavy and retentive requires to be worked while in a suitable condition, that is, when the surface is dry. Moreover, while it is always best to perform the work neatly, too much time is frequently spent in trying to break rough clods down to a friable state. This is wrong, as the first heavy rain would cause such broken soil to run together and form a solid mass long before the time for sowing or planting arrives. The rougher heavy ground is turned over and left through the winter the better. Very stiff land should be dressed, for the first season or two, with burnt garden refuse, road grit, fine ashes, old mortar, and especially lime. As these materials become incorporated with the land the texture will improve, and then it may be enriched. The ridging of heavy land is of great value, especially ground intended to be planted with Potatoes. If the ridges are made 2 feet broad at the base, the Potato sets may be planted between. The ridge is then forked down, and the ground remains light and porous over the sets. *R. P.*



FIG. 12.—ODONTOGLOSSUM CERES MAGNIFICUM: SEPALS AND PETALS BLOTCHED WITH CLARET-RED.

prepare it for forming nursery and trial grounds. The whole of the land was trenched, this item alone involving an expenditure of £1,000.

A week or so ago, when we visited the new establishment, the building to be utilised as seed stores, offices, &c., was practically complete. It does not in the least resemble the orthodox factory or seed warehouse, but, on the contrary, an imposing building, that may be likened somewhat to a large orangery. It is built on a raised terrace, and forms a conspicuous object to travellers on the main line of the London and South Western Railway, which forms one of the boundaries of the nursery. Messrs. Carter have supplied us with many interesting particulars, of which we give the following:—The main building is 320 feet long and 110 feet wide, with a basement 180 feet by 110 feet, and it covers a little over two acres. Six hundred tons of English steel and 400 tons of asphalt were used in constructing the roof and floor. For glazing purposes, 12,000 superficial feet of glass were required in all a little over a quarter of an acre,

gigantic granary, sacks upon sacks of grain being piled almost to the roof in long rows.

The various processes of cleaning, sorting, and packing the seeds were most interesting. The seeds are cleaned in electrically-worked machines, designed by members of the firm. The machine not only removes dust and other foreign matter, but separates the light seeds, sifts out the small ones, and delivers the plump, polished seeds into sacks. But this is not all; after leaving the machine, the seeds are taken to another department for further sorting. They are dropped through hoppers on to an endless band, driven by a three-speed gear, under the inspection of an assistant, who picks out all mildewed and otherwise defective specimens, the perfect samples remaining on the band, to ultimately fall into a sack. As each sack is filled, it is taken to the packing department, where the seeds are packed ready for distribution.

The testing of the various seeds is undertaken in a special department, where specified numbers are placed between damp felt, and placed in

THE PERPETUAL-FLOWERING CARNATION.—It was regrettable to notice the paucity of exhibits displayed by amateurs at the recent show of the Perpetual Flowering Carnation Society. This type of Carnation is essentially an amateur's flower, for, with only a slightly-heated greenhouse, a beautiful display may be obtained. In the classes open only to amateurs and gardeners, many valuable prizes, including the President's (Lord Howard de Walden) 50-guinea Challenge Cup, are offered. Those intending to exhibit at the forthcoming show, to be held in the Royal Botanic Gardens, should become members at once. *Laurence J. Cook, Hon. Treasurer, Wellington Road, Bush Hill Park.*

BANANA CULTURE IN ENGLAND (see vol. xlviii., p. 464).—I can endorse fully all that Mr. Ely has said with respect to the superior flavour and size of the home-grown Banana. Musas are very ornamental subjects in the Palm house, and they also form a suitable background in the large plant stove, where they may be fruited successfully. I enclose a small photograph [Not reproduced—Eus.] of a Banana in fruit. The stem was 5 feet high, the largest leaf being 5 feet long and 2 feet 8 inches wide. The bunch of fruits weighed 52 lbs., and it had about 150 "fingers." Musas enjoy heat, moisture, and plenty of manure during the growing season, but they do not suffer materially if the temperature falls as low as 40°. One noticeable feature of the home-grown Banana is its thin skin compared with the skins of imported fruits. *W. Phillips, Derry Ormond Park Gardens, Cardiganshire.*

IRIS HISTRIOIDES.—Enclosed is a flower of *Iris histrioides*. The first bloom opened a week ago, and now in a south border there is a group of a dozen flowers expanded. Could anything be more beautiful or satisfying at the end of December?—not in the favoured south, but in the Thames Valley district. The general colour is that called marine blue (p. 211 of the *Repertoire de Couleurs*), but with some red in it, and the beauty is much enhanced by the white and yellow markings in the throat and on the fall. The scent, too, is delicious. Here the plant is perfectly hardy and a true perennial, needing no sort of care or attention, whereas I have found *I. histrio* quite unmanageable. *A. C. Bartholomew, Park House, Reading, December 27.*

POISONOUS SHRUBS.—In the issue for December 24 (page 480) *Doubtful* writes: "Yew is undoubtedly poisonous, but its effects are remarkably variable, and seem only to be shown when the animal takes it on an empty stomach." I may instance a case where an old Yew tree was cut down and the branches deposited in the corner of a field, where several yearling calves were grazing. This was on a Saturday afternoon, and, strange to say, some of the calves were found dead on the Sunday morning following, as many as six dying. I have also known a case of a man being overtaken by violent vomiting after chewing Yew branches, and in the space of a few hours he expired. Both these cases prove how dangerous it is to have Yew branches in reach of live stock or persons who do not understand their poisonous nature. *J. Flanagan, Carrigart, Co. Downal.*

AMERICAN GOOSEBERRY-MILDEW.—During December this pest made a rapid development. Quarters of Gooseberry bushes that I inspected at the end of November and found free from the disease were, by the middle of December, badly affected. For three months we have employed three "trimmers," or pruners, and before these commenced work another person and myself went over the bushes in order that the trimmers should not be delayed. When any considerable amount of the disease was discovered the fact was reported to me, and more than once this was done. But it is satisfactory to know that in places where the disease was very bad in 1909, it has not been seen during 1910. Keepsake is by far the most susceptible variety to take the disease, but this week I have discovered a large plantation of Whinham's Industry affected. Amongst many acres of Gooseberries I found one row of an unnamed sort free from disease, although rows on either side were affected. According to the official notice, all bushes should be trimmed by December 18. *Stephen Castle, Walpole St. Andrew's, Wisbech.*

THE CRAB APPLE.—The different varieties of ornamental Crab Apples are often overlooked by those who are interested in trees and shrubs. A few standard trees, or even spreading bushes of the various varieties may, with advantage, be included in the mixed shrubbery or plantation, as they give colour and brightness in spring, while in flower, and again in late summer and autumn, when the branches are clothed with highly-coloured fruits. Some of the most showy fruiting sorts (especially such varieties as the Dartmouth and John Downie) are highly decorative in autumn, and are to be recommended for their fruiting alone. Still, there is a further claim for the Crab Apple, as very few of the better known dessert or culinary Apples make so good a preserve as these. Indeed, jelly made from Crab Apples—even from those which are considered coarse and worthless, such as grow in the hedge-rows—may be made into the most delicious jelly. If a few trees of Crab Apples are included during the present planting season, they will give pleasure in more ways than one. As a rule, owing to their naturally hardy habit, the Crab will produce a full crop of fruits where choicer kinds fail. *R. P.*

PLANT NAMES IN PUBLIC PARKS. During a visit to the Botanical Garden in a well-known London park a short time ago I was impressed by the confusion which existed in the nomenclature of some of the Saxifrages. A variety of *Saxifraga muscoides* was labelled *S. decipiens*. It is not difficult to distinguish these two plants, as *S. decipiens* is very hirsute and a more compact-growing plant than *S. muscoides*. Another *muscoides* variety appeared under the name of *S. oppositifolia*. *S. rotundifolia* was labelled *S. peltata*, and *S. sancta*, a spiny-leaved, bright-yellow-flowered species, figured as *S. hypnoides*, which is a white-flowered, mossy Saxifrage. I also saw two plants labelled *Saxifraga longifolia*, which looked like *S. Cotyledon*, and was certainly not *S. longifolia*. Attention needs to be drawn to such errors as these, as botanical gardens are places where some visitors study the nomenclature of plants. *E. E. Ward.*

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 3.—The first meeting of the year 1911 was held on Tuesday last, in the Society's Hall, Westminster. The show was a small one, but there were several exhibits of importance, notably a magnificent display of *Cypripediums* shown by Messrs. ARMSTRONG & BROWN, for which a Gold Medal was awarded; a collection of Grapes from the Earl of HAREINGTON's garden; Apples shown by Messrs. JOHN PEED & SONS; and some exceptionally large Onions exhibited by MRS. DENISON, Little Gaddesden. The exhibits of Orchids were as interesting as ever, for, besides the collection of *Cypripediums* referred to, there were other good groups, and many new plants.

The ORCHID COMMITTEE granted two Awards of Merit to *Odontioda Cocksonae* and *Laelo-Cattleya Cranstoniae* "Westonbut variety."

The FRUIT AND VEGETABLE section was represented by several exhibits, but no Award was made by this Committee to a novelty.

The exhibits before the FLORAL COMMITTEE were fewer than usual, and only one Award of Merit was conferred by this Committee, namely, one to a crested *Cyclamen*.

Floral Committee.

Present: H. B. May, Esq. (in the Chair); and Messrs. John Green, R. C. Notcutt, W. J. Bean, G. Renthe, W. Howe, C. R. Fielder, C. Bick, J. Jennings, J. F. McLeod, H. J. Cuthbush, Arthur Turner, Chas. Dixon, R. Hooper Pearson, Chas. E. Shea, J. T. Bennett Poe, Chas. E. Pearson, W. P. Thomson, E. H. Jenkins, F. Page Roberts. (Rev.) W. J. James, George Paul, H. J. Jones, W. B. Cranfield, R. W. Wallace, and A. Kingsmill.

Messrs. JAMES VITCH & SONS, LTD., King's Road, Chelsea, staged miscellaneous flowering plants, chiefly of greenhouse species. They showed batches of winter-flowering Begonias, *Azalea indica*, *Gesnera Ajacina* (with beautiful, reddish-orange flowers and richly-coloured leaves), *Luculia gratissima*, and Orange trees in fruit. A

pretty combination was made with *Moschosma riparium* and rose-coloured Begonias. Interesting plants were observed in *Canarina Campanula* and *Eubibia officinalis*. The latter is a dwarf, tender species, newly introduced from China. The inflorescences are characteristic of the genus, having pale blue flowers with an orange-coloured "eye." (Silver Banksian Medal.)

Messrs. W. CURTIS & SONS, Highgate, showed indoor plants, a selection of Alpines and varieties of the perpetual-flowering type of Carnation. Well-grown Palms, Ferns, *Dracenas*, *Daphnes*, and ornamental Oranges were freely displayed. The Alpines included bright batches of Irises, including *I. histrioides* major, *I. alata*, *I. Bakeriana*, and *I. reticulata* var. *Kreblager*. The Carnations formed a showy group, most of the popular sorts being represented, as well as many novelties. These latter included *Scarlet Glow*, superior, by comparison, to *Britannia*; *Countess of Bradford*, a yellow-ground fancy; *Miss Winnie Prior*, white, with scarlet markings; *Lady Elphinstone*, pink; *White City*, white, with well-shaped and stout petals; and *Mrs. Fortescue*, a bright flower of rose tint. (Silver Flora Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, exhibited *Cyclamens* and Carnations. The latter included such newer varieties as *Lady Alington* (salmon pink), *May Day* (salmon rose), *White Perfection*, and *Princess Juliana* (orange-red).

Messrs. W. WELLS & CO., LTD., Merstham, exhibited a vase of the fine white Carnation *White House*, which recently received an Award of Merit from the Floral Committee, the blooms appearing finer than on the previous occasion.

Rev. H. BECKFORD, Etwell, Derby, staged a large exhibit of *Cyclamens*, having them in batches of white and pink varieties, with a few of deeper colour at one end of the group. Some were of the crested type, with distorted petals, the flowers being not unattractive. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, filled a large table with Ferns in great variety, all of a decorative type, many showing handsomely-tessellated fronds. One of the most beautiful varieties was *Pteris cretica* (Childs), with finely-fimbriated fronds, and as robust as the type. *Adiantum Fergussonii* is a noble looking species, the fronds having a bloom-like sheen. In *Nephrolepis superbissima* the foliage is rested in all directions; but the gem of the collection was *Davallia tenuifolia* Veitchii. At intervals in the group were specimens of *Platycoriums*. (Silver Banksian Medal.)

Messrs. THOMAS ROCHFORD & SONS, Brookbourne, staged a batch of *Begonia amabilis*, of the *Glorie de Lorraine* type, with large inflorescences of pink flowers, said to be of stouter texture than those of the ordinary variety. This quality makes the sort especially suitable for market purposes. At either end of the group were fine specimens of Ferns, in the one case of *Nephrolepis lycopodioides*, and the other of *Cyatium falcatum* Rochfordii. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, displayed bunches of *Zonal Pelargoniums*. The largest flowers were of the variety *Sir Thomas Hanbury*, the colour being crimson. Others of special merit were *Hibernia* (red), *Helen*, *Countess of Radford* (rosy-cerise), *Jupiter* (scarlet), *Lucania* (rose, flushed with orange), and *Saxonia*.

Mr. L. R. RUSSELL, Richmond, Surrey, showed Ivies, varieties of *Elaeagnus*, *Osmanthus purpureus*, *Garrya elliptica*, golden and silver-leaved Box, and *Cupressus macrocarpa* Hitchc., as small specimens in pots. There were also many pretty ferned plants of *Aucuba*, in small receptacles. The Ivies were shown in great variety, being principally golden-leaved sorts.

Messrs. W. PAUL & SONS, Waltham Cross, showed *Camellias*, both as cut blooms and pot plants. It was a representative collection, embracing such well-known varieties as *Marchioness of Exeter* (rose), *Mme. Ambrose Verschaffelt* (of beautiful form and light rose in colour), *Mercury*, *Lady McKimion* red, splashed with white), tricolor (white, rose, and red), *Mars* (a single variety of reddish-rose colour), *fimbriata* and *alba plena* (both old, but good, white varieties).

The GUILDFORD HARRY PLANT NURSERY exhibited varieties of shrubby *Veronicas*, including *V. Hectori*, *V. cupressoides*, *V. epacridea*, *V. decumbens*, and *V. pinguifolia*. The small-leaved *fidera* *Ilex minima* was observed, also *Abnans*

amurensis, *Arenaria balearica*, and *Morisea hypogrea*.

Mr. G. REUTHE, Keston, Kent, showed a few early-blooming hardy plants and Alpines, such as *Iris reticulata*, *Parochetus communis*, *Cyclamen Atkinsii purpureum*, *Leucojum carpathium*, *Hamamelis Zuccarini*, *Helleborus levidis*, and *H. fetidus*. The American Partridge-berry, *Mitchella repens*, was shown in fruit: the berries resemble hips of the Hawthorn.

The Misses HOPKINS, Mere Gardens, Shepperton, staged a small exhibit of Alpines, which included some well-flowered plants of blue Primroses.

AWARD OF MERIT.

Cyclamen.—An Award of Merit was made to a strain of *Cyclamen* in which the papilio form of the flowers was shown at its best. The spreading, butterfly-like flowers were exceedingly large, and the colour was purplish-rose, with deeper colour in the centre. Shown by the Rev. H. BUCKSTON.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), de B. Crawshaw, R. G. Thwaites, H. Little, W. Cobb, F. M. Ogilvie, F. J. Hanbury, H. G. Alexander, A. Dye, J. Cypher, Stuart Low, C. H. Curtis, Gurney Wilson, W. H. White, J. Wilson Potter, and W. H. Hatcher.

There was a great show of *Cypripediums*, the magnificent group staged by Messrs. ARMSTRONG & BROWN, of Tmbridge Wells, extending the entire length of the end staging in the hall, and for which the Committee awarded the Gold Medal, being equal to the best ever staged. The group contained over 500 finely-grown plants, including nearly 200 species and varieties, the leading forms of *C. insigne* and others being massed several together. Prominent were such varieties of *C. insigne* as Monarch, Memoria Queen Victoria, James Renwick, Harefield Hall, Aberdeen, and Pittianum, which is by far the best of the Beckmannii class. In a selection of yellow forms of *C. insigne* there was a good batch of *C. insigne Sandera*, still the best yellow variety. Others noted were *C. Niobe Westonbirt* variety, *C. Beckmannii* (a truly noble example with a very massive flower), *C. Cowleyanum*, *C. Goliath* (a superb and distinct hybrid), *C. Leonitis* (with a broad expanse of clear white in the dorsal sepal), *C. Charlesianum* var. Minnie, *C. Sultan*, *C. Mrs. Spender* (Clay, and *C. Captain Spender* Clay, two very pretty Fairrieanum hybrids, both with light-yellow ground colour; and, among other new hybrids, a very fine cross between *C. Lathamianum* and *C. Euryades*, a grand flower, the nearly black basal markings of the dorsal sepal contrasting well with the clear-white upper half.

R. G. THWAITES, Esq., Chessington, Christchurch Road, Streatham (gr. Mr. J. M. Black), showed a group which came next in importance, and was adjudged the Silver-gilt Flora Medal for a most attractive group, the prevailing feature in which was a large number of plants of his white-petalled strain of *Cattleya Maggie Raphael*, and which have been admired at most of the meetings during the winter. The different forms varied in the depth of colour in the rosy-crimson labellum and in the gold veining, but all are charming flowers, and specially desirable at this season. With them were a selection of scarlet and deep-red *Cochliodas* raised at Chessington, several forms of *Sophro-Cattleya Saxa* and other *Sophro-Cattleyas*, a fine form of *Sophranitis grandiflora*, and other showy Orchids.

MESSRS. J. CYPHER & SON, Cheltenham, were awarded a Silver Flora Medal for a select group, principally of *Cypripediums*, among those noted being *C. Beckmannii* (with very broad petals), *C. Charlesianum* Cypher's variety (a large, yellow flower of good shape), *C. Euryades Burford* variety (with purple spots on the white dorsal sepal, contrasting with *C. Euryades splendens*, which has the lower half of the dorsal sepal claret colour); varieties of *C. aureum* (of which *C. a. Marie* was one of the best), good forms of *C. insigne* and *C. Lceanum*, and many unnamed seedlings, of which the finely-coloured hybrid between *C. Mons de Carte* and *C. Thompsonii*, that between *C. Euryades* and *Mrs. Wm. Mostyn*, and the one between *C. Lceanum* and *C. Swinburnei* were remarkably good. At the ends were good selections of *Masdevallias*, *Calanthes*, and *Lycastes*.

MESSRS. STUART LOW & CO., Bush Hill Park, Enfield, were awarded a Silver Flora Medal for a pretty group containing a great variety of species. At the back were some good *Laelia autumnalis*, a selection of coloured and white forms of *Laelia anceps*, the *L. anceps alba* Worthington's variety being the best white, with no other colour than the tinge of lemon-yellow in the lip; *Oncidium varicosum Rogersii* (with very large, yellow flowers), *O. bicallosum*, a selection of fine forms of *Cattleya labiata*, and a remarkably handsome *C. Octave Doin*, some good hybrid *Cypripediums*, including *C. Curtmannii*, *C. Niobe*, *C. Euryades splendens*, *C. Priam*, *Odontiodas*, *Odontoglossums*, *Bulbophyllum sicybulbon* (with racemes of orange flowers), *Pleurothallis pulchella*, and *Renanthera Imshoottiana*.

MESSRS. JAMES VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver Banksian Medal for a representative group of *Cypripediums*, of which the best were their new *C. Clonia* (a large, finely-formed, and prettily-marked flower), *C. Ville de Paris*, many good varieties of *C. Euryades*, *C. Elatior*, varieties of *C. aureum*, and *C. insigne*.

MESSRS. CHARLESWORTH & CO., Haywards Heath, staged a small group of specially good things, which included *Laelio-Cattleya Bella alba* (*L. purpurata alba* × *C. Warneri alba*), a handsome flower with pure-white sepals and petals and rich, purplish-crimson lip; *Odontoglossum Aireworth* (*Lambeauium* × *crispum* Aleyon), a model flower, heavily blotched with claret colour; two white-petalled *Cattleya Maggie Raphael*, *Odontoglossum crispum* Nauthotes, a good scarlet *Odontioda Bradshawia*, and the original *Cypripedium Priam*.

Lieut. Col. Sir GEORGE L. HOLLORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed *Cypripedium Nydia* (*Niobe Westonbirt* variety × *Charlesianum* var. Minnie), with deep-rose coloured upper sepal having a dark-claret median line and white tip and margin, honey yellow petals and lip suffused with chocolate-purple; also the new *Laelio-Cattleya Cranstounie Westonbirt* variety (see Awards).

J. GURNEY FOWLER, Esq., Gledbelds, South Woodford (gr. Mr. J. Davis), showed his very fine *Cypripedium Lceanum* J. Gurney Fowler, even greatly improved since it made its sensational debut, January 24, 1905, and was illustrated in the *Gardener's Chronicle*; his new *Cymbidium glebelandense* (*Schroderianum* × *insigne*, *Sandera*), a most interesting cross, though not so showy as some others. The growth is like a strong *C. insigne*, the inflorescence erect and sheathed as in that species, and bearing from one to four flowers, which, in the present imperfectly-developed state, were narrow-petalled, the sepals and petals greenish cream-white with faint rose shade, the lip having some dark lines on the side lobes and a red-spotted front; also two others (see Awards).

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed three very fine new hybrid *Cypripediums*, viz., *C. Col. Riordan*, with clear white upper half to the dorsal sepal, the lower part and the broad petals being spotted with dark purple; *C. Cupid*, probably a *C. belatulum album* cross with waxlike flowers bearing some purple spotting on the petals and upper sepal; add another nearest to *C. Rossettii* and having fine, greenish-yellow flowers with white upper half to the dorsal sepal.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), sent *Odontoglossum Wiganianum* Goodson's variety and a small *Odontoglossum* imported with *Oncidium macranthum*.

MESSRS. SANDER & SONS, St. Albans, showed *Cypripedium Goliath*, a large flower of the *C. Eson giganteum* class.

MESSRS. J. & A. A. McBEAN, Cocksbridge, sent *Odontoglossum crispum* Canoniae of the *O. c. Cooksonii* class, with large, pure-white flowers bearing evenly-distributed, large, claret-coloured blotches; and a good hybrid between *Cypripedium Beckmannii* and *C. Euryades*.

Sir JOHN EDWARDS MOSS, Roby Hall, Torquay, sent an example of an abnormally-developed hybrid *Odontoglossum*, in which two flowers were produced together, both of the labellums being arranged side by side and with the outer segments regularly arranged behind them.

Phaio-Calanthe Sedenii was shown from the ROYAL HORTICULTURAL SOCIETY'S GARDENS, Wisley.

AWARDS.

AWARD OF MERIT.

Odontioda Cooksonia (*C. Noezliana* × *O. ardentissimum*), from J. GURNEY FOWLER, Esq., Gledbelds, South Woodford (gr. Mr. J. Davis).—A very brilliant reddish-scarlet flower of perfect shape, the only trace of any other colour being a very slight white fimbriated margin and a pale rose tint on the front of the lip. The plant bore a fine spike of flowers with a lateral branch. The cross was originally shown from the Oakwood collection on its first flowering.

Laelio-Cattleya Cranstounie Westonbirt variety (*C. Harrisoniana* × *L. tenebrosa* Walton *Grange* variety), from Lieut. Col. Sir GEORGE L. HOLLORD, K.C.V.O., Westonbirt, Tetbury, Gloucestershire (gr. Mr. H. G. Alexander).—A very pretty and distinct hybrid and a worthy production, especially when it is remembered that the original cross flowered in 1899 from ordinary parentage never found favour. The present form would grace even the most select collection. The inflorescence bore six large flowers having the sepals and petals primrose-yellow, the white ground showing along the basal half of the midrib of the petals. The lip is white with a few dark lines at the base, and a veined rose-crimson blotch on each side in front of the tube.

CULTURAL COMMENDATION.

To Mr. J. Davis (gr. to J. GURNEY FOWLER, Esq., Gledbelds, South Woodford), for a very fine plant of *Cypripedium chrysotoxum* var. *Victor* (*Lathamianum* × *villosum*) with many flowers.

Fruit and Vegetable Committee.

Present: O. Thomas, Esq. (in the Chair); and Messrs. W. Bates, A. Dean, G. Kelf, E. Beckett, J. Willard, H. Hooper, J. Davis, J. Jaques, J. Lyne, F. Perkins, G. Wythes, and J. Harrison.

It was stated that two members of the Committee, Messrs. Hobday and C. Foster, were seriously ill, and the Secretary was asked to send a letter of sympathy to each member.

It is intended to exhibit from the Society's gardens a collection of forced vegetable stems at the next meeting.

Mr. W. H. DIVERS, The Gardens, Belvoir Castle, staged fruits of a seedling Pear named *St. Stephen*, the result of crossing *Marie Louise* with *Mme. Millet*. The fruits closely resembled those of *Marie Louise*. They were somewhat bruised in transit, and it was resolved that Mr. DIVERS be asked to send samples next season.

Small bundles of three varieties of *Asparagus* forced at Wisley were presented. All were sent by Messrs. BARR & SONS. These three were stated to be specially precocious, the best sample being *Mammoth*. The others were *Conover's Colossal* and *New White*.

The Earl of HARRINGTON, Elvaston Castle (gr. Mr. Goodacre), staged a collection of Grapes in 14 bunches, six of which were well-coloured *Muscats* of *Alexandria*, seven of *Black Alicante*, and one of *Appley Towers*. All the fruits were excellent and well-preserved specimens. (Silver Hogg Medal.)

The Earl of HARRINGTON also showed two varieties of *Tomatos* in clusters, one a bright-red round variety named *Elvaston Winter*, the other a selection of the yellow-skinned *Sunbeam*. All the fruits were solid and of medium size. Both varieties will be tested at Wisley gardens under glass and out-doors.

MESSRS. J. PLED & SONS, West Norwood, exhibited a collection of Apples. The fruits were excellent samples, and staged in 42 baskets and dishes. Cooking varieties were well represented, including *Lewis's Incomparable* (very handsome), *Annie Elisabeth*, *Mère de Ménage*, *Lane's Prince Albert*, *Homead Pearmain*, *Bismarck*, *Belle de Pontoise*, *Dumelow's Seedling*, *Newton Wonder*, and others. Amongst dessert varieties, we noticed good samples of *Lord Hindlip*, *Lord Burghley*, *Barnack Beauty*, *Charles Ross*, *Blenheim Pippin*, *London Pippin*, *Court Pendl-plat*, *Reinette de Canada*, and *Ashmead's Kernel*. (Silver Knightian Medal.)

Mrs. DENISON, Little Gaddesden (gr. Mr. A. J. Gentle), staged 124 bulbs of Onions in a few varieties, the bulbs being of good size and superbly finished; indeed, they could hardly have been shown better. The varieties were *Selector Ailsa Craig*, *Record*, *Rousham Park Hero*, *Holborn*, and *White Spanish*. (Silver-gilt Knightian Medal.)

Messrs. SUTTON & SONS, Reading, staged a large number of solid, white heads of Christmas White Broccoli, from their trial grounds. There were 48 heads: also as many very solid green heads of New Year Savoy, these being of medium size, very clean and handsome. The group also included blanched Chicory salading, to show its great value in mid-winter. (Silver Banksian Medal.)

Mr. W. SANDS, Hillsborough, Ireland, staged a collection of 20 baskets of Irish-grown Potatoes, to be planted at Wisley next spring for trial. Some of the dishes represented a second or catch crop planted immediately following an early spring batch, the second one in some cases giving the best crops. (Silver Banksian Medal.)

Mr. W. POUPART, jun., Twickenham, exhibited a collection of bottled fruits.

MARKETS.

COVENT GARDEN, January 4.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices, including Anemone fulgens, Mimosa, Narcissus, and others.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage and ferns and their prices, including Adiantum, Asparagus plumosus, and others.

Plants in Pots, &c. Average Wholesale Prices.

Table listing various potted plants and their prices, including Arabis Sieboldii, Erica hyemalis, and others.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices, including Apples, Grapes, Lemons, Melons, Nuts, and others.

Christmas Fruits and Preserves.

Table listing various Christmas fruits and preserves and their prices, including Figs, Nuts, Dates, and others.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Aubergines, Beans, and others.

THE NORTH OF ENGLAND HORTICULTURAL.

IN connection with this new horticultural society, which is to have its headquarters at Leeds, the following suggestions for a programme are put forward by the Secretary, the Rev. J. Bernard Hall:—

- 1. Affiliation to the Royal Horticultural Society, co-operating with them in the North, and adapting their rules for judging, &c.
2. Annual show at Leeds—the strategic railway base of the North: (a) two days, Wednesday and Thursday, August 9 and 10.
3. Annual fruit congress, on the invitation of some local society, e.g., at Carlisle, on August 30 and 31, 1911.

TRADE NOTICES.

JAMES DICKSON & SONS.

The trustees of the estate of the late Mr. Alexander Milne, sole partner of the firm of James Dickson & Sons, nurserymen and seedsmen, Edinburgh, have disposed of the business as at December 1, 1910, to James Stuart, who has been for the past 32 years with James Dickson & Sons, and to Eric Pringle Laird, son of the late Mr. David Pringle Laird, nurseryman and seedsmen, late of Pinkhill, and 17, South Frederick Street, Edinburgh.

STEWART & BREWELL, LTD.

This company has been registered with a capital of £1,000 in £1 shares, to take over the business of bulb merchants, seedsmen, florists, and nurserymen, carried on by E. Steward, as Edward Steward & Co., at 57, Carrington Street, Nottingham.

STANLEY & CO.

Mr. H. Stanley's services with this firm terminated on December 19, not 20 (see p. 491). Mr. John Cowan, jun., will take over the management on the 23rd inst. In future the firm will be known as Hassall & Co., late Stanley & Co. A. Hassall.

DEBATING SOCIETIES.

BRISTOL AND DISTRICT GARDENERS'.

A meeting was held on December 29 at St. John's Parish Rooms; Dr. Shaw occupied the chair. Mr. Stafford, schoolmaster, Carleton, Newport, gave a lecture on "Protective Colouring of Insects." The lecturer gave a brief life history of the lepidoptera, of which family he has made a study for 21 years. Large numbers of British moths and butterflies, also foreign specimens, were displayed in cases. Mr. Stafford stated that insects owe their colour to pigments embedded under the skin, and that different foods produced different colours in the insects.

REMARKS.—There is an increasing demand for Apples of all grades, and prices have advanced. The supply of Peas is becoming short. Grapes are nearly finished. For Tomatoes the market depends almost entirely upon consignments from the Canary Islands; the fruits are meeting with a fairly good demand. Peaches and Nectarines are arriving from the Cape, the condition of the fruits being all that could be desired. The Vegetable trade shows an improvement in prices. Trade, generally, is good, considering the time of year. *E. H. K., Covent Garden, January 4, 1911.*

Potatoes.			
	per cwt.		per cwt.
	s.d.		s.d.
Kents—		Lincolns—	
Brush Queen	4 0-4 6	British Queen	4 0-4 6
Up-to-Date	4 3-4 6	Up-to-Date	4 0-4 6
Bedfords—		Mauncrop	4 3-4 9
Up-to-Date	3 9-4 3	Blacklands	3 3-3 6
British Queen	3 9-4 0	Dunbars—	
Lincolns—		Up-to-Date	5 0-5 3
King Edwards	4 0-4 3	Mauncrop	5 6 —
Evergoods	3 6-3 9		

REMARKS.—Prices are the same as last week, but there is a tendency for an increase in the case of the cheaper varieties. *Edward J. Newbon, Covent Garden and St. Pancras, January 5, 1911.*

COVENT GARDEN FLOWER MARKET.

French flowers have been arriving in large quantities. I was offered blooms of Paper-white Narcissus this morning (Wednesday), at the close of the market, very cheaply. Many English grown Narcissus are on sale, including the Double Van Sion, Golden Spur and Henry Irving. Tulips are abundant and the prices vary considerably. Roman Hyacinth is well supplied. Lily of the Valley was on sale by street hawkers at 6s. per dozen bunches, but this does not represent the fair market value, yet it indicates that there is a surplus. Carnations are sold cheaply compared with their value a few years ago. Supplies of Chrysanthemums hold out well, and prices were very low this morning, large quantities were not sold for lack of purchasers. Good Roses are not quite so plentiful, and prices have risen slightly. Narcissus is not grown so extensively as formerly, The Bride and Frau Karl Proschka taking its place to a great extent, yet the older variety remains a favourite with some florists. Mme. Abel Chagnay is always in demand, and the best flowers command good prices. Perle des Jardins, Sunset, and Sunrise are amongst those now grown extensively for market purposes. Tulips are offered at low prices compared with what they are usually worth in January. Richardias are also offered cheaply. Lilac (Syringa), both white and the normal colour, is procurable. The white variety is the ordinary Persian Lilac, grown in darkened pits or houses. There has been no demand for Pansettias, and their prices have fallen. The market has been supplied with most cut flowers in excess of the demand, and growers from the provinces will, no doubt, be disappointed with their "returns."

POT PLANTS.

Trade has been very quiet. Forced bulbs are a feature, and especially Tulip, but the prices have hardly been equal to what the first consignments usually make. Narcissus in pots are fairly good. Lily of the Valley is grown chiefly in boxes, but the prices are only slightly in excess of those realised for cut flowers. Indian Azaleas are seen in well-flowered plants, and rather higher prices are asked for them than usual. Ericas are well supplied. Chrysanthemums vary in quality, good plants are becoming scarce. Marguerites are procurable in well-flowered plants. Palms are likely to realise good prices in the future, for some nurserymen, who only grow them when seed is cheap, are not keeping up a succession of young plants. The supplies of Ferns are well sustained by the leading growers, and the prices vary but little. *A. H., Covent Garden, January 4, 1911.*

LAW NOTE.

A DISASTROUS CUCUMBER CROP.

At the offices of the Official Receiver for the Brentford district, before Mr. Cecil Mercer, Senior Official Receiver, a meeting of creditors was held under the failure of Edward Albert Bannister, of 5, Upper Gratto Road, Twickenham, nurseryman, late of Bird's Farm, Collier Row, Romford, Essex, and Pope's Nursery, Pope's Avenue, Twickenham. The statement of affairs disclosed liabilities expected to rank against the estate for dividend amounting to £538 11s. 6d., and the assets were estimated to produce £5. Debtor accounted for his deficiency by loss in carrying on business from December 9, 1909, £37 11s. 6d.; household expenses of wife and four children, £156; loss of crop of Cucumbers, owing to disease, £300; expenses of advertisement, £100, thus making the deficiency of £593 11s. 6d. The Official Receiver, after reading over the proofs of debts lodged, stated that the estate would remain in his hands for summary administration in the usual manner. In reply to questions put by the Official Receiver debtor stated that since he started at Pope's Nursery he could not say exactly what business he had done, because he had kept no books. He had no vans of his own, but always hired them locally whenever he required them. He had done a considerable amount of business in seeds and plants. Most of the debts he had incurred were in respect of goods supplied. The Official Receiver, who has been in the habit of purchasing from this nurseryman, stated that some of them have been grown and some sold

by mail order trade. Debtor further stated that he had had a good deal of bad luck with his crops and that was the cause of his trouble. Most of the seeds were sent away in the mail order trade. He had a large crop of Cucumbers, but, unfortunately, they were a failure. In June or August last he discovered a disease among his Cucumbers, with the result that all his labour and trouble on them had been wasted. He estimated his loss in that respect at £300. He had about 500 feet of Cucumbers under glass. The labour alone put into them amounted to about £150. He could not say exactly how much money he received weekly through the mail order trade. Some weeks it was £10, and other weeks it was £15, and it had even been as much as £50. Questioned about an item of £163 paid into his bank on June 14, debtor stated that it was the proceeds of the mail order trade. He used to advertise in about ten papers, and supplied seeds and plants to amateur gardeners. He bought plants and seeds in Covent Garden market, and then sent them out to all parts of the country to his mail order customers. He always bought in bulk, and then repacked them in small quantities before sending them out.

ENQUIRY.

APPLE "SAUNSON."—In a Court Roll of the Manor of Duffield, Co. Derby, dated November 29, 1520, I came up on the following:—"Paying (as rent) annually one measure of Apples, called a *strike of Saunsons*, growing upon the land aforesaid." The words in italics were in English, the remainder in Latin. Can any reader enlighten me as to what was a Saunson? A *strike* is a measure equal to about two pecks. *C. W. Firebrace*

ANSWERS TO CORRESPONDENTS.

CLIMBER FOR A NORTH-WEST WALL: *Argus.* The following plants would be suitable for your purpose.—Ivies, especially the small-leaved varieties; Jasminum nudiflorum, J. officinale; Lonicera flava; Pyrus japonica, P. Mandai; Bridgesia pictata; Camellias; Crataegus Pyracantha Lalandi; and Roses, such as Gloire de Dijon, Longworth Rambler, Felicite Perpetue, Ruby Queen, William Allen Richardson, Rene Andre, Mme. Alfred Carriere, and Zephyrine Drouhin.

FORCING OF FLOWERING PLANTS: *A. W.* With a moist atmosphere and a temperature ranging from 60° to 65° at night and 70° by day, it may be possible to get Azaleas into flower by the middle of February. Choose Deutsche Perle as the most dependable white, and whatever other colour may be preferred select plants with prominent buds. In respect to Lily of the Valley it is by no means certain, but if the crowns are vigorous you may succeed. Choose crowns in preference to clumps, and only use the strongest. Pot them into 6-inch pots and plunge these in a gentle heat, covering the crowns with a light material, such as Cocoa fibre. The same temperatures as recommended for the Azaleas will be suitable. A better and safer proceeding to ensure getting the flowers in time would be to obtain retarded crowns—these will expand their flowers in four weeks after the commencement of forcing at this period of the year. Hyacinths, Tulips and Narcissus will also need all the time available. These should be started steadily in a temperature not exceeding 50°, and in 14 days time the heat may be increased by 5°. Before either of these bulbous plants show any tendency to become drawn or to elongate their flower-stems unduly, let them be placed upon shelves as near to the glass as possible. Choose the early sorts of each in preference to later varieties. In respect to Cinerarias, it will depend entirely upon their present forward condition. If the flowering shoots are now 6 inches in height, it may be possible to get some flowers open, but it is doubtful.

GARDENER'S WAGES: *E. J. M.* The amount of remuneration paid to a hired gardener usually varies according to the size of the place and the responsibilities imposed by its arrangement.

The minimum wage recommended by the British Gardeners' Association for a gardener is 30s. per week, with suitable housing accommodation. The salary of under-gardeners varies greatly, and may range from 16s. to 30s. per week with bothy provision.

MALFORMATION IN GOOSEBERRY SHOOTS: *S. C.* This malformation is often seen in Gooseberries, and similar trouble has been noticed in the case of Apples and vines. It is not due to either an insect or fungus, but is the result of some physiological cause, which produces bud suppression in the malformed growths. Spraying will do no good. Dress the soil with lime.

NAMES OF FRUITS: *S. R. H.* Apple, probably Newtown Pippin.—*R. Park.* 1, Forge Apple; 2, Alfriston.—*S. Bannister.* Wadhurst Pippin.—*Ber. Hall.* Apples (green) Reinette Franche; (yellow) Waltham Abbey Seedling. Why not number your specimens?—*John Butcher.* Ribston Pearmain (not Ribston Pippin).

NAMES OF PLANTS: *A. Y.* Dictamnus origanum.—*Cape Bulb.* Ornithogalum lacteum.—*L. G. P.* Lopezia miniata.—*H. E. C.* Nerine crispa.—*H. G. Wilt.* Salvia leucantha.—*O. O.* 1, Polystachya luteola; 2, Mystacidium filicorne; 3, Cnema triptera; 4, Oncidium vaniferum.—*H. P., Cardiff.* Zygopetalum Mackayi.—*H. P.* Catsetum maculatum.—*Robuck.* Cypripedium villosum.—*T. A. H.* 1, Veronica angustifolia; 2, V. Andersonii.

ORCHID BORER BEETLE: *J. G. D.* The beetle damaging the Dendrobiums is known as Xyleborus morigerus, Blanford. It was wrongly named Xyleborus perforans, Wollaston, by the writer of an article on this pest in the Board of Agriculture Journal (Vol. IV., No. 4, pp. 474-476). It appears mainly to attack and destroy various species of Dendrobium.

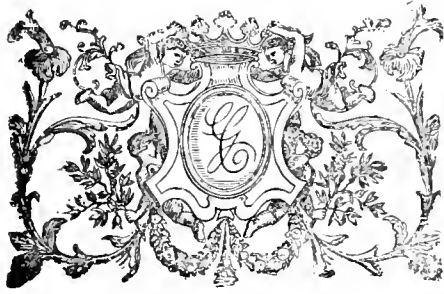
ROSES: *H. C.* It is difficult to understand how vigorous growths fail to flower, as the varieties are amongst the freest blooming sorts. Can it be that the growths are mere suckers? If you send a few of the shoots it may help us to give you a more definite reply.

TULIPS DISEASED: *C. M.* The plants are attacked by Botrytis (Sclerotium) disease. The first stage of the disease appears as a whitish fluffy mould, which changes to a brown colour, and develops numbers of spores. This is called the Botrytis or summer stage. The mycelium or spawn grows up inside the stem, and forms numbers of black, solid bodies, sometimes as large as a grain of corn, which are known as Sclerotia. When the plant decays at the end of the season, the Sclerotia fall to the ground, and produce spores which infect other plants. Diseased plants should be burnt, and accumulations of vegetable matter should not be allowed in a garden. Gaslime or quicklime applied to the land will be of benefit in checking the disease.

TURF CUTTING: *J. A. W.* The cost of turf cutting will necessarily vary according to the locality, and will be regulated to some extent by the labour conditions of the district. But it may be taken approximately at 1s. per hundred turves, or, roughly, one rod. Where the turves are desired to be especially regular and even, the cost would be 1s. 3d. As each acre will contain 160 rods, the price per acre will vary from £8 to £10.

WORMS IN CHRYSANTHEMUM POTS: *E. T.* The worms are harmful to the roots of various plants. They belong to the genus Enchytraeus, and one is known as the Aster worm (Enchytraeus parvulus), which lodges under the epidermis of the roots and feeds on the juices and tender substances. Another species, E. agricola, also does much harm to plant life. These worms may be destroyed by dressing the soil with salt, at the rate of 1 ton to the acre. Lime water, made by mixing one pound of quicklime to one gallon of water, will also kill them. The lime requires to be mixed well, and the liquid should be strained and applied in a clear form. Vaporite is destructive to these worms.

Communications Received. H. H. W., C. L., Harpenden; R. P. B., Chloris; S. A., A. D., J. A. C. C., H. S. T., F. W. J., A. and B., R. I., F., H., J. F., Welshpool; H. E., A. D., R., C. E., J. W. B., A. F., Yorks; B. D. K., J. B. H., A. F., Slough; D. H. L., Yorkshire; C. F. K., Potsdam; P. M., W. P. R., Mass.; W. G. S., H. P., Deal; C. S., T. A. H., H. G., H. S., Preston.



THE

Gardeners' Chronicle

No. 1,955.—SATURDAY, January 14, 1911.

CONTENTS.

Abutilon Thompsonii and A. T. spurium ...	29	Orchid notes and gleanings—	
Abutilon Thompsonii flore plena ...	29	Lælio-Cattleya cranstounae ...	18
American Hawthorns—Some new arborescent species ...	17	Lælio-Cattleya Perrinæ ...	18
Agrostis tuberosa ...	25	Lælio-Cattleya teigmomthiensis ...	18
Banana culture in England ...	23	Pine-apple culture ...	32
Challis, Mr. Thomas, presentation to ...	26	Rainfall of 1910, the ...	15
Events, forthcoming ...	54	Rose, Dijon tea ...	28
Flowers in season ...	26	Roses, some difficult varieties of ...	10
Forestry Association, a proposed ...	26	Sandalwood—	
French fruit, Britain as a market for ...	24	An opportunity for plant pathologists ...	20
Gardeners' Royal Benevolent Institution ...	25	Scotland, notes from ...	28
Gooseberry-mildew, American, in Cambridgehire ...	24	Societies—	
Gypsophila paniculata, propagation of ...	32	Forest Hill Chrys. ...	30
Hybrids raised in the Botanic gardens, Kew ...	19	Horticultural Club ...	25
Law note—		Manchester and N. of England Orchid ...	30
Prosecution under the Pharmacy Act ...	31	National Sweet Pea ...	25
Nectarines, propagation of ...	32	North of England Horticultural ...	26
New Zealand, notes from Novelties of 1910 ...	29	Peebleshire Hort. ...	30
Orchid notes and gleanings—		Royal Horticultural (Scientific Committee) ...	30
Angræcum pellucidum ...	18	Royal Meteorological ...	25
Cypripediums as winter flowers ...	18	Tinder fungus, the false on fruit trees ...	25
Lælio-Cattleya Bella alba ...	18	Variety? what is a ...	28
		Week's work, the—	
		Apiary, the ...	23
		Flower garden, the ...	23
		French garden, the ...	23
		Fruits under glass ...	23
		Hardy fruit garden ...	22
		Kitchen garden, the ...	22
		Orchid houses, the ...	22
		Plants under glass ...	22

ILLUSTRATIONS.

Angræcum pellucidum ...	18
Disease in Sandalwood tree ...	21
Lælio-Cattleya cranstounae "Westonlart variety" ...	27
Mandevilla suaveolens, fruits of ...	30
Sandalwood tree (Santalum album) in southern India ...	20 & 21

AMERICAN HAWTHORNS.

SOME NEW ARBORESCENT SPECIES.

THE tomentosa group of Crataegus includes a very large number of species, which are mostly distributed east of the Mississippi River. They are particularly abundant in the Province of Ontario, Canada, from Toronto to Port Huron, where they form a very important part of the vegetation. The tomentosa and Crus-galli groups are the latest in the genus to bloom, and the various species in the two groups flower about the same time, which is usually from May 28 to June 15. The general characters of the species in the tomentosa group are perhaps more readily detected at a glance than those of any other. They are mainly characterised by leaves obovate to ovate and cuneate to rounded at the base; small flowers, in tomentose or villose corymbs rarely glabrous, opening late; fruit obovate to sub-globose, or short-oblong, orange-red, or scarlet, usually becoming succulent at maturity; nutlets, with longitudinal grooving on their ventral faces. This feature of the nutlets is a remarkable and constant characteristic of the

different species in the group, which includes some splendid plants for park and garden decoration.

The following species are included in the tomentosa group:—

C. CRATAEGUS ADMIRANDA.—This species is an arborescent shrub, growing 12 feet high, with spreading branches forming a round-topped head. The leaves are obovate to oval, cuneate at the base, tapering considerably in the petiole, and about 3 inches long to 2 inches wide. The 20-stamened flowers, with pale-pink anthers, are produced on densely tomentose corymbs, and usually open about June 7. The fruits are short-oblong, lustrous, bright-red, developed on spreading, reddish stalks, and they ripen about the second week in October. They are much larger than in most of the other species of this group. The type plant grows on the banks of the Niagara River, at Niagara Falls, on the New York State Reservation, and it appears to be mostly confined to this locality, although a Crataegus found at Canandaigua Lake, N.Y., last year was doubtfully referred by me to this species.

C. BALKWILLII.—This Hawthorn is a slender tree 18 to 20 feet high, with a trunk 6 feet long, and spreading, ascending branches forming a thin and irregular head. The leaves are obovate to elliptic, gradually narrowing on the petiole, 3 inches long and 2½ inches wide. The flowers, with five to eight stamens, bearing pink anthers, are borne on long pedicels on few-flowered, hairy corymbs, and open about June 4. The orange-red, roundish fruits, produced in small clusters, ripen at the end of September. The type tree grows in a rich shady wood near the city of London, Ontario, Canada, and it appears to be confined to that locality. The species was named by Dr. Sargent, in compliment to John Arthur Balkwill, of London, Ontario, who has a considerable knowledge of the Crataegus in his locality.

C. CALVINII.—This is commonly an arborescent shrub about 12 feet high with flattish, spreading branches, forming a handsome, globular head. The leaves are generally obovate, cuneate at the base, 3½ inches long and 2½ inches wide. The 20-stamened flowers with light-rose anthers, are produced on densely villose corymbs during the first week in June. The sub-globose fruits, borne on stout, spreading reddish pedicels, are bright, lustrous, cherry-red, and ripen during the first week in October. The type plant grows wild on the banks of the outlet of Canandaigua Lake, N.Y., and is a fairly common species in that vicinity. The fruits of this species are distinctively succulent, and make a remarkably handsome and brilliant display in the month of October. It was named by Dr. Sargent, in compliment to Calvin Cook Laney, the superintendent of the Rochester Park system.

C. DELECTABILIS.—This species forms a handsome tree 18 to 20 feet high, with a trunk 10 inches in diameter at the base, and stout, spreading branches, forming an open, irregular head. The old stems and main trunk are conspicuously covered with light gray, scaly bark. The leaves are ovate to oval, gradually narrowed at the cuneate base, often 4 inches long and 3 inches wide. The flowers have six stamens, which possess cream-white

anthers. They are borne on almost glabrous pedicels and open about June 4. The obovate, scarlet fruits, marked by pale dots, are suspended on long drooping pedicels, and ripen about the end of September. The type tree grows on the Weston Road in the northern suburbs of Toronto, Canada. This Hawthorn is very showy when covered with its scarlet fruits in the autumn.

C. DEWEYANA.—This species forms a tree sometimes 25 to 30 feet high, with a trunk 5 to 6 feet long, and 10 inches in diameter at the base. The lower branches are very stout, horizontal, and slightly drooping, and the upper branches are end slightly, forming a wide, open, and picturesque head. The extremities of the branches are usually remotely extended from each other on the head of the tree, giving it a marked individuality. The leaves are very broadly obovate to ovate, abruptly narrowed at the sometimes oblique base, and are about 4 inches long and 3½ inches wide. The flowers are borne on loose, villose corymbs, the time of blooming being about May 30. The stamens number 10, and have reddish anthers. The roundish sub-globose fruits of a lustrous scarlet colour, produced on drooping pedicels, and ripening after the middle of September, are conspicuous objects until the middle of October. The type tree grows in rich, alluvial soil, in competition with strong-growing forest trees, on the south side of the city of Rochester, N.Y., and has lately been found growing in the Campus of Cornell University, or on grounds adjacent thereto. In its distinct arborescent characters, handsome foliage, and showy flowers and fruits, this is perhaps one of the most beautiful of all the tomentosa species. Dr. Sargent named it in compliment to Chester Dewey, a botanist and student of natural history, who was for many years professor of chemistry and natural philosophy in the University of Rochester.

C. DIVERSA.—This is commonly an arborescent shrub about 12 feet high, with erect stems and small ascending and slightly spreading branches forming an open head. The obovate leaves, with narrowed cuneate base, are usually 3 inches long and 2½ inches wide. The flowers, which have 12 to 20 stamens, with rose-coloured anthers, are produced in hairy corymbs about June 15. The fruits are oval to obovate, lustrous crimson, on hairy, drooping pedicels, and ripen about the end of September. The type plant grows at Cooper's Plains, Steuben County, N.Y., on a hillside pasture, and is not at present known outside that locality.

C. EFFERATA.—This species is usually a tall, arborescent shrub from 16 to 18 feet high, with erect, spreading branches forming a compact oval-shaped head. The oblong-ovate leaves, with an abrupt cuneate base, are often 4 inches long and 3 inches wide. The flowers, which open about May 30, are produced in compact, hairy corymbs. The stamens number 16 to 20, the anthers being rose-coloured. The sub-globose scarlet fruits are suspended on long, drooping, hairy corymbs, and ripen about October 5. The type plant grows on the banks near the outlet of Henlock Lake, Livingston County, N.Y., and the species seems to be scattered throughout that region. *John Dunbar.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ANGRÆCUM PELLUCIDUM

ANGRÆCUM PELLUCIDUM (see fig. 13) was introduced from Sierra Leone as far back as 1842, but the plant is still rare in gardens. The flowers are not large, like those of some of the other species, such as *A. sesquipedale*. Nevertheless, a specimen in bloom is very attractive. The plant, from which the illustration shown in fig. 13 was prepared, was exhibited by J. S. Bergheim, Esq., Belsize Court, Hampstead, at the meeting of the Royal Horticultural Society, on December 6, and the Orchid Committee awarded it a Botanical Certificate. The specimen was attached to a small portion of wood, and was suspended to allow the drooping inflorescences of creamy-white flowers to display their beauty. But *Angræcum pellucidum* may be grown in a pot with equal success, although the receptacle needs to be suspended when the plant is in bloom. A specimen in Sir Trevor Lawrence's collection at Burford, cultivated in a pot, formed the subject of the Supplementary Illustration in the issue for August 10, 1895.

LÆLIO-CATTLEYA TEIGNMOUTHIIENSIS.

SPECIMENS of this cross from *Lælio-Cattleya amanda* and *Cattleya labiata* are sent us by Eustace F. Clark, Esq., Chamonix, Teignmouth, who writes:—"There have been only three seedlings, which all germinated in 1901 on a pot of Coconut fibre." The better flower has a resemblance to *Cattleya maxima*, the other, in the tubular form of its labellum, showing a reversion to *C. intermedia*, which, with *L. Boothiana*, was supposed to be the parents of *L.-C. amanda*. The better flower shows the veining of *L. Boothiana*. The sepals and petals are silver-white, tinged with lilac; the lip rose colour, with darker veining, and a tinge of yellow in the centre.

LÆLIO-CATTLEYA FERRIPAL.

UNDER the above name, Mr. Clark sends a flower of a hybrid from *L. Perrinii* and *Lælio-Cattleya Pallas*. It is flowering for the first time, and is of indifferent quality in its present condition. The sepals and petals are pale lilac; the lip has the side lobes thrown back, and the purple-tipped front deflected, as in *L. Perrinii*.

LÆLIO-CATTLEYA CRANSTOUNÆ "WESTONBIRT VARIETY."

(See fig. 17, p. 27).

THE Award of Merit given to this fine production of Lieut.-Col. Sir George L. Holford, K.C.V.O., and reported last week (see *Gardeners' Chronicle*, p. 14), was raised by the Council to a First-class Certificate. As a general rule it can scarcely be doubted that the Orchid Committee are quite liberal enough in their awards. At the same time, this charming novelty thoroughly deserves the First-class Certificate.

CYPRIPEDIUMS AS WINTER FLOWERS.

THE value of a section of this large genus for winter blooming is well shown in a photograph of a *Cyripedium* house, taken recently in the gardens of Fred Hardy, Esq., Ashton-on-Mersey, a copy of which has been sent us. There are about 2,500 blooms, many of them of plants of the best varieties of *Cyripedium insigne* and *C. Lecanum*, *C. Eurycles*, and other winter-blooming kinds. The plants are evidently in an excellent condition, and many of them are large specimens.

LÆLIO-CATTLEYA BELLA ALBA

THIS hybrid (from *Lælia purpurata alba* and *Cattleya Warneri alba*), shown by Messrs. Charlesworth & Co., Baywards Heath, proves the advantage of going over the best-known crosses again, selecting as the parents the choicest varieties procurable. The use of albinos in this case has resulted in a beautiful pure-white flower with a bright purplish crimson lip.

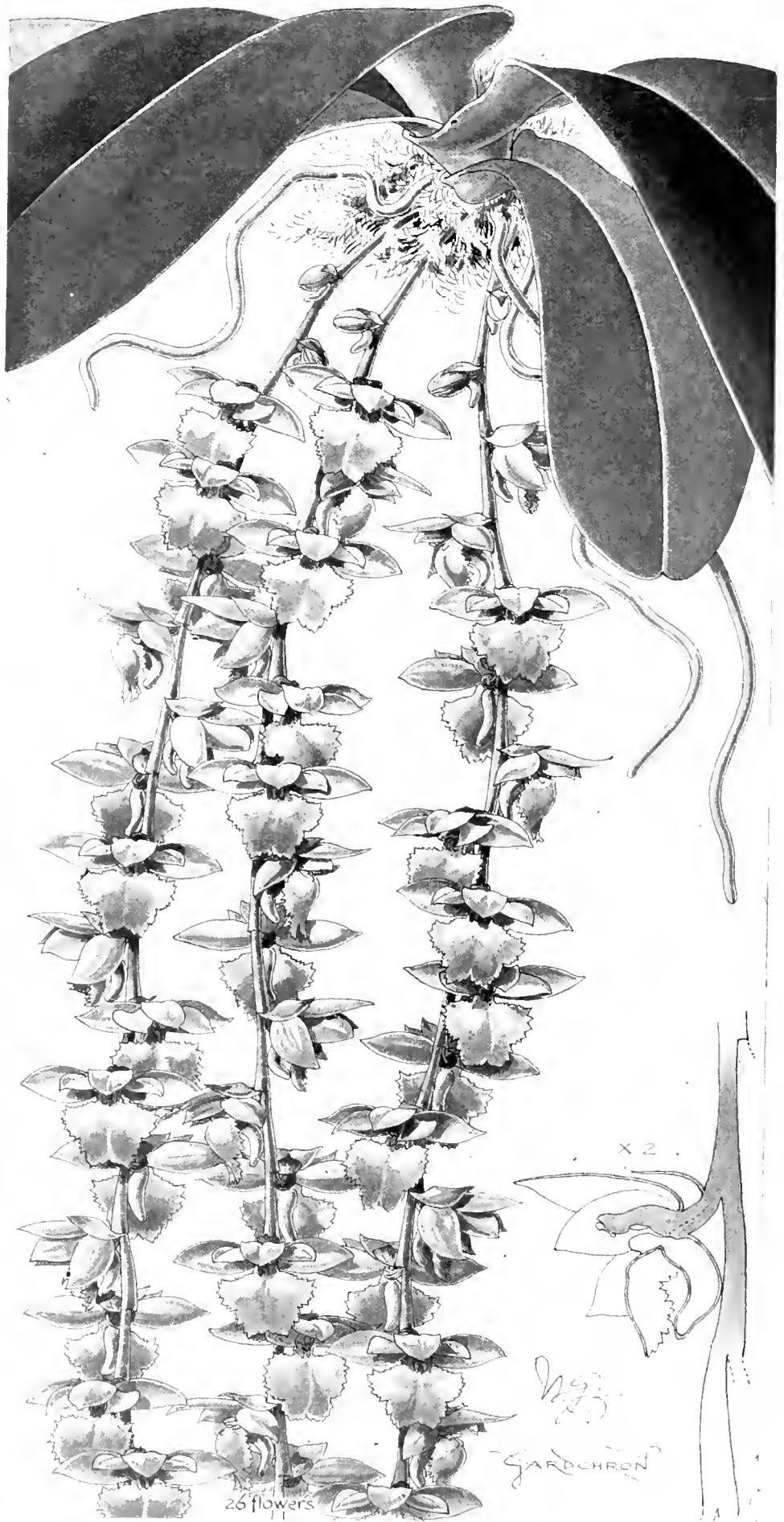


FIG. 13.—ANGRÆCUM PELLUCIDUM: FLOWERS CREAMY-WHITE.

HYBRIDS RAISED AT KEW.*

FOR many years past a number of hybrid plants have been raised at Kew, and in view of the general interest and importance of such work it has been considered advisable to bring together into as complete a record as possible the successes and failures in hybridization at Kew. In the following account, in order to facilitate reference, the hybrids have been arranged in alphabetical order, and in all cases the name of the female parent is placed first. They have been produced, as the list shows, in all departments of the Royal Botanic Gardens.

Begonia Pink President Carnot (*B. President Carnot* × *B. kewensis*).—This hybrid, raised in 1902, first flowered in 1904. It resembles the female parent in habit, in that the female flowers, which are pink in colour, remain on the plant for some time; in addition to this, the male flowers, which in the mother plant do not open properly and drop off at an early stage, remain on the plant and open properly as in *B. kewensis*.

Begonia (*B. coccinea* × *B. kewensis*).—The hybrid was raised in 1902 and flowered in 1904. Habit intermediate between the two parents. The dull scarlet flowers are disposed in slender, pendulous inflorescences, as in *B. coccinea*.

Bravoa kewensis (*B. geminiflora* × *B. [Prothyranthes] Bulliana*).—The hybrid was produced in 1894 and flowered in 1899. Plant tufted, deciduous. Leaves 2 feet long, 1 inch in diameter. Inflorescence 4 feet high, bearing flowers in the upper part only. Perianth tubular, dull brownish-red on the outside, and yellow on the inside of the tube. (See note in *Gardeners' Chronicle*, 1899, xxvi., 112.)

Brunsvigia (*Brunsvigia Josephine* × *Amaryllis Belladonna* var. *kewensis*).—One seedling was obtained from this cross, which was made in September, 1893; it has not yet flowered, but is distinct in habit from both parents.

Calceolaria kewensis (*C. Jefferies' hybrid* × *herbaceous varieties*).—This cross was made in 1904, the seedling flowering in 1905. The plants were grown a second year and flowered profusely in May, 1906. *C. kewensis* seeds freely and comes true from seeds. The plant is figured and described in the *Gardeners' Chronicle*, 1906, xxxix., 390, fig. 153.

Calceolaria (*C. Clibranii* × *herbaceous varieties*).—This cross was made in 1906, and the seedlings flowered the following spring. The blooms are about the same size as those of *C. kewensis*, but both habit and leaves are distinct. The pollen of six distinct colours of the herbaceous varieties was used on *C. Clibranii*, the result being a fairly wide range of colour and spotting in the flowers.

Callispyche kewensis (*C. mirabilis* × *C. aurantiaca*).—Raised in 1898, flowered in 1901, seedlings show very little variation, and are intermediate in characters between the parents. The flowers are buff-yellow in colour, with long pendulous stamens of a creamy-white shade. The flowers of *C. amabilis* are white, while those of *C. aurantiaca* are orange. The hybrid is fertile, and seedlings have been raised from it.

Campanula (*C. thyrsoides* × *C. spicata*).—Plants intermediate in character between these two species appeared amongst a batch of seedlings raised in 1900 from seed of *C. thyrsoides* which had ripened in the Alpine House. The cross was probably effected by insects, the two parents being in flower at the same time in the house. Plants flowered the following year, having a longer, looser inflorescence than is usual in *C. thyrsoides*, while the flowers were also intermediate in character. Seeds saved from the hybrids did not retain their character, but reverted to *C. thyrsoides*.

Cheiranthus hybridus (*C. mutabilis* × *C. Cheiri*—*yellow variety*).—A few seeds were obtained from this cross, made in 1897, and from one, *C. hybridus* was raised. This grows into a many branched plant of more vigorous habit than the female parent. The fragrant flowers are small and borne in slender racemes in spring. They are purple throughout the early stage, but turn to a yellowish colour with age. It requires greenhouse culture.

Cheiranthus kewensis (*C. hybridus* × *C. Cheiri*—*red variety*).—The cross was made in May, 1899, and one plant was raised which flowered in January, 1900. Its leaves are similar to those of *C. Cheiri*, but the flowers are intermediate in character. The flowers are fragrant and borne freely in long racemes. They vary in colour, at different stages, from yellow to brown and then to purple. It is usually grown indoors and shows to the best advantage in sunny weather during February and March. A description of the two hybrids was published in *The Garden*, 1901, lix., 173.

Cynorchis kewensis (*C. purpurascens* × *C. Lowiana*).—The seedlings raised from this cross, made in 1901, flowered in 1903. In habit they resemble *C. Lowiana*, the flowers being intermediate in size and dull purple-red in colour.

Cytisus kewensis (*C. Ardoinii* × *C. albus*).—This hybrid was obtained in 1891 through insect agency, and appeared among a batch of seedlings of the former parent. It is now widely cultivated in gardens. The habit is quite prostrate and the flowers of a pale sulphur-yellow.

Cytisus Beanii (*C. Ardoinii* × *C. purgens*).—This cross was also effected by some insect in 1892. It is a low bush with golden-yellow flowers.

Cytisus Dallimori (*C. scoparius* var. *Andreanus* × *C. albus*).—The mother plant of the cross was grown in a pot and fertilised under glass in 1900. Only two plants were raised, one of which had pale yellow flowers and showed no influence of the mother plant in colour, but was of great vigour. The other, a much weaker plant, flowered in 1904 and had pale purple blossoms, and has been named *C. Dallimori*. Grafted on stocks of *Laburnum*, the hybrid is now showing plenty of vigour and is undoubtedly one of the most distinct and beautiful of the taller Brooms. It was given an Award of Merit at the Temple Show of 1910. (See *Gardeners' Chronicle*, 1910, lviii., 397.) The hybrid is fertile, but it is not yet known whether it will breed true.

Disa kewensis (*D. grandiflora* × *D. tripetaloides*).—This hybrid was the result of a cross effected in 1891, and flowered in 18 months from the sowing of the seed. The flowers are intermediate in colour, 1½ inch in diameter, with bright rose lateral sepals; the dorsal sepal is hooded as in *D. tripetaloides*, light pink in colour, with a few light red spots. The labellum is concave, pink, shading off at the base to pale yellow, and spotted with light red. Figured in *Gartenflora*, 1903, t. 1510.

Disa Premier (*D. tripetaloides* × *D. Veitchii*).—This plant resulted from a cross made in 1891. *D. Veitchii*, the male parent, is itself a hybrid between *D. grandiflora* and *D. racemosa*. The flowers are rich rosy-crimson, larger than those of *D. racemosa*. It was exhibited at the Royal Horticultural Society's meeting on October 10, 1893, and received a First-class Certificate.

Epidendrum kewense (*E. canthium* × *E. cicutum*).—The reverse cross was also made. The first seedling from this cross, made in 1899, flowered in 20 months from germination. These hybrids showed diverse shades of colouring, the bulk of them being dull red or buff, suffused with yellow. A few flowers were self-pollinated and also recrossed with both parents. For further information, see *Orchid Review*, 1907, pp. 58, 122.

Freesia kewensis (*F. Armstrongii* × *F. Lechtlinii*). This cross was made in 1903, and

the seedlings flowered in the following year. The flowers are pale lilac-pink, suffused with pale yellow in the throat, about 1 inch in diameter, with a long tapering tube and spreading limb. The habit of the hybrid is erect and slender, as in *F. Armstrongii*.

Gladiolus (*G. deinceps* × *G. primulinus*).—The cross was made in 1906, and the seedlings flowered in 1909-10. The seedlings all showed the predominance of the male parent in the long slender inflorescence, glaucous foliage, and in the ground colour of the flower, which is yellow. The red stripes which are so characteristic of the mother plant are only faintly developed in the hybrid. The reverse cross was made but no good seeds were obtained.

Gladiolus (*G. Colvillei albus* × *G. primulinus*).—The cross was made in 1906, but only one plant flowered this year. Habit intermediate; leaves glaucous; flowers buff-coloured, large and reflexed as in *G. Colvillei*, with deeper markings in the throat. The seedlings are mostly weak and difficult to grow.

Gladiolus (*G. primulinus* × *Lemoine's hybrid*—*white variety*).—The cross was made in 1906, and seedlings flowered in 18 months to two years from the date of germination. Habit of seedlings intermediate; flowers with bright scarlet ground colour, heavily blotched with pale lemon-yellow on the lip and throat. A few of the seedlings showed distinct striation with a darker shade of red. The flowers are about 3 inches in diameter and show the spreading or reflexed segments of the male parent.

Kalanchoe kewensis (*K. flammula* × *K. Butii*).—Crossed in 1901 and flowered in 1902. The flowers are bright rose-pink in large corymbose cymes about a foot in diameter. Plant 2-4 feet high. The remarkable feature of this plant is that although both its parents have simple leaves, the hybrid has several leaves with one or two pairs of pinnae. It is described and figured in the *Annals of Botany*, xviii., pp. 435-441, pl. 21 23.

Kniphofia kewensis (*K. pauciflora* × *K. Macowanii*).—Seeds sown in October, 1892. The plants flowered in October, 1893, the inflorescence being longer and looser than in *K. pauciflora*, while the flowers are tinged with red. It was published under the name of *K. pauciflora* × *Macowanii* in the *Gardeners' Chronicle*, 1893, xiv., 424.

Lilium kewense (*L. Brownii* var. *chloraster* × *L. Huryi*).—Raised in July, 1897, seeds were sown the following November, and the first flower opened July 19, 1900. The hybrid resembles *L. auratum* in habit, but the flowers are pale buff, with a few brown spots on the inner side of the segments. It is described and figured in *The Garden*, 1900, lviii., 99.

(To be continued.)

THE ROSARY.

DIFFICULT ROSES.

THE pleasant chat about "difficult" Roses by *R. P. S.* tempts me to add somewhat to his list, as I think some of the loveliest Roses are just those that will not content themselves with routine treatment, and are therefore far too little known.

Perhaps the loveliest of all golden Roses, and I speak advisedly when I call it golden, is the Tea Rose *Georges Schwartz*. I must own I have never seen it in beauty in England, but the reason is that it will not grow on the Binar stock so universally employed nowadays. Why not then buy it on some other stock, and so give your friends and self the pleasure of a possible success and surprise? It succeeds admirably on the India major stock so much used in southern countries, but then requires a moist soil to pass the summer droughts without injury. It will

* Reproduced from *Kew Bulletin*, No. 9.

† *B. kewensis* is a chance seedling or hybrid which originated at Kew about 15 years ago. It most nearly resembles *B. undulata*.

also grow vigorously when budded on *Rosa bracteata* (the Macartney Rose) and on this stock is an admirable winter bloomer. Its immense, golden petals are so solid that it withstands the winter dews unimpaired, but it is not long-lived on this extra-vigorous stock, so that it should be renewed every third or fourth season. It will grow on the Banksian stock also when not too fully exposed to wind and sun, and I suspect that some of the Himalayan Roses would be congenial to it. But the most essential thing is that it must not be pruned! This is the cardinal point. You may thin out some of the oldest wood now and again, but you must not cut it back; if you do, you will see at once the results in lessened vigour. Consequently, it must be grown under glass in most parts of England, and, if I gardened in England, I would try it in a cold house rather than be without it.

Then there comes the lovely, though not golden Rose "Cloth of Gold"—whose lemon-coloured petals shade to clear yellow in the centre—which should still find a place on some wall too hot for other Roses. It also must not be pruned in the ordinary way, but only thinned out now and again, and, if it scrambles among other and evergreen climbers, you will have the greater probability of seeing its fair beauty. Here, too, there is an indispensable thing required for its success, and that is, iron in the soil. It is quite hopeless to get a really beautiful flower on this Rose without plenty of iron in the soil—a curious fact in the culture of this Rose.

A very favourite Rose of mine is the tiresomely-named *La France de 1889*, one of the few Nabonnand-raised Roses that can give an exhibition bloom. It thrives best on a wall with an easterly aspect, and, in such a position, will climb to a considerable height. In England this Rose is best when only thinned out, rather than pruned, but in the South of France it may be cut down to the ground in the month of August, and the strong shoots that come up will give some superb blooms in January or February on their extreme ends, and later in spring a quantity of bloom from the side growths. Its fragrance and rich rose-red colour in winter are remarkable, while in warm weather the colour rapidly turns purple.

There is a promising Rose lately introduced called *Mary Countess of Ilchester* that will, I hope, prove even more valuable for winter bloom than the old *La France de 1889*. It has a stiffer and better habit, while retaining many of the good points of its precursor. There is a decided likeness between the two Roses when well grown, and this will, I think, prove the harder of the pair.

Comtesse de Turenne, mentioned by *R. P. S.*, is as great a favourite with me as with him for winter bloom; indeed, I do not know a more beautiful Rose of its soft, clear, pink colouring. In southern lands, this Rose needs moisture. There, it makes a fine pillar, with its robust shoots and glossy foliage. It stands severe pruning for the winter bloom, if only one good shoot be left untouched, to "draw the sap," as it were. Without this precaution, it is inclined to refuse to start in autumn. On a wall, it should be a very useful Rose in England for autumn bloom, but it will not stand drought at the root, and its petals are so numerous that they do not stand heavy dews or rains without suffering.

Souvenir de Léonie Viennet seems to me quite as beautiful as *E. Veyrat Hermanes*, and will give an abundant harvest of its exquisitely-tinted blooms when grown on a sheltered wall and well treated in the matter of soil and manure. Its great fault is that it is only a summer bloomer; it would be quite indispensable if it could be persuaded to give a second crop, for its apple-blossom, rose, and apricot tints are so beautiful, and the shape and size of the blooms above average. This Rose, like *Cloth of Gold*, needs a good deal of manure to bring out its beautiful tints, and thrives on a strong soil. *Edward H. Woodall, La Seta, Nise.*

SANDALWOOD.

AN OPPORTUNITY FOR PLANT PATHOLOGISTS.

THE Sandalwood tree (*Santalum album*) has some pretensions to beauty, its delicate foliage responding readily to the amount of light falling upon it, the dark green leaves of shady places becoming almost clear yellow when exposed to the bright sunlight. It is a handsome little tree, 20 feet to 30 feet high, whether bearing masses of small, dark-brown flowers or laden with shining fruits, green or red or black, according to their stage of ripeness. Geographically, its range is limited to the Indian peninsula, and here its habitat is determined by climatic conditions. A mean temperature of 74° Fahr., a rainfall of 20 to 40 inches, and an elevation of from 2,000 feet to 4,000 feet appear to suit it best:

limb being not infrequently exacted, and a repetition of the offence was sometimes followed by the capital penalty. Even now, heavy fines are enforced on those destroying the trees springing up in their fields. Custom lingers long in India, and so great is the dread which has been instilled by former ferocious punishment that few will care to do any wilful injury to the State monopoly. The fallen trees suffer little from the elements, and the white ants, whose ravages on all wooden articles are so greatly feared, merely clean the logs of their bark and alburnum, and leave the scented heartwood intact. All that has to be done, then, is for the ranger to bring in enough roots and trunks to fill the local dépôt for the annual sales. There the various pieces are cut to convenient sizes, trimmed and smoothed, and the produce parcelled out in a complicated series of grades. After due adver-

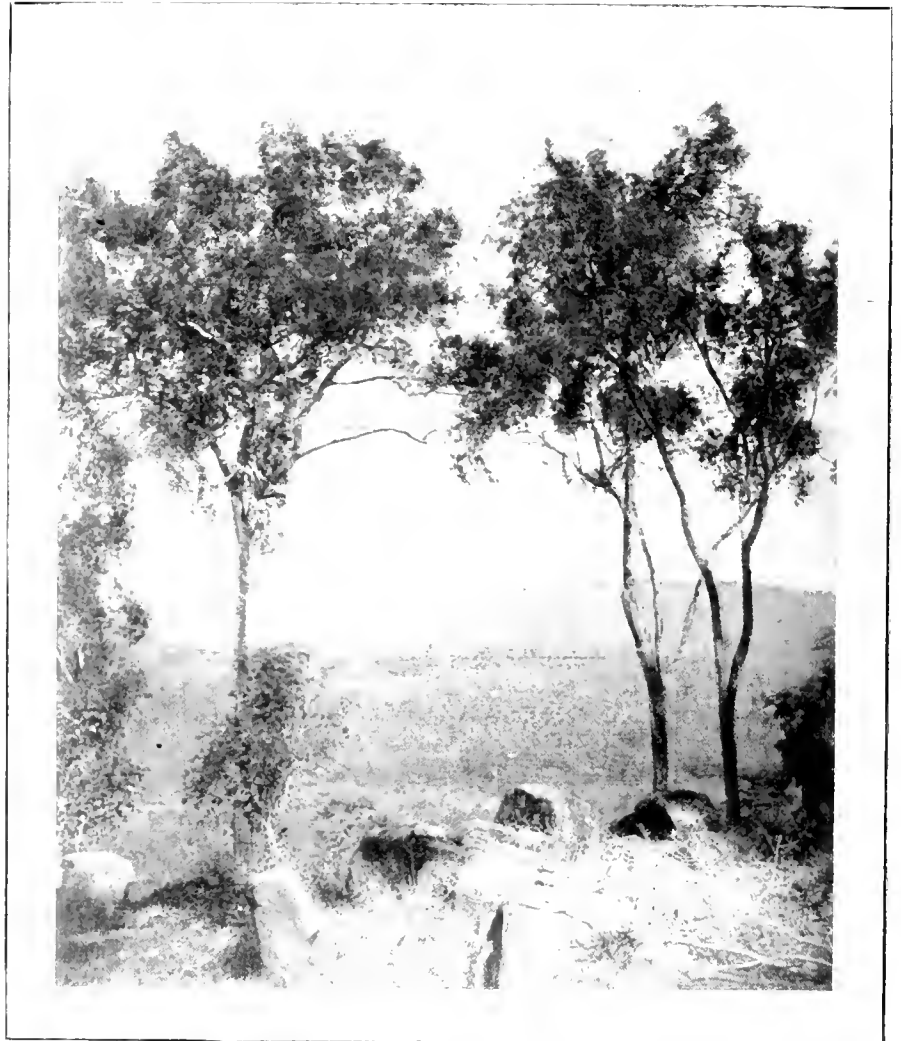


FIG. 11.—SANDALWOOD TREES (*SANTALUM ALBUM*) IN SOUTHERN INDIA.

conditions offered by the native state of Mysore in South India. Here alone it thrives to the best advantage, and thus it is that this favoured State produces nine-tenths of the 2,000 tons of Sandalwood offered for sale each year. The value of the scented wood and the oil obtained from it is considerable, and the Mysore treasury is enriched to the extent of some £50,000 a year from these sources. No forest produce is more easily collected. Calculation as to the maturity of the trees to be felled is not needed, for all the year's supply is obtained from the old, dead trees, each carefully marked by the officers in charge of the range or district. The Sandalwood is a Government monopoly, and, thanks to the stringency of the laws, little or no theft or smuggling need be feared. In former times, anyone caught injuring a Sandalwood tree was liable to very severe penalties, a limb for a

tisement, traders come from all parts of India, but chiefly from Bombay and North India, and the auctions commence. These sales are of great interest, and many curious incidents are witnessed as the rival buyers emulate one another for the possession of a particular log which has taken their fancy. Sometimes two rivals will bid against one another to far above the market value of the piece, one finally relinquishing it with the exclamation, "May Allah have mercy on you over the price of that piece."

For many years past, the Mysore forest department has spent large sums of money in planting Sandal, with very indifferent success. Certain peculiarities of growth led to the theory that the Sandal requires special protecting trees, and these have been called "nurses." It has been noticed that, while the plant requires dense scrub in which to spend its youth,

it must have its head in the sun, and it has come to be recognised that the tree needs, above all, lateral shade for its lower parts. Very little attention seems to have been paid to the well-known scientific fact that the plant is a root-parasite and obtains no inconsiderable portion of

of other plants, and its suckers or haustoria were briefly described by Solms Laubach in the *Botanische Zeitung*. This simple fact of root-parasitism throws light on many of the Mysore difficulties, and the whole complicated theory of nurses and lateral shade submits to an easy

is presented for the parasitic attachment. The seed is amply provided with endosperm, which, on germination, is quickly transferred to a radish-like swelling of the hypocotyl. From the end of this swelling a long tap root is sent down, plentifully provided with side branches, on which multitudes of haustoria are developed. The seedling is able to live on its own stores of nutriment for some months, as may be readily proved by growing Sandal seed in pure sand in a greenhouse. Very interesting specimens may, in fact, be obtained with little difficulty in this way, and if the sand is interspersed with small pieces of bottle cork the haustoria lay hold of these with great avidity and sometimes attain a very fair size (fig. 15). The early efforts of the Sandal seedling seem, indeed, to be guided by little intelligence, for firm attachments are sometimes made to small bits of quartz, dead sticks or pieces of straw and other Sandal roots. From all this it may be readily believed that the parasitism of the Sandal in nature is very wide, and long lists of plants have now been prepared to whose roots the haustoria have been found firmly fixed.

During recent years a serious disease has made its appearance among the Sandal trees in



FIG. 15.—THE SANDALWOOD TREE (*SANTALUM ALBUM*).

A. Seedling. B. Root of Lantana attacked by Sandal. C. Germination of Sandalwood seed. D. Roots of A attaching themselves by haustoria to pieces of cork.



FIG. 16.—BRANCH OF *SANTALUM ALBUM* AFFECTED WITH SPIKE DISEASE.

Mysore, the leaves become more abundant, smaller and stiffer, and quickly fall off, no flowers or fruits are formed and the tree ultimately dies. At first, this disease, termed "spike" (fig. 16), from the appearance of the shoots, infected only old trees, and the attack gave rise to no apprehension, because it only made the collection of the year's wood more easy. But, later on, young trees of all stages were affected, and the whole of the Sandal growth in certain tracts was threatened with extinction. The Mysore Government has accordingly offered a large sum of money for a cure, because the natural reproduction by seed has ceased in these tracts, and in a few years there will be no large trees left. The cure is not at present forthcoming, and the cause of the disease is undetermined, so that the prospect has to be faced of the loss of this valuable source of revenue, unless this disease gradually becomes less virulent—like so many others in the ordinary course of nature—and the plantations recover. The present situation is none the less serious, for, although there are other Sandalwoods in the market, for instance, those of Malabar and Venezuela, these are produced by other species of plants, and the true and best-scented wood is only to be obtained from South India.

its nutriment from the roots of other trees. Years ago, Scott, the Curator of the Botanic Garden in Calcutta, finding it difficult to transplant Sandal trees without a very large ball of earth, discovered that its roots were attached to those

of other plants. The seedlings and young plants are much sought after by animals of all kinds, so that it is only in dense scrub that protection against their molestation is afforded, and it is just here that the necessary tangle of foreign roots

The Week's Work.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

PEACH TREES ON WALLS.—During mild weather wall-trees may be pruned and the growths retained. On no account should pruning be done during frosty weather; where it is desirable to retard the growth of the buds, the pruned wood might remain detached from the wall or wires so long as it may be thought necessary, but when the growths are replaced, care should be taken not to overcrowd them, but to allow sufficient space between each shoot to admit the laying in of the next season's growths without undue cramping.

PRUNING.—Much of the current work in this department will depend upon the state of the weather. If fine, the pruning, regulating, nailing, or tying of the shoots of wall trees may be proceeded with. Apricots, being the earliest to break into growth, should be dealt with first. The spurs on Cherry, Pear, and Plum trees should be thinned, as nothing is gained by overcrowding, and spurs are usually present in abundance on mature trees. Plump buds are frequently developed on the ends of the spurs, but the best and ripest buds are found near the bases of the spurs. The pruning and thinning of standard and other orchard fruit trees should also be taken in hand. These operations are too often neglected in the case of these trees, with the result that the crops are inferior. If orchard trees were pruned judiciously each year, there would be less heard about deficient crops, and the fruit would be of better quality. All branches that cross or crowd other shoots should be removed, in order to admit air and sunlight to the branches. Gumming and canker often result from shoots rubbing and chafing each other.

SEASONABLE WORK.—Should frosty weather prevail, stakes and other supports may be trimmed, painted, and generally made ready for use. New wall-shreds may be cut and prepared, for on no account should old ones be used again, as these are almost certain to contain insects or their eggs, and the expense of new material is trifling. Medicated shreds are the cleanest and best to use, and the additional expense is very small. Fruit walls provided with wires for training should be examined, and all defective wires made good, also any loose and misplaced eyes or strainers. See that the terminating holdfasts are securely fixed in the wall, and all new wires well painted before the trees are again trained. Wires on walls provide the cleanest and the best method of training fruit trees.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

THE GREENHOUSE.—During the winter months it is a common practice for plants from the cold greenhouse to be distributed in the various fruit houses. This system answers very well in the case of soft-wooded plants, but those of a more permanent character are best kept in the greenhouse proper. For example, such plants as Cape Heaths, New Zealand plants, and Azaleas, should not be removed from one house to another, however much such a practice might suit the grower's convenience. Cape Heaths are susceptible to attacks by mildew, and on the first appearance of this disease measures should be taken to suppress it. Apply a light dusting of sulphur as a very fine powder. In the case of New Holland plants, they are, even at this season, very subject to attacks of Red Spider, thrip, and White Scale. Red Spider and Scale may be destroyed by the insecticide recommended below, but it must be applied with great care. Thrips may be present unsuspected on plants of *Rhododendron indicum* (*Azalea indica*) and greenhouse *Rhododendrons*; directly any are detected fumigate the house. It is a good plan to give the greenhouse a thorough cleansing in winter on the lines recommended in my previous calendar on the stove. At the

same time overhaul the climbers trained to the roof. Some, including the hardier varieties of Passion Flower (*Passiflora*), Mandevilla, and similar plants that flower upon the wood of the current year may be pruned, but not such plants as *Chorizema*, *Clematis indivisa*, and *Rhynchospermum jasminoides*, as these should be allowed to flower first. Where required, apply top-dressings to plants growing in borders, and where necessary extend the rooting medium. After all is made tidy, re-arrange the plants on the stages, studiously avoiding overcrowding. Whenever the weather becomes very cold, necessitating the use of much fire-heat, close attention must be given to the watering of the plants. It is surprising what a difference careless watering makes to greenhouse plants, especially to specimens that have been long established in pots. In the case of plants of the Heath family, including *Azalea indica*, also the *Epacris*, to allow the roots to become dry weakens and spoils to a great extent the future flowering. At such times I advise a general damping down in the greenhouse to maintain sufficient atmospheric humidity. Give close attention to all plants upon shelves, and see that they do not become unduly dry. Autumn sown *Mignonette*, for instance, that is well advanced towards flowering, should never be allowed to have the soil in the pots quite dry, for the effect will be seen later in yellow leaves. I mention *Mignonette* because the best plants I ever had of this flower were grown on a shelf in a greenhouse.

INSECT PESTS.—In re-arranging the plants afterwards, look well to their condition as to insect pests. Where there is any mealy bug or scale insects, give a thorough cleansing, using a well-proved insecticide for this purpose. When, in the past, I have had to deal with bug, I have always found the Chelsea Blight Composition to be most effective, but it must not be used beyond the strength advised until experience has been gained in its use, and the contents must always be shaken before use. With soft brushes and soft sponges no harm will be done if care is exercised by the operator. In the case of thrips (both black and white) nothing is more effectual, in addition to sponging, than three fumigations with an interval of one night between each application. This remedy will also considerably check all kinds of scale insects. Where beetles and cockroaches abound, every possible means of eradication should be resorted to when a favourable opportunity occurs.

TEMPERATURES.—I am no advocate of high temperatures during the winter season, nor indeed at any season of the year so far as they are produced by excessive firing. For the stove proper a night temperature during the resting period of 60° Fahr. is quite sufficient, as an average. A fall after banking up and towards the morning of 5° will do no harm. During the day a rise of, say, 5° to 65° is ample if the weather is cold or windy. When, however, it is mild weather, 70° will be a good warmth to maintain. For the intermediate house or cool stove 5° less will suffice all round. In the greenhouse no firing should be employed beyond what is necessary to maintain the atmospheric temperature at night at 40°, with a natural rise during the day. To conserve all fuel at this season, should be the aim, for there will be plenty of need for fuel in the spring. During mild weather keep all cool houses ventilated a little at night.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westboult, Gloucestershire.

TEMPERATURES.—One of the chief difficulties with which the cultivator has to contend in winter is that due to the changeableness of the climate. The changes occur so suddenly that there is but little time to prepare for them, and extreme watchfulness is necessary, in order to prevent the temperatures of the houses fluctuating to an extent that is harmful to the plants. There should be provided a sufficient supply of water pipes in every Orchid-house to heat the houses adequately without having to overheat the pipes on any occasion. If the pipes are overheated a condition of dryness is brought about which is at once obvious to a cultivator on entering the house, and plants subjected to such dryness arising from excessive fire-heat are rendered more liable to attacks from certain parasites, whilst the foliage frequently

assumes an appearance of yellowness, which it is impossible afterwards to obliterate. There is little doubt but that in most Orchid-houses the temperatures maintained are higher than are necessary. The winter temperatures of the various departments should be kept somewhat as follows:—**Stove or East Indian-house:** (day) 68° to 74°, (night) 60° to 65°. **Cattleya-house:** (day) 60° to 65°, (night) 55° to 60°. **Intermediate-house:** (day) 58° to 62°, (night) 52° to 56°. **Cool or Odontoglossum-house:** (day) 54° to 58°, (night) 50° to 54°. The higher or lower temperatures given should rule according to the condition of the weather out-of-doors. During severe weather no harm will occur if the temperatures should fall a few degrees lower than even the minimums given, and, if the day temperatures should rise 10° above the higher figures I have stated, and the extra heat is obtained from sunshine, this will greatly benefit the plants.

LYCASTE SKINNERI.—Those who possess even a moderate batch of *Lycaste Skinneri* may reasonably expect to have flowers from now until April or May. The earliest plants may be encouraged to open their blooms a little earlier by placing them in a slightly higher temperature, when the flower-scapes are in course of development. As regards temperature at other times, I think a cool intermediate one is the best for this species. At the present season the plants should be kept moderately dry at the roots, but it will not be safe to allow them to suffer from drought for any appreciable period.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

CUCUMBERS.—Make provision at once for the raising of seedling Cucumbers for early spring planting. Sow the seeds in small, clean pots, and place the pots on a gentle hot-bed in a warm structure which has been thoroughly cleaned for the purpose. The soil should consist of finely-sifted loam and leaf-mould in equal parts. When the seedlings have made their first rough leaf, they should be carefully potted into 3-inch pots, and replunged in the hot-bed, raising them as near to the glass as practicable. Plants which are now furnishing supplies should be given every encouragement. Top-dress the bed as often as the young roots are seen on the surface, applying only sufficient soil at one time to cover the roots, and removing all decaying leaves and deformed fruits. Only sufficient fruits to provide the daily supply should be allowed to develop. The atmosphere should be kept constantly moist.

BROAD BEANS.—A sowing of Broad Beans may be made as soon as the soil is in a suitable condition. Land which has been trenched and manured some time previous to sowing is the most suitable for this crop. Drills should be drawn 3 feet apart and 3 inches deep, allowing 6 inches between the seeds. Improved Long Pod and Broad Windsor are reliable varieties, both being of vigorous habit and the Beans of good quality.

POTATOS IN HEATED PITS.—Careful attention must be given to the earliest plantation in ventilating and earthing up. Fresh air should be admitted when the weather is favourable, but cold draughts must be prevented. Earth up the plants as soon as they are large enough, so that the roots may not be disturbed after the tubers have commenced to form. Successional plantations should be made fortnightly, thus keeping up a continuous supply. Assuming that sets for this purpose have made some growth, they should be carefully planted in rows 18 inches apart and 9 inches from plant to plant, nothing being gained by planting too many sets in one pit. Those who are unable to devote a pit to Potato culture may grow a few plants in pots, to provide an occasional dish through the spring. If sets of some good early variety are potted up now, tubers should be ready for the table early in April. Eight-inch pots may be made half full of good rich soil, and two sets placed in each. If 10-inch pots are employed, four sets may be allowed, the pots being well crocked. Very little water will be necessary if the soil is in a good condition at the time of potting, but when the plants are a few inches high a good watering may be given, and the pots filled to within 1 inch of the top with loam and leaf-mould in equal parts. A temperature of 50° will be suitable, and fresh air should be admitted.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of Haddington, Tynninghame, East Lothian.

PRUNING FLOWERING SHRUBS.—Several kinds of flowering shrubs are ready for their annual pruning. Of such are Spiræas of the callosa type, which should have all the weak growths removed and the strong, young shoots cut back to two or three buds from the base; Polygonum baldschuanicum, which with many fails to flower, although it blooms from June to October here. At this season the plants are spur-pruned, with the exception of those shoots left for extension which are shortened a little. Weigelas need the older growths removed, whilst the stronger-growing Deutzias require similar pruning. All the hardy Roses which generally only require thinning of the shoots may also be attended to at once. These include the Scotch Persian, rugosa, Pennsylvania, alpina, Ayrshires, and Félicité-Perpetué. Damask, Gallica and Provence Roses, though usually not pruned till the spring, may also be slightly pruned now and the beds they occupy made neat. I observe that Snowdrops are already peeping above the ground, and signs of growth are apparent in the case of other early flowers. Where these are growing under trees it helps them considerably to dress them with a layer $\frac{1}{2}$ inch thick of a rich compost after it has been passed through a $\frac{1}{2}$ -inch sieve. The first heavy rain will smooth down inequalities, and the flowers will not be long in showing that they are benefiting from the dressing. In the mixed flower borders, which were dug in October, the clods should be broken and the surface smoothed, while the portions occupied by early bulbs should be dressed on the surface with material of the same kind as that above-mentioned. Large groups of Phloxes, Pæonies, Astilbe grandis, A. Davidii, and Lemoine's hybrids that were not manured in the autumn should be attended to at once. Well-decayed cow manure is the best material for the purpose; an inch or two of the surface soil should be first removed from above the roots, the manure being then applied evenly and the surface soil returned. Fresh soil would be preferable, but it is really the manure that is essential. Protective material, such as shoots of Furze, should be kept on beds of seedling Eremuri. Directly the blades appear above the ground remove the weeds, stir the surface lightly if it is dry enough to work, and whether or no apply a slight dressing of soil. Old soil from the surface of a Vine border is excellent for this purpose, and a slight sprinkling of soot has its advantages.

SEED-SOWING.—Seeds should now be sown of certain bedding plants, such as fibrous and tuberous-rooted Begonias, Verbena venosa, Hollyhocks, Gilia coronopifolia, Pentstemons, including such species as P. speciosus and P. heterophyllus, Delphiniums for autumn flowering, and various sub-tropical plants. All these seeds need a stove temperature to cause them to germinate quickly, and the seedlings should be pricked out directly they are large enough to be handled. Sweet Peas may be sown as soon as convenient after this date. Several English gardeners tell me that I allow Sweet Peas too much space; therefore cultivators must determine for themselves how thinly their plants shall be cultivated. In my own case, I allow them 2 feet apart. My practice is to sow one seed in a small 3-inch pot, cover the pots with boards to keep mice away until the seeds have germinated, and directly they have germinated in a warm pit they are removed to a cooler structure.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

EARLY PEACHES.—Trees in houses that were closed early for providing the first crop of fruit will now be fast approaching the flowering period. Until that stage is reached, a moist atmosphere may be maintained by damping the surfaces in the house, especially those near to the water-pipes. This damping should be done after breakfast and again early in the afternoon. The trees may also be sprayed over with tepid water in the morning if it promises to be a fair day, and in the afternoon if it is likely that the trees will become dry by nightfall. Admit air whenever the outside conditions are favourable, if only for a short period, but close the ven-

tilators again early in the afternoon. Only sufficient fire-heat should be used to maintain an atmospheric temperature of 50° at night, and, in the event of cold, windy nights, rather let the heat fall a few degrees than heat the pipes excessively. Before the flowers commence to expand, fumigate the house slightly with the XL. All vaporising compound to destroy any aphides that may be present. Ants are frequently seen to be busy on trees in flower, and as they damage the flowers, means should be taken to prevent their gaining access to the trees. Cotton wool, tied at the base, acts as a good deterrent, but this material must be kept dry, or it will be useless for the purpose. During the flowering period a slight increase in the temperature is desirable, and the surroundings must be kept drier, withholding the use of the syringe and giving as much air to the house as circumstances will allow. For the early-forced trees, pollination of the flowers should be artificially carried out by touching the flowers very lightly at midday with a rabbit's tail tied to a light bamboo cane or stick. This tail, when not in use, should be kept in a perfectly dry condition. During periods of sunshine give the trellis a sharp tap; this will cause the pollen to disperse; for later trees this method of distribution will be quite sufficient. When the flowers are set, resume the damping of the houses and damp the trees again lightly, but do not provide too much moisture until the fruits can be observed plainly.

POT VINES.—These are now growing freely, and the stages of growth will vary according to the time when they were started. Disbudding should be carried out at intervals until one shoot is left to each spur, choosing the shoot which has the most promising inflorescence. Stop the shoots when they have developed two leaves beyond the flower, and unless these come into contact with the glass do not attempt to pull them down for the present, as the fertilisation of the flowers will be facilitated by their nearness to the light. Maintain the atmospheric temperature at night at about 58° or 60°, and damp the ground surface in the house as often as is necessary to keep the atmosphere in a humid condition. In the mornings, when the temperature begins to rise, air may be very carefully admitted, gradually increasing the amount according to the state of the weather; but close the ventilators again early in the afternoon, whilst the sun is still shining on the house. Watering must be done very carefully, and the growths may be syringed with tepid water until the flowering period is reached, when spraying should be discontinued. Pollinate the flowers artificially, as advised for Peaches. When the setting of the flowers is complete, any bunches that have failed to set well should be removed, and any others that may be necessary to prevent overcropping. The roots will then be very active, and occasional applications of diluted liquid manure water may be given, or a sprinkling of some approved artificial manure scattered on the surface of the soil. Keep the evaporation troughs filled with water and damp the surfaces with liquid-manure late in the afternoon.

THE FRENCH GARDEN.

By P. AQUARIAS.

THE HOT-BEDS.—Most growers have now started the hot-beds. From these are obtained the most remunerative crops and also decayed manure that is necessary for the other parts of the garden. The amount of manure required varies between 6 to 8 tons for every bed of 15 lights, and one part old manure should be used to three parts of fresh manure. The height of the beds, especially when the Lettuce plants grown under the cloches are strong and healthy, need not exceed 10 inches when trodden down. The bottom heat should not exceed 50° to 55°. The two sorts of manure are mixed together on the spot, and the bed built straight and level to facilitate the placing of the frames in their proper positions. A path 10 inches wide between each row of frames is sufficient, and, in many places, 9 inches may suffice. Objections are sometimes raised to the narrowness of the paths as being awkward for working, yet, by their use, the wind has no great power, and lining is done very economically in narrow paths, which workmen soon get accustomed to. Seeds of Early French Breakfast Radish and Early Parisian Carrot are sown immediately after the bed is completed, before proceeding with the next row.

The seeds are covered with fine soil that has been stored under cover for a few weeks, using about one barrow-load for each frame. The soil is made level, pressed down evenly, and six rows are marked out for planting the Lettuces before placing on the lights. Fermentation will be active three or four days after the bed has been formed, according to the condition of the weather and the state of the manure. Plants of Lettuce "Little Gott" are then set seven in each row, or 42 in a light; but the cotyledons and any decayed leaves are first removed. Sometimes when the bed contains too much hot manure, Radishes germinate within 60 hours, and the seedlings grow spindly. In this case, ventilation should be given for one or two hours daily. The planting of the Lettuces is deferred for a few days, until the temperature of the bed is normal. The lights are only covered at night-time in case of frost, and some growers only spread mats over them in very severe weather, especially when the Lettuces grow in a bunch, which is a certain proof of excessive bottom heat. As unfavourable weather may at any time prevent the work being carried out, it is highly important that the grower should avail himself of every fine day for the making of the beds. In establishments where the lights do not exceed 150 in number, one bed may be made each day; but where this number is exceeded, not less than two beds should be laid down daily, so as to have them all finished by the end of January. Our frames intended for "cold work" are ready for immediate planting. Seeds of Radishes are inserted and raked in. The soil is pressed down, and five rows are marked out for planting Lettuce "White Passion," and six rows for the variety "Little Gott." When the soil is wet, a little ventilation for an hour in fine weather is beneficial.

THE APIARY.

By CHLOEUS.

SEASONABLE WORK.—It will be advisable to raise the roof of every hive to ascertain if the quilts have become wet from the continuous rains; wet covers must be removed at once and replaced by dry ones. At the same time, it will be wise to add a cake of candy if the food stores are considered to be deficient, for during such weather as has been experienced lately bees consume an extra quantity of food.

HOW TO MAKE CANDY.—One of the simplest methods of making candy is to warm some honey until it is in a thoroughly liquid condition, and afterwards mix some fine loaf sugar with it, until the whole assumes the consistency of dough. Then, when it will apparently dissolve no more sugar, put it aside for a few days, and, if any honey is found to be unabsorbed, add more sugar. When honey cannot be secured, soft candy must be made of sugar. For this operation a preserving pan is best, but a good substitute is an enamelled pan. The object of the maker must be to secure a soft candy of the consistency of butter. Do not begin the work until the fire is quite clear and bright. Place one quart of water in the pan and bring it to the boil, stir in 5 lbs. cane sugar crystals, until the whole is dissolved, and skim off all scum that rises. When the mixture is quite clear let it stand unstirred for about 20 minutes, allowing it to boil the whole time as fast as possible. It will then probably be cooked sufficiently, but to test it if it is done take a bowl of cold water and into this dip the forefinger of the right hand and then quickly dip the wet finger into the boiling sugar. Remove the finger, dip it again into the cold water, and if the adhering sugar may be rolled into a smooth ball it is ready to remove from the fire. If the ball cannot be formed, the pan must be returned to the fire and the syrup boiled for a few seconds longer. When the boiling is complete, pour the liquid into a shallow vessel and allow it to cool without stirring, until it will not scald the finger. Then stir until it becomes white and sets. In order to place the syrup in moulds, stand the vessel over boiling water on the fire until all the sugar is melted and nearly boiling; run the syrup in moulds or sections resting on paper for a bottom.

LEAKY ROOFS.—The best plan is to cover the roof with a sheet of zinc, leaving one sheet the metal to turn over the edges to secure a tight nailing. Failing zinc, cover the roof with well-stretched calico, and afterwards apply about four coats of paint.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions, illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JANUARY 16—
Roy. Hort. Soc. Exam. of Public Park Employés at 10 a.m.

TUESDAY, JANUARY 17—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. H. C. Long, on "Weeds and Weed Seedlings")
Scottish Hort. Assoc. Ann. Meet.

WEDNESDAY, JANUARY 18—
Roy. Meteorological Soc. Ann. Meet. at Inst. of Civil Engineers 7.30 p.m. Nat. Sweet Pea Soc. Special General Meet. at Hotel Windsor 2.30 p.m. Forest Hill Chrys. Soc. meet. (Lecture by Mr. R. B. Leach, on "Chrysanthemums.")

THURSDAY, JANUARY 19—
Gard. Roy. Benev. Inst. Ann. Meet. at Simpson's Restaurant, Strand, 2.30 p.m. Friendly supper at 6.0 p.m. Linnean Soc. meet.

SATURDAY, JANUARY 21—
Brit. Gard. Assoc. Meet. at Birmingham. Soc. Française d'Hort. de Londres Ann. Dinner.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—38.5°.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, January 11 (6 P.M.): Max. 45°; Min. 34°.
Gardens' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 12 (10 A.M.): Bar. 29.6; Temp. 42°; Weather—Dull.

PROVINCES.—Wednesday, January 11: Max. 45° Ireland S.W.; Min. 32° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Herbaceous Plants, Lilies, Hardy Bulbs and Plants, at 12; Roses, Fruit Trees, Azaleas, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Border and Alpine Plants, Hardy Bulbs, Lilies, &c., at 12; Roses, at 1.30; Japanese Lilioms, at 2.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

1911.

The almanac, which we present with this issue, affords ample evidence that the year 1911 is not likely to be less well supplied with events of horticultural interest than its predecessors.

This much is clear, although there will not be the number of international exhibitions that took place last year. In this respect there will be a period in which the international feeling will be expressed in the preparations made in this and other countries for our own international exhibition and congress of May, 1912. But there is at least one international fixture of importance for the present year, namely, the conference on Genetics to be held in Paris in September. This is the natural successor to the conference held in London in 1906, and it may be confidently anticipated that our colleagues in France will do all that is possible to make the event one that will live in the memories of those who may be privileged to be present. We take this opportunity to appeal to British horticulturists to second these efforts by rendering what assistance it is within their power to give.

In London, the Royal Horticultural Society will hold its fortnightly exhibitions and the

Temple Flower Show as usual. A competitive bulb display will take place in March, an exhibition of fruits in the autumn, a vegetable competition in September, and an exhibition of Colonial fruits in November. The greatest novelty will be the summer show, which, since the Holland House grounds are no longer available for this exhibition, will take place at Olympia, in close proximity to the former site. The spacious Olympia building may be expected to provide ample room for a very large show, and, in the event of wet weather, it will have an advantage over tents, which may be some compensation for the obvious sacrifices in other directions imposed by the change of site.

The special floral societies have each one or more exhibitions already arranged. The shows of the National Rose, Sweet Pea, Dahlia, Chrysanthemum, Carnation, and kindred societies will be provided for with increased liberality; therefore, the outlook for 1911 is very favourable. The National Vegetable Society will hold its second exhibition at the end of August. Turning to the provinces, great exhibitions will take place at Shrewsbury, Edinburgh, York, Wolverhampton, Birmingham, Manchester, Leamington, Southampton, and other places. The promoters of the Northern Fruit Show and Congress at Hexham last year, encouraged by their success, hope to hold a similar display this year at Carlisle, probably under the auspices of the newly-formed Northern Horticultural Society. This society, however, has not yet had sufficient time to issue its programme, which may be found eventually to contain a provision for an exhibition at Leeds. The National Chrysanthemum Society is also unable at the time of going to press to afford information of the dates of its exhibitions for the present year.

Spring flower shows, consisting mainly of Daffodils and other bulbous subjects have increased in numbers in recent years, and fixtures are already arranged at Birmingham, Torquay, Paisley, Truro, Plymouth, Ipswich, and other centres. None can prophesy what are the weather prospects for 1911, but we may express the hope that the weather may take a turn for the better in the coming summer.

**Britain
as a
Market for
French
Fruit.**

The problem of the distribution of the products of industry is one to which more and more attention is being directed. Thus we find, almost daily, special reports being issued, pointing out new ways to reach fresh markets. Among the latest of these reports is one by Mr. Léon Loiseau on "The English fruit-market and co-operation among producers for purposes of distribution," a summary of which is published in the *Journal* of the Horticultural Society of France for November, 1910. The flattering attention which this country receives from such special commissioners as Mr. L. Loiseau, although it cannot be expected to rejoice the heart of the home producer, cannot be ignored, and it may at least be turned to some advantage if our home growers can discover from the reports issued points which may help themselves to distribute their produce with more advantage to themselves.

To give but one example of the thoroughness with which Mr. L. Loiseau has done his

work: after pointing out the disastrous losses suffered in the Paris market by French growers during periods of glut, and after indicating how small a proportion of fruit imported into Britain comes from France—less than one-sixth—he reviews the carriage rates, publishes maps illustrating the density of population in different parts of Great Britain, and even goes into minute details as to the mode of packing most favoured in this country. Mr. Loiseau urges co-operation, and points to the success of various French co-operative distributing companies.

Perhaps we may be allowed to say that within our own experience the French grower might do more than he does for his own markets. We ourselves year by year suffer, in a part of France that shall be nameless, from a veritable fruit famine. In early August we have searched throughout a fairly large French town for Plums and failed to find ripe ones; whereas, as we knew, the country round was rich with fruit. If the French growers would combine to develop yet further their own provincial markets none would take it amiss, although we hasten to add that, so long as we must get fruit not grown in this country, we would as soon get the Pears, Apricots, Peaches and Figs grown in the "sunny fields" of France as those grown anywhere else.

**Gooseberry-
mildew in
Cambridge-
shire.**

In spite of the efforts which have been made to check the spread of the American Gooseberry-mildew, this disease was more widespread in this county during 1910 than hitherto. The climatic conditions of the summer of 1910 were particularly favourable to the propagation of the disease, and this circumstance should be taken into account when considering the more frequent occurrence of this mildew during the past season. In 1909, the number of infected gardens was 179, which is about the same number as in 1908, but during 1910 these figures increased to 372. A large number of the fresh cases this year have occurred in allotment gardens where the plots are contiguous with one another. Although these allotments must be scheduled separately on account of occupation by different growers, it is clear that the outbreak of disease in the plots must be often one and the same. If one of the allotments is diseased, the probability is that many such plots will become affected. As so many of the newly-infected gardens are small, the actual acreage of bush fruit scheduled during 1910, as compared with that of the previous year, has not increased as much as the figures given above might appear to indicate.

The intensity of the disease has been only slightly greater this year than before, and in the large majority of scheduled plantations the mildew is present only to a small extent. Winter pruning of affected shoots has undoubtedly checked the progress of the disease in the spring, with the consequence that in Cambridgeshire the fruit has remained clean in practically every garden. In only two or three cases has there been any appreciable number of berries affected. By a continuation of this practice it should be possible to prevent this pest from doing serious damage to the fruit.

It is now known that one of the chief dangers of the recurrence of the disease from one season to another lies in the falling of the resting bodies (perithecia) of the mildew on the soil or on lower twigs during the winter, and the subsequent reinfection from these sources during the spring. These winter spore-cases fall the more readily the longer they have been produced. Consequently, the earlier in the autumn and winter the pruning can be effected, the better, though, for obvious reasons, no cutting should be commenced while there is still risk of the bushes putting forth new shoots.

Towards the latter part of the summer of 1910 a few cases of disease were observed in the Cambridge district, in which the resting bodies of the fungus had been formed on the leaves. Generally speaking, the perithecia of the American Gooseberry-mildew are produced only on the shoots, while the perithecia of the comparatively harmless European Gooseberry-mildew are developed on the leaves. It is clear that if the resting bodies of the American mildew come to be developed at all frequently on the leaves the difficulty of keeping the disease in check will be increased.

So far, there has been no reason to complain of the way in which growers in Cambridgeshire have performed the pruning operations. It seems to be generally recognised that winter pruning is the chief means of minimising the damage done by this pest. One noticeable effect of compulsory pruning has been the cleaning up of many plantations which had been badly neglected previously.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will take place on Tuesday, January 17. In the afternoon a lecture on "Weeds and Weed Seedlings" will be given by Mr. H. C. LONG.

HORTICULTURAL CLUB.—The next house dinner of the club will take place on Tuesday, the 17th inst., at 6 p.m., at the Hotel Windsor. The Rev. Canon HORSLEY, J.P., will deliver a lecture on "The Scenery and People of the Bernese Oberland," including Swiss plants illustrated by lantern slides.

NATIONAL SWEET PEA SOCIETY.—A special general meeting of the members will be held in the North Room, Hotel Windsor, Victoria Street, Westminster, at 2.30 p.m., on Wednesday, January 18, to consider the following proposals regarding the constitution of the Floral Committee:—The General Committee, strongly objecting to the definition of an amateur as stated in the instruction carried at the annual general meeting, i.e., "That no member on the amateur side of the Floral Committee be in any way connected with the selling of Sweet Peas," proposes that such instruction be rescinded. And further proposes that the Society shall define an amateur in accordance with the regulations of the Royal Horticultural Society.

ROYAL METEOROLOGICAL SOCIETY.—A meeting of this Society will be held at the Institution of Civil Engineers, Westminster, on Wednesday, 18th inst., at 7.30 p.m. The annual general meeting will be held at 7.45 p.m. The business will include (1) report of the Council for 1910; (2) election of the Council for 1911; (3) address on "The Present Position of British Climatology," by HENRY MELLISH, F.R.G.S., President.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The 71st annual general meeting of the members and subscribers of this institution will be held at "Simpson's," 101, Strand, London, on Thursday, January 19, at 2.45 p.m., for the purpose of receiving the report of the committee and the accounts of the institution (as audited) for the year 1910; electing officers for the year 1911; and for the election of 20 annuitants on the funds. The chair will be taken by HARRY J. VEITCH, Esq., F.L.S., V.M.H., treasurer and chairman of committee, at 2.45 o'clock. The poll will open at 3 o'clock and close at 4 o'clock precisely, after which hour no voting papers can be received. All voting papers were issued on December 29 last. Subscribers who have not received copies should communicate with the Secretary, Mr. GEORGE J. INGRAM, at the offices, 92, Victoria Street, Westminster, S.W. The annual friendly supper will be held also at Simpson's on the same day at 6 p.m., when JOSEPH ROCHFORD, Esq. (member of committee) will preside.

—The 72nd anniversary festival dinner in aid of the funds of this institution will take place on Tuesday, May 23 next, the first day of the Temple Flower Show, when Alderman SIR MARTIN SAMUEL, Bart., will preside. The dinner will be held by permission of the Worshipful Company of Grocers in the Grocer's Hall, Princes Street, City.

APIOS TUBEROSA.—Owing to a misprint in last week's issue, the name of this plant, described by Mr. LYCHE, was spelt "Apice."

THE RAINFALL OF 1910.—Many gardeners keep meteorological records, and, following their practice of several years past, some have furnished us with notes concerning the year's rainfall.

Writing from Hill House gardens, Harrow Weald, Mr. T. HUNTER states that the total fall in his district for the year amounted to 27.92 inches, or 2.34 inches more than the average. September was the driest month, the total fall being .52 inch only, this being the smallest amount recorded since 1890. December proved the wettest month, with a fall of 3.82 inches, there being 29 days in that month on which rain was recorded.

At Davenham Gardens, Malvern, Mr. C. A. BAYFORD recorded a total rainfall for the year of 32.89 inches, there being 195 wet days. The wettest month of the year was August, which included 24 wet days. The greatest rainfall recorded in 24 hours occurred on August 28, the amount being 1.65 inch.

From statistics compiled by Mr. H. WILSON in the gardens at Coleorton Hall, Ashby-de-la-Zouch, December proved much the wettest month. The heaviest fall in the district occurred on December 1, a total amount of 1.53 inch being registered. The amount for the year, 32.01 inches, proved the largest recorded during the past seven years. Rain fell on 190 days, and February, August, November, and December had all more than 20 wet days.

Mr. JOHN EDWARDS, Sylfaen Gardens, Wlshpool, states that rain fell intermittently from 4 a.m. on December 1 till 8 a.m. on December 3, and during this period 2.23 inches was registered. Rain continued to fall in a measurable quantity during the 16 days following, to a total depth of 6.37 inches. Counting 23 days of November, there were 49 wet days out of 61 in two months, giving 12.20 inches of rain. From December 10 to December 18, the barometer reading was very low; on December 10 it was 27.50°. On December 27 several plants were in flower, including Roses in variety, Primroses, Daphne Mezereum, whilst a Cob Nut had female flowers expanded.

The rainfall for 1910 at Llanishen, writes Mr. HAROLD EVANS, amounted to 10 inches more

than the average; 5.83 inches of this excess was registered during the last two months of the year. Rain fell on 48 days during November and December. The total rainfall for the year was 49.37 inches, compared with 42.96 inches in 1909. January, February, June, August, October, November, and December were all wet months. During February, rain fell on 27 days.

At Leonardslee, Sussex, Mr. W. A. COOK, the gardener, registered 35.99 inches during the past year. There were 130 days on which rain fell, the wettest month being November, with 14 rainy days. The driest month was September, the fall only amounting to .30 inch, recorded on four days. During February, a measurable amount of moisture fell on each of 22 days. The greatest fall occurred on November 13, and amounted to 1.13 inch.

Mr. J. B. ALLAN, Osberton Gardens, Work-sop, states that the heaviest rainfall occurred on October 11, when 1.45 inch of rain was recorded. The wettest month was August, when 3.64 inches fell, and the driest September, with only .31 inch. Rain fell on 181 days. The total rainfall for the year at Osberton amounted to 25.03 inches. The hottest day was June 19, when the thermometer registered 86° in the shade, and the coldest, January 27, with 24° of frost.

We are informed by Mr. G. BENTLEY, Shugborough Gardens, Stafford, that the total year's rainfall in those gardens was 34.91 inches. The wettest month was November, with 5.74 inches of rain, and the greatest fall in 24 hours occurred on August 28, the amount being 1.89 inch.

Writing from Broadloaks Gardens, West Byfleet, Surrey, Mr. J. B. LOWE gives 26.36 inches as the total rainfall for the year. Rain fell on 139 days, the wettest month being December, when 4.17 inches of rain fell on 17 days. The driest month was September. The heaviest rainfall occurred on October 11, when 1.10 inch was registered.

THE FALSE TINDER FUNGUS ON FRUIT TREES.—Of the bracket fungi which affect fruit trees in this country, the species known popularly as the False Tinder fungus (*Pomes igniarius*) is the most common. In Cambridgeshire this fungus is frequently seen on Plum and Greengage trees, particularly in places where pruning has been badly done or the plantation has been neglected in other respects. Trees suffer most from this disease as they approach maturity, young trees being only rarely affected. This fungus attacks Apple trees also, and is fairly common on other deciduous trees, such as the Beech and Oak. It is a wound parasite, which means that the spores can only cause infection of a tree when they germinate upon a wounded surface. Thus infection generally begins in a single branch, from which the mycelium or spawn travels into other parts of the tree. The mycelium has a characteristic effect upon a diseased branch. At an early stage in the attack the central part of the wood becomes deep brown in colour, and later on undergoes disorganisation. The fruit-bodies of the fungus, which usually occur on the lower side of diseased branches, are at first hemispherical, but afterwards become hoof-shaped. The fructifications are extremely hard from the commencement of development, this character making the species unsuitable for the making of tinder and such objects as those for which the true tinder fungus (*Pomes fomentarius*) has been used in the past. When orchards are being looked over in winter, branches bearing the fructifications of the fungus should be cut away and burnt, care being taken to cut back beyond the limit of the discoloured wood. Where, in the course of pruning, it is necessary to remove large branches from the trees, the cut surfaces should be covered with a coating of gas tar, in order to prevent infection by parasitic fungi.

FLOWERS IN SEASON.—About Christmas time each year we are asked by correspondents to identify flower-spikes of *Ornithogalum lacteum*. They are usually received from friends in South Africa, who are acquainted with the longevity of the cut blossoms. Accompanying some spikes sent by Mr. D. R. DIXON, Hagley Hall Gardens, Stourbridge, was the following letter: "I am sending for your inspection the enclosed flowers. They were sent from Johannesburg, and arrived about a week before Christmas. The blossoms were then placed in a large bowl of water and soaked thoroughly for several days, when they commenced to open. On Christmas Eve they were arranged in glass receptacles on the dinner-table. It was interesting to watch them open little by little in the warm room. They remained on the table until January 3, appearing more beautiful each day. I am keeping some of them to see how long they will last in a good condition. You will notice one flower-spike is still in the bud stage; they were all in that condition when they were sent." Mr. J. FERRINGTON sends from Brynbella, St. Asaph, N.W., sprays of *Azara integrifolia* covered with masses of blooms, and *Daphne Dauphine*, an evergreen variety, having numerous purple, sweet-scented blooms. Mr. FERRINGTON states that the following plants are in flower in the gardens at Brynbella:—Almond, *Erica arborea*, *Lonicera Standishii*, *Cyclamen Coum.* and *Iris stylosa*.

NORTH OF ENGLAND HORTICULTURAL SOCIETY.—The formal inauguration of this Society took place on the 6th inst., at Leeds, at a meeting presided over by Mr. J. HASTINGS DUNCAN, M.P. A large and representative company assembled in the Lord Mayor's rooms. The chairman stated that it was their intention to become affiliated with the Royal Horticultural Society, and their rules had been framed more or less in accordance with those of that Society. A resolution adopting the establishment of the North of England Horticultural Society was carried. Mr. R. B. KER remarked that there was ample scope for the new society. The rules drawn up by the provisional committee were adopted, and scientific, fruit and vegetable, and floral committees were appointed, with power to add to their numbers. The following were appointed members of the council:—Messrs. R. RAY APPLETON, Major J. W. DENT, REGINALD FARRER, CLAUDE LEATHAM, T. G. HODGSON, G. W. JESSOP, HASTINGS WHEELER, A. R. CROSSLEY, R. B. KER, and W. MATHIESON. The Rev. J. BERNARD HALL was appointed secretary, and his abilities as an organiser and administrator were referred to by several speakers.

MR. THOMAS CHALLIS, V.M.H.—Congratulations are offered to Mr. CHALLIS on the completion of 50 years' service as gardener at Wilton House, Salisbury. Mr. CHALLIS comes of an old gardening stock. His grandfather was head gardener at Cheveley Park, near Newmarket, and he was succeeded there by Mr. CHALLIS's brother. Mr. THOMAS CHALLIS served his apprenticeship under his father, who was gardener to the Duke of Rutland, at Belvoir Castle. From Belvoir he went to the Duke of Sutherland's estate at Trentham, Staffordshire, and half-a-century ago he accepted the position he still holds at Wilton Park. Besides holding the Victoria Medal of Honour, Mr. CHALLIS is a Veitch Memorial Medallist. For 43 years he has been connected with the Bath Horticultural Society, and in 1910 the members presented him with a silver inkstand and an illuminated address. On the 2nd inst., he was presented with a gold watch chain, with a locket attached, containing portraits of himself and Mrs. CHALLIS, and the following in-

scription: "To T. CHALLIS, V.M.H., on completing 50 years at Wilton Park; from his friends and assistants. January, 1911."

A FORESTRY ASSOCIATION.—According to *The Times*, an organisation of landowners and others, to be known as the English Forestry Association, is now in process of formation. The notice convening the first meeting is issued by Mr. M. C. DUCHESNE. The concluding paragraph of the notice of meeting is as follows:—"We are particularly anxious for the association to be in a position to ascertain where supplies of English timber—particularly Oak and Ash—of good quality can be obtained. Would you kindly let me have some idea of the supply of timber ripe for cutting that you would be prepared to sell, provided, of course, that you obtained a really satisfactory price for it?" Lord CLINTON will preside at the meeting at the Surveyors' Institution, on Thursday, the 19th inst., when a resolution to form the association, and the election of president, council and officers will be brought forward.

PUBLICATIONS RECEIVED.—*My Garden Diary for 1911.* (Reading: Sutton & Sons.) Price 1s. net.—*Journal of the R.H.S. Garden Club.* No. 111, 1910. (London: Spottiswoode & Co., Ltd.)—*Suburban Life.* 1911. (New York: The Suburban Press.) Price 1s.—*British Ferns and Their Varieties*, by C. T. Druery. (London: George Routledge & Sons, Ltd.) Price 7s. 6d. net.—*The Journal of Agricultural Science*, Vol. III., Part 4. December, 1910. (Cambridge: University Press.) Price 5s. net.

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

MR. NORMAN DAVIS, whose exhibits at the Chrysanthemum shows are always important features, sent me recently a box containing specimens of about two dozen of the best varieties of market Chrysanthemums. Some of the older sorts still hold their own. Western King for example, a pure white flower of good substance, which, although not one of the largest, is one of the most useful. Felton's Favourite is another useful white decorative Chrysanthemum of medium size with drooping florets and a well-filled centre. It is a favourite with most florists, being known by some as "Framfield Seedling." The following varieties may be recommended:—David Ingamells, a large incurved Japanese variety of deep golden-yellow colour. W. W. Moir, also a Japanese variety, with large, pure white blooms. Geo. Hemming.—A large Japanese variety of a rich crimson colour with a magenta shade and silvery-grey reverse. Mary Poulton.—The long florets are a silvery-white, with a blush tint. It makes a fine exhibition variety of the Japanese section. Old Cullingfordii.—This variety is apt to vary greatly, but the blooms received were of the richest colour. Violet Lady Beaumont.—This also was of fine colour, and the florets possessed good substance. John Shrimpton.—A fine crimson Chrysanthemum of medium size; one of the most useful sorts for market purposes. Lady Hanham.—This remains a favourite, and is good either grown naturally or disbudded; the colour varies, but Mr. Davis has it in its best form. Rayonante.—Another favourite with many, but not quite an every-day market sort.

Among single Chrysanthemums were some very pretty varieties. Of these, the following may be mentioned:—Little Dorrit.—Pure white, with a clear yellow disc of medium size. Mensa (syn. Queen of Earlies).—A large, pure white flower developed on a good, stout stem. Swinburne.—White, with blush tint; a dwarf-habited variety. Pictor.—Pink, with lighter shading at the base of the florets. Burns.—A deep yellow bloom of good substance. Tomyson.—An improvement on Mary Anderson. Shelley.—White at the base of the florets, with a suffusion of lavender. Wordsworth.—A deep mauve flower with a light shade at the base of the florets. Leo.—Chestnut red, with a slight shading of yellow around the disc. *A. Hemslay.*

NOVELTIES OF 1910.

(Continued from p. 2.)

CONTINUING our remarks upon the novelties exhibited during 1910, we may now turn our attention from the Orchids to the new species and numerous varieties of other plants that have gained distinctions at the R.H.S. and other exhibitions.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, Chelsea, have a good show of certificated plants. Amongst the most interesting are the new Chinese shrubs, which are now beginning to show their character, including a fine set of *Rhododendrons* of compact habit, such as the primrose-yellow *R. primum*, for which an Award of Merit was obtained on March 22. At later meetings the merits of *Viburnum Henryi*, *Ligustrum Henryi*, *Hydrangea hortensis* 'Ornament,' and *Primula Maximowiczii* collected in Northern China at an altitude of 9,000 feet, were acknowledged by the presentation of suitable awards. In the class of decorative plants, the firm have secured awards for *Erlangea tomentosa* (a white, fragrant flower for warm-greenhouse culture), the splendid hybrid *Nepenthes*, *N. nobilis*; *Macleania insignis* (with tubular, red flowers), *Kalanchoe kewensis*, *Pelargonium* "Snow Queen," and *Fuchsia Sylvia*, while in the matter of plants for the seed list, their charming dwarf strain of *Schizanthus*, their decorative *Cineraria* "Feltham Beauty," *Clarkia* "Brilliant," and others have also received commendatory awards.

Lieut.-Col. SIR GEORGE L. HOLFORD, K.C.V.O. (gr. Mr. Chapman), has contributed fine displays of *Hippeastrums* (*Amaryllis*). In his varieties, *Calypso*, *Cardinal Wolsey*, and *Gereant* may be seen the highest qualities which these plants exhibit. *Gereant* has flowers which measure over 10 inches in diameter, and the colour is a glowing scarlet.

The Hon. VICARY GIBBS, Aldenham (gr. Mr. Beckett), has on several occasions made displays of new Chinese plants and *Michaelmas* Daisies. In *Buddleia variabilis gigantea* (A.M., August 30) may be seen a great improvement on the original type of this showy garden plant.

SIR TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. Bain), cultivates a large number of rare plants, and among others he has shown during the past year *Calathea crocata* (with reddish-orange flower-spikes), *Crinum purpurascens*, and *Cyrtanthus O'Brienii*.

Among the greatest favourites of the day are Roses, Carnations, and Sweet Peas. These beautiful and fragrant flowers are valuable for all purposes of decoration, and in cherishing them we follow in the steps of garden-lovers of all the ages since these plants were first cultivated. It is pleasant to see that in the art of using flowers for indoor and table decoration the decorative artist has kept pace with the improvement in the flowers. He has learned to employ full sprays with a good length of stalk and natural foliage, whilst the designs are frequently carried out with one kind of flower—Roses, Carnations, or some other species—and thus better effects are obtained than are possible from mixtures of short-stalked flowers, such as were formerly seen, even in the best florists' shops.

ROSES.

No greater innovation among garden plants has taken place for many years than the introduction of the *Wichuraiana* Roses, which now embellish even the small gardens of the suburban villas, and brighten the outlook of the passengers by railway everywhere. It seems strange that the Japanese, who are noted for discernment in gardening, should have allowed their own wild Rose *R. Lucie* (*Wichuraiana*) to suffer comparative neglect in its native country and have left it to American and European gardeners to get such beautiful results from cross breeding. A good example of these hybrids was the variety *Excelsa*, for which Messrs. Geo.

PAUL & SONS received an Award of Merit at the Temple Show. Amongst the best Roses of the year may be mentioned Juliet, for which Messrs. WM. PAUL & SON obtained a First-class Certificate at the Holland Park show; "Flame," shown by Mr. CHAS. TURNER, Slough; and Daphne, from the Rev. J. H. PEMBERTON. It may be said that Juliet was exhibited in 1909, when it gained an Award of Merit, but its distinctness was even more apparent in the last season.

At its meeting on July 8, the National Rose Society awarded Gold Medals to each of the following varieties, some of them also securing awards at the Royal Horticultural Society:—Edward Mawley (H.T., deep maroon-crimson) and Mrs. Joseph H. Welch (H.T., bright salmon

when shown on September 15 (ALEX. DICKSON & SONS). Other varieties which obtained awards during the year included the following:—Mrs. Herbert Stevens, T., with lemon-tinted, white flower (S. MCGREY & SON); Marchioness of Waterford and Mrs. Chas. F. Allan, H.T. (both from Messrs. HUGH DICKSON & SON, Waterford); Mrs. Jas. Ferguson, H.T., a very distinct Rose (from Mr. W. FERGUSON, Dunfermline); Mary Countess of Ilchester, H.T. and Duchess of Westminster, ALEX. DICKSON & SON; and Freda (from Messrs. GEORGE PAUL & SONS).

SWEET PEAS.

Of these beautiful flowers awards have been given for Marjorie Hemus (heliotrope colour)

Stent (J. AGATE, Havant), after trial of these varieties at *The Times* experimental grounds.

CARNATIONS.

These are now shown in their various classes at most of the exhibitions of the Royal Horticultural Society during the year, and at some they form the principal attraction. Mr. H. BURRETT, Guernsey, always shows finely-developed flowers, and on February 22 secured an Award of Merit for Mrs. Tatton, a fine, perpetual flowering variety, of pink tint with white, fringed edge; Mrs. R. F. Edton, a fragrant, bluish pink flower, on March 22; and Mrs. C. F. Raphael, on May 3. Carnation Edith Watts, a bright cerise flower of much fragrance, from Mr. C. F.



FIG. 17.—LILIO-CATILEYA CRANSTOUNÆ "WESTONBIRT VARIETY."

(The Award of Merit given this hybrid on January 3 has been withdrawn and a First-class Certificate awarded. See page 15.)

Rose), both from Messrs. MCGREY & SON, Portadown; Rayon d'Or (H.T., a golden-yellow flower, streaked with crimson on the outer petals, raised by M. FERNET DUCHER, and shown by Dr. WADDELL); and Lady Hillingdon (T., a fine cinnamon yellow bloom of good substance), from Messrs. LOWE & SHAWYER, one of the most admired novelties of the year. Silver-gilt Medals were also awarded for Evelyn Dauntsey H.T. (S. MCGREY & SON); Mrs. G. Shawyer, H.T., rose-pink (LOWE & SHAWYER); St. Helena, H.T., bright yellow (B. R. CANT & SONS); Mrs. Foley Hobbs H.T., a fine rose-pink flower, changing to cream colour on the outer petals, which gained the Gold Medal

and Paradise Cerise, both from Miss HEMUS, Upton-on-Severn; Prince of Orange, from Mr. STEVENSON, Woburn Park Gardens, Addlestone; Dobbie's Sunproof Crimson, Earl Spencer, and Ivanhoe, from Messrs. DOBBIE & Co., who have shown many improved varieties, Marie Cuthbertson, a soft, rosy mauve, being one of their best; Alfreda Pearson (bright pink), Messrs. PEARSON & SON; Iris (salmon colour), Mr. C. W. BREAMORE, and Mrs. F. A. Wellesley, one of the best whites.

The National Sweet Pea Society awarded First class Certificates for Cherry Ripe (GILBERT & SONS); Masterpiece, Arthur Greeve, and Mrs. Hugh Dickson (DOBBIE & Co.); and Stirling

WATERS, Balcombe, secured an Award of Merit on June 7, as did Queen May (CUTBUSH & SON), a very dark-crimson flower. On July 19 Mr. JAMES DOUGLAS, Great Bookham, made a good display, and secured an Award of Merit for Mrs. Robert Berkeley, a light pink border variety, and, again, on August 2, he secured a similar award for Finester (a yellow and crimson flake) and Mrs. J. A. Reynolds (a beautiful flower of a peculiar golden-apricot tint). Other distinguished varieties of the year were Mrs. E. Mather Smith, a white flower, from Mr. BLEVE, Hayes; Scarlet Glow and Mrs. C. W. Ward, from Mr. S. LANGE, Hampton; Rectoria, a fine salmon-pink perpetual, from Mr. C. ENGLEHART, Saffron

Walden; and Lady Alington (a charming, rich-salmon-coloured flower of the American bush class), shown by Messrs. STUART LOW & Co., of Bush Hill Park, Enfield.

At the Midland Carnation and Picotee Society's show, held at the Botanical Gardens, Birmingham, on August 4, First-class Certificates were given to the fine rose-flake Peter Pan, shown by Mrs. C. H. HERBERT; the dark-coloured Harry Parton from Mr. W. H. PARTON, and Hecla and Gloria, shown by Mr. HAYWARD MATHIAS; whilst other novelties of merit were recognised by competent authorities at the larger provincial shows.

CHRYSANTHEMUMS, DAHLIAS, AND AURICULAS.

Chrysanthemums and Dahlias, each section with its large number of devotees and under the protection of its own society, have given a goodly number of sterling novelties. The principal exhibitors of seedling Chrysanthemums have included Messrs. WELLS & Co., Merstham; Mr. H. W. THORP, Worthing; Mr. NORMAN DAVIS, Framfield; Mr. H. PERKINS, Mr. F. W. LADDS, Mr. N. MOLYNEUX; and Mr. J. DOUGLAS, whose exhibits of Auriculas are unrivalled, has secured awards for Phyllis Douglas (a white-centred Alpine), Roxburgh (violet, with primrose paste), Victor (deep-crimson, with white paste), Warley (a delicate mauve-coloured show variety), Canary Bird (a chrome-yellow Fancy), Dorothy Cutts (a pale, yellow-edged, rose-coloured flower), and May (a crimson flower with white paste).

NARCISSUS.

The favourite Daffodil has now innumerable varieties, but in some sections these are too nearly alike to be easily distinguished, except by experts. Among the novelties recognised by the Narcissus Committee during the past year were Mrs. Norman Cookson (a chaste, white variety of the Leedsii class), and Colleen (a very remarkable form), shown by Messrs. WALLACE & Co., Colchester, both securing Awards of Merit on May 3. N. Matthew Arnold (a handsome novelty), from Messrs. CARTWRIGHT & GOODWIN, secured a similar award.

(To be continued.)

SCOTLAND.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE operations of this society during the year ending November 30 last, show a considerable improvement. The fact that the financial position has been improved by a net gain of £28 will serve to strengthen the hands of the council in making their arrangements for the future. In the past the Royal Caledonian Horticultural Society has done so much good work that it would be a misfortune were its activities to be curtailed or weakened by lack of financial resources. The spring show especially deserves increased support from the public, and everyone is agreed that its continuance is required in the interests of Scottish horticulture. Should the proposed introduction of heating apparatus to the Waverley Market be carried out it would probably help the spring show considerably, not only from the exhibitors' point of view, but also by attracting a greater number of visitors, especially in the evenings. The members of the council and their secretary and treasurer, Mr. Donald Mackenzie, are assiduous in furthering the interests of the Society, and it is hoped that the public will support the shows even better than hitherto. It is further hoped that the amalgamation of this Society with the Scottish Horticultural Association is only a matter of time.

REQUESTS TO SCOTTISH GARDENERS.

THE late Mr. John Birkmyre, of Broadstone, Kilmacdon, has left the sum of £50 to his gardener, Mr. Joseph M. Kie, and £100 to Mrs. M. Kie. He also left an annuity of £52 to his garden labourer, Mr. Bernard M. Ardle.

GARDEN SUBURB FOR CLYDEBANK, GLASGOW.

THE garden suburb and garden city movement has not made much progress in Scotland, but several schemes have been promoted, with prospects of considerable success. One of the latest is at Clydebank, Glasgow, where a site has been selected. A considerable demand for plots for houses on this property has arisen, and a committee has been appointed to form a co-partnership to develop the site and secure the necessary capital.

GARDENING IN SHETLAND.

A CORRESPONDENCE has been going on in one of the Scottish newspapers regarding gardening in Shetland, and it is shown that the climate of the islands is greatly maligned, as is well known to those who have spent some time in "Ultima Thule." One of the latest contributions on the subject is from "Jessie M. E. Saxby," the authoress, who is a devoted gardener, and who, writing from Baltasound, says she gathered a Rose on Christmas Day. The bane of Shetland gardens is the want of shelter, for the cold winds in spring do considerable damage to flowers which come into growth early owing to the mild winters. The long days of summer are highly favourable to many plants, and enable some to flower which would not bloom so far north were the days of the normal length. The winter days are not so much shorter than in many parts of Scotland, and, on the whole, the increased interest in gardening in Shetland is being justified by the results. Mrs. Saxby has done a great deal to stimulate this by her communications to the Shetland Press. *Correspondent.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

WHAT IS A VARIETY?—Although I have already* reminded nurserymen and gardeners of the immense variability in Nature of many species of Alpine plants, according to soil, position, altitude, etc., it is so important that these frequent variations should be realised, and that the rash manufacture of new names should be discouraged, that I venture to draw the attention of your readers to two notes in the *Journal of Botany* for November, 1910, and January, 1911, by Messrs. Druce and Horwood respectively. I am constrained to do so partly because of the columns which have been devoted, during the past three months, to the question as to whether *Saxifraga hantoscana*, Boiss., should be considered a species or a variety. Incidentally, it may be remarked that Mons. Correvon's article on the Saxifrages of the Maritime Alps (*Gardeners' Chronicle*, December 10) is a useful history and summing up of the matter. May I also say that Mr. Reginald Farrer's entertaining articles are particularly interesting to those of us who know the districts he has been travelling in, however much his energy may perhaps seem to be sometimes misdirected? Had he, for example, been less obsessed with the minute peculiarities of certain Saxifrages, which naturally necessitated a difference of opinion from time to time, so careful an observer would certainly not have lamented that "nothing further did the Briga Valley yield." It is one of the richest, botanically, of sub-Alpine valleys. For the same reason, possibly, he found the beautiful Miniera Valley so "very, very dull and hot." There are points in several of these interesting articles I should have liked to allude to, and particularly to the frequent occurrence of *S. cochlearis* and *S. lingulata* in the Ligerian Alps, to the east of the Col de Tenda, a fact not mentioned in these columns, but I understand that enough has already been written on the matter. To return to

the *Journal of Botany*, Mr. Druce's article is entitled "*Saxifraga Elmaria* L. var. *denudata*, Boem.," and in a long editorial note Mr. Britten says "it is certain that the knowledge of a great herbarium tends to enlarge one's views of species, and that many plants which appear distinct when only a limited amount of material is available are found to be conspecific when a greater number of specimens comes under investigation." Mr. A. R. Horwood's reply to Mr. Druce (*Journal of Botany*, 1911, p. 16) is such an able note on the variability of plants due often to merely pathological or physiological causes, that many gardeners would be interested in it, and the subject is particularly important in the horticultural world at the present time when so much attention is given to the culture of hardy plants, often accompanied by a very natural, though unsatisfactory, trade rivalry in the introduction of so-called new species and varieties. After alluding to Mendel's discoveries, and pointing out that the ultimate test of species, variety, or form is found only by cultivation for several generations, Mr. Horwood sums up by stating that "species are the biological units once differentiated by variation, which goes on complicating original differences, so that permanent varieties occur, and at the same time plants are open to detrimental effects of environment and resulting re-action, often impermanent, as here. These must not be confused with permanent intermediate forms obtained by hybridisation and crossing, which remain constant, and are produced by definite inter-breeding. When species, variety (so-called), and an intermediate state are commingled in the same unit, it is reasonable to suggest that the two last are of no importance." Mr. C. B. Robinson alludes to "a personal friend" on the Continent in a guarded and polite manner. The fact that we are all personal friends, or correspondents, is true, but that is no reason why we should all agree as to the exact rank that *Saxifraga hantoscana* should hold. It is more important that not even the youngest gardener should ever again doubt that *S. cochlearis* and *S. lingulata* are absolutely distinct. *H. Stuart Thompson.*

DIJON TEA ROSE.—The Dijon Tea mentioned in vol. xlviii, p. 463, by your correspondent R. P. S., as being the last one raised by Lacharme, was "Henriette de Beauvau," a most beautiful variety, but, unfortunately, proving rather tender. *G. L. P., Cheshunt.*

BANANA CULTURE IN ENGLAND (see vol. xlviii, p. 464).—It is a matter for wonder that the Banana is not more often grown in this country, seeing that the home-grown are so much better than imported fruits. In these gardens there are two plants of *Musa Cavendishii* growing in a border in the plant stove. From the numerous suckers which spring from the base, one is chosen from each plant, and allowed to develop, while the parent plant is carrying its fruit. By this method time is saved, and a bunch is secured in 15 or 16 months. If care is taken not to allow a sucker to grow away too early, the fruits will attain their full size. When the fruit is cut, the old plant is removed, and the soil about the roots taken away and replaced with fresh, rich compost. The young plant—by that time 4 feet or 5 feet high—soon becomes established and grows into a fruiting specimen with a girth of stem at base of 3 feet. The plants require abundant waterings and manure, and frequent slight top-dressings of loam, with a good fertiliser added. Two bunches which ripened in September and December, 1910, carried 162 and 251 "fingers" respectively. These fruits were plump, clear-skinned, and of delicious flavour. The largest weighed 7 ounces, and they averaged 2½ to 3 fruits to the pound. *J. Lisney, Berwick House Gardens, Shrewsbury.*

—Imported Bananas are not acceptable eating to those who know them in the countries in which they are grown. For one thing, they

* *Gard. Chron.*, July 23, 1910.

are mostly the commoner varieties, and the fruits are gathered before they are fully ripe, and, consequently, they are poor in flavour, and altogether unfit for dessert at the best tables. Anyone who has grown *Musa Cavendishii*, a native of Southern China, or *M. sapientum*, an Indian species, and taken the fruit when quite ripe, will agree with me in this matter. I have grown the first-named *Musa* as an article for the table in a southern county, sending it in for dessert regularly. When the various plants ceased to fruit, the mother plant was rooted out and its sucker, which pushed up its side was cultivated in its place. The glasshouse was a high one, about 15 feet at that part where the *Musas* grew, and it was a half-span, constructed originally for ainery, but made use of later for plant-growing, and well furnished with water pipes. The Bananas occupied the space at the back, standing about 5 feet from the back wall, thus allowing ample space for the plants without in any way hindering the passage of anyone who might wish to pass between the plants and the wall. The central space contained no staging, therefore there were no impediments to overcome in finding space for the *Musas*; and I was enabled to dig out pits for them 3 feet square, and about the same in depth. In these holes, which were undrained, the soil being of a porous nature and on a declivity which ensured perfect drainage without artificial means. The pits were filled with rich, rather heavy loam, with which some stable manure and considerable quantities of finely broken sandstone and charcoal were incorporated. The *Musas* planted were young and about 5 feet high; they came out of pots about 2 feet in diameter, and may have been 18 months old. They were well supplied with water at planting time—early in the spring. When the soil indicated dryness, a 3 gallon bucket of water was applied—perhaps once a month till winter approached, when much less is required. When the oldest plant showed the fruiting club near the base of the oldest leaves 15 months later, it came to me as a surprise, as I had thought more time would have elapsed ere the fruit might appear. But under glass cultivation in this country the fruiting is erratic, hence the wisdom of having at all times several plants of various ages. The bunch was about 3 feet long, and it consisted of about 150 fruits, of which I sacrificed 50 that grew on the lower end and were removed because of their small size. The remaining fruits had an average length of 7 inches, and were gathered only when of a yellow colour and emitting a delicate aroma—the signs of perfect maturity. Eight to ten weeks elapsed from the time the bunch pushed up through the upper part of the stem till the first fruits ripened, and they then came into use in a long succession, extending to six weeks, or longer, according to the sun's heat at the time. *F. M.*

ABUTILON THOMPSONII AND A. THOMPSONII SPURIUM.—I join issue with Mr. Brown in all he says (see *Gardeners' Chronicle*, December 31, p. 439). Indeed, it is not at all likely that we should differ in speaking of the same thing from the same point of view. Mr. Brown thinks I may have overlooked the fact that the wild plant in its native country varies in pubescence, and believes it is not absolutely certain that the plant may not have done so here under open-air cultivation for a number of years. His remark, I think, leads up to a point of interest and importance, from an evolution as well as from a garden point of view. It is not, of course, absolutely certain, as Mr. Brown says, that the plant has not varied in the character of pubescence in course of cultivation (there is also the different colour of the flower, and, I think, some difference in form), but for reasons that will, I dare say, appeal to my old friend, whose acumen I know so well, I believe it to be extremely unlikely. It is undoubtedly true that wild variation does exist, but it is equally true and certain, I think, that the variation is exclusively from seed, and that of all the variants we have only, perhaps, one in cultivation, propagated, of course, to an unlimited extent by cuttings, but remaining, nevertheless, one individual. The wild individual plant is not likely to vary under native conditions because environment would remain the same; the variations then that have been collected must be from seed, as, indeed, would be most likely, and so we have no evidence whatever of any individual variation. In the garden,

I think it may be said, we have never seen a similar variation in any individual plant of any kind—a new creature has been born, and never in nature, I believe, has it happened in this way. The conditions under which *Abutilon Thompsonii* has been cultivated have never been known to produce a change such as that of *A. Thompsonii* into *Thompsonii spurium*. Variation of the individual is normally, I believe, nothing more than casual adaptation, while variation from seed is quite a different thing. With regard to *A. striatum*, I would point out that we have in it a very clearly defined, unvarying species, so far as gardens are concerned. It is one of a number of variants of an aggregate species, no doubt. It shows not the slightest tendency to vary in any normal way, with even a greater number of years at its disposal, and the other individual *Abutilons* in cultivation are no more likely to vary. Turning to abstract argument, I think it may be pointed out that plants vary in two ways, comparable with physical and chemical change respectively. The variation of the individual plant is like the physical change: it is reversible; there is no change of composition, and nothing permanent is effected. It could not evolve, I think, a new and permanent creature, such as I judge this *Abutilon Thompsonii striatum* to be. In contrast with variation of the individual plant, there is variation from seed, which may be compared to chemical change: it is permanent, the young varying plant is new in composition, and this means everything in evolution. The power of this kind of variation, it seems to me, was necessary in the production of *Abutilon Thompsonii spurium*, and, if I am correct, it is therefore not one and the same individual as *A. Thompsonii* merely changed in aspect. One point more I would allude to, and that is the question "how comes it that the false *A. Thompsonii* is now so widely cultivated, to the exclusion of the true, and how has one replaced the other?" The answer, I think, must be that it is a finer plant for the purpose for which such a plant is used in ornamental gardening. The finer plant somehow appeared, and, being found good, took the place of *Abutilon Thompsonii*, and, being somewhat similar, took the name at the same time. It was simply a better *Thompsonii*. Bedding-out gardeners are not as a rule at all critical as to names, and do not care what a plant is, or where it comes from, provided it serves the required purpose. *R. Irwin Lynch.*

ABUTILON THOMPSONII FLORE PLENA.—The following items concerning the origin and early history of this *Abutilon* may be of interest to Mr. Lynch and others. In the spring of 1884 among the new plants offered by M^{rs}. V. Lemoine et fils, of Nancy, was this *Abutilon*. I at once obtained a plant, which, in foliage, was indistinguishable from the ordinary *A. Thompsonii*. The flowers, however, proved to be quite double, but, to my mind, they were much less pretty than the single forms, for which reason it was after a few years discarded, though I see it is still quoted in one nurseryman's catalogue now before me. When interest was, in the *Gardeners' Chronicle*, aroused over *A. Thompsonii* and its allied forms, I wrote to Messrs. Lemoine, asking if they could give me any information regarding the double variety sent out by them in 1884. With their usual courtesy, they replied that this variety was obtained from Messrs. Peter Henderson, Cortland Street, New York, who distributed it the year previously. I then inquired of Messrs. Peter Henderson & Co., who, in a long and courteous communication, informed me that it originated as a sport from the ordinary single variety in 1832. It was first noticed by Mr. Alexander Kennedy, gardener to John Taylor Johnson, Plainfield, N.J., U.S.A. One large plant bore on a single shoot flowers that proved to be double, and cuttings being obtained therefrom, they maintained this character. The stock then passed into the hands of Messrs. Peter Henderson & Co., who distributed it in 1863. In the various notes on the variegated *Abutilons*, I have seen no mention of an old kind which used to be employed for bedding purposes under the name of *A. niveum marmoratum*. It belonged to the *Thompsonii* class, and though I have not seen it for some time, it is still catalogued by Messrs. Cannell & Sons, of Swanley. *Abutilons* with variegated leaves are decidedly numerous, for besides those that have been mentioned are *A. Solovianum variegatum*, which requires somewhat more heat than the rest. The leaves of this are

large, almost horizontally disposed, and marked with green and pale yellow in varying proportions. In *A. Darwinii tessellatum* the leaves are marked in a tessellate manner with creamy-yellow. The distinct and curious-flowered *Abutilon insigne* is also represented by a form in which the large rugose leaves are mottled with yellow. Under the head of *Abutilon Schwartzii*, Mr. Lynch inquires the origin of a white variegated form, which I take it is the same as that usually grown in nurseries as *A. Savitzii*. This information I regret being unable to give, but at the same time I should like to point out that there is an older variety with white variegation, namely, *Souvenir de Bonn*, which was given an Award of Merit by the Royal Horticultural Society on April 25, 1893. This is a more vigorous grower than *Savitzii*, and the white edging does not extend so far over the leaf as in that variety. Added to this, *Souvenir de Bonn* is less pubescent than the other, and the leaves are altogether harsher to the touch. The flowers are, I believe, as in *A. striatum*. *W. Truelove.*

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The voting paper recently sent to supporters of this gardening charity includes the names of no fewer than 73 candidates, of whom about 20 may be elected. Many thousands of persons interested in gardening do not receive these lists, because they are not subscribers. Each year brings new candidates, there being no fewer than 32 new applicants this year, yet there are 25 persons on the present list who have applied for the benefit unsuccessfully for three years and upwards. If, out of the many thousands who are non-subscribers, but one or two hundreds were to become supporters, the elections might be extended from 20 to 30. If any person has doubt as to the needs of the institution, let him send at once to the secretary, Mr. Ingram, 92, Victoria Street, Westminster, D.

NOTES FROM NEW ZEALAND.

I HAVE just received a letter from a gardening friend who lives at Dunedin, New Zealand. My correspondent writes: "I am glad to know that the *Ranunculus Lyallii* plants arrived in good condition. Even here they are difficult subjects, as much wet in winter is bad for them. I note what you say about *Celmisia* doing best in the shade at Kew, and probably it is a mistake to expose them fully to the sunshine, for they are mostly mountain plants and, even where they will get all the sun that is going, it will often be obscured by mountain mists. *Celmisia verbascofolia*, which grows at a low altitude, is found among the rocks and scrub in a gorge in the Horse range, so that it must get a good deal of shade some time in the day. On the contrary, *C. Lindsayi* drapes the rocks on the open coast to the south of this, where the plants must be in the full sun for the greater part of the day. I daresay partial shade would suit most of them, but, of course, if at Kew full shade is found to be best it will be wise to follow their lead. *Convolvulus luguberrimus* grows wild in places quite near here. It is now classed as a *Calystegia*, though it was originally described as a *Convolvulus*. If it does well with you, I am sure you will like it, as it has a neat, compact habit of growth for such a rampant climber, and its white flowers are numerous, though only about an inch and a half across. It is to my mind a most desirable plant. Strange to say I have never established it in my garden, though I have made one or two attempts. Probably my want of success was due to my not giving them any care, but only a few days ago I planted out a couple of seedlings which I had raised, and, as I have taken more pains to give them a good rooting medium to start in, I hope in time to have them draping an old specimen *Pittosporum*. When once firmly established they will hold their own in the most disadvantageous conditions, as I have seen one growing through a hedge of *Cupressus macrocarpa*. I have not grown *Ostrowskia magnifica* satisfactorily, though I have imported it twice. The first plant lived for a year or two and then disappeared, and those I now have, I am afraid, are likely to fail. I dug a large, deep hole, which I filled with pieces of limestone mixed with soil, as I had read that the species liked rough, stony soil and limestone for preference.

but the first year the plants only threw up feeble growth an inch or two above the ground, and this year they have behaved similarly. It may be that the drought has been too much for them, for we have had three very dry years. I do what I can with the garden hose, but it forms a poor substitute for the natural moisture. My collection of *Eremuri* has suffered very much this year from the drought, some have turned yellow and withered away, whilst one that threw up two flower-stems is not going to develop its blossoms. One, however, *E. Olge*, is going to flower. *E. caucasicus* flowered last year, but is a failure this year.

Pueraria Thunbergiana I tried once, but failed to establish it. It arrived alive, but had no vigour and gradually dwindled away. Recently, while on a visit to the North Island, I saw *Akebia quinata* covered with flower, yet I have had it for years, and it has grown very vigorously and is now smothering other things on the same trellis, but it has never flowered with me. *Lardizabala biternata*, *Rosa laevigata* and *Stauntonia hexaphylla* have all behaved in the same way. Possibly, if I had them against a wall instead of on a trellis they might flower, but often in the summer there are chilly winds which blow up the harbour and, as my garden faces the north-east, it is exposed to it, and I attribute the non-flowering of several plants to this cause. For example, *Spiraea prunifolia*, which at Queenstown, on the shores of Lake Wakatipu, where the winters are tolerably severe (all the big Blue Gum trees were killed there one winter) flowers splendidly, the bushes being hidden with blossom, whilst here it flowers but sparingly, and it is the same with some other plants. It is very difficult to ascertain the cause of failure. The common Crown Imperial will not flower with me, though I have tried it in various situations, and the Corporation gardener (a Kew-trained man) tells me that his experience is similar. The city gardens are at the other end of the town and have a different aspect, so that the conditions are totally dissimilar, yet in other gardens it thrives, and at one place in the country it grows and flowers luxuriantly. My bulbs, year after year, throw up a stem 2 feet or 3 feet high, apparently healthy, but these shortly after wither without flowering.

I have succeeded in growing the ordinary greenhouse *Cineraria* in the open air, and my bed, which contains both the old form and the newer *stellata* variety, is a mass of colour. I got the idea from a cottage garden in the neighbourhood, where the owner had a small bed of *Cinerarias* between his house and the adjoining one, the latter having a brick wall, the reflected heat from which might, I thought, have something to do with the success achieved, but possibly the shady situation was the main thing. I pricked out my seedlings into a box, and in the autumn planted them in a bed shaded by trees, where they stood all the winter, and are now bearing blooms that would not disgrace greenhouse plants.

I prefer flowering shrubs to anything else. My last importation was not a great success, as I think I lost fully 75 per cent. of the plants, but I am glad to say *Lomatia ferruginea* is doing well, and I am greatly pleased with its foliage."

With regard to the *Celmisias* mentioned by my correspondent, I may say that when I was at Kew during the past summer, I was shown by the superintendent of the temperate house the collection of these plants growing just behind the house, and was told that they got no sun until five o'clock in the day. I had always grown my *Celmisias* in the sunniest spot available, and had lost several of them and came to the conclusion that a certain amount of shade was beneficial for them.

From all accounts the climate of Dunedin is very much the same as that of the south-west of England, as my correspondent says that in hard winters he always loses his *Pelargoniums* grown in the open, and in the foregoing letter he speaks of Blue Gums (*Eucalyptus*) being killed, whereas here, at Kingswear, there are many Blue Gums which have been unharmed for years. It is therefore probable that we could grow any of the plants of the south of New Zealand without protection, and I think that little difficulty would be experienced in cultivating *Cinerarias* in the open, as described by the writer, if anyone cared to embark on the attempt. *Wyndham Fitzherbert*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 3.—*Present*: Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the Chair); Dr. A. B. Rendle, F.R.S., Messrs. A. W. Hill, M.A., J. Odell, W. Hales, J. T. Bennett-Poë, M.A., E. M. Holmes, F.L.S., W. Fawcett, B.Sc., and F. J. Chittenden (hon. sec.).

Sporting in Begonias.—Mr. J. HUDSON, V.M.H., sent a specimen showing sporting in winter-flowering *Begonias*. Last year a sport had appeared on *Begonia* "Agatha," with flowers larger and of a brighter colour than those of the type. Plants are propagated from the sport and came true, but on one plant one half again sported and produced flowers still larger than in the first sport and with foliage twice as large. The Committee expressed the hope that specimens of each of these sports should be kept and dried, so that comparisons could easily be made in the future and the whole history of the sports followed.



FIG. 18.—SEED-PODS OF MANDEVILLA SUAVEOLENS.

Fruiting of Mandevilla suaveolens (see fig. 18).—Mr. CHITTENDEN showed, on behalf of Mr. SAUNDERSON, of Joanyville, Jersey, a pair of fruits of *Mandevilla suaveolens*, which had ripened in the garden there. This plant can be grown outdoors only in warmer parts of England, and is not often known to fruit. The fruits, as in so many of the *Asclepiadaceae* are pods about 12 inches in length and slender, and are produced in pairs.

Pine-apples with rotten core.—Some Pine-apples of excellent flavour, but with a brown rot in the core, were received from Natal. Mr. FAWCETT said that the condition was very well known in the West Indies, and was particularly prevalent in the variety shown, which Mr. FAWCETT recognised as the deliciously-flavoured "Ripley." Whatever the cause, he believed it originated before the Pines were cut, and, therefore, whilst they were growing. The rot has been attributed to different causes by different investigators. It has been examined in the States and said to be connected with the growth of a species of *Fusarium*, which, presumably, gains an entrance into the root from the soil, but the disease does not appear to have been reproduced by inoculation by this fungus (see

Jamaica Botanical Bulletin, ser. ii., vol. viii., (1901), p. 83, vol. xi. (1902), p. 165. Mr. MASSEE, in his *Diseases of Cultivated Plants*, attributes the disease to physiological causes, pointing out that it is prevalent when the plants are ripening during the rainy season, and associating it with excess of water in the atmosphere. A similar trouble occurs in pine-pits in this country, especially when the plants are subjected to a check through a sudden lowering of the temperature.

MANCHESTER AND NORTH OF ENGLAND ORCHID

JANUARY 5.—*Committee present*: Messrs. E. Ashworth, R. Ashworth, Thorp, Ward, Cowan, Holmes, Cypher, Keeling, Smith, Arthur, Parker and P. Weathers (hon. sec.).

Messrs. CYPHER & SONS, Cheltenham, were awarded a Silver-gilt Medal for a group composed mainly of *Cypripediums*, including choice forms of *C. × Euryades*, *C. × Leeanum* in variety, and *C. × Beeckmannii*. Some well-grown plants of *Sophronitis grandiflora* and *Masdevallia Schröderiana* were also noticed.

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), staged a showy group of plants, including many well-grown specimens of *Odontoglossum* with fine flower-spikes and several good *Cypripediums*. (Silver-gilt Medal.)

S. GRATRICK, Esq., Whalley Range (gr. Mr. Brown), exhibited *Cypripedium × Sunbeam*, a well-shaped yellow and white flower, and *C. × Alport Regina*, both of which received Awards of Merit.

W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), again staged an interesting exhibit, which included *Odontoglossum × Ceres* var. *magnificum* (*O. Rossii × O. × Rolfeae*), one of the best forms of this pretty hybrid.

E. V. LOW, Esq., Vale Bridge, Haywards Heath, showed a few plants, including a fine example of *Cypripedium × Gaston Bultel*.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), made a fine display of Orchids, for which a Silver-gilt Medal was awarded. Good forms of *Odontoglossums*, both species and hybrids, formed the major portion of the group. *O. × Red Monarch*, closely approaching a form of *O. crispum* and *O. × "Blue Peter,"* a beautifully-coloured hybrid, received First-class Certificates, whilst *O. × Moonlight*, apparently a hybrid of *O. crispum* var. *Grairianum*, received an Award of Merit.

J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney), exhibited a few Orchids, of which *Cypripedium villosum* var. *Mrs. Cary Batten* was the best example.

H. J. BROMILOW, Esq., Rainhill (gr. Mr. Morgan), showed a group of *Cypripediums*, for which a Silver Medal was awarded.

Messrs. KEELING & SONS, Westgate Hill, near Bradford, exhibited a small collection of miscellaneous Orchids.

Messrs. SANDER & SONS, St. Albans, staged many interesting plants, including well-grown specimens of *Odontoglossum* hybrids, with fine arching and branched flower-spikes.

Mr. WEBSTER, Shackleton, showed, amongst other plants, a distinct form of *Cypripedium × Acteus*.

PEEBLESHIRE HORTICULTURAL.

A GENERAL meeting of the above society was held recently in the Drill Hall, Peebles. Mr. Oldham presided over a good attendance of the members. The hon. treasurer, Mr. Forrest, submitted a statement of the society's financial accounts, which showed a credit balance of more than £18. The date of the next show was fixed for August 24. Officers were appointed and the schedule of the flower show revised.

FOREST HILL CHRYSANTHEMUM.

JANUARY 5.—The annual meeting of this society was held on the above date. A very satisfactory report was read, and the balance-sheet showed a credit to the good of over £11. The members of the committee were all re-elected, and Mr. E. G. Marshall appointed to the new office of Press correspondent. A lecture will be given before the members on January 18, at St. Saviour's Hall, Forest Hill, by Mr. R. B. Leech, on "Chrysanthemums."

MARKETS.

COVENT GARDEN, January 11.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Ems.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers such as Anemone fulgens, Anemones (French), Arums, Azaleas, Camellias, Carnations, Chrysanthemums, Gardenias, Helleborus, Hyacinth, Lilac, Lilium, Marguerites, etc., with their respective prices in s.d. and s.d. s.d.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage plants such as Adiantum, Asparagus plumosus, Berberis, Ferns, etc., with their respective prices in s.d. and s.d. s.d.

Plants In Pots, &c.: Average Wholesale Prices.

Table listing various potted plants such as Aralia Sieboldii, Erica byemalis, Eranthis, Ficus, etc., with their respective prices in s.d. and s.d. s.d.

Fruit: Average Wholesale Prices.

Table listing various fruits such as Apples (American), Grapes (English), Lemons, Melons, Nuts, etc., with their respective prices in s.d. and s.d. s.d.

Potatoes

Table listing various potato varieties such as Kents, British Queen, Bedford, etc., with their respective prices in s.d. and s.d. s.d.

REMARKS.—Trade remains very steady, and prices are about the same as those of last week. E. H. R., Covent Garden and St. Pancras, January 12, 1911.

COVENT GARDEN FLOWER MARKET.

Many growers endeavour to be first in the market with forced flowers, and, in consequence, after the first few markets, larger supplies are seen than a little later. Tulips are already abundant, but fairly good prices are being made; they include good white, yellow, pink, and red sorts. Roman Hyacinth is well supplied, and is offered below the usual prices. Narcissi include Golden Spur, Felamonus, and Henry Irving (yellow varieties); also Soleil d'Or, Primo, and Paper-white. The supplies of this flower to-day (Wednesday), were equal to all demands. All who are interested either in selling or buying flowers should visit the market occasionally to obtain a knowledge of the general conditions, including the difficulties of securing just what is wanted, and also the losses that occur through waste blooms. Good white Azalea was in demand this morning, and the blooms were making prices beyond the ordinary quotations. Chrysanthemums are well supplied, best quality flowers have been making fairly good prices, but bunches of smaller flowers have not been in much demand. Roses vary, both in prices and quality. Richmond and Mme. Abel Chatenay are the most valuable varieties in the market. Kaiserin Augusta Victoria also has a good demand. Most growers have finished with Poinsettias for the season, and prices for good heads of bracts have advanced; from now onwards the supplies of this showy subject will be very uncertain, though some may be procurable as late as February. Liliums are well supplied; there is a considerable difference in the quality of the flowers, and prices vary accordingly. French flowers arriving in large quantities; their prices fluctuate, and the same is true of all cut flowers.

POT PLANTS.

Very few pot plants have been wanted during the past week, and there is but little change in the sorts offered. Chrysanthemums of good quality are procurable, but many growers have cleared their stocks. Supplies of Erica byemalis promise to hold out for some time yet; E. gracilis is scarce, and E. gracilis vernalis (which succeeds E. g. autumnalis) is not so extensively grown as formerly. E. melanthera is still procurable. Liliums in pots vary in height; some well flowered dwarf plants of L. Harrison are of good quality. Cyclamens are not yet quite up to the high standard of quality usually seen in January, but they are fairly good. Solanums are procurable, but the berries are beginning to drop, and consequently they cannot be sent far by rail. Azaleas (Indian) are well flowered from the usual growers. Narcissus obvallaris is seen in good condition. All kinds of foliage plants are well supplied, but the demand is very limited. A. H., Covent Garden, January 11, 1911.

LAW NOTE.

PROSECUTION UNDER THE PHARMACY ACT.

HIS HONOUR JUDGE RUEGG, K.C., sitting at the Stafford County Court, on the 6th inst., heard a case in which James Daly, seedsman and florist, of Newport Road, Stafford, was sued by the Council of the Pharmaceutical Society of Great Britain (through Mr. Richard Brimbridge, the Registrar) for £5, the amount of a penalty, alleged to have been incurred by the defendant on October 24 last, by reason of his having sold, or kept open shop for the retailing, dispensing, or compounding of, poison, to wit, a poisonous vegetable alkaloid called nicotine, contained in, and forming part of, the ingredients of a compound known as "X.L. All Vapourising Fumigator," contrary to the provisions of the Pharmacy Act, 1868 (31 and 32 Vic., cap. 121), as amended by the Poison Pharmacy Act, 1903 (8 Ed. VII., cap. 55).

Mr. Marshall, opening the case for the plaintiffs, said that the defendant was a seedsman and florist, and was licensed under the Act of 1903 to sell poisonous substances to be used exclusively for agricultural or horticultural purposes, in the destruction of insects, provided he conformed with the regulations of the Pharmacy Act, 1868. By the latter Act he was required to affix to the vessel or receptacle containing any poisonous substance he sold a label giving the name and address of the seller. The facts were that, on October 24, a representative of the Society went into the shop of the defendant in Stafford and purchased a bottle of "X.L. All Vapourising Fumigator." In his report, he described it as the usual No. 5 size bottle properly described, but it bore no label with the vendor's name and address. This was the whole of the defendant's offending.

Mr. James Richardson, inspector for the Pharmaceutical Society under the Act of 1903, stated

Vegetables: Average Wholesale Prices.

Table listing various vegetables such as Artichokes, Beans, Carrots, Celery, etc., with their respective prices in s.d. and s.d. s.d.

REMARKS.—Supplies of Apples are shorter, and prices show an increase. Peas are scarce; the variety, Passe Crassane, from France, is the best sort obtainable for dessert purposes. The Grape trade shows an improvement in prices, especially for Black Alicante and Canon Hall Muscat. Forced Strawberries have been received from the Worthing district; both the demand and supply are limited. Consignments of fruits from Cape Colony, which arrived this week, were disappointing, owing to the bad condition of the fruits. Tomatos from the Canary Islands are arriving in capital condition, and are meeting with a good demand at moderate prices. Vegetables, especially those forced, are selling well. Trade generally shows a decided improvement. E. H. R., Covent Garden, January 11, 1911.

that on October 24 last he purchased at the defendant's shop a small-sized bottle of "XL-All Vapourising Fumigator." He was served by the defendant, who brought it from a room at the back of the shop. He did not put any questions to witness, but asked him to sign the book, which, he said, was the poisons book, and witness did so. Witness opened the package some 60 or 70 yards from the shop, and found that the bottle did not bear the label giving the name and address of the vendor. He made a note on the brown paper of the name of the town and other particulars, and noted the time, etc., on another piece of paper. When he reached home that night he again examined the bottle, and affixed to it a note of the time and date, and his initials.

In cross-examination by Mr. Watson, witness said he lived at Hunton Road, Gravelly Hill, Birmingham. He received no commission in respect of the penalty imposed under the Act. He presumed the object of affixing the label was to enable the seller to be traced, while the object of the poisons book would be to trace the purchaser. It was important, under the Act, that the purchaser should give his name and address. Witness gave his name, but he admitted that he gave a fictitious address—for a purpose. The address he gave was "J. Richardson, Milford," and he signed the entry in the book.

Mr. Watson said it would have been easy for the inspector, after he had completed the purchase, paid the money, and signed the book, to say, "I am an inspector under the Pharmacy Act, and I must look at my purchase." That would have been an easy and an honest thing for him to have done. Instead, he left the shop, and opened the parcel 60 or 70 yards away. When he found that the label was missing, why did he not go back and tell the defendant so? He sent it to the Society at once; but not one word of complaint did the defendant receive from the Society until a letter was received from the Society's solicitors on November 4, telling the defendant that he had incurred a penalty of £5, payable to the Society, and calling upon him to pay the said penalty and costs. Defendant answered on November 6, saying that he could not understand why they should accuse him of that offence. He wrote: "I distinctly remember selling to Mr. J. Richardson, on October 24, a No. 4 bottle of 'XL-All Fumigator' compound, and seeing one of the enclosed labels attached before he signed for it."

His Honour, in giving his decision, said the question he had to decide was, "Did the defendant comply with the conditions required by the Act?" He had come to the conclusion that he did not. "I believe," said his Honour, "that the bottle was sold without the label being attached, but how that came about I am not sure. I do not think it has been proved that it was the defendant's habit to sell bottles of poison without any label affixed. On the contrary, he had labels specially printed for the purpose. Whether the omission in this case was accidental, or whether defendant was not as careful as he should have been, I cannot say; but there is no excuse under the Act. It does not matter in the least about the inspector giving a false address. It is what is done by all inspectors. It is done continually by inspectors under the Food and Drugs Act. I must say I am sorry for the defendant. There is no moral reflection on him whatever. It might not have been his fault in the least. As a man of business, he does not seem to have been quite as careful as he ought to be in dealing with the dangerous poisons; but I dare say it is very true that a great many people do not carry out the Act of Parliament to the letter. In this particular case, if it had been open to me to do so, I should have imposed only a small penalty, for the offence was a minor one; but the Act fixes the penalty at £5, and I must give judgment for the plaintiffs for £5."

GARDENING APPOINTMENTS.

- Mr. F. WITHERS, for the past year Gardener to J. UPTON, Esq., Tew House, Hampton, Oxon, as Gardener to COLONEL WARDE, M.P., Barham Court, Maidstone, Kent.
- Mr. J. WRIGHT, for 2 years Foreman at Bear Wood Gardens, Wokingham, as Gardener to G. H. WILLIAMS, Esq., St. Dunstons Castle, Llantwit-Major, Glamorgan-shire.
- Mr. H. E. HUGHES, for the past 124 years Gardener to Sir FRANCIS E. HAY, Bart., King's Meadows, Pebbles, N. B., as Gardener to J. H. SCOTT, Esq., Lower Woodside, Hatfield, Herts.

ANSWERS TO CORRESPONDENTS.

AMERICAN HORTICULTURAL PAPERS: W. C. *The Florists' Review*, published every Thursday by the Florists' Publishing Co., 530-560, Caxton Building, 334, Dearborn Street, Chicago; *Horticulture*, published on Saturdays, at 11, Hamilton Place, Boston, Mass.; *The American Florist*, published on Saturdays by American Florist Co., 324 Dearborn Street, Chicago; and *The Florists' Exchange*, published by the A. T. D. La Mare Printing and Publishing Co., Ltd., 2, 4, 6, and 8, Daane Street, New York. These are amongst the more important papers published in the gardening and nursery trade interest in the United States.

GYPHOPHILA PANICULATA FL. PL.: *M. Rees*. There are more methods than one of propagating this plant quickly, and at various seasons. The shoots may be layered almost the same as Carnations. First remove all the soil close down to the roots, without injuring these, then topdress with good calcareous loam and finely-powdered old mortar rubble, the Gypsophila being a lime-loving plant. Partially sever the shoot, as in a Carnation layer, and peg it down upon the fresh soil and cover it lightly with mould. This operation should be done as soon as growth commences. If a plant, or more than one, can be set aside, and the flower-shoots removed for one season, better results will be obtained. Division of the old stools may take place early in the season. Choose favourable weather, and proceed as with the layering as regards soil, but cut through the old growth behind the latest made roots and press all down firmly. When growth has fairly commenced, the divisions can be taken away and replanted. Cuttings should be taken with a heel attached during the spring, and inserted in similar soil to that already described, under a bell glass and away from the sun's rays. Cultivators should bear in mind that slugs are particularly fond of the young shoots in the spring, and they will destroy them unless preventive measures are adopted, such as occasional dustings with freshly-slaked chalk lime, which will, at the same time, be a deterrent to both earth-worms and wire-worms.

MUSHROOM BED: *Stort*. Can you send specimens taken from the surface of the bed?

NAMES OF PLANTS: W. H. S. 1. *Cologyne fuscocens*; 2 and 3, varieties of *Lelia albida*.—*Thomas Burg*. *Eriobotrya japonica* (Loquat).—*B. P.* 1. *Pinus Laricio*; 2. *Juniperus virginiana humilis*; 3 and 5, *Cupressus Lawsoniana*; 4, *Cupressus Lawsoniana* var. *Alumii*; 6, *Aspidium falcatum*.

NECTARINES: T. C. H. Nectarines are usually budded on the Plum stock, preferably such varieties as the *Musiel* and *Myrobalan*. These are produced by planting seeds (stones) as soon as they are ripe, or early in the year, in drills. The following season the seedlings may be transplanted in rows about 2 feet, 6 inches apart, and 1 foot between each plant. These plants may be used for working dwarf trees when two years old, but for standard trees they will require perhaps three or four years in which to make sufficient growth to form the stem necessary for a standard. The budding is usually done during the months of July and August, the method termed shield budding being generally adopted. If you visit a good fruit nursery at that period, you may see a practical demonstration of the budding process. Much time may be saved by purchasing a number of stocks and planting them at once. In future, you might plant seeds annually for raising what stocks are required. If you do not wish to bud the stocks yourself, you may buy maiden trees, that is, trees which have made one season's growth after the budding. These young trees should be cut back early in the spring to five or six buds. The resultant growths will form the basis of the training which you intend to adopt. The chief insect enemies of Nectarines are the green and black fly. These can be destroyed by syringing with strong, soft-soapy water.

PINE-APPLE CULTURE: W. J. M. It is possible for you to grow a Pine-apple from the growth obtained from the top of the fruit, provided you have a suitable atmosphere in which to

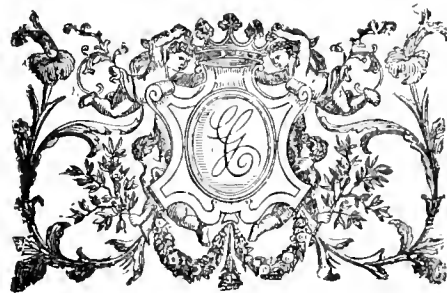
grow it. The Pine-apple requires a house where it can be grown near to the roof-glass, where a hot-bed can be made in which to plunge the pot. There must be sufficient water pipes to maintain a minimum temperature of 65° or 70° during the growing season; a Cucumber house would answer your purpose. The plant should be first potted into a 5-inch pot, in good fibrous loam. Plunge the pot into a hot-bed made of Oak or Beech leaves, and having a temperature of about 80°. No water should be given till the roots reach the side of the pot, when the ball should be thoroughly moistened. The plant should be shaded from bright sunshine until it is rooted, and the atmosphere must be kept moist by frequently damping the floor and walls of the house, also lightly spraying the plant, twice daily during sunny weather. When the plant has filled the pot with roots, give it a shift into a 7-inch or 8-inch pot, treating the plant as before, until it requires the final shift into a 9-inch or 10-inch pot. The loam for these two last pottings should have some crushed bones and a little charcoal mixed with it. During late autumn and winter the plant should be rested by lowering the temperature of the house to 60°, and keeping the atmosphere less moist. Early in the following spring the hot-bed should be renewed, and the plant should be more liberally treated, in regard to heat, moisture and manurial stimulants; the stimulants may be given in the form of liquid manure, soot-water, and guano.

RICHARDIA AFRICANA WITH TWO SPATHES: *D. P.* The abnormality is not uncommon; we frequently receive specimens during the season. The spadix includes the flowers proper, the spathe being a bract or modified leaf.

ROSE SHOOTS: *I. J.* The Rose shoots are attacked by the parasitic Rose canker, caused by the fungus *Comothrium Fuckelii*. You will find a good account of this disease in the *Journal of the Royal Horticultural Society*, vol. xxxiv., Part II., p. 222. Cut off and burn all shoots showing "cankers" or white areas dotted with black spots. If reddish or discoloured markings—indicating the first stages of the disease—appear on some of the shoots during next season, try painting them over with a coat of creosoted wood tar.

VINES: T. C. H., *Kent*. Vines are generally grown from "eyes" taken from well-ripened shoots, of moderate strength, from the previous season's growth. These are cut with about half an inch of wood each side of the bud, and inserted in fine soil in 3-inch pots. Put one "eye" into each pot, and press it down until the bud is level with the surface of the soil, afterwards applying a watering with a fine rose; then plunge the pots into a moderately warm hot-bed in a house where the atmospheric temperature is 70°. When the buds commence to grow, much care must be exercised in watering and syringing, or the shoots may damp off. Repot the young plants into 6-inch pots before they become pot-bound, and again plunge them in a hot-bed, and apply water carefully till the roots have quite filled the pots, when they must be shifted in the final pots, using a compost of loam, old mortar rubble, and crushed bones. Vines require plenty of heat and moisture all through the growing season, and when they are well rooted in the final pots some stimulants may be given in the form of liquid manure, soot-water, and occasional sprinklings of some approved fertiliser. In the autumn, when growth is completed, attention must be given to the maturing or ripening, as it is termed, of the canes. At this period less atmospheric moisture must be given, and plenty of air admitted, both at the top and bottom of the house. If red spider appears on the leaves, syringe them with a strong solution of soft soap and sulphur.

Communications Received.—U. S., Hereford—J. W., H. S., Preston—T. M., Londonderry—R. P., T. B., Mellor—R. J. F., C. J. M., J. T., Midlothian—W. M. T., W. C. U., A. P., Bishop's Stortford—R. I. L., P. A., F. M., A. B., F. H., S. C., A. P., Chelmsford—E. M., W., A. B., W., H. S., T., E. Y., H. P.—R. P., S. A., W., I., G. B., Essex—C. L., I. O., Japan—H. R., D. H. I., B. D., K., T., A. C., A. D., N. B., C., A. Reader—T. H. E., A. R., T. W., J. E. S., J. D., G. T. M., H. S., J. W., E. J., R., N. C. (You may address the specimens to the Editors. Six sorts may be sent for naming at one time.)



THE

Gardeners' Chronicle

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CONTENTS.

American Hawthorns— Some new arborescent species	36	Orchid notes and glean- ings— Dendrobium Goldiei ...	36
Apples, British versus foreign	43	Queen Alexandra and the International Horticul- tural Exhibition	41
Apples in Dorset	33	Rainfall in 1910	41
Benevolent Institution, Gardeners' Royal, An- nual Meeting and Elec- tion of Pensioners ...	46	Roots and soil	49
Board of Agriculture and Small Holdings	11	Rosary, the— Crimson Roses	35
Books, notices of— Some Directories and Almanacs	11	Scotland, notes from ...	42
Chrysanthemums, im- curved	44	Snowdrops, two garden- raised	34
Cyananthis	12	Societies— British Gard. Assoc. ...	40
Diospyros Kaki in Succu- lent House at Kew ...	10	Gardeners' Royal Bene- volent Institution (Worcester Auxiliary) ...	41
Florists' flowers— Sweet Peas in 1911 ...	31	National Chrys.	47
Hybrids raised at the Royal Gardens, Kew ...	35	National Hardy Plant ...	40
International Institute of Agriculture	41	National Sweet Pea	47
Kew gardeners' social evening	4	Royal Caledonian Hort. ...	47
Law note	4	Royal Horticultural	45
Tax on male servants ...	44	R.H.S. Garden Club	41
Liver of sulphur as a fungicide	41	Stirling Chrys.	47
Novelty of 1910	42	Trees, effect of gas escapes on street	44
Obituary— Blake, George	47	Weather at Rothamsted ...	43
Fox, John	47	Week's work, the— Flower garden, the	39
Seaton, James	47	Fruits under glass	39
		Hardy fruit garden	34
		Kitchen garden, the	39
		Orchid houses, the	38
		Plants under glass	28
		Public parks and gar- dens	30

ILLUSTRATIONS.

Blake, George, portrait of the late	47
Crataegus gemmosa flowering in Rochester, N.Y.	37
Cyananthis microphyllus	42
Dendrobium Goldiei	36
Galanthus Melvillei major	34
Galanthus "William Thomson"	35
View in the Succulent House at Kew, showing Dios- pyros Kaki in fruit (Supplementary Illustration)	10

APPLES IN DORSET.

HINTS TO SMALL GROWERS.

THE quiet, cattle-loving county of Dorset, though not comparing with its neighbours, Somerset and Devon, as a fruit region, yet, in a minor way, can hold its own with fair credit. Several French gardens, moreover, have sprung up in various districts, and appear to be rendering a good account of themselves in their more special lines. Country people in the shires away from large towns are proverbially conservative in habit and slow to change their methods, hence Dorset, where we have no big cities, is perhaps—though not behind her immediate neighbours—hardly up to the mark in adopting up-to-date and, consequently, as far as the future is concerned, more profitable methods. I allude in particular to the lamentable number of "dead" or somnolent orchards, still so widespread throughout the county. Many of the wretched apologies planted years ago with the now unremunerative Eider Apple, are, in these latter days, quite past their best, and frequently derelict. One sighs to see these crowded groves of age-lent trees, covered with moss, thickets of branches intermingling one with another and

penetrating their neighbours, frequently with part of their limbs sprawling on the ground and their roots torn up and exposed to the air. Whatever fruit these wretched arboreal wastrels produce can be but immature, scabby, and unprofitable. Other grounds, of course, have been from time to time bettered, and newer varieties put in to fill up gaps, but this is done too often in a half-hearted manner. Even good, sound orchards have been frequently half-ruined by improper methods. I allude first and foremost, to the shocking damage done to pendent branches by pasturing horses or cows. These, from mischief or taste, not only nibble at and pull down all branches within reach, which leaves them (so far as they survive at all) bare of buds and foliage, but, by reason of their disastrous habit of biting at the bark, strip whole sides of the stem, thereby causing disease and premature decay, if not a very speedy decease. Pigs and sheep, or quite young calves seldom do any harm. It is odd that the owner of an orchard, be he farmer, cottar, or merely amateur, does not more often realise which way his bread is buttered. Take the case of any orchard with fair prospects and possibilities, it is surely simple enough to arrange its feed on satisfactory lines, and also to avoid the lamentable waste there is with Apples lying about for weeks as they fall in rank, sordid grass, valuable dessert and long-keeping cooking fruits alike, accumulating to rot and let their fellows bruise themselves as they, in turn, drop from the trees. It is surprising how many so-called fallings reach the ground originally perfectly sound, and only get spoilt subsequently. These, if collected every few days, and the better kinds carefully kept separate, especially after a heavy fall from a high wind, can be assorted and sold at three to six times the price they would fetch if badly garnered in and of necessity marketed either for low prices, or, in a plentiful year, found to be a drug in the market, and of use only for cider or even for feeding the pigs.

Then there is another waste with its consequent dire results, namely, that caused by not thinning out orchard trees frequently enough, for not only does it vastly improve the tree and its immediate fellows to let in light, air, and even frost, thereby sending it more completely to rest in Nature's sleeping period, but the very process of branch removal brings in an excellent source of firewood or its value in money. To be practical, the writer not long since indulged in one of these systematic-thinnings out which often seem advisable on taking possession of an orchard. Not requiring the wood obtained thereby, two goodly stacks, they were sold for a sovereign, the equivalent locally of the value of half-a-dozen bushels of fruit, to say nothing of the prospective good with regard to cleaner and finer fruit from the trees in a season or two. Orchard trees, especially when of full adult growth, will stand an immense amount of "stuff" being taken out of them, especially from the centre, an object ever in view being to keep the head open. Of course, straggling growers, such as Tom Putt and Wyken Pippin (how rarely one sees this excellent little pale-gold fruit outside Warwickshire and the Midland region), save all labour of this sort by their gaunt habit of growth.

Yet a third waste, akin to that just mentioned, consists in leaving old stumps or palpably worn-out veterans and dead trees to cumber the ground, instead of grubbing them up and turning them into firewood logs or posts. There, in nine cases out of ten, they remain to decay, and take up space which should be without loss of time allotted to young trees of the most up-to-date, profit-bringing varieties; yet it is probably not until a change of tenancy or ownership, that the needful reform is made.

Given sound culture and an avoidance of the above-stated delinquencies, I will now give my personal experiences, dealing more particularly with the grading of Apples and the right kind of markets, trusting that my conclusions, which are the result of some years' practical experience, may be of benefit to others, independently of the county in which the reader may chance to reside.

Presumably, one must go several decades back to find such a universally sparse fruit year as 1910, more particularly as to Plums, Apples, and Pears. For the deficient crops have been pretty widespread throughout the country, with merely local patches here and there, which, for some reason or other, did normally or even well. This being so, it has behoved those growing Apples for profit to consider more than their wont how best to market their reduced supply. In many parts, alas! this consideration was unnecessary, owing to the produce being not more than the owner himself could utilise. Disastrous tales reached me in the course of correspondence about my own Apples. One party stated that he himself was usually in a position to supply the trade, but that last season his two orchards were absolutely barren, with the exception of a few Eider trees. In September, in the Isle of Wight, very poor fruit was commanding 4d. per lb. which ordinarily should be selling at 1d., and a greengrocer was lamenting that some I was buying were the last Apples the farmer said he could let her have. A lady wrote me from Sussex that from 100 trees she had 60 Apples! While a clergyman in the west of England, who had for some years augmented his stipend by supplying, from his garden and glebe orchard, a dozen or so regular customers with a winter's store of Apples and Pears, had to disappoint them all, not merely these fruits failing, but also his Nuts and Medlars. The worst accounts seemed to come from Sussex, Surrey, and Hants., where, in most districts, the crop apparently was a failure. I cannot think that, though, of course, we had indolent crops, we in Dorset fared so badly. In my own case, though a large garden (one half four-walled), with pyramids, standards, and espaliers, was, with the utmost uniformity, barren, probably not half-a-bushel being produced by the lot and that from maidens, yet my orchard produced some 60 bushels, against 90 or so in the previous season. Indeed, out of about 85 trees, 20 bore a good or fair crop, while the remainder contributed a smaller or greater quota to the sum total, and, indeed, a sum comfortably in excess of last season's larger supply was obtained, as the result of the higher prices now obtaining. How far attentive cultivation was responsible for this fair crop I cannot, of course, say. The orchard is in no way remarkable, having been planted years ago with the

usual west country mixture of cider, dessert, and cooking Apples, but for several seasons the branch thinning-out process has been attended to with care. The best bearers were among dessert varieties; Cox's Orange Pippin, King Pippin, Fearn's, Stamford, and Cockle Pippins, the last two being heavy crops, while cookers that acquitted themselves well were Hoary Morning, Tower of Glamis, and Tom Putt. A seedling of Alfriston produced the heaviest and finest crop of the season. As to prices, locally, cider Apples last year fetched 2s. the sack, and this year 3s.; fallings, 6d. against 8d. a peck; and fair, ordinary Apples, 2s. 6d., against 3s. a bushel of 48 lbs. The trouble and time involved in picking and, to some extent, grading, make these prices really unremunerative. For several seasons, therefore, the writer has adopted a totally different plan. The fallings, and some of the earlier but less important varieties, such as the Codlin tribe, my gardener is allowed to sell at the local price, or just for what they will fetch, because storing these before a market elsewhere is found would mean a great loss in decay of fruit, but better fruits are sent elsewhere. *P. A. Carnegie-Cheales.*

(To be continued.)

FLORISTS' FLOWERS.

SWEET PEAS IN 1911.

THE present is the opportune time to sow Sweet Peas under glass. The up-to-date method of growing these popular annuals is to sow the seeds carefully in boxes or pots, and raise seedlings for planting out in April. The very best plan is to plant the seeds in boxes, covering very slightly the seeds of lavender, white, and primrose-coloured varieties. It is advisable to place the seeds at least 1 inch apart, so that the plants can grow till about 3 inches tall without getting drawn. A gentle bottom heat is desirable to assist germination, but as soon as the seedlings are well above the ground, the boxes should be moved into a cool place, and kept near the roof glass. When large enough (usually when about 3 inches tall), the young plants should be potted off singly into 60 (3-inch) pots, or transplanted into other boxes, putting them about 3 inches apart each way. Keep the plants in the same house—shading till established—for two to three weeks longer. Those varieties which are inclined to run up without throwing out growths near the base should be topped, i.e., an inch should be pinched right off the top of the plant, which will cause it to break out near the bottom. Some time in March the plants, whether in boxes or pots, must be removed to a cold frame and gradually hardened off for planting in the open on the first favourable opportunity in April.

The problem of what varieties to sow is a most important one, and its solution is rendered exceedingly difficult by the enormous number of so-called novelties that are being sent out, and by the same, or practically the same, varieties appearing under different names in different seedsmen's lists. Comparatively few growers want more than a dozen sorts, but all want these to be quite distinct. Many seedsmen recommend the selections given by the National Sweet Pea Society; but even these selections, excellent as they are, are getting too numerous, no fewer than 25 classes being given. The task of reducing some hundreds of varieties to 12 is admittedly a difficult one, but it must be done, and the following dozen will give most satisfactory results. They are all waved flowers. Nora Unwin, a pure white flower of beautiful form; Clara Curtis, primrose-coloured, the nearest to yellow in Sweet Peas; Elsie Herbert, a large, white flower, edged prettily with rose; Mrs. C. W. Breadmore, a creamy-buff ground, margined with rose; Countess Spencer, the first of the waved Sweet Peas, and a very beautiful, deep, bluish-pink flower; Mrs. Hugh Dickson, a

cream ground flower of the type of Countess Spencer, a fine novelty; Asta Ohm, a splendid lavender-coloured flower from America, of large size; Sunproof Crimson, the best red variety; Othello Spencer, a large, dark-maroon variety; Helen Lewis, a bright, orange-salmon coloured variety; Marie Corelli, bright rose colour; and Mrs. Andrew Ireland, a rose-pink and cream bicolor flower, and an extra fine decorative Pea, *A. B. C.*

TWO GARDEN-RAISED SNOWDROPS.

THE first of the two Snowdrops with which I propose to deal was sent to me some years ago by the late Mr. William Thomson, Auchinraith, High Blantyre, Lanarkshire. It was of his own raising, the parents being *G. nivalis* and *G. plicatus*,

drop, and the few friends to whom I have been able to give bulbs have been much pleased with it. The leaves, which are broadish and handsome, are plicate, and the large, well-formed flowers are borne on tall, stout stalks.

There are few Snowdrops which surpass *Galanthus Melvillei* major in beauty. This form (see fig. 19) originated at Dunrobin Castle, Sutherlandshire, and was named in honour of its raiser, Mr. D. Melville. The late Mr. James Allen classed it as belonging to the *Imperati* section, and in many respects it is like some of the varieties of this Snowdrop, which is, after all, only the southern form of *G. nivalis*. In appearance *G. Melvillei* major is a considerable advance upon the latter, being larger in all its parts, and producing a finer effect either when grown in the open or in pots. The



(Photograph by S. Arnett.)

FIG. 19.—*GALANTHUS MELVILLEI* MAJOR.

the only species he had in his garden. Some of the others sent at the same time are also very beautiful Snowdrops, selected with great taste and care, and almost every one showing traces of *G. plicatus* in the plicate leaves, which are such a marked feature of that fine species. The hybrids owe much of their charm, however, to *G. nivalis*, and among the few I have now, several having been lost when I removed to my present garden, that which I named Wm. Thomson a good many years ago, is by far the best for freedom of growth and general beauty (see fig. 20). It is a really handsome Snow-

bulbs are almost twice the size of those of *G. nivalis*, and the leaves are longer, broader, and of greater substance. The flower-stalk is frequently 2 or 3 inches taller. The flowers are more globular than those of *G. nivalis*, and they retain this shape when fully open to a greater degree. Their colour is a delicate, creamy-white, but not so pronounced in the creamy tint as to detract from the purity which is recognised as one of the attributes of the Snowdrop. It is, when established, a good grower, but it is frequently a few years before it shows its real vigour. *S. Arnett, Dunfries, N.B.*

THE ROSARY.

SOME VERY DARK ROSES.

BEFORE the planting season is over, a few comments upon the best of the deeply-coloured Roses may be of interest. The darkest we grow is Empereur du Maroc (1858), a seedling from Géant des Batailles. Roses which have given us very deep-coloured varieties are Eugène Appert and Abél Bramerel. Empereur du Maroc is a more vigorous grower than the other varieties just mentioned, and all are exceptionally early and brilliant bloomers. Empereur du Maroc is a deep velvety maroon, small, but well formed. The others are imbricated, or else shaped much after a Camellia blossom. My own choice as to the best dark Rose would be Prince Camille de

late in the season, while Louis Ricard is a mixture of deep vermilion and black, and does not burn in the sun—a great failing with many of our dark-coloured Roses. Commandant Felix Faure, and the newer variety Chat-au-de-Clos Vougeot, are two more, which are especially free from burning, both being good in every respect. Black Prince is a very deep blackish-crimson, hardy and free flowering. Fisher Holmes, Crown Prince, and Duke of Connaught are light velvety-crimsons, shaded with deep scarlet. I would have liked to include Dr. Sewell in this short list, but it is of moderate growth, and of little use after the maiden stage. A. P.

CRIMSON ROSES

CRIMSON Roses are of the greatest possible value for garden ornamentation. Some of the

and always a supreme favourite of his, is still an effective garden and exhibition Rose. Crown Prince and Black Prince, in virtue of their attributes of colour and perfume, also still survive. I have always regarded A. K. Williams as more reliable in the autumn than in the early summer months, when the flower-buds occasionally do not open with perfect facility. It is undoubtedly a brilliant exhibition Rose. Almost equally decorative are Alfred Coburb and Dupuy Jamine. Horace Vernet and Victor Hugo, H.P.'s, which, at their finest, are extremely beautiful, require a warm season and a fertile soil. Two of the most effective and reliable of modern crimson varieties are Hugh Jackson and Captain Hayward, and the former is perhaps the more perfect of the two. Both have grand attributes of colour, form, fragrance, and very vigorous growth, and they are therefore quite invaluable for garden cultivation. Duke of Edinburgh and Duke of Teck, both of which originally emanated from Cheshunt, are Roses whose lovely colours have not yet been surpassed, though other varieties, of approximating complexion, may have larger flowers. Lady Helen Stewart, the colour of which may be described as bright crimson, with scarlet suffusion, is an exquisite Irish Rose. Two of the finest Roses sent out by Messrs. B. R. Cant & Sons, of Colchester, are Prince Arthur, of fascinating hue (probably a derivative from General Jacqueminot or Duke of Edinburgh), and Maharajah, a magnificent variety with enormously large, single, dark crimson flowers. Another highly attractive and strong growing Rose of an almost similar character, and not less fascinating in bloom and radiant foliage, is Barton Job. Commandant Felix Faure, a Rose of more compact and fuller character, is a dark variety of distinctive aspect, which I have often found of quite commanding beauty, especially at exhibitions. Warrior, described by the raisers as "blood red colours in bud, with the opening flowers vivid scarlet-crimson," is very floriferous, and a fine autumnal bloomer. A grand Irish Rose is J. B. Clark, bright crimson with a very distinctive Plum suffusion. The flowers are fragrant and often enormously large. It is a glorious grower, with splendid petals. Among semi-climbing Roses some of the finest are Crimson Rambler and Craniole Superieure. Hiawatha, Carmine Pillar, and Aris Rover are also of supreme value for garden decoration. David R. Williamson.

HYBRIDS RAISED AT KEW.*

Continued from p. 19.

Musa kewensis (M. Mannii × M. rosacea).—This hybrid was produced in 1895. It has slender "stems" 3 feet high; leaves 3 to 4 feet long, 6 to 10 inches broad; inflorescence a short spike, with decorative bright crimson bracts 4 to 6 inches long. Flowers in threes in the axils of each bract with a cream coloured calyx and white petals. It flowered in 1895 and was figured for the Kew collection of drawings.

Nymphaea kewensis (N. Lotus var. alba × N. Japonica).—Raised in 1895; flowers large, 6 inches in diameter, with rose-red petals and golden-yellow stamens. Habit as in N. Lotus. N. Devonensis itself is, by some botanists, referred to N. Lotus; others consider it to be a hybrid between N. rubra and N. Lotus. N. kewensis is figured in the *Botanical Magazine*, t. 6938.

Primula kewensis (P. floribunda × P. caucellata).—This hybrid appeared as a chance seedling among a batch of P. floribunda in 1899. It was exhibited at the meeting of the Royal Horticultural Society, February 27, 1900, and was awarded a First-class Certificate. (See the *Gardeners' Chronicle*, 1900, xvii., pp. 150, 195, fig. 63; *Gardeners' Magazine*, 1900, 252, with figs.) During the summer of 1900 the supposed parents were artificially crossed, and good seed was obtained from P. floribunda; a proportion of

* Reproduced from *Kew Bulletin*, N. 9.



[Photograph by S. Arnett.]

FIG. 20.—GALANTHUS 'WILLIAM THOMSON' (G. FLICATUS × G. NYVALIS).

Rohan (1861), a deep, velvety-crimson maroon. There are few better doers than this variety, and it flowers very freely, but unfortunately it is one of the worst with me as regards mildew; La Rosière and Jubilee are synonymous with Prince Camille de Rohan. There are several good, dark varieties with a purplish-red tinge that are very effective, such as the glorious shades found in Abel Carrière, Victor Hugo, Charles Lefebvre, Xavier Olibo, and Louis Van Houtte, but the last two, with Horace Vernet, are indifferent growers. Jean Souper is a very deep, velvety-purple flower, and is especially good

oldest varieties are still among the most valuable for hedging or massing purposes. Among the most venerable of these is General Jacqueminot, introduced by Roussel, a French Rosarian, as far back as 1855, a Rose of rich colour and splendid fragrance, though not perhaps of such imposing dimensions as some of its successors. Charles Lefebvre (Lacharme, 1861), a Rose which has lived long enough to survive many others of similar colour, and of more recent origin, is still a supreme favourite with Rose cultivators. Beauty of Waltham, a variety of exquisite carmine hue, raised by the late Wm. Paul in 1862,

the resulting plants proved to be true *P. kewensis*. During the summer of 1910 the following crosses were again made:—

- No. 1. *P. verticillata** × *P. floribunda*.
- No. 2. *P. floribunda* × *P. verticillata*.
- No. 5. *P. verticillata* × *P. floribunda* var. *isabellina*.
- No. 4. *P. floribunda* var. *isabellina* × *P. kewensis* (type).
- No. 5. *P. floribunda* var. *isabellina* × *P. kewensis* (seedling form).
- No. 6. *P. kewensis* × *P. floribunda* var. *isabellina*.

All the above crosses produced good seed with the exception of No. 6. No. 1 produced a quantity of what appeared to be good seed, but only a few plants have been raised; so far they are all unflowered.

Rehmannia Briscoi (*R. Henryi* × *R. unguicula*).—This cross was made in 1908, the plants flowering in 1910. *R. Briscoi*—raised by Messrs. J. Veitch & Sons, and figured in the *Gardeners' Chronicle*, 1910, xlvii., 133—is the result of the reverse cross. The colour of the flowers is the same in the two hybrids, but the influence of *R. Henryi* is more marked in the Kew plant, in that it produces more numerous flowering growths from the base compared with the specimens of *R. Briscoi* produced by Messrs. Veitch. So far all attempts to fertilise the Kew hybrid either with its own pollen or that of either of the parents have proved abortive.

Rehmannia (*R. Henryi* × *R. glutinosa*).—A few plants have been raised this year but as yet have not flowered.

Rhododendron kewense (*R. Griffithianum* × *R. Hookeri*).—Crossed in 1874; flowered in the Temperate House in May, 1883. It has proved to be hardier than either parent, plants having withstood several winters in the *Rhododendron* Dell at Kew. It forms a sturdy, much-branched plant, with leaves 6 to 10 inches long by 2 inches broad; the flowers, which are disposed in a large, loose truss, are broadly campanulate, 3 inches across by 2 inches deep, of a pale flesh colour, the unexpanded buds being a deep rose. (See *Gardeners' Chronicle*, 1883, iii., 620, and *The Garden*, 1882, xliii., pl. 385.)

(To be continued.)

ORCHID NOTES AND GLEANINGS.

DENDROBIUM GOLDIEI

The illustration in fig. 21 is reproduced from a photograph supplied by Mr. C. F. Karthaus, Orchid Nursery, Potsdam, who states that the plant which it depicts was imported with *D. superbiens*. Mr. Karthaus suggests that it is a natural hybrid between *D. superbiens* and *D. bigibbum*. In his original description in the *Gardeners' Chronicle*, 1873, i., p. 652, the late Professor Reichenbach gave a long account of his experience with *D. Goldiei* in Mr. B. S. Williams' Nursery at Upper Holloway, but left some points undecided. Later he referred to it again, mentioning some differences between it and *D. superbiens*, which characteristics, however, may not be constant. Other authorities place it under *D. superbiens* as a variety.

It is strange that the presence of two forms is always noted when *D. superbiens* is imported in considerable quantities. Usually the name *Goldiei* is given in gardens to the best and showier form, although the description points out that it is rather smaller and has narrower petals.

It is a very pretty and floriferous species, lasting in bloom for months. It should be grown in a warm, moist house with *D. Phalenopsis* and *D. bigibbum*, suspended from the roof when possible. After the growths are fully made up, a restricted supply of water and a few degrees lower temperature should be given until the growing time comes again, but the plants should never be placed in a cold house at any season.

* *P. verticillata* was also emasculated and carefully protected without being fertilized, and no seed was formed; the experiment was made in order to see whether ovules might not be produced by vegetative means.

AMERICAN HAWTHORNS.

SOME NEW ARBORESCENT SPECIES.

(Concluded from page 17.)

CRATEGUS FERTA.—This Hawthorn is occasionally a tree 18 feet or more in height, with a trunk 4 to 6 feet long and 8 to 10 inches in diameter, and with large, flat, spreading branches, forming a compact, broad head. The leaves are elliptic to obovate, cuneate, and much narrowed at the base, 2½ inches long and 2 inches wide. The 20-stamened flowers, with creamy-white anthers, are borne on long, slender, villose pedicels, depending from lax corymbs, the time of flowering being about June 10. The roundish to sub-globose, scarlet

3¼ inches wide on young shoots, and very thick and coriaceous. The 10-stamened flowers, with cream-white anthers, are produced in large, compound villose corymbs, and expand about May 28. The species is one of the earliest of the *Tomentosa* group to flower in Western New York. The roundish, pea-shaped, crimson fruits are suspended in loose, drooping, villose clusters, and ripen about the middle of September. They assume a distinctly reddish colour about August 30. The type plant grows in heavy clay soil on the banks of the Genesee River, Genesee Valley Park, Rochester, N.Y. It is a common and widely-distributed species throughout Western New York and Ontario, Canada. In its showy flowers, lustrous green leaves, and



FIG. 21.—DENDROBIUM GOLDIEI: FLOWERS, DEEP PURPLE.

fruits are produced in clusters, and ripen about the end of September and beginning of October. The type tree grows at the side of the Grand Trunk Railroad, at the junction of King and Queen Streets, Toronto, Canada, and so far the species has not been reported outside that region.

C. FERENTARIA.—When this species was first described, it was only known as a much branched shrub, but I have often found it during the past few years with the habit of a small tree, 15 feet to 18 feet in height and with a clear, stout stem. The branches are horizontal, slightly ascending and intricate, forming a dense, round-topped head. The leaves are often oval on young shoots, and on fertile shoots are rhombic to obovate, and rounded at the base, 4 inches long,

conspicuous clusters of scarlet fruits, it forms a fine, ornamental garden tree.

C. FINITIMA.—A slender tree from 20 feet to 25 feet high, with large-spreading branches, produced sparingly, the lower ones being horizontal and drooping, and the upper ones ascending, and tapering very gradually to the petiole, 5 inches long and 2¼ inches wide. The flowers have 20 stamens, with pink anthers, and slender tomentose pedicels. They are produced in many-flowered corymbs about May 30. The sub-globose fruits, of lustrous orange red colour, have a prominent calyx, and ripen about October 1. The type tree grows at Niagara Falls on the New York State Reservation, and near to the American Falls. Whilst visiting

Niagara Falls last June with Mr. W. J. Bean, Assistant Curator of the Royal Botanic Gardens, Kew, I pointed out to him the type plant of *C. finitima*, and he was much interested in its characters.

C. FULGIDA.—This species forms a stout arborescent shrub, with sprouting and ascending branches, making an irregular-shaped head. The leaves are oval to obovate, and narrowed at the cuneate base; often 4 inches long and $3\frac{1}{2}$ inches wide. The 10-stamened flowers, with cream-white anthers, are borne in stout, densely villose corymbs about June 4. The sub-globose, dark crimson, partially transparent fruits ripen in clusters about the end of September. The type plant grows at the side of the Grand Trunk Railroad, at the junction of King and Queen Streets, Toronto, Canada. This Hawthorn appears to grow in gregarious masses, and is well distributed throughout Ontario. I found it abundant at Bellville, on the Bay of Quinte,

The type tree grows in Grand Rapids, Michigan, and is a common species in Michigan, Western New York, and Ontario, Canada.

C. GLABRATA.—A very tall, arborescent shrub, seemingly gregarious. When crowded together the plant grows to a height of 25 feet, with numerous ascending branches, forming an open head, but in cultivation it would probably become much more tree-like. The leaves are broadly ovate to obovate, abruptly rounded at the base, 5 inches long and $2\frac{1}{2}$ inches wide. The flowers have 10 creamy-white anthers, produced in large, almost glabrous corymbs, and open about May 30. The sub-globose, lustrous scarlet fruits marked with small yellowish patches, ripen about the middle of September. The type plant grows in a thick group of the same species at Bracondale, a suburb on the north side of Toronto, Ontario, Canada. The species has not been recorded outside the environment of Toronto.

sub-globose, dark orange-red fruits ripen about the beginning of October. The calyx lobes are usually spreading, not reflexed and appressed to the fruit as is generally the case in most of the *Tomentosa* species of *Crataegus*. The type plant grows on the banks of the Genesee River in a heavy clay soil and in Genesee Valley Park, Rochester, N.Y. Only two plants are known of this species in a wild state. The specific characters are quite distinct, and readily noticeable, and the seed germinates readily. Its scarcity as a wildling is surprising, but it will undoubtedly be discovered in some other habitat in the near future. This is another species named in compliment to Mr. C. C. Laney, the superintendent of the Rochester Parks.

C. PICTA.—This plant forms an arborescent shrub 15 feet to 18 feet high, with spreading, but mostly ascending branches, with an upright, compact head. The leaves are ovate, and on young shoots are often oval, rounded at the base, 3 inches long and $2\frac{1}{2}$ inches wide. The 10-stamened flowers, with cream white anthers, are borne in smooth corymbs, or nearly so, and open about June 4. The sub-globose, scarlet fruits, with a very prominent calyx, ripen about October 1. The type plant grows at Bracondale, a suburb on the north side of Toronto, Ontario, Canada. The foliage bears a general resemblance to that of *C. Dumbari*, a species of a closely allied group.

C. STENOPHYLLA.—A tree about 18 feet high and wide spreading branches, forming a broad, compact head. The leaves are oval to obovate, rounded, and gradually narrowed at the base. The stamens, which number 20, have anthers a dark rose colour (an unusual colour in the *Tomentosa* species). The blossom appearing about June 4. The short, oblong, orange-red fruits on sparingly fruited, hairy corymbs ripen during the first week in October. The type tree grows in the Black Creek Flats on the west side of Toronto, Ontario, Canada, and is at present known only in that locality.

C. STRICTUS.—This species forms a tree 20 feet high, with spreading and ascending branches. The tree has often a clear, tall stem, which is usually covered with numerous long, compound, persistent spines. The leaves are oblong-ovate to obovate, and usually quite narrowed at the cuneate base. The 20-stamened flowers, with cream-yellow anthers, are produced in densely tomentose corymbs from June 10 to 15. The species being one of the latest of the *tomentosa* group to bloom. The obovate fruits are much narrowed at the ends, and ripen about the middle of October. They are orange-scarlet, and the calyx lobes are much reflexed and oppressed. This species was described by Mr. W. Ashe, but I do not know where the type plant grows. It is, however, a common species in Western New York and Pennsylvania, and throughout Ontario, Canada. In its thin obovate leaves and obovate fruits it bears a general resemblance to *C. tomentosa* of Linnaeus. It is a species to be highly commended for garden decoration.

C. VENUSTULA.—An arborescent shrub 12 feet to 15 feet high, with erect, slender stems, forming a thin open head. The leaves are oblong-ovate, rounded and gradually narrowed at the base, 3 inches long and $2\frac{1}{4}$ inches wide. The 10-stamened flowers, with cream-white anthers on glabrous corymbs, or nearly so, are produced about May 30. The sub-globose, scarlet fruits, with prominent calyx, ripen about October 1. The type plant grows in the city of Niagara Falls, and is found throughout Ontario, Canada. When I first found this species in 1902 at Niagara Falls, I was somewhat puzzled for a short time with what appeared to be two distinct types of flowers on the same plant. On close investigation I found two species closely united on what was practically one stem. The other species was *C. leiophylla* in an entirely different group. Seeds of the two species had evidently germinated together. *John Dunbar*.



FIG. 22.—*CRATEGUS GEMMOSA* FLOWERING IN GENESEE VALLEY PARK, ROCHESTER, U.S.A.

Ontario, Canada. Its brilliant, crimson translucent clusters of fruits are very handsome.

C. GEMMOSA (see fig. 22).—This is one of the tallest growing of the *tomentosa* group, and in some conditions forms a handsome tree over 50 feet high, with stout-spreading and ascending branches, forming a broad, somewhat open and well-balanced head. It forms a well-defined, tall trunk, 12 inches in diameter at the base. The leaves are usually broadly oval, and on fertile shoots occasionally broadly obovate and rounded at the base. The 20-stamened flowers, with rose anthers on slender pedicels, form densely villose, many-flowered corymbs, blossom about June 1. The lustrous scarlet, short, oblong fruits, very succulent when fully ripe, mature about October 1. The calyx lobes are much reflexed and appressed to the sides of the fruits, but that in varying degrees is more or less characteristic of most of the *tomentosa* species. *C. gemmosa* is very noticeable in winter with its large brownish buds.

C. HONEYENSIS.—An arborescent shrub about 14 feet high, with distinctly ascending branches, forming an almost fastigate habit. The leaves are ovate to obovate, abruptly narrowed at the rounded base. The 20-stamened flowers, with pale pink anthers on drooping villose pedicels, are produced on large corymbs about May 30. The ovate, scarlet fruits ripen about the end of September. The type plant grows on the west side of Honeye Lake, Ontario County, N.Y., and is found in the adjoining Livingston County, around Hunlock Lake.

C. LANEYI.—This species forms an arborescent shrub from 12 feet to 15 feet tall, with a slender, branching habit. The growths are spreading and ascending, forming a broad, open head. The leaves are oval to oblong-ovate, rounded and tapering at the base, and often somewhat decurrent on the petiole, 3 inches long and $2\frac{1}{2}$ inches wide. The 12-15-stamened flowers, with cream-white anthers, on many-flowered villose corymbs. The time of flowering is about June 5. The

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Hoi Ford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire

ROOTING MATERIALS.—Most Orchids, when growing naturally, have their roots in a great measure exposed to the air on trees and rocks to which they cling, with the head of the plants extending to the light, and generally where decomposed vegetable matter has accumulated within reach of their roots. It is obvious, therefore, that, if the roots of such epiphytes are potted in a compost which is at all adhesive, they will very soon perish; at the same time, loosely-potted plants do not grow so strongly as when a more or less substantial material is employed and firmer potting practised.

OSMUNDA AND POLYPODIUM FIBRES.

English peat of the best quality for epiphytal Orchids is now almost unobtainable in large quantities. From the early 'nineties there has been an increasing scarcity of this material, but it is only about 10 years since Osmunda fibre from America and Polypodium fibre from the Continent have been proved to be satisfactory substitutes. These materials have gradually found favour, and are now extensively used as a rooting medium for Orchids. When purchasing these materials it will be found most profitable to select the best qualities obtainable, as the more durable the fibre the cheaper it is in the end. Immediately a consignment arrives, the fibre should be turned out from the bags and spread loosely on shelves in a dry but well-ventilated store-room, and, if it is kept in stock for a considerable length of time, it should be turned over occasionally. Another important matter to bear in mind is that these materials sometimes get damp through the action of sea water during their journey to England, and that the use of any affected in this manner would cause serious injury to the plants. It follows that the supplies should be obtained from reliable firms that may be trusted to destroy consignments which have suffered in this way.

SPHAGNUM-MOSS.—A good supply of Sphagnum-moss should be got into stock, as in the event of severe and protracted frost the moss sometimes gets so far killed or injured as to reduce it to a slimy mass, unfit for use. When it is received it is advisable to pick out all rubbish and particles of grass that are found frequently amongst it, for if grass and weeds are used in a living state, they may grow in the pots and take a good deal of trouble to eradicate. The best plan for storing this material is to spread it out thinly on a boarded floor and to turn it occasionally until it is quite dry. A sufficient quantity of turfy loam of a not-too-sandy description should also be procured and stacked in a dry place ready for use. In addition to the materials already mentioned, some wire suspenders, teak-wood baskets, clean pots and pans, crocks and charcoal should be got ready for use in order that the work of potting may not be delayed in the busy season.

CŒLOGYNE CRISTATA.—The plants of *C. cristata* should never be allowed to become quite dry during winter, sufficient moisture at the roots being needed to preserve the pseudobulbs in a perfectly plump state until the flowering stage is passed. These plants are best kept during winter in a cool intermediate house, and, if there is a sufficient stock of plants, a few may be placed at intervals into warmer quarters to prolong the season of bloom.

ZYGOPETALUM MACKAYI.—The flowers of this most useful winter-blooming Orchid last many weeks in perfection. They are admired for the pretty blue of the broad, handsome labellum and the more sombre brown and yellow of the sepals. The cultivation of *Z. Mackayi* is not difficult, provided that the plants are kept clean. The soft foliage and bulbs are apt to be attacked by a brown scale insect, which, though it may be easily destroyed, is sure to leave its mark on the plant if the infestation has been severe. The rooting materials should always be kept somewhat moist. The flower spikes appear from the centre of the

young growths, and as the plant is therefore flowering and growing simultaneously, it needs moisture notwithstanding the fact that the weather at the time is often cold and dull. *Z. Mackayi* thrives best in a moist atmosphere of intermediate temperature, and, when actively making its growth, the plant should be afforded abundance of water at the roots. It dislikes root disturbance, and is one of those Orchids which, if they once get into an unhealthy condition, are improved only with very great difficulty. The rooting medium should be composed of fibrous loam, two-fifths, and leaf-soil, turfy peat, and Sphagnum-moss, one fifth each. This compost should be made more porous by the addition of coarse sand, crushed bones and charcoal.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

CINERARIAS AND HERBACEOUS CALCEOLARIAS.—These plants are, in many establishments, grown in heated frames, and are placed on a layer of cinder ashes that is kept moist. No better accommodation can be afforded these subjects, for they can be kept close to the glass, and yet ventilated freely in suitable weather. See that these moisture-loving plants do not suffer for want of water, especially when the pipes are heated. Watch closely for aphides, and if any are detected fumigate the pit cautiously. When a favourable occasion occurs, it is well to take the plants out of the pit and to rake over the layer of ashes. Keep a watch for slugs, which may be resting upon the pot or sometimes even on the under surfaces of the leaves. When fire-heat is needed in the pits be extremely careful not to use it excessively, for even with a covering on the glass at night the temperature should not exceed 40°.

PRIMULAS AND CYCLAMENS.—Chinese Primulas, both single and double flowered, will be better in a drier atmosphere than that which Cinerarias enjoy. Backward or small plants not yet advanced to the flowering stage, may be placed in a pit or greenhouse slightly warmer than the cold greenhouse. By a pit, I mean a span-roof structure with a path through the centre; such structures are extremely useful, both in large and small gardens. For the Primulas and also for *Cyclamen persicum*, I advise a temperature of about 5° higher than that maintained in the cold greenhouse at this season, always ventilating freely, but with caution, when the weather is favourable. If necessary, Primulas and Cyclamens may be successfully grown upon shelves in the greenhouse, where they will enjoy a free circulation of air. *Primula obovata* may also be grown upon shelves. Guard against damping in Primulas, being careful to remove old flowers before they decay, and not to pour water directly upon the crown of the plant. Plants of Primulas and Cyclamens about to flower may be given an occasional dose of weak liquid manure procured from a reserve tub in which none of the sediment has been disturbed.

FORCING PLANTS.—The forcing of plants comes under two heads. First, the forcing of plants for supplying flowers, and, secondly, plants for use in the conservatory and indoor decoration. Those plants intended merely for supplying flowers may be small in size, and yet yield a good quantity of blooms, but the larger plants often stand the decorator in good stead for use in the conservatory and for massing. It is very convenient if, at this season of the year, a small house or pit can be set apart for the purpose of forcing, as the makeshift system of placing the plants in all sorts of places is never satisfactory. Due care should be taken to see that no plants are forced too hurriedly, especially in the early stages, as spindly, much elongated growth is undesirable, and the flowers of Rhododendrons and Azaleas produced in great heat are not durable. The value of slow forcing is especially obvious in the case of plants for placing in the conservatory, where the presence of permanent plants prevents the employment of extra warmth. All forced plants used for such a structure should first be kept for a few days in an intermediate temperature. Some plants may be removed from the forcing house when the flower buds are only just expanding, for example, early Daffodils, Hyacinths and Tulips may be used for decoration when the earliest flowers are scarcely open, but Lilies of the Valley, Lilacs and

Spiraeas should be more advanced. Hardy shrubs should be provided with plenty of atmospheric moisture during forcing, and if the pots are plunged in a bed of leaves, so much the better, whilst a liberal use of the syringe is also desirable. For early forcing, be careful to select the most reliable kinds, namely, those that are known to respond most readily to a moderate degree of warmth. Amongst Azaleas, the varieties *Deutsche Perle* and *Narcissiflora* are two of the best whites, whilst *President Oswald de Kerchove* as a salmon tinted, and *Simon Marbler* as a rose-pink flower are both excellent. Of Rhododendrons use such as *Early Gem*, a rosy-lilac flower and a most compact plant, and *R. Nobleanum*, which needs scarcely any forcing to induce it to flower in February. Of Lilacs, *Charles X.* is still one of the best as a decorative plant when in flower. If required for cutting purposes only, then larger bushes of Lilacs may be lifted from the open and brought inside. These flower very quickly if kept in the dark and syringed frequently. Both Lilies of the Valley and Spiraeas should have the crowns covered with cocoa-fibre to induce an early start. The retarded crowns of Lily of the Valley will still for a few weeks give better results than new crowns. Of such things as Daffodils, Tulips and Hyacinths it is preferable to introduce frequent small batches than larger batches and incur the risk of a break in the supply. Most of these bulbs should now be generally overhauled to see that too much progress is not made before they are removed, from the ashes, and to see that they are not injured by frost.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

STRAWBERRIES.—A good dressing of half-decayed stable manure will protect the plants from severe frosts and cold winds, and will also provide a foundation for the summer mulch applied when the fruit is ripening.

GOOSEBERRIES AND CURRANTS.—The bushes may be pruned now, although many growers defer the operation until later, as the branches provide some protection against Bullfinches and other birds during the latter part of the season. But birds may be kept in check by the use of one of the many spraying solutions sold for the purpose. Early pruning permits of the surface soil immediately under and around the bushes being loosened, thus allowing frost to enter and destroy hibernating insect pests. I have often noticed that where early pruning is practised, the Gooseberry caterpillar does not appear in such numbers the following season.

WALL FRUIT.—Continue the pruning, nailing or tying in of wall trees during open weather. If the ground has been properly prepared, as advised in a former Calendar, all kinds of wall trees may be planted in the absence of frost. If the soil is a rich, strong nature, little or no manure is needed, but if it is light, with a porous sub-soil, then the addition of a suitable manure is essential. In planting the trees on heavy, strong soils, it is advisable to keep them a little higher than the general surface of the soil; this gives them a decided advantage in the formation of surface roots, especially if the sub-soil is of a like heavy nature; in a light soil, on the contrary, it is better to plant them on the level, or even a little below the level of the surface, so that all the natural moisture available may more readily reach the roots. Where the walls are covered with wide glass, or other coping, the soil should be examined carefully to see that it has not become in the least degree dry. This advice may seem superfluous after the heavy rainfall of 1910, and during the present month, but it is surprising how large is the amount of moisture an ordinary coping will keep off the borders, and especially that portion of the soil in close proximity to the wall, which is always the driest portion. Some growers advise the application of liquid manure during the winter months, under the conditions just named, but I have frequently noticed that, after such treatment, the surface soil is apt to become sour, particularly if several dressings are given. Beyond this, the trees are encouraged to make too strong a growth during the early part of the season; possibly the one exception may be Pears that are worked on the Quince stock; these seldom make strong wood being surface-rooting plants.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tynninghaime, East Lothian.

FRAMES.—Most of the hardy bedding plants in cold frames will need rather more ventilation after this date, in order to prepare them for the complete withdrawal of the lights during favourable weather in the course of a few weeks. The choice, named varieties of Pentstemons now in cutting-boxes or dibbled in beds of soil may be transplanted into 3-inch pots shortly after they have made roots. Antirrhinums which have made roots may be topped to induce the production of lateral shoots from near the base. Chrysanthemums in boxes may be transferred to one of the glasshouses, where they will produce sucker growths suitable for cuttings. If the supply of tall Lobelias needs to be increased, the plants should also be shifted into warm quarters. Sometimes losses are experienced through damping; therefore, until new roots are plentiful, care must be exercised in affording water.

CALCEOLARIA.—*C. amplexicaulis* may now be potted up singly from the cutting boxes. Chrysanthemums being nearly over, there is room for the Calceolarias and other plants requiring immediate attention. The smallest pots that may be used satisfactorily are 5-inch pots. Directly a plant is potted it should be supplied with a 12-inch long stake, to which the growth should be secured. One-year-old plants will grow rapidly if given liberal treatment and if care is taken to secure the growths to stakes. *C. Burbidgei* requires rather more rooting space than *C. amplexicaulis*, but in other respects the treatment is similar.

PÆONIA.—The tree Pæony (*Pæonia Moutan*) in its splendid varieties needs the dead points of last year's shoots cut back to the first strong buds which are now swelling, and the larger bushes should be examined for weak shoots, which should be cut out. Whether the tree Pæonies are worked upon other tree Pæonies or a stock of the herbaceous Pæony, suckers are equally liable to appear. These should be removed directly they are observed. If the herbaceous Pæonies were not manured after the decay of their leafage last autumn, manuring should be carried out without delay. The surface soil should be removed from about the roots and a thick dressing of rotted manure spread evenly all round them; then the surface soil should be returned, and if it is of a very porous description it should be compressed by treading. The dressing will act not only as a stimulating food, but it will also enable the plants, at least in the more northern counties, to produce their harvest of bloom without having to be watered. The present is not a suitable time to divide large plants. These should be left until after the flowering period, when they may be divided and replanted.

THE ROCKERY.—Many close-growing plants lose some of their shoots in the winter, and these must be removed to prevent the mischief spreading. Not a few plants, too, spread beyond their proper limits, and have to be curtailed. In the case of dwarf-growing plants, pieces should be pulled away, but with sufficient subjects the knife must be used. Still, by cutting more of the underlying than the overlying shoots it is possible to reduce the plants without making them appear unsightly for weeks afterwards. A slight sprinkling of very fine soil will freshen bare places on the rockery that later will be furnished with bulbous species. Most dwarf plants will appreciate this top-dressing, and the particles of fresh soil will be washed out of sight by the first heavy shower.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. Vicar of Giers, Aldenham House, Hertfordshire.

STRAWBERRIES.—Batches of Strawberry plants should be introduced into the houses at intervals. Examine the drainage of every plant and wash the pots, removing any rubbish from the plant or surface of the soil. Shelves near to the glass in the various fruit-houses provide excellent positions for forcing Strawberries, the coolest houses being used for the latest plants. Water sparingly for a time, carefully examining each pot. Syringe both the plants and their surroundings, and, until the earliest flowers are set, make no attempt to hurry the plants by hard forcing. Gradually thin out the fruits to

four or five on each plant, and afford support to the trusses early by using small forked sticks or brushy twigs. Pinch back all runners, give occasional applications of manure water, and do not allow the plants to suffer for want of water.

MELONS.—If not already done, seed should now be sown for the earliest crop. Place one seed in a 3-inch pot in a mixture of loam and leaf-mould, which should be in a moist condition at the time it is used. Plunge the pots to the rims in a forcing-house, and cover each pot with glass. When the seeds have germinated, remove the pots to a position near to the roof glass.

FIG TREES IN POTS.—For producing an early supply of fruits, the cultivation of Fig trees in pots is preferable to the forcing of permanent trees. If the pots are plunged to the rims in a bed of leaves—preferably of Oak or Beech—and bottom heat from hot water pipes is provided, there will be little difficulty in getting the trees to break freely. Maintain a moist atmosphere by damping down frequently, and syringe the trees with tepid water twice daily when the weather is favourable. A night temperature of from 55° to 60°, according to the weather conditions, will be suitable. Afford water to the roots with care, and, as growth advances, give weak liquid manure at intervals, and also some reliable artificial fertiliser. Admit fresh air on favourable occasions, but close the ventilators again early in the day. Examine the growths frequently, and remove the weak ones and those that cause overcrowding. Stop the growths after three or four leaves have formed. Keep a sharp look out for red spider; should traces of this pest appear, sponge the foliage carefully with a suitable insecticide. Stir the surface soil in the pots at intervals, and keep the soil in the pots and bed free from weeds.

PERMANENT FIGS.—Complete the pruning of the trees as soon as possible. If the growths have become crowded, thin out some of the old wood, cutting at the base of the shoots, but taking care to leave sufficient young branches to clothe the lower parts of the tree with foliage and provide fruits for future seasons. Regulate the young growths, tying them as neatly as possible with strong strands of raffia, taking care not to make the tie too tight. For securing the larger branches use thin tarred twine. If the borders are found to be dry, give a good soaking with clean water, after first removing the surface soil and rubbish, and then add a top-dressing of chopped loam, lime rubble and wood ashes. When the house is ready to commence forcing, close it, but use no fire-heat for the first week, giving fresh air liberally when the weather is mild or bright. Afterwards maintain a temperature of about 50° at night-time, varying according to the weather, but do not employ fire-heat to exceed this degree of temperature for a time. Damp the paths and borders frequently, and syringe the trees with tepid water on fine days.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

TOMATOS.—Seeds should now be sown and placed on a gentle bottom heat until the young plants are well above the soil, when they should be placed near to the glass, in order to promote a stocky growth. When the plants are large enough to handle, pot them singly into small pots, using a compost of finely-sifted loam and leaf-soil in equal parts. October-raised plants, if not already potted, should be attended to at once, potting them moderately firmly in good turfy loam and leaf-soil, leaving a space of a few inches in each pot, to be filled by top-dressings at some future date. If possible, these early plants should be stood on a gentle hot-bed to promote root action, allowing sufficient air to keep them from becoming drawn. Place a stake to each plant as soon as it is potted, and afford water with care.

EARLY PEAS.—If room is not available in pits for raising young Peas for planting out, a sowing should be made on a warm border as soon as possible. The soil for this purpose should be light and rich, and the seed should be sown in trenches, the soil from which may be laid up on the colder side of the row to protect the young plants from cold winds, which often prove more harmful than

a few degrees of frost. Some varieties are harder than others, and no sort should be sown in quantity at this early date that has not been tested or recommended for the purpose. On January 2 we sowed one bushel of seeds of *The Pilot*, and hope to gather pods from the plants early in June. The same variety was sown last year on January 8, and we commenced gathering on the 10th of June. The seed should be covered with 2 inches of sandy soil, either from the bed in which they are sown, or old sifted soil from the potting shed. If pots and space are available, a small sowing of Peas may now be made to afford an occasional dish through April. There are many good dwarf varieties to choose from, *Harbinger* and *Chelsea Gem* being reliable sorts, and, if space will permit, *Early Giant* may be included. Sow the seeds in good, turfy loam, such as may have been saved from a Melon bed, mixing a little well decomposed farmyard manure with it. Peas in pots must never be subjected to much heat, nor be allowed to suffer from want of water.

EARLY CAULIFLOWERS.—Seeds of Cauliflowers should be sown at once, if not already done, and germinated in a temperature of 50°. When the young plants have made their first rough leaves, they should be pricked off at a distance of 4 inches apart each way in boxes, or they may be potted singly into small pots. In either case they should be placed close to the glass, in order to promote a sturdy growth. Ventilation should be given carefully until the plants are well established, but afterwards they should be hardened gradually, so as to be ready for planting permanently by the beginning of April. Varieties, such as *Early Forcing* and *Magnum Bonum*, should be sown at this date. Autumn-sown Cauliflowers in frames should be freely aired during mild weather, and those potted early in the season must not be allowed to suffer from lack of nourishment through being pot bound, but must be watered freely with liquid manure. It may even be necessary to afford larger pots to avoid premature "bolting."

LETTUCE.—Seeds of this salad should be sown thinly in boxes, and covered lightly with fine soil. Fresh air should be given freely as soon as the young plants appear, or they may become drawn.

PUBLIC PARKS AND GARDENS.

By A. J. ATLSOR, Superintendent of Public Parks, Leeds.

FLOWER BEDDING.—In my previous Calendar I emphasised the value of hardy herbaceous flowering plants in public gardens, and deprecated the extensive use of Pelargoniums and other tender subjects. Unfortunately, formal bedding cannot be dispensed with entirely in public pleasure grounds, as many retain a special liking for flat, uninteresting beds, and for carpet bedding. Beds of brilliantly-flowered Pelargoniums give bright patches of colour, but they are otherwise not artistic. In some positions they appear in keeping with their surroundings, such as near buildings, or on terrace gardens, where everything else is purely formal. But even in these cases, more pleasing effects may be obtained by introducing a few taller plants as relief. In sheltered positions, the following combinations make effective beds: (1) a groundwork of a pale blue *Viola*, planted with *Centaurea candidissima*, *Lobelia cardinalis*, and orange-flowered Iceland Poppies; (2) pale blue *Violas* as a ground, intermixed with *Fuchsia "Rose of Castile"* or another suitable variety of the same colour, and Pelargonium *Verona*. In any combination of this character care should be taken that the flowers harmonise in colour. It is not advisable to employ hard contrasts in colour; but this difficulty can be overcome to a large extent by adding other plants of a softer shade of one of the prominent colours. In cold, bleak positions, such hardy plants as *Golden Privet*, *Prunus pissardii*, and *Acacia loxantha* should be extensively employed. One often sees what otherwise would be a beautiful lawn or stretch of grass cut up and disfigured by scrappy flower-beds. A well kept lawn, with trees and shrubs here and there, and a few irregular flower-beds arranged in recesses near the shrubberies, planted with bulbs, Delphiniums, Phlox, *Soldado*, *Helenium*, *Michaelmas Asters*, and similar plants, each in their season, and giving a touch of colour to the whole, makes a picture that is pleasing and restful to the eye at all seasons.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JANUARY 21—
British Gard. Assoc. Meet. at Birmingham. Soc. Française d'Hort. de Londres Ann. Dinner.

WEDNESDAY, JANUARY 25—
Irish Gard. Assoc. and Benev. Soc. meet.

FRIDAY, JANUARY 27—
Lee, Blackheath and Lewisham Hort. Soc. meet. (Lecture on "Chrysanthemums," by Mr. R. C. Pullen.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—39° F.

LOCAL TEMPERATURES.—
LONDON.—Wednesday, January 18 (6 p.m.): Max. 43; Min. 38°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, January 19 (10 a.m.): Bar. 30.6 Temp. 42; Weather—Dull.

PROVINCES.—Wednesday, January 18: Max. 48 Ireland S.W.; Min. 40° Yorkshire.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Herbaceous and other Plants, Lilies, Hardy Bulbs, &c., at 12; Roses, Fruit Trees, &c., at 130; at 67 & 65, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Lilies and other Hardy Bulbs, Perennials and other Plants, at 12; 6,000 Roses at 130; Palms and Plants at 5; at 67 and 65, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Imported and Established Orchids, at 67 & 65, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The prevalent theory as to the nature of soil fertility holds that every plant requires, in addition to carbon, certain elements which can obtain only from the soil, and hence that crops depend upon the presence in the soil, and the absorption therefrom by the plant, of minimal quantities of each of these elements. If one of the necessary elements is present in the soil in insufficient quantity, the crop fails, no matter to what extent the other mineral elements are available to the plant. Similarly, the beneficial effect of fertilisers is attributed to the fact that they restore to the soil some element—nitrogen, phosphorus, &c., in which it has become deficient.

In practice, only four of the 18 or 20 elements generally present (in combined form) in plants are added in this way to the soil. Of those which the cultivator neglects to add, some—carbon, oxygen and hydrogen—are supplied to the plant from the air or in the form of water.

Other of these elements exist in the soil in such quantities as to provide the plant with practically inexhaustible supplies, and others again—for example, manganese, zinc, barium, and copper—occur in such small quantities in the plant that they are generally regarded as unessential.

According to these theories, the soil is to

be regarded as a reservoir from which the plant receives its mineral food materials, and fertilisers are looked upon as providing supplementary supplies of these food materials; in other words, the fertiliser acts on the plant and not on the soil.

As we have pointed out on more than one occasion, this theory of soil fertility has been extended of recent years, and the soil is no longer regarded merely as an inert reservoir, but as the seat of chemical and vital actions which have a considerable influence on its fertility.

The older view regarded the root of a plant as an absorbent organ only. What the soil presented to it in a soluble form it absorbed, but the root itself was without action on the soil. The newer view, on the contrary, considers the root not only as an absorbent organ, but as one which is capable of setting up chemical changes in the soil, which changes may result in modification of the soil fertility.

Much has been written from time to time on this subject of root-secretion, some experimenters maintaining that carbon-dioxide is the only material discharged by the root-hairs; others, that roots habitually give off other and more active chemical substances.

A careful investigation on this subject by Messrs. Schreiner and Sullivan has just been published by the Soil Bureau of the U.S. Department of Agriculture. The object of the research was to determine the oxidative powers possessed by the roots of plants. The practical importance of the investigation is evident, for if roots possess marked powers of setting up chemical change in the medium in which they grow, they must clearly produce considerable effects on the composition of that medium, and hence may themselves play a part in modifying the fertility of the soil.

The method used by Messrs. Schreiner and Sullivan was ingenious, and consisted in growing plants (Wheat) in nutrient solutions, to which certain innocuous organic substances were added, these substances being of such a nature as to give rise when oxidised to dyes of definite and recognisable colours.

The best reagent for thus testing the oxidative powers of roots was found to be aloin. When dissolved in water, this substance is yellow, but when oxidised it becomes of a claret-red colour. This change from yellow to claret-red was found to occur when aloin was added to the solution containing living roots. Further, by measuring the depth of the colour developed, it is possible to obtain an accurate estimate of the amount of oxidative change set up by the roots.

Perhaps the most important conclusion arrived at by these investigations is that oxidation in soils is a purely chemical process, and is not due to the agency of enzymes. It is found, moreover, that the rate of oxidation in soils is increased by the addition of salts of manganese, iron, calcium and magnesium, and particularly by the first-named compounds. Hence it may be that the known stimulative action of manganese salts on plant-growth is to be attributed, in part at least, to their oxidative action on the soil rather than to any action in the plant itself. Such an interpretation of the effects of manganese in promoting soil fertility is certainly worthy of consideration, and should be made the subject of further experiment.

OUR SUPPLEMENTARY ILLUSTRATION.—
Diospyros Kaki, the Persimmon, or Japanese Date Plum, is a tree of Apple-like habit, and, in Japan, it occupies a similar position among cultivated fruits to that filled by the Apple in this country. There appear to be as many varieties of the Kaki as of the Apple, something like 800 of the former being cultivated in Japan. They are divided into two classes, namely, dessert and culinary. They vary in hardness, some of the varieties bearing a larger degree of cold than others. The fruits ripen slowly, growing to full size and colouring about three months before they are actually ripe. In Japan, the ripening process is hastened artificially, a sure method being that of spraying the fruits with alcohol, and placing them in air-tight boxes or casks—treatment which, in a few days, turns a fruit as hard as wood into one with the mellowness of a ripe Peach. The flavour of the fruit varies considerably; in some it is astringent and disagreeable, and these are, therefore, only fit for food after they have been cooked. But many of them are sweet and juicy, too sweet, indeed, for some palates. They are sometimes offered for sale by leading fruiterers in this country, and in France there is, we believe, a fair demand for them. The tree though quite hardy in the south of England does not succeed out-of-doors at Kew; but, under glass, with treatment essentially the same as is given to Plums and Peaches, it has succeeded for the last 10 years. The example shown in the illustration has been established in a border at the cool end of the succulent house at Kew, where it fruits annually, the crop last year being close upon 100 fruits, each of which weighed about half a pound. The tree is only about 8 feet high, and the fruits, which have been in full colour since October, are still hanging. Their colour is bright orange-scarlet, so that, in addition to their value as food, they are distinctly decorative. Illustrations of the fruits and flowers of Diospyros Kaki were given in our issue for July 13, 1907, figs. 8, 9.

BRITISH GARDENERS' ASSOCIATION.—The secretary of this Association, Mr. J. WEATHERS, states that, during the past year, the Association has made greater progress than usual. Three hundred and fifty members have been elected, bringing the total up to 1,964 at the beginning of December. It is anticipated that early in the present year over 2,000 gardeners will have joined the Association since its establishment. The monthly *Journal* has been increased in size, and the Executive Council has adopted a scheme for a professional gardeners' examination. The first examination will be held on Wednesday, April 26, at 7 p.m.

—On Saturday, January 21, a public meeting of gardeners in the Birmingham district will be held at the Cobden Café, Corporation Street, Birmingham, at 7.30 p.m. Mr. JAMES UDALE will preside, and addresses will be given by the Chairman and Secretary of the British Gardeners' Association and other well-known gardeners. A cheap train will run at 2.55 p.m. from Burton-on-Trent to Birmingham.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held at the Institution on Monday, the 23rd inst., at 8 p.m., when a paper will be read by Mr. W. R. BALDWIN-WISEMAN on "The Conservation of our National Water Resources."

NATIONAL HARDY PLANT SOCIETY.—We are informed that at a meeting of the Council, held at Birmingham on the 12th inst., it was arranged that the Society should undertake to grant First-class Certificates and Certificates of Merit to new hardy plants of sufficient merit that may be exhibited at several of the leading shows, or that may be submitted to the Council during 1911.



Gardchron

Photograph by E. J. Wallis

VIEW IN THE SUCCULENT HOUSE AT KEW, SHOWING DIOSPYROS KAKI IN FRUIT.

GARDENERS' ROYAL BENEVOLENT INSTITUTION (WORCESTER AUXILIARY).—The 15th annual meeting was held on the 14th inst. at the Hop Market Hotel, Worcester. The meeting was preceded by a dinner, at which a party of about 40 was presided over by the Mayor of Worcester, supported by Councillors A. USHER and A. A. PREECE. The report and balance-sheet showed that the receipts of the Auxiliary for the past year had been £103, of which sum £94 had been sent to the parent institution, £5 had been spent on printing, &c., and the balance of £4 carried forward. The chairman congratulated the committee and all concerned on the splendid work the Auxiliary was doing in the county. On the proposal of Mr. CROOKS, the report and balance-sheet were adopted. The president, Earl BEAUCHAMP, was re-elected, and the best thanks of the members were accorded to him for his kindness in allowing Madresfield Gardens to be again thrown open for public inspection on Whit Monday last, the funds profiting thereby to the extent of £17 9s. 2d. The vice-presidents were re-elected, and the name of Councillor A. USHER added. The old committee was re-elected, also the hon. treasurer, Mr. JOHN WHITE, and the hon. secretary, Mr. PERCY WHITE. At the conclusion of the business, the party was entertained to a musical programme. Mr. W. CRUMP, Madresfield Court Gardens, gave the toast of "The Institution." He explained to his hearers the benefits gardeners may obtain by subscribing to the Institution. The toast was received with applause, and Mr. PERCY WHITE (hon. sec.) and Mr. J. W. SEDGELEY (a pensioner) responded. During the evening six new annual subscribers and two life members were enrolled.

R.H.S. GARDENS CLUB.—The third number of *The Journal* published by the club of past and present students and employes of the Royal Horticultural Society is more ambitious than either of the two previous issues. There are several illustrations printed on art paper; the frontispiece shows the great vinery in the old Chiswick gardens, and there are also views of the Old Council Room and Library, the Palm House and the long vinery, which we believe was originally built for a Peach house. Mr. JOHN FRASER, in a note on the Old Clusack and the New, states that the Ivy-covered council room still stands, being almost the sole relic of the old gardens, the remainder of the place being laid out in streets for buildings. Mr. JOHN BARRY gives some very interesting reminiscences of Chiswick, dating from 1866. He speaks of PAXTON, FORTUNE, ROBERT THOMPSON, A. F. BARRON, BURBIDGE, HEAD, BAUSE, JOSEPH LEE, SUMMERS, and others who have been connected with those celebrated gardens. Mr. HERMAN SIGONER gives some suggestions for a horticultural museum. Mr. HARRY J. VEITCH writes on the International Horticultural Exhibition, 1912. Referring to the similar exhibition of 1866, he says:—"In 1866 the largest class for Orchids was 50 plants, and one cannot help smiling as one recollects some of the kinds exhibited to complete the 50, such as *Aspasia lunata*, *Epidendrum odoratum*, *Oncidium flexuosum*, and others, while to-day such a group would be nowhere in competition. We who are now accustomed to see *Dendrobium Wardianum* exhibited in such masses and so finely bloomed, find it difficult to realise that special mention is made of a plant being exhibited in 1866 carrying two flowers, also that *Odontoglossum crispum* (Alexandra) was then almost an unknown plant, having been bloomed for the first time in this country in 1864, and that such fine Cattleyas as *C. Mendelii* and *C. Dowiana* were not then in cultivation. The Orchid which then took the first prize as the best novelty was *Aerides japoni-*

num!" A flora of Wisley is commenced by Mr. F. J. CHITTENDEN, assisted by Messrs. A. TIMMONDS and W. D. CARTWRIGHT. There are also several interesting letters from students abroad, and a cultural article on tuberous-rooted winter-flowering Begonias.

KEW GARDENERS' SOCIAL EVENING.—The 14th annual social gathering of the Kew Garden staff was held on Friday last, at the Boat House, Kew. About 120 were present, including several ladies and the Assistant Director, Mr. A. W. HILL, M.A. Music, dancing, and a whist drive constituted the chief items of the programme. Mr. SMITH officiated as master of the ceremonies, and Messrs. BEALE and GREEN as stewards.

BOARD OF AGRICULTURE AND SMALL HOLDINGS.—According to *The Times* the Soke of Peterborough County Council having refused to put the compulsory clauses of the Allotment and Small Holdings Act into force for the acquisition of land in the parish of Newborough, the Board of Agriculture has notified that, unless the local authority prepares a scheme within 30 days, its Commissioner, Mr. CHENEY, will draft one which the Board will carry into effect at the expense of the council.

THE INTERNATIONAL EXHIBITION.—Queen ALEXANDRA has consented to become a patroness of the International Horticultural Exhibition to be held at Chelsea in May next year.

DIRECTORIES, ALMANACS, DIARIES, AND OTHER ANNUALS.—The new editions of the various works of reference make their appearance as usual with the New Year. Amongst the more useful of these publications to the gardener, nurseryman, and florist are the two horticultural directories, *The Garden Annual, Almanac, and Address Book*, and *The Horticultural Directory and Year Book*, the price of each volume is 1s. Each gives, in alphabetical order, a list of the most important gardens in Great Britain, with the names of the owners and post towns. The addresses are also given again under the respective counties, whilst the names of the gardeners are arranged alphabetically in a separate list. The principal nursery and seed firms, both at home and abroad, are included; also the names and addresses of the secretaries of the more important horticultural societies and garden institutions. Both works contain a list of new plants, as well as other interesting gardening information. *The Gardening Year Book and Garden Oracle*, edited by GEO. GORDON, V.M.H., price 1s., makes its appearance for the 53rd time. It contains a calendar with daily reminders of garden operations, and useful cultural hints are given in chapters dealing with each month's work. Descriptions of novelties will be found valuable, and there are also articles on bulbous and tuberous-rooted plants, Ferns, Roses, flowering shrubs, hardy perennial flowers, insect pests, and other subjects. Information is given concerning the principal public parks and gardens in Great Britain, also the addresses of the secretaries of the chief horticultural societies. The work contains two coloured plates besides other illustrations. *My Garden Diary for 1911*, issued by Messrs. SUTTON & SONS, Reading, is a dainty little calendar, printed on art paper. The reminders for the various months will be of value to the amateur, who is also guided in a selection of flowers that may be easily raised from seeds. *Webster's Foresters' Diary and Pocket Book* (price 2s. 6d. net) contains much information for foresters and gardeners. Under each month is given seasonable work in forestry, followed by rules for planting, thinning, and pruning, also hints on the cultivation of Osiers. The tables given will be useful in other branches of estate

management than forestry. But the volume will also serve as a reminder of events, for it forms a most convenient pocket diary, provided with ample space on each date for making entries. *The Live Stock Journal Almanac*, *Vinton's Agricultural Almanac and Diary*, and *Irish Farming World Directory and Annual* are intended more for the farmer than the gardener; nevertheless, they all contain hints useful in any branch of estate management. Amongst works of a more general character, *Who's Who* (A. & C. BLACK, price 10s.) is a valuable book of reference. The volume contains short biographies of about 25,000 celebrities. Companion volumes, *Englishwoman's Year Book and Directory* (price 2s. 6d. net) and *The Writers' and Artists' Year Book* (price 1s. net), are issued by the same firm. *Willing's Press Guide*, price 1s., forms a comprehensive index to the Press of the United Kingdom. There are also lists of the principal colonial and foreign publications, as well as other information on journalistic matters. *The British Journal Photographic Almanac* (price 1s., cloth 1s. 6d.) is a bulky volume of 1,346 pages, attractively bound in green cloth. Photography is an art that advances by leaps and bounds each year, and those who wish to study the progress made during 1910 will find the book teeming with information. *Pears' Cyclopaedia*, price 1s., furnishes a vast amount of information on almost every subject, being a dictionary, gazetteer, and cyclopaedia rolled into one.

INTERNATIONAL INSTITUTE OF AGRICULTURE.—The Board of Agriculture and Fisheries is informed that the International Institute of Agriculture has arranged for the sale of the publications of the Institute to the public at the following subscription rates as from January 1, 1911: *Monthly Bulletin of Economic and Social Intelligence*, 18 francs; *Monthly Bulletin of Agricultural Intelligence and Diseases of Plants*, 18 francs; *Monthly Bulletin of Agricultural Statistics*, 6 francs; combined subscription for all three publications, 36 francs. All communications should be addressed to the General Secretary, International Institute of Agriculture, Rome.

LIVER OF SULPHUR AS A FUNGICIDE.—The fungicide known commercially as Liver of Sulphur, and made by heating sodium or potassium carbonate with flowers of sulphur, is now used in large quantities to combat the ravages of the American Gooseberry-mildew and other fungous pests. But little is known of its composition or of the reason for its fungicidal properties, and therefore the enquiry made by Mr. F. W. FOREMAN, of the School of Agriculture, Cambridge, at the instance of the Board of Agriculture, is to be welcomed. The conclusion arrived at is that the fungicidal action of Liver of Sulphur is mainly due to the free caustic alkali present or to that produced by the decomposition of the polysulphides which are among the constituents of the mixture. Mr. FOREMAN doubts whether the sulphur present has any marked fungicidal action. He finds that Liver of Sulphur made with soda is more effective, as well as cheaper, than that made with potash, a point of considerable practical utility to the gardener. He further suggests that the solutions of caustic soda, much weaker than those of liver of sulphur usually employed, might be quite as effective as the latter, and far less costly.

PUBLICATIONS RECEIVED—Board of Agriculture and Fisheries. Leaflet No. 179: The Making of Soft and Cream Cheeses and Clotted Cream (London: Board of Agriculture and Fisheries, 4, Whitehall Place).—**Department of Agriculture, Trinidad.** Bulletin, Vol. IX., No. 66. (Trinidad: Government Printing Office, Port of Spain.)

SCOTLAND.

PROPOSED GARDEN CITY IN AYRSHIRE.

PLANS have been prepared on behalf of the Duke of Portland for a garden city at Barassie, near Troon. The site chosen runs parallel with the railway on the shore side, and will extend over an area of 60 acres. Practically all the land from Barassie to the southern boundary of the Western Golf Club will be included in the scheme.

THE PROPOSED AMALGAMATION.

CONSIDERABLE regret is felt in Scottish horticultural circles that the joint committee appointed to consider the question finds itself unable to recommend the amalgamation of the Royal Caledonian Horticultural Society and the Scottish Horticultural Association, on account of certain legal difficulties. The general principle that such amalgamation is highly desirable is accepted, but the limitations of the existing charter of the Royal Caledonian Society constitute an obstacle. Apparently this charter contains no provision for dissolving the society, or this might have been effected and a new body constituted, including the members of both. The adoption of a new charter means, it appears, long and troublesome negotiations, and the cost would be very considerable. There are minor difficulties in the way, but the spirit of mutual accommodation and assistance present in both bodies could overcome these.

It appears to be a great waste of energy and organisation to maintain two central Scottish horticultural societies, with their headquarters in Edinburgh, and with practically the same men at their heads. Neither society is so strong or so influential as it ought to be, and things are not likely to improve until unity is secured. If nothing can be done without obtaining a new charter, the best plan to adopt is to apply for the charter at once. The expense will be amply repaid afterwards.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

THE annual abstract of the accounts of the Scottish Horticultural Association, issued to the members with the notices for the annual meeting, shows a slightly improved financial position, as against a decline at the end of the previous year. This improvement appears to be partly due to the council having arranged a sale of flowers and provided various attractions on the day after the Chrysanthemum show closed. The proceeds of these amounted to £29 0s. 10d., which, with other gains at the Chrysanthemum show, yielded a balance of £43 16s. 11d. to be carried to the general funds of the association. The loss on the show of 1909 was no less than £141 1s. 1d., so that the improved position is most gratifying to all concerned with the show. The general accounts reflect this improvement, as, while the loss in funds in 1909 was £165 7s. 11d., the gain in 1910 was £43 11s. 8d.

ROYAL SCOTTISH ARBORICULTURAL SOCIETY
(ABERDEEN BRANCH).

THE annual meeting of the Aberdeen branch of the Royal Scottish Arboricultural Society was held in Aberdeen on January 14. There was a large attendance, presided over by Mr. Sidney J. Gammell, the president.

A highly satisfactory report was submitted by the secretary, Mr. G. D. Massie, this showing progress in membership and also a slight improvement in the financial position, which is a good one. Mr. Sidney J. Gammell, of Drumtochty, was re-elected president, and Mr. Massie secretary.

A valuable paper was read by Mr. D. Munro, Banchory, on the subject of "The Home Timber Outlook and the Urgent Need for Afforestation." Mr. Munro pointed out the imminent danger of the exhaustion of the supply of foreign and Colonial timber, with the exception of certain kinds, and the necessity of arranging for afforestation and re-afforestation in Scotland. From his own experience, Mr. Munro stated that in Scot-

land they were almost at the end of the timber supply, and that at present many of the mills could hardly be kept in operation, from an insufficient supply. He advocated the planting of Larch, Scots Fir, Spruce, and Douglas Fir. He also laid great stress on the necessity of waging war on vermin, and showed conclusively the amount of injury to woods caused by the squirrel. In valuing two woods recently, he estimated that the damage done by squirrels might amount to as much as £15 per acre.

CYANANTHUS.

THE genus *Cyananthus* belongs to the Natural Order Campanulaceæ, and is closely allied to *Codonopsis*. Its members are confined to the Himalayas and mountains of Western China, and in all number about 12 species, seven being found in the first-named range of hills, while five are natives of China. Five species have been introduced into cultivation, three of them, *C. lobatus*, *C. microphyllus*, and *C. incanus*, being perennials; whilst the other two, *C. Hookeri* and *C. inflatus*, are annuals. From a



FIG. 23.—CYANANTHUS MICROPHYLLUS:
FLOWERS BLUE.

garden point of view, the two latter species are hardly worth growing, but the three perennials are charming little plants, with beautiful flowers. They are of easy cultivation and thrive well in cool, shady situations in loamy soil mixed with leaf mould and sand. Thorough drainage is essential, and some good-sized pebbles should also be mixed with the soil, as the long, fleshy roots delight to ramble amongst them. Seeds are seldom produced in this country, but the plants are easily increased by means of cuttings taken early in autumn.

C. LOBATUS.—This is the best known species in gardens. It is common in the Himalayas from Gurwal to Sikkim, at an elevation of 11,000 to 14,000 feet, where it forms large tufts of trailing stems, with each branch bearing terminal flowers. A flourishing specimen is a very beautiful plant, and it flowers freely during August and September. Although this species has been in cultivation since 1844, it is not a common plant, and is not so much grown as it deserves to be. It is figured in the *Botanical Magazine*, t. 6435.

C. INCANUS.—A figure of this scarce species, growing in the Botanic Gardens at Glasnevin, is given in the *Gardeners' Chronicle*, 1909, vol. xvi., p. 422. Its natural habitat is Sikkim, where it occurs at very high elevations—12,000 to 16,000 feet. It is a smaller growing plant than *C. lobatus*, and it produces azure-blue flowers in August and September. The stems are thin and wiry, many being produced from the central root-stock. A variety of this species, with yellow flowers, *C. incanus* var. *leocalyx*, was introduced into cultivation in 1905 by Bees Ltd., having been sent home by Forrest, who collected it in Yunnan. In all respects save its yellow flowers it is like the type.

C. MICROPHYLLUS (see fig. 23).—Seeds of this species were received in 1900 from Saharnipur Botanic Garden, under the name of *C. linifolius*. Plants flowered in August, 1904. The somewhat straggling stems are thin and wiry, with small, sessile leaves, which are glabrous above and scabrid pilose beneath. The flowers, which are light blue, are three-quarters of an inch long, and have a ring of white hairs at the throat. The species comes from Kumaon, where it is found on the margins of rivers at an elevation of 11,000 feet. Two other Himalayan species not in cultivation, *C. integer* and *C. pedunculatus*, are very closely allied to this species.

The two annual species, *C. Hookeri* and *C. inflatus*, have been in cultivation at different times, a variety of the former having been sent from Western China by Wilson, Messrs. Veitch's collector, in 1905. *C. inflatus* has also been received at different times from the Himalayas. W. L.

NOVELTIES OF 1910.

(Concluded from p. 28.)

MISCELLANEOUS FLOWERS.

A STERLING novelty, which is likely to be largely grown, is the new Marguerite "Mrs. F. Sander," exhibited at the Temple Show by Messrs. SANDER & SONS. The great superiority of this variety over Coronation and other double varieties is likely to make this plant one of the most remarkable novelties of the year.

Messrs. R. W. WALLACE & Co., Colchester, flowered some charming new Irises of the Michael Foster strain, and they secured Awards for Isoline and Italia on June 7.

For tuberous Begonias, there is a falling off in certificated novelties, although Messrs. BLACKMORE & LANGDON appeared to show these flowers better than ever. They obtained awards only for Rose Queen and Mrs. W. L. Ainslie.

Robinia Kelseyi, a hardy-flowering tree or shrub, was certificated to Messrs. R. VEITCH & SON, Exeter. Mr. AMOS PERRY showed several beautiful Delphiniums. Lamartine and Belladonna semi-plena being very handsome flowers. *Osmunda palustris crispata-congesta* is a densely-crested Fern, shown by Messrs. H. B. MAY & SONS; and Gladioli and other favourite garden plants have received some recruits.

Turning to the class which appeals to all gardeners, large and small, namely, plants which can be raised annually from seeds, Messrs. DOBBIE & Co. have shown that they continually improve their strains of Violas and other showy flowers. They obtained awards for their fine strains of *Calendula*, *Cosmos* "Rose Queen," and *Gypsophila carminea*. Messrs. KELWAY & SON, Langport, have exhibited Gaillardias, Delphiniums, Pyrethrums, and Gladioli. Pyrethrum "Snow Queen," a single white flower, obtained an Award of Merit on June 7. Various other useful plants have been certificated, amongst which may be mentioned *Rhus typhina laciniata* (R. C. NORCUTT, Woodbridge); two pretty pink Astilbes from Mr. ABRENS, Ronsdorf; *Rhododendron Alice* and *R. Princess Juliana* (J. WATERER & SONS, Bagshot);

Lonicer a pileata, a cream-white Chinese shrub (Geo. Paul & Sons); *Polyanthus* Ladham's Brilliant (B. Ladham, Ltd., Southampton); *Mertensia echioides elongata* (Bakers, Wolverhampton); *Gladiolus* King Edward VII. (Frank Liley, Guernsey), *Heliotrope* "Favourite" (King's Acre Nurseries, Hereford), and *Saxifraga scardica obtusa* (a pretty, white-tufted species) and the large-flowered *Shortia uniflora grandiflora* from Sir Everard Hambro.

At the Royal Horticultural Society's meeting, held on August 16, Mr. Pfitzer, Stuttgart, showed a fine strain of *Gladiolus*, and was given Awards of Merit for three varieties.

The following new and noteworthy plants and fruits have been illustrated in the *Gardeners' Chronicle* during 1910:—

- Agave Franzosinii*, June 18, p. 408.
- Agave Elmoeitiana*, March 26, p. 501.
- Androsace Henryi*, May 28, p. 315.
- Androsace spinulifera*, Jan. 8, p. 27.
- Anoptaxis glandulosus*, Sept. 10, p. 194.
- Apple Ard Cain* Russet, Nov. 26, p. 389.
- Apple Houslow Wonder*, Oct. 22, p. 365.
- Alectorurus yedoensis*, Nov. 12, p. 352.
- Aristolochia gigas* Sturtevant in Ceylon, April 16, p. 11.
- Aristolochia Warley*, April 30, p. 274.
- Astilbe simplicifolia*, Oct. 22, p. 294.
- Aster Falconeri*, June 18, p. 398.
- Bidens dahliaefolia*, Sept. 24, p. 226.
- Calyptegia dahurica*, Dec. 31, p. 483.
- Campanula pusilla alba*, Aug. 6, p. 96.
- Campanula Portenschlagiana major*, July 23, p. 58.
- Campanula barbata*, Nov. 26, p. 388.
- Cassiope fastigiata*, June 11, p. 379.
- Carnation Empire Day*, June 18, p. 413.
- Carnation Lady Hermoine*, June 11, p. 388.
- Carnation Mrs. E. Martin Smith*, June 25, p. 422.
- Carnation Forester*, Aug. 13, p. 128.
- Carnation Enchantress*, March 12, p. 163.
- Carnation Mrs. Tatton Sykes*, March 5, p. 146.
- Carlina acanthifolia*, Jan. 29, p. 68.
- Chionanthus retusa*, May 21, pp. 328-329.
- Chionosilla The Queen*, Dec. 17, p. 455.
- Colecium veratrifolium*, Oct. 1, p. 242.
- Clematis nutans*, Oct. 29, p. 310.
- Cineraria Sutton's hybrid*, May 28, p. 356.
- Corypha umbraeflora*, Supp. June 25.
- Cola acuminata*, Jan. 8, p. 30.
- Cnicifuga racemosa*, Sept. 17, p. 218.
- Crinum Moorei*, July 23, p. 59.
- Crinum purpurascens*, Feb. 19, p. 114.
- Crataegus integrifolia*, Jan. 22, p. 60.
- Crataegus Elwangerana*, Feb. 26, p. 130.
- Crawfordia Trailliana*, Jan. 15, p. 44.
- Cyphomandra betacea*, Oct. 15, p. 292.
- Delphinium Lamartini*, July 9, p. 25.
- Erenurus robustus* Elwesianus, Supp. Aug. 20.
- Eigeron mucronatus*, Sept. 10, p. 163.
- Erodium corsicum*, Sept. 17, p. 210.
- Eucalyptus cordata*, Supp. March 12.
- Escallonia floribunda*, Jan. 22, p. 53.
- Erlangea tomentosa*, Feb. 19, pp. 116-117.
- Eupatorium Raffinii*, Jan. 1, p. 10.
- Fritillaria imperialis choralensis*, March 12, p. 171.
- Fockea capensis*, Nov. 26, p. 387.
- Gentiana scabra*, Supp. Feb. 25.
- Gladiolus King Edward VII.*, July 9, p. 27.
- Gladiolus Safrano*, Oct. 29, p. 312.
- Gladiolus Grafm Degenfeld*, Aug. 27, p. 167.
- Gladiolus primulus hybrid*, April 16, p. 244.
- Hosea Lobbiana*, Sept. 17, p. 211.
- Hechtia argentea*, Supp. May 21.
- Hippeastrum Calyso*, May 7, p. 196.
- Hymenocallis Harrisiana*, July 30, p. 75.
- Hymenocallis Sulphur Queen*, June 4, p. 362.
- Iris Forrestii*, June 25, p. 418.
- Iris Cengialti X.*, June 18, p. 399.
- Iris flavescens* at Kew, Aug. 6, p. 95.
- Iris Kempteri* varieties, Oct. 8, p. 260.
- Iris Willmetiana*, June 4, p. 374.
- Iris tingitana*, July 9, pp. 16-17.
- Kniphofia Uvaria erecta*, Jan. 15, p. 35.
- Lonicer a pileata*, April 9, p. 236.
- Lycoris aurea*, Jan. 1, pp. 12-13.
- Lobelia linnecides*, Feb. 12, p. 29.
- Laburnum caramanicum*, Dec. 17, p. 44.
- Lilium - Marian*, July 16, p. 38.
- Lilium monodelphum Szovitzianum*, July 15, p. 37.
- Lilium odorum celestereus*, Sept. 3, p. 175.
- Lycnis diurna* (double), Aug. 6, p. 105.
- Lithospermum Gastonii*, April 2, p. 212.
- Lithospermum graminifolium*, April 2, p. 213.
- Malvastrum campanulatum*, Sept. 3, p. 159.
- Mertensia echioides lance lata*, June 11, p. 380.
- Narcissus Cooksonii*, May 21, p. 336.
- Narcissus Colleen*, May 21, p. 337.
- Narcissus Fosteri*, May 28, p. 342.
- Narcissus Tancitane*, April 30, p. 276.
- Narcissus Tito*, April 30, p. 277.
- Nerophytus nobilis*, Nov. 5, p. 337.
- Nymphaea Baumbii*, July 2, p. 2.
- Nymphaea odorata rosea*, June 11, p. 381.
- Opuntia Elcus-indica* fruiting, June 11, p. 387.
- Palisota Elizabethae*, Dec. 10, p. 423.
- Paeonia japonica*, Nov. 19, p. 366.
- Pellaea Cambodiana*, Jan. 15, p. 34.
- Puya chilensis*, Nov. 26, p. 390.
- Primula Maximowiczii*, April 2, p. 221.
- Polemonium carneum*, Aug. 20, p. 134.
- Paulownia*, new Chinese species of, Oct. 15, p. 275.
- Primula denticulata* in China, Supp. March 5.
- Primula souchifolia*, Jan. 22, p. 58.
- Primula obconica grandiflora*, Jan. 8, p. 28.

- Polygonum compactum* at Kew, Feb. 19, p. 123.
- Pratia angulata* at Edinburgh, Feb. 12, p. 98.
- Pear Danas Hovey*, Jan. 29, p. 67.
- Pterocaryx hispidum*, Aug. 13, p. 125.
- Ranunculus Evening Star*, June 25, p. 422.
- Rehmannia Briscoe*, March 19, p. 188.
- Rehmannia Henryi*, March 19, p. 189.
- Rhododendron Kempteri*, Nov. 19, p. 370.
- Rhododendron lucidum*, Supp. Feb. 19.
- Rhododendron racemosum* in Yunnan, May 28, p. 343.
- Rose Leuchtstern*, Supp. Sept. 10.
- Rose Mrs. Foley Hobbs*, July 16, p. 44.
- Rose Mary Countess of Hchester*, July 16, p. 45.
- Rose Mr. David Jardine*, July 16, p. 45.
- Rose Simplicity*, July 23, p. 55.
- Rose Freda*, July 23, p. 66.
- Rose (Wichuraiana) excelsa*, May 28, p. 357.
- Rose Juliet*, July 9, p. 26.
- Rose Professor C. S. Sargent (The Sargent Rose)*, Supp. Nov. 12.
- Rheum mopinatum*, Nov. 26, p. 391.
- Rubus Lambertianus*, Oct. 15, p. 276.
- Rubus hangensis*, Oct. 15, p. 275.
- Rubonia Kelsey*, June 11, p. 391.
- Saxifraga florulenta* at home, Dec. 19, p. 426.
- Saxifraga Burseriana magna*, March 12, p. 164.
- Saxifraga trifurcata*, Oct. 22, p. 295.
- Senecio macrophyllus*, July 9, p. 14.
- Senecio glastifolius*, Supp. July 16.
- Strawberry Utility*, July 2, p. 3.
- Solanum Wendlandii*, Jan. 1, p. 11.
- Saxifraga Boydii*, April 16, p. 249.
- Streptocarpus Regina augusta*, April 2, p. 217.
- Tulipa bulbosa turkestanica*, Feb. 5, p. 85.
- Tulipa Bogiana*, Supp. July 23.
- Tlachetrum aquibifidum album*, April 2, p. 211.
- Tricuspidaria dependens*, Jan. 29, p. 75.
- Utricularia prolensis*, Dec. 17, p. 447.
- Viburnum Henryi*, Supp. Oct. 8.
- Welwitschia mirabilis* male and female flowers, Supp. Jan. 25, p. 50.
- Zephyranthes* in Ceylon, Sept. 10, p. 156.

WEATHER AT ROTHAMSTED IN 1910.

THE meteorological records of the Rothamsted Experimental Agricultural Station, Hertfordshire, for 1910, show that the year was characterized by a great excess of rain, even more than that of the year 1909; in fact, the total amount has been equalled or exceeded only about ten times during the past 58 years. This was largely owing to the enormous quantity which fell in December, viz., 5.36 inches. Only once in December since the year 1853 has the rainfall at Rothamsted exceeded this amount, namely, in 1876, when 6 inches were recorded. The number of rainy days was 196, being 24 in excess of the average.

The mean temperature of the year was slightly in excess of the average. The most unseasonably warm months were February, October, and December. The last month of the year was 5.4° warmer than November, and only 3° colder than April.

The bright sunshine was 221 hours deficient for the year, there being but four months which showed an excess compared with the average, and eight months of deficiency. March gave the greatest excess of sunshine, namely, 42 hours, and July recorded the largest deficiency, namely, 98 hours. The four months of June to September, which make up the usual Hay and Corn harvests of this country, gave a total deficiency of 203 hours of bright sunshine.

The following table shows the rainfall of each month for the past year at Rothamsted, with the average amount of rain for each month of the previous 57 years, 1853-1909, and the difference of 1910 above or below the average record:—

RAINFALL AT ROTHAMSTED, HERTS., 1910.

Months.	Rainfall 1910.	Average Rainfall of 57 years.	1910. Above or below the average.
	Inches.	Inches.	Inches.
January	2.18	2.31	-0.15
February	3.78	1.77	+2.01
March	1.23	1.80	-0.56
April	1.58	1.88	-0.30
May	2.16	2.17	-0.01
June	2.81	2.43	+0.38
July	2.00	2.53	-0.53
August	3.38	2.64	+0.74
September	0.89	2.41	-1.52
October	2.83	3.19	-0.36
November	3.93	2.54	+1.39
December	5.36	2.33	+3.03
Yearly Total	32.13	28.11	+4.02

(1) The sign in the last column (+) signifies above the average, and the sign (-) below the average.

The rain-gauge, which is one-thousandth part of an acre in dimension, stands 2 feet above the surface of the ground, and is 420 feet above sea level.

The above data show a total rainfall of 32½ inches, against an average for the previous 57 years of 28½ inches, being slightly over 4 inches in excess.

Estimating the rainfall in tons per acre, we find that, during the whole year, 3,245 tons of water have fallen on each acre of land, which is 406½ tons of water in excess of the average in this district. The two months of November and December alone gave an excess of rainfall amounting to 445½ tons of water per acre.

The next table shows the mean temperature in the shade for each month of the year 1910, with the excess or deficiency at the Rothamsted station during the past 32 years, 1878-1909; also the number of hours of bright sunshine taken by means of a Campbell Stokes recorder for each month, and the number of hours above or below the average record:—

MEAN TEMPERATURE AND BRIGHT SUNSHINE AT ROTHAMSTED, FOR THE YEAR 1910.

Months.	Mean Temperature.		Sunshine.	
	1910.	Above or below average.	1910.	Above or below Average.
	Degrees	Degrees.	Hours.	Hours.
January	38.4	- 1.7	74	- 20
February	40.7	+ 2.5	80	+ 8
March	41.8	+ 0.9	159	+ 42
April	45.9	+ 0.3	117	- 54
May	52.6	- 1.2	199	- 1
June	58.7	- 1.5	186	- 12
July	57.5	- 3.3	123	- 98
August	59.5	- 0.1	153	- 52
September	54.5	- 1.3	118	- 41
October	51.8	+ 0.5	63	- 42
November	37.5	+ 5.1	86	- 26
December	42.9	+ 5.1	29	- 14
For the year	48.5	+ 0.6	1,387	- 218

The mean temperature, that is, the mean of the maximum and minimum temperatures of each day throughout the year, was 48.5°, which is 0.6° in excess of the previous 32 years. There were eight months of excess and four months of deficiency, the coldest month of the year being November, which recorded but 37.5°, or 5.1° below normal.

The total of bright sunshine for the year was 1,387 hours, against an average of 1,608 hours, showing a deficiency of 221 hours.

The last two months of the year having given an excess of 4.41 inches of rain, shows us that our underground water supply is 99,639 gallons of water in excess of the normal quantity on each acre of land in this district. J. J. Willis, Hatfield.

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

APPLES: BRITISH VERSUS FOREIGN.—A *Southern Fruit Grower* (January 7, p. 4) states a deplorable fact when he draws attention to the preference our shoppers give to foreign Apples over British grown fruits. It has been insisted upon over and over again that British Apples, when of good kinds, well grown, and properly stored, are superior to the fruit sent us from overseas. Yet, in spite of this, a *Southern Fruit Grower* tells us that, in this season of scarcity, English Apples have not paid for keeping. The prices which late Apples realised are ridiculous when compared with the 4d. and 5d. per pound at which the American Apple is readily retailed in the shops. Why is this? It cannot be that our purchasers are so unpatronising as to buy foreign fruits simply because they are foreign. I am strongly of the opinion that shoppers rarely consider the origin of the article they intend to purchase. The only point considered is whether or not it happens to be the kind of thing they need. So one is regretfully forced to the conclusion that, in the majority of instances, the consumer prefers the foreign Apple. The reason for this preference is not far to seek. What the foreign Apple lacks in firmness and rich juiciness

it makes up in showiness and in being more easily masticated. Many people cannot digest the firm-fleshed dessert Apples, and are unwillingly obliged to use the softer foreign fruit. The producer must be prepared to supply what the purchaser wants. It is not of the slightest use for him to say, "Here are Apples, grown in our own country, and possessing far superior qualities to the foreign fruit; these you must buy, they are better for you." This is not business. The duty of the producer is to supply what the consumer wants, no matter how misguided the buyer may seem to be. The grower will find it to his advantage to grow the softer-fleshed kinds of Apple. The argument against this procedure is that such kinds do not bear rough handling. The obvious answer to this is that they must not be handled roughly, and that, as they fetch a higher price, more care and time can be profitably bestowed upon them. I would not, for a moment, advocate the wholesale clearance of existing Apple trees to replace them with profitable kinds; but every tree which does not yield a good crop should be rooted out and replaced by saleable kinds. With regard to fruiting trees, their produce should be treated as the American does his. That is, gather the fruits just before they are ripe, and, after grading them, pack them closely in boxes, barrels, and such-like receptacles, and store them in a dark place. By this treatment the Apples will be soft-fleshed, and have that delicate, Peach-like colour which is so attractive and remunerative. This advice to gather Apples when they are green and unripe may seem to many people a suicidal procedure, but there is nothing of the nature of an experiment about it. I have successfully treated Apples in the manner described, and they had all the appearance and flavour of the highest grade of imported fruits. *A. C. BULLOCK.*

STREET TREES AND GAS. The life of a street tree is never a very happy one. Of all class of artificially-grown plants it undoubtedly has the most trying time. I have pointed out in the *Gardener's Chronicle* (February 12, 1910, p. 101) the conditions with which it has to contend underground in the way of pipes and cables, and the trouble above ground with dust and fumes. But these are not the worst enemies; at least, they are not what one would call fatal in their injuries, although, of course, they shorten life. The gas main is in itself a great trial to the roots, but when there is the smallest escape of gas it is far worse. Many of the mysterious and sudden deaths of healthy town trees may be attributed to gas leaks. Until one looks at the figures issued by gas companies, one does not realise the enormous amount of leakage there is. I have before me the figures of the Gas Light Commissioners of Massachusetts, which show that during last year the total quantity of gas unaccounted for by this company was the enormous amount of 622,304,044 cubic feet. In other words, there was a loss of about 10 per cent. on the total production. It is not every gas company that has such a record of lost gas as this, but, all the same, it may not be the worst case. The causes of leakage are various. Probably one of the chief causes is the sinking of ground and the consequent straining of the joints. In the United States there are special laws dealing with this matter, and the company, having to make good any loss caused by gas, is very careful to have the very best fittings and to see that all the joints are securely gulked. Investigating this injury from gas, I have found that a very small leak indeed, not sufficient to be noted by the company, is sufficient to kill the strongest tree. Even a few feet of gas leak is fatal, especially in heavy soils and where the surroundings are paved, for, in a very short time the ground becomes charged with gas and the roots are poisoned. When all the roots are in the poisoned area it is easy to see the effect on the whole tree, as the leaves turn yellow and fall prematurely, and the wood turns an unaccountably dark colour. When only one main root is affected by the gas, the result is peculiar, as for some time only the part of the tree supplied by that root suffers from injury, but the lower part of the tree feels its lack in great strips. I have before me photographs of Elms on the Garden City Estate at Leitchworth, where pieces of bark a yard square have fallen from the tree. The first intimation of this "local" poisoning

is the shedding of the bark from one side of the tree. The first year it may only be a square foot, leading from the soil level, but in the course of a year or two the bark comes off in huge strips, and the tree becomes unhealthy, and either succumbs to its natural enemy, the Elm-tree beetle (*Scolytus destructor*), which is always waiting for a favourable opportunity, or dies at once as a result of the poison. Where there is only part of the root system in the poison zone it is possible to save the tree by at once checking the cause of the damage, but where the whole of the soil has become charged with gas it is impossible to save the tree, as its leaves drop and nothing will make them come again. The great difficulty in this class of injury is the location of the seat of the trouble, especially in those districts where a main has been recently laid, as the escaping gas will travel along the loose earth, sometimes for a hundred yards, before it comes in contact with roots. It is obvious, therefore, that the town tree-planter has a difficult task to deal with this matter, and one can see only too often where he has failed in almost every town, as we are all familiar with the sudden death of street trees. What is the remedy? Or rather, what are the means of prevention?—For remedy there is none. Prevention lies in seeing that the engineers look properly after their work when mains are being laid. Too often the mains are laid by a contractor who has little or no interest in the gas company, and so long as the joints stand while the engineer tests the length it is sufficient. The gas companies know that minor leaks always occur in the course of time, and they fix the price for gas with this taken into account, but, apart from the waste of gas, this should not be, for it may mean that whole streets of beautiful trees may be killed, and this not only means the loss of the shade trees, but also the depreciation of property. I possess photographs of whole streets of trees dead from the effects of gas leaks. Too often the town forester is under the rule of the engineer, but here is a case where he should lose no opportunity for putting the engineer under his rule, and if the engineer will not see the whole of the pipes laid, it is the duty of the forester to see that he does. If he sees bad joints being made or the pipes laid over lightly-rammed soil, he should call the engineer's attention to it, and see that the matter is remedied. It may seem a small advice to give, but one should remember that the engineer, with his high salary, is like the forester a paid servant of the public, and if scamped work is pointed out to him, he will, while resenting the interference, see that it is remedied, and, that is all that is wanted. One very common cause of gas leaks is electrolysis, caused by the escape of electric current, but that subject is one which may be considered in connection with the effects of electrical discharges from damaged wires. *Pem.*

RAINFALL IN 1910.—I enclose the record of the year's rainfall taken in these gardens. The total fall amounted to 30.81 inches compared with 28.87 in 1909 and 24.26 in 1908. The heaviest downpour occurred on June 11, and amounted to 1.07 inch. December proved the wettest month with 4.45 inches, whilst February, June, and November all proved exceptionally wet. The hottest day was June 5, when the thermometer reached 87°. The greatest cold, 18° of frost, was registered on January 27. *Herbert Juniper, Dyrham Park Gardens, Bristol.*

—The records of the rainfall here during 1909 showed that August was the wettest month, with 4.14 inches, rain falling on 22 days, and that September was the driest month, with only .40 inch, rain falling on 11 days only. November and December were both very wet, with 3.42 and 3.23 inches of rain respectively. The heaviest rainfall in 24 hours occurred on October 11, and amounted to 1.23 inch. The total rainfall for the year was 28.16 inches. *C. Frankish, Waltham Hall Gardens, Lincolnshire.*

—Last year was the wettest season for more than 10 years at Bryanston, the total fall for the year amounting to 48.50 inches. The greatest rainfall for one month was 3.62 inches in December, rain falling on 23 days. The driest month was September, .23 inch being the total

record for that month, the heaviest fall for one day being 1.55 inch, which occurred on October 12. More than 1 inch of rain in 24 hours was recorded on seven occasions. *J. Jaques, The Gardens, Bryanston, Blandford, Dorsetshire.*

—Rain fell in these gardens on 195 days, the year's rainfall amounting to 41.08 inches. In December 6.72 inches fell, and in November 5.44 inches. September was the driest month, with a fall of .26 inch only. February, April, August, November, and December had each 20 rainy days or more. *J. S. Higgins, Rug Gardens, Corwen, N. Wales.*

INCURRED CHRYSANTHEMUMS.—The report of Mr. W. Higgs's lecture before the National Chrysanthemum Society on the cultivation of incurred Chrysanthemums has doubtless been read by growers for exhibition with special interest. It is the teaching of a master exhibitor who is also a master grower. But the chief value of the lecture seemed to me to lie in the paragraph on the dressing of flowers. What a free admission seemed to be made in that paragraph that, let the varieties be never so fine, the primary work of presenting them for competition was done by the dresser who evidently must be an expert manipulator. Mr. Higgs told his hearers that some flowers take an hour to be properly dressed. If this is so, the work of dressing 24 or 36 blooms must be very onerous, and after all this dressing may the flower be described as natural or artificial? How sadly does all this reflect on exhibition ethics. *D.*

LAW NOTE.

THE TAX ON MALE SERVANTS.

A CASE concerning the employment of a male servant without a licence was tried in the King's Bench Division on Monday last.

The respondent, says *The Times*, had employed one William Taylor as a jobbing gardener for four days a week, and had paid him 4s. 6d. per day, and 2s. a week extra for attending to his greenhouses. Taylor was at liberty to work for another employer in the same capacity on those days he was not employed by the respondent, and, if Taylor could not attend to the respondent's work himself on any day, he was to send a qualified substitute, as he had, in fact, done on several occasions. Taylor worked greenhouses of his own, and frequently supplied the respondent with plants from them.

For the respondent it was contended that Taylor was a jobbing gardener, under contract to work on certain days of the week or to send a substitute; and to supply plants in his capacity as a tradesman to the respondent, and that he was not in the position of a male servant within section 19 (3) of the Revenue Act, 1869.

The Justices came to the conclusion that the term "male servant" did not include a gardener employed under such circumstances, and dismissed the summons.

The Lord Chief Justice said they must recognise that, in a large number of instances, especially in the case of persons who had a garden which was not large enough to occupy the whole time of a gardener, it was a common practice for a nurseryman to do a gardener's work occasionally. The question, therefore, could not be solved by looking simply at the class of work that the man had to do.

If a taxable servant did work which made his master liable, the master would not escape the tax by reason of the servant doing some other work. But a master did not become liable in respect of a non-taxable servant simply because he did some work which would make a servant taxable. In each case it was a question of fact, and he was unable to say that the magistrates had gone wrong in taking the view that a nurseryman who was employed in this manner and with these privileges did not come within the expression "male servant" in section 19 (3) of the Revenue Act, 1869. He did not think that such an interpretation ought to be put upon the expression as to make it necessary to say that the Justices were wrong in holding that this man Taylor was not a male servant. The appeal must therefore be dismissed. Mr. Justice Hamilton and Mr. Justice Avory concurred, and the appeal was dismissed.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 17.—There was a small exhibition at the meeting on Tuesday last, although a few of the exhibits were of outstanding merit. The FRUIT AND VEGETABLE COMMITTEE awarded a Gold Medal and a Silver gilt Hogg Memorial Medal respectively to two exhibits of Apples, but this body made no award to a novelty.

In the floral section, also, no new plant received an award, but there were showy groups of Carnations, Azaleas, greenhouse-flowering subjects, Alpines, Ferns and *Primula malacoides*.

Exhibits of Orchids were as attractive as ever, there being several splendid groups, as well as numerous novelties. A Gold Medal was awarded to Messrs. CHARLESWORTH & Co. for a miscellaneous collection, and the ORCHID COMMITTEE conferred one First-class Certificate, four Awards of Merit and two Botanical Certificates.

At the 3 o'clock meeting in the lecture room an address on "Weeds and Weed Seedlings" was delivered by Mr. H. C. Long.

Floral Committee.

Present: W. Marshall, Esq. (Chairman); and Messrs. H. B. May, Geo. Paul, W. P. Thomson, Chas. E. Pearson, Chas. E. Shea, J. T. Bennett-Poe, A. Kingsmill, G. Reuther, W. J. Bean, Jun., Green, Chas. T. Drury, W. B. Cranfield, Jas. Douglas, C. R. Fielder, J. E. McLeod, J. Jennings, W. Howe, H. J. Cuthbush, H. Turner, E. H. Jenkins, W. J. James, E. A. Bowles, Ed. Mawley, R. Hooper Pearson, Jas. Walker, R. C. Notcutt, Walter T. Ware, and J. H. Barr.

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, filled a large table with indoor flowering plants and small Orange trees in fruit. There were many profusely-flowered plants of *Rhododendron (Azalea) indicum*, a big batch of *Camellias*, with a border of finely-flowered plants of *Freesia refracta alba*; sprays of *Acacia dealbata* in flower, and several mixed groups of blue and white-flowered plants, a combination exceedingly effective. The prettiest of these arrangements was one consisting of *Coleus thyrsoides* and *Eupatorium vernale*; another that was pleasing was *Exacum macranthum* intermingled with *Lily-of-the-Valley*. A plant of *Tillandsia Lindenii* attracted attention with a single blue flower developed from the centre of the flattened rachis. (Silver-gilt Flora Medal.)

Messrs. W. CUTHBUSH & SON, Highgate, showed a selection of Carnations, making a bright batch of colour. Amongst the novelties was Miss Winnie Hey, a yellow-ground Fancy, striped with red. Others that were noticeable included White Perfection, Countess of Bradford (yellow, marked with rose), Lady Miller of the Souvenir de la Malmaison type, the blooms being a shade of pink), Mrs. Fortescue (rose), Harlowarden (crimson), and Countess of Onslow (deep mauve with rose markings). The same firm also showed Alpines in a well-arranged exhibit and various greenhouse flowering and foliage plants. The Alpines included such pretty Irises as *I. Panfordii* (yellow), *I. alata* (blue), and *I. reticulata* (blue). At the back of the group were sprays of *Hamamelis arborea* in flower and *Pernettya* in fruit. There was a well-flowered specimen of *Rhododendron Nobleanum*, also many Indian Azaleas, *Daphnes*, *Lilium lancifolium*, *L. longiflorum*, *Astilbe (Spiraea) japonica* and other kinds. (Silver-gilt Flora Medal.)

Mr. H. BERNETT, St. Margaret's, Forest Road, Guernsey, showed Carnations of the perpetual-blooming type. The flowers were of remarkable quality, the colours being exceptionally bright. The large, cherry-red variety named Mrs. C. F. Raphael was especially good; we were informed that blooms are produced very freely; *Britannia*, *Orpheus* (a yellow-ground Fancy, lightly striped with carmine), R. F. Felton (pink), Countess of March (pink), Dorothy Gordon (cerise), Snow Queen (white) and Pluto (one of the best of the maroon-shaded sorts) were all shown well. (Silver-gilt Banksian Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, were the exhibitors of Carnations in variety, making a pleasing group. Princess Juliana is one of the firm's novelties, the colour is reddish-orange; the variety Lady Abington has pink flowers of a fine shade, the blooms being very sweet smelling; Marchioness of Lin-

lithgow is a white variety recommended for its freedom of flowering; *Admiration* is of a richer shade of pink than *Enchantress*; Baroness M. de Brehan has salmon-pink flowers, and is the result of crossing the variety Mrs. Burnett with *Winsor*. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, were awarded a Silver Flora Medal for a collection of greenhouse Ferns. There were two remarkably fine specimens of *Asplenium caudatum*, each in a pot of 6 inches diameter only. Others of merit were *Davallia ornata*, *Cheilanthes elegans* (the Lace Fern), *Davallia epiphylla*, *Asplenium Nidus multilobatum*, and *Dicksonia squarrosa*. (Silver Flora Medal.)

Lady CHURCH, Woodside Place, Hatfield (gr. Mr. Robinson), staged a batch of *Cyclamens*, the plants being well flowered.

Mr. L. R. RUSSELL, Richmond, staged small but exceedingly well-fruited pot plants of *Citrus japonica*, many of the specimens having a dozen fruits. There was also a large batch of the yellow-fruited *Debregeasia velutina* in the centre of the group, which comprised, besides those mentioned, Azaleas, *Hamamelis arborea* in small pots, but well flowered, and *Antisia crenulata*, with bright red berries, like those of the Holly. (Silver Flora Medal.)

Messrs. THOS. S. WARE, LTD., Feltham, showed, on an improvised rockery, Alpine and hardy flowers. They were planted in batches, and included *Lathospermum tosarimifolium*, with dark blue flowers; *Moisia hypogea*; *Tussilago fragrans*, known in country districts as "Cherry Pie," from the sweetly-scented flowers; *Cyclamen Atknsii purpuricum*; *Primula*, *Kewensis*; *P. malacoides*; *P. Forbesii*; *Hellebores*; and *Primroses*. (Silver Banksian Medal.)

A large group of *Primula malacoides* in flower was displayed by Messrs. S. BIDE & SONS, LTD., Farnham, Surrey.

Mr. G. REUTHE, Keston, Kent, showed Alpines, including *Crocus Imperati piceus*, *Eranthis pinnatus*, *Callixene polyphylla*, and *Pycnela chlorantha*.

Messrs. JOHN PEEB & SON, West Norwood, exhibited Alpines in pans, some few, such as *Iris alata*, *Cyclamen Cornu C. ibericum*, *Milla uniflora*, and species of *Crocus*, being in flower.

The Misses ROBINSON, More Gardens, Shepperton-Thames, showed a small exhibit of hardy plants, including coloured *Primroses*, *Christmas-Roses*, and *Tussilago japonica* in bloom.

The GIFFORD HARDY PLANT NURSERY Co. again showed shrubby *Veronicas* and hardy flowering plants.

Messrs. BARR & SONS, King Street, Covent Garden, exhibited a few early-flowering bulbous plants, including *Snowdrops*, *Crocuses*, *Stillas*, *Freesias*, and *Iris reticulata*. At the back of the group were dwarfed trees in china pots, with sprays of *Garrya elliptica* and *Hamamelis arborea*, both in flower.

Messrs. W. WELLS & Co., LTD., Meisitham, exhibited blooms of the beautiful white Carnation named White House, and a crimson-coloured single *Chrysanthemum* named Kathleen May.

A new rose-pink Carnation of promise, named Coronation, was shown by Mr. BERTIE E. BELL, Castel Nursery, Guernsey.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, de B. Crawshay, Henry Little, R. G. Thwaites, F. M. Ogilvie, W. Cobb, J. Cypher, W. H. Hatcher, A. Dye, C. H. Curtis, W. H. White, H. Ballantine, Guiney Wilson, W. Bolton, R. Brooman-White, H. J. Chapman, Stuart Low, J. Wilson Petter, John S. Moss, W. Waters Butler and Sir Jeremiah Colman, Bart.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Gold Medal for a magnificent group having a frontage of about 60 feet, and in which the best showy Orchids of the season, both species and hybrids, were well represented, the leading kinds being grouped in batches, which gave a distinct character to the exhibit. In the centre were numerous varieties of hybrid *Odontoglossums*, the dark-blotched kinds being relieved by white forms of *O. ardensissimum* and *O. crispum*. On either side were plants of *Laelia anceps*, both white and coloured forms; *Laelio-Cattleya Ariel* of shades of yellow, hybrid *Calanthes* of various tints, *Cattleya Trianae* of good quality, scarlet *Odontodas*, a selec-

tion of *Cattleya Olive Dum. C. Emd. C.*, *Empress Frederick* with fine examples of *L. C. Bella alba*, a number of well-flowered plants of *Vanda Amsonia* with *Lycaste Skinneri* and its variety *alba*, various rare *Cypripediums*, including the new *C. Alameda*, *disigne Barefield Hall* × *Alcibiades superbum*, a noble flower finely marked. Others of note included a profusely-flowered *Saccolabium bellianum*, *Odontoglossum Ernestii*, a distinctly-marked hybrid; the white *Saccolabium Harrisianum*, and a pleasing lot of *Masdevallia tovarensis*.

Mrs. NORMAN COOKSON, Oakwood, Wyham (gr. Mr. H. J. Chapman), was recommended a Silver gilt Banksian Medal for an interesting collection of hybrid Orchids, all raised at Oakwood, and including *Cypripedium Kenneth durstissimum* × *Calypso*, with the greater part of the dorsal sepal of deep claret colour; *C. Venus grandiflorum*, a larger form of the fine, white, purple-spotted hybrid previously shown; *C. Oakwoodiense*, an attractive flower, and other *Cypripediums*; *Odontoglossum crispum* Chapmanii, finely blotched, raised from varieties of *O. peacultum*, *O. Cooksonii*, and *O. Cook-omanum*; *Cattleya Chapmanii* (Triana × Hardyana), good in form and bright in colour; several new seedling *Odontoglossums*; the remarkable light-coloured *Cypripedium Regina* (*Lecanum Chukaberianum* × *Fairbairntoni*), and the very hardy, some *Odontodia Bradshawii* Cookson's variety.

Sir JEREMIAH COLMAN, Bart., Gattos Park (gr. Mr. Collier), staged a select group, two of the plants receiving awards. Others noted included the singularly fringed *Bulbophyllum Dayanum*, the fragrant, white-flowered *B. auricomum*, *Phorolithallis Scapha*, *Masdevallia polystachya*, and a good plant of *Cypripedium Helen H. Gattos Park variety*, the large, white flowers being marked with small, purple spots.

R. G. THWAITES, Esq., Chessington, (Christ Church Road, Streatham) (gr. Mr. J. M. Black), was awarded a Silver Flora Medal for a pretty group of hybrids. Novelties comprised *Cattleya Blacki Mendelii alba* × *Gaskelliana alba*, of which several forms were shown with nearly white flowers, more or less flushed with pink; two good specimens of *C. Octave Dum.*, one with very dark flowers; *C. Laelia Perivahona* × *aurora*, hybrid *Odontoglossum* and *Odontodas*, including the new *Odontodia Zephyr*, *C. Noezliana*, *O. Wilkeanum*, a bright red marked flower not yet mature. The Medal was afterwards withdrawn by the Council and a Vote of Thanks substituted.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for an excellent group, in which the forms of *Cattleya Trianae* were well represented, the finer being *hyacinthifolia*, *Centurion* and *Breadbought*, all with very handsome flowers, the last named being a model bloom of a silt rose colour with crimson-purple front to the lip. The group also contained a fine show of varieties of *Laelia anceps*, hybrid *Calanthes*, and *Odontoglossums*, among which was the new *O. Ophir* (Edwardii × *crispum* Harvanum), the flowers being purplish-ochraceate, tipped with rose and with a distinct yellow crest; also *O. Noble elegans* × *ardensissimum*, with an elegant spray of white flowers blotched with dark purple; *Laelio-Cattleya Goldfinch*, *Brasso-Cattleya Thomsonii*, and various other hybrids were also shown, including the pretty *Cypripedium Charles Sladden* (see Awards).

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, received a Silver Flora Medal for a varied group, at the back of which *Laelia anceps* varieties and good plants of *Dendrobium Wardianum* were effective. They also showed a selection of *Cypripediums*, the best of which was *C. Memoria Jerninghamiae*, a flower of fine substance and effective dark colour. Others noted were *C. Mimos Youngii*, *C. Mous. de Certe* Symburne's variety, *C. Euryades splendens*, *C. Schlimii*, *Oncidium ranunculoides*, *Odontoglossum blandum*, some pretty hybrid *Odontoglossum* and *Sepbro-Cattleya Saxa*.

Messrs. J. & A. A. McLEAN, Cooksbridge, were awarded a Silver Flora Medal for a neat group of splendidly-grown plants of *Laelia anceps*, the finest being the white *L. a. Schiediana*, of which there were several spikes, one with five blooms; *L. a. alba*, all with pure white flowers, and its variety *Distinction*, with thin blue lines on the side lobes of the lip; *Cattleya Octave Doia*, *C. Emd.* the violet-lipped *Zygopetalum Penenonkii*, various good *Odontoglossum*, including a fine hybrid *Laelia Flaryana*, and

and Hallii; bright Calanthes, and a selection of Cypripediums, including the massive C. Beryl, with very broad petals and finely-spotted dorsal sepal; C. aureum giganteum, and a fine hybrid between C. Euryades and C. Beekmanii.

Messrs. J. CYRER & SONS, Cheltenham, received a Silver Flora Medal for a good group, consisting principally of Cypripediums, including some effective unnamed hybrids. The more noticeable were C. Leeannum Chardwar, a flower of unusual colour; the pretty light-coloured C. Felicity; C. Beekmanii; C. Graceæ; C. Curtmannii; C. Thompsonii; varieties of C. Actæus, and C. aureum. With these were arranged hybrid Calanthes, the pretty Epidendrum polyblum, and a selection of Odontoglossums.

Mr. E. V. Low, Vale Bridge, Haywards Heath, was awarded a Silver Flora Medal for a good group, all the plants being remarkably well grown. Amongst those of special note was a fine plant of Cattleya Percivaliana alba of the best type and an extremely rare Orchid. Among the Cypripediums was the new C. Ulysses, a neat and well-formed flower of a greenish-yellow ground colour, effectively marked with chocolate-purple, and with a shining surface; also C. Amboyana (Fairrieanum × Dulcinianum), with a large, white dorsal sepal, having greenish lines and a light-rose tint, the petals being spotted with dark reddish-purple.

Messrs. MANSSELL & HATCHER, Rawdon, Yorkshire, staged a small but attractive group, for which a Silver Banksian Medal was awarded. Noteworthy species were Arachnanthe Cathartii, now seldom seen, with a large, red-barred flower; Eria stellata gigantea, with strong spikes of star-shaped white flowers; several specimens of Vanda Amesiana; the typical Brassavola nodosa, and several good Odontoglossums, including a distinctly-blotched form of O. crispum. Among the Cypripediums were C. aureum virginale and Vine House variety, C. Kitty Measures, a pleasing flower with a strong indication of C. Spicerianum in its parentage; and C. Thalia Mrs. Francis Wellesley, still the finest of its class.

EDWARD ROBERTS, Esq., Park Lodge, Eltham, was awarded a Silver Banksian Medal for a group of hybrid Cypripediums, the best of which was C. May Roberts, a supposed cross of a fine form of C. insigne with C. Actæus, and resulting in a large, bold, well-marked flower.

Mr. G. W. MILLER, Clarkson Nurseries, Wisbech, was awarded a Silver Banksian Medal for a group of Cypripediums, Lælia anceps, Calanthes, and other kinds.

Monsieur MERTENS, Ghent, showed a few hybrid Odontoglossums.

Mrs. GEOFFREY LUBBROCK, Broadoaks, West Byfleet (gr. Mr. J. B. Lowe), was awarded a Silver Banksian Medal for a group of well-flowered varieties of Dendrobium nobile.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed Cypripedium Princess Louise, supposed to be a cross between C. Leeannum giganteum and C. Druryi, or C. Buchanannum (Druryi × Spicerianum), probably the latter. The flower in its form, and much of its colouring, has a close resemblance to the fine C. Leeannum "J. Gurney Fowler," and especially in the uniformly squared, white dorsal sepal. C. Cupid magnificum, a larger form of the pretty, white hybrid with purple spotting shown previously, and Sophro-Cattleya "Mrs. Francis Wellesley," a well-formed flower of good size, tinted with salmon-rose colour.

Messrs. HATH & SONS, Cheltenham, staged a group of Cypripediums.

Mr. J. HAWKES, Osterly Park, Isleworth, displayed two twin-flowered spikes of Cypripedium insigne.

H. S. GODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), staged two examples of Odontoda Latetia and O. Cooksonia.

G. P. WALKER, Esq., Putney Heath (gr. Mr. M. Grogan), showed Brasso-Lælia, Mrs. G. P. Walker (L. flava × B. glauca), with yellow flowers.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cypripedium Elizabethæ var. Vogel (Hera Marica × Habkiana), from Mons. FRON'S LAMBLAU, Brussels.—A fine Cypripedium, with much of the effective claret-purple spotting seen in C. Hera Euryades on the broad, white dorsal sepal. The petals and lips are Cowslip yellow, tinged and slightly veined with purple. The

name, however, is a repetition of the C. Elizabethæ (Lawrenceanum × Parishii) R. H. Measures, therefore some distinctive title should be adopted. Under the circumstances it might be called C. Vogelzand.

AWARDS OF MERIT.

Odontoglossum Halsyanum (parentage unrecorded), from J. GURNEY FOWLER, Esq., Gledelands, South Woodford (gr. Mr. J. Davis).—A showy hybrid, suggesting in the rich purple blotching of its pure white flowers a fine blotched form of O. crispum, which was probably one of the plants. The white, purple-marked lip, however, plainly indicates hybridity. The plant had a spike carrying a dozen large blooms.

Odontoglossum Rosefieldiense (Harriganum × Lambauium), from DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables).—One of the happiest combinations yet made, resulting in a model flower, broad in all the segments, richly coloured, but with the colouring broken up sufficiently with thin lines of the white ground, and with a very broad ovate white lip, prettily marked with reddish purple around the yellow crest. The blotching on the sepals and petals is of a reddish claret colour, but when seen with the light behind there is a crimson tint, and in the shade a trace of violet. In thus improving on the handsome O. Lambauium, good work has been accomplished.

Cypripedium Charles Studdin (glaucophyllum × bellatulum), from Messrs. SANDER & SONS, St. Albans.—A pretty hybrid of dwarf habit and with well-rounded flowers that are superior to any of the C. Chamberlainiana crosses, although C. glaucophylla is a near ally. The ground is white, the petals and dorsal sepal being closely veined with claret colour and tinged with rose between the veining. The lip is closely spotted with small, claret-purple dots.

Odontoglossum Golmanii (Edwardii × Bolfa), from F. DU CANE GODMAN, Esq., South Lodge, Horsham.—A pretty hybrid, with a dwarf spike of rose purple flowers and yellow crest. In habit it is superior to most of the O. Edwardii crosses. The colour also is brighter than some forms.

BOTANICAL CERTIFICATES.

Bulbophyllum goblinum, from SIR JEREMIAH COLMAN, Bart., V.M.H., Gutton Park (gr. Mr. Collier).—A singular and pretty species allied to B. Reinwardtii; the sepals and narrower petals are pale green, with a few purple markings. The beauty of the flower lies in its large, fleshy, hinged labellum, which is ruby-crimson in colour.

Phoroglottis javanica, from SIR JEREMIAH COLMAN, Bart.—A singular species, with broad, stalked leaves and erect inflorescence, 1½ foot in height, and bearing many singularly formed flowers arranged spirally.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. C. G. A. Nix, P. D. Tuckett, W. Bates, A. Dean, G. Woodward, E. Beckett, G. Kelf, H. Markham, G. Reynolds, O. Thomas, G. Wythes, W. Poupard, A. R. Allan, J. Lyne, P. C. M. Veitch, J. Gibson, J. Jacques, and W. Crump.

Eight varieties of forced Asparagus, in small bundles, were presented from the Society's Wisley Gardens. Five of these showed precocity of some 10 to 14 days over the other three, but these latter had the stouter stems. It was decided to inspect them again in the spring.

Messrs. JAS. VEITCH & SONS, Chelsea, exhibited a superb collection of Apples, having 100 distinct dishes. The fruits were very clean, of good size, and firm. A selection of the choicer fruits of cooking varieties included Hambling's Seedling, Sandringham, Annie Elisabeth, Warner's King, Bismarck, Alfriston, Newton Wonder, King of Tompkins' County, Lane's Prince Albert, Lord Derby, Northern Greening, Withington Fillbasket, and Beauty of Kent; of dessert sorts, there were excellent samples of Blenheim Pippin, Rosemary Russet, Bowhill Pippin, Court pendu-plat, Baxter's Pearmain, American Mother, Melon Apple, Lord Burghley, Cornish Aromatic, Rival, Claygate Pearmain, Cox's Orange Pippin, and Adams' Pearmain. (Gold Medal.)

Messrs. G. BUNYARD & Co., Maidstone, had also a fine exhibit of some 120 dishes of Apples, Tower of Glamis, Beauty of Kent, Striped Beefing, Golden Noble, Royal Jubilee, Warner's

King, Lord Derby, Gloria Mundi, Byford Wonder, Lane's Prince Albert, Stirling Castle, and Bramley's Seedling, all culinary varieties, were specially fine. Good dessert fruits were seen in September Beauty, Winter Nonesuch, Winter Ribston, Cox's Orange Pippin, American Mother, Wealthy, King of the Pippins, Lord Hindlip, Barnack Beauty, and Mabbott's Pearmain. There were also a few Pears, including Uvedale St. Germain, Verulam, Marie Benoist, and Belle des Arbres. (Silver-gilt Hogg Memorial Medal.)

Messrs. W. SEABROOK & SONS, Chelmsford, staged a collection of some 36 baskets and dishes of Apples, all excellent samples. New Hawthornden, Royal Jubilee, Golden Noble, Bismarck, Bramley's Seedling, Lord Derby, Newton Wonder, Beauty of Kent, The Queen, Alfriston, Stirling Castle, Lane's Prince Albert, Cox's Orange Pippin, Rosemary Russet, Claygate Pearmain, and Melon Apple were specially good. (Silver Knightian Medal.)

Messrs. SUTTON & SONS, Reading, staged a collection of solid white heads, both trimmed and untrimmed, of Superb Early White and Winter Mammoth Broccoli. (Silver Banksian Medal.)

THE EDUCATIONAL AUTHORITY OF MONMOUTHSHIRE showed a collection of 146 varieties of Potatoes in baskets, from extensive trials conducted at two centres in that county. Voluminous reports, which may be published in the Society's *Journal*, gave particulars of the trials. (Silver Knightian Medal.)

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JANUARY 19.—The 71st annual meeting of the supporters of this gardening charity is being held at Simpson's Restaurant, Strand, as these pages go to press, under the chairmanship of the treasurer and chairman of committee, Mr. Harry James Veitch.

The annual report, read by the secretary, Mr. George Ingram, shows that good work has been done during the past year, and that the committee is hopeful for the future. The number of gardeners and gardeners' widows seeking relief is greater than ever. Seventy-three names were included on the list of voting papers, and the circumstances of each candidate were first considered carefully by the Executive Committee. Of this number the Committee, at the time the ballot papers were issued, were only in a position to recommend the election of 20.

RESULT OF ELECTION.

	Age.	No. of Votes.
Plummer, Arthur	69	4,062
Baillie, Wm. M.	69	3,162
Butters, Susannah	67	3,030
Sutton, Thomas	74	2,943
Gidley, Thomas C.	76	2,832
Boothroyde, George	74	2,816
Chinnoy, Sarah	65	2,780
Watson, Rebecca	62	2,746
Richards, Emily	60	2,729
Birch, John	69	2,716
Gough, John	78	2,656
Bury, Emily	77	2,607
Dallimore, John	71	2,585
Arnold, Emma	67	2,577
Bastin, George	73	2,576
Sutton, Sarah A.	73	2,516
Cavill, Reuben	73	2,457
Hope, Mary	80	2,446
Robinson, William D.	67	2,423
Searing, Anne	60	2,420

Pensioners Elected after the Poll.

- *Gedge, George (61).
- *Rosam, Henry J. (45).
- †Dunstall, David (48).

* These candidates were elected by the annual general meeting by virtue of the privilege given the Committee in Rule III., Clause 10. They fill places rendered vacant by deaths which have occurred since the ballot papers were issued.

† This candidate was selected to receive a year's pension (£20) kindly given by Mr. Arthur W. Sutton.

Mr. George Monro intimated his desire to give a sum of £10 to the unsuccessful candidate Marie Baillie.

ROYAL CALEDONIAN HORTICULTURAL.

JANUARY 11.—The annual general meeting of the Society was held in Dowell's Rooms, George Street, Edinburgh, on this date. Mr. J. W. McHattie, the senior vice-president, occupied the chair.

It was announced that King George V. had consented to continue to afford the Royal patronage to the Society.

The report of the Council showed that there was a surplus of revenue over expenditure on the year's working of £79. The spring show, however, resulted in a serious loss, and but for the increase in the receipts at the September show, there would have been a deficit.

It was reported that the Neill Prize for the biennial period to May 15, 1910, had been awarded to Mr. Alex. McMillan, whose work in hybridising Rhododendrons was well known.

The suggested amalgamation with the Scottish Horticultural Association presents several difficulties. There is no possibility of the Society being able to surrender its charter with a view to amalgamating with the other society under an ordinary constitution, and the only other alternatives are (a) for the Scottish Association to join this Society under its present charter, or (b) for both societies to join under a new charter. The committee rejected the first proposal, and the other, it was pointed out, would be seriously expensive.

The following office-bearers for 1911 were elected:—Mr. J. Stewart Clark, of Dundas, president (re-elected); Mr. Wm. Younger, Ravenswood, Melrose, vice president; Messrs. James Whytock, Dalkeith Gardens, W. H. Massie, 1, Waterloo Place, Edinburgh, and Geo. P. Berry, Edinburgh and East of Scotland College of Agriculture, councillors.

STIRLING CHRYSANTHEMUM.

JANUARY 14.—The annual general meeting of this society was held in Stirling on the above date. The President, Mr. H. Kinross, occupied the chair. The annual report and balance-sheet were submitted and unanimously adopted. The finances showed a deficit of more than £6. The secretary and treasurer, Mr. R. C. Dickson, resigned these offices, and, on the motion of the chairman, he was thanked heartily for his past services. The officers were appointed, Captain Stirling of Keir being elected as hon. president; Mr. Henry Kinross, president; Mr. George Petrie, secretary; and Mr. Thos. Carson, treasurer.

NATIONAL CHRYSANTHEMUM.

JANUARY 16.—A meeting of the Executive Committee was held at Carr's Restaurant, Strand, on the above date, when Mr. Bevan presided. The dates of the Society's 1911 exhibitions were provisionally fixed, subject to arrangements with the Crystal Palace authorities. The draft annual report for the past year was passed for presentation at the annual meeting. The balance-sheet also was considered, after being duly audited. It was proposed by Mr. Ladds, and seconded by Mr. Oliver, that a conference be held towards the close of the year, the date and subjects for discussion to be settled later. The annual meeting was fixed for February 6, at Carr's Restaurant.

NATIONAL SWEET PEA.

JANUARY 18.—A special general meeting of this society was held at the Hotel Windsor on the above date, for the purpose of considering the constitution of the Floral Committee. Mr. G. W. Leak occupied the chair.

The Chairman proposed "that the instruction given to the General Committee as to the definition of amateurs" be rescinded. This was seconded by Mr. E. F. Hawes. Much correspondence dealing with the matter was read by the Secretary, and a discussion ensued, in which Messrs. Breadnora, A. Dean, G. Gordon, S. B. Dicks, W. Deal, and others took part.

On the motion being put by the Chairman, it was declared carried by 43 votes to 4.

The Chairman further proposed that the society should define an amateur in accordance with the regulations of the Royal Horticultural Society. Mr. Robert Sydenham seconded the motion. After discussion, the following amendment was moved

by Mr. J. G. Baker:—"That, as there are at present no rules for the formation, composition, and conduct of a Floral Committee, this meeting requests the General Committee to draw up rules for such purpose and submit the same to a special general meeting of the society in April, 1911. Such rules, when passed by the special meeting, shall become operative immediately." This was seconded by Mr. F. H. Chapman.

An additional amendment was proposed by Mr. H. Hesford, and seconded by Mr. T. Want, with regard to the R.H.S. definition of an amateur; but this was defeated. The original amendment, proposed by Mr. Baker, was then put to the meeting, and carried unanimously. The result reopens the whole question of the constitution of the Floral Committee, and the subject will be considered by the General Committee without delay.

Obituary.

GEORGE BLAKE.—The recent death of Mr. George Blake, in his 92nd year, severs one of the few links that remain between the present and the International Horticultural Exhibition of 1866. Blake, who was gardener at the time of that exhibition to Robert Warner, Esq., Bloomfield, Chelmsford, won the first prize in the premier class for Orchids, namely, the class for 50 Exotic Orchids, of any kind in flower. The prizes offered were: 1st, £50; 2nd, £15; and 3rd, £10. The judges were



THE LATE GEORGE BLAKE.
(Winner of the Premier Orchid Class in the 1866 Exhibition.)

Professor Reichenbach, Hamburg; Mr. Anderson, Meadow Bank; Mr. Lawrence, Farnham; and Mr. W. Rollisson, Tooting. Robert Warner was one of the celebrated Orchid growers of that date, and he possessed one of the most complete collections. It may be interesting to enumerate the 50 specimens which won the prize at the '66 show. These were as follow:—

Aërides Fieldingii.	Dendrobium densiflorum.
" virens.	" giganteum.
Cattleya Mossiae (5).	" macrophyllum.
" " elegans.	" nobile.
" " fimbriata.	Lælia cinnabarina.
" " flammea.	" purpurata.
" " Lawrencei.	" Schilleriana.
" " [ana.	Odontoglossum citrosimum.
" " lobata.	" Karwinskii.
" " marmorata.	Oncidium amphatum majus.
" " Napoleonis.	" sphacelatum.
" " purpurata.	Phajus Wallichii. [majus.
" " Rothschildii.	Phalaenopsis amabilis (2).
" " [ana	" grandiflora (2).
" " Skinneri (2).	" [aurea (2).
Chysis Iavis.	" Schilleriana.
" Limninghii.	" intermedia var.
Cypripedium barbatum.	Trichopilia crispata. [Portei.
" " super-	" tortilis.
" [bum.	Vanda insignis (2).
" hirsutissimum.	" suavis (3).
" Hookeræ.	" tricolor.
" villosum.	" " superba.
Dendrobium crepidatum.	" " formosa.

George Blake was born in Wokingham in Berkshire. His father and grandfather were sawyers and woodcutters. At the age of 13, he hired himself to a farmer at Slough. His first employment in a garden was quite accidental, for in the ordinary discharge of his duties, he had occasion to drive a cow from Slough to a gentleman at Waudsworth, and this gentleman invited Blake to come to him as a gardener's assistant at the end of his hiring term. Blake accepted the invitation, and stayed at Waudsworth for a period of two years. Then he went to an Orchid cultivator, Mr. Ruckers, as under gardener to a Mr. Milan. He remained with Mr. Ruckers eight years; and years afterwards he often referred to that period as being the happiest of his life. Blake next had charge of Mr. Schroder's collection of Orchids at Stratford, and won several prizes at the exhibitions for collections shown from Mr. Schroder's garden. After seven years, he removed to a Mr. Tukey, of Hitchin, and subsequently, on the recommendation of the late Benjamin Williams, of the Upper Holloway Nurseries, Blake was appointed gardener to Robert Warner, whom he served for seven years, and, as stated above, this period covered the 1866 exhibition. On leaving Bloomfield, Blake was appointed gardener to John Offin, Hutton Park, Brentwood. He stayed in that situation for 24 years, during which time he served under three employers. For the last 14 years of his life, deceased lived with his eldest son at Earl's Colne, Essex. He leaves two sons, whose combined ages are 91 years.

JOHN FOX.—The superintendent of the famous park of Prince Henkel of Donnermark, in Neudeck, Upper Silesia, Prussia, died on December 15, at Tauswitz, aged 70 years. Deceased first entered the employ of the Prince of Donnermark in 1867. He knew neither a word of German nor Polish (Polish being the language of that part of Prussia). The site of the park was mere bog land. It was first drained, and then laid out by Fox in the English style. The park is so beautiful that it has formed a model for many others in Germany and Poland. An Irishman, Fox got on well with his German and Polish colleagues, being esteemed highly by all of them. He was awarded the honorary title of "Director of Landscape Gardening" (Gartenbau Director) by the Prussian Government.

JAMES SEATON.—The many friends of Mr. Jas. Seaton will learn with deep regret of his death, which occurred at Lewisham on the 1st inst. Born at Blair Atholl, N.B., 75 years ago, he entered on a gardening career directly upon leaving school. He was employed in some well-known Scottish gardens, amongst others those of St. Martins, Perth, Methven Castle, in the same county; and King's Meadows, Peebles. He proceeded south whilst still quite a young man, and served as foreman in several gardens in Surrey and Kent. In the late 'sixties, Seaton entered the then well-known nurseries of Messrs. Osborne at Fulham, but the post of head gardener at Mount Clare, Rechempton, being offered him, he transferred his services there, and soon made a name for himself as a first-rate Peach grower. The crops borne by the Mount Clare Peach trees which Seaton had planted were amongst the most noted examples in the country. Deceased, who was unmarried, was of a very quiet, retiring nature, rarely mixing even in the company of gardeners.

CATALOGUES RECEIVED.

SEEDS.

- J. R. Box, Derby Road, Croydon.
- BEES LTD., Mill Street, Liverpool.
- JAMES BACKHOUSE & SON, York.
- R. H. BATH, LTD., The Floral Farms, Wisbech.
- HOWDEN & Co, Inverness.
- TILLEY BROS., London Road, Brighton.
- AUSTIN & McASLIN, Glasgow.
- BARR & SONS, Covent Garden, London.
- CHAS. W. BREADMORE, Winchester.
- WILLS & SEGARS, South Kensington, London, S.W.
- McHATTIE & Co., Chester.
- GEO. COOLING & SONS, Bath.
- E. P. DIXON & SONS, LTD., Hull.
- JNO. JEFFERIES & SONS, Cirencester.
- W. SMITH & SON, Market Street, Aberdeen.

MISCELLANEOUS.

- AMOS PERRY, Enfield, Middlesex—Flower Seed; Trees and Shrubs; Lilies.
- JOHN R. HAMILTON, Waltham Cross, Hertfordshire—Insecticide.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending January 14, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—The general character of the week was unsettled, rain falling at times in most localities during the earlier days, and sleet or snow over a large portion of the Kingdom later. Precipitation became, however, much less general after the middle of the period. Aurora was seen in Scotland on the night of the 8th, and a thunderstorm occurred at Newcastle-on-Tyne late on the 12th.

The temperature was below the average in Ireland, England S.W. and the English Channel, but above it in all other districts. The divergence from the normal was nowhere very large. The highest of the maxima occurred on the 8th at most stations, and varied between 50° in England E. and in Scotland N. and W., and 54° in Ireland S. The lowest of the minima, which were recorded towards the end of the week, ranged from 22° in Scotland W. and 23° in England E. and in Ireland to 29° in Scotland N., and to 33° in the English Channel. The lowest grass readings were 12° at Newton Kigg, 14° at Tunbridge Wells, 15° at Aspatia, and 17° at Luton, Southport, Llangunnaugh Wells and Armagh.

The mean temperature of the sea was lower in most places than during the corresponding week of last year. The values ranged from between 47° and 49° on some parts of the south-west coast of England to less than 42° on the east and north-east coasts generally, and to 3°·6 at Croyarty.

The rainfall was less than the average in Ireland and England S.W., and about equal to it in England N.W. and the Midland Counties. Elsewhere there was an excess, but the difference from the average was not as a rule large. At Portlaoich 1·38 inch fell on the 10th, at Fort William 1·17 inch, and at Aspatia 1·04 inch.

The bright sunshine exceeded the average in all districts except Scotland N. The percentage of the possible duration ranged from 31 in England S.W. to 19 in England N.E., and to 10 in Scotland N.

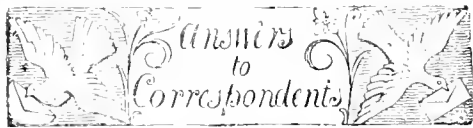
THE WEATHER IN WEST HERTS.

Week ending January 18.

The longest dry period for over three months.—The last 11 days have, with one exception, been more or less unseasonably warm. On the other hand, four of the last six nights were below the average in temperature, and on three of these the exposed thermometer registered 13° of frost. On the last night of the week the same thermometer, however, did not fall below 37°, which is 10° higher than is reasonable at this the coldest period of the year. The ground is now 1° colder than is reasonable at 2 feet deep, and at about an average temperature at 1 foot deep. Some rain fell on each of the first 12 days of the month, but to the total depth of only 14 inch. Since then the weather has been dry. No rain has now fallen for five days, making this the longest spell of dry weather since the early part of October—of for over three months. On the morning of the 13th inst., the ground for the first time this winter was nearly covered with snow. There has been more or less circulation through both of the soil gauges during the week, but the amounts the last few days have been small. The sun shone on an average for 2 hours 33 minutes a day, which is an hour a day longer than the average duration for the middle of January. On two days the sun shone for over five hours a day, whereas on three other days had, taken together, less than 20 minutes sunshine. On the first day of the week the wind was rather high, but since then light airs and calms have alone prevailed. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a reasonable quantity for that hour by 3 per cent. E. M., Berkhamsted, January 18, 1911.

ENQUIRY.

MICE AND RHUBARB.—Can any reader inform me if mice eat Rhubarb plants? I find the crowns of Rhubarb in these gardens are eaten by some creatures, apparently mice, although we cannot catch any of these rodents. E. W.



The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

APPLE SHOOTS FOR EXAMINATION: R. J. F. The shoot was attacked by the Apple scab fungus. Remove and burn all the dead branches, and then spray the trees with the Bordeaux mix, the next spring when the leaves are half grown.

FRENCH BEANS: Mrs. Marfic. Kindly send specimens for examination.

COMPLAINING IN AUSTRALIA: S. R. There are but few openings for private gardeners in Australia, although cultivators for market purposes are welcomed by the authorities. As it is your intention to do so ultimately in the market work,

there should be a favourable inducement for you to emigrate. You will find a note on the subject by the late James McIndoe in the issue for May 16, 1908, p. 324.

HONEY-FLOWER: B. This name is applied to Melanthus major and sometimes to Protea melthera.

INSECTS ON BEANS AND IN SOIL: C. J. M. The "grubs" are a species of cheese mite (Tyroglyphus siro), and were undoubtedly introduced with the bones. They are not known to be destructive to plant life, and will probably disappear in the course of time.

INSECTS ON FERNS: W. M. H. The small white objects are the pupa cases of the males, the larger brown ones those of the females of a species of scale insect (Chionaspis aspidistræ). There are also a few young forms of a mealy bug (Dactylopius citri). You can keep these pests in check by sponging the leaves frequently with a soap emulsion.

MOSCHOSMA RIPARIUM: A. B. C., Trowarthenick. This greenhouse plant is a comparatively recent introduction to gardens. It was described by Hochstetter in 1845, but little was known of it till 1900, when it was referred to by Baker in the Flora of Tropical Africa. In the early part of 1902 Messrs. James Veitch & Sons, Ltd., exhibited specimens at the meeting of the Royal Horticultural Society, and a sketch from these plants appeared in Gardeners' Chronicle, February 22, 1902, fig. 35. As Nicholson's Dictionary of Gardening was published before 1886, it is not surprising the plant is not mentioned in that work. Fearing as it does a valuable winter blooming greenhouse shrub, Moschosma riparium soon became popular, and it is now in general cultivation.

MUSHROOMS DISEASED: Start. The trouble is due to a minute parasitic fungus—Hymomyces perniciosis. If the crop is badly affected, it will be advisable to remove the bed at once, otherwise the spores may infect the house to such a degree as to be difficult to eradicate. Before making up a new bed, spray the interior of the house thoroughly three times, at intervals of 10 days, with a solution of copper sulphate, at the rate of 1 lb. of the chemical in 15 gallons of water. During the intervals of spraying, keep the house moist and warm, to favour the generation of the spores.

NAMES OF FRUITS: T. Murray. Muchall Crab.—H. Symonds. 15. Beurre d'Esp. 41. Uvedale's St. Germain; 76. Cattilac; 82. Née Plus. Meims.—H. Shaw. Norfolk Stone Pippin.—J. W. I. decayed; 2. a fine fruit of Josephine de Malines.

NAME OF PLANTS: H. T. Ornithogalum lacteum. (See p. 26 in the last issue).—Advance. 1. Begonia polyantha; 2. Cyrtopodium venustum; 3. C. Leeannum var.; 4. Begonia fuchsioides; 5. Adiantum Capillus veneris var.; 6. Asparagus crispus.—F. E. 1. Bifrenaria aurantiaca; 2. Brassia maculata; 3. Cyrtopodium ornithum; 4. Cyrtopodium Calypso; 5. Cochlidia sanguinea.—J. W. S. 1 and 2, varieties of Cyrtopodium Lathamianum (villosum = Spiciferanum); 3. Cyrtopodium Calypso (Boxalli = Spiciferanum); 4. Cyrtopodium nitens superbum.—J. B. 1. Dichorisandra vitata; 2. Dracena Godsealiana; 3. Dracena Golden; 4. Paulinia thalictrofolia; 5. Asparagus virgatus; 6. Aristolochia elegans; 7. Streptosolium Jamesoni; 8. Furcraea longeva.—Amateur. Obantoglossum Andersonianum, of small value.

PELAGONIUMS DISEASED: D. R. The cuttings have been taken from diseased stock that has been attacked by Botrytis. There is no cure.

ROSE FROM KARL DRUSCHKE: A Reader. If your plant was only lifted from the open this season, it will need very steady forcing, but may succeed in your cold house. It is always better to use established plants for early forcing. Molly Shanman Crawford and Lady Quarles Ewart are excellent white Roses for forcing.

SMALL RANGE OF UTILITY GREENHOUSES: D. H. J. Unless you prefer to have a three-quarter span house, the cost of erecting a full span house would be very little, if, indeed, more than that incurred in the erection of the three-quarter span. The increased space and additional light which the span house would afford would be a great advantage. In your

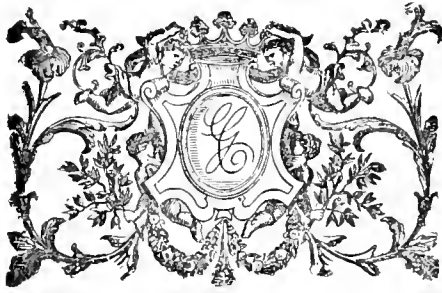
case the rafters on the south side of the house (which would run nearly east and west) should be a trifle longer than the rafters used on the opposite side to make up for the fall in the ground. The end and side walls should, in the event of your having a sunken pathway as shown in your sketch plan, be about 18 to 24 inches high, and built of 4½-inch brickwork with 9-inch piers (showing outside) at intervals of about 8 feet. Rafters 7½ feet in length will be ample for a house 12 feet wide. The rafters on the south side may be 7 feet 9 inches long, and those on the other side 3 to 6 inches shorter. If they are fixed at 18 inches apart, it will admit of panes 18 inches wide of 21-ounce glass being employed for glazing. Bed the glass in good white-lead putty, and secure the individual panes on the top with small brass nails such as are used by shoemakers, employing four to each pane. Provide for six roof ventilators on either side of the house. These should be secured to the ridge board by suitable hinges; those on one side of the house being fixed anglewise to those on the opposite side, in order to secure a regular admission of fresh air to the house. If the ventilators are worked by Wooland's continuous ventilating gear, a great saving of labour will be effected. Construct the stoke hole at the lowest end of the range, and this must be sunk sufficiently to admit of the boiler being fixed low enough to allow of a gradual rise in the flow pipes. Due allowance must also be made for a rise in the main flow pipe extended to the end of the pit, which, according to your sketch, is situated on a lower level than the proposed greenhouse. A throttle valve should be fixed in each flow pipe where it enters the house or pit to regulate the circulation of the hot water. Four 2-inch pipes would be ample to heat the pit; diminishing pipes with 2-inch throttle valves attached to same may be taken from the 4-inch main. You must provide an air pipe in the end of each flow pipe at the highest end in both house and pit. The supply cistern will also be better attached to one of the return pipes at the farthest end of the house from the boiler, the air pipes being extended slightly above the top of the supply cistern. The rafters may consist of yellow deal 1½ inch by 3 inches, end rafters 3 inches by 4 inches, wall and end plates 4 inches by 5 inches. An ordinary No. 2 wrought-welded saddle boiler capable of heating 400 feet run of 4-inch piping would answer your purpose, and would also be powerful enough to heat a second pit or house should you decide to erect one at some future date.

VIOLETS UNHEALTHY: J. W. P. Excess of moisture first caused the edges of the leaves to decay, and then fungi settled on the decayed portions. Afford an increased amount of ventilation.

WHITE OBJECTS ON LEAVES: J. T. These are the cocoons of a minute insect belonging apparently to the Psocida or "Book lice"; they are not known to be injurious to vegetation, and they feed largely, it is supposed, upon decaying vegetable matter. Remove the dead leaves and destroy them.

WILLOW TIMBER FOR CRICKET BATS: Correspondent. All the three specimens you send are badly matured shoots of Salix alba, and most probably S. a. corula. It cannot be determined from such poor specimens whether they are the vigorous form (considered by Dr. Henry to be a hybrid between S. alba and S. fragilis) grown for bat making. All three specimens could be matched from a single tree, which would probably furnish others still more distinct. If the trees are of a large size that would be good evidence they are of the right type. The intermediate hybrid (S. viridis, Fries), is of no service for bat-making, and is not included amongst your specimens.

Communications Received. W. H. C.—W. R. D.—A member—E. M.—A. B. W.—H. S. T.—S. A.—E. P. B.—R. P.—Litchamption—H. W. W.—Practice—A. & B.—J. C. & Sons—D. W.—Uckfield—W. W. P.—J. R.—Enfield—W. K.—Aberdeen—W. H. W.—R. W. T.—S. C.—T. S.—J. D.—Rochester—N. Y.—F. M.—W. T.—D.—C. F.—W.—Fading—A. J.—J. C.—Sheffield—R. V.—J. M.—H. S.—S. C. & Son—M. L.—W.—C. L.—F. J. M.—D. H. L.—H. C.—A. D. R.—T. W.—P. A.—B. C. R.—Sunderland—W. G. S.—Sidmouth—W. S.—Woking—J. N. V.—Boskopp—G. D. K.—R. A. M.—W. P.—W. R. B.—G. D.—Belfast—G. J. F.—T. J. C.—E. E. G.—E. W.—C. F. W.—C. R.—S. D. Morris.



THE

Gardeners' Chronicle

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CONTENTS.

Apples, imported and home-grown .. 58	Rainfall in 1910 .. 59
Apples in Dorset .. 51	Roses, Dijon Tea .. 58
Benevolent Institution, Gardeners' Royal .. 56, 60	Scotland, notes from .. 57
Books, notices of—	Simple-life conference and exhibition .. 57
The Story of the Great Revolution in Science .. 41	Small holdings exhibition, forthcoming .. 57
Cultural memoranda—	Societies—
Rhubarb forcing by amateurs .. 53	Brighton Hort. .. 62
Daffodil society, a proposed national .. 57	Fraisée d'Horticulture de Londres .. 62
Fruit tree stocks .. 58	Hastemere Chrys. .. 62
Gooseberry-mildew, American .. 54	Horticultural Club .. 61
Lasiandra macrantha .. 51	National Vegetable .. 61
"Monro" concert, the New Zealand plants .. 58	Royal Horticultural (Scientific Committee) .. 59
Obituary—	Royal Meteorological .. 62
Galton, Sir Francis .. 56	Scottish Horticultural .. 61
Hobday, George .. 62	Southampton Royal Horticultural .. 62
Olearias in Ireland .. 52	York-hire Gala .. 57
Orchid notes and gleanings—	Soot, the manorial value of .. 57
Calanthe Veitchii .. 50	St. Tudy, shrubs in flower at .. 59
Cypripedium Charles Sladdin .. 50	Week's work, the—
Cypripedium Miss Alice Wallace .. 50	Flower garden, the .. 55
The "Orchid World" .. 50	French garden, the .. 54
Plant novelties, awarding certificates to .. 58	Fruits under glass .. 54
	Hardy fruit garden .. 55
	Kitchen garden, the .. 55
	Orchid houses, the .. 54
	Plants under glass .. 54

ILLUSTRATIONS.

Cypripedium "Charles Sladdin" .. 50
Massie, Mr. W. H., portrait of .. 61
Olearia Forsteri .. 51
Olearia Haastii .. 52
Olearia insignis in Mr. Gumbleton's garden, Co. Cork .. 51
Olearia macrorhiza in Glasnevin Botanic Gardens .. 57
Olearia myrsinoides .. 59
Olearia semidentata (Supplementary Illustration).

THE COMING OF EVOLUTION.*

THE Syndics of the Cambridge University Press are to be congratulated on being able to include this remarkable book among the earliest volumes of *The Cambridge Manuals of Science and Literature*. It is not easy to write a book with such a title as *The Coming of Evolution*—a title suggesting the re-telling of an oft-told tale—which will at once strike the reader as essentially fresh and original; yet this is what Mr. Judd has accomplished. The book's most striking characteristic is its broad interpretation of what is meant by "evolution." This word is applicable, not merely to the gradual development of the forms of life on the earth, but also to the changes that time has wrought on the fabric of the globe; in other words, it means continuity, inorganic as well as organic. We do not claim that this point of view is fresh. It is, however, a view which writers on evolution have too much neglected, and Mr. Judd, by his masterly treatment, has, we repeat, given a striking freshness and vitality to his subject. In Huxley's chapter, "On the Reception of the Origin of Species,"† we find

briefly given what is practically the thesis of Mr. Judd's book, not only as regards evolution, but also touching the relation between Lyell and Darwin. "I cannot but believe that Lyell, for others, as for myself, was the chief agent in smoothing the road for Darwin. For consistent uniformitarianism postulates evolution as much in the organic as in the inorganic world. The origin of a new species by other than ordinary agencies would be a vastly greater 'catastrophe' than those which Lyell successfully eliminated from sober geological speculation."

Mr. Judd is especially well qualified for the task of describing from the geological standpoint the coming of evolution. He knew intimately both Charles Darwin, who convinced the world of organic evolution, and Charles Lyell, the great master of inorganic continuity who prepared the road for the *Origin of Species*. After the death of Lyell, it was to Judd that Darwin turned as a geological friend, with whom he could revive the memories of his own early work in that field and discuss recent developments. It is interesting to note the date at which Darwin formed his high opinion of Mr. Judd. In 1871 he wrote to Lyell as follows (*Life and Letters of C. Darwin*, III., p. 90): "In your last letter you spoke of Mr. Judd's paper on the volcanoes of the Hebrides. I have just finished it, and to ease my mind must express my extreme admiration. It is years since I have read a purely geological paper which has interested me so greatly. . . . I was also not a little pleased to see my volcanic book quoted, for I thought it was completely dead and forgotten. What fine work Mr. Judd will assuredly do!"

Mr. Judd speaks with enthusiasm of the characters of the two men who are the heroes of his story. "Every man of science," he writes, "is proud, and justly proud, of the grandeur of character, the unexampled generosity, the modesty and the simplicity which distinguished these pioneers in a great cause." He goes on to point out that, in the story of evolution as far as the great masters in that science are concerned, no event occurred to mar "the harmony of this band of fellow-workers, striving towards a great ideal."

Yet, by smaller men, Darwin's character was misunderstood and misjudged. For instance, his relation to his professor has been described as that of a thief who tries in vain to hide his pilferings. Mr. Judd makes some excellent remarks which bear on these accusations, though not directed to that point. He says, "It is not, as sometimes suggested, the striking out of new ideas which is of the greatest importance in the history of science, but rather the accumulation of observations and experiments, the reasonings based upon these and the writings in which facts and reasonings are presented to the world—by which a merely suggestive hypothesis becomes a vivifying theory—that really count in making history." He also quotes some characteristic words by Mr. Wallace, "I have long since come to see that no one deserves either praise or blame for the *ideas* which come to him, but only for the actions resulting therefrom. Ideas and beliefs are certainly not voluntary acts. . . . But the actions which result from our ideas may properly be so treated, because it is only by patient

thought and work that new ideas, if good and true, become adopted and utilised, while if untrue, or if not adequately presented to the world, they are rejected or forgotten." It is to be hoped that reasonable people realise this, and that the world in general does not imagine that when Darwin spoke of "my theory" he claimed to be the discoverer of evolution and that he may therefore be accused of trying to steal the glory of Lucretius!

Elsewhere (p. 9) Mr. Judd refers to the question which is here involved, viz., Mr. Darwin's position as regards natural selection and the theory of descent. He says that Darwin "attaches infinitely less importance to the establishment of the fact of the evolution of species than to a demonstration of a possible *mode of origin* of that evolution." This is not happily expressed, and does not harmonise with Mr. Judd's statement taken as a whole. What Darwin cared for primarily was the doctrine of descent, without which taxonomy, morphology, geographical distribution, and indeed the whole of our outlook on natural history, become barren and meaningless. He cared for natural selection as a weapon, or rather as *the* weapon by which the world, including himself, might be convinced of the descent theory. History justifies his attitude, for the world is now convinced of the fact of evolution, and the conversion was wrought by natural selection. Nowadays a new generation has arisen which does not realise its importance. It continues to believe in the doctrine of descent, but regards natural selection as a platitude.

After this digression, suggested by Mr. Judd's interesting hint on the difference in merit between *ideas* and their elaboration, we must return to and consider the general plan of the book. Chapter II. gives the early history of the idea of evolution and points out what is sometimes forgotten, that there have never been more than two theories as to the origin of species, namely the fashioning of species out of dead matter, or their descent with modification from pre-existing forms (p. 14). Mr. Judd here makes a striking point by quoting Milton's lines, "The earth obey'd, and straight, innumerable living creatures . . . opening her fertile womb, teem'd at a birth." And he asks which of these two sons of Christ's College, Milton or Darwin, had the grander view of creation?

Chapters III., IV., and V. give a vivid account of the "development of the idea of evolution in the inorganic world," the "triumph of catastrophism over evolution," and the "revolt of St. Roche and Lyell against catastrophism." At the beginning of the last century the early pioneers of evolution in the inorganic world—Generelli, Desmarest, and Hutton—having utterly failed in their efforts to convince the world, evolutionary ideas were almost universally discredited; so that the leading geologists were almost without exception firm adherents of catastrophism. The world is familiar with Lyell's rôle as the destroyer of this doctrine, but we doubt whether the non-geological reader is prepared for the important position assigned to St. Roche. Yet Mr. Judd makes good a case in his favour.

Chapters VI. and VII. are given to the influence of Lyell's works. Lyell's education at Oxford was purely catastrophist, Buckland teaching him that "all the superficial deposits

* *The Story of the Great Revolution in Science*, by John W. Judd, C.B., F.L.D., F.R.S., formerly Professor of Geology and Dean of the Royal College of Science, (Cambridge: The University Press.) 1910, 1s. net.
† *Life and Letters of C. Darwin*, ii., p. 190.

of the globe were the result of the Noachian deluge" (p. 46). Lyell found, in his own observations, an antidote to such instruction. For instance, in his work on certain shallow lakes in Forfarshire which were being drained and quarried, he discovered, under peat containing an ancient dug-out canoe, calcareous deposits passing into solid crystalline rock. He found evidence, too, for continuity in the action of the sea along the English coasts, and, speaking generally, it seems clear that he worked out his own salvation independently of earlier observers such as Hutton. From the last-named geologist he did indeed learn something, namely, the necessity of avoiding the *odium theologicum*, and the advantage of writing in a clear and attractive style. But in these things Hutton was a warning, not a model.

Lyell had great admiration for Gibbon, and according to Mr. Judd it is not improbable that he learned from him "that a frontal attack on a fortress is much less likely to succeed than one of sap and mine." We find an

having produced a revolution in natural science." Nothing can be stronger than Mr. Judd's views on this point, "Were I to assert that if *The Principles of Geology* had not been written, we should never have had *The Origin of Species* I think I should not be going too far; at all events, I can safely assert, from several conversations I had with Darwin, that he would have most unhesitatingly agreed in that opinion" (p. 73). In Mr. Judd's article on Darwin and geology (*Darwin and Modern Science*, 1909, p. 353) he published some interesting and original speculations as to the time at which Darwin began to be an evolutionist. He makes a point of the fact that the second volume of Lyell's principles, in which organic evolution is discussed, reached Darwin in November, 1832, at a time when his recent knowledge of the great fossil bones and his general experience of South American zoology were beckoning him towards evolution. Mr. Judd goes so far as to say that "we may confidently fix upon November, 1832, as the date at which Darwin commenced

ing the seven years that elapsed after the death of Lyell, I saw Darwin from time to time, for he loved to hear 'what was doing' in his favourite science. On board the "Beagle," before he had met the man whose life and work were to be so closely linked with his own, he was in the habit of specially treasuring up any "facts that would interest Mr. Lyell"; in middle life he declared that "when seeing a thing never seen by Lyell, one yet saw it partially through his eyes"; and never, I think, did we meet after the friend was gone, without the oft-repeated query, 'what would Lyell have said to that?'"

This picture of the lifelong influence of Lyell on Darwin might have fitly closed our remarks on Mr. Judd's study of the two great masters of evolution. But we must allow ourselves one more quotation from Mr. Judd's final page. He points out that all the world is now in agreement with Darwin's words:—"I believe that I have acted rightly in steadily following and devoting myself to science," and continues:—"For has not that devotion resulted in a complete reform of the natural history sciences! The doctrine of the 'immutability of species'—like that of 'catastrophism' in the inorganic world—has been eliminated from the biological sciences by Darwin, through his *steadily following* the clues found by him during his South American travels, and continuity is now as much the accepted creed of botanists and zoologists as it is of geologists." *Francis Darwin.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM CHARLES SLADDIN.

This pretty hybrid (see fig 25) was raised from a cross between *C. glaucophyllum* and *C. bellatulum*, and is the first hybrid of *glaucophyllum* to obtain an Award of Merit. The flowers are rounded, being superior in this respect to any of the *C. Chamberlainianum* crosses, although *C. glaucophyllum* is a close ally. The ground is white; both the petals and dorsal sepal are marked with claret colour, and a suffusion of rose extends between the veining. The spotting of the lip is a claret purple colour. It is one of Messrs. Sander & Sons' novelties.

CALANTHE VEITCHII.

Mr. B. GOODACRE has forwarded a photograph of a group of *Calanthe Veitchii* flowering in the Orchid houses at Moulton Paddocks Gardens, Newmarket. The number of flowers on the individual spikes range from 60 to 75. Mr. Goodacre states that the spike of 75 flowers is the best inflorescence of this Orchid grown at Moulton Paddocks.

CYPRIPEDIUM MISS ALICE WALLACE.

A FLOWER of this very beautiful *Cypridium* is sent by Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), who states that the parentage is *C. Prospero majus* × *C. Sallieri* *Hycanum*. Therefore, the parental proportions in the new hybrid are *C. insigne* 2, *C. Spicerianum* 1, and *C. villosum* 1. As a flower it is in the same class as *C. Rossetti*, *C. Eve*, *C. aureum* *Surprise*, and *C. insigne* *Sanderæ*, the snow-white of the upper two-thirds of the dorsal sepal being even clearer than in *C. insigne* *Sanderæ*. The basal third of the dorsal sepal is emerald-green with a dozen or so small dark spots. The petals are nearest to *C. villosum* *aureum* and over an inch in width, pale yellowish-green veined with light green. The broad lip and staminate are chrome yellow, the lip having a faint greenish veining and a slight trace of sepia brown.

"THE ORCHID WORLD."

THE January number of this new publication has a most exhaustive and well-illustrated account of the *Cochliodas* by Mr. de Barri Crawshaw. A good portrait of Monsieur Firmin Lambeau is given, and some account of his fine collection of Orchids.

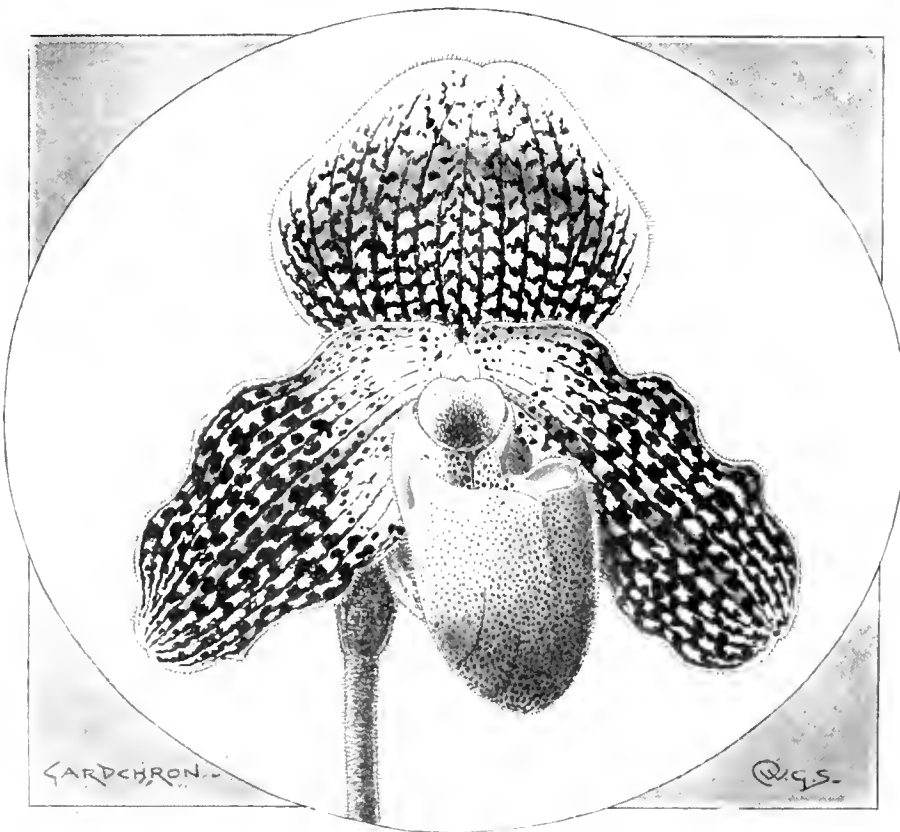


FIG. 25.—CYPRIPEDIUM "CHARLES SLADDIN."

(The first hybrid of *C. glaucophyllum* to obtain an Award of Merit.)

echo of the "sap and mine" method in 1863, when Darwin wrote to Lyell protesting against the half-hearted way in which the pedigree of the human race was treated in the *Antiquity of Man*; Lyell characteristically replied, "You ought to be satisfied, as I shall bring hundreds towards you who, if I had treated the matter more dogmatically, would have rebelled."

The interest of Chapter VII. lies in Mr. Judd's convincing argument in favour of the greatness of Lyell's influence on the progress of organic evolution. When Darwin started on the voyage of the "Beagle," which was to be his school in matters scientific, his Cambridge friend and teacher, Henslow, told him to read Vol. I. of *The Principles of Geology*, but not to be misled by it, since it was "altogether wild as far as theory goes." Darwin, however, at once discovered the value of Lyell's theories, and his mature judgment is given in *The Origin of Species*, where he spoke of "Lyell's grand work on the principles of geology, which the future historian will recognise as

that long series of observations and reasonings which eventually culminated in the preparation of *The Origin of Species*. In the present work (p. 103) Judd puts it less strongly, "I think there can be no doubt that from this time Darwin came to regard the question of species with an interest he had never felt before."

The writer of this notice is inclined to lay more weight on the latter part of the "Beagle" voyage in regard to the "new light" that was rising in Darwin's mind. In this he relies especially on Darwin's statement written in 1837 that it was especially (though not exclusively) the study of the Galapagos archipelago in 1835 that led him to evolution. It will be seen that both the above opinions are opposed to Huxley's view that it was not till the voyage was over that the materials and experience of Darwin's five years' work produced an essential evolutionary trend in his thoughts.

In an interesting passage at the end of his book (p. 157) Mr. Judd shows how enduring was the influence of Lyell on Darwin: "Dur-

APPLES IN DORSET.

HINTS TO SMALL GROWERS.

(Concluded from p. 31.)

THE poor price for cider Apples has necessitated the ordinary fallings being carefully collected and graded, and only badly bruised and very small ones were allowed to accumulate with those cider fruits in the heaps. Most of the cider varieties have been tested as to their cooking qualities, and not a few have been found to be usable if mixed with ordinary ones, especially if kept a while previously, when many of them mellow appreciably. To resume: all are gathered as soon as ever the fruit permits, thereby saving many bushels

of a hundredweight to those of a modest peck. There are various ways of making known that one has produce to dispose of beyond one's own neighbourhood, and, with fair luck, one is able to send these Apples at not excessive rates to London and near counties, where they realise better prices than those obtainable at home, seeing that locally the merits of your Dumelow's Seedling (Wellington) and Northern Greening, or even Blenheim Pippin, are but little understood, or confused with the crowd, for in the country oftentimes an Apple is but an Apple. Of course, there are exceptions, but these are usually from pure fancy or even misplaced prejudice. Several very inferior varieties, as modern ideas deem them, have been known to obtain

In a dear year, people will often be glad of faulty Apples, which, especially of early kinds, will do to cut up at once. For such they will pay a comparatively low price rather than give 3d. and 4d. per lb. for what, in an ordinary season, they can get for 1d. or 2d. 1 class under this heading fruits penetrated by maggots, misshapen and slightly bruised, but not decaying Apples. Small Apples, too, are sometimes put up with, and, like the former, well got rid of; indeed, the speedier the better. Never, under any consideration, should undersized fruits be allowed to go in the ordinary way; they spoil the sample, and give dissatisfaction out of all proportion to their insignificant number or relative weight. Another point is to make a speciality of large



FIG. 26.—OLEARIA FORSTII.
(See p. 52.)

which would otherwise be blown off by the gales and lose two-thirds of their value. Names, if not already known, are carefully ascertained, and the various sorts are systematically laid on straw in a warm shed or cool room, and labelled. A certain amount of grading is at once carried out, and consideration is specially taken of early, mid season, and late varieties, both as to dessert and cooking sorts. From time to time, of course, all lots are carefully examined and decaying fruits discarded. Determined not to depend on local prices a few seasons back, some two dozen different-sized hampers were purchased, the sizes varying from those with the capacity

curiously-inflated prices. Colour often seems the talisman. Thus old-fashioned Tom Putt always seems popular, and, as I think, rightly, seeing that it is an excellent, juicy cooker, whilst in flavour and attractive rich-red colouring it is sufficiently good for the dessert table. Little hard, golden Wylen Pippin, with its crisp, aromatic flavour, will fetch more money in its own district in Warwickshire than probably any other variety in the orchard. The carrier, who was also the dealer, always made a point of bespeaking all my orchard produce, invariably hinting that we should not quarrel as to price. Down here the variety would be little esteemed.

fruits for baking. Many trees produce a few abnormally large ones, whilst some varieties bear them as the rule and not as the exception. There is no more occasion to give these in with the order than there is to include undersized fruits; the great thing being to have each sample of uniform grade. These extra-big fellows, then, should be marketable at a really high price, for, where brought before customers, there is an astonishing keenness for them for baking separately, either in the ordinary way, or with a crust of paste enclosing them. Apples which lend themselves to this purpose are several of the Codlin tribe. Annie Elizabeth, Warner's

King, Beauty of Kent, Bramley's Seedling, Gloria Mundi, and Mère de Ménage, while Norfolk Beefing, Peasgood's Nonesuch, and Yorkshire Beauty, with many others, all of which produce, if not exclusively, yet mainly, Apples of considerable size.

Farmers in general (and many gardeners who ought to know better, even if the fruit is not grown for a profit) know very little about the names of their Apples, and may thus easily be defrauding themselves by selling choice fruit, such as Irish Peach, to instance an eating Apple, or several which are practically equal to Cox's Orange Pippin in profit-bringing properties, to wit, old-fashioned Margil, Cockle Pippin, and the modern Houblon, as ordinary Apples at poor local rates, while such splendid late keepers as Winter Quoining or Chelmsford Wonder may all go the same unprofitable way. In any case, it is exceedingly easy to be mistaken, or to be, so to speak, entertaining an angel unawares. Thus, recently I gathered a fair-sized crop of a distinctive-looking Apple, but which was also almost universally scabbed. Not having gathered from the tree before, I sent a sample to an expert to be

OLEARIAS IN IRELAND.

THE Olearias are evergreen shrubs, or small trees closely allied to the shrubby Asters, and are sometimes called Daisy bushes. The genus numbers about 100 species, 35 of which are endemic to New Zealand and the Chatham Islands, the remainder being confined to Australia, Tasmania, and Lord Howe's Island. Unfortunately, they are not generally hardy; even *Olearia Haastii* cannot be justly called hardy in districts further north than the Midland counties of England. Last winter a group of fine specimens, each about 7 feet high, was killed to the ground-level at Edinburgh, although some younger plants near to them escaped injury. The mild climate of Ireland suits many of the Olearias, and the visitor in May is usually delighted with *Olearia stellulata*, bushes of which are to be seen throughout the southern counties, 8 feet and more than this in diameter, and just one mass of white flowers. It is followed, in June, by *Olearia macrodonta*, which forms bushes 8 feet to 10 feet high, more in diameter, and loaded yearly with flowers. *Feta*, the residence of Lord Barrymore, can probably claim the largest specimen in the country. It is 10 feet high by 12 feet through. The freedom

good size: the sweet-smelling wood is used for cabinet work. The leaves are handsome and musk-scented, about 4 to 6 inches long, light green above and silvery beneath. At Glasnevin, it lives against a wall, but during a severe winter is killed to the ground-level, shooting up again in the spring. At Howth, where it flowers annually, it is planted in a dry corner formed by two walls. The flowers are small, yellowish, and produced in large hanging clusters.

O. AVICENNIFOLIA was imported last year from New Zealand, and flowered freely in September. The flowers, which are borne in large erect clusters, are small and white, but not showy. The leaves are like those of the stove *Avicennia* in shape, green above, but with a beautiful fawn-coloured under-surface, and about 3 inches long.

O. CHATHAMICA is a very distinct species, said to grow 3 to 6 feet high. At Glasnevin, against a wall, it passed through last winter with slight damage. The leaves are 3 inches long, broader than *O. angustifolia*, glossy-green above, and the under-surfaces of leaf, stalk, and branches are covered with a dense, white tomentum. This species flowered at Glasnevin in June. The flowers are an inch or more across, almost bluish, with a purplish disc. For the southern counties *O. chathamica* is very promising; it is to be hoped it will soon become more plentiful.

O. FORSTERI (see fig. 26), a handsome evergreen shrub fairly common in Dublin gardens, is a quick grower, and forms an erect bush about 6 to 8 feet high. The leaf has a beautifully waved margin, and is whitish on the under-surface. The flowers, sparingly produced in late autumn, are inconspicuous but fragrant.

O. FURFURACEA (syn. *ferruginea*) makes a bushy plant, with clusters of small, white flowers by no means effective. Last winter this shrub was severely cut by frost, whereas *O. Forsteri* escaped without injury.

O. HAASTII (see fig. 27) is the commonest of all, yet one of the most useful species, its tough, Box-like leaves making it a most serviceable evergreen for towns, and a really first-rate seaside shrub, for it will stand in exposed places within reach of the salt water spray. It will endure a fair amount of shade, and makes a well-shaped specimen without any trimming. Though a moderate grower, yet in time it will cover a large space. At Castlewellan, one specimen was about 16 feet through. Though not so beautiful as some of the species, yet its profusion of blossom in August is a welcome sight.

O. ILICIFOLIA.—This species has been confused with *O. macrodonta*, but is quite distinct. The leaf of the true *O. ilicifolia* is 2 to 3 inches long, lance shaped, about half the width of *O. macrodonta*, not rounded at the base, and the veins run at right-angles to the mid-rib. Both have the same musky fragrance, and the leaves are whitish underneath.

O. INSIGNIS (see fig. 28) stands out as the most remarkable plant in the genus. The photograph shows a specimen, which is probably the finest in Great Britain, growing in Mr. Gumbleton's garden at Belgrove, Queenstown, where it flowers freely every year. The plant measures 2 feet 4 inches in height by 2 feet 6 inches in breadth. At Glasnevin, it usually flowers against a wall, but needs protection in winter. It is a native of the Middle Island, New Zealand, where it grows at a great elevation in the crevices of dry, shaly rocks. The leaves, exceedingly thick and leathery, are about 6 inches by 4 inches. When young, the whole leaf is covered with a thick, white down; but this disappears from the upper surface, which then appears glossy-green. The flowers are solitary, borne on 10-inch peduncles, as thick as a goose quill, covered with down, and each flower measures about 2 to 3 inches in diameter, and has white ray florets, with a yellow disc.

O. LACUNOSA is very curious and distinct. Its long, narrow leaves stand out at right-angles to

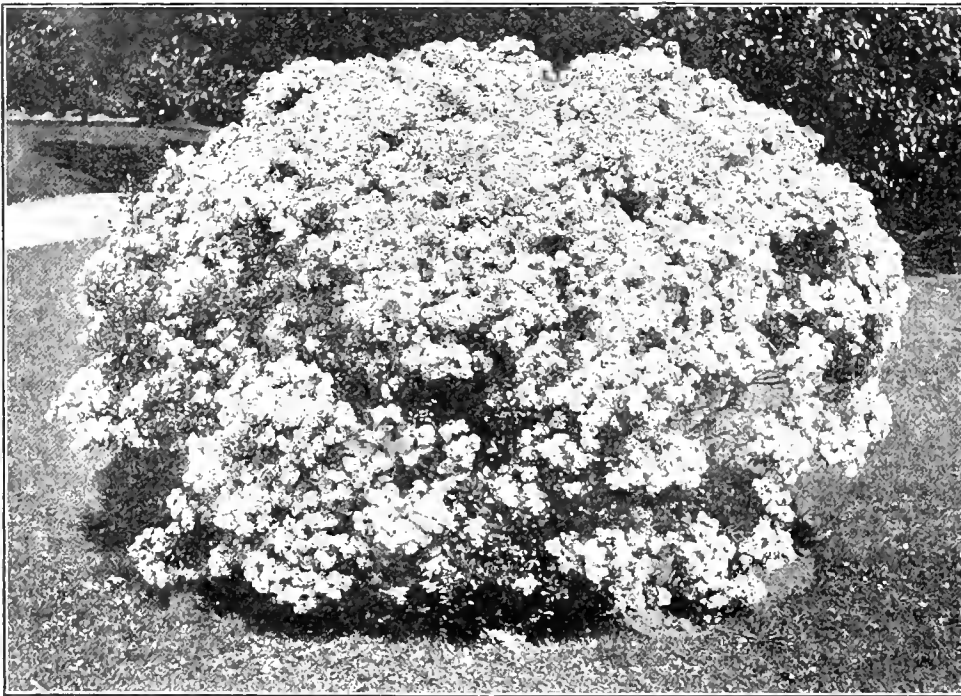


FIG. 27.—OLEARIA HAASTII.

named. What was my surprise to find it to be "Wellington," and quite unmistakable on comparing it with another lot of Wellingtons I happened to possess, though the latter was a far more normal and satisfactory crop.

My last suggestion is against very late keeping varieties. It may not be generally known that Apples lose enormously in weight as time goes on. Unless they are extremely carefully housed, moreover (and even despite of it), there is usually great loss, and very frequent looking over is necessary, while I doubt if after March people care much about Apples either for cooking or dessert. The winter is over, people are tired of the staple, dead-season stand-by, Oranges are plentiful and sweet, Bananas are within everyone's reach and almost a drug in the market, and forced Rhubarb is selling at a very reasonable rate, while one's thoughts begin to turn to Gooseberries with their foretaste of spring and summer. In conclusion, I may ask why people do not utilise the Orange in tarts and puddings? It is excellent for the purpose and very cheap. *T. A. Carnegie Cheals.*

and continuity of flowering make these Olearias of the greatest value for Irish gardens.

These shrubs seem to prefer a fairly light, dry and well-drained soil. In the colder localities, some succeed as wall shrubs. As a rule, good seed is only sparingly produced in this country, but nearly all the species root very freely from cuttings in pots of sandy soil in cold frames; those having very downy stems take longer, and are more difficult to root. Twenty-seven species of Olearias are in cultivation at Glasnevin, 20 of which are native of New Zealand. Unless otherwise noted, the following come from New Zealand. For some of the rarer species the garden is indebted to the generosity of Captain Dorrien-Smith; others have been purchased and imported through Mr. H. Travers, of Wellington.

O. ANGUSTIFOLIA has not yet been tried in the open. The stalkless leaves are 3 to 5 inches long, narrow, and pointed, stiff in texture and spiny on the margin.

O. ARGOPHYLLA is a native of Australia, where it is known as the Musk Wood, and grows to a

the stem, reminding one of the habit of *Pseudopanax crassifolium*. The leaves are 6 to 7 inches long, and only three-quarters of an inch wide; they are green, with a yellow mid-rib, and reticulated above, downy underneath, with strong, lateral veins at right-angles to the mid-rib. Its hardiness has not been tested here.

O. LYALLII is a very rare and striking plant, specimens of which have been presented by Captain Dorrien-Smith to Glasnevin. It is said to have large, dark-brown flowers, and to grow 3 feet high. The leaves are handsome, from 4 to 6 inches long, ovate in shape, clothed when young with dense, white, woolly hairs, becoming glabrous when old. A variety of *O. Lyallii* collected by Captain Dorrien-Smith in Stewart Island is making free growth. It differs from the type in having smaller leaves, which are not covered so densely by whitish hairs.

O. MACRODONTA (see fig. 29) is second to *O. Haastii* in hardiness, but second to none in beauty. The leaves are Holly-like, and the plant bears freely large, flat corymbs of white flowers, with deeper centres. In old specimens, the thin outer bark peels off and hangs from the branches like tattered rags. The photograph (fig. 29) shows *O. macrodonta*, about 6 feet high, at Glasnevin, where it has been

O. NUMMULARIFOLIA is a rigid, erect, little bush, with white, starry flowers which appear about July. The leaves are only $\frac{1}{4}$ inch long, very thick and leathery, crowded on the shoots, green above, and whitish below, with the margins recurved. The young growths are sticky and golden. It is a very distinct evergreen, and, owing to its very slow growth, it makes a good rockery shrub. Frost has not injured it at Glasnevin, although last winter 23° were registered here. It is well worth trying in other places.

O. OLEIFOLIA is something like a large *O. Haastii* in flower and habit, and flowers about the same time, or a little later. The leaves are narrow, about 2 or 3 inches long. It passed through last winter at Glasnevin without any protection.

O. PANNOSA is an Australian species, with thick, ovate leaves, 2 inches long, covered on the underside with a thick, dense tomentum. It is hardy in Wicklow and the south, but is not a showy shrub.

O. RAMULOSA is also a native of Australia, without much claim to hardiness, for it is killed outright in Co. Wicklow. At Glasnevin, it is grown as a pot plant, and makes a very pretty subject. The leaves are very small, only $\frac{1}{8}$ inch

ter reduced it to less than half that height. With Mr. Gumbleton, it reached 25 feet before being cut down by a severe winter. It is easily recognised, for the young branches are square and are covered by a silvery tomentum. The leaves are opposite, 2 to 2½ inches long, and broadly ovate, bright green above, and beautifully silvery underneath. Axillary panicles of flowers are borne, but they are not showy.

O. VIRGATA has not been tried in the open at Glasnevin, but it is not a striking plant. It has linear leaves, in opposite fascicles, with small and dull flowers.

Other species in cultivation at Glasnevin, but which have not flowered nor have been tried in the open, are:—*O. Buchananii*, *O. Cunninghamii*, and *O. lyrata*. *O. lyrata* is tender, but lives and flowers in the open with Dr. Heard in Co. Kerry. *O. odorata* is grown by Sir John Ross, of Bladensburg, at Rostrevor, in Co. Down. It is related to *O. virgata*, but differs in having cylindrical branchlets, with larger and broader leaves. *C. F. Ball, Glasnevin Botanic Gardens, Dublin.*

CULTURAL MEMORANDA.

RHUBARB FORCING BY AMATEURS.

ONE so often sees unsuccessful, or partially successful, attempts to produce early Rhubarb in small gardens that perhaps an account of a method that has proved satisfactory for many years may not be out of place.

Strong clumps are selected and lifted, and most of the soil is carefully removed from them with a pointed stick. They are then left on the surface of the ground for a week or 10 days to dry, and, if the weather is favourable, to be well frozen through. The freezing is important, as the frost has the effect of making all the crowns start into growth simultaneously as soon as they are placed in heat, just as with "retarded crowns of Lily of the Valley." The failures from several crowns refusing to start into growth at once may be traced to neglect of this precaution.

After exposure, the roots are placed closely together, all interstices being firmly filled with soil or ashes. Being dependent on manure for obtaining heat, I make an oblong bed of the roots and enclose it in a framework of wooden battens. Wire netting is stretched round the sides, and sheets of corrugated iron placed over the top.

Straw from the stables, in a state of fermentation, is then placed round the outside, enclosing the whole in a wall of manure, firmly trodden, and from 15 inches to 18 inches thick. This manure keeps its heat for a long time. Rhubarb roots lifted in Christmas week will give a supply that will last until that from the open garden is available. Only just enough manure to keep the heat in is placed on the top, and this and the iron sheets can be easily removed to enable one to pull the Rhubarb.

As to watering, the roots should be kept rather on the dry side. A mild day should be chosen for watering (with tepid water), and the bed should be left open for an hour or two after the operation to allow superfluous moisture to evaporate. Rhubarb soon shows a lack of water by the absence of that crisp firmness essential to good quality.

The proper treatment of the roots after forcing is important. My theory is that a period of rest is beneficial, and I leave the roots *in situ* where they were forced (the manure being removed), and plant them out in summer or early autumn. They are allowed one year's growth in the open ground before they are forced again. If the roots have not been over-forced they soon recover, but excessive forcing is a mistake.

The practice of forcing the roots without lifting them results in failure, the benefits of the retarding being missed, and often, through the lack of a proper system of rotation, the same roots are forced for two years in succession. *Harold Evans, Llanishen, Cardiff.*



FIG. 28.—OLEARIA INSIGNIS IN MR. GUMBLETON'S GARDEN, BELGROVE, CO. CORK.

(See p. 52)

rather overcrowded in a shrubbery. A curious dwarf shrub, known as *O. macrodonta minor*, has been distributed from Mr. Hart's garden at Howth. Its origin is unknown, but it has been there many years on the rockery, and is still only 2 feet high, forming a dense, compact, little bush, just like a miniature *O. macrodonta*, but up to the present it has not flowered.

O. MOSCHATA makes a small, whitish leaved shrub, with small flowers. Near the sea at Clontarf, it forms a compact bush 2 to 3 feet high, with a strong, musky fragrance.

O. MYRSINOIDES (see fig. 30) is an Australian species, with small, spiny leaves, and a rather straggling habit. At Glasnevin, it is grown as a wall shrub, but in the south of Ireland it makes an ornamental bush, with long sprays of small, white flowers. By some nurserymen, this plant is still known as *O. ilicifolia*.

O. NITIDA has ovate leaves, silvery underneath. At Glasnevin, it is not a great success, but further south it is one of the most beautiful summer-flowering shrubs. It is quick-growing and free-blooming when happy. The flowers are produced in clusters, white, with yellow disc.

in length, and the white flowers are produced on spray like branches.

O. SOLANDRI is an erect, much-branched shrub, hardy with Mr. Beamish near Queenstown, and said to grow from 5 to 15 feet high in New Zealand. At Glasnevin, it has not been tested out-of-doors, but is a twiggy and rather pretty little bush, with dark stems, and light green opposite leaves, about $\frac{1}{2}$ inch long, lanceolate obovate in shape.

O. STELLULATA is a native of Australia. It is the *O. Gunniana* of Hooker, and of gardens. The true *O. Gunniana* is said to have smaller flowers, is later in flowering and less hardy. *O. stellulata* is often called the Daisy Bush, and sometimes the flowers are produced in such profusion that the foliage is hidden. Large bushes are fairly common in the south. In the colder counties, it makes a beautiful wall shrub, or a good pot plant for a cold house. *O. stellulata macrocephala* has larger flowers and leaves, but does not flower quite so freely as the type.

O. TRAVERSII, in New Zealand, grows into a small tree about 30 feet high. At Glasnevin, it makes an ornamental evergreen about 10 feet high, but is rather tender. The last severe win-

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CYPRIPEDIUM.—The late autumn and winter-flowering *Cypripediums* are not only valuable from a decorative point of view, but they may be cultivated with comparatively little trouble. Another advantage is that the plants occupy a small space, and yet produce a wealth of bloom. They include *C. insigne*, together with its numerous varieties; *C. Charlesworthii*, *C. Fairreanum*, *C. Spicerianum*, *C. villosum*, *C. Boxallii*, and the numerous hybrids raised from these species. The plants do best in what may be termed a cool, intermediate temperature, although they can be grown successfully in an ordinary greenhouse, where a temperature of not less than 45° is maintained in winter. They will need great care in watering during winter, and shade must be afforded them during bright sunshine at other seasons.

WARM-HOUSE CYPRIPEDIUMS.—To this class belong the spring and early-summer flowering plants. Such species as *C. Stonei*, *C. Rothschildianum*, *C. Curtisii*, and *C. Sanderianum* should be placed in the warmest division of the house, whilst *C. Lawrenceanum*, *C. barbatum*, *C. superbiens*, and *C. callosum* with their hybrids grow best in an intermediate temperature. The flower-buds of many of these plants will appear shortly. These *Cypripediums* are, as a class, less susceptible to injury from excessive moisture than most other Orchids, and this refers especially to those with tessellated foliage, even at the stage when the flower-spikes are partially enclosed in the centre leaves. But it will be well in affording water at this season to take care that the moisture does not lodge in the crown of the plants, for I have known cases of specimens rotting from this cause. Any water that lodges in this way should be removed as soon as possible.

REPOTTING OPERATIONS.—Any specimens that have finished flowering should be examined to see if repotting or fresh rooting material is necessary. If large specimens are required, select plants that are root-bound, and afford them a liberal shift, as the majority of these *Cypripediums* form roots freely. The quantity of materials used for drainage need not be excessive; a layer of about an inch in depth will suffice, provided the crocks are carefully arranged and covered with pieces of turf to prevent the finer particles of soil getting into them. In potting, keep the base of the plant a little below the rim of the pot, working the materials firmly amongst the roots. A suitable compost consists of good fibrous loam one-third, turfy peat or *Osmunda* fibre one-third, and the remainder of leaf-soil and *Sphagnum*-moss in equal parts, adding a good sprinkling of coarse silver sand and small pieces of crock. The materials should be well mixed together, and employed in a fairly moist condition, so that no water will be necessary for a few days after potting, when the plants may receive a good soaking. After this initial watering great care must be exercised in applying moisture to the roots, but when the new roots ramify in the soil copious supplies of water may be afforded them.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

THE VINERIES.—Any bunches of late Grapes that may still be hanging on the vines should be cut and placed in the Grape or store room, with their stalks immersed in water. Before doing this, examine the berries carefully, and remove any that show signs of decay. I find the bottle, invented by Mr. Bullock, of Coppell Hall Gardens, valuable for the purpose. Complete the cleansing and pruning of the vines, and, when the roof has been cleaned down, tie the rods in their permanent positions. The borders may then be carefully tidied and very lightly forked over, but care must be taken not to damage the small, fibrous roots near the surface. Apply a good sprinkling of wood ashes and bonemeal, and

over these materials a layer of chopped loam or turves that have been stacked for some time.

EARLY VINERY.—The rods which have been bent down to encourage them to break evenly, and also to facilitate the use of the syringe, should be released carefully before the growths get too large, and tied in their proper positions. Continue to syringe the rods and growths with tepid water whenever the weather is bright. Ventilating must be done with discretion, for whilst a circulation of fresh air is required to prevent a stagnant atmosphere, and also to promote a sturdy growth, cold draughts are harmful.

LATE FRUIT HOUSES.—The trees and vines should be kept as dormant as possible. Admit an abundance of fresh air, and, in the event of a frosty night, circulate a little warmth in the hot-water pipes.

SUCCESSIONAL PEACHES.—Peach trees in mid-season and late houses and those in unheated "cases" should now be got ready for starting when the time arrives. The first thing to do is to cleanse the houses and trees according to directions already given. Cut away the ties and remove the trees from the trellis, then prune the trees neatly and well with the aid of a sharp knife, cutting away all superfluous growths and retaining as many of the shoots formed last season as are required. Avoid overcrowding, and endeavour to clothe the tree as evenly as possible with the new shoots, leaving plenty toward the base. Train the growths as neatly as possible, first laying in the older wood, so that the branches radiate evenly, and filling in the smaller wood accordingly. Where the wires are some considerable distance apart, it is sometimes a difficult matter to keep the shoots perfectly straight; in that case it is necessary to take a neatly-twisted strand of raffia at right angles, and then secure the shoots with another tie. The borders should be given a good soaking with clear water on showing signs of dryness; this does much to prevent the buds dropping when started. Give a top-dressing of chopped loam, which should be free from any live growth, and to which has been added a good sprinkling of wood ashes and lime rubble. Apply a mulching of manure over the loam, either of horse droppings or well-decayed farmyard manure.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

VIOLETS IN FRAMES.—Ventilate the frames containing Violets on every favourable occasion, but do not expose the plants to keen winds. Even in dull, damp weather a little air is desirable. If the clumps are planted somewhat closely together, or if a liberal amount of foliage has been made, take care to remove any which show the least signs of damping. On a favourable day the lights may be removed and the plants examined, taking the opportunity thus afforded to stir the surface of the soil. For covering Violet frames in frosty weather, waterproof sheets are better than mats. When severe frosts occur the sides of the frames, if of wood, should be banked up with leaves.

SOILS.—At this season of the year it is good practice to secure a plentiful supply of the various soil ingredients in readiness for potting purposes. Loam becomes too dry if kept under cover for a considerable length of time, therefore it is a good plan to have the major part exposed to the air out-of-doors, and to bring instalments indoors some little time before they are needed for use. Take means to ascertain whether there is wireworm or caterpillar in the loam, in which case it may be necessary to sterilise the material. Two kinds of loam will be found useful, first a soft, silky loam, somewhat of a sandy nature, and, secondly, a loam of heavier consistency; in both cases the loam should be tough and fibrous in character. The silky loam will suit plants having a delicate root-system, such as *Dipladynias*, whilst the stronger loam will suit plants which root more freely, such as the *Allamanda*. Leaf-mould should be prepared from the fallen leaves of Oak and Beech trees, and kept as free as possible from the dead leaves that have fallen from evergreens. The best leaf-mould for general purposes will be that which was formed from leaves in 1909. Silver sand should always be stored in a dry place. The peat should be of two distinct qualities, one

possessing a tough fibrous character yet somewhat soft to handle, and the other of a harder nature. The tough, fibrous peat will suit most stove plants, whilst the harder material is better for such plants as *Rhododendrons* (including *Azaleas*), *Heaths* and *Epacrises*. The softer peat is usually cut in thicker layers than the harder sort. There should not be much waste in the softer peat, but the harder peat may contain some waste on the under side, where the soil contains no fibre, and is unsuitable for pot plants. Lime rubble and old mortar rubbish (not cement) are useful for mixing in various composts. Charcoal is an excellent absorbent and of great value for certain hard-wooded plants. A small stock of *Sphagnum*-moss will be necessary for *Allocaσίας*, *Anthuriums*, and similar plants.

FLOWER-POTS. Examine the store of flower-pots, see that all in stock are cleansed thoroughly and that they are drained with clean crocks. Pots should be stored in a dry place. Additions have to be made in most seasons to the stock of flower-pots, and the order for these should be despatched as soon as convenient.

THE FRENCH GARDEN.

By PAUL AQUATIUS.

HOTBEDS.—The hotbeds should be completed by the end of January. Those that are formed last are utilised for growing Radishes and Lettuces. Their full value will be found later, after the Lettuces have been gathered early in March, as they are then available for forcing early Turnips, which prove a very remunerative crop. Newly-formed hotbeds are not to be recommended for forcing Turnips early in the year, as the plants make excessive foliage at the expense of the roots. The Radishes and Lettuces sown on the first hotbeds have appeared above the ground, and it will be necessary to place linings of fresh manure to the frames in order to keep up the required temperature. Short and well-broken manure is used for lining the outside of the frames; it is placed in position with a fork and afterwards made firm and even by means of a shovel. In the paths between the frames, long and dry manure only is employed. If no long manure is available, good results may be obtained by mixing some straw with short manure. In any case, it is essential to use the material in a dry condition, as the moisture that percolates from the frames would cause the materials, through constant treading, to form a soft and disagreeable path for the workman. The manure is carried in baskets and placed on the top of the lights that have been previously covered with mats to protect the glass, it is then arranged by the hand until it is level in the path with the frames.

FRAMES WITHOUT HOTBEDS.—All these frames have been planted with Lettuces. A thin layer of straw or old hay is placed between the rows of frames to facilitate walking. This may appear a small detail, but it is very necessary, as it means a saving of labour. The Easter supply of salad will, this year, be entirely dependent on the Lettuces grown in the cold frames, and it will be necessary to afford the plants every care, as Easter is a somewhat early date for this crop. A portion of the ground intended for unheated cloches should be marked out in beds, each 4 feet 6 inches wide, allowing a path of 1 foot between each bed. The cloches are sown with National Radish, which is a larger variety than the round variety, French Breakfast. Cloches are placed in three rows on each bed, and as soon as the soil is in a proper condition, three plants of Passion Lettuce will be set under each bell-glass.

NURSERY BEDS.—Young Lettuces still in their winter quarters must be given ample ventilation during both day and night, in order to prevent a spindly and soft growth. Cauliflowers planted in frames are growing actively, and will need plenty of fresh air. If this batch of Cauliflower has proved unsuccessful, a few Cauliflower seeds may be inserted on the hotbed instead of the Radishes. It will be necessary to prick out the plants late in February, and suitable room should be arranged for them. If these late-sown plants receive proper attention, they will be sufficiently strong for planting in their final quarters late in March.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

ORCHARD FRUIT TREES.—These may be planted during open weather. Place a stake to each tree and apply a mulch immediately afterwards, not necessarily of manure, but of litter, or any suitable material that may be at hand; the object being to prevent frost from penetrating too deeply into the soil. In very exposed situations it may be desirable to cover the stems of recently-planted standard trees with haybands; the trees will not suffer so much from extremes of heat and cold during the season, and the coverings, if kept in a moist condition during the earlier months of the year, will very materially aid the trees when starting into growth, by preventing the too rapid evaporation of moisture from the tissues of the stem.

RASPBERRIES.—The canes will require but little pruning, or thinning, if they were properly cared for during the autumn. New plantations may be made, growing them, as fancy, or circumstances may dictate, either in groups fastened to stakes, or in rows trained to wires. The ground should be but lightly forked over—or, better still, if circumstances allow—hand-cleaned, afterwards giving the surface a good dressing of half-decayed manure. As a rule, Raspberries will continue in a good bearing condition for many years, but it is advisable to keep a supply of healthy young plantations, by planting a number of canes each year and destroying a corresponding number of old plants. Hornet, Perfection, Baumforth's Seedling, Fastolf, Northumberland Fillbasket, and Superlative are excellent red varieties for summer use. Of yellow-fruited kinds, Yellow Superlative and Yellow Antwerp are two of the best. Of autumn-bearing kinds, Queen Alexandra, November Abundance, and October Red may be recommended for districts favourable to their culture.

PEACH TREES.—In the cultivation of outdoor Peach trees in this country the essential point to always keep in view is that of getting the shoots to mature perfectly each season. There are many circumstances that may hinder the maturation of the wood. For example, young trees should never be planted in highly-manured or excessively-rich soil, which can have only the result of causing unduly strong growths. The effects of such planting may sometimes be seen in immature shoots with leaves affected with the blister fungus, whilst gumming and canker may be present in the shoots of the previous year. When planting young Peach trees, the first thing is to provide perfect drainage, unless this exists naturally, and the warmest aspect the garden affords, taking care that the soil, though good, is not over manured. Then in the matter of pruning it is desirable to prevent overcrowding of the shoots. Much of the thinning of young shoots should be done in autumn, when those which have borne fruits may be cut away. Assuming that this was done last autumn, the amount of pruning necessary at the present season is very little; but it should be so done that the growths which are retained may be trained at distances of 4 inches apart. In shortening the growths, cut them back to triple buds, thereby making sure that a growth bud will be included amongst them. The shoots should be so shortened that any ill-ripened portion is removed by the cutting, it being far better to have shoots only 8, or even 6, inches long than to retain more buds on immature wood. By way of explanation to the younger gardeners, it may be stated here that the difference between wood and blossom buds may be seen quite easily, the blossom buds being round and plump, whilst the growth buds are thin and pointed. Where triple buds occur, the wood bud is usually the centre bud. It is interesting to note that some growths develop fruit or blossom buds all the way to the end or terminal bud, which is generally a growth bud; in such cases, the shoots should not be cut at all. Other shoots, on the contrary, have wood buds only, and are useless so far as fruiting next year is concerned; these may be cut back to two or three buds from the base. Some varieties of Peaches are inclined to make growths more vigorous than is desirable, and unless some check is applied to them, they develop unfruitful wood; therefore, the strongest growths should be pinched back to three or four leaves. The young buds will soon start into growth and produce lateral shoots, which will often make good fruiting wood for the following season. In the

training of Peach trees, sufficient careful pruning should be done every year to allow the cultivator to select for training a considerable number of young shoots, and, occasionally, old or useless branches may be removed from the tree. Excessively strong wood should be cut clean away, for its removal will prove of service to the general condition of the tree. After the pruning, each tree should be cleansed carefully. Apply a dressing of some approved insecticide to the stem and main branches, well working in the mixture with a fairly stiff brush. A softer brush must be used, and with extreme care, on the young wood, or the buds may suffer irreparable damage. I do not favour making the mixture of the consistency of paint, but prefer to use a thin, clear dressing.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

THE BOG.—An artificial bog, however small, is a pleasing adjunct to the rockery. A bog facilitates the cultivation of a great variety of plants which, in many gardens, fail to grow elsewhere. In it may be planted such favourites as *Orchis foliosa*, moisture-loving Primulas, such as *P. pulverulenta*, *P. rosea*, *P. japonica*, *P. capitata*, *P. denticulata*, and *P. cashmeriana*; *Lilium pardalinum*, *Astilbe Davidii*, *A. grandis*, *A. rubella*, Japanese Hises (*Iris Kämpferi*), the Flowering Rush (*Butomus*), Water Plantain, Royal Fern (*Osmunda regalis*), Sweet Gale (*Myrica Gale*), Bogbean (*Menyanthes trifoliata*), *Saxifraga Andrewsii*, *S. hypnoides*, and *Myosotis*. After removing the surface rubbish of all kinds, a compost of decayed manure, leaf-soil and loam in equal proportions should be distributed evenly. Primula rosea and the Astilbes are examples of plants that push their crowns so far above the surface as to leave many roots exposed. Hence, supplies of fresh surfacing material is to these of paramount importance.

THE WILD GARDEN.—The wild garden occupies a similar position to the Wilderness of the early part of the 18th century. Here, too, something must be done before the advent of spring. Strong-growing plants, such as *Polygonum sachalinense*, *Bocconia cordata*, *B. microphylla*, *Helianthus "Miss Mollish," H. laciniata*, *Pyrethrum uliginosum* and *Aconitum autumnale*, which, once established, soon extend beyond reasonable bounds, must be checked. None is difficult to keep in order, provided there is an annual eradication of the trespassing growths. Though very handsome, the Cow Parsnip propagates itself so liberally from seeds that it ought hardly to be admitted. A simple way to keep it in check is to apply sulphuric acid to the crowns of the plants. Myrrhis odorata and some of the Thistle family also extend unduly, but at least the Globe Thistle and *Onopordon Acanthium* should be allowed a place. Superfluous seedlings of the *Onopordon* should be dug up, but it must be remembered that young plants are essential for flowering the succeeding year. Plants that may be introduced, if absent, are *Spiraea gigantea*, *S. Ulmaria fl. pl.*, *S. venusta*, Lily of the Valley, Solomon's Seal, *Rumex Patientia*, *Rosa alpina*, *R. rubiginosa*, *R. rugosa*, *Iris foetidissima* (for its seed pods), *I. sibirica*, *Scilla nutans* and its white variety, *Verbascum Thapsus*, Foxgloves (which sometimes need thinning), *Phytolacca decandra*, *Anchusa sempervirens*, *Lythrum Salicaria*, *Campanula latifolia* (this plant is apt to overrun its bounds), *Geranium sanguineum*, *G. pratense* and *Epilobium angustifolium* (the white-flowered form is much less addicted to spreading than the type). Primroses should be mixed with Cowslips, when old-fashioned Oxlips as well as seedlings of the species will be produced. *Antholyza paniculata*, Snowdrops and *Eranthis hyemalis* should not be overlooked, whilst *Scilla italica* does well in a shady position.

SEED-GROWING.—Seeds of East Lothian Stocks should be sown without delay. The number of varieties has been increased materially in recent years, the rose and mauve colours being important acquisitions. The mauve colour is not always quite true, and it would be possible to select two or three charming shades, but even when these shades are mixed it is a lovely thing. Like Cruciferous plants in general, Stocks are easy to raise, the only cause for anxiety being the liability of the tiny seed-

lings to damp off. This may usually be prevented by seeing that the atmosphere is rather cool and dry and by exercising care in the application of water. If damping occurs, the surface of the soil must be sprinkled with dry charcoal dust, or, failing that, with dry, fine sand. It is also time to sow Pentstemons. These grow at first very slowly, and after being pricked off ought to be kept in a heated structure till well established. Of Antirrhinums, I do not care for the Tom Thumb section, but the best strains of Intermediate and tall-growing Snapdragons are invaluable. Of the Intermediate type, Yellow Queen, Sutton's Pink, Carmine Pink and Oliver's Crimson satisfy our wants, and of the taller-growing sorts, Moonlight Pink, Carmine Pink, Golden Chamois, Rosy Morn, Cloth of Gold, White-throated, crimson and Gold and White are good varieties. At the same time, it is not wise to plant untested varieties in the flower-garden, as some of the colours may not be desirable. Other plants to be raised from seeds at the present time include *Salpiglossis*, *Kochia triphylla*, *Canna*, *Commelina cœlestis*, Pansy, and *Lobelia* (of which Emperor William produces perhaps the most attractive shade of blue), *Salvia splendens "Pride of Zurich"* and a stock of *S. patens* may be obtained from seed, but many inferior forms result, and propagation of a selected variety by cuttings is to be preferred.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

ONIONS.—If extra large bulbs of Onions are required, suitable land should now be prepared for planting the seedlings. Select an open situation and ground that has been deeply cultivated and is in a good condition generally. Trench the land as soon as possible, and allow it to remain in a rough condition until March, when a good dressing of soot may be forked into it. About the middle of April, or later if the weather is unfavourable, the plants may be put out. The seeds should be sown now in pans or boxes, and germinated in a temperature of 50°. The soil for the seed pan should be of a rich, sandy nature, and made firm while in a moderately dry condition. Sow the seeds thinly, and cover them lightly with fine soil. When the young plants appear they should be placed close to the glass in order that they may grow sturdily. When large enough, they should be pricked into boxes of fine, rich soil at a distance of 3 inches apart each way. Later on, a little air should be admitted in order to prepare the plants for removal to a cold pit, where they should be gradually hardened off in preparation for planting out of doors in April.

RHUBARB.—The present is a good time to prepare ground for a fresh plantation of Rhubarb. Fresh beds should be planted each season, in order to furnish a supply of healthy plants for forcing and other purposes. Rhubarb delights in a deep, rich soil and an abundance of farmyard manure, which should be well mixed with the soil as the work of trenching proceeds. In the case of permanent beds, a distance of 5 feet should be allowed between the rows and 4 feet from plant to plant. March is the best month for planting Rhubarb, provided the ground has been prepared beforehand. Daw's Champion is the favourite variety with us; the stalks are coloured red right through, and the flesh is of a superior flavour.

FORCING ASPARAGUS.—Roots of Asparagus should be introduced to the forcing pit fortnightly in quantities suitable to the demand. If forcing has not already commenced, the best plan is to place the roots on beds of leaves trodden tightly together to the depth of 4 feet. Leaves are plentiful in most places, and they make the best beds for the purpose. At Windsor we cover the bed with well-decayed manure, over which is placed a thin layer of finely-sifted soil, so that the roots may not be placed in direct contact with the dung, but into which they soon find their way when growth commences. It matters little what age the roots may be, so long as they are strong and healthy. Our practice is to lift the oldest beds in rotation each season for forcing, planting a similar quantity in April to take their place. If allowed a bottom heat of 70° the plants will produce shoots ready for gathering in a little over a fortnight. When the young shoots begin to grow the whole bed should be covered with 4 inches of finely-sifted leaf-mould.

APPOINTMENTS FOR FEBRUARY.

- THURSDAY, FEBRUARY 2—
Linnæan Soc. meet.
- SATURDAY, FEBRUARY 4—
Soc. Française d'Hort. de Londres meet.
- MONDAY, FEBRUARY 6—
Dorchester Gard. Soc. meet. (Lecture on "Annuals.")
- TUESDAY, FEBRUARY 7—
Scottish Hort. Assoc. meet.
- THURSDAY, FEBRUARY 9—
Soc. Nationale d'Hort. de France (Paris) Exh.
- FRIDAY, FEBRUARY 10—
Roy. Gard. Orphan Fund Ann. Meet. and election of Orphans at Simpson's Restaurant, Strand.
- MONDAY, FEBRUARY 13—
United Hort. Benefit and Prov. Soc. Com. meet.
- TUESDAY, FEBRUARY 14—
Roy. Hort. Soc. Coms. meet at 12 noon. Ann. Meet. of Fellows at 3 p.m. Hort. Club Ann. Meet.
- WEDNESDAY, FEBRUARY 15—
Roy. Meteorological Soc. meet.
- THURSDAY, FEBRUARY 16—
Linnæan Soc. meet.
- MONDAY, FEBRUARY 20—
Nat. Chrys. Soc. Executive Com. meet.
- WEDNESDAY, FEBRUARY 22—
Irish Gard. Assoc. and Benev. Soc. meet.
- TUESDAY, FEBRUARY 28—
Roy. Hort. Soc. Coms. meet. (Fifth Masters' Memorial Lecture at 3 p.m. by Mr. G. F. Scott-Elliott, M.A., on "Recent Work in Seed Selection.")

AVERAGE MEAN TEMPERATURE for the edshing week deduced from observations during the last Fifty Years at Greenwich—39.6°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, January 25 (6 P.M.): Max. 48°; Min. 43°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 26 (10 A.M.): Bar. 30.4; Temp. 50°; Weather—Overcast.

PROVINCIALS.—Wednesday, January 25: Max. 43 Scot-land N.; Min. 40° Doncaster.

SALES FOR THE ENSUING WEEK.

- MONDAY AND FRIDAY—
Herbaceous and other Plants, Hardy Bulbs, &c., at 12; Roses, Fruit Trees, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
- WEDNESDAY—
Hardy Bulbs and Plants, Border Plants, &c., at 12; Roses at 1.30; Japanese Lilioms at 2.30; Palms and Plants at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
- WEDNESDAY TO FRIDAY—
Imported 3-day Sale of Nursery Stock at the Nurseries, South Woodford, by order of Mr. J. Fraser, by Protheroe & Morris, at 11 o'clock.
- FRIDAY—
Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The Gardeners' Benevolent.

On two occasions during the year the affairs of the Gardeners' Royal Benevolent Institution are matters of special public interest. In January, at the annual meeting, the Executive Committee gives a detailed account of its stewardship, whilst later, generally in May, the holding of the festival dinner provides an opportunity for making a general appeal for donations to the funds. The meeting which took place last week was held for the purposes of receiving the Committee's report and electing new pensioners. We publish on another page the full text of the report and the details of the balance-sheet, in order that those who are not connected with the institution may see exactly what the items of receipts and expenses have been during the past year. If these matters are studied carefully, we believe that they will be found to be so satisfactory as to impress favourably the minds of gardeners and others who are not indisposed to assist a charitable cause, if it can be shown that the objects are laudable, that they closely concern themselves and their colleagues, and that the management is carried out with intelligence, enthusiasm, and economy.

In the first place, as Mr. Veitch pointed out in his address, the institution has been able to expend larger sums in the relief of distress

than in any previous year. The number of pensioners at the commencement of 1910 was 240, including 141 men and 99 widows. This number constituted a record, and, therefore, the responsibilities of the Committee exceeded anything in the history of the institution. When it is realised that in 72 years the Benevolent has distributed upwards of £172,000 in the relief of necessitous gardeners and their widows, there are certainly good reasons for the hopeful spirit so characteristic of those friends of the institution who are working hard to accomplish greater results every year.

At the end of each year, the Committee has to take into very careful consideration the financial resources at its command, and measure liabilities with a view to determining how many fresh pensioners it can safely recommend the subscribers to place upon the funds. Our readers are already aware from the election results published in this journal last week that this year the Committee recommended the election of 20 candidates, thus making the number on the books 245, which is more than on any previous occasion. By thus again increasing the permanent liability the Committee has to appeal to subscribers and the public for increased support. The annual disbursements are considerably over £1,000 a year, whilst the sum obtained from annual subscriptions amounts to but little over £1,500. The great deficiency has, therefore, to be made up by collections at the annual festival, by dividends, and in any other way the Committee can devise. It has also to be remembered that, when once the institution has placed a pensioner upon its books, it has assumed a moral responsibility to continue that pension until the decease of the beneficiary.

Turning from the pensioners fund to the Victorian Era and the Good Samaritan Funds, it is satisfactory to note that in both cases the Committee has distributed the income very liberally. It is not empowered to spend the capital of these funds, but the dividends only, and in each case the amount distributed during the year is very nearly equal to the receipts. We believe that this policy is well calculated to stimulate the liberality of subscribers, for nothing is more discouraging to public charity than the fact that a particular institution is more concerned with nursing its funds than in the relief of distress, for this latter work alone justifies its existence. It is interesting to note that the Samaritan Fund has benefited to the extent of £62 17s. owing to the receipt of the balance of the "Harry J. Veitch portrait fund."

We read in the report of the losses the institution has suffered during the past year through the death of some of its principal subscribers. The chief of these was Baron Schröder, who bequeathed a legacy to the Benevolent of £1,000. Baron Schröder's name will be permanently remembered by the Schröder pensionship which has been established by the Royal Horticultural Society, partly in recognition of the services Baron Schröder rendered to the Society in connection with the erection and equipment of the hall in Vincent Square. Another pensionship established during the year is a tribute to the memory of William and David Thomson, two Scottish gardeners who are amongst the most renowned in the history of British horticulture.

The results of this year's election and annual meeting were better than the Committee anticipated at the time the ballot papers were distributed. There were 22 new pensioners elected instead of 20, another candidate was given a pension for the year owing to the generosity of Mr. Arthur W. Sutton, and Mr. George Monro offered to satisfy the present needs of still another candidate. Then, at the annual friendly supper, it was announced that Mr. George Monro would give a sovereign each to 40 of the most necessitous candidates who had failed at the election, in celebration of the fact that Mr. Monro has been 40 years in business. Mr. N. N. Sherwood contributed further to the success of the day by giving a pension of £20 to another candidate, whilst Mr. Joseph Rochford contributed a similar amount to the Good Samaritan Fund.

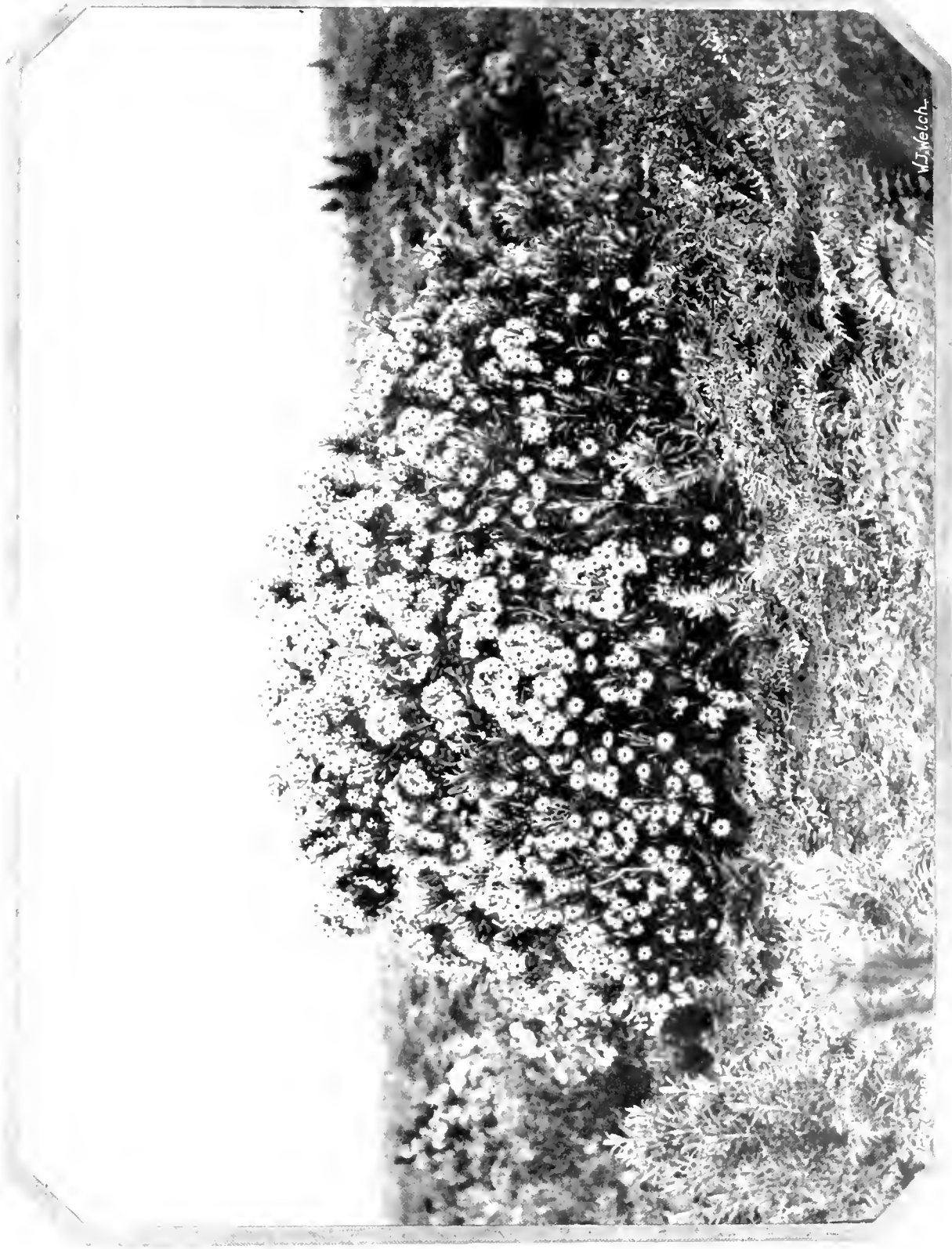
But when all these generous acts are added to the election results, there are still nearly 50 candidates who are denied the full benefits of the institution for at least another year. This fact should be sufficient to induce gardeners to do their very utmost to subscribe their guinea to the funds. Many of them are subscribing from year to year, but others who, it may be assumed, are just as well able to do so have so far neglected their duty in this matter. We trust that some means may be devised which will awaken them to a knowledge of their indebtedness to those who are working strenuously to mitigate the sufferings of their colleagues, and that they will be induced to respond, in some way or another, to the appeals which are made to them from time to time.

The next annual festival dinner will be held in the Grocers' Hall on May 23, under the presidency of Sir Marcus Samuel, Bart. Let all do their utmost to make that occasion memorable in the annals of the institution, memorable for its record contribution to the funds, and also for the fact that gardeners themselves show their appreciation of the services which the institution renders them by contributing in larger numbers than hitherto.

Sir Francis Galton.

In the death of Sir Francis Galton, F.R.S., which took place at Grayshott House, Haslemere, on January 17, British science loses one of its most distinguished ornaments.

Sir Francis Galton, who lived to the advanced age of 89, was remarkable not only by reason of the importance of his contributions to science, but also by reason of his versatility. A cousin of Charles Darwin, he was, like Darwin, a Cambridge man, and though he was compelled, because of ill-health, to take a "poll" degree, he lived to avenge that fate by gaining what is perhaps the highest honour which the University can bestow—"an honorary fellowship of Trinity." Though he made valuable contributions to many branches of science, it is probable that Galton's fame will rest on the pioneer work he did in the investigation of the great problems of heredity. He was among the first—if not actually the first—to apply statistical methods to the solution of these problems, and the results of his labours are published in several brilliant books: *Hereditary Genius: An Inquiry into its Laws and Consequences*—of which Darwin said: "I do not think I ever in my life read anything more interesting or original;" *English Men*



M. J. Welch.

Photograph by Capt. Arthur A. Dorrice Smith.

OLEARIA SEMIDENTATA GROWING WILD ON UPLAND BOGS IN CHATHAM ISLAND, NEW ZEALAND.

Printed by Temple Press Ltd., London, I.C.

of Science, their Nature and Nurture, and others of no less importance.

The conception of "discontinuous variation," which has played such a prominent part in recent theories of heredity, is clearly indicated in Galton's *Natural Inheritance*, as also is Weismann's theory of the continuity of the germ plasm.

All through his long life Galton not only played an important part in the investigation of the phenomena of heredity and variation, but he strove—as the titles of his works already cited show—to apply a knowledge of these phenomena to the human race. Certain that the race has to no small extent its destinies under its own control, he not only pleaded for wiser rules and laws, but founded a research fellowship in the University of London for the study of eugenics, the holder of the fellowship to devote himself to the study of "the agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally."

Among other of Galton's notable contributions to science may be mentioned his meteorological work—the term anticyclone now in general use is due to him, as are also the charts used in weather prediction—and the system of identification of individuals by finger prints in use by the Home Office of this country.

It is interesting to note that though Galton achieved such remarkable scientific work, and though academic honours were showered thick upon him, no official recognition of his services to the State was made till he had reached his 88th year, when he received a knighthood.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will take place on January 31. In the afternoon a lecture on colour photography will be given by Mr. W. MARSHALL.

PROPOSED NATIONAL DAFFODIL SOCIETY.—A movement is taking place with the object of establishing a National Daffodil Society, with its headquarters in London. A preliminary meeting of those most intimately connected with the flower will be held before very long, and if the result is satisfactory, as it is believed it will be from the promises of support already received by the promoters, a public meeting is to be called on one of the days of the R.H.S. Spring Bulb Show, March 14-15, for the further consideration of the matter. Without in any way encroaching on any of the local societies, it is thought that there is ample scope for such a body. A great Daffodil Show at Vincent Square ought to be a regular event, and a Year Book, in which everything of general interest might be focussed, seems to be a real want among the Daffodil community.

GEORGE MONRO CONCERT COMMITTEE.—The 15th annual concert organised by this committee will be held on Thursday, February 16, at the Queen's Hall. Mr. GEO. MONRO is expected to preside, and many of the best concert artistes have been engaged, as well as the Band of H.M. Coldstream Guards. The balance sheet of the 14th concert, held last year, is before us, and we note that the cash carried forward is £63 6s. 11d., and that £39 18s. has been given by the committee to charities. The Gardeners' Royal Benevolent Institution received the sum of £12 12s., and the remainder was divided among various other organisations.

YORKSHIRE GALA.—The 53rd annual show will be held on June 14, 15, and 16, in Bootham Park, York. The schedule embraces 82 classes, and all sections of gardening are represented. In the plant classes, a sum of £20 is offered as the first prize for a group of miscellaneous plants, in or out of bloom, arranged for effect. There are five other prizes in this class, the six being of a total value of £70. Provision is also made for smaller exhibits of this character, the first prize being £12. The rock-garden exhibits are important features of these York shows and a first prize of £15 is offered for an exhibit measuring 30 feet by 12 feet. On this occasion, no digging is permitted, so that greater trouble will be encountered in forming water pools and streams. Specimen plants are another feature at York Galas, but some better system of staging them is necessary, as they are generally arranged without any method. The president, Lord MIDDLETON, offers a special prize for the most meritorious and attractive exhibit in the show. Four gold medals

co-operative store, a bacon-curing factory, a fruit-bottling works in operation, collections of every kind of farm implement, and so forth. Beyond this, the land will be seen under cultivation, and special attention is being paid to intensive gardening. In addition to intensive cultivation of the soil, there will be various plots of ground, ranging in size from 10 perches to half an acre, treated with approved forms of manure and fertiliser, and planted with market crops.

THE MANURIAL VALUE OF SOOT.—Apart from its deterrent action on insect pests, soot has a definite value as a manure depending upon the ammonium salts which it contains. Soot varies very much in density, and it has been generally accepted by farmers that a light soot is the best. Mr. H. W. HARVEY, of the Cambridge School of Agriculture, in the course of a recent investigation, has discovered the interesting fact that there is a relation between the content of nitrogen and the weight per bushel. As



FIG. 29.—OLEARIA MACRODONTA IN GLASNEVIN BOTANIC GARDENS, DUBLIN.

(See p. 53.)

will be awarded to trade exhibits, in different sections. Copies of the schedule may be obtained from the secretary, Mr. FRED. AREY, Davyhall Chambers, York.

SMALL HOLDINGS.—A Small Holdings Exhibition will be held in the Crystal Palace grounds in connection with the Festival of Empire, and no detail of country life will be omitted. The Small Holding section will be laid out as a small holders' colony and model village in miniature. It will be at work all day, peopled by farmers and stocked with the best cattle and material. A small holder's homestead is to be erected, and around it will be barns, ricks, cow-yards, piggeries, sheep and goat-pens, labourers' cottages, a dairy, stables, poultry-runs, duck ponds, beehives, and pigeon lofts. In another part of the ground there will be a milk collecting station and an egg collecting depot to show how small holders should co-operate for their mutual benefit; the village hall,

a rule soot contains about 1 lb. of nitrogen per bushel. On this basis soot is worth about 6d. per bushel for its fertilising value, apart from its value as an insecticide. Moreover, it appears to follow from the above that soot should be bought by volume and not by weight.

SIMPLE LIFE CONFERENCE AND EXHIBITION.—The Simple Life and Healthy Food Conference and Exhibition will be held in the Caxton Hall, Westminster, on March 21, 22, 23, and 24 next. The objects of the conference and exhibition are to simplify modern life, to introduce into homes healthy food and hygienic decorations, to teach rational physical culture, and to inculcate a love of simple and beautiful architecture. Amongst the lecturers may be mentioned Dr. STENSON HOOKER, Dr. JOSIAH OXFIELD, Dr. A. B. OLSEN, Dr. REINHARDT, Dr. ROBERT BELL, and EUSTACE MILES. Season tickets may be had for 6d. from the Simple Life Exhibition, 22-24, Gt. Portland Street, W.

[Photograph by C. F. Ball.]

NEW ZEALAND PLANTS.

(See Supplementary Illustration.)

The plants enumerated in the list printed below are believed to be new introductions into the British Isles. They were brought to England from New Zealand in February, 1910, and represent the result of my second expedition in search of plants, from which I returned with some 2,000 plants, comprising 217 species. The results were not quite so successful as those of my previous expedition, mainly owing to the fact of my having to bring them across the tropics at a more unfavourable time of year, and also because I had more difficult subjects to bring; a great many of them being natives of the higher alps of New Zealand. I lost some 45 species entirely. I am glad to say, however, that the main object of my journey, namely, to obtain *Olearia semidentata*, was successfully carried out. An account of my expedition thither has appeared in the *Kew Bulletin*. This plant I have established at Tresco, where it is now thriving, and several cuttings have been rooted. *Angelica* (*Ligusticum*) *Diellenbachii*, a rare and interesting plant belonging to the Umbelliferae, has also been established, and two new species of *Veronica*, namely *V. Bollonsii*, from the Poor Knight Islands, and *V. Astonii*, found by Mr. B. Aston towards Cape Palliser in the S.E. side of the North Island. Besides these, were many Australian plants and a large collection of seeds from West Australia. The photograph of *Olearia semidentata* (see Supplementary Illustration) shows a plant growing in the upland bog of the Chathams.

LIST OF NEW ZEALAND PLANTS INTRODUCED IN 1910.

<i>Angelica</i> (<i>Ligusticum</i>) <i>Diellenbachii</i> .	<i>Paratropis macrophyllum</i> .
<i>Asplenium montana</i> .	<i>Pennantia corymbosa</i> .
<i>Celmisia laricifolia</i> .	<i>Podocarpus acutifolia</i> .
" <i>prorepens</i> .	<i>Pentachondria pumila</i> .
" <i>pseudo-Lyallii</i> .	<i>Pratia arebana</i> .
" <i>Rutlandii</i> .	<i>Pterostylis Banksii</i> .
" <i>viscosa</i> .	<i>Quintinia acutifolia</i> .
" <i>sessiliflora</i> .	<i>Ranunculus lobulatus</i> .
<i>Dracophyllum arboreum</i> .	" <i>Sinclairii</i> .
" <i>paludosum</i> .	<i>Raoulia grandiflora</i> .
" <i>Kirkii</i> .	<i>Rubus Barkeri</i> .
<i>Fuchsia excorticata</i> purpurea.	" <i>parvus</i> .
<i>Fagus Solandri</i> (purea).	<i>Senecio Kirkii</i> .
<i>Gentiana bellidifolia</i> .	<i>Samolus repens</i> , var. <i>Chathamensis</i> .
<i>Leucopogon fasciculatus</i> .	<i>Veronica Astonii</i> (mitica).
<i>Olearia semidentata</i> .	" <i>amplexicaulis</i> .
<i>Onuris Colensoi</i> .	" <i>Bollonsii</i> .
<i>Pinnaea longifolia</i> .	" <i>Buchanani</i> .
" <i>Gndia</i> var. <i>pulehia</i> .	" <i>Wilcoxii</i> .

Arthur A. Dorrien Smith.

SCOTLAND.

SAUGHTON PARK, EDINBURGH.

SAUGHTON PARK, Edinburgh, which is one of Scotland's finest public parks, frequently engages the attention of the Corporation of Edinburgh and its Parks Committee. Among other questions, that of the utilisation of the old mansion house of Saughton, a seventeenth century building, has frequently been under the consideration of the committee. At a recent meeting a report upon the question was submitted, suggesting that a portion of the newer wings should be converted into dwellings for some of the members of the staff, that part of the older building might be utilised for public shelters, tea rooms, &c., and that other portions might be used for exhibiting objects of interest. In the meantime, the city gardener, Mr. J. W. McHattie, has been asked to report upon the cost of altering the east and west wings to provide dwellings for some of the members of the park staff.

PRESENTATION TO A GARDENER.

At the recent annual meeting of the Dunfermline Horticultural Society, advantage was taken of the opportunity to present a testimonial to Mr. John Brown, gardener to Mr. William Black, of Chapel, Kingskettle, Fifeshire, and formerly gardener at Middlebank. Mr. Brown

has for 17 years been one of the best exhibitors at the Dunfermline shows, and he has rendered valuable services to horticulture in the district. The gift took the form of a gold Albert and appendage, and was handed to Mr. Black by the president of the society.

GRANT TO SCOTTISH HORTICULTURAL ASSOCIATION.

At the last meeting of the Town Council of the City of Edinburgh, the usual grant was made to the Scottish Horticultural Association for their Chrysanthemum Show in November. The amount is £25, and is an evidence of the interest taken by the Corporation in the success of the show.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FRUIT TREE STOCKS.—With reference to the letters which have appeared on this subject from Messrs. H. Somers Rivers and R. P. Brotherton (see vol. xlviii., pages 371 and 372), I have been looking carefully through some old books for information of the early history and cultivation of the Potato, and in one volume dealing with horticultural matters, published in 1697 by Thomas Tryon, and printed at that date for Geo. Conyers at "The Ring" in "Little Britain," I find much that is interesting. While many of the statements and recipes contained in its pages cannot be regarded as otherwise than apocryphal, yet there is much that is written in a practical and clever manner, and an extensive knowledge of flowers, fruits, vegetables, and herbs, together with their cultivation, is displayed by the author. Despite the quaint terminology of the period, one is impressed with the great variety of vegetables grown at that time, and, contrary to expectation, I find that the Potato appears to have been in fairly general cultivation. In dealing with the methods employed in grafting and budding, after a full and lucid account, the writer closes his chapter as follows:—"In grafting, the Figg will grow upon the Mulberry, the Apple or Pear upon the Quince, the Damson upon the White Thorn, as likewise will the Peach and Cherrie upon the Peach, the Apricot upon the Plum, the Walnut upon the Ash, the Quince upon the Barberry Tree, the Almond upon the Filbert, the Vine upon the Cherrie tree, and so of others, which by grafting are bettered and improved." From a chapter on the subject in this old book, I gather that Vines were grown in the open, and wines were distilled from their produce, but, owing to meteorological conditions, those obtained from France and Spain were considered of better quality. *Geo. M. Taylor, Mid-Lothian.*

AWARDING CERTIFICATES TO PLANT NOVELTIES.—The purpose of the newly-formed Hardy Plant Society to make awards in the form of certificates to new hardy plants, no doubt follows on the lines of some other special societies in making similar awards. It is announced also that a newly-formed Horticultural Society in the North proposes to establish committees on the basis of the old established committees of the Royal Horticultural Society for similar objects. We see the Rose, Dahlia, Carnation, Sweet Pea, Chrysanthemum, and other special societies acting in a similar manner in making awards of certificates, and various other bodies will doubtless in time follow suit. Is there not danger that with so much overlapping of the work undertaken by the Royal Horticultural Society very great confusion may ultimately arise? I do not suggest this in any spirit of jealousy, because every society has the fullest right to take any course the members think proper. But the point for consideration is which of the various societies' awards are to be regarded as having the greater value? No other society has at its disposal more experienced committee men than the Royal Horticultural Society. Does the action of these various societies in thus granting awards to novelties tend in any way to lower the value which hitherto has always attached to those of the Royal Horticultural Society? If any subjects passed over at Vincent Square because they are considered unworthy of

an award receive recognition elsewhere, then a very absurd position will be created. As one intimately associated with the National Vegetable Society, I may state that the society confers no certificate or award to novelties. Those are left to the jurisdiction of the R.H.S. Fruit and Vegetable Committee, notwithstanding that the National Vegetable Society gives marks of commendation if a variety of vegetable is found worthy after trial—a very different thing. *A. Dean.*

APPLES: IMPORTED AND HOME-GROWN (see p. 45).—Mr. Bartlett rather shocks one's view as to what is British when he describes the superb Apples which come to us from Canada, British Columbia, and Tasmania as "foreign." Did he use the term "imported" criticism would be disarmed. But that it is possible to have superb home-grown Apples in mid-winter was evidenced at the recent R.H.S. meeting, when Messrs. Veitch, Bunyard, and Seabrooke staged some 300 dishes of really fine fruits. Moreover, an attendant of one collection informed me that he was overwhelmed with requests to sell. That fact shows that when home-grown fruits are presented to the public in an attractive form they find plenty of purchasers. But then the public never sees home-grown Apples in shops or markets presented in the way they are shown at Vincent Square, or even like the imported fruits presented to them in tubs and boxes. It is stated that a Midland grower has recently been selling fruits of Bramley's Seedling to the extent of 3,000 bushes at 7s. 6d. per bushel! *A.*

DIJON TEA ROSES.—I should like to know by whose authority this term is given to a certain group of climbing Roses. Surely it is the height of absurdity to class tender varieties, such as *Henriette de Beauvean*, *Climbing Devonensis*, and *Climbing Niphetos* as *Dijon Teas*, which is tantamount to saying they possess the attributes of hardiness which this grand old Rose represents. *Henriette de Beauvean* is exceedingly tender, although a real beauty so far as colour is concerned. Why not drop the word "Dijon" Tea, and substitute instead *Climbing Tea*, or, if the term must be used, let the class be revised, and eliminate such sorts as I have named and include *Reine Marie Henriette*, *Francois Crousse*, *Mme. Hector Leuilliot*, *Johanna Selus*, &c., which appear to me to rightly belong to the group? I am glad to see a word of appreciation from Mr. Woodall (see p. 20) of *La France de '89*, and I can endorse all that he says in favour of it. He is wrong, however, in giving Nabouland the credit of raising the variety, for I believe it was Moreau-Robert who introduced this Rose. It is a splendid Rose for a wall, much superior to *Reine Marie Henriette*, which mildews so badly, although, of course, the latter variety would cover more wall space than *La France de '89*. *Walter Easlea, Duncroft, Eastwood.*

AMERICAN GOOSEBERRY-MILDEW.—In your issue of January 7 (p. 13), a correspondent states: "During December this pest made a rapid development. Quarters of Gooseberry bushes that I inspected at the end of November and found free from the disease were, by the middle of December, badly affected." Now, at that season (December), Gooseberry bushes are usually in a dormant state, therefore it is not clear how the mildew develops. I have never found the disease develop later than September, or early in October; but I have found the "summer stage" of the disease on the berries as early as the third week in May. At the Hexham conference, Mr. E. S. Salmon, referring to this disease, said in his lecture: "Two distinct stages may be observed. In the first stage, the so-called 'summer stage,' the fungus forms enormous numbers of very minute spores, or seed-like bodies, by means of which the disease is spread rapidly. In the second stage, the so-called 'winter stage,' the fungus forms winter spores. These winter spores have the function of keeping the fungus alive, though in a dormant condition, through the winter months." This would lead one to believe that the fungus remains dormant during the winter. If, as your correspondent states, the mildew develops in the winter also, it will be a serious matter for all growers of this popular fruit. It is a disease that growers should endeavour by every means to exterminate before it becomes widespread. *G. D. Belfast.*

RAINFALL IN 1910.—The following particulars of the year's rainfall prove that this part was one of the wettest districts in the country. The total fall amounted to 91.9 inches, there being 238 wet days. The following months were particularly wet.—January (28 days), February (28 days), March (20 days), April (27 days), August (24 days), and December (23 days). In February rain fell on every day to the aggregate depth of 12.36 inches. The total fall registered in January was 10.93 inches, and in December 9.37 inches. September was the driest month, with only 10 wet days. *P. Hills, Kinloch Castle Gardens, Rhum by Oban.*

LASIANDRA MACRANTHA.—In the Winter Garden, Springburn Park, Glasgow, I noticed recently a particularly well-cultivated specimen of this species covering a space approximately 25 feet by 3 feet. It is planted out at the base of one of the pillars which support the gallery, which runs round the building. Thus planted out and allowed to grow naturally, it is very effective. It may, however, be grown and flowered quite satisfactorily in a young state as a pot plant, for which phase of culture the variety *L. m. floribunda* is more suitable than the type. In the case of the type plant, cuttings, rooted early in the year, if pinched occasionally during the summer, will make specimens of a useful size for flowering in late autumn. These may be potted and grown on for a second year, persistently pinching as before, after which time they are usually too large, except for special purposes. *Fred. W. Jeffrey, Renfrewshire, N.B.*

SHRUBS IN FLOWER AT ST. TUDY.—Among the noteworthy shrubs in full flower here on January 20 were those mentioned below. *Rhododendron lapponicum* is a dwarf, evergreen plant, with small, dark leaves, greyish on the underside, and having purple flowers. The flowers are produced eight or nine in a truss, and are each about half an inch across. This is an ideal plant for the rock-garden, and gives colour at a season when it is most appreciated. *Rhododendron mucronulatum* is a loosely-branched, deciduous shrub, now about 3 feet high. It is starred all over with its little, purple, butterfly-like flowers, individually about an inch across, and somewhat salver-shaped. Of this plant I do not know the native country, and should be grateful if someone would enlighten me. [Central Asia.—Eds.] Then there is *Berberis Bealei*. This has leaves like *B. Aquifolium* on a large scale, and flowers of a rich, cream colour, produced in numerous spikes lying horizontally on the top of the upright branches. The great attraction of this plant is its exquisite scent, which is rather like that of Lilies of the Valley, and its only drawback is that it is impossible to cut the flowers unless one is prepared to behold the plant. *E. M., Lamellen, St. Tudy, Cornwall.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 17.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Dr. J. A. Voelcker, Messrs. J. T. Bennett-Poe, A. D. Michael, C. E. Shea, A. Worsley, W. Hales, H. J. Elwes, J. Fraser, W. C. Worsdell, R. A. Rolfe, and F. J. Chittenden (hon. sec.).

Sap exudation in Elm trees.—Mr. J. FRASER, F.L.S., showed a piece of the bark of an Elm tree perfectly white, part of a strip extending down the trunk of a tree from a small wound some distance up. He remarked that wounds in Elms may bleed for several years, as they often take many years to heal. The white appearance of the strip was due to the death of the green alga which covered the trunk elsewhere, but which, where the sap flowed, had been destroyed. Mr. FRASER thought that possibly the sap of the tree itself had had an injurious effect upon the alga.

Azalea gall.—A galled growth from *Azalea indica* came from Cheltenham. The whole of the leaves at the tip of a shoot had become greatly and uniformly thickened, and were covered with a whitish "bloom." These galls

are due to the attack of the fungus *Exobasidium japonicum*. The only remedy is to pick off the galled growths and burn them.

Coloration of Bean seeds.—Mr. CHITTENDEN showed a series of seeds of French Bean grown at Wisley in the past summer from seed shown before the Committee last January, when its history was given. The parent seed was the result of an accidental cross in 1907, and the progeny had segregated in 1909. The seeds sown and the seeds produced in 1910 were as follow:—

(a) Parent seeds black: *Plant 1* produced 28 black seeds, 25 partly chocolate, partly black, 35 brownish black. *Plant 2* pro-



FIG. 30.—OLEARIA MYRSINOIDES.

(See p. 53.)

duced 52 seeds like parent. *Plant 3* produced 285 seeds like parent. *Plant 4* produced 46 seeds brownish black.

(b) Parent seeds creamy white: *Plant 1* produced 170 seeds purplish, tinted white, with mottling and spots and streaks of black, 55 black or reddish black with small spots of purplish white. *Plant 2* produced 100 seeds fleshy white. *Plant 3* produced 90 seeds creamy white, 5 flesh white.

(c) Parent seeds tan: *Plant 1* produced 25 seeds chamois. *Plant 2* produced 22 seeds dead-leaf brown with tiny spots fleshy white; 32 little lighter than foregoing with large number of spots and blotches of fleshy white, the blotches speckled with ground colour; 7 brownish terra cotta with tiny spots of

fleshy white; 35 terra cotta with spots and blotches of fleshy white speckled with terra cotta. *Plant 3* produced 72 seeds chamois to dark hazel. *Plant 4* produced 115 seeds chamois, more or less mottled with black.

- (d) Parent seeds maroon: *Plant 1* produced 135 seeds bistu to dark tan. *Plant 2* produced 25 seeds purple black to buff. *Plant 3* produced 35 seeds dark steel blue to lighter purplish blue. *Plant 4* produced 195 seeds purple black to snuff colour. *Plant 5* produced 135 seeds like plant 2.
- (e) Parent seeds reddish salmon with streaks of burnt umber: *Plant 1* produced 173 seeds yellowish salmon with many streaks of fawn (like parent); 13 seeds fawn, except for few small spots of pale yellowish salmon. *Plant 2* produced 156 seeds like striped ones of plant 1. *Plant 3* produced 170 seeds pale yellowish salmon with faint grey mottling, striped with burnt umber; 6 wholly burnt umber, except for few small spots of pale yellowish salmon.
- (f) Parent seed pale flesh with streaks of dark neutral tint: *Plant 1* produced 85 seeds pale putty to cinnamon. *Plant 2* produced 230 seeds pale flesh mottled and more or less streaked with neutral tint (like parent).
- (g) Parent seed chocolate: *Plant 1* produced 55 seeds Naples yellow more or less mottled with neutral tint. *Plant 2* produced 22 milk-white seeds.
- (h) Parent seed violet black with streaks and spots of rosy white: *Plant 1* produced 100 seeds milk white to creamy white. *Plant 2* produced 9 seeds milk white; 81 greenish white. *Plant 3* produced 128 seeds with rosy-white ground mottled and streaked with violet black so that seed appeared purple. *Plant 4* produced 195 seeds similar to plant 3, but less mottled.
- (i) Parent seed rosy white with more or less ivory black: *Plant 1* produced 45 seeds of rosy white faintly mottled with dilute black and blotched and streaked with violet black. *Plant 2* produced 11 seeds fleshy white. *Plant 3* produced 175 seeds with rosy-white ground, some half, some almost entirely covered with greenish black. *Plant 4* produced 75 seeds similar to those from plant 2, but faintly mottled with grey. *Plant 5* produced 90 seeds with very pale rosy-white ground mottled with much diluted violet black and with streaks of violet black. *Plant 6* produced 41 seeds violet black speckled with rosy white; 48 violet black more spotted with rosy white; 20 seeds neutral tint with small spots of rosy white; 52 neutral tint with large spots of rosy white; these differences were not clearly marked, however.
- (j) Parent seed burnt umber: *Plant 1* produced 370 seeds maroon. *Plant 2* produced 90 seeds milk white faintly mottled. *Plant 3* produced 290 seeds fawn. *Plant 4* produced 398 seeds maroon.
- (k) Parent seed pale flesh with large spots, streaks and specks of burnt umber: *Plant 1* produced 42 seeds pale flesh with streaks of lilac rose. *Plant 2* produced 98 seeds pale flesh, some almost wholly, others half covered with tan. *Plant 3* produced 48 seeds milk white; 90 sulphur white. *Plant 4* produced 225 seeds with pale flesh spotted with diluted umber and more or less covered with burnt umber, as in plant 2.
- (l) Parent seed chamois faintly mottled: *Plant 1* produced 93 seeds cream yellow to chamois, more or less mottled with olive brown. *Plant 2* produced 74 similarly-coloured seeds.
- (m) Parent seed pale blush with parts reddish black: *Plant 1* produced 195 seeds purplish tinted white, much or only half covered with darker spots and blotches. *Plant 2* produced 200 seeds milk white to yellowish white.
- (n) Parent seed dark chocolate brown with patches of dark fawn: *Plant 1* produced 305 seeds fleshy white with more or less chocolate brown.
- (o) Parent seed chocolate with small spots of rosy white: *Plant 1* produced 36 seeds chocolate. *Plant 2* produced 50 seeds chocolate.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

(ANNUAL MEETING.)

The results of the election were recorded in our last issue.

JANUARY 19.—The seventy-third annual meeting of the supporters of this Institution took place on the above date. The proceedings were reported in our last issue, and we now reproduce the report of the Executive Committee for 1910.

REPORT OF THE COMMITTEE.

Before presenting the report of their work for the year 1910, the committee desire to record their sense of the very great and sad loss the Institution sustained in the death of His Majesty King Edward, who, as Prince of Wales, was its president, and who subsequently as King honoured it by becoming its patron. His late Majesty had also for many years been a subscriber to its funds.

The committee are very gratified to announce that His Majesty King George, who, until he succeeded to the throne, was president of the institution, has graciously consented to become its patron, Her Majesty Queen Mary having also accorded her patronage.

The committee have great pleasure in submitting their 71st annual report, together with statement of the accounts as audited.

They are extremely glad to be able to state that the charity has during the past year more than ever justified its existence by meeting the increased and urgent claims of deserving and needy applicants, who, but for the aid thus rendered, would have been utterly stranded in their difficulty and distress.

It is now 72 years since the institution was founded, and during that time it has been able to distribute in relief upwards of £130,000, and at no other period in its history has it been able to do so much in affording timely aid to the necessitous horticulturist and his widow as in the year now closed.

At the beginning of 1910 249 persons (141 men and 107 widows) were in receipt of permanent relief by means of annuities of £20 and £10 respectively, in addition to other applicants financially assisted in other ways.

Of this number 22 have died during the year—13 men and nine women. Five of the men left widows, whose circumstances being such as to render them eligible, the committee at once placed them on the funds of the institution without election under Rule III, cl. 13, to receive the widow's allowance of £10 a year each.

There were therefore at the close of the year 225 persons receiving permanent relief, and to this number the committee recommend an election this day of 20 candidates from an approved list of 73 applicants, which will increase the number of beneficiaries to 245, being the greatest number there will ever have been at any time on the funds.

Although this further addition to the permanent liability naturally causes the committee considerable anxiety, they feel assured of the approval of the supporters of the charity, whose interest they confidently hope will be stimulated to still further exertions on its behalf.

With regard to the temporary assistance rendered to applicants, it would be impossible to over-estimate the importance and value in cases of emergency of the "Victorian Era" and the "Good Samaritan" Funds.

The former fund provides assistance to those unsuccessful candidates who have been subscribers to the institution and who are awaiting election. The latter fund gives immediate help to deserving applicants, whether they have been subscribers or not, in time of misfortune and distress. It would be difficult indeed to exaggerate the real benefit thus conferred on those poor people, and many are the grateful letters received from those who have been thus helped.

In connection with the "Good Samaritan Fund" the committee have much pleasure in acknowledging the receipt of £62 17s. the balance of the "Harry J. Veitch Portrait Fund," which the treasurer, the Rev. W. Wilks, requested might be so utilised.

It would perhaps be well to again remind the friends of the institution that the interest only from these funds can be used, and therefore any special contributions to either or both of them would be warmly welcomed and gratefully received.

The committee are pleased to report that the 71st anniversary festival dinner, held at the Hotel Metropole in June last, was very successful, and they gladly tender to the Hon. Harry Lawson, M.P., their grateful thanks for presiding on the occasion, and for his eloquent advocacy of the claims of the charity, as well as for his generous personal contribution to the funds.

The committee would also express their deep indebtedness to those gentlemen who were good enough to act as stewards or collectors; likewise to the horticultural Press for their gratuitous and invaluable assistance, to the donors of flowers; to those who kindly arranged the floral decorations; and to other friends for extremely useful services which were very much appreciated.

The committee gratefully acknowledge the kindness of those noblemen, ladies, and gentlemen who threw open their beautiful gardens to the public in aid of the fund of the institution, including the Right Hon. Earl Beauchamp, Madresheld Court, Malvern; the Lord Northbourne, Betchingham, Sandwich; Mary Countess of Ebeester, Holland House, Kensington; The Lady Battersea, Overstrand, Norfolk; Sir Frank Crisp, Finar Park, Houlby-on-Thames; and E. J. Wythes, Esq., of Epping.

The Messrs. George Munro, Ltd. Concert Committee again gave a portion of the proceeds derived from their well-known annual concert for the benefit of the funds, and the committee offer them their best thanks. It is sincerely hoped that other friends will emulate these examples.

The several auxiliaries have been well maintained during the year, proving a much-needed adjunct to the parent institution, and the committee desire most strongly to express their indebtedness to the following honorary officers for their kindly interest and much appreciated services, viz.:

BRISTOL AND BATH.

<i>Presidents.</i>	<i>Hon. Treasurers.</i>	<i>Hon. Secretaries.</i>
Col H. Cary Batten.	W. A. Garaway, Esq.	Mr. Geo. Harris.

WORCESTER.

Rt. Hon. Earl Beauchamp, K.C.M.G.	John White, Esq.	Mr. Percy G. White.
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DEVON AND EXETER.

C. R. Collins, Esq.	Mr. W. Mackay.	Mr. W. Mackay.
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WOLVERHAMPTON.

C. T. Mander, Esq., J.P.	Mr. Bradley.	Mr. Tom B. Dodds.
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BERKSHIRE, READING AND DISTRICT.

Mrs. Rowland Sperring.	Arthur W. Sutton, Esq., J.P., V.M.H.	Mr. L. Castle.
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LIVERPOOL AUXILIARY.

The Rt. Hon. The Earl of Derby, K.G.	Mr. A. J. Crippin.	Mr. R. G. Waterman.
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The death roll in relation to the charity was a heavy one during the year. In addition to that of H.M. King Edward to which reference has already been made, the committee have to lament the loss of Baron Schröder, whose death was such a great blow to horticulture. He was a vice-president, and for many years one of the warmest and most generous supporters of the charity, to which he bequeathed a legacy of £1,000 duty free. As a tribute to his memory, and in recognition of his great service in connection with the erection and equipment of the horticultural hall and offices, the Royal Horticultural Society have established in connection with our institution a permanent annuity, to be known as "The Baron Schröder Annuity," the first recipient of which, nominated by the society, is Mrs. Wildsmith, the widow of a very highly esteemed friend of the charity.

The committee have further to regret the loss of two of their valued colleagues, viz., Mr. William Denning, who was a regular attendant at its meetings for many years, and Mr. J. M. Indoe, V.M.H., always ready to further in every possible way the interests of the institution; their presence and help are sorely missed.

Other sad losses are those of Mr. W. J. Nutting, formerly a member of committee, and for many years a valued subscriber, who passed away full of honours in a ripe old age; Mr. R. Wilson Ker, of Liverpool, Mr. J. L. Woodroffe, of Eastbourne, Mr. E. C. Mott, of Barnet, Mr. R. Blake, of Salisbury, and Colonel Hanbury Barclay, whose places it will be indeed difficult to fill.

A fund inaugurated during the year in memory of the late Mr. David Thomson has been successfully completed, and the amount raised has been added to that

STATEMENT OF RECEIPTS AND EXPENDITURE OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION FOR THE YEAR ENDING DECEMBER 31, 1910.

RECEIPTS.		EXPENDITURE.	
	£ s. d.	£ s. d.	£ s. d.
To Balance	1,001 11 8	By Pensions and gratuities, including special gifts from Messrs. Veitch, Sutton and Monro and "Schröder Annuity"	4,203 19 8
.. Amount on deposit	3,180 0 0	.. Expenses of annual meeting and election	11 10 6
.. " " Wolfe's legacy	1,000 0 0	.. Rent, firing, lighting, &c., and salaries of Secretary and Clerk	617 11 0
.. " " Ryland's "	1,321 1 2	.. Printing, stationery, &c.	132 16 3
.. Annual subscriptions	1,516 7 3	.. Less advertisements in List of subscribers	56 19 0
.. Donations at and in consequence of festival dinner, including special gifts	1,767 17 2	.. Expenses of festival dinner	212 11 9
.. Royal Horticultural Society for "Schröder Annuity"	20 0 0	.. Less dinner charges	155 8 0
.. Dividends and interest	82 8 7	.. Postages, including Annual Reports, Appeals, &c.	53 2 0
.. Return of Income Tax	49 3 4	.. Advertisement in "Fry's Charities"	3 3 0
.. David Thomson Memorial Fund	317 4 8	.. Carriage, telegrams, &c., and incidental expenses	27 9 11
.. Legacies	1,000 0 0	.. Bank charges	5 9
.. Baron Schröder	1,000 0 0	.. Cost of removal to new offices, including furniture, fittings, agreement, &c.	58 8 9
.. George Thomson, Esq.	39 17 4	.. Investment of "William and David Thomson Memorial Fund"	545 17 10
	5,572 18 4	.. Placed on deposit	2,130 0 0
		.. Ditto, Wolfe's legacy	1,000 0 0
		.. Ditto, Ryland's legacy	1,931 1 2
		.. Ditto, Schröder legacy	1,000 0 0
		.. Balance with Treasurer	1,066 1 1
		.. Balance with Secretary	19 6
			*1,067 0 7
	£12,175 11 2		£12,175 11 2

In accordance with the rules of the Gardeners' Benevolent Institution, we have audited the accounts, and certify that they are correct and that our requirements as auditors have been fully met. We have also satisfied ourselves that the securities are in the hands of the bankers. We also wish to add that we find the books very well kept.

*Required to meet the quarterly payments on January 1, 1911.

THOMAS MANNING.
BERT. J. MONRO.

VICTORIAN ERA FUND.—BALANCE SHEET, 1910.

RECEIPTS.		EXPENDITURE.	
	£ s. d.	£ s. d.	£ s. d.
To Balance, January 1, 1910	133 13 2	By Gratuities, 1910	199 10 0
.. Donations, 1910	5 5 0	.. Balance in hand December 31, 1910	134 1 10
.. Dividends	184 10 3		
.. Return of Income Tax	199 18 8		
	£333 11 10		£333 11 10

GOOD SAMARITAN FUND.—BALANCE SHEET, 1910.

RECEIPTS.		EXPENDITURE.	
	£ s. d.	£ s. d.	£ s. d.
To Balance, January 1, 1910	242 13 10	By Gratuities	157 10 0
.. Donations, 1910	56 16 0	.. Balance in hand, December 31, 1910	345 15 6
.. Balance of "Veitch Portrait Fund"	62 17 0		
.. Dividends	133 14 1		
.. Return of Income Tax	7 0 7		
	£503 5 6		£503 5 6

January 19, 1911.

Audited and found correct. { BERT. J. MONRO.
THOMAS MANNING.

previously contributed with the same object to his brother, the late Mr. William Thomson's memory. The total sum has been invested to produce £20 a year to establish a perpetual annuity in memory of these two distinguished horticulturists, which will henceforth be known as the "William and David Thomson Memorial Fund," and a worthy old Scotch gardener living in Edinburgh in very distressed circumstances has been selected by the Messrs. Thomson's family representatives as the first recipient of the benefits thus established.

In consequence of the partial rebuilding of the offices until recently occupied, the Committee have been obliged to seek new premises, and they are glad to state that suitable quarters have been obtained at 62, Victoria Street, Westminster, close to Victoria Station, and not far from the former address.

The 72nd festival dinner in aid of the funds has been arranged to take place on Tuesday, May 23rd, next, the first day of the Temple Flower Show, when Sir Marcus Samuel, Bart., has very kindly promised to preside. The dinner will be held, by kind permission of the Guild, in the beautiful hall of the Grocers' Company, Princes Street, City, opposite the Bank of England.

It is hoped that this function will meet with much success and that the Chairman will be ably supported by every lover of gardening and flowers. Ladies and gentlemen are earnestly solicited to act as stewards on behalf of the festival.

In concluding their brief summary of the year's work, the Committee, whilst deeply thankful for what they have been able to accomplish, deplore their inability, from want of funds, to meet the claims of many other deserving applicants that come before them. They would, however, remind the friends of the Institution that at each election for the past 20 years the liabilities have been increased and the number of annuitants on the funds added to. They therefore plead most earnestly that a larger measure of support may be forthcoming in order that the work of this National Horticultural Charity, which has been carried on with such gratifying results for 72 years, may not only be maintained, but may be still further enlarged.

HARRY J. VEITCH,
Treasurer and Chairman.
GEORGE JINGRAM,
Secretary.

THE DINNER.

In the evening of the same day the committee and a few friends met at dinner at Simpson's, under the chairmanship of Mr. Joseph Rochford. After the Royal toasts, the Chairman proposed the toast of the evening, "The Institution." He said that it was a mistake to suppose that, because of the Old Age Pensions, such institutions as the Gardeners' Royal Benevolent were less needed than formerly, for the need was greater than ever. He spoke in appreciative terms of the gardener, and pleaded for greater liberality in order to help him in his distress. He (Mr. Rochford) said that they were all sorry that Mr. George Monro was prevented by illness from attending that meeting. Mr. Monro had empowered him to announce that he desired to give a sovereign each to 40 necessitous candidates to celebrate the fact that he had been in business for 40 years. Mr. Harry J. Veitch responded to the toast. He stated that in consequence of two deaths, they had elected 22 fresh candidates that day instead of 20. Mr. Sutton had provided for one more, Mr. Monro would look after the immediate needs of Mrs. Baillie, and Mr. Joseph Rochford had promised a donation of £20 to the Samaritan Fund. He also referred to the Schröder and Thomson annuities, and stated again what was said at the annual meeting in respect to a new by-law which would have the effect of giving the fresh pensioners one half of the first quarter's pension within a few days after the election. Mr. N. N. Sherwood proposed the toast of "The Committee." He referred to some of the former members of the committee and to the success that had been obtained. He suggested that ladies should be invited to the festival dinner to be held in the Grocers' Hall in May. In conclusion, he said that he should be glad to give a sum of £20 to place another unsuccessful candidate on the list of pensioners. Mr. W. Y. Baker responded. He said that the work of the committee was a labour of love. Queen Mary lost Calais 350 years ago, and it was said that the word "Calais" was engraved on her heart. He was sure that on Mr. Harry Veitch's heart was engraved the Gardeners' Royal Benevolent Institution. The toast "Our Country Friends" was proposed by Mr. George Bunyard, and responded to by Mr. P. C. M. Veitch. Mr. William Atkinson proposed the toast of "The Chairman," and Mr. Joseph Rochford proposed the toast of "The Secretary," Mr. G. J. Ingram.

SCOTTISH HORTICULTURAL.

JANUARY 17.—The annual business meeting of this association was held in the hall of the Young Men's Christian Association, 14, St. Andrew Street, Edinburgh, on this date. Mr. Whytock, the president, occupied the chair, and there were present 140 members. The report by the council for the past session showed that there was a slight decrease in the membership as compared with the previous year, but the financial statement showed an increase of £23 11s. 8d. The surplus on the Chrysanthemum Show was £43 11s. 6d. The following office bearers were elected in the place of those who retire by rotation:—Honorary president, Sir John Gilmour, Bart.; president, Mr. W. H. Massie (whose portrait we have pleasure in giving); vice-presidents, Messrs. J. Phillips and W. G. Pirie; councillors, Messrs. J. C. Grieve, G. P. Berry, J. Hay, W. Smale, R. Cairns, J. Bruce, and W. Williamson.

The report by the committee appointed by the joint councils of this association and the Royal Caledonian Horticultural Society to consider the possibility of the amalgamation of the two societies was read to the meeting. The report stated that the committee were unanimously of opinion that it would be in the interests of horticulture



W. H. MASSIE.
(President of the Scottish Horticultural Association)

generally to have the work in Edinburgh carried on by one strong society rather than by two as at present, and if that were possible they would have no hesitation in advising the councils that such a scheme should be proceeded with. On considering in detail the possibility of effecting amalgamation, there were found to be three methods, namely:—

1. By the Royal Caledonian Society assuming the Scottish Association;
2. By the Scottish Association assuming the Royal Caledonian Society; and
3. By dissolving both societies and forming a new one.

The committee rejected 1 and 2, but gave very serious consideration to 3. When, however, they came to consider the dissolution of the Royal Caledonian Society, they were met with a difficulty. The charter gives the society no power to dissolve, and to do so without the authority of the Crown would involve the society in the risk of forfeiture of its funds. There was also a difficulty with regard to the Neill Fund, the management of which could not be transferred to a new society without the consent of the next-of-kin, who, so far, could not be traced. On application being made to the Secretary for Scotland to ascertain whether, and on what terms, the Crown would agree to a surrender of the charter, the reply received was to the effect that there was no precedent for such procedure,

and that the proposal was open to serious objections. The committee, therefore, reluctantly came to the conclusion that the only course open to secure the end in view was to obtain a new charter from the Crown incorporating both Societies, but they point out that the cost of obtaining such a charter would be somewhat serious, and as a charter is not so elastic as an ordinary constitution it tends to hamper the work of the Society. But even if such a course were adopted the new Society could not take over the management of the Neill Fund without the consent of the next-of-kin of Dr. Neill. It was agreed to continue the powers of the council to negotiate with the council of the Royal Caledonian Society regarding the matter.

The recommendation of the council to visit Manderston, Duns., on August 19, was agreed to.

Twelve new members were elected. The new President, Mr. Massie, will deliver his inaugural address on February 7.

HORTICULTURAL CLUB.

FLORA OF THE BERNESE OBERLAND.

JANUARY 17.—At a meeting of the members and guests of the Horticultural Club on the above date, the Rev. Canon Horsley, J.P., delivered a lecture on "The Scenery and People of the Bernese Oberland, including Swiss Plants." The lecture was illustrated by lantern slides, some of them taken by the lecturer himself, but most of them by Mr. Malby, of Woodford, and Mr. Ball, of the Glasnevin Botanic Gardens, Dublin, who accompanied Canon Horsley on his annual excursion into the Swiss Alps. The slides fell into three categories, namely (1) Alpine scenery, (2) flowers, photographed *in situ*, and (3), in some respects the most striking of all, a series of photographs taken in Mr. Malby's suburban garden at Woodford within an area of about 160 feet by 60 feet, in which Alpine scenery has been so artistically planned on a miniature scale and Alpine plants grown under such natural conditions, that photographs taken from judicious points of view and under conditions of haze and hoar frost (as illustrated in *Gardeners' Chronicle*, December 24, 1910, pp. 466, 467), were almost indistinguishable in effect from genuine Alpine scenery.

An interesting point in the Canon's address related to the rapid retreat of the Swiss glaciers up the valleys which they have shaped. Within his own memory the foot of one noted glacier is now a mile and a half from the point where he first visited it, and Mr. Charles E. Shea, who presided at this meeting, pointed out that this retreat is general, constituting an indication that the great recap, which in the so-called glacial period extended from the pole over all northern Europe and the greater part, if not the whole of Britain, and of which the existing glaciers represent but the fringe of the remainder, is very rapidly diminishing owing to some subtle change of climate.

Many of the Swiss flowers were beautifully shown in the slides, and each picture was accompanied by remarks relating to its habit and habitats. The curious fact that the *Soldanella*, of which two species were shown, actually thaws the covering of snow or even ice by self-engendered warmth, so that its charming flowers emerge into the sunshine, was described. In the subsequent discussion, in which Mr. Shea and Mr. Bilney took part, the mountain floras of other regions were compared with the Swiss. An exhibit was also made of a charming series of Swiss postcards depicting the Swiss floras in natural colours, and some independent photographs in natural colours were also highly appreciated.

NATIONAL VEGETABLE.

JANUARY 17.—A meeting of the committee was held on this date. The report of the sub-committee appointed to consider the schedule for the show to be held on August 30 was adopted with a few minor amendments. The total value of the prizes to be offered amounts to £240. Several new classes are to be provided. The schedule, with the reports of last year's trials, is ready for circulation, and all those desirous of obtaining a copy may procure one from the secretary, Mr. E. J. Quick, Kelmscott, Harrow View, Wealdstone.

SOCIÉTÉ FRANÇAISE D'HORTI- CULTURE DE LONDRES.

(ANNUAL MEETING.)

JANUARY 21.—The 22nd annual dinner of the Society of French Gardeners in London took place on the above date at the Café Royal, the president being Monsieur Philippe de Vilmorin, of Paris. In addition to the members of the Association there was a good company of English horticulturists present. The chairman proposed the toasts of the King, the Queen, and the Royal Family. Sir Albert Rollit next proposed the toast of the "President of the French Republic." He referred to the fact that on more than one occasion he had had the honour of being presented to Monsieur Fallières, and also to the former President, M. Loubet. To M. Loubet perhaps more than to anyone else we were indebted for the establishment of the Entente Cordiale, which had been one of the great securities of the world's peace, and which has tended to develop the trade between the two countries. Sir Albert Rollit said that they honoured M. Fallières as a ruler of a great, manly, and progressive people, to whom they owed many lessons and liberties. The toast was followed by the singing of the Marseillaise.

M. Philippe de Vilmorin then proposed the toast of the evening "the French Horticultural Society of London." In the first place, however, he referred to the illness of the Chairman of the Society, Mr. George Schneider, who, for the first time in the history of the institution, was absent from the annual gathering. M. de Vilmorin said that the Society and George Schneider were one and the same thing. Mr. Schneider was with them in spirit as they were with him. It was resolved that a message of sympathy should be despatched to him, signed by every person present. Proceeding to speak to the toast, M. de Vilmorin said it was due to the Society that he should express his regret that he was unable to be present last year, but whilst they were enjoying their dinner on that occasion, he was compelled by the disastrous floods in Paris to be engaged in saving his family and his home from destruction. However, the Consul General of France kindly took his place, and he felt that he owed to that gentleman a debt of gratitude. M. de Vilmorin thanked the Society for the generous donations that they had made to the Mansion House Fund for the relief of the distress caused by the French floods. The Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund had each been promised substantial donations, but at the last moment those donations were diverted from the English Charities to alleviate the French distress. He was sure that in the near future France would take its revenge for that act of generosity. The French Horticultural Society of London, continued to prosper; every day it was forging new ties between the two nations and, at the same time, it was helping young men who leave France to widen their knowledge and to gain fresh experience in their profession. It was obvious, however, that the Society could not do this good work unless it were given assistance by many of the great English firms of nurserymen and seedsmen. That was another reason for regretting the absence of their dear old friend Schneider. They must all be very thankful to him for what he had done. In conclusion the chairman said they would pray God that friend Schneider's illness would be a short one, and that he would soon be able once again to take his place at the head of the Society. He asked them to drink to the success of the French Horticultural Society of London, and to the restoration to health of their excellent chairman, George Schneider.

M. Louis Gentil, curator of the Botanical Garden, Brussels, and editor of *La Tribune Horticole*, expressed the regret he felt on arriving in London and finding his valued friend, the father and founder of the Society, confined to his bed by illness. By Mr. Schneider's desire he (M. Gentil) was placed next to the great Frenchman, who had so kindly consented to preside at that meeting. It was due to their absent chairman that the present meeting was such a successful event, and that the Society's progress was so satisfactory. He (M. Gentil) had lived for five years in England, and he could say that in many respects British horticulture was foremost in the world. Where, for example, could they see such

marvellous collections of Orchids as were frequently to be seen at the London exhibitions. He had great pleasure in proposing the toast of English Horticulture.

Mr. W. Hiehle next rose to state that the sum of £50, which it was intended, last year, to give to the English Horticultural Charities, had been diverted to another purpose, as the chairman had already explained. It was his (Mr. Hiehle's) privilege to say that at that moment they were in the happy position of being able to make good to the English Horticultural Charities the promise which was made to them a year ago. Consequently, the sum of £30 would be given to the Gardeners' Royal Benevolent Institution, and £20 to the Royal Gardeners' Orphan Fund. Mr. Edward Sherwood, the treasurer of the Royal Gardeners' Orphan Fund, thanked the Society on behalf of the Charities for the munificent donations, congratulating the members on being able to afford such substantial sums. The toast of English Horticulture was replied to by Mr. James Mc Kerchar, in a humorous speech, and in concluding he proposed the toast of "Past Chairmen."

Mr. Thomas Bevan, replying for "Past Chairmen," said that as a young man he knew what it was to live and work in a foreign country, and he could heartily appreciate, therefore, the work that the French Horticultural Society was doing. He well remembered the grand exhibits which MM. de Vilmorin et Fils contributed to the Paris shows 40 years ago.

The toast of "Our Chairman" was proposed by Mr. Arthur W. Sutton, who referred in appreciative terms to M. Philippe de Vilmorin and his father the late M. Henri de Vilmorin, paying a very high tribute to the great work that had been accomplished by the Vilmorin family. He referred to the advantages M. Philippe de Vilmorin had obtained by his education in England, to his industry in literary work, and to his scientific attainments. After the response by M. de Vilmorin, in which he said that he hoped the Vilmorins would continue to be honest men and leaders in horticulture, Mr. Harman Payne proposed the toast of the "Officers of the Society," and thanked M. Ripard for contributing the floral decorations.

M. Ripard responded, and proposed the toast of the "English Horticultural Press." Mr. R. Hooper Pearson, in responding to this toast, said that the Press was largely what the public made it. The Press was only too glad to record the good work of such societies as the French Horticultural Society of London. Those present were aware that an International Horticultural Exhibition was to be held in London in 1912. He could not help thinking that amongst the numerous visitors from abroad to that exhibition and congress there would be many who would gladly avail themselves of the opportunity to revisit England, because of their recollections of the happy hours they had spent here as members of this Society. In that way the French Horticultural Society would contribute to the success of the London International Exhibition. It was a fact that, of all the young gardeners who came to this country for professional experience, none looked forward with greater pleasure than their own members to revisiting England in later years. He (Mr. Pearson) congratulated the Society on having amongst its own sons a journalist of the type of M. Louis Gentil, of Brussels. They knew that he was charged with the practical management of the State Botanical Garden at Brussels, and that he edited and published a weekly horticultural journal. It said something for the ties of the Society that they were sufficient to bring such a busy man such a distance in order that he might attend their annual dinner. It was characteristic of Mr. Schneider that, notwithstanding his severe illness, the fact had been carefully kept from the knowledge of those likely to be present at that annual festival.

HASLEMERE CHRYSANTHEMUM.

JANUARY 21.—The annual meeting of this society was held on this date. The report showed that the exhibition had been successful and that there was a balance in hand of over £5. The secretary, Mr. J. Sharland, tendered his resignation, which was accepted with regret. Most of the other officers and committee were re-elected. It was decided to hold the annual show on November 9.

SOUTHAMPTON ROYAL HORTI- CULTURAL.

JANUARY 9.—The annual meeting of the above society was held at the Shaftesbury Hall, Southampton, on this date. The Mayor of Southampton presided. The report presented by the council stated that the past season had been remarkable for the excellence and extent of the several shows, more especially the Rose show and the autumn exhibition. Unfortunately the attendance of the public at all the shows was disappointing, and in consequence the council is compelled for the first time for some years to carry forward a few liabilities. In addition to the usual flower shows a garden fête is to be held in 1911.

The subscribers to the funds of the society number about 780, the total amount received from this source being £310 4s. The statement of accounts showed that the total receipts amounted to £722 12s. 6d. The expenses included, Rose show, £304 10s. 9d.; Carnation show, £130 15s. 10d.; autumn show, £154 16s. 5d.; and general account, £101 19s. 7d.

Mr. E. Kemp Toogood was elected chairman of the council, Mr. C. S. Fudge secretary for the 29th time, and the other officers and retiring members of the council were all re-elected with one exception. The secretary stated that 1912 would be the jubilee of the society, and expressed a wish that the event would be suitably celebrated.

ROYAL METEOROLOGICAL.

JANUARY 18.—At the annual general meeting of this society held on this date, the president (Mr. H. Mellish) said that the completion of the third decade since the society undertook the collection of climatological observations suggested that the moment was opportune for taking stock of the data which had been collected in the British Isles, and of the progress which has been made in reducing and discussing them, so he devoted his address to a consideration of the present position of British climatology.

Dr. H. N. Dickson, F.R.S.E., was elected president for the ensuing year.

BRIGHTON HORTICULTURAL.

JANUARY 19.—The annual meeting was held on this date in the Pavilion. Mr. W. Balchin occupied the chair. The report on the past year showed that the society had maintained a high standard of excellence at the flower shows, and had succeeded in materially reducing the loss on the year's working. The balance sheet placed the receipts at the Rose and Sweet Pea Show at £172 2s. 6d., and those at the Chrysanthemum Show at £204 15s. 9d. With the balance of last year, the donations, and other items, the receipts amounted to £708 5s. 3d. The expenditure at the Rose Show was £282 11s. 10d., and at the Chrysanthemum Show £257 13s. 3d., while the additional expenses incurred brought the total up to £654 3s. 10d., leaving a credit balance of £54 1s. 5d. The report and balance-sheet were adopted.

Alderman Colman was re-elected president; Mr. G. Miles treasurer and chairman; and Mr. A. J. Gaston secretary. The committee was also elected.

Forty-two new members were nominated during the meeting.

Obituary.

GEORGE HOBDAV.—A prominent amateur horticulturist has passed away in the death, on the 18th inst., of Mr. George Hobday, of Romford. The late Mr. Hobday, who was 60 years of age, was well known to frequenters of the R.H.S. meetings, and was a member of the Fruit and Vegetable Committee. He was also a member of the Committee of the National Vegetable Society, and of the Amateur Gardeners' Society, beside being connected with several local horticultural institutions in the Romford district. The funeral took place on the 24th inst., members of the National Vegetable Society, including Mr. A. Dean, the chairman, being present at the service. Amongst the wreaths was one sent by the National Vegetable Society.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending January 25.

The longest dry period for four months.—The last two days of the past week have been warm for the time of year, but previous to that the day temperatures continued low. On the coldest night the exposed thermometer showed only 11° of frost. On the 21st the difference between the highest and lowest readings in the thermometer screen was only 2°, which is an exceptionally low daily range for even a winter month. The ground is at the present time at about an average temperature at 2 feet deep, but 2° warmer than is seasonable at 1 foot deep. The dry period mentioned in my last report, if we except three days on each of which less than two-hundredths of an inch of rain was deposited, has now lasted for twelve days. We have to go back to September in last year, or for four months, in order to find so long a dry period. No measurable quantity of rainwater has come through either percolation gauge for the last five days. The sun shone on an average for 91 minutes a day, which is 14 hours a day short of the average duration for the latter half of January. On the first five days no sunshine at all was recorded. All the days of the past week were more or less calm. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 8 per cent. E. M., Berkhamsted, January 25, 1911.

COVENT GARDEN, January 25.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eus.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices, including Anemone fulgens, Mimosa, Narcissus, and others.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage and ferns and their prices, including Adiantum, Asparagus, and Ferns.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various potted plants and their prices, including Arabis Sieboldii, Euonymus, and others.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices, including Apples, Grapes, Lemons, and others.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Beans, Beetroot, and others.

REMARKS.—The market is well supplied with Apples, including some fine samples of Bramley's Seedling, which are worth from 8s. to 10s. per bushel. Good dessert Pears, including a few fruits of Williams's Bon Chrétien, are meeting with a moderate demand. A consignment of Pearls arrived from the Cape this week; also Burbank and Wickson Plums. Grapes show no alteration either in supply or demand. Tenerife Tomatoes are a shorter supply. They are meeting with a steady demand at a advanced price. Vegetables have not sold so well this week. Trade in all branches is fairly good. E. H. R., Covent Garden, January 25, 1911.

DEBATING SOCIETIES.

GUILDFORD & DISTRICT GARDENERS.—The annual report and financial statement for the past year show that the association is in a satisfactory condition. Twenty-four meetings, including outings, have taken place, and much useful information has been gained from the various lectures. The annual flower show, which was held on July 18, resulted in a financial loss, but the deficit was made good to the society by some of the honorary members. The outings were very successful. The number of members is 165 as compared with 141 in 1909. The year's working shows a small balance in favour of the society.

CHELMSFORD & DISTRICT GARDENERS.—A meeting of the above society was held on Friday, January 20, at the County Laboratories, Chelmsford. The president occupied the chair. An address was delivered by Mr. N. Cumber, B.Sc., of the Chelmsford Laboratory staff on "Lime and its Uses." The lecture was divided under headings, including: (1) the nature and properties of lime; (2) forms of lime, (3) sources and uses of lime. Experiments were carried out during the lecture to illustrate certain properties of lime.

EGHAM (SURREY) GARDENERS.—At the meeting held on January 4, Mr. G. Baskett in the chair, Mr. W. Swan, Thorneate Gardens, Staines, gave a paper entitled: "Is the Flower Garden Desirable?" After speaking briefly of the flowers, fruits, and vegetables grown in the garden, the lecturer referred to some of the pleasures a well-kept garden afforded.

CATALOGUES RECEIVED.

SEEDS. D. G. PURDIE, 6, Waterloo Street, Glasgow. M. H. SINCLAIR, 156A, Union Street, Aberdeen. CHARLES TURNER, The Royal Nurseries, Slough. JOHN E. KNIGHT, Wolverhampton. GLE & SONS, Biggleswade, Bedfordshire. ARTHUR S. RITCHIE & Co., High Street, Belfast. MACK & MILN, Darlington. H. CANNELL & SONS, Swanley, Kent. HARRISON & SONS, Leicester. ARTHUR S. RITCHIE & Co., 51-53, High Street, Belfast.

MISCELLANEOUS. C. ENGELMANN, Saffron Walden, Essex—Carnations. GEORGE BUNYARD & Co., LTD., Mundstone—Trees and Shrubs. H. CANNELL & SONS, Swanley, Kent—Chrysanthemums. WILLIAM COOPER, LTD.—Greenhouses and other horticultural structures, garden appliances, poultry houses, &c. W. SMITH & SON, Aberdeen—Sweet Peas. WILLIAM LUMLEY, Dawn Nurseries, Hayling, Hampshire—Sweet Peas.

FOREIGN. GEORG ARENDS, Ronsdorf, Germany—Seeds. LIONARD LILLE, 107, Cours Emile-Zola, Lyon-Charpennes (Rhône), France—Seeds. J. C. SCHMIDT, Erfurt, Germany—Seeds. SFRUJIT & Co., Utrecht, Holland—Seeds. VILMORIN, ANDRIEU & Co., Paris, France—Seeds.

TRADE NOTICE.

W. S. WATNEY, LTD. The above named company has been registered with a capital of £1,000 in £1 shares. Business: Nurserymen, market gardeners, &c. Private company. Office: Bostal Nursery, Bexley Heath, S.E.

SCHEDULE RECEIVED.

Southampton Royal Horticultural Society's Rose Show, to be held at the County Ground on Tuesday and Wednesday, June 27, 28; Garden Fete, to be held in the grounds of South Stoneham House, on Wednesday, July 12; Carnation Show and Exhibition of Sweet Peas, to be held at the Royal Pier, on Friday, July 28; and Chrysanthemum and Fruit Show, to be held on Tuesday and Wednesday, November 7, 8.

Potatos.			
	per cent.		per cent.
Kents—	s.d. s.d.	Lincolns—	s.d. s.d.
British Queen	4 3-4 9	British Queen	4 3-4 6
Up-to-Date	4 3-4 6	Up-to-Date	4 0-4 6
Bedfords—		Mancrop	4 6-4 9
Up-to-Date	3 9-4 3	Blacklands	3 6 —
British Queen	3 9-4 0	Dunbards—	
Lincolns —		Up-to-Date	5 0-5 3
King Edward VII.	4 0-4 6	Mancrop	5 6 —
Evergood	3 6-4 0		

REMARKS.—Trade remains steady. Stocks in London are very large. *Edward J. Newborn, Covent Garden and St. Pancras, January 25, 1911.*

COVENT GARDEN FLOWER MARKET.

Large supplies of Daffodils and other flowers are arriving from France and the Scilly Islands. Narcissi are the chief flowers received from Scilly, and they are in good condition. Narcissi from France are also of good quality, but they are not so carefully packed; Soleil d'Or, Paper-white and Gloriosa are prominent varieties. Pheasant's Eye is also seen. Of the large trumpet Daffodils, Golden Spur, Van Sion (or *Telamionus plenus*), Henry Irving, and others are procurable. Tulips are in excess of the demand; some of the second early sorts are coming in, and these include double-flowered varieties. Supplies of Chrysanthemums hold out and are more than equal to the demand. Zonal Pelargonium Rospail is more plentiful. Flowers of best quality are in demand, there being few other good scarlet flowers available. Some growers send their flowers in very small bunches, and these are not worth so much as those of the usual size. Blooms of Azalea are well supplied and their prices are lower. Double White Primula is not so extensively grown as formerly. Roses are well supplied; the best red varieties, such as Liberty, being most in demand. Gardenias are making better prices. Camellias are plentiful and cheaper. Lily of the Valley varies but little, though supplies are large. Roman Hyacinth also is well supplied, and some imported flowers of the ordinary Hyacinth are seen. Imported Galax leaves may be added to the list of cut foliage. Good Maidenhair Fern is always scarce at this season, but there are plenty of small fronds. Asparagus plumosus of good quality is scarce. Other reasonable foliage is well supplied.

POT PLANTS.

Trade has been very quiet, and although supplies have not been large, they have exceeded the demand. Well-flowered plants of Indian Azaleas are procurable; Genistas are seen, but they are not so well flowered as later plants. Some good Chrysanthemums are observed, but there will be very few to follow these. *Frica hibernica* is one of the most useful water-flowering plants, and has been very good this season. Tulips are procurable in various colours, and are well developed. Narcissi also are good. Spruces are well flowered. Trade in Ferns and other foliage plants is very slow. *A. H., Covent Garden, January 25, 1911.*

ENQUIRIES AND REPLIES.

MITE AND RHUBARB.

IT is probably nice that are eating the crowns of *E. H.'s* Rhubarb (see p. 48). He should lay pieces of buttered bread about the ground for two or three nights and, if these are taken, apply Harley's Redne Rat Poison to the buttered bread on the fourth occasion. I have been troubled much the same way this winter, and have found this poison a sure and speedy remedy. *I. Johnson, The Lodge, Levens, Halton.*

ANSWERS TO CORRESPONDENTS.

ABNORMAL CROCUS: *W. A. H.* A similar case of abnormal, fleshy bracts in Crocus is described and illustrated in the issue for February 26, 1910, p. 133, fig. 59.

BEE-BUDS IN BLACK CURRANT: *H. S.* The shoots you send are infected by the bud mite (*Phytotritus ribes*). The mites live in the buds, feeding on the embryo leaves, and it is impossible to employ insecticides to kill them, as they are so effectively hidden in the tissues. The best plan is to pick off and burn all the diseased buds, or, if the bushes are badly affected, to destroy the entire plants. Select the variety Boskoop Giant for planting and make the new plantation in a different part of the garden. In May and June the mites migrate to new buds, and this is the time when spraying is effective. Spray at intervals of 10 days with a mixture of soft soap and quassia water, employing 2 ounces of soft soap and 4 ounces of quassia to each gallon of water. It is advisable to remove a portion of the surface soil under the bushes and replace it with fresh material.

Books: *Grey, Virginia, U.S.A., French Market Gardening*, by John Weathers, price 4s., and *A Diary and Manual of Intensive Cultivation*, by C. D. McKay, price 8d. These works can be obtained from our Publishing Department. The prices given include the postage to Virginia, U.S.A.

CARNATION EDITH WATERS. In referring to this variety in the note on novelties of 1910, the name Waters was incorrectly printed as Watts.

ECONOMY IN ANTHRACITE COAL AND COKE: *W. P.* Although there is a difference of 6s. per ton in the prices at which you can have Anthracite coal and coke delivered at your place, the question which fuel is the more economical to use in the Robin Hood and Saddle-back boilers must be determined by special circumstances. (1) If you only require to maintain a temperature of from 50° to 55° at night in your greenhouses during winter and early spring, coke will certainly be the cheaper kind of fuel to burn in the two furnaces. (2) But, on the contrary, if you use your glass-houses for the production of early crops of Cucumbers and Melons, or similar crops that need a temperature not lower than 65° to 70° in winter and spring, and you wish to bank your fires up at 10 o'clock at night and not to look at them again before 6 o'clock on the following morning, then large red-vein Anthracite must be used in the furnaces at night, and this will be found to possess the requisite heating power, and to be more economical. Coke can be used in the daytime, when the more frequent attention in stoking, which its use necessitates, is of no great consequence. Labour in stoking is greatly reduced by the use of Anthracite coal. By judicious stoking, Anthracite will maintain the water in the heating apparatus at boiling point for eight or nine hours after the furnace has been filled with fuel. You will need a good draught, and, therefore, a higher chimney stack than would be required for furnaces fed with coke only. The flue damper should be left about half way out of the aperture when the fires are made up for the night, in order to get the Anthracite to burn satisfactorily, whereas, if much space left in the flue would afford sufficient draught in making up the fires with coke. In using Anthracite coal, as large pieces as can be conveniently placed in the furnaces should be used, and then left to burn in their entirety; fresh lumps of coal should be added when necessary, but the fire should not be poked with the clinking bar each time fresh fuel is added, as is necessary when coke is being burnt.

GARDENER'S WAGES: *R. P. R.* You should bring the circumstance to the notice of your employer. It is no part of a messenger's duty to open communications addressed to others.

HYACINTH BULBS DISEASED: *S. D. de Son.* The bulbs show "yellow stripes," a bacterial disease, for which no cure is known. The soil in which they have been planted should be treated with quicklime.

MANCHESTER CORPORATIONS MANURE: *J. H.* The sewage of large towns is sometimes treated by what is known as the "Metropolitan System," in which lime and iron sulphate (copperas) are used to a certain extent. It is sent out in bags, in a dry, powder form, and is a useful manure for many crops. According to Griffiths, in his *Treatise on Manures*, a sample of "Manchester Concentrated Manure" was found on analysis to consist of the following:—Phosphates, 7.96 (containing soluble phosphates 1 per cent.); organic matter, 40.29 (containing ammonia, 3.69 per cent.); alkaline salts, 2.79 (containing potash, 0.79 per cent.); sulphate and carbonate of lime, 15.17; oxide of iron and alumina, 4.25; siliceous matter, 15.53; and moisture, 14.21.

MUSHROOM CULTURE: *W. G. S., Sidmouth.* You would fail to grow Mushrooms in ordinary loam. Mushrooms grow up upon organic matter for their supplies of nitrogen and carbon, as they cannot assimilate these materials like green plants. They draw their supplies from the remains of other plants, generally from straw, &c., present in manure. Therefore they would fail to grow in ordinary loam, unless humus were present in extraordinary quantities. In France especial care is taken in selecting the manure for the beds.

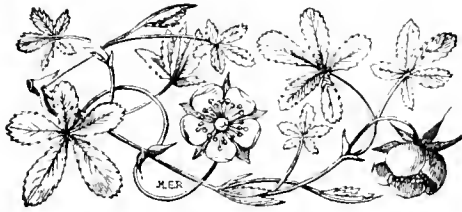
NAMES OF PLANTS: *A. H.* 1, *Helix* *S. hirolii*; we have never known this plant to produce its fruits in this country; 2, *Baptisus Sultanii*; 3, *Primula Forbesii*.—*A. G.* The labels were

detached. The moss-like plant is *Helix* *Soleirolii*; the one with variegated, grass-like foliage, *Chlorophytum elatum variegatum*; 3, *Ceropegia Woodii*.—*C. P. W.* Your plant is probably a dwarf Marjoram, *Origanum majorana*.—*C. L.* 1, *Cupressus sempervirens*; 2, *C. lusitanica*; 3, *C. pisifera squarrosa*; 4, *Tsuga Mertensiana*. The cause of the Laurel (*Cerasus Laurocerasus*) leaves being yellow may be due to one of several reasons, but which one can only be decided by those on the spot. The leaves of common Laurel growing in cold, heavy, or waterlogged soils, sometimes turn a yellow colour.—*Pious Strobus.* 1, *Cupressus Lawsoniana*; 2, *Juniperus Sabina*; 3, *Thuja occidentalis*; 4, *Juniperus* (the specimen is not sufficient to identify the species); 5, *Cedrus atlantica*.—*P. J. M.* 1, *Juniperus virginiana*; 2 and 3, *Cupressus nootkatensis*; 3, *Juniperus virginiana*; 4, *Thuja plicata (gigantea)*; 5, *T. occidentalis*; 6, *T. dolabrata variegata*; 7, *Juniperus virginiana*; 9, *Cryptomeria japonica*; 10, *Thuja dolabrata*.—*N. C.* 1, *Adiantum gracillimum*; 2, *A. Pacotii*; 3, *A. elegans*; 4, *Davallia Mooreana*; 5, *Gymnogramma cchiacea*; 6, *Cyperus laxus*.—*O. R. D.* 1, *Epidendrum elongatum*; 2, *Oncidium pulchellum*; 3, *Ionopsis paniculata*; 4, *Pleurothallis obovata*.—*S. L.* 1, *Pteris tremula*; 2, *Dracena terminalis*; 3, *D. pulcherrima*; 4, *D. fragrans*; 5, *D. congesta*; 6, *Reineckia carnea variegata*.—*Charley.* 1, *Cochlostema Jacobianum*; 2, *Campylobotrys regalis*; 3, *Sanchezia nobilis*; 4, *Codium (Croton) irregulare*; 5, *Begonia ricinifolia*; 6, *Cypripedium Murillo (Argus x Boxallii)*.—*C. W. T.* 1, *Asplenium bulbiferum*; 2, *Cyrtomium falcatum*; 3, *Pteris cretica albo-lineata*; 4, *P. argyrea*; 5, *Selaginella Mertensii*; 6, *Nephrolepis toledoides*.—*A. H. B.* *Leucodendron argenteum (Silver-leaf tree)*. The tree is a native of the Cape, where the leaves are employed extensively for ornamental purposes. An illustration of the seeds, showing their parachute-like character, was given in the issue for April 2, 1906, fig. 104.

ROSE LEAVES: *A. H.* There is no disease present. The appearance of the leaves suggests injury by scorching.

VANCOUVER ISLAND: *T. W.* According to *Land and Agriculture in British Columbia, Canada*, official Government Bulletin No. 10, issued by the Agent-General for British Columbia, the Island of Vancouver is adapted for the cultivation of almost all kinds of fruits, flowers, and vegetables that succeed in Great Britain. "The climate, mild and moist as in England, is warmer and brighter, with less average rainfall, the summers being invariably dry with continuous sunshine, while the winters are much less foggy, with frequent spells of crisp, bright weather. Holly, Ivy, Broom, Gorse, Box, Heather, Privet and other shrubs grow to perfection, and all the favourite English flowers are seen in the fields and gardens. Wallflowers, Primroses, and Violets bloom the year round, and in the early summer the whole country is transformed into a vast Rose garden, wild and cultivated varieties flourishing everywhere. . . . Along the eastern coast are several areas of open land occupied by successful farmers, fruit-growers, dairymen, and poultry raisers. Wheat is not generally grown, as mixed farming is found to be more profitable. Apples, Pears, Plums, Cherries, Prunes, and all kinds of small fruits grow luxuriantly, and Peaches, Nectarines, Apricots, Grapes, Almonds, Filberts, and other Nuts are produced with a little extra care and attention. Fig trees, found growing wild near Nanaimo, encourage the belief that this fruit can be successfully cultivated. Tomatoes, Melons, and other tender vegetables ripen well. Such is the fertility of the soil that a small patch of from 10 to 20 acres, well cultivated, will produce a handsome profit after supplying a comfortable living for an average sized family."

Communications Received. P. G. A. C. F.—R. A. R. J. E. H. S.—P. D. J. S.—C. D. W. H. W. G. D.—J. M. W. C. A. P.—S. W. S. A.—A. B. W. E. M.—J. R. H. G. B. M. R.—B. D. K.—W. E.—C. C. Leiston—R. H. J. J. R. S.—J. B. H.—D. H. L. P. A.—D. R. W.—W. J. S.—J. C. & Co.—J. P. W. A. & B.—V. H. L.—W. A. W.—A. E. B.—W. S. M.—F. E. A.—B. Saxon—W. E. B.—V. Trent—F. P. W. F. R.—R. N.—H. H.—W. P.—H. H. N.—Pittsburg, Pa. (Thanks, the photograph is not suitable).



THE
Gardeners' Chronicle

No. 1,258.—SATURDAY, February 4, 1911.

CONTENTS.

Adiantum Farleyense from spores .. 72	Obituary—George, Henry Hammond .. 79
Adiantum Farleyense Glory of Moordrecht .. 77	Gornaley, John L. .. 79
Agriculture in the West Indies, imperial department of .. 75	Odontoglossum Groganiana Plants, new or noteworthy—Fokienia Hodginsii .. 66
Allan, Mr. John P., retirement of .. 73	Rhododendrons, grafting of .. 80
Alpine garden, the—Saxifraga lingulata and S. lantoscana .. 65	R.H.S. Olympia show .. 72
Apple culture in Devonshire .. 76	Rosary, the—Cultural notes for February .. 68
Apples, British and foreign .. 76	Royal Gardeners' Orphan Fund .. 73
Bread, whole-meal .. 74	Scotland, notes from .. 71
Camellias .. 80	Shrubs, winter flowering .. 65
Crassulas, culture of .. 80	Societies—British Gardeners' Association .. 79
Flowers in season .. 73	Lancaster .. 78
Forestry—Sale of Oak timber .. 74	Manchester and N. of England Orchid .. 79
Fruit-tree stocks .. 76	National Chrys. .. 73
Gatton Park, Surrey .. 73	Royal Horticultural .. 77
Genistas, propagation of .. 80	Surveyors' Institution .. 73
Glasgow flower show .. 73	Strawberry leaf spot .. 74
Heather, propagating .. 80	Uster, new society for .. 74
Hybrids raised at Kew .. 69	Vegetables—Mache, or Lamb's Lettuce .. 68
Lagenophora Forsteri .. 69	Week's work, the .. 70, 71
Nursery firm's Royal Warrant .. 73	"White" medallist .. 73
Obituary—Dilke, Sir Charles .. 72	
Duff, Thomas .. 79	

ILLUSTRATIONS.

Adiantum Farleyense Glory of Moordrecht .. 73
Adiantum Farleyense with indusia .. 73, 75
Cupressus Lawsoniana, details of cone of .. 67
Fokienia Hodginsii, a shoot of, 66; details of foliage and cone .. 67
Lelia anceps Chamberlainiana from Sir George Holford's collection .. 78
Lagenophora Forsteri at Edinburgh Botanic Garden .. 69
Libocedrus macrolepis, juvenile and adult foliage of .. 67
Odontoglossum Groganiana (Supplementary Illustration) Spoon for pouring hot beeswax .. 71

WINTER-FLOWERING SHRUBS.

THE chaste, white cups of the Christmas Rose, the beautiful and fragrant flowers of the Algerian Iris (*I. stylosa* or *unguicularis*), Iris *alata*, and other early species, cannot be too highly prized, but being borne by low-growing plants, far beneath the level of the eye, they do not form a feature in the landscape, such as is afforded by flowering shrubs.

Chimonanthus fragrans is a charming shrub, popularly known as the Winter Sweet, and in the south-west it is at its best at Christmas time, when its leafless shoots are thickly studded with exquisitely-perfumed, pale-yellow, maroon-centred blossoms. As a rule, it is trained to a wall, but, being a hardy plant, such protection is unnecessary, and on a wall it has no decorative value, whereas, if it is grown as a shrub and backed by evergreens, it is a pleasing feature in the garden. In Devonshire, a specimen has grown into a bushy shrub about 15 feet in height, with a like diameter, and when in full flower it spreads its fragrance far. It must be hard pruned if trained to a wall; but when grown as a shrub it requires no pruning. A variety known as *C. f. grandiflora* bears larger but less sweetly-scented flowers than the type.

Lonicera fragrantissima is admirably

named, for its clusters of small, white flowers, borne at the axils of the shoots, are deliciously scented. In a sunny, sheltered nook it will bloom in January. It is a bush species, and its flowers withstand several degrees of frost without injury. Although it is perfectly hardy, the species is useful under glass, where it will bloom a month earlier than in the open air, and a large plant will fill a conservatory with perfume during the dark days of December. It is classed as an evergreen, but when exposed to severe frost and cold winds it often loses many of its leaves. It is a native of China. *L. Standishii* is a very similar species.

Cornus Mas, known as the Cornelian Cherry, commences to bloom in February, and is a pretty sight when covered with flowers in the early days of March. The individual blossoms are not particularly showy, being composed of narrow, yellow petals, radiating in a circle, like the spokes of a diminutive wheel; but when each spray is thickly studded throughout its entire length with flowers, the shrub presents a decidedly attractive appearance.

Daphne Mezereum is not a particularly graceful shrub, but is well worthy of a place in the garden on account of its purplish-pink or pure white, scented blossoms, which cluster thickly round its stiff, upright shoots, when they are bare of leaves in winter. It often commences to flower as early as December. There is a larger-flowered form, known by the name of *D. M. grandiflora*, which is superior to the type. *Daphne indica*, which is held at Kew to be identical with *D. odora*, is considered tender, and is generally given a place in the greenhouse. It is, however, far hardier than is usually supposed, and, in sheltered positions in the south-west, succeeds admirably out-of-doors, often flowering as early as January, when it scents the air with its rich perfume. There are three varieties, which have, respectively, reddish-purple, white with a red reverse, and pure white flowers.

Erica lusitanica, better known as *E. colomades*, is a fine, tall-growing Heath, often attaining a height of 8 feet or more. In mild winters it commences to perfect its pinkish-white blossoms as early as January, and becomes an object of increasing beauty as the days lengthen, when it is a cloud of flower. It propagates itself readily by self-sown seedlings.

Hamamelis arborea, a very attractive member of the Witch Hazel family, blossoms on its leafless branches in mid-winter. Its flowers, before they expand, look like rolls of narrow, yellow ribbon, and when fully open they have the appearance of strips of gold-leaf. A freely-flowered specimen presents a bright picture, especially when the flowers are thrown into high relief by a background of Yew or other dark-leaved evergreen. The blossoms will remain uninjured even in 10 or 15 degrees of frost.

Prunus Davidiana is the earliest-flowering of the Almonds, and, in favoured districts, often commences its season of bloom in January. The type bears rose-coloured flowers, and is a beautiful sight when in blossom, but still more lovely is the pure white variety, whose snowy blossoms are just as freely produced, and are extremely charming on the slender sprays. The white variety is generally

of better form and more free-flowering than the rose-coloured, and, when grown in a sheltered spot, backed by evergreen foliage (as all leafless, winter-flowering shrubs should be), it presents a delightful picture.

Garrya elliptica is a handsome, catkin-bearing shrub that should have a place in every garden. Though a native of California, it is practically hardy, and is well grown in Scotland. In the winter, when covered with countless drooping catkins, some of which exceed 12 inches in length, it is a particularly striking object, especially in an open position on the lawn. It is seen at its best in Cornwall, where huge bushes, 15 feet or more in height, and as much in diameter, may often be seen crowded with hanging catkins.

Arbutus Unedo, sometimes known as the Strawberry Tree, on account of its bright red fruit, is very ornamental in the winter when bearing its small, white, bell-shaped blossoms and glowing fruit. There are many species, *A. canariensis* being a very handsome one, and quite hardy in the south-west.

Nuttallia cerasiformis is a native of California, but may be considered fairly hardy, as it succeeds at Kew when totally unprotected. In March, and sometimes earlier, the clusters of small, white, drooping flowers are produced slightly in advance of the leaves. The blossoms have a pleasing, but not powerful fragrance.

Viburnum Tinus, the well-known Laurustinus, is too common to need more than a passing mention, but an exceptionally fine variety is *V. T. lucidum*, which bears flower-trusses of snowy-whiteness and far larger than the type.

Jasminum nudiflorum, though not strictly a shrub, can scarcely be omitted from this list, as the sheet of clear yellow which is formed by its countless, starry blossoms forms one of the most beautiful features in the winter landscape, and is especially charming when associated with *Cotoneaster microphylla* on a house-wall, the crimson berries of the latter forming an excellent contrast to the yellow flowers of the Jasmine. *Wyndham Fitzherbert*.

THE ALPINE GARDEN.

SAXIFRAGA LINGULATA AND S. LANTOSCANA.

I HAVE every personal esteem for M. Correyon, but this shall never lead me into following him with the unquestioning faith of some writers. Error there clearly has been, and is; our only concern is to admit it and to put it right. So here is Boissier's own description of *Saxifraga lingulata* B. lantoscana (Engler and Burdet: *S. lantoscana* of Boissier) faithfully translated from the Latin. He says "it is near *S. lingulata* of the Tenda valleys, differing in a less grey-green colouring, verging more to brown (brunneum: colour words in a dead language are proverbially difficult: I myself should describe the very characteristic difference as consisting in a stronger admixture of ochre) leaves more often convex at their end, not furrowed, as in *lingulata*, much less lengthily attenuate towards their base, not drawn out to a point at their tip, seldom and bluntly acute, with a thinner marginal band (of chalk), which is less conspicuous, owing to the convexity of the upper surface." Now, try to apply this to M. Correyon's Aizooid plant, which is absolutely unlike "*lingulata*" of the Tenda valleys in every one of its parts. But that is Boissier's description

of his own *lantoscana*, the plant of the Vésubie valley. As for "modification by culture": for 10 years I have grown quantities of Boissier's *lantoscana*, collected in the Vésubie valley, and never, naturally, have they "modified" their leaf or spike in the least degree. What amount of "modification by culture" will turn one species into another—an *Aizoon* into a white-flowered *lingulata*? If culture will produce these happy effects, let us all grow myriads of plants of *Aizoon*, in the hope that we may some day see them "modified" into *florulenta*. No; Boissier's description only fits the real Vésubie *lantoscana*, and all other versions must be changelings or hybrids. In no case do they answer Boissier's picture of the species supposed to be named from them. Why, the edge of the leaves, and their shape, show at a glance that they have no sort of relationship with any *lingulata*. While the totally different and perennially "unmodified" *lantoscana* of the Vésubie obviously is a relation of the Tenda plant, and a very close one, too. And, finally, if we are to go to authorities, let us go at once to the best; the best authority on the Maritime Alps is not Correvon, nor Boissier, but Burnat, whose whole account of *Saxifraga lingulata* I now propose to give, as a definite and final settlement, with one last word for Prof. Arbois's note. He says *Saxifraga lantoscana* "loves dry and hot places." This may be; if so, the poor plant has but a thwarted life, for it never, by any possibility, occurs in healthy character, except on cool, damp, and shady ones. Now for Burnat's "*lingulata*." Briefly, there is no such thing. As I understand it, he postulates "*Saxifraga lingulata*" as a sort of mythical archetype, not to be found or fixed on earth.* Of this myth, then, there are held to be two parallel developments: the one is called *S. lingulata* A Bellardii (of Sternberg). This is the Saxifrage of the Tenda valleys, which, with all due respect for Prof. Arbois, does not occur in "wet" places, but has a faint preference for the shadier side of cliffs. The other variety of "*lingulata*" is *S. lingulata* B *lantoscana* (of Engler; Boissier's *S. lantoscana*). This is the Vésubie Saxifrage, which has no affinity at all with any *Aizoid* form. The distribution of these two subspecies is very elaborately made out by Burnat: there is no room for any confusion as to the Vésubie Saxifrage. Then there are also, round Tenda, and elsewhere in that district, a number of intermediates and missing links between A and B. But *lingulata* species, I repeat, has no separate existence: *Saxifraga lingulata* of Ardoino is included in *S. lingulata* Bellardii of Sternberg. Therefore I would very strongly urge that, for the sake of simplicity and correctness, gardeners should in future know these Saxifrages as *S. Bellardii* and *S. lantoscana* respectively. The Tenda plant has no right to a monopoly of the name *lingulata*: to accord it is to put an unjustified slight on *lantoscana*, which is not its variety, but a co-equal divergence from a vanished (or mythical) type. We have had the description by Boissier of B *lantoscana* (the real one). Burnat endorses it, but agrees with me in noting no substantial difference as to the silver margin (I should even say that in B the margin is more often a broad regular hem). With regard to the relationship, at which I have guessed, between "*lingulata*" and *cochlearis*, Burnat has some interesting remarks. The relationship was actually claimed by Engler; and Burnat is so far from denying it that he merely declares himself unable to confirm it, because he himself has never yet met any intermediates. It is possible, however, that the connection of *cochlearis* and A Bellardii is, as I had thought, through B *lantoscana*. At least, there is a botanical indication: in *cochlearis* the stems and calyxes are invariably more or less glandular; in *lingulata* B *lantoscana* glands are found in about 33 per cent. of specimens examined: they are very rarely as abundant as in *cochlearis*—a few are seen on the

calyx, and fewer on the lower stem; in the intermediates between A and B, of all the specimens examined, only three yielded glands, and those only on the calyx, while *Saxifraga lingulata* A Bellardii is never glandular at all in any of its parts. With regard to *Saxifraga florulenta*: this plant was discovered by Molinari about 1820; fully described, named, and figured by Moretti in 1824; took its due place in 1872 in Engler's pages (after its rediscovery by a nameless English tourist in 1840), and is referred to by Maw in the *Gardeners' Chronicle*, 1874. That is to say, it was a species as distinct and conspicuous as the Matterhorn among mountains. Will someone explain, then, how it was ever possible that so outstanding a species should have found its way into the Kew *Hand List* as

NEW OR NOTEWORTHY PLANTS.

A NEW GENUS OF CONIFERÆ.

IN 1908 Mr. S. T. Dunn described, as a new species of *Cupressus*, a tree growing near Foochow, in eastern China, which had been discovered by Capt. Hodgins, of the s.s. "Haiching." In March, 1909, Capt. Hodgins procured further dried material and four living plants for Capt. L. Clinton-Baker, R.N., who sent these to his brother, Mr. H. Clinton-Baker, whose pinetum at Bayfordbury is well known for its rare and beautiful specimens of conifers. During Capt. L. Clinton-Baker's stay on the Eastern



FIG. 32.—*FOKIENIA HODGINSII*: A NEW GENUS OF CONIFERÆ.

a mere variety—of *S. lingulata*? If the plant was sufficiently known to be reckoned with at all, how was the compiler able to evade the knowledge that it was a monocarpous, red-flowered, green-leaved, three-styled, silicicole species—that is to say, as far removed as any *Saxifraga* could be, both botanically and geographically, from all forms of *Saxifraga lingulata*, which is perpetual, normal, white-flowered, chalk-frilled, and calcicole? Could the compiler of the Kew *Hand List* have based his record, by any chance, on a "*Saxifraga florulenta*" shown years since at a meeting of the Royal Horticultural Society? And could that *florulenta* have been some ambitious cousin of Bellardii? But into these doubtful questions I will not plunge: it was all long before my time. *Reginald Farrer.*

station, he occupied his leisure in the search for new and remarkable conifers in China, Formosa, and Japan: and to him must be given the credit of the introduction of several species, such as the tree under review, *Pseudotsuga japonica*, and *Cupressus formosensis*, the latter being the largest tree known in the Far East, one giant* on Mt. Morrison, in Formosa, being 67 feet in girth.

With the assistance of Mr. H. Hamshaw Thomas, M.A., of Cambridge, I have carefully examined the material kindly given by Mr. H. Clinton-Baker; and we have come to the conclusion that this tree from the Fokien province must be made the type of a new genus, which

* Cf. Elwes and Henty, *Trees of Great Britain*, v., 1, 150 (1910).

we now publish as *Fokienia*.† A. Henry and H. H. Thomas. It is intermediate in its characters between *Cupressus* and *Libocedrus*, and may be briefly characterised as an evergreen tree, belonging to the Cupressineæ, with cones similar to those of *Cupressus* (section *Chamaecyparis*), in being globose in form, and composed of numerous peltate scales, but with each scale bearing two seeds which are like those of *Libocedrus* in having two very unequal lateral wings; while the foliage is nearly identical with that prevalent in the Chinese and North

scribed in detail as follows:—A tree attaining 40 feet in height and 3 feet in girth, glabrous in all its parts. Foliage in flattened "branchlet-systems," each leaf-bearing branch tripinnately divided, all the pinnae being disposed in one plane. Leaves in four ranks, the lateral pair in each rank being different from the facial pair (the dorsal and ventral leaves); resembling those of *Libocedrus macrolepis* in general appearance and also in being markedly different on young and old trees.

On young plants the leaves are considerably

facial pair, and separable from these at their inner margin; while in *Fokienia Hodginsii* the lateral leaves are flat and not conduplicate, and merge by their inner margins into the facial leaves.

In adult trees the leaves on the ultimate branchlets are similar to those of *Libocedrus macrolepis*, arising in whorls of four at the same level; the lateral and facial pairs approximately equal in length, about $\frac{1}{2}$ inch; all acute or slightly obtuse and not acuminate at the apex; lateral leaves conduplicate, and embracing the facial leaves, with white stomatic depressions on their ventral surfaces; facial leaves oblanceolate with a broad triangular apex. On older branchlets the internodes elongate, and the

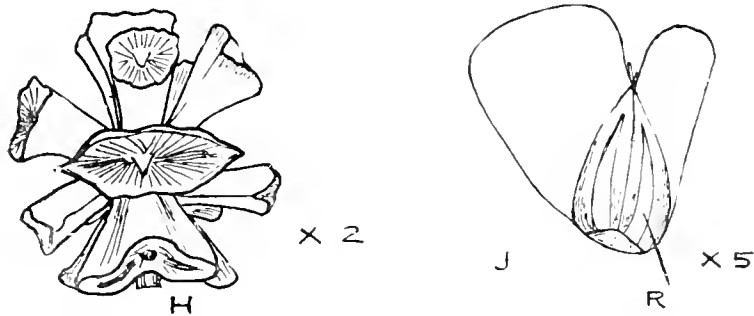
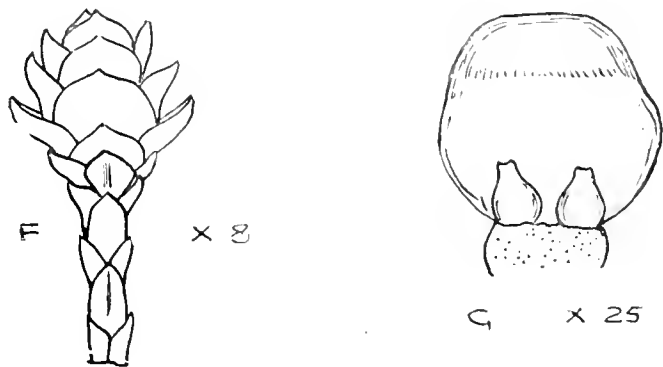
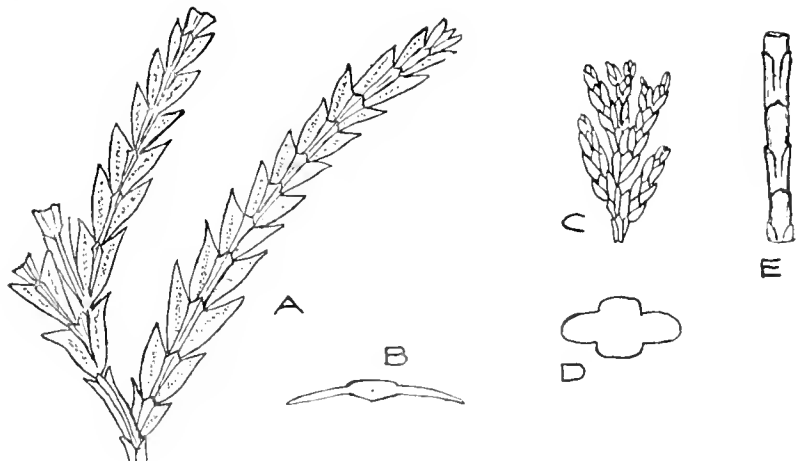


FIG. 33.—*FOKIENIA HODGINSII*.

A, Juvenile foliage (lower side) showing stomatic bands; B, Diagrammatic cross section of A; C, Adult foliage; D, Diagrammatic section of C; E, Main axis of young plant, showing elongation of the internodes; F, Young female cone; G, Cone scale showing young ovules; H, Mature cone; J, Seed, showing wings, and resin canals (R).

American representatives of the last-named genus.

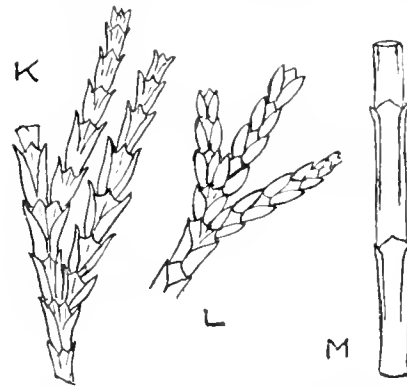
Fokienia Hodginsii, A. Henry and H. H. Thomas, the only species known, may be de-

† *FOKIENIA*, A. Henry et H. H. Thomas, genus novum Cupressinearum, inter *Libocedrum* et *Cupressum* collocandum; strobili globosi, squamæ peltatæ, quam in *Cupresso* § *Chamaecyparide*, sed dispermæ; semina bialata, alis lateralibus valde inæqualibus, quam in *Libocedro*; folia et habitus *Libocedri macrolepidis*. Species unica, *Fokienia Hodginsii*, A. Henry et H. H. Thomas, arbor, 40 ped. alta, in prov. Fokien Chinae orientalis.

Cupressus (§ *Chamaecyparis*) *Hodginsii*, Dunn, in *Journ. Linn. Soc. (Bot.)*, xxxviii, 367 (1908); Henry, in *Elwes et Henry, Trees of Great Britain*, v., 1, 150 (1910).

larger than in the adult stage, averaging $\frac{1}{3}$ inch long, all ending in spine-like points; lateral leaves triangular, flat, longer than the adjoining facial leaves, with which they are connate, green on the upper surface, marked on the lower surface with a conspicuously white longitudinal stomatic area; facial leaves oblanceolate, shorter and much narrower than the lateral leaves; the ventral leaf with a raised midrib, on each side of which is a narrow stomatic band. In the young foliage of *Libocedrus macrolepis* the lateral leaves are plainly conduplicate, embracing the

FIG. 34.—*LIBOCEDRUS MACROLEPIS*.
K, Juvenile foliage; L, Adult foliage; M, Main axis.



leaves arise at different levels on the axes in opposite decussate pairs; the lateral pair oblong, with the triangular apex spreading outwards and tipped with an incurved point; the facial pair similar, but with the apex appressed. In *Libocedrus macrolepis*, the arrangement on the main axes or older branchlets is quite different, the oblong leaves arising in whorls of four at the same level.

We have seen no staminate flowers. Young female cones, terminal, composed of six to eight pairs of opposite, decussate, blunt-pointed, rounded scales; ovules, two on each scale, flask-

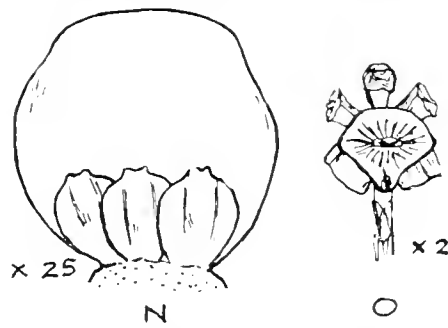


FIG. 35.—*CUPRESSUS LAWSONIANA*.
N, Scale of young cone, showing ovules; O, Ripe cone.

shaped, smooth and rounded, with a large micropyle. Mature cones, ripe in the second year, on short scaly stalks (about $\frac{1}{8}$ inch long), globose, when open about 1 inch long and $\frac{7}{8}$ inch wide; scales, 12 to 16, woody, peltate, clavate or cuneate in shape, expanded externally into a wrinkled oblong apophysis, which is deeply concave, with radial striations on the sides of and a ligulate micro in the centre of the depression. Seeds, two on each fertile scale, about $\frac{1}{8}$ inch long, triquetrous or tetrahedral, pointed at the distal end, flattened at the base, which is marked by an oval hilum; two large resin-vesicles underneath the seed coat on the upper and lower surfaces; wings lateral, very unequal in size;

† The inequality of the wings depends on the amount of room available on the scale of the cone. The larger wing rests on the outer side of the scale, the lesser wing on the inner side. The latter is best developed on the large middle scales of the cone.

the larger wing attached to the whole length of one side of the seed ($\frac{1}{2}$ inch), trapezoidal, oblique with a short anterior and a long posterior margin, the upper edge rounded or truncate and about $\frac{1}{4}$ inch; lesser wing variable, occasionally rudimentary, usually attached to the anterior part only of the other side of the seed, short, narrow at its upper end, which is about $\frac{1}{2}$ inch broad.

We have pointed out above the great similarity of the foliage of *Fokienia Hodginsii* to that of *Libocedrus macrolepis*, a native of south-western China and Formosa; but there is no difficulty, as we have shown, in distinguishing the two plants either in the young or the adult stage. The cones are similar in shape to those of certain *Cypresses* of the section *Chamaecyparis*, as *Cupressus Lawsoniana*, but are larger and take two years to ripen. Moreover, in the *Lawson Cypress*, the ovules are usually three on each scale, and are very different in shape, being flattened, with a slight wing-like expansion on each side. The seeds furnish, however, the most important character, and are totally different from those of any species of *Cupressus*. In the latter genus, the wings, though two and lateral, are very narrow and equal, and surround nearly the whole of the seed; and according to Mr. Thomas, appear to be present in the ovules in a rudimentary condition. In *Fokienia* the wings are lateral and very unequal, and appear to be derived from the scale of the cone, as no trace of them is visible in the ovule. The structure of the seed, of *Libocedrus* appears to be identical with that of *Fokienia*, the only difference perhaps being that the lesser wing is usually little developed in *Libocedrus*.

According to Capt. Hodgins this tree is rare, and occurs in the province of Fokien, in the Yung-fu district (N. lat. 26°, E. long 119° 15') at a few hundred feet above sea-level on the northern slope of one valley, about 20 miles from the sea. Here he found three clumps, containing altogether about 18 mature trees. In the same district *Cunninghamia sinensis* and *Keteleeria Fortunei* are cultivated for their timber; and, judging from this, the new conifer ought to succeed in the south-western counties of England, and in parts of Ireland and Wales where the climate is mild. Higher up on the mountains of Fokien, about 2,000 feet, Capt. Hodgins found *Cryptomeria japonica* apparently wild.

Mr. Dunn also found small trees of this species, without flowers or fruit, in woods near Yenping in the interior of the same province at 2,000 feet, and introduced it (by young plants collected by Mr. Hodgins) into cultivation in the botanic garden at Hong Kong. In the Kew Herbarium there is also a branch of this species labelled "Amoy, China, from H. F. Rankin, Sept. 18, 1908"; and in all probability the tree is widely distributed through the interior of Fokien, which has scarcely been explored by European botanists.

The figures are reproduced from drawings made by Mr. Thomas. *Aug. Henry.*

THE ROSARY.

CULTURAL NOTES FOR FEBRUARY.

Cut back all budded stocks, whether dwarf or standards, before the sap is active; advantage should be taken of the first favourable weather to carry out this work, but much treading on the ground whilst it is wet should be avoided. The shoots of dwarf stocks may be cut back to within 1 inch of the buds, but I do not recommend cutting so closely in the case of buds on standard briars. A sharp knife is much the best implement to use, being superior to any form of secateur; for a knife leaves a clean cut, whereas the

other implement bruises the shoots more or less. Opportunity should be taken at the same time to trim the stems of the standards. The present is an excellent time to apply mulchings. The roots will shortly become active, and be able to appropriate the manurial constituents of the mulching, whereas in the case of autumn mulches much of the fertilising value is lost through the winter rains. As no further trimming will be necessary after this pruning, the ground may be dug, but often very superficially, so as not to disturb the roots; the object being to disturb the soil just a little more deeply than could be done with the hoe.

PRUNING.

It is too early to commence the pruning of *Roses* generally, but such hardy sorts as the *Moss*, *Provence*, and most *Briar Roses*, may be pruned towards the end of February, if for one reason or another it is convenient to perform the operation then. Cut the longest shoots back about half their length, but prune the weaker ones more severely. All these *Roses* need a rich soil, yet they are too often planted in some neglected part of the garden, where the soil and other conditions are unfavourable.

PLANTING STOCKS.

Briar stocks to be grown as standards should be planted during the late autumn, but those intended for dwarf plants may be planted at the end of the present month. The best plan is to put them in rows, and not, as is sometimes done, directly into their permanent positions. Those intended for dwarfs may be placed 9 inches apart in rows made 2 feet distant; but in the case of varieties of extra-vigorous habit, allow them a foot apart in the row and 3 feet between the rows. Endeavour to plant dwarf stocks as shallowly as possible, just covering the roots with soil and drawing a little about the stems, partly to help to support the plants in the ground, and partly to protect the roots and stems from drying winds. The benefit of shallow planting and earthing up will be found at the budding season.

Roses growing in warm borders frequently start into growth by the end of February; this must not be taken as a hint to commence pruning, which should not be started until the first week in March, even in the case of very hardy varieties. As a rule there are plenty of dormant eyes below the buds which push prematurely into growth, and they will furnish the plant with new shoots, but if the top growth is cut away early in the year, the lower buds are forced into growth, only to be injured by frosts in spring.

ROSES UNDER GLASS.

The winter-grafted *Roses* will need great care, and must be shaded during periods of bright sunshine, otherwise they are liable to be damaged by scorching. A few pieces of brown paper will serve admirably for shading material. A gentle spraying with clear water will prove beneficial during bright weather, and will help to prevent excessive warmth during bursts of sunshine. This applies also to *Roses* under glass grown for early blooming; short spells of sunshine cause the temperature of the house to rise rapidly at a time when it is not safe to open the ventilators, and a gentle spraying with the syringe, accompanied by a sprinkling of water over the paths, walls, and other bare spaces will cause a lowering of the temperature through evaporation of the moisture. At the same time, be careful not to use sufficient moisture to cause the foliage to be damp next morning, for this would militate against the proper opening of the blossoms, and probably cause some of the points of the shoots to damp off.

Insect pests will become troublesome from now onward. The most effectual remedy is to fumi-

gate the house overnight, and syringe the plants with clear water on the following morning.

Plants in pots will be benefited if they are turned round occasionally so as to change their positions in regard to the light. At the same time stir the surface soil in the pots very lightly. Climbers and other *Roses* planted in houses sometimes produce roots that find their way into borders outside the house. In all cases where roots are growing in outside borders, the soil should be covered with a layer of light, strawy manure or litter, as a protection from the cold. Inside borders often appear moist on the surface, whilst they are dry underneath. It must be remembered that the rain does not reach them, therefore their condition with regard to moisture should be ascertained at intervals, for drought is very injurious.

Now is the best time to pot up a batch of *Roses* from plants growing in the open; keep the pots half plunged beneath the soil in a cool situation. These plants will be valuable for forcing during next season. It will be well to pot a good number so as to allow plenty of choice; the surplus plants will serve to fill blanks in the beds and borders out-of-doors and to replace any that have proved unsatisfactory. Newly-planted *Roses* should be pruned rather hard at the time of planting, for, as a result of hard pruning, the roots have fewer shoots to supply with nourishment. *A. Piper.*

VEGETABLES.

MÂCHE OR LAMB'S LETTUCE.

UNDER the name "Mâche" the London West-End greengrocers have found a ready sale for tufts of the salad plant known to English gardeners either as *Lamb's Lettuce*, corn salad, or white potherb. *Mâche* is the French name for this salad, and as most of the Christmas supplies come from France, no doubt many people who bought it were under the impression that they were obtaining a rare delicacy. It must be admitted that the French market growers show a greater knowledge of human nature and display more enterprise than do the majority of our trade cultivators. For it is at such times as Christmas and Easter that people indulge in luxuries, and many comestibles then sell freely, though they have little or no steady sale. There are two desirable forms of corn salad, the common or round (*Valerianella olitoria*) and the Italian (*V. erio-carpa*). Their chief value is for use during the winter months as a substitute for Lettuce. Except as an occasional novelty, one cannot conceive a demand for *Mâche Lettuce*, for as a raw salad its growths are not very palatable, though when dressed with the usual condiments, they are, to many palates, delicious. The whole plant—which, at a glance, has much the appearance of a tuft of *Forget-me-not*—is used, and is rarely blanched, but is served in the green state. The chief sowing should be made towards the middle of August, to be followed by small successional sowings until the end of October. This practice will furnish plants for the period at which they are likely to be in request, although, where required, the *Lamb's Lettuce* may be had all the year round. Almost any garden soil will successfully grow this salad plant, but it should not be freshly manured, and a dry and moderately open position should be selected. The seed should be sown shallowly in drills drawn 6 inches apart, and at the final thinning the plants should be left a similar distance from each other. The thinnings will be useful for mixed salads. Although the original round corn salad is a native plant, some slight protection is needed during severe frosts. *J. C. Bartlett.*

|| Resin-vesicles occur on the seed of *Libocedrus* and *Fokienia*, and are present in certain species of the section *Chamaecyparis*.

HYBRIDS RAISED AT KEW.*

(Concluded from p. 36.)

Rhododendron (*R. intricatum* × *R. indicum album*).—The cross was made in 1903 and seedlings raised in 1909, but the plants have not yet flowered.

Rhododendron (*R. Smirnowii* × named garden varieties).—A large number of hybrids was obtained from crosses made in 1893 and 1894, most of which were of very vigorous growth but inferior to the majority of garden varieties in their flowers. A few, such as those named "G. Thiselton-Dyer" and "Mrs. Prain," were of average merit. Hybrids from *R. Smirnowii* are likely to prove quite hardy.

Rhododendron *Edith A. Boulton* (*R. Fortunei* × *R. Meteor*).—This hybrid, produced in 1894, has proved to be one of the best of the *Fortunei* race of *Rhododendrons*—a race of considerable value in gardens, because they flower somewhat in advance of the better known hybrids and thereby lengthen the flowering season of the genus. It is curious in producing many flowers without stamens.

Rhododendron (*R. Vaseyi* × *R. cinnabarium*).—Cross made in 1897. The hybrid is a curious-looking small-leaved shrub which has not yet flowered.

Rosa (*R. macrophylla* × *R. rugosa*).—It is impossible to obtain *Roses* true from seed gathered from the plants growing together in the collection, because of the cross fertilisation caused by bees. The result is nearly always a worthless mongrel, and the propagation of *Roses* by seed from this source is no longer attempted. Amongst the hybrids formerly so raised, however, is a very handsome unnamed one with the parentage given above. Its beauty is in its fruits, which are Pear-shaped, as in *R. macrophylla*, but larger and of a brilliant scarlet-red. Miss E. Willmott is figuring this hybrid in her new work on the genus *Rosa*.

Senecio kewensis (*S. [Cineraria] cruenta* × greenhouse *Cinerarias*).—In 1833 Kew introduced and flowered *Senecio (Cineraria) cruenta*, believed to be the progenitor of the popular race of greenhouse *Cinerarias*. It was afterwards crossed with the latter, and the seedlings thus obtained were known as *Kew Cinerarias*. Plants and seeds were distributed from Kew, and shortly afterwards a selection from them was shown by Messrs. Sutton & Sons under the name of *C. stellata*. Some of the Kew seedlings came fairly true from seeds and were known as "Kew Blue," "Kew White," &c.

Senecio Lady Thiselton-Dyer (*S. Heritieri* × *Cineraria Kew Blue*).—The cross was made in 1899. The plant has the shrubby habit of *S.*

No. 2, 1910, p. 65. It is remarkable for its large leaves, which have blades 2 feet long and 15 inches wide. The flowers are pale ochre-yellow and blue. (See *Gardeners' Chronicle*, 1910, xlvii., 217, with figure.)

Strelitzia (*S. augusta* × *S. Regina*).—Several plants were obtained from the cross made in March, 1893, but as yet no flowers have appeared.

Streptocarpus Watsonii (*S. parviflora* × *S. Dunnii*).—Cross made in 1836, flowered in 1837. The plant is monophyllous. Inflorescences numerous, produced in succession along the base of the midrib of the large single leaf. Flowers numerous, mauve-purple in colour shading to brownish-purple in the throat, 2 inches long, 1½ inch broad. Plant dies after flowering, producing no seed. (See *Gardeners' Chronicle*, 1837, ii., 214, fig. 52.)

Streptocarpus kewensis (*S. Rexii* × *S. Dunnii*).—Cross made in 1836, seedlings flowered in 1837. Habit as in *S. Rexii*; that is, it forms several leaves to each plant. Flower stems numerous, 3-8 flowered, bearing a compact mass of flowers as in *S. Dunnii*. Flowers mauve-purple, with brownish-purple marking in the throat. (See *Gardeners' Chronicle*, 1837, ii., 246, fig. 61.)

Streptocarpus White Pet (*S. Rexii* × *S. parviflora*).—Cross made in 1836, plants flowered in 1837. Habit as in *S. Rexii*; leaves two or more, 5-7 inches long, 2-3 inches broad. Inflorescence 4-6 inches high, bearing 2-5 flowers.

Streptocarpus Dyeri (*S. Dunnii* × *S. Wendlandii*).—Cross made in 1892, plants flowered in 1894-95. Plant monophyllous; leaf 2-3 feet long and 16-18 inches broad. Inflorescence an erect, many flowered cyme, 12-30 inches high; flowers reddish purple. Figured in *Garden and Forest*, 1895, fig. 1. For further particulars of the Kew hybrid *Streptocarpus*, see *Gardeners' Chronicle*, 1890, viii., 410.

FAILURES.

- Hippocastanum* × *Vallota purpurea*.
 - Hippocastanum* × *Clivia miniata*.
 - Impatiens Oliveri* × *I. Sultanii*.
 - I. Oliveri* × *I. Herzogii*.
 - Mecynopsis aculeata* × *M. heterophylla*. Seeds from this cross ripened and appeared to be good, but did not germinate.
 - Oxalis enneaphylla* × *O. adenophylla*.
 - Primula kewensis* × *P. floribunda*.
 - P. malacoides* × *P. obovata*.
 - P. megacalydia* × *P. obovata*.
 - P. obovata* × *P. sinensis*.
 - P. sinensis* × *P. verticillata*.
 - P. sinensis* × *P. vulgaris*.
- In nearly every case the reverse cross was also made. Among shrubs, failures have been experienced with *Hypericums* and *Ericas*, not due, however, to any inherent incapability of hybridization in these genera, but to accident or defective fertilisation.



FIG. 36.—LAGENOPHORA FORSTERI IN THE ROCKERY, ROYAL BOTANICAL GARDENS, EDINBURGH.

Rhododendron (*R. campylocarpum* × *R. Esmeralda*).—One of the most desirable things in regard to the cultivation of *Rhododendrons* is the production of a race with good yellow flowers. It was thought that something in this way might be done by crossing these two, the former of which is pale yellow, the latter light red. About 25 hybrids were obtained from this cross made in 1897, only one of which has yet flowered, and this was as pale a yellow as the mother plant.

Rhododendron (*R. Griffithianum* × *R. campylocarpum*).—The hybrid, produced in 1898, bears cream-coloured flowers, but is not of striking merit.

Rhododendron Griffithianum ? was also crossed with various garden varieties. The best of the hybrids obtained were those from flowers pollinated with "Grand Arab" and "Ascot Brilliant." The trusses are red. The plants are only half-hardy at Kew.

Rhododendron (*R. ciliatum* × *R. Edgeworthii*).—The hybrid, obtained in 1900, is of interest in being exactly similar to the variety called "Princess Alice," a well-known greenhouse plant.

Heritieri, and the blue and white flowers also show the ringed markings of the seed parent *S. Heritieri*. A plant was exhibited at the Royal Horticultural Society's meeting of April 23, 1900. (See *Gardeners' Chronicle*, 1900, xlvii., p. 3 of supplement.)

Shortia (*S. uniflora grandiflora* × *S. galacifolia*).—Cross made in 1910. The seeds were sown as soon as they were ripe and germinated in a short time, but the plants have not yet flowered. Flowers of *S. galacifolia* fertilised with pollen of *S. uniflora grandiflora* did not produce mature seed.

Spathoglottis kewensis (*S. plicata* var. *Micholitzii* × *S. Vieillardii*).—This hybrid, produced in 1900, flowered in 1903. The colour of the flowers mostly resembles that of the female, being bright reddish-purple, 2 inches in diameter, with the pale yellow markings on the lip and column which are characteristic of *S. plicata* var. *Micholitzii*.

Strelitzia kewense (*S. Regina* × *S. augusta*).—Several plants were raised from the cross, made in March, 1893, one of which is growing in the Mexican House at Kew. This one flowered for the first time during the winter 1909-1910, and was described as *S. kewense* in the *Kew Bulletin*,

LAGENOPHORA FORSTERI.

LET me commend to the notice of lovers of carpet rockery the species *Lagenophora Forsteri*, illustrated in fig. 36, from a photograph of a plant growing in the Rock Garden of the Royal Botanic Garden, Edinburgh. To the European in New Zealand the plant is "Native Daisy," a name which indicates well its growth-form in summer, and one which is likely to be more acceptable in gardens than "Papataniwhaniwha," by which it is known to the native in New Zealand. Like many other scape-flowering Composites, *Lagenophora Forsteri* is a rosette plant, but the rosette is looser and fewer-leaved than is that of our common Daisy, and the obovate leaves have narrower petioles and toothed blade. They die off in winter. There is no yellow eye to the head. Though wanting in this colour contrast of our common daisy, the New Zealand Native Daisy merits equally the title "crimson tipped," only it is the involucrel bracts which have red tips, the ray florets are always pure white. Easily grown, increasing rapidly by offsets, and quite hardy, this charming little plant should be generally known. I. B. B.

* Reproduced from *Kew Bulletin*, No. 9.

The Week's Work.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

MELONS.—The structure chosen for the earliest crops of Melons should be one where plenty of both top and bottom heat is at command. The house should be well cleansed before the bed is made up, and the bed should be made very firm, to promote a sturdy growth. Where there is sufficient bottom heat, no assistance will be required from a hot-bed. Some growers prefer to plant in a small quantity of soil and then add quantities of loam as the growth advances, but I prefer to make the entire bed at once, using good turfy loam and a good sprinkling of soot, wood ashes, lime or old mortar rubble, and road or river sand. Ram well as the work proceeds, finishing off with a perfectly level surface, then with the finest of the soil make a small hillock in which to plant the varieties in the position they are to occupy. After planting, place a neat bamboo or stick and secure this to the first wire of the trellis for training the young plant. Spray the young plants with tepid water when the weather is bright, and frequently damp the surroundings, repeating this in the evening if the paths or walls become dry. Maintain a temperature of 65° to 70° at night, according to the conditions out-of-doors. Prevent cold draughts, using the outer doors as little as possible, and in the event of very cold weather protect the glass by an outside covering, which is much to be preferred to the use of excessive firing.

CHERRIES.—Cherry trees, whether grown in pots or borders, must not be forced quickly into growth, as they cannot stand hard forcing. Neither can Cherries stand severe pruning, for this produces gumming. Therefore, when the trees are in active growth, pinch and thin out the shoots to assist in the formation of fruit buds at the base. Admit plenty of air to the houses and start the trees gradually. Those in pots which have been plunged out-of-doors should have the pots thoroughly cleansed and the drainage made perfect. If the plants were not potted last autumn, carefully remove the old surface soil with a pointed stick and give them a good top-dressing consisting of a compost of good, turfy loam, with a sprinkling of wood ashes, soot, bonemeal and lime rubble. Stand the pots perfectly level, and if placed on the borders rest them on something firm to prevent worms gaining access to the soil.

STRAWBERRIES.—Admit plenty of air to plants now in flower, and pollinate the flowers during the warmest part of the day.

PEACHES.—Peach trees which have set their fruits and are now beginning to grow should be disbudded gradually; remove all fruits that are deformed or badly placed.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

SEAKALE.—Batches of Seakale roots should be placed in heat at intervals of eight days during the next three months. They may be placed in large pots or boxes, and grown in any perfectly dark chamber, where a temperature of 60° can be maintained. If large supplies are desired, Seakale may be grown in an underground pit, provided with wooden shutters, and in which beds of leaves can be placed to produce the necessary heat. At Frogmore, we force about 1,200 roots each week in this manner. The roots are placed closely together in rows about 6 inches apart, and the soil is made firm round the roots as they are being placed in position. If the soil is moderately moist, no water is necessary for the first crop, but water may be necessary when it is being dug over a second time.

ONIONS.—Onions raised last autumn may be planted out in rows 15 inches apart as soon as the soil is dry enough. These Onions come into use at a time when spring-sown Onions are either exhausted or grown out to such an extent that they are of little value. They should be planted

on rich ground in an open position. When the plants commence to grow, the soil between the rows may be stirred with a Dutch hoe, and a dusting of soot applied on the approach of rain. Remove all weeds from the seedling rows, and if any plants have been loosened by the removal of those for the fresh plantation they should be made firm by carefully treading the soil on each side of the row.

SHALLOTS.—These should be planted as soon as the soil is dry enough, choosing a light, sandy soil. Plant the bulbs in drills 14 inches apart, and cover them sufficiently to keep the birds from pulling them up. Garlic may be planted in the same way, but should be allowed 18 inches between the rows.

HORSE RADISH.—The present is a good time to make a plantation of Horse Radish. Trench the ground and mix with the soil a liberal quantity of farm-yard manure, so that roots may be grown to the necessary size in the shortest time possible. There are numerous methods of cultivating this crop, but where only a small supply is necessary the best way is to select a number of young roots and plant them in rows 3 feet apart and 1 foot between the plants. A long dibber is the best implement for this purpose. Another method is to make the holes at the necessary distance apart, and drop a piece of root with a crown to the bottom of each hole, allowing the soil to crumble in loosely. By this means, straight roots are obtained, although it may take a little longer to produce them.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

SEED SOWING.—With the advent of February a start must be made in seed sowing. For raising seedlings under glass, square seed-pans are preferable to round ones, unless small quantities of special seeds have to be sown, in which case it is a good plan to plunge the pot in soil contained in a larger one to prevent the seed-pot becoming dry quickly. Except in the case of commoner seeds, square sheets of glass should be provided for each seed pan. Each seed-pan should be made nearly half full with crocks for drainage purposes. In most cases a compost of light loam and good leaf-mould, with a liberal amount of sharp silver sand, may be employed for the compost, and a certain quantity should be sifted very finely. For certain species a little sand-peat may be added with advantage. The soil should be somewhat on the dry side at the time it is used. Press the soil firmly in the pans, give it a good watering, and then, after a few hours, seed sowing may be commenced. Finely-sifted soil should be employed for covering the seeds as evenly as possible, bearing in mind that the smallest seeds only require a very slight covering. Flat seeds, such as those of *Grevillea robusta* and *Hippeastrum* (*Amaryllis*) should be inserted on their edges. Some seeds, such as those of *Acacia lepantha* and of *Caena*, germinate better if they are soaked some hours previous to sowing. Of stove-flowering plants, the following seeds may be sown at the present time:—*Gloxinias* raised in February will flower in late summer, and provide a succession to those grown on from last year. *Clerodendron fallax* succeeds better from seed than from cuttings, and the plants will bloom during August and September. *Torenia Fournieri grandiflora* will flower early and prove extremely useful for indoor decoration during the summer months. *Apheleandra aurantiaca Roetzli* is worthy of a more extensive cultivation; seeds should be sown as soon as they are ripe, and the plants will bloom in late September and October. *Vinca alba*, *V. rosea* and *V. oculata* may all be recommended, and these forms are often obtainable from a single packet of seeds. *Saintpaulia ionantha*, with its effective blue flowers, may be employed as an edging in the plant houses. *Exacum macranthum*, *E. affine*, and *Eustoma Russellianum* (*Lisianthus Russellianus*) are all choice-flowering subjects, but the seeds do not germinate quickly. If *Exacum macranthum* is sown now, the plants may be expected to flower in October; *E. affine* will flower quite three months earlier, but this plant, as well as *Lisianthus Russellianus*, is usually treated as a biennial. In places where there is a large conservatory to be furnished, seedling Abutilons are very serviceable during the summer months, and it is possible that some of the seedlings may be suffi-

ciently distinct to merit keeping. *Nicotianas* such as those of the *N. hispida* type form useful pot plants for flowering in late autumn. *Begonias*, including *B. semperflorens*, *B. Rex*, and those of the tuberous-rooted section may also be sown now. *Celosia pyramidalis* should be sown at intervals to provide a succession of plants. *Streptocarpuses* have been greatly improved in recent years, and they are well worth cultivating for decorative purposes. *Salvias* such as *S. splendens grandiflora*, and *S. s. Zurich* are usually propagated from cuttings, but if the stock is short, plants may easily be raised from seeds. In the case of all the plants mentioned, the seeds should be germinated in a well-heated pit, having a temperature of an ordinary stove. The following seeds may be raised in a cooler house:—*Schizanthus grandiflorus* for plants to follow the autumn-raised stock; *Stalice Suworowii*, *Ten-week Stocks*, *Viscaria cardinalis* and *V. coerulea*. When the seedlings appear, any that show a tendency to become drawn must be placed close to the light, and in some instances they must be removed to a cooler structure.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

TRAINED GOOSEBERRIES AND CURRANTS.—Gooseberry and Currant bushes trained to walls, wires or trellis-work may now be pruned. Examine any branches that have shown signs of deterioration during the past season, and if they are found to be in a state of partial decay at the base, cut them off and train in young wood to refurbish the tree. Black Currants growing against a north wall will furnish a supply of fruit for many weeks after the general crop is over. In pruning Black Currants, train in as much of the young wood as possible without causing overcrowding. Gooseberries as well as Black Currants may be planted in a north or north-west aspect, and will prove equally useful in furnishing a supply of later fruits.

BUSH FRUITS.—Fruit trees trained as bushes, being more or less surface-rooting plants, quickly exhaust the top layer of soil, and an annual mulching or renovation with fresh soil is essential. A mixture of fibrous loam and well-decayed manure, to which a proportion of bonemeal or other suitable artificial manure has been added, forms a suitable top-dressing. Remove all dead leaves adhering to Gooseberry or Black Currant bushes as a precaution against the magpie or Currant moth. This pest is only too common in gardens; it is easily distinguished by its yellow and black body, white wings with blotches of black and sundry yellow markings. In autumn, the grub fastens the edges of a leaf together, and, securing it to the branch, awaits the first appearance of the young foliage to renew its attacks. The Gooseberry, Black Currant, and occasionally the Red Currant are attacked by the magpie moth. All dead leaves should be carefully gathered and burnt. The Red Currant is also liable to attacks of the Currant Clearwing moth, the larvae of which live in the pith of the shoots during the winter, gradually destroying the tree. The part which has been damaged or destroyed by the grub may be seen when the young leaves appear: the infested twigs should be cut away and burnt to destroy the grubs they contain. The planting of bush fruits should be completed during open weather. If planted in quarters or rows in the open ground, allow them a space of 6 to 8 feet each way; if trained against walls or to wires, a distance of 3 or 4 feet apart will be sufficient. Where the pruning of established trees is completed, dig the ground over lightly, adding a surface dressing of manure if necessary.

STRAWBERRIES.—In the case of warm soils, Strawberries are best planted during the early autumn, but spring planting may be safely recommended on soils of a cold, heavy nature. If any planting is to be done, no time should be lost in preparing the ground. Do not add a large quantity of manure to soils of a naturally rich nature, or the result will be an abundance of foliage at the expense of fruits. Although the soil should be moved to a good depth, it is better to rely on surface dressings than to incorporate an excessive quantity of manure, although this does not apply to light soils. Allow a distance of 18 to 20 inches from plant to plant, making the soil firm about the roots as the work proceeds. Reserve a few plants to replace any that may fail.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

DECIDUOUS DENDROBIUMS.—The many species and hybrids of this section are now showing flower-buds in various stages of development. Only the strong, healthy plants should be allowed to bloom, whilst plants which flowered freely last year but failed to make strong growth, should be relieved of their flower-buds in order that the plants may make stronger growth in the coming season. The flowering plants will need a little extra moisture both at the root and in the atmosphere to enable the flower-buds to expand satisfactorily. Any plants which are afforded extra warmth for furnishing early flowers must be treated very carefully if new growths arise from their base, as any excess of moisture is nearly certain to cause some of these tender growths to damp off.

DENDROBIUM WARDIANUM.—This magnificent Orchid will make a brilliant display from the present time onwards. The plants usually thrive and flower luxuriantly for the first few years after importation, but I think it is generally found that they afterwards deteriorate. This being the case, it becomes necessary, when it is desirable to maintain an efficient standard, to replenish a portion of the stock annually with newly-imported plants. As importations are usually received at about the present time, they should be procured at once so that they can be prepared for growing during the summer months. These imported plants should be placed in pans or baskets just large enough to hold them comfortably, using crocks or lumps of charcoal for drainage, and a layer of rooting material consisting of Osmunda fibre two parts, Polypodium fibre one part, and Sphagnum-moss one part. The pseudo-bulbs should be carefully secured to the wires of the receptacle, and it is also a good plan to fix a stake securely in the centre for this purpose. At Westonbirt, *Dendrobium Wardianum* is grown successfully in a light, airy house, where a cool intermediate temperature is maintained; the plants, being suspended from the roof rafters, get the full benefit of sun heat during the summer months. They make strong, thick pseudo-bulbs which flower freely. Newly-potted plants, and especially those that are just imported, will require but very little water for some time to come, but when the young growths have started away from the base, and new roots are multiplying freely in the compost, the supply should be increased gradually until, when the plants are in full growth, an abundance of moisture is given them.

PLATYCLINIS GLUMACEA. The young growths of this spring-flowering species are making considerable progress. During the present period a position at the cooler end of the warmest house, or the warmer end of the Cattleya house, should be afforded these plants. Whilst making their growths they should be given liberal supplies of water at the roots.

THE FRENCH GARDEN.

By PAUL AQUATIUS.

HOTBEDS.—The crops planted on the hotbeds are growing satisfactorily. Every endeavour should be made to keep the plants healthy and growing freely, so that they are ready for gathering at the proper time. As the weather is dull and damp, care must be taken to prevent damping. The Lettuces should have decayed leaves removed directly they are detected. The Radishes need to be thinned where they are crowded, and those near the Lettuces must be removed early, as they generally become wiry through excess of moisture collected by the leaves of the Lettuces, and lack of light. After the paths between the hotbeds have been filled with manure, the mats, when rolled up, are placed in them, to allow as much light as possible to reach the crops. Hotbeds are now formed for forcing Cos and Cabbage Lettuces under cloches. They are built in the same manner as those intended for frames; the manure should be three parts dry and one part fresh, as Cos Lettuce require very little bottom heat. The height of the beds should not exceed 9 inches, and the edges must be placed carefully and firmly to keep the soil in position. When the bed is made, the soil should be placed in a ridge in the centre, and the next row formed before levelling the soil of the previous bed. After this has been done, Bellot

Carrot should be sown very thinly and covered with a half-inch layer of finely-sifted soil. The cloches need to be set alternately in three rows, leaving at least 1 inch space between each in the row, so as to allow sufficient room for tilting them when setting the plants. Three or four days after the completion of the bed, two Cabbage Lettuces, of the variety Little Gott, should be planted on the south side, and one Cos Lettuce in the centre of each cloche.

NURSERY BEDS.—The main batch of Cauliflower for the summer crop should now be sown on a hotbed made about 8 inches thick. The best varieties for sowing are Driancourt and Lenormand; if the soil is of a sandy nature, Chalonnais and Leceuf are preferable. It is not customary to prick out the seedlings of this batch, but during the two last springs "black leg" disease has destroyed many seedlings, and it will therefore be advisable to insert the seeds thicker than usual (about 1,500 seeds per light), and prick out the young plants late in February or early in March. The first Melons (those intended for fruiting in June) should be sown now in trays, 80 to 90 seeds in each tray, and germinated in a greenhouse having a temperature of 60° to 65°. If the soil is in a proper condition of moisture at the time of sowing, water will not be necessary until the seeds have germinated, which will occur after five or six days.

CROPS IN THE OPEN.—Hoe the ground in which August sown Spinach is growing, and remove any dead leaves present. For a succession of Spinach, make a sowing immediately of the variety "Monstrous of Virolloy." At this time of the year Spinach is grown as an intercrop, and is sown broadcast where Lettuces will be planted later on. Spinach has a very uncertain sale, on account of its bad keeping qualities, though it is as a rule, a remunerative crop. It should be marketed in small quantities, as, when there is no demand for it, the leaves will not keep fresh and are wasted. "Ox Heart" Cabbage and silver-skinned Onions that were planted last autumn are doing well; when the conditions are favourable, the ground should be stirred carefully between the rows.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HARRINGTON, K.T., Tynningham, East Lothian.

LUPINUS POLYPHYLLUS.—This species does splendidly cultivated as an annual, and, now that several pretty varieties are obtainable, it is certain to be recognised as indispensable for autumnal display. I have flowered it the same year by sowing in the open, but it is worth the extra trouble to raise the plants under glass. Three-inch pots are a suitable size, placing one seed in each pot. The plants may be put into the border or bed in April. Several of the annual Lupinus are also pretty, but it is too early to sow any of these.

PROPAGATION BY CUTTINGS.—Named varieties of *Lobelia*s can be increased almost indefinitely if an early commencement is made, and variegated *Koniga* and *Mesembryanthemum*, of which a sufficient number of cuttings can usually be had, are just as well rooted now and got out of the way. I propagate these and most other plants rooted at this season in ordinary cutting boxes, which are two-thirds filled with a suitable compost. The boxes are each covered with a sheet of glass and placed over the hot-water pipes in one of the pits. Usually the rooted plants are left in the same boxes until they are wanted for planting. *Salvia splendens* should also be propagated now in order to get fair-sized plants by May; the cuttings may best be rooted in a heated, moist sand bed. *Heliotropes* should be rooted without delay, growing them on to large plants either in boxes or separately in pots. *Fuchsias*, *Plumbago capensis* and other plants requiring to be pruned should be attended to at once, applying but little water until they push into growth again. *Agapanthus* may or may not require water at the root. If the plants are in a perfectly cool pit, the supply may be postponed yet, but they may be divested of dead foliage.

PLANTING.—Border Carnations which have been wintered in pots should be planted without delay. If planted early they have a longer season to become established, and in consequence flower more profusely. It often happens that the weather in February is more favourable for

planting than in March and April. Carnations that were planted in autumn and have failed should be replaced. The live ones should be divested of imperfect and diseased foliage, the soil stirred, and a dressing of soot applied. Hollyhocks should also be planted at the first opportunity for, like Carnations, these do best when established early. It is a mistake to grow these plants in heavily manured ground, as they are most effective when about 9 feet or 10 feet high, and in very rich land they are apt to become taller. My practice is to mass them in the herbaceous border, although the ideal situation is the front of a tall Yew hedge or crepe-covered wall. Montbretias which are growing freely should also be planted. The *Montbretia* is almost hardy, and may survive the cold of many succeeding winters, but a particularly severe frost may destroy them at any time. Plant the strongest corns in groups of four, at a distance of about 4 inches to 6 inches apart. In massing the plants 6 inches of the surface soil should be removed and the ground dug deeply, incorporating with it a good dressing of well-rotted manure. Place the corns in position, and cover them with the surface soil that was removed. *Antholyza pauciflora* may be planted in the same manner, but the corns in this case should be set singly. Herbaceous plants, where the work has been left over from the autumn, may be divided and replanted. Such subjects as perennial Asters, Sunflowers, and other Composites; Aconites, Achilleas, and others that benefit by replanting frequently may be divided at this season. The best effect is produced by arranging small portions of the plants at a distance of 9 inches to 12 inches apart. The division and replanting of these herbaceous plants in spring, result in the plants making shorter stems and blooming a little later than usual. Double-flowered Daisies intended for late blooming should be divided, and the crowns replanted singly in rich soil. Daisies will come true to variety from seed, and seedlings flower later still than plants that are divided in spring.

THE APIARY.

By CHLORIS.

FIXING COMB FOUNDATION.—Those who use the frames with a saw-cut in the top for fixing foundation are aware that the cut affords a favourable hiding-place for the grub of the wax moth, which often penetrates right through the middle of the comb, safe from the reach of the bees, eating and destroying the foundation. Besides this serious objection against the use of split top frames, the cut also weakens the top bar to such an extent that the weight of honey and brood is sufficient to cause the bar to sag.

There is a further objection that 1/2 inch, or even more, of comb is wasted in the slit, and when "starters" only are used nearly 50 per cent. of the wax is thus buried. Some time since I saw an excellent plan for securing the foundation, without employing a groove in the top bar. The wax foundation was fitted in and wired to the frame as described in the issue for February 27, vol. xlv, p. 155. When all the frames had been fitted and wired some wax was melted in an old tin and kept very hot by placing the tin in a pan of boiling water. When all was ready, the wooden guide was placed behind the overturned frame which was tilted at one end, and some of the hot wax poured from a spoon bent specially for the purpose (see fig. 37), allowing a thin line of wax to escape and run down the woodwork and top of the comb securing the two. The hot wax cooled rapidly, and fastened the foundation securely to the wood. The work may be done more neatly by means of wooden blocks made to fit inside of a frame, and about half its depth when laid flat. It is no use attempting this system of securing foundation unless very hot wax is employed, because cool wax will not flow freely, but will set in the wrong place. For this reason it is best to have two spoons, so that one may be heating whilst the other is in use.



FIG. 37.
SPOON FOR
POURING HOT
WAX.

(The dotted portion shows the spoon before it was bent.)

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEBRUARY 6—
Nat. Chrys. Soc. Ann. Meet. at Carr's Restaurant, Strand, at 7 p.m. Dorchester Gard. Soc. meet. (Lecture on "Annals.")

TUESDAY, FEBRUARY 7—
Scottish Hort. Assoc. meet. Nat. Amateur Gard. Assoc. Concert at Holborn Restaurant, 7.30 p.m.

THURSDAY, FEBRUARY 9—
Soc. Nationale d'Hort. de France (Paris) Exh.

FRIDAY, FEBRUARY 10—
Roy. Gard. Orphan Fund Ann. Meet. and Election of Orphans at Simpson's Restaurant, Strand.

AVERAGE MEAN TEMPERATURE for the ENSUING week deduced from observations during the last Fifty Years at Greenwich—39.2°.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, February 1 (6 P.M.): Max. 35°; Min. 32°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 2 (10 A.M.): Bar. 30.7; Temp. 32°; Weather—Slight fog.

PROVINCES.—Wednesday, February 1: Max. 39° Liverpool; Min. 30° Colchester.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Petalums, Hardy Bulbs and Plants, at 12; Roses, Fruit Trees, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—
Clearance Sale of Fruit Trees and General Nursery Stock at St. John's Nurseries, Worcester, by Protheroe & Morris, at 11.30.

WEDNESDAY—
Herbaceous and other Plants, Hardy Bulbs, &c., at 12; Roses, at 1.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
The Collection of Orchids formed by the late Judge Hullock, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Sir
Charles
Dilke.

It is with the deepest regret that we record the death of the Right Honourable Sir Charles Wentworth Dilke, Bart., M.P., who for many years was Chairman of the Board of Directors of this journal. The late baronet, who was born in 1843, succeeded to the title in 1869, and, although, by reason of his manifold political occupations, he was unable to take the same active interest in the organisation and development of horticulture as that which made his father—the first baronet—a leader in the world of horticulture. Sir Charles Dilke, nevertheless, inherited in no small measure his father's love for nature. The older generation of horticulturists will remember that the first baronet was Chairman of the Committee of the International Horticultural Exhibition of 1866, and that, as stated in our columns on May 15, 1869, the success of that exhibition was due to a very large extent to the indomitable energy and consummate judgment displayed by Sir Wentworth. The conspicuous public services rendered by the late baronet are so well known

and have been so widely acknowledged in the daily Press that there is no need to enlarge upon them here; but the sad occasion of his death may not be allowed to pass without a word of testimony to the extraordinary administrative ability and the fine judgment which characterised Sir Charles Dilke, as illustrated by his work in connection with this journal. The determination of the founders of the *Gardeners' Chronicle*, among whom were Dr. Lindley, Sir Joseph Paxton, Mr. William Bradbury, and Sir Wentworth Dilke, was that it should not only record the progress of horticulture, but play a leading part in ensuring that progress. The tradition established by this group of distinguished men was maintained by Sir Charles. His first pre-occupation was to make the *Gardeners' Chronicle* a worthy representative of British horticulture. Reference has been made in the general Press to the late baronet's encyclopedic knowledge, and in more than one quarter it has been suggested that "omniscience was his foible." Those, however, who have worked in close relation with him know that the suggestion is unfounded. Though possessed of a vast fund of knowledge, Sir Charles had a precise and definite conception of the limitations which are incidental to every man, no matter how well informed. Whenever a topic came under discussion with respect to which he felt himself insufficiently informed, he refused invariably to offer an opinion and insisted that someone with the necessary expert information should be called upon to state a case and give judgment. It was no less the extent of his knowledge than his clear recognition of that of others which made the late baronet such a powerful intellectual force. Sir Charles at home on his eyot of the Thames at Shepperton, or among the heather and pines of Pyrford, revealed to his visitors not only the widely-read and informed politician, but also glimpses of an ardent love of nature and a remarkable power of observation with respect to the world of animals and of plants.

**Adiantum
Farleyense
from
Spores.**

We have received from Mr. Wilke, Curator of the Botanic Gardens, Rotterdam, some interesting particulars on the subject of the alleged sterility of *Adiantum tenerum* Farleyense. According to Mr. Wilke, a fertile sport has originated in the garden of Mr. Bier, at Moordrecht, near Rotterdam, and thousands of young plants have been raised from the spores. The offspring are of the same type as the parent plant and are uniform in character; the pinnules are similar to those of *A. t.* Farleyense; even those which bear spores are not reduced in size. This is the more interesting because *A. Farleyense* is considered to be the sterile form of *A. tenerum*, and the extra development of its pinnules is supposed to be correlated with its sterile habit. Since, however, the pinnules of the fertile plants are quite equal to those of the best forms of the ordinary Farleyense, this would appear to be an untenable hypothesis. It may be true that, just as Farleyense is a variety of *tenerum*, so the fertile plant has also been derived direct from *A. tenerum*, and not through Farleyense, although it so closely resembles that old and popular form as to make its origin

from Farleyense very probable. In any case, it is sufficient to know that for all garden purposes the fertile plant and its offspring are as handsome as Farleyense, and that the fertile plants possess two qualities which will make them of much greater use than Farleyense has ever been. Their fronds are borne on more erect petioles and the plants succeed in a lower temperature than that in which Farleyense can be cultivated. Indeed it is claimed that the plants raised from spores grow perfectly well in as low a temperature as *A. cuneatum*. If, as seems to be the case, *A. Farleyense* has at last and suddenly thrown off its hitherto obstinate sterility, though it is matter of satisfaction to Fern lovers, it is only in accordance with what has been observed among other cultivated varieties of plants; for example, *Solanum tuberosum* and various races of *Primula sinensis*. Further, if *A. Farleyense* has indeed become fertile, it is probable that spore-bearing forms will make an independent appearance in other places in the near future. Indeed, Mr. Wilke informs us that a year ago a plant (see figs. 39 and 40) in Mr. K. Hartlieb's nursery, in Rotterdam, was observed to be showing a tendency to bear spores. In that case, however, the plants never went beyond the stage of forming indusia. It is worth noting, however, that in that case also the frond stems are said to have been more rigid than those of the ordinary Farleyense.

OUR SUPPLEMENTARY ILLUSTRATION.—

The Supplementary Illustration represents *Odontoglossum Groganæ*, the remarkable cross between *O. Uro-Skimmeri* and *O. Edwardii*, two widely-separated species. It was raised by J. HUBERT GROGAN, Esq., Slaney Park, Baltinglass, Co. Wicklow, and shown by him at the Royal Horticultural Society's meeting on November 24, 1908. It is a pretty and free-flowering hybrid, the blooms being produced on stout, branched panicles. The colour is rose-purple, but the lip is rather lighter in shade than the other segments, and it has a yellow crest. Our illustration was taken from a specimen shown in the interesting group of winter-flowering Orchids staged by Messrs. W. BAYLOR HARTLAND & SONS, Ardcairn, Ballintemple, Co. Cork, on November 8, 1910. Mr. HARTLAND kindly sent a photograph of a plant showing its floriferous character even in its early stage of growth, and bearing two seed capsules; this is reproduced in our plate.

R.H.S. OLYMPIA SHOW.—

We have received the following particulars of the Royal Horticultural Society's summer exhibition, which will be held at Olympia, South Kensington, on July, 4, 5, 6. The show is to remain open until 10 p.m. on the first two evenings (July 4 and 5), the price of admission being 1s. The building will be surrounded with a sloping bank of floral groups rising to height of 15 to 20 feet. Within this will be placed table exhibits, including an avenue of Orchids, whilst at the west end, rock and water-gardens will be surrounded by festoon and pillar rose-gardens. Several cups are offered, including one valued at 50 guineas in commemoration of the Coronation of King GEORGE V. The railway companies have been approached with regard to offering special facilities for enabling visitors from the provinces to inspect the exhibition. The secretary has made special arrangements for transit across London for parties of 12 or more. The Royal Artillery band will be in attendance during the time the exhibition is open.



ODONTOGLOSSUM GROGANÆ (O. EDWARDII X O. URO-SKINNERI).

FLOWERS, ROSE-PURPLE.

ROYAL GARDENERS' ORPHAN FUND.—The annual meeting and election of candidates for the benefits of this fund will take place at "Simpson's," Strand, W.C., on Friday, February 10, at 5 p.m. The annual festival dinner has been fixed for Thursday, May 4, when Mr. N. N. SHERWOOD, one of the oldest vice-presidents, has kindly consented to preside.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual general meeting of the members of this Society will take place at Carr's Restaurant, 264, Strand, on Monday, February 6, at 7 p.m. The President, Sir ALBERT ROLLIT, will occupy the chair.

NURSERY FIRM'S ROYAL WARRANT.—MESSRS. JAMES CARTER & Co., Raynes Park, have been appointed, by Special Warrant bearing the date January 17, 1911, seedsmen to the EMPEROR of GERMANY.

FLOWERS IN SEASON.—MESSRS. R. VEITCH & SON, Exeter, have forwarded specimens of shrubs in flower in January in their Exeter nursery. The subjects include *Garrya elliptica*, Grevillea, with pretty red flowers in bunches and Rosemary-like foliage; *Acacia Baileyana*, a small edition of the *Mimosa* (*Acacia dealbata*), but not fragrant; *Hamamelis arborea* and *H. Mollis*, of which, though the former blooms more freely, the latter has a much finer flower with a decided perfume; *Chimonanthus fragrans*, of delightful perfume; *Lonicera Standishii*, with small creamy-white flowers without the spur generally characteristic of the Honeysuckles; *Prunus Davidiana alba*, like a small single *Deutzia*; and a *Cotoneaster angustifolia*, of attractive appearance by reason of its brightly-coloured berries.

SURVEYORS' INSTITUTION.—The next meeting will be held at the Institution on Monday, February 6, when a paper will be read by Mr. WILLIAM WOODWARD on "The Evolution of Fire-resisting Construction." The annual dinner will be held at the Whitehall Rooms, Hotel Metropole, on Tuesday, February 28, at 7 p.m.

GATTON PARK, SURREY.—The February number of the *Art Journal* contains a long and interesting account of Gatton Park, the property of Sir JEREMIAH COLMAN, Bart., V.M.H., with views of the mansion, pleasure grounds, and gardens. Some of these are from photographs by Mr. W. E. GRAY, and others from paintings by BIRKET FOSIER, CHARLES DAVIDSON, and other celebrated artists in the gallery at Gatton Park.

RETIREMENT.—Mr. JOHN P. ALLAN, who for the last 26 years has been manager of the seed and bulb department of Messrs. CLIBRANS, of Altonham and Manchester, is retiring from his position on account of impaired health. Mr. ALLAN is well known amongst gardeners and farmers throughout the North of England and in Scotland. His many friends will hope that relaxation from business will restore him to health.

"WHITE" MEDALLIST.—The medal given by the Massachusetts Horticultural Society in honour of GEORGE ROBERT WHITE (see *Gardeners' Chronicle*, January 7, p. 11), has this year been conferred on Mr. JACKSON T. DAWSON of the Arnold Arboretum. It is gratifying to learn that Mr. DAWSON, whom the American Press proclaims has few equals as a gardener, is an Englishman, being a native of York. In his capacity as Superintendent of the Arnold Arboretum, he has become one of the first authorities on trees, and has raised many new plants, including a type of Rambler Roses; one of the varieties, "The Sargent Rose," formed the supplementary issue to *Gardeners' Chronicle*, November 12, 1910.

GLASGOW FLOWER SHOW.—It is proposed to hold a flower show in Kelyvingrove Park, Glasgow, on a large scale, on September 6, 7, 8, in connection with the Scottish National Exhibition, which is being promoted for the purpose of endowing a chair of Scottish history in the Glasgow University. Arrangements have lately been completed between the National Exhibition

authorities and the directors of the Glasgow and West of Scotland Horticultural Society whereby the flower show will be held under the auspices of this society. It has been decided to offer £400 in cash, besides cups, medals and other prizes. The secretary of the Society is Mr. HUGH M. MYKIE, C.A., 124, St. Vincent Street, Glasgow.

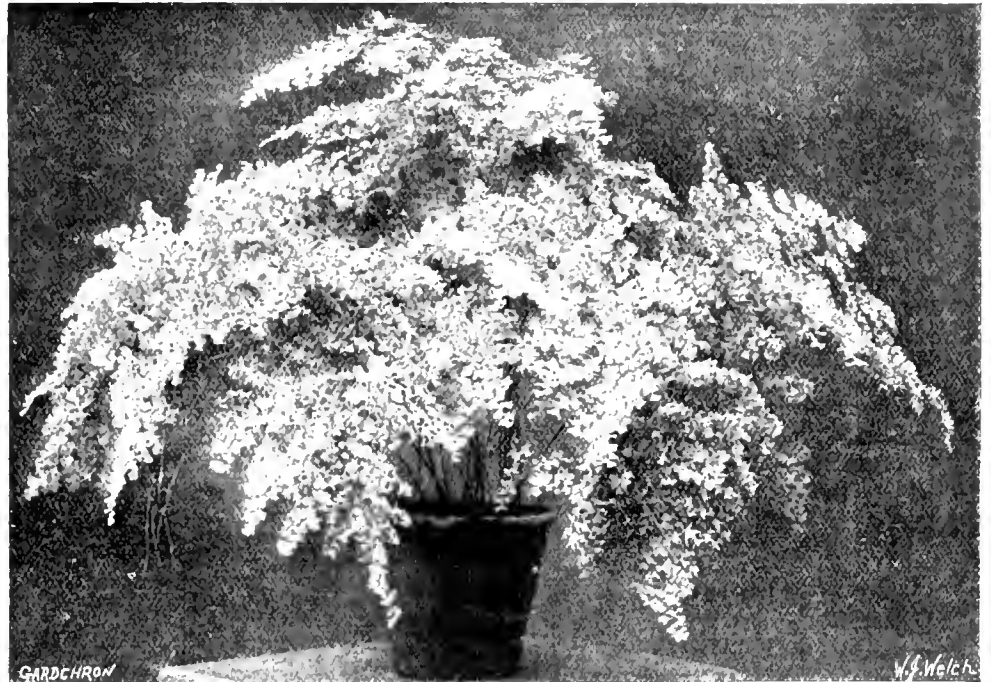


FIG. 29.—MR. TIER'S FERTILE PLANT OF ADIANTUM TENERUM FARLEYENSE.



FIG. 30.—MR. HARTILL'S PLANT OF ADIANTUM TENERUM FARLEYENSE WHICH SHOWED SOME SIGNS OF APPROACHING FERTILITY.

NEW SOCIETY FOR ULSTER.—The Ulster Rose and Floral Society has been recently instituted for the purpose of holding flower shows in the north of Ireland. Floral exhibitions have formerly been held in connection with the Royal Ulster Agricultural Association's show, but, as it has been decided to discontinue these, the new society will take over the work. It is proposed to hold the first exhibition in the Botanical Gardens Park, Belfast, on July 21 and 22. Subscriptions have already been received amounting to a considerable sum, and there is a guarantee fund amounting to more than £100. The provisional committee includes such well-known names as Messrs. W. H. Calvert, T. S. Crozier, Alexander Dickson, Hugh Dickson (Belmont), H. D. M. Barton, Mrs. Edwin Hughes, Alexander Dickson, Hugh Dickson (Newtownards), Samuel McGredy (Portadown), Dr. Campbell Hall, J. S. B. Larmour, H. E. Richardson, Colonel R. G. Sharman-Crawford, D.L., Frank Thorpe, Frank E. Smith, Edward Cowdie, and James Brand. Messrs. H. J. Pinkerton and J. A. Stewart have been appointed joint secretaries.

STRAWBERRY LEAF SPOT.—The fungous disease known as Strawberry Leaf Spot and sometimes as Bird's Eye Spot is the subject of Leaflet No. 243 of the Board of Agriculture. The presence of the fungus, which sometimes causes considerable loss to growers, may be recognised by the reddish-brown spots on the leaves of diseased plants. The spots subsequently become of an ashy-grey or whitish colour bounded by a reddish border. Like so many other serious pests, the fungus responsible for Strawberry Leaf Spot produces both summer spores, which carry infection from leaf to leaf during the growing period, and winter spores which, germinating in spring, renew the infection year by year. Syringing is recommended as a remedial measure, either with liver of sulphur (1 ounce to 3 gallons of water) or with Bordeaux mixture (10 lbs. copper sulphate, 8 1/2 lbs. lime, to 100 gallons of water). In badly diseased cases the drastic method of burning the beds has proved successful. After the fruit is gathered the beds are mown, covered with dry leaves, straw or dry litter, and then burned. The new foliage indicates decisively that the plants have not suffered, and that the pest has been eradicated.

WHOLE-MEAL BREAD.—Should the experiment recently made by Sir OSWALD MOSTEY in enabling his neighbours in Staffordshire to obtain whole-meal bread prove successful, it may have far-reaching effects in destroying the popularity of the inferior whiter bread, made from roller-ground flour, and now in general use. Doubtless, if people only ate bread for the sake of appearance, there would be something to be said for the latter type; but since bread is eaten for purposes of nutrition, it is little short of absurd that the bread consumed should be made after the more nutritious part of the Wheat-grain has been removed. The facts are these: the husk of Wheat contains a large proportion of mineral substances (phosphates, etc.), which are of high nutritive value. Hence the feeding properties of brown bread, which, however, is not found to be digestible by everybody. Just beneath the husk of Wheat are rich stores of nitrogenous and other nutritious substances, which are apt to be removed by modern methods of milling, with the result that ordinary bread is made from the least nutritious part of the grain. It is very white, and looks nice. It is very soft, and hence appears to be in large measure responsible for bad teeth, so deplorably common among the school children of this country. Bad teeth, in turn, are responsible for all manner of ailments and diseases. Hence the indictment of the

modern loaf seems to be complete, and everyone should endeavour to obtain bread which shall have less decorative and more nutritive value.

PUBLICATIONS RECEIVED—Wart Disease of Potatos. (Harper Adams Agricultural College, Newport, Salop.)—**The Queensland Agricultural Journal.** December, 1910. (Brisbane: Anthony James Cumming.)—**Report of the Farmers' Institutes of the Province of Ontario.** 1909. (Toronto: L. K. Cameron.)—**A Critical Revision of the Genus Eucalyptus,** by J. H. Maiden. Vol. II., Part 2. (Sydney: William Applegate Gullick.) Price 2s. 6d.—**Journal of the National Poultry Organisation Society, Ltd.** January, 1911. (London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd.) Price 6d.—**Board of Agriculture, Trinidad.** The Green Muscardine of Frog-hoppers, by James Birch Rorer. (Port-of-Spain: The Mirror Printing Works.)—**Peru To-Day.** December. (Lima-Peru: Charles F. Southwell.) Price 6d.—**Elementary Book-keeping,** by A. Munro, F.C.I.S. (London: Effingham Wilson.)—**United States Department of Agriculture.** Bulletins: The Electrical Bridge for the Determination of Soluble Salts in Soils, by R. O. E. Davis and H. Bryan; The Soy Bean: History, Varieties, and Field Studies, by C. V. Piper and W. J. Morse. (Washington: Government Printing Office.)—**Wild Flowers of Barmouth and Neighbourhood,** by the late Rev. T. Sawey, B.D., F.L.S. (Brighton: James Kynoch.) Price 6d.

FORESTRY.

SALE OF OAK TIMBER.

ONE of the most remarkable sales of Oak in recent years was carried out on January 24 by Messrs. Richardson & Son, of Stamford. These Oaks grew on the Farming Woods Estate, near Brigstock, Northamptonshire, and formed part of the old historical Rockingham Forest.

The Rockingham Forest is famous not only for its splendid Oak timber, but also for the occurrence amongst it of the peculiar form which is called Brown Oak. Little is known by the outside public of this beautiful timber, which is not mentioned in ordinary books on forestry, and does not appear to exist on the Continent, being a strictly English product, more or less limited to the Midland and Eastern counties. It appears to have been first described by Mr. Elwes in *Trees of Great Britain*, ii., 337 (1910). Brown Oaks occur sporadically, and are characterised by having a brownish heartwood, which, when (as is often the case) of a beautiful rich colour, is much valued for panelling and for making furniture. It is especially prized in America, where it is used in the ornamentation of Pullman cars, &c. The great dining-room in the White House, at Washington, is entirely panelled with English Brown Oak. The cause of the peculiar brownish coloration is unknown, though we hear that some experiments (not yet completed) which have been made at Cambridge, point to its being due to the absorption of iron from the soil in which the trees are growing.

Several of the Oaks for sale were believed to be brown, and one of these fetched £41. The total number of Oaks sold was 105, averaging £21 a tree; but some reached remarkable figures, the biggest tree realising £105, while the second best, the "King Oak," sold for £76. These old Oak trees were mostly growing in a park in open order, not drawn up by dense trees around them, and had short boles, which were, however, of great diameter. The dimensions of one tree—an average specimen—were:—

19 feet long, 38 inches quarter girth =	190
4 feet long, 35 inches quarter girth =	34
Tops =	20
Total	244

The Oaks on this property are famous for the quality of their wood which is usually sound to the base, without flaws or cracks, and with very little sapwood.

In addition to the Oaks, a few Ash were also sold, 19 trees averaging £13 a piece; the largest and finest specimen realising £25.

The amount of fine Oak timber still remaining on this estate is enormous, and we understand that the present sale will not be the last. X.

SCOTLAND.

NOTES FROM SOUTH-WEST SCOTLAND.

SAXIFRAGA × KESTONIENSIS.

THIS, I suppose, is one of Mr. G. Reuthe's *Burseriana* hybrids, and an exceedingly choice and vigorous one. It is in full flower now (January 27) on a high, exposed ledge of the wall garden. This year and last it has been the earliest Rockfoil to flower. *S. Burseriana* major began to bloom on January 24, and *S. Burseriana* is opening its first blossom to-day. *S. kestoniensis* has the pure white petals of its parent, with golden anthers and bright red stems 5 inches long. *Leucoium carpathicum*, *Hepatica angulosa*, *Cyclamen vernum* and *Coum*, and winter *Aconites* lighten up our borders well just now; *Scilla bifolia* comes as pioneer of its race; *Iris stylosa* has been giving a few flowers since November; the woods are sheeted with Snow-drops, and they would be equally full of *Crocuses* if rabbits and pheasants would let them alone. The spell of mild weather has tempted *Rhododendron barbatum* to unfold its blood-red trusses, quite eclipsing the softer glow of *R. × Nobleanum*, which is covered with bloom. *R. × præcox* is giving the first glimpse of the rosy cloud in which it will be enveloped presently. *Ilanamelis arborea* is sheeted with dull gold and maroon; one of my plants is 30 years old, but its glory is put to shame by the clearer flame of *H. mollis*, which I class with the summer-flowering *Buddleia variabilis superba*, among the finest real acquisitions of late years. Another splendid winter-flowering shrub is *Berberis nepalensis* (Bealei), which began to flower before Christmas, and is now loaded with fragrant blossom. Too often one sees this noble Barberry crowded up with coarser shrubs which make it grow leggy. Give it plenty of room and light, with shelter from rough winds, and there are few flowering shrubs that produce such handsome foliage. *Herbert Maxwell, Monroith.*

INSTRUCTION IN HORTICULTURE.

THE governors of the Edinburgh and East of Scotland College of Agriculture are considering a suggestion, placed before them by the Scottish Horticultural Association, for a two years' course in horticulture at the college. A scheme was submitted by the committee, which had approved of the proposed curriculum, but it was decided to first submit the details to the Scottish Horticultural Association for the consideration of that body. It was mentioned that practically all the work involved in the course could be undertaken by the College, except that it might be found necessary to appoint an assistant lecturer in horticulture, and to make special arrangements for conducting certain of the classes.

ALLEGED FRAUD.

AT Glasgow Police Court on the 24th ult., a young man, who was described as a working gardener, was remitted to the Sheriff on a charge of having devised a scheme to obtain money by false pretences. It is alleged that the man wrote to a registry office in Oban and an emigration office in Forfar to the effect that "the Scottish Gardeners' Association, Glasgow, desired to arrange a scheme of emigration to Canada." It is alleged that part of the scheme was that passage money should be advanced by the association, and the money deducted from the first year's wages. It is said also that the letters stated that the association had lost money last year owing to several of the parties engaged having failed to put in an appearance, and it was thus necessary that each applicant should deposit £1 for booking fee. Married couples were also required, according to the letter, and part fares would be advanced. A large number of applications are said to have been received, 77 having been engaged at Oban, and £96 received and banked there; while between 40 and 50 were engaged at Forfar. It is also alleged that the agents were written to, asking that the money

should be sent to the accused, but that the correspondent in Oban only sent the names and addresses of the intending emigrants, but wished some guarantee before forwarding the money; and further that the accused called at several addresses in Glasgow, and said that if 3s. 6d. were paid food would be supplied in the train from Montreal. It is believed that all the money obtained by the accused was a few sums of 3s. 6d. received for food tickets.

A GARDENER'S COMPENSATION CASE.

SHERIFF-SUBSTITUTE BAILLIE has just issued in the Hawick Sheriff Court his decision in an interesting compensation case which was entered in court some time ago. The claim was made by Mrs. Reid, widow of Mr. Robert Reid, gardener to Mr. Charles J. Wilson, Deanfield, Hawick,

THE IMPERIAL DEPARTMENT OF AGRICULTURE IN THE WEST INDIES.*

In recent years the productions of tropical countries have been in increasing demand to supply the raw material for the manufacturing industries on which the prosperity of this country depends.

In the case of large commodities like tea, cocoa, and rubber, these can only be obtained from the tropics. It is admitted that the British are in possession of some of the richest portions of the tropics, and it is, therefore, a matter of Imperial interest that we devote time and attention to their development, and appreciate at their true value efforts to make the best of them.

Speaking roughly, there are about three million

West Indies, in the larger sense suggested above, cover an area of 109,836 square miles, or a little less than the British Isles. The population is estimated at 2,300,000. The value of the total trade is about £22,000,000. Of their imports they take about 40 per cent. from the United Kingdom; so that, in spite of their nearness to the United States, these Colonies continue to take a large share of their manufactured and other goods from the Home Country. An increase in the total trade from £15,647,816 in 1905 to £21,429,301 in 1909 is also encouraging.

Not long ago Sir Charles Lucas, who is so intimately acquainted with Colonial matters, happily remarked that, while the 18th century saw the greatness of the West Indies, the 19th their distress, the 20th century, he hoped, would witness their regeneration. The latter, in part, is becoming true, for Lord Greve, the late Secretary of State, was in a position to announce in February last "that no West Indian Colony was now in receipt of grants in aid."

I now come to the work of the Imperial Department of Agriculture in the West Indies. This Department was created on the recommendation of a Royal Commission consisting of Sir Henry Norman (chairman), Sir Edward Grey, and Sir David Barbour. In 1897, when the Commission visited the West Indies, many of the Colonies were in a depressed condition, and a source of anxiety to the Imperial Government and to those directly interested in them. The Commission was charged, in the first place, to inquire into the condition and prospects of the sugar-growing colonies and "suggest such measures as would appear best calculated to restore and maintain the prosperity of those colonies and their inhabitants." A further subject of inquiry was: "Whether in the event of the production of sugar being discontinued or considerably diminished, what other industries could replace it, and be carried on profitably and supply employment for the labouring population."

In their report, which appeared in the autumn of 1897, the Commissioners stated that in most of the West Indies the products of the Sugar-cane constituted by far the larger proportion of the total exports of native produce, and that, in the event of a failure of the sugar industry, the welfare of each colony would then depend on the extent to which it might be possible to establish other industries.

The Commissioners recorded as their opinion that the depression in the sugar industry was due "to the competition of other sugar-producing countries, and, in special degree, to the competition of beet sugar produced under a system of bounties." They submitted that "the best immediate remedy . . . would be the abandonment of the bounty system." In the meanwhile, they recommended certain special remedies, such as improved steam communication with outside markets and between the different islands, and the organisation of a scientific department to assist the sugar industry and encourage, where conditions were favourable, minor agricultural industries, together with a general improvement in the system of cultivation of the principal crops.

Most of the recommendations were, sooner or later, adopted by the Imperial Government, including the creation of an Imperial Department of Agriculture. For the latter, on the motion of Mr. Chamberlain, funds were voted by Parliament on August 2, 1893. The average amount that has been expended up to 1908 has been at the rate of £17,400 per annum. Of this amount, some £5,000 represented the cost of the head office; the remainder was applied in grants-in-aid of botanical and experiment stations, agricultural schools, and other educational services in the individual colonies. Up to March, 1906, grants were allotted to Jamaica to provide the services of an agricultural lecturer, to British Guiana to assist in improving the sugar industry by means of research work and experiments, and to Trinidad in providing for the establishment and maintenance of a botanic and experiment station at Tobago. The Imperial Commissioner of Agriculture established his headquarters and that of the central staff and the laboratories and library of the Department at Barbados, as the more central point from which to visit the other colonies. He was charged with the duty of administering the agricultural grants in the colonies of Grenada, St. Vincent, St. Lucia, the Leeward Islands, and Barbados, and was consulting officer in agricultural matters to the



FIG. 40.—FROND OF MR. HARTLIEB'S PLANT WHICH DEVELOPED INDUSIA.

under the Workmen's Compensation Act, for £198 5s., being three years' wages, as compensation for herself and her two children for the death of her husband. It was stated that the deceased, who was in Mr. Wilson's employment as gardener, returned home on a Sunday morning in August after being at the garden, and injured his thumb-nail when he was brushing the garden soil off his boots; it was alleged that the tetanus bacillus entered the wound, and that he died from blood poisoning. It was claimed that this bacillus is commonly found in garden soil, especially in that in which horse manure is used. Mr. Wilson was insured against liability, and the insurance company defended the claim on the ground that the injury was not an accident arising out of or from the employment. The Sheriff upheld the contention of the company, and dismissed the action with costs.

square miles (1,920 million acres) of British territory lying within the tropics; the total population is about 300 millions, while the total value of the exports are estimated at not less than 230 million sterling. Our responsibilities in regard to so vast an area can hardly be realised; but if our commercial supremacy depends upon the control of the tropics, we cannot shirk our duty, either in the interest of our possessions or in our own interest.

In my remarks this evening I shall confine myself more particularly to the circumstances of the West Indian Colonies—that is, to the tropical possessions of the Crown, consisting of the groups of islands generally known as the British West Indies, Bahamas, and Bermuda, together with the two considerable Colonies on the mainland, viz., British Honduras and British Guiana. The

* Paper read by Sir Daniel Morris, K.C.M.G., D.C.L., D.Sc., F.L.S., at the Royal Colonial Institute, on January 10, 1909. The Right Hon. Lord Brassey, G.C.B., in the chair.

Governors of Jamaica, British Guiana, and Trinidad.

The duties entrusted to the Department were the general improvement of the sugar industry and the encouragement of a system of subsidiary industries in localities where Sugar could not be grown, or where the conditions were more favourable for the production of Cacao, Coffee, Bananas, Oranges, Limes, Cotton, Rubber, Coco-nuts, Sisal-hemp, Rice, Nutmegs, Pine-apples, and other crops.

In addition, it was proposed that it should devote attention to the improvement of the breed and condition of cattle, horses, and small stock, and to the extension of bee-keeping for the production of honey and beeswax.

As it was realised that substantial progress was impossible until the mass of the people (wholly dependent on the products of the soil) were brought into sympathy with agriculture, and trained to regard the successful treatment of crops as the basis upon which to build, not only their own welfare, but the general prosperity of the colonies, a prominent position was given to teaching the principles of elementary science and agriculture, both in the primary and secondary schools. Associated with this policy was the increased attention devoted to object-lessons, the encouragement of growing specimen plants in pots and boxes, and the establishment of school gardens. Arbor days for the public planting of ornamental and other trees were also organised and assisted by the Department.

The average expenditure on scientific investigations of matters directly affecting the sugar industry at Barbados, Antigua, St. Kitts, and British Guiana was at the rate of nearly £4,000 per annum. The investigations have been mainly directed to raising new seedling varieties of canes capable of withstanding diseases that had rendered the continued cultivation of the Bourbon cane impossible in some localities, and a larger yield of sugar per acre.

The results of the sugar experiments carried on by the Department have proved of great service to the planting community in the West Indies, and they have also been shared in by other countries, such as the Southern United States, Australia, Natal, and Mauritius. It is estimated that fully one-half of the canes now cultivated in the West Indies are new canes, yielding, over large areas, mean results ranging from 10 to 25 per cent. higher than the older varieties.

At a recent West Indian Conference, Mr. Bovell, who has been in charge under the Imperial Department of the sugar-cane experiments at Barbados since 1898, stated "that more profit was derived from the introduction of new seedling canes on one estate in Demerara than would cover the whole cost of the experiments at Barbados over a period of 26 years."

It may be within recollection that the Royal Commission of 1897 drew attention to the danger that the West Indian Colonies incurred in their dependence on a single industry, and their recommendations were largely directed to the desirability of establishing other and alternative industries. The result of this policy during the last 12 years is shown in the fact that, while the total exports of produce and manufactures of the West Indian Colonies have increased from £5,625,000 to £7,195,360, the exports of the products of the Sugar-cane (sugar, rum, and molasses) have declined from £3,243,000 to £3,037,660. On the other hand, the exports of other commodities, such as cacao, fruit, cotton, logwood extract, tobacco and cigars, rice, coco-nuts, and rubber, have increased from £1,582,000 to £4,157,700. The recent Royal Commission entirely concurs with the Commission of 1897 as to the danger of dependence on a single industry, and they strongly support a continuance of the efforts that have been made with such signal success to develop other industries suitable to the soil and climate. At the same time, they recognise that the sugar industry is still, as in 1897, the dominating factor in such colonies as British Guiana, Barbados, St. Lucia, Antigua, and St. Kitts. In Jamaica the percentage of sugar products is 12.6, as against 18 in 1896, and in Trinidad 24.7 per cent., as against 57 in 1896.

An instance of the value of scientific investigation for practical purposes was strikingly brought out by an officer of the Department in the case of the moth-borer of the Sugar-cane. For something like 200 years this borer had been regarded as the most destructive and most widely-distributed of the enemies of the Sugar-cane. Little,

however, was known of the early stages of its growth, and the eggs, and how and where they were deposited had never been observed. The loss caused in some years by the moth-borer amounted to several thousand pounds in each of the sugar colonies. It was important, therefore, that its life-history, from the egg to the mature insect, should be fully worked out. When, in 1900, Mr. Maxwell Lefroy was appointed first entomologist of the staff of the Imperial Department of Agriculture, he was entrusted with the task. He had come straight from Cambridge and probably had never seen or touched a Sugar-cane in his life. Under these circumstances, the prospect of success might be regarded as not encouraging. But after a patient and exhaustive inquiry, extending over nearly a year, Mr. Maxwell Lefroy succeeded in finding the moth-borer eggs deposited in a greenish cluster on the back of the leaf of the Sugar-cane. They were so inconspicuous that they had escaped the notice of successive generations of planters, who had only realised the presence of the moth-borer by the injury it had done to their canes. The result of Mr. Maxwell Lefroy's discovery was to place at once within reach of the planters the complete story of the moth-borer, together with simple and effective means of controlling it. He also found that a minute parasite attacked the eggs, and if, in addition to collecting the eggs, the parasites were protected, the moth-borer might be largely kept in check by natural means.

Next to sugar the cacao industry is the most important of any in the West Indies. The total value of the exports amounts to about a million and a half sterling. The diseases affecting Cacao trees have received careful attention, and planters have been kept fully informed as to their character, and the treatment likely to produce the best results. Experiments in manuring Cacao plantations have been carried on at Grenada, St. Lucia, and Demonica with very satisfactory results. The grafting of Cacao in order to establish trees yielding large crops of the best qualities has been successful on a moderately large scale at Demonica. In St. Lucia, as the result of the establishment of experiment plots by the Department, it was reported that the "planters in that island were now importing basic slag and sulphate of ammonia, and pruning and forking had, for the first time, become a recognised part of Cacao cultivation."

It was recognised from the first that local experiment stations distributed on the estates and carried on with the co-operation of individual planters and the scientific officers of the Department were the best and most potent means of demonstrating the lines on which science could be of service to agriculture. This enabled the planters to understand the value of scientific methods of research, and, on the other hand, to bring the scientific workers into sympathy with the difficulties and limitations of the practical side.

Increased interest is being taken in Tobacco-growing in the West Indies, and especially in Jamaica, where, in addition to the considerable local consumption, the exports of tobacco, cigars, and cigarettes are of the annual value of £40,000. Experiments in Tobacco-growing have been carried on for some years in Trinidad, and also in St. Vincent, St. Lucia, Antigua, and St. Kitts.

(To be continued.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

APPLE CULTURE IN DEVONSHIRE.—The description of the neglected state of the Apple orchards in Dorset (see pp. 33, 51) is, I am afraid, equally applicable to many other counties. In the contiguous county of Devon, and perhaps more particularly in East Devon, I can confirm every word written by Mr. Carnegie-Cheales in the matter of neglect and waste as being fully repeated; indeed, it is so apparent that even visitors or inexperienced people make uncomplimentary comments on the ignorance and apathy of the owners. The condition of the orchards in this part of the county is lamentable; trees that were blown down or half uprooted yesterday are left to remain in the position in which the forces of nature have put them, apparently with the hope that the same

forces will kindly come and put them upright again. It is no uncommon thing to see uprooted Apple trees lying in the same position for months, and even years, the dead and dying branches often intermingling with those of a neighbouring tree. The branches, which are never touched by a pruning knife, are covered with lichen, often from the level of the ground to the ends of the farthestmost branches. The fruits for the most part fall from the trees and are raked up into heaps on the ground, where they are left for weeks, and are removed in ordinary farm carts to the cyder-making house. The habit of pasturing cows and horses in Apple orchards referred to by Mr. Carnegie-Cheales as being in vogue in Dorset is by no means unknown in Devon. That the general conditions, both of soil and climate, in Devonshire are favourable to the profitable growing of Apples is, I believe, acknowledged, and the excellent condition of some few areas of land under culture of fruit, vegetables and flowers skirting the railway between the city of Exeter and the coast town of Exmouth, as well as a few others in different parts, afford conspicuous object lessons. The evidence of neglect is, however, not only seen in fruit-growing, but in arboreal vegetation generally. Ivy makes a very rapid growth in Devonshire: trees, shrubs and houses, and even churches, soon get covered with it. I know of an instance in which the Ivy on the wall of a house entered a living room through a slight aperture between the bricks and the window frame and began to attach itself to the wall inside, but the owner all the while objected to cut it back. *John R. Jackson, Claremont, Lympstone, Devon.*

BRITISH AND FOREIGN APPLES.—It is evident that *A* (see p. 58) contented himself with a very cursory glance at my note on page 43, for I carefully mentioned America as the place of origin of the "foreign" Apples of which I write. America nowadays is the name generally applied to the United States of America, and does not include Canada. I am well aware that quantities of splendid Apples are sent to our markets from British Columbia, Canada, and Tasmania, but does *A* mean to suggest that these are the same as British-grown fruits, from an economic point of view? My object in writing was to point out a means whereby our growers could easily supply what the great majority of the purchasers want. Of course there are plenty of home-grown Apples available in mid-winter, and, equally, of course, there was an eager demand for the excellent fruit staged at the R.H.S. meeting. No doubt *A* knows quite as well as I do the motives which actuate the average buyer; but the fact remains that, as a rule, home-grown Apples do not command so high a price in our shops as imported or foreign fruit. *A. C. Bartlett.*

FRUIT-TREE STOCKS.—Mr. Taylor's note on p. 58 has induced me to look further into the subject. There is no doubt that grafting was a branch of horticultural science which exercised the minds and ingenuity of the religious from the earliest time. Manuscripts of the works of Varro, Columella, Virgil and Palladius were of frequent occurrence in the monastic libraries of the Middle Ages, and each one of these great writers enter in great detail into the several methods in operation in their day. It is clear, then, that the first rudiments of horticultural science must have been introduced into this country by the Romans, as these writings show us that the fruits cultivated by that people at the zenith of their rule included with few exceptions those now in culture in the United Kingdom. The earliest English author who has treated on the subject of grafting, and that only incidentally, is Alexander Necham, a learned master of the Grammar School at St. Albans at the close of the 12th century, and afterwards Abbot of Cirencester (A.D. 1157 to 1217). His valuable and comparatively unknown work, *De Naturis Rerum*, is a sort of commonplace book, wherein he entered under various heads the gleanings of his secular and theological knowledge. He makes few practical remarks, but he states sufficient for us to know that he was acquainted with the process of grafting the Pear on the thorn. He also remarks that an Apple swims when thrown in water while a Pear will sink. The usual method of increasing one's stock in those days appears to have been from sets or

cuttings. Necham states that slips of Peaches were planted in the Royal Garden at Westminster in the fourth year of Edward I., 1276. John Gardener, who wrote *The Fate of Gardening* about 1440, directs the stocks of grafts of both Apples and Pears to be planted in January, the Apple on an Apple stock and the Pear "upon a Hawthorne." The Hon. Mrs. Evelyn Cecil has a good deal to say about this old writer in her excellent *History of Gardening in England*. Donald McDonald.

ADIANTUM FARLEYENSE GLORY OF MOORDRECHT.—This very beautiful variety of Maiden-hair Fern, exhibited at the Royal Horticultural Hall by Mr. A. A. Fabius, Redlands Nursery, Emsworth, on Tuesday last, deservedly obtained an Award of Merit as a distinct variant of that beautiful Fern *A. Farleyense*. It appears to have originated from a sport of *A. Farleyense* which from time to time has been reported as fertile, though, until now, no spores have been obtained. The new variety, however, is fertile, and comes quite true from its spores. It strongly resembles the parents, but the pinnales are prettily crisped, the habit is more erect, and its growth apparently from the huge size of the specimen, more robust. It is also claimed for it that it requires less heat than *A. Farleyense*, the specimen shown having been grown under the same cool conditions as *A. cuneatum*. It originated in the nursery of Mr. J. Bier, Moordrecht, Holland. C. T. D.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 31.—The usual fortnightly meeting was held on Tuesday last in the Society's Hall, Vincent Square, Westminster. The exhibition was a small one, but the attendance was much larger than on recent occasions.

The exhibits of Orchids were remarkably good, and the ORCHID COMMITTEE granted several awards to novelties, including two First-class Certificates and four Awards of Merit.

The principal exhibit before the FLORAL COMMITTEE was a collection of forced shrubs staged by Messrs. R. & G. CUTHBERT, a Gold Medal being awarded. There were several exhibits of hardy bulbous and other early-flowering plants, greenhouse plants, Carnations, Cyclamens, Pelargoniums, and Ferns. Only one Award of Merit was made by the FLORAL COMMITTEE, this being given to a variety of *Adiantum Farleyense*.

The principal exhibits in the fruit and vegetable section were of Apples and Onions. The FRUIT AND VEGETABLE COMMITTEE made no award to a novelty.

At the three o'clock meeting in the Lecture Room, more than 80 new Fellows were elected, and a series of coloured photographs, prepared by Mr. W. Marshall, Henley-on-Thames, was shown as lantern slides. The room was filled to overflowing, and the pictures were greatly enjoyed by the company.

Floral Committee.

Present: Henry B. May, Esq. (in the Chair); and Messrs. Chas. E. Shea, George Paul, W. J. James, F. Page Roberts, W. P. Thomson, Ed. Mawley, Chas. Dixon, C. Blick, James Douglas, W. Howe, J. E. McLeod, George Gordon, G. Reuthe, W. J. Bean, Jno. Green, Jas. Walker, C. T. Drury, W. B. Cranfield, Herbert J. Cuthbert, Jno. Jennings, E. H. Jenkins, Chas. E. Pearson, and R. Hooper Pearson.

The exhibit of forced flowering trees and shrubs shown by Messrs. R. & G. CUTHBERT, Southgate, was of very large extent, and presented a showy bank of flowers. Profusely-flowered plants of *Rhododendron* (*Azalea*) *sinense* and dwarf Lilacs formed the groundwork, with Palms, Acers, and Ferns as relief. Tall standards of other subjects were interspersed throughout the group, with bold masses of Magnolias at intervals. The Magnolias included *M. Lennet*, *M. speciosa* (exceptionally well flowered), and *M. conspicua*. Other subjects included *Staphylea colchica*, *Laburnums*, *Wistaria sinensis*, *Choisya ternata*, *Forsythia suspensa*, *Spiræa Thunbergii*, *Hamamelis arborea*, and *Pyrus atrosanguinea*. (Gold Medal.)

Messrs. JAMES VEITCH & SONS, Chelsea, filled a large table with indoor flowering plants, all

shown in excellent condition and arranged with skill. A pretty group was made with *Rhododendron* "The Comtesse" (blush) at the back, *Cytisus scoparius* *præcox* (white), *Rhododendron* (*Azalea*) *amurum* "Hexe" (rose), with *Choisya ternata* at either side. The strain of *Primula obconica* exhibited by this firm was remarkably fine, some of the plants being as showy as *P. sinensis*. In this case a background was made with *Eupatorium vernale* and *Erlangea tomentosa*. There were also profusely-flowered *Azaleas*, *Camellias* in small pots, with a row of *Freesia refracta* alba, and varieties of javanico-jasmaniflorum hybrids of *Rhododendron*. (Silver-gilt Banksian Medal.)

Messrs. W. CURBISH & SON, Highgate, had also a fine display of forced plants, *Magnolia Soulangiana amabilis*, *Camellias*, *Liliums* in variety, *Azaleas*, *Boronias*, *Astilbe* (*Spatang*) *japonica*, *Daphnes*, and *Ericas* being well shown. This firm also displayed an attractive rock-garden exhibit, their bulbous Irises being very choice. These included *L. reticulata grandiflora* (of a beautiful dark-blue shade), *L. Danfordiae* (yellow), and *L. × Sind-pers* (pale blue with yellow crested). *Crocus vitellinus*, *Adonis amurensis*, *Soldanella alpina*, *Daphne Blagayana*, and *Tulipa Kauffmanniana* are other interesting plants shown in flower. In addition to these, Messrs. CURBISH displayed a collection of perpetual-flowering Carnations. (Silver-gilt Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, again displayed Orange trees in fruit and *Debrugea velutina*. Small plants of *Rhododendron amurum* "Hexe" were covered with their pretty rose-coloured flowers. But the most interesting plants were small specimens of *Francisca calycina floribunda*, each, although only a few inches high, having large inflorescences of pale-blue flowers.

Messrs. H. CANNELL & SONS, Swanley, Kent, showed varieties of Zonal Pelargoniums and greenhouse Cinerarias. The Pelargoniums made a showy patch of colouring, the varieties *Saxonia* (scarlet), *New York* (scarlet), *Hibernia* (brick-red), *Snowdrop* (white), *Queen of Italy* (salmon-pink), and *Frogmore* (magenta and crimson) being a selection. (Silver Banksian Medal.)

Messrs. STUART LOW & CO., Enfield, were the exhibitors of a bright group of Carnations, well-bloomed Cyclamens, including their popular Salmon King variety; also a few greenhouse plants in bloom, such as *Streptozia Regina*, *Acacia Baileyana*, *Correa cardinalis*, and *Daphnes*. (Silver Flora Medal.)

Mr. H. BURNETT, Guernsey, again exhibited remarkably choice flowers of perpetual-flowering Carnations, having splendid blooms of *R. F. Felton*, *Britannia*, *Mrs. H. Burnett*, *White Eucharist*, *Dorothy Gordon*, and other popular varieties. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, staged a large exhibit of Ferns in variety. *Platycentrum grande* was especially fine. The "sheaths" or sterile fronds are produced on alternate sides, at intervals, the older ones decaying in the centre. Other kinds shown well included *Pteris cretica* Childsii, *Platyloma rotundifolia*, *Hymenodium crinitum*, *Gymnogramma grandiceps superba*, *Davallia splendens*, *D. canariensis pulchella*, and *Asplenium grande*. (Silver Banksian Medal.)

Messrs. J. CHEAL & SONS, Crawley, showed a rock-garden exhibit, backed by dwarf Conifers and shrubs, and planted with *Primula denticulata*, Tulips, Primroses, *Iris alata*, *L. Danfordiae*, *L. reticulata*, *Erythrinum Hartwegii*, *Primula rosea*, and other early flowers. (Silver Banksian Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, showed bulbous and other early flowers, including Crocuses, Irises, Scillas, Cyclamens, Snowdrops, *Adonis amurensis*, *Lachenalias*, and *Freesias*. There were varieties of shrubs in bloom, arranged as a setting to the other subjects, *Coronilla glauca* being conspicuously good. (Silver Banksian Medal.)

Other exhibitors of early hardy flowers were Messrs. T. S. WARE, LTD., Feltham (Bronze Banksian Medal); the Misses HOPKINS, Mere Gardens, Shepperton; and Mr. REUTHE, Hardy Plant Nursery, Keston, Kent.

Messrs. BEES LTD., Mill Street, Liverpool, showed a batch of plants of a white-flowered form of *Primula malacoides*.

Messrs. W. WELLS & CO., Merstham, showed two late varieties of single Chrysanthemums in

Kathleen May (chestnut red) and Edgar Forbes (rosy-mauve on a white ground).

AWARD OF MERIT.

Adiantum Farleyense *Glory of Moordrecht*.—An Award of Merit was granted to *Adiantum* *Glory of Moordrecht*, which is stated to be a variety of *Adiantum tenerum* *Farleyense*, raised from spores. See leading article on the subject, together with illustrations, p. 72, figs. 38, 39, 40.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., Henry Little, W. Thompson, F. Sander, C. H. Curtis, J. Cypher, W. P. Bound, H. G. Alexander, W. Cobb, A. Dye, W. H. White, Gurney Wilson, R. G. Thwaites, J. Wilson Potter, W. Bolton, and de Barri Crawshaw.

Messrs. CHARLESWORTH & CO., Haywards Heath, were awarded a Silver-gilt Banksian Medal for a very fine group, the centre of which was composed of a large number of finely-flowered white *Lælia anceps*. But the attraction in the group was from the presence of several new hybrids, the most remarkable of which was *Odontoglossum Harwoodii*, a new cross with *O. maculatum auriferum*, and which secured a First-class Certificate, Awards of Merit being given to *Odontoglossum Marie* and *Miltonia Warszewiczii picta*. (See Awards.) At one end was a batch of brilliantly-coloured *Odontiodas*, *O. Diana* being of a bright rosy-crimson and rather larger than *O. Charlesworthii*. *Odontoglossum Doris*, with its fine flowers, evenly spotted with claret colour, was prominent in a batch of hybrid *Odontoglossums*; *Cattleya Octave Doin* and *Lælia-Cattleya Bella alba* showed up well in their respective sections. Throughout the group were various uncommon species.

Lieut. Col. Sir GEORGE L. HELFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed a small selection of fine Orchids, and three of these received Awards. A pretty novelty was *Brassia-Cattleya Euterpe* (*C. Schilleriana* × *B. C. Digbyana-Mossiae*), a very compact, rosy-lilac flower, with greenish-primrose disc to the fringed lip; and *Cattleya Sulla*, a promising hybrid of *C. Mendelii*. Also three cut spikes of the large white *Cologyne Moorei*, with seven and eight flowers, like white *Lælia anceps*; and sprays of *Vanda Watsonii*, also white.

Messrs. SANDEE & SONS, St. Albans, were awarded a Silver Flora Medal for a very interesting group, in which were *Coryanthes Balfouriana*, with clear, apricot-yellow flowers; the singular little *Lælia Lundii*, with pale, lilac flowers, veined with purple on the lip; *Dendrobium bellatulum*; *D. tetragonum*; a selection of handsome *Cattleyas*, including a good white *C. Trianae*, and some finely-coloured *C. Octave Doin*; *Maxillaria elegantula*; *Oncidium splendidum*, &c. Among the *Cypripediums* the finest was *C. Leeannum Thunderer*, a massive flower, and a very close ally of the famous *C. Leeannum J. Gurney Fowler*. The dorsal sepal is very broad and of thick substance, clear white, with a small apple-green base, and some rose-purple spots. The broad petals and lip are margined with primrose-yellow and tinged with purple.

H. S. GOONSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), was awarded a Silver Flora Medal for an effective group, in the centre of which was a fine specimen of *Cymbidium Lowi-grandiflorum*, and with it the brilliantly-coloured *Odontioda Cooksoni* Royal Scarlet, and a very handsome *O. Lutetia*; three examples of the purple-spotted *Odontoglossum ardentissimum* Herbert Goodson; and among other good *Odontoglossums* a pretty, new, rosy-lilac hybrid, with darker spots, and which had not yet attained its full size. *Cypripedium Minos Youngii* and other *Cypripediums*, and *Brassia-Cattleyas* were also shown.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, staged a very attractive group of rare *Cypripediums*, for which a Silver Banksian Medal was given. The new *C. Duke of Connaught* gained an Award of Merit (see Awards), and *C. Beryl splendens*, a fine flower, with much of the rose-purple colouring of the *C. Mrs. Wm. Mostyn* parent in the dorsal sepal; *C. Admiral Wilson* (*Ville de Paris* × *Leeannum*), a very pretty and effectively-marked flower; *C. insignis Burnside* variety; *C. Euryades* New Hall Hey variety;

varieties of *C. aureum*, *C. Helen II.*, *C. Beekmanii*, and others were finely shown.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Banksian Medal for a group of fine *Cypripediums*, the showiest of which were *C. Beekmanii*, *C. Thompsonii* (with bright, purple colouring in the white dorsal sepal), *C. Lathamianum aureum*, *C. Minos Youngii*, *C. Leeannum Sylhetense* (a large and very distinct flower), *C. Alcibiades superbum*, and some very pretty unnamed seedlings.

Messrs. STUART LOW & Co. showed a good group, for which a Silver Banksian Medal was awarded. In it were noted a good selection of hybrid *Cypripediums*, *Epidendrum Cooperianum*, various *Cattleyas*, including *C. Euid* and *C. Percivaliana alba*; some *Brasso-Cattleyas*, *Lycastes*, *Vanda Amesiana*, and *Saccolabium giganteum*.

Major ROGERSON, Heatherdale, Spencer Road, Harpenden, showed a group, in which were good varieties of *Cypripedium aureum*, including the yellow and white variety *Surprise*; also *C. Leeannum Charles Rogerson*, a very distinct form; *C. Boadicea magnificum*, fine in shape and colour; *C. Lillie Mayall*, a pretty hybrid; and among other famous varieties *C. Eison giganteum*. A good *Cattleya Trianae alba* was also shown.

JOHN S. MOSS, Esq., Wintershill Hall, Bishop's Waltham (gr. Mr. C. Kench), sent a fine specimen of *Odontoglossum nevadense* with several spikes.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), exhibited *Cypripedium Mary Beatrice* of a bright-red colour.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent *Cattleya Trianae Goliath*, a large and very broad-petalled form.

Messrs. HASSALL & Co., Orchid Nursery, Southgate, sent *Cypripedium Beryl* in excellent condition and with three fine blooms.

Messrs. HEATH & SONS, Cheltenham, staged a small selection of *Cypripediums*.

Captain HOPE, R.N., St. Mary's Isle, sent a spike of *Arachnanthe Maingayi* brought by him from Singapore some years ago.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum crispum Peacock, from Lieut.-Colonel Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander).—A chastely-beautiful, pure-white flower with bright reddish-rose blotches on all the segments, the two lower sepals having one irregular blotch, the upper one several smaller ones, in addition to the large blotch and the broad-

Cattleyas, and of fine substance. Sepals broad, greenish-white, tinged with lilac; petals and fringed lip pale rosy-lilac with greenish-primrose disc to the lip.

Odontoglossum Maria (Uro-Skinneri × Queen Alexandra), from Messrs. CHARLESWORTH.—A neat flower with greenish sepals and petals spotted with purple, and broad, white lip with rose-purple spots.

Miltonia Warscewiczii picta, from Messrs. CHARLESWORTH.—A remarkably beautiful form with branched spike of well-rounded flowers. Sepals and petals light brown tipped with yellow. Lip broadly ovate, dark rose, with pure-white front.

Cypripedium Duke of Connaught (Beryl × nitens G. S. Ball's variety), from Messrs. ARMSTRONG & BROWN, Tunbridge Wells.—A very distinct *Cypripedium* with the general characters of *C. Beryl*, but with a clear, greenish, Indian-yellow ground colour, the flat dorsal sepal having a narrow white margin and some dark chocolate-purple spots, the petals and inside lip being also spotted.

CULTURAL COMMENDATION.

To Mr. H. G. Alexander, Orchid grower to Lieut.-Colonel Sir GEORGE L. HOLFORD, K.C.V.O., for a compact and finely-grown plant of the large and finely-coloured *Laelia anceps Chamberlainiana* with 10 spikes bearing together 21 flowers (see fig. 41).

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the Chair); and Messrs. J. Cheal, G. C. A. Nix, W. Bates, A. Dean, E. Beckett, J. Vert, H. Markham, J. Jaques, G. Wythes, W. Poupard, J. Harrison, H. Somers Rivers, A. R. Allan, J. Parr, J. Davis, G. Reynolds, J. Lyne, and O. Thomas.

It was resolved, on the proposition of the Chairman, to send a vote of sympathy to the widow of the late Mr. George Hobday.

A few seedling Apples of no special merit were shown for award.

Messrs. J. CHEAL & SONS, Crawley, staged a collection of 54 dishes of well-preserved Apples. There were excellent fruits of (dessert) Castle Major, Peasgood's Nonesuch, Bramley's Seedling, Lane's Prince Albert, Lord Derby, Newton Wonder, Jubilee, Stirling Castle, King Edward, Niton House, Bismarck, Encore, and Sandringham; (culinary) Barnack Beauty, Adams's Pearmain, Buxted Favourite, Edmund Jupp, and others. (Silver Banksian Medal.)

Messrs. SUTTON & SONS, Reading, staged a collection of finely-matured and well-kept Onions, set up in 18 dishes or groups. Their selected Ailsa Craig was the dominant variety, the bulbs being of perfect form and very solid. Other varieties were Improved Reading (a somewhat flat-bulbing variety), Al. Medium Round, Coconut, and Long Keeper (a solid, globular Onion, of deep, reddish-brown exterior, and most distinct). (Silver Banksian Medal.)

LINNEAN SOCIETY.

JANUARY 19.—The President alluded to the great loss biological science had sustained in the death of Sir Francis Galton, F.R.S., on the previous day, and stated that although not a Fellow of the Society, he had often been at the meetings, and he was one of the recipients of the Darwin-Wallace Medal on July 1, 1908.

A paper was given by Mr. C. H. Wright, A.L.S., on the "Flora of the Falkland Islands." He stated that the paper was based upon a collection made by Mrs. Rupert Vallentin, whose father (Mr. W. Wickham Bertrand) was one of the earliest settlers in the West Falklands, but has been expanded to enumerate all the plants recorded from the Falklands. An endeavour has been made to define the distribution of plants in the islands and to show what changes have taken place in the flora since the publication of the *Flora Antarctica* in 1847. The plants are chiefly of dwarf habit, often with aromatic leaves, and conspicuous, often scented flowers, which are produced chiefly between November and January. The earliest to appear is *Draba faniculosa*, Hook. f., in September. The extermination of the fox (*Canis antarcticus*) has rendered possible the keeping of sheep, with the result that plants



FIG. 41.—*LAELIA ANCEPS CHAMBERLAINIANA* FROM SIR GEORGE HOLFORD'S COLLECTION.

(Awarded a Cultural Commendation on Tuesday last.)

EDWARD ROBERTS, Esq., Park Lodge, Eltham (gr. Mr. Carr), staged a group of *Cypripediums*, among which good *C. Sir Redvers Buller*, *C. aureum Pomona*, *C. St. Alban*, and *C. Victor Cavendish* were noted.

SAMUEL LARKIN, Esq., The Ridgeways, Haslemere (gr. Mr. Hale), staged a varied group, including *Cattleya Octave Doin Larkin's* variety, with a good, broad, rosy-crimson lip; *Cattleya Trianae alba* and *C. T. Edith Noel* (a lilac-tinted, broad-petalled flower, with a fine, rose-purple lip); varieties of *Cypripedium aureum*, and other *Cypripediums*, and *Laelia anceps Sauderiana*.

Sir TREVOR LAWRENCE, Bart., Burford (gr. Mr. W. H. White), showed a spike of a very interesting cross between *Epidendrum nemorale* and *Cattleya Warscewiczii (gigas)* as *Epi-Cattleya nemorale gigas*. The flowers were elegantly disposed on an upright spike; in form, nearest to *E. nemorale*, but of good size, white, tinged with lilac, the ovate front of the lip veined with purple.

WILLIAM THOMPSON, Esq., Walton Grange (gr. Mr. Stevens), sent *Odontoglossum Clytie (Edwardii × Pescatorei)*, a pretty flower with white ground effectively spotted with claret colour.

fringed petals, a series of confluent blotches all more or less reniform when grouped. The fringed lip had a chestnut-brown blotch in front of the yellow crest.

Odontoglossum Harwoodii (× Wigianium × maculatum auriferum), from Messrs. CHARLESWORTH & Co., Haywards Heath.—A sterling novelty, and quite a new break, the yellow tint of Messrs. CHARLESWORTH'S *O. maculatum auriferum* blending in the bright yellow of *O. Wigianium* and resulting in the hybrid in a clear buttercup-yellow ground colour with lighter tint in the central area of the broad sepals and petals, the inner parts of which are spotted with dark claret colour, the petals having broad basal lines of the same colour. An incomparably better flower than the other *O. maculatum* cross, which was one of the attractions of the last Ghent Quinquennial Show, and one of the most distinct since the advent of the coveted *O. Smithii*, now in Mr. J. Gurney Fowler's collection.

AWARD OF MERIT.

Brasso-Cattleya Enterpe (C. Schilleriana × B. C. Dighyano Mossie), from Lieut.-Colonel Sir GEORGE L. HOLFORD, K.C.V.O. (gr. Mr. H. G. Alexander).—One of the best-shaped *Brasso-*

previously common have now become rare; amongst these are the Tassac Grass (*Poa flabellata*, Hook. f.), Cinnamon Grass (*Hierochloa redolens*, R. Br.), and Blue Grass (*Agropyron repens*, Beauv.). *Primula farinosa*, var. *magellanica*, Hook. f., while still abundant, is much dwarfed in those islets where sheep have been introduced. *Veronica elliptica*, Forst. f., attains a height of 7 feet, and is the tallest plant on the islands the next being *Chilotrichum amelloideum*, Cass. (the Fächima plant). *Azorella caespitosa*, Cav. (the Balsam-bog), forms hard masses up to 10 feet long and 4 feet high, which rapidly decay on being wounded. The flora shows a great affinity with that of Magellan and Chile.

Dr. Rendle and Dr. Stapf contributed to the discussion which followed, and Mr. C. H. Wright replied.

MANCHESTER AND NORTH OF ENGLAND ORCHID

JANUARY 19.—*Committee present*: Messrs. Ashworth, Arthur, Cowan, Cypher, Holmes, Keeling, Parker, Stevens, Thorp, Ward, and Weathers.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, staged about 500 plants of *Cypripedium* in a most pleasing manner. The range of variety was very extensive, and the plants generally had a clean and healthy appearance. (Gold Medal.)

J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney), exhibited the rare *Odontoglossum crispum* var. *Solum*, which, however, was not shown in the finest condition.

S. GRATRIX, Esq., Whalley Range (gr. Mr. Brown), exhibited *Cypripedium* × *Curtmannii*, West Point var. This fine variety received a First-class Certificate; another good plant in the same collection, viz., *C. × Moonbeam*, West Point var., was granted an Award of Merit.

E. BOSTOCK, Esq., Stone, Staffordshire (gr. Mr. Ballance), received an Award of Merit for *Cypripedium* × *Hector*, a pretty hybrid, the parents of which were not recorded.

JAS. WALMSLEY, Esq., Helmsford, exhibited a few hybrid *Cypripediums*, all raised from seeds of the same pod, but showing great variation.

W. R. LEE, Esq., Heywood, staged a group for which five points were awarded; several good plants were noticed, including a good form of *Odontoglossum crispum*.

Mr. H. ARTHUR, Blackburn, staged a pretty exhibit in the "small amateur" section, and was awarded a Silver Medal.

G. S. BALL, Esq., Burton, Westmoreland (gr. Mr. Herman), was awarded a Silver Medal for a group of mixed plants, which included an unusually fine inflorescence of *Angraecum sesquipedale*.

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), received an Award of Merit for *Odontoglossum* × *amabile* var. *Andrey*; Mr. WARD also exhibited a good form of *O. × Wilkeanum*.

Messrs. CYPHER & SONS, Cheltenham, were awarded a Silver Medal for a good collection of *Cypripediums*.

J. McCARTNEY, Esq., Bolton (gr. Mr. Holmes), exhibited a collection of *Cattleyas* and hybrids, for which a Silver Medal was awarded.

Messrs. SANDER & SONS, St. Albans, had a showy display of choice plants, one particularly noted being *Cypripedium* × *Charles Sladdin*.

Other exhibitors included Messrs. E. V. Low, Hayward's Heath; J. ROBSON, Altrincham; O. O. WRIGLEY, Bury; W. SHACKLETON, Bradford; S. H. LOW, Enfield; J. BIRCHENALL, Alderley Edge; and A. J. KEELING & SONS.

BRITISH GARDENERS' ASSOCIATION.

At the last meeting of this association, held at the R.H.S. Hall, Westminster, 44 new members were elected, bringing the total up to 2,008. An important meeting of the association was held at Birmingham on January 21; Mr. Udale presided, and about 90 gardeners were present. The secretary, Mr. J. Weathers, and Mr. Ratfill addressed the meeting. The proceedings were marked with great enthusiasm, and many present banded in forms of membership. Another meeting will be held at Birmingham on February 11, at the Cobden Café, when the local branch will be re-organised.

Obituary.

THOMAS DUFF.—We regret to record the death, on January 23, of Mr. Thomas Duff, until about nine years ago, gardener at Kenmore Castle, Kirkeudbrightshire, a post he had filled for about 50 years. Mr. Duff was also estate manager at Kenmore, and he retained this post on relinquishing his duties as gardener. During his tenure as gardener, the fine grounds at Kenmore Castle were maintained in excellent order. Mr. Duff leaves a widow and grown-up family, for whom much sympathy is felt in the district. The funeral was attended by representatives of the public bodies and benevolent societies with which Mr. Duff was connected.

HENRY HAMMOND GEORGE.—We learn with regret of the death, on January 25, of Mr. Henry Hammond George, second son of Mr. James George, horticultural sundriesman, Putney. The deceased, who was 45 years of age, was well known amongst horticulturists in the southern counties.

JOHN J. GORMLEY.—We learn from our American contemporary, *Horticulture*, of the death of Mr. John J. Gormley, of Messrs. Canger & Gormley, Chicago. Deceased was a native of Ireland, and, when 12 years of age, entered the service of his uncle, John Gormley, at Boston, who was one of the leading florists of that city. He removed to Chicago, and for many years was manager for Messrs. E. Weinbacher Co., engaging in business for himself about seven years ago. He was considered one of the most expert floral decorators in Chicago.

DEBATING SOCIETIES.

ALTON HORTICULTURAL.—At the meeting of the association held on Thursday, January 19, Mr. W. Yates, of Rotherfield Park Gardens, Alton, gave a lecture on "The Cultivation of Hardy Fruits, with special reference to the Apple." There was a good attendance and the President, Mr. H. P. Burrell, occupied the chair. Mr. Yates dealt with the planting and pruning of the trees, the gathering and storing of the fruits, also of transplanting, root-pruning, and other items of culture. He demonstrated the methods of pruning different varieties of Apple trees, and exhibited branches of sorts which fruit on the ends of the shoots.

NEWDURY AND DISTRICT GARDENERS.—The Mayor of Newbury presided at the meeting of the association held on Monday, January 16. Mr. Honage Wright delivered a lecture on "The Sweet Pea." Mr. Wright dealt at considerable length on the best varieties to grow, and how to treat them in different soils. He gave the following advice: Plant thinly, trench deeply, water freely, stake quickly, mature liberally, and remove the seed pods promptly.

CROYDON & DISTRICT HORTICULTURAL.—At the meeting held on January 17, Mr. H. Langford, Beckenham, lectured on "Chrysanthemum Growing." The lecturer recalled the enormous plants bearing over 100 blooms seen in his early career. He said those now in favour bear about a dozen blooms of good quality, and are grown either in pyramid shape or as stand rods.

WARGRAVE AND DISTRICT GARDENERS.—The annual meeting was held on January 11. Mr. T. Tunbridge was elected chairman, and Mr. F. Gray vice-chairman for the ensuing year. The annual report and financial statement were considered very satisfactory and adopted. At the previous meeting the chairman, Mr. Tunbridge, gave a paper on "Winter and Spring Bedding," in which he described the flowers and plants suitable for this kind of gardening, suitable combinations of plants for effect, the best means of preparing the ground, and different methods of propagating the various subjects.

GUILDFORD AND DISTRICT GARDENERS.—A meeting was held on Tuesday, January 24; Mr. G. Johnson presided over an attendance of 51 members. Mr. Shrivell, of the horticultural experiment station, addressed the meeting, and in the course of his remarks said that he had been carrying on experiments at his farm near Tonbridge, Kent, in conjunction with Dr. Bernard Dyer. These experiments were undertaken to determine whether large quantities of dung produced more economical results than smaller quantities in conjunction with chemical fertilisers, when used on various market-garden crops. The chemicals used were nitrate of soda, phosphates, and potash. The lecturer said that plants of the Cabbage tribe could be grown with chemical manures without dung, a mixture of 14lbs. of super-phosphate and 10lbs. of kainit per 100 square yards should be thoroughly mixed with the soil—later a top dressing of 5lbs. nitrate of soda should be given directly after planting, and a further 5lbs. about a month later. The lecturer recommended nitrate of soda in the kitchen garden, and said that one cwt. of this salt contains as much nitrogen as a ton and a half of rich farmyard manure.

BIRMINGHAM GARDENERS.—The inaugural meeting of the spring session of the association was held on January 23. Mr. C. H. Herbert (the vice-chairman) presided over a good attendance of the members. The essayist was Professor G. S. West, M.A., D.Sc., of the University, Birmingham, his subject being "Peach-leaf Curl or Blister as an Example of how a Plant may be Successfully Treated." The lecturer's remarks were illustrated by means of lantern slides. Professor West commented upon the erroneous

ideas concerning this disease, which has such a wide-spread belief amongst gardeners, pointing out that such ideas were the result of ignorance of the nature of the disease, and of the means of prevention. A short account was given of the geographical distribution of the disease, and New Zealand was mentioned as the country which has perhaps suffered more than any other from Peach-leaf curl. Professor West said that for some years previous to 1891, the loss to Peach growers in the United States of America from this disease was estimated at more than 3,000,000 dollars. The direct cause of the disease is a parasitic fungus. The life-history of *Tylococcus deformans*, the fungus causing the disease, was fully described.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending January 23, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—Rain fell on several occasions in Scotland and also in the south-west of England and the north of Ireland, but the quantity was generally slight. In other parts of the United Kingdom the weather, although often very cloudy, and in many places foggy, was mostly dry and occasionally fine and bright.

The temperature was above the average, the excess amounting to about 4° in some of the northern and north-western districts. The highest of the maxima were recorded on the 25th and 26th, and ranged from 59° in Ireland S., and 56° in England E., and the Midland Counties to 50° in Scotland N. The lowest of the minima, which occurred in most places during the earlier half of the week, ranged from 25° in England N.E., and 26° in the Midland Counties and Ireland S., to 32° in Scotland N., and to 37° in the English Channel. The lowest readings on the grass were 20° at Tunbridge Wells, 21° at Dublin, 22° at Crathee, Rauceby, and Hereford, and 23° at Kew.

The mean temperature of the sea.—On almost all parts of the coast the water was warmer than during the corresponding week of last year. The greatest difference being about 5° at Kirkwall and Teelin. The means for the week ranged from 48° at Scilly, 47° at Plymouth, and 46½° at Port Erin and Salcombe to 40° at Margate and Peninn Bay, 39° at Burnmouth, and 38° at Cromarty.

The rainfall was less than the normal in all districts: in eastern, central, and southern England the fall was less than 0.1 inch. At many stations the week was rainless.

The bright sunshine was below the average except in England S.E. and Ireland S., the deficit in the western and northern districts being large. The percentage of the possible duration ranged from 21 in England S.E., and 23 in England E. and Ireland S. to 6 in Ireland N., 5 in Scotland E., and 4 in Scotland N.

THE WEATHER IN WEST HERTS

Week ending February 1.

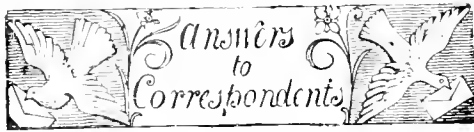
The best nineteen days for more than three years. The first three days of the week were very warm for the time of year, but since then the weather has been getting gradually colder. On the two warmest days the temperature in the thermometer screen rose respectively to 53° and 52°, whereas on the coldest day it did not rise higher than 36°. On the last night of the week the exposed thermometer registered 22° of frost—making this the coldest night as yet this winter. The ground is now at an average temperature at 2 feet deep, but 2° colder than is reasonable at 1 foot deep. No rain worth mentioning has now fallen for 19 days—making this the longest period with as little rain since September, 1907. That is to say, nineteen consecutive days with a total rainfall of only five-hundredths of an inch. For nearly a fortnight there has been no measurable percolation through either of the soil gauges. The sun shone on an average for 3 hours, 39 minutes a day, which is twice the average daily duration of bright sunshine at the end of January, and yet there were three days which were altogether sunless. On the last day of January the sun shone for 7 hours, 33 minutes—making this the sunniest day I have yet recorded here in that month. The wind was high on the first two days of the week, but since then light airs and calms have mostly prevailed. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity for that hour by 5 per cent. There was a thick fog in Berkhamsted all day on the 29th ult., but on the Common there was, during the afternoon, comparatively little fog, and the sun was shining brightly. The double Snowdrop came first into flower in my garden in the spot selected for its observation on January 25, or exactly a fortnight earlier than its average date in the previous twenty-four years, and 22 days earlier than last year.

JANUARY.

A month of average temperature, with a light rainfall and a good record of sunshine.—Taken as a whole this was a January of average temperature. On the warmest day the highest reading in the thermometer screen was 53°, which is about the average extreme maximum for the month, and on the coldest night the exposed thermometer showed 14° of frost, which is the highest extreme minimum reading recorded here in January for 11 years. Rain or snow fell on 15 days, to the total depth of 1½ inch, which is about half the average fall for the month. Virtually the whole of the rainfall was deposited on the first 12 days of the month, after which there was no rain worth mentioning. The ground was at no time completely covered with snow. The sun shone on an average for 1 hour 57 minutes a day, or for 22 minutes a day longer than usual, and yet there were 14 days which were altogether sunless. This was the calmest January for 13 years, and in no hour did the mean velocity of the wind exceed 15 miles—direction W.S.W. The average amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by one per cent.

OUR UNDERGROUND WATER SUPPLY.

Since the Winter half of the drainage year began in October last the total rainfall has exceeded the mean for those four months by 2½ inches, which is equivalent to an excess of 51,350 gallons per acre in this district. In the same four months last year the rainfall was about the average. E. M., Berkhamsted, February 1, 1911.



CAMELIAS: *W. E. Farnyard* manure in the solid form is not suitable for Camellias, and liquid manure of this kind should only be applied in the cases of well-established plants previous to the flowering period. The use of farmyard manure in the making of a border might, for a time, appear to be beneficial in promoting a deep green colour in the leaves and stronger growth, but later the soil would be liable to get sour. A mulching of manure from a spent Mushroom bed after planting would retain moisture, and its use may be desirable, but for established plants it is not to be recommended. The soil covered by the mulch being unobserved might become too dry during the formation of the flower-buds and cause bud dropping. In getting the sites ready for planting it is advisable not to make the border up to its fullest extent, but to proceed as with a Vine border by making it in portions. Camellias will thrive in a soil that consists chiefly of peat, but peat is not recommended for durability. Rather select a soil composed of at least two-thirds of good fibrous turfy loam, such as the top spit of an old pasture, and one-third of tough peat and well-decayed leaf-mould from such trees as the Oak and Beech. To this soil some coarse silver sand should be added and a fair amount of charcoal. In every instance make the border firm; this is most essential. See that the border is well drained and that the surplus water will pass quite away from the roots of the plant.

CULTURE OF CRASSULAS: Crassulas may, as a rule, be cultivated with very little trouble. Being of a fleshy character and natives of a hot country (South Africa) they should be exposed at all times to full sunlight, and allowed plenty of fresh air on all suitable occasions. In common with other succulent plants, they require a good supply of water during the summer time when they are growing freely, but during winter water must be applied sparingly as they are then very liable to damping. Crassulas should be potted in well-drained pots in a mixture of sandy loam, with plenty of brick or lime rubbish. Most of the species and varieties are propagated readily by means of cuttings, which should be inserted in pots or pans of sandy soil; in some cases the cuttings should be inserted singly into thumb pots. The cuttings should be watered, and if the pots are stood on an open bench or shelf in a greenhouse, the plants soon form roots. Do not place the cuttings in a close case, as they are liable to damp off. The species usually cultivated in gardens include *Crassula falcata*, more generally known as *Rochea falcata*, which produces large corymbs of bright crimson flowers, very effective for greenhouse decoration, and lasting in a good condition for at least six weeks. Even when the plant is not in flower, the thick, glaucous leaves are attractive. *Crassula lactea* has white, star-like flowers which are produced during the winter, generally in January. A well-grown specimen is most effective. The plant should be grown in 6-inch pots, or even in large pans. *Rochea coccinea* and *Rochea jasminaea*—both more generally known as Crassulas—are fairly common in gardens, and were, at one time, largely grown for the London market. *R. coccinea* is a very useful plant for greenhouse decoration. In former years large specimens, some 3 feet high and as much through, were common in gardens. *Rochea jasminaea* is a dwarfier plant than *R. coccinea*, with an almost prostrate habit of growth. It produces handsome, white, Jasmine-like flowers, which pass to a reddish colour as they fade. *R. jasminaea* generally flowers about May or June.

GRAFTING RHODODENDRONS: *B. H. J.* Rhododendrons are usually grafted indoors during February, March and April. The stocks are previously established in small pots, and are placed in the propagating house two or three weeks before they are to be grafted, in order that the sap of the stocks may be in advance of that of the scions. The method known as

saddle-grafting is adopted. This consists of cutting the stock in the form of a wedge and making the scion fit it exactly, or, if the scion is smaller than the stock, then it is cut to fit the stock on one side. The scions are bound firmly to the stocks with raffia and wax, or clay may be used, though a plastic material is necessary in every case. The grafted plants are stood in a close case in a temperature of 65° to 70°, where they remain until the scions commence to grow. After this stage the cases are ventilated by degrees until the plants are eventually removed to an open stage in the same house, previous to hardening them off in a cold frame. The grafting should be done as low down on the stock as possible, and the scions should be selected from terminal shoots, which are not bearing flower-buds.

MOTOR MOWER: *W. C. H.* A machine such as you require may be obtained from makers of mowing machines. Scan our advertising columns.

NAMES OF PLANTS: *Saron.* 1. *Saxifraga decipiens*; 2. *S. trifurcata*; 3. *S. cameifolia* var.; 4. *S. Hostii*; 5. probably *Sedum sexangulare*; 6. *Saxifraga aizoon*.—*H. E. B.* *Picea excelsa* var.—*F. P.* *Crotons*: 1. *Laingii*; 2. *Sinitzinianus*; 3. *Aneitumensis*; 4 and 5, the numbers on the specimens were obliterated; 6. *ruberrimus*.—*G. B. M. R.* It is impossible to name the plant of which you send a drawing and description of a capsule only. If you will send the seed-pod, we will do our best to identify the plant.—*W. E. Batty.* 1. *Juniperus prostrata*; 2. *Cupressus Lawsoniana* var. *compacta*—*E. G. Watkins.* *Pinus insignis*, the Monterey Pine.—*Forreman.* 1. *Odontoglossum blandum*; 2. *Odontoglossum crispum* *xanthotes*.—*G. H. Colwyn.* 1. *Pernettya mucronata*; 2. *Garrya elliptica*.—*A. H. & Sons.* *Ureodina pendula* (amea) and *Eriobotrya japonica*.

PEACH SHOOTS DISEASED: *J. T.* The trouble is caused by a parasitic fungus, *Gleosporium*. Remove all diseased shoots and spray the trees with liver of sulphur.

PLANTS FOR EXHIBITING: *Cheltenham.* Your letter is very indefinite; we assume that you wish to know the best three specimen blooming plants and three specimen foliage plants for exhibiting. Much will depend upon the date of the exhibition, which you do not state. If for an ordinary summer show, the flowering plants might be selected from *Lyora Williamsii*, *I. Pilgimii*, *Clatendron Baltomi*, *C. fallax*, *Chironia exifera*, *Anthurium Scherzerianum*, *Acalypha hispida* (Sanderi), *Erica Cavendishiana*, and others; *Allamanda Hendersonii*, *Statice intermedia*, *S. profusa*, *Rondeletia speciosa*, *Eucharis grandiflora*, and *Lapageria rosea*. Suitable fine foliage plants include *Codiaeum* (Crotons), *Caladiums*, *Pandanus Veitchii*, *Dracena Victoria*, *Abrutilon Thompsonii*, *Aralia elegantissima*, *Alocasias*, *Anthuriums*, *Begonia Rex*, *Kentia Belmoreana*, and other Palms, tree and other large-growing Ferns.

PLUM SHOOTS DECAYED AT THE CENTRES: *W. F. B.* The decay has resulted from a fungus present at the roots. Expose as many of the roots as possible, and dust them thoroughly with sulphur.

PROPAGATING GENISTAS: *A. F. B.* You do not state which kind of Genista you wish to propagate. The hardy kinds are easily raised from seeds which germinate quickly and soon furnish good plants. The greenhouse *Cytisus*, *C. fragrans*, which is usually referred to as *Genista fragrans*, is best raised from cuttings. One of two methods of taking the cuttings may be adopted. In the one case, soft shoots a couple of inches long are taken during early spring and inserted in a compost of equal parts of loam, peat and sand. Four or five-inch pots are used, and the pots are plunged in a close and warm propagating case until roots are formed, after which the young plants are removed to a shelf near the roof glass in the same structure for a week or so. They are then placed in a cooler house. The second method is by means of cuttings of half-ripened wood, 2 to 3 inches long, inserted during July and

August. These are potted in a manner similar to the spring cuttings, but they are placed in less heat, and take several weeks longer to form roots. The strong-growing variety, *elegans*, is very difficult to root from cuttings, therefore it is grafted on stocks of the type. Ordinary side-grafting is practised in spring, and the plants are stood in a close and warm propagating case until the union is complete. It is very necessary for young plants of *Rhododendrons* to be kept growing freely: the shoots should be frequently stopped, in order that a good foundation may be laid for the future plant.

PROPAGATING HEATHER: *C. C.* Heather (*Erica cinerea*) and Ling (*Calluna vulgaris*) may be raised from seeds, cuttings and layers. Seed may be sown on the surface of a bed of peaty soil in a cold frame, or in boxes or pans filled with peaty soil. No covering of soil is necessary, but the bed or boxes should be kept shaded until germination takes place, in from two to three weeks from the time of sowing. When large enough to handle, the young plants may be pricked off in a bed of peaty soil, where they must be shaded from bright sunshine. It is doubtful whether you will be able to procure seed without saving it yourself, for it is not generally stocked by seedsmen. Cuttings are inserted during July and August, selecting young shoots not more than an inch long. These are dibbled thickly into sandy peat in beds or pots; the peat should be made firm and covered with silver sand. Those inserted in beds are covered with handlights, those in pots are stood in a close case or covered with bell-glasses until they are rooted. The following spring the young plants are placed in nursery borders for a year preparatory to their final planting. Layering is performed in spring; peaty soil is placed around the plants and the branches weighted down into it by means of stones. The layers are usually left 1½ or 2 years before they are removed from the parent plant. Propagation by seeds and cuttings is best for general purposes.

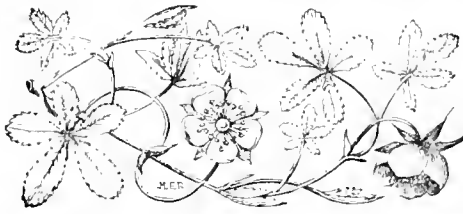
ROMAN HYACINTHS FAILING TO FLOWER: *G. J. B. & Co.* The bulbs are healthy and sound, but they do not appear of sufficient size to flower well. Such small bulbs should have been cultivated for another year in the nursery.

SEDIMENT IN HOT WATER PIPES: *D. B.* If you refer to the "fur," this would have little or no manurial value beyond that due to the carbonate of lime, of which it is mainly composed.

ST. DOMINGO CEDAR: *C. P.* The portion of veneer is probably a wavy grained piece of *Cedrela odorata* or an allied species. The *Guide to the Wood Museum at Kew* is at present out of print.

TULIPS FLOWERING UNSATISFACTORILY: *G. J. P.* The trouble is apparently due to some cultural error, which only those responsible for growing the plants can determine. The bulbs are of good size; they were firm and healthy, and they contain flowers in each case. The most probable causes of the failure are insufficient heat—a mild bottom heat and a close atmosphere are an advantage in early bulb forcing—and lack of sufficient moisture. The green colour low down in the leaves of the variety *Rose Gris de Lin*, for example, indicates too much exposure to light at too early a stage. For this comparatively dwarf grower at this season of the year a closed frame with bottom-heat of 70° and complete darkness would have resulted in longer stems and better flowers. One flower of *Rose Gris de Lin* is perfectly formed, though small, but it is developed too short in the stalk; the other gives the impression of having been chilled by either cold air or water. There are similar indications in all the varieties with the exception of *Prince of Austria*, which, while being a more vigorous grower, is possessed of the best-developed bulb. The conditions you name would have been suitable a month later.

Communications Received.—*G. P.*—*W. H. C.*—*W. C.*—*W. J. P.*, Toronto.—*W. H. C.*, Hampton.—*Constant Reader*.—*R. C. W.*, Aberystwyth.—*R. F. W. S.*, Woking.—*Enquirer*.—*M. R.*—*W. J. V.*—*J. J. N. C. S.*—*A. & B.*—*C. P.*—*A. H.*—*A. S.*—*P. A.*—*C. H.*—*E. W. P.*—*F. T. B.*—*C. T. D.*—*J. E. K. S.*—*S. A.*—*L. S.*—*T. M. S.*—*G. W.*—*E. T. C.*—*J. E. W.*, Rotterdam.—*T. S.*—*E. A.*—*B. W. R. S.*—*F. H.*—*J. M. B.*, Llanfairfechan.—*R. L. H.*—*R. A. W.*—*H. S. T.*—*G. H.*—*W. H. C.*—*J. U.*—*B. D. K.*—*D. H. I.*—*R. S.*—*S. A.*—*H.*—*W. B.*—*M. F.*—*I. S.*—*E. C.*—*E. C.*—*J. R. H.*



THE
Gardeners' Chronicle

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CONTENTS.

Agriculture in the West Indies, Imperial Department of ...	82	Odontoglossum crispum "Peacock" ...	93
Alpine plants, European ...	90	Orchid notes and gleanings—	
Apples, imported v. home-grown ...	91	Calanthes at Cavenham park gardens ...	83
Appointments abroad ...	90	Cypripedium "Duke of Connaught" ...	83
Basic slag, the effect of, on pastures ...	91	Plants, new or noteworthy—	
Black Currant "Boskoop Giant" ...	91	Pinguicula Rosei ...	82
Books, notices of—		Polytechnic, the ...	91
Agricultural Education in Canada and the States ...	81	Potatoes, treatment of, for scab ...	91
Botanical Magazine ...	89	Royal Horticultural Society's Olympia Show ...	89
Flora of Jamaica ...	82	Scotland, notes from ...	91
The Orchid Review ...	91	Shrubs, winter flowering ...	93
Fog and frost in Glasgow ...	91	Societies—	
Fokienia Hodginsii, structure of the wood of ...	84	Aberdeen Chrys. ...	96
Fruit register—		British Gard. Assoc. ...	95
Apple Millers' Seedling ...	85	Edinburgh Market Gardeners' ...	95
Apples on a stiff soil ...	85	Horticultural Club ...	89
Gladiolus society, proposed ...	93	Liverpool Hort. ...	95
Hales, Stephen, lecture on Hamamelis mollis ...	93	Midland Carnation ...	90
International Exhibition, 1912, and the Royal Horticultural Society ...	90	National Chrys. ...	94
Japan, a journey to ...	85	National Dahlia ...	90
Kew collections, additions to the ...	90	National Sweet Pea ...	90
Kew, visitors to ...	90	Royal Horticultural (Scientific Committee) ...	94
Nursery employees entertainment ...	90	Royal Meteorological ...	90
Obituary—		Royal Scottish Arboreal ...	89, 95
Bossche, Leon van den ...	96	Ventnor Hort. ...	95
Dorner, Frederick ...	96	Woolton Chrys. ...	95
Sutton, Mrs. ...	96	Warrants, Royal, to nursery firms ...	90
Suzuki, Uhei ...	96	Week's work, the—	
		Flower garden, the ...	87
		Fruits under glass ...	86
		Hardy fruit garden ...	87
		Kitchen garden, the ...	86
		Orchid houses, the ...	86
		Plants under glass ...	87

ILLUSTRATIONS.

Buitenzorg, the laboratory at, with Mount Salak in the background ...	85
Cypripedium "Duke of Connaught" ...	84
Fokienia Hodginsii, structure of the wood of ...	84
Hales, Stephen, portrait of ...	88
Masdevallia pachyura ...	89
Nelumbium speciosum and Pontederia hastata in Udapur Botanic Gardens (Supplementary Illustration) ...	
Odontoglossum crispum "Peacock" ...	92
Pinguicula Rosei ...	82

AGRICULTURAL EDUCATION IN CANADA AND THE STATES.*

LIKE every other similar institution in this country, the University College of Reading has found the problem of agricultural education one of extreme difficulty. Though the success which has attended the efforts of our agricultural colleges is by no means inconsiderable, those who are responsible for agricultural education in England—no matter where that education is given—must be complacent indeed, if they are completely satisfied with their present several measures of success.

The reasons for the slow development of a thoroughly satisfactory system of agricultural education in this country are not far to seek.

The lack of such a system is to be ascribed in part to national characteristics, and in part to the advanced stage to which the

practice of agriculture has reached. It is not, however, our present object to attempt to indicate in detail the causes to which may be attributed the not-altogether ideal state of agricultural (and horticultural) education in Great Britain; but rather to call attention to the enterprise shown by the Council of University College, Reading, in sending a deputation to Canada and the United States, charged with the duty of drawing up a Report on Agricultural Education in those countries.

This course of action was rendered possible by the generosity of Mr. Leonard Sutton—to whom the idea as a practicable venture was due—and to Mr. Alfred Palmer.

Thanks to the liberality of these gentlemen, the Deputation, consisting of five members of Council and Academic staff of the College, were enabled to study in detail, and on the spot, the working of some of the most important agricultural institutions in Canada and in the United States.

The centres visited included The Macdonald College (Quebec Province), the Central Experimental Farm (Ottawa), the Ontario Agricultural College (Guelph), and the Universities of Cornell and Wisconsin.

The first part of the report deals in comprehensive manner with the kind of agricultural education which is given at each of these institutions.

We have no hesitation in saying that the facts presented in this part of the Report, though they, by the nature of the case, make no claim to exhaust the subject of American agricultural education, provide us in England with a "document" of the very greatest value. They demonstrate that in Canada, and in the States, people have passed the stage of disputation as to whether it is possible to teach agriculture, and have determined not only that it can, but also that it shall be taught. Moreover, as the statistics included in Part I. of the Report prove, Canada and the States are to-day backing that conviction by the investment in agricultural education of sums of money, compared with which those granted for a similar purpose in this country are miserably inadequate.

But in addition to the timely and detailed reference to these facts, which are known to all scientific agriculturists, the Report makes clear that the spending of vast sums on agricultural education and research is carried out in Canada and the States in no haphazard manner. The monies which are granted for agricultural instruction are granted with intelligence, and with the object of securing definite ends. As the Report makes clear, these things are easier of design and execution in a new country than in an old one: they are easier in a land where agriculture looms large in the public eye, than in one where other industries obscure its importance.

The Deputation is to be congratulated on its avoidance of the somewhat sterile course of chiding its fellow-countrymen, or this or that Department of State, and on concentrating its energies on the production of a lucid statement of fact. As a result of this line of action, Part I., though it offers no material for controversy, presents an unanswerable case for the more thorough organisation of agricultural and horticultural education in Great Britain and Ireland.

Part II. of the Report is, on the other hand, and by the nature of the case, bound to call forth a certain amount of criticism. Nevertheless, we are of opinion that the views put forward by the authors are sound. They deprecate any attempt at slavish imitation here of methods found to be excellent for Canadian and American conditions. They draw attention to the fact that the practice of agriculture in Great Britain is far in advance of that in N. America, and they emphasise the fundamental differences between the problems of agricultural education presented by this country and those of Canada and the States; differences due to national temperament, climate and phase of development.

Among the various important recommendations and suggestions contained in Part II., one, concerned with the method of agricultural education, deserves the most careful consideration. This suggestion is to the effect that it is desirable to modify in a drastic manner, the curriculum generally in vogue in our agricultural colleges. The proposed modification consists in the curtailment and change of character of the instruction in sciences bearing on agriculture—chemistry, botany, &c. which instruction it is customary to give during the early part of the agricultural course. The Report recommends that the education given in the first year or two of the college course should deal much more with practical agriculture, and much less with elementary science. The students should be obliged to demonstrate that they have a sound, practical knowledge of agricultural operations. Having done this, they should learn by means of special practical courses what the most capable men have to teach them on special agricultural topics—soils and manures, the treatment of disease, and so forth. Not till they have done all this should the students—and then only those who wish to train as experts, or who have leisure for a longer course of study—take up courses in such sciences as chemistry and botany. It should be pointed out that in coming to this decision as to what is the best type of curriculum, the authors of the Report are actuated by no antipathy to science. They recognise, indeed, its paramount importance, and are at pains to point out how agriculture has benefited and is benefiting by the discoveries in chemical and biological science. All they urge is that a college-trained student should be first of all a thoroughly practical agriculturist, and that should he fail of this, no amount of pure or applied science will avail him. If he is a practical agriculturist, the more science he has the better; if he is not, then his agricultural education is a failure, no matter how wide his book-learning may be, and no matter how high are his scientific attainments. Whether, however, he agrees with all the conclusions arrived at in the Report, no one can peruse it without being compelled to think seriously, both on the important subjects with which it deals and on the loss which is bound to befall this country unless it takes active and immediate steps to improve and develop its system of agricultural education.

Finally, we may add, that we are pleased to know that the origin of the expedition, which the Report records, was due to the initiative and generosity of one of the most prominent of British horticulturists.

* Report of a deputation, appointed by the Council of University College, Reading, to visit selected centres of agricultural education and research in Canada and in the United States. (Published by University College, Reading, 1s.)

NEW OR NOTEWORTHY PLANTS.

PINGUICULA ROSEI.

ABOUT three years ago Kew received from the United States Department of Agriculture, Washington, a tiny plant which had been collected by Mr. Rose somewhere in Mexico. It grew into something very like *Pinguicula caudata*, having a *Sempervivum*-like cluster of leaves at first, and later much larger, tongue-shaped leaves, with incurved margins exactly as in *P. caudata*. When it flowered, we were at first disposed to call it a variety of that species, and botanically, perhaps, it is nothing more; but there are slight differences in the form of both kinds of leaves and a very decided one in the colour of the flower, which is deep violet-purple, almost a blue. On enquiring of Mr. Rose if he had any recollection of the plant as it grew wild in Mexico, or if he had seen it since in cultivation, he replied that he was uncertain about it. Anyhow, the plant is established at Kew, where it grows well and flowers freely in the warm Orchid house, and, for garden purposes, at any rate, it must have a distinctive name. Accordingly, we have called it *P. Rosei*, in compliment to its discoverer.

P. caudata is largely grown by Orchid breeders, who find it an excellent trap for the tiny midge-like fly which lays its eggs in Orchid seedlings when they are very young, and, if not kept in check, is capable of a good deal of mischief. Mr. Thompson, of Stone, was, so far as I know, the first to put this *Pinguicula* to this particular use, growing it by the hundred among his Orchid seedlings. It is a most charming little pot-plant, and has become a favourite in many gardens since its introduction from Mexico by Messrs. F. Sander & Sons in 1881. It was figured in *Gardeners' Chronicle*, 1881 (1) p. 541, under the name of *P. Bakeriana*. The flowers of *P. Rosei* are nearly 2 inches across, and they remain fresh on the plant for weeks. Both it and *P. Bakeriana* may be propagated from the small, fleshy leaves by setting them singly in a pot of silver sand and covering them with a bell glass. W. W.

NOTICES OF BOOKS.

JAMAICAN ORCHIDS.*

DURING a residence in Jamaica of 21 years as Director of Public Gardens and Plantations, Mr. William Fawcett devoted considerable attention to the botanical exploration of the island, and especially to the Orchids, of which, with the assistance of Mr. William Harris, Superintendent of the Gardens, he made a very fine collection. A series of drawings from the living plants was also made by Miss Helen Wood. On Mr. Fawcett's retirement and return to England, the permission of the Trustees of the British Museum was obtained for the publication of a work on the Orchids of Jamaica, and this has been carried out with the collaboration of Dr. Rendle, Keeper of the Department of Botany. It is proposed that the present volume shall form the first part of a complete *Flora of Jamaica*.

The Orchids of Jamaica are of special interest, from the large number of endemic forms, 73 out of an aggregate of 194 species being confined to the island, so far as at present known. There are 61 genera, one of which, *Homalopetalum*, is endemic. The most striking affinity of the Orchid flora is with that of the neighbouring island of Cuba, 82 of the 121 non-endemic Jamaican species being also found there, and 14 of them are not known elsewhere. Forty species are common to Jamaica and Trinidad, a similar number to Jamaica and

Flora of Jamaica, containing descriptions of the flowering plants known from the Island, by William Fawcett, B.Sc., and Alfred Barton Rendle, D.Sc., F.R.S., Vol. I. "Orchidaceae," 8vo., pp. 150, with 32 plates, and an introduction and index. Published by order of the Trustees of the British Museum. (Longman & Co.)

Porto Rica, and almost as many to Jamaica and one or more of the Lesser Antilles. The relationship with Central America is well marked, 37 Jamaican species being found in some part of Central America, or 44, if Mexico be included, and 48 species are common to Jamaica and tropical South America. It is interesting to note that a few species common to Central America and Jamaica are not known to occur elsewhere in the West Indies, and these are regarded as representing an element of the Jamaican flora associated with two former extensions of the land surface, between Cuba and Yucatan, and Jamaica and Honduras. How far opinion on these and some other anomalies that are discussed may be modified when other parts of the West Indies are better known remains to be seen.



FIG. 42.—PINGUICULA ROSEI: COLOUR OF FLOWERS, VIOLET.

Some very interesting details of the physical features of the island are given. It is 144 miles long by 30 to 40 miles broad, and is remarkable for the limited area in which very many species are found, and for the wonderful contrasts between neighbouring districts in geological structure and soil, elevation, rainfall and temperature. The Blue Mountains, at the eastern end of the island, attain an altitude of 7,423 feet, and here the north-east trade winds bring almost constant rain throughout the year, the rainfall varying from 150 to 200 inches annually. Toward the south coast the rainfall decreases, and there are belts with a rainfall of 70 to 55 inches, or 50 to 40 inches, and then for a considerable distance, to Kingston and beyond, of 35 to 30 inches annually. The John Crow or Blake Mountains, at

the east end of the island, are so wet, and the limestone rock so precipitous and difficult to travel over, that it is believed that only one white man has ever crossed them, and in such places new species may be yet discovered.

Of the 61 genera of Jamaican Orchids, *Epidendrum* occupies the leading position, with an aggregate of 31 species, being followed by *Pleurothallis* with 27, *Lepanthes* with 19, and *Habenaria* with 3, while as many as 28 genera have only a single Jamaican representative. *Lepanthes* seems to be a characteristic Alpine genus, and 17 of the 19 species are not known elsewhere, the other two being also found in the mountains of Cuba. This genus contains a high proportion of novelties. Two new genera are established, *Neourbania* and *Harrisella*, both monotypic, and common to Jamaica and Cuba.

Very few of the Jamaican Orchids are much cultivated in Europe, but among those that are grown may be mentioned the charming little *Laelia monophylla*, one of the endemic species, *Broughtonia sanguinea* and *B. domingensis*, *Schomburgkia Lyonsii*, *Brassavola nodosa*, *Oncidium luridum*, a few species of *Epidendrum*, *Brassia caudata*, and *B. maculata*, with a few others. The occurrence in Jamaica of the eastern *Phaius grandifolius*, now called *P. Tancarvillei*, is interesting, and we read: "This species cannot be considered indigenous, but it is so completely naturalised and so common in some parts of Jamaica that a full description has been included. It is also recorded from Cuba."

The work contains keys to the genera and species, full descriptions, references to existing descriptions and figures, and a detailed list of known Jamaican localities, with a brief indication of the range of the species elsewhere. Altitudes are also given. The arrangement followed is that of the late Professor E. Pfitzer, in Engler and Prantl's *Pflanzenfamilien*.

The plates are lithographic, from drawings by Miss H. A. Wood, and are largely devoted to analytical details, which will be invaluable to those engaged in studying the Orchids of Jamaica. The work, though concise, is carried out with great thoroughness, and forms a valuable guide to the Orchid flora of the island. R. A. B.

THE IMPERIAL DEPARTMENT OF AGRICULTURE IN THE WEST INDIES.*

(Continued from page 76.)

The cultivation of Sea Island cotton was introduced into the West Indies in 1903. The best seed was obtained from the Sea Islands by the Department, and numerous experiment plots were started to show successful methods of cultivation. In 1904 the area planted amounted to 7,600 acres. This steadily increased until 24,000 acres were planted in 1908. The total exports of Sea Island cotton (including a small supply of Marie Galante cotton from Carriacou) amount to 15,000,000 lbs., of the value, in lint and seed, of £300,000. Valuable assistance was rendered by the British Cotton Growing Association in making grants of money and machinery; also in taking charge of the shipments of cotton and finding the best market for them. It also provided the services of a travelling inspector to be attached to the Imperial Department of Agriculture in connection with cotton investigations. Sir Alfred L. Jones, President of the Association, offered 11 gold and 17 silver medals for competition among Cotton-growers in 1906-7. A visit of representative Cotton-growers from the West Indies was made to Lancashire in the summer of 1908, when they were most hospitably received at Liverpool and Manchester, and obtained valuable information for their guidance in dealing with future crops. It is admitted that if fine Sea Island cotton had not been obtained in appreciable quantity from the West Indies in recent

* Paper read by Sir Daniel Morris, K.C.M.G., D.C.L., D.Sc., F.L.S., at the Royal Colonial Institute, on January 10, The Right Hon. Lord Brassey, G.C.B., in the chair.

years, several of the cotton mills in Lancashire would have been compelled to work short time. This is an instance of the value of encouraging agricultural industries in our Colonies and the benefit arising to the Mother Country.

The exports of Limes, concentrated Lime-juice, and essential oils of Limes (obtained from the West Indian Lime-tree) from Dominica are of the annual value of £54,951; Lime-juice and oils are exported from Montserrat of the value of £7,500; Limes and Lime-juice from Jamaica to the value of about £6,000. Trinidad also exports some Lime-juice. There is an increasing demand for West Indian Limes in the United Kingdom. The West India Committee is rendering useful service in bringing Limes under the notice of the British public, and encouraging their more general use instead of Lemons.

The possibility of establishing rubber plantations in the West Indies has received careful

number of these distributed in the years 1901 to 1905 amounted to 621,007, and during the years 1906 to 1909 554,144, making a total of 1,375,151. In addition there were distributed large quantities of Sugar canes, sweet Potato slips, Cassava cuttings, Pine-apple suckers, Bananas, Plantains and large quantities of various seeds and Cacao pods. The distribution of these was accompanied by information for their treatment, and the growers were visited from time to time by the travelling agricultural inspectors. It is estimated that the plants distributed during the last ten years would be sufficient to establish areas equal to about 10,000 acres in Cacao or Oranges, or 20,000 acres in larger trees, such as Rubber; Cocoa-nuts, or Mangoes.

The Royal Commission of 1897 stated that "a system of training in agricultural occupation was much needed." A considerable amount of attention has been devoted to this subject during the

In reviewing the considerable progress that has been made in other Colonies, it was recently reported that in British Guiana over 50 schools have started small gardens and earned 80 per cent. of the grants offered. At Trinidad 203 schools were examined in practical agriculture, and school shows for plants and produce raised by the pupils are regularly held. At Barbados 44 schools presented children for examination in object-lessons connected with agricultural subjects. About one-third of the schools had small gardens, or showed plants under cultivation in pots and boxes. In the Windward and Leeward Islands fair progress has been made. The chief drawbacks there are the want of carefully-trained teachers and the small encouragement offered in the Government codes for teaching agriculture and maintaining school gardens.

In the case of grants offered by the Department to agricultural shows, it was stipulated that a special class should be provided for plants and produce grown by children in the elementary schools. The result of this has been generally satisfactory.

The establishment of agricultural training schools by the Department at St. Vincent, St. Lucia, and Dominica, where selected boys of the agricultural class were boarded and trained for a period of three years, have clearly demonstrated the value of such practical training in raising the standard of cultivation and in spreading sound knowledge of the treatment of crops. About 70 students trained at these schools have already obtained employment as foremen and overseers, or are otherwise engaged in agricultural work.

At Jamaica a somewhat similar institution, known as a farm school, has lately been established under the auspices of the newly-created Department of Agriculture. It is stated that the applications for admission were so numerous that a large number of students had to be refused. The Director regards this as demonstrating that "there is a demand for agricultural education of a practical type in Jamaica, and that the people are willing to pay for it. . . . When we realise that six-sevenths of the lands alienated from the Crown in Jamaica belong to small proprietors, the magnitude of the public interest involved in grading up the agricultural operations of the people is at once apparent." The Director adds: "It is in the methods of permanent and intensive cultivation by the use of mixed farming and a combination of animal industry with crop production that the obvious progress of the people lies."

Agricultural teaching in secondary schools and colleges is making steady progress at Harrison College, Barbados, and at the Queen's Colleges at British Guiana and Trinidad and at Jamaica. Agricultural science is also taught at the grammar schools at Antigua and St. Kitts, and scholarships have been provided by the Imperial Department of Agriculture.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM DUKE OF CONNAUGHT.

This distinct variety of *Cypripedium* (see fig. 43) was raised from *C. Beryl* and *C. nitens* G. S. Ball's variety. In its general characters it more closely resembles the first-named parent, but the colour is a clear, greenish, Indian-yellow, with spottings of a dark chocolate colour on the dorsal sepal, the petals and inside of the lip being also spotted. A narrow white band on the margin of the upper segment gives the bloom an additional pleasing feature. The variety was given an Award of Merit by the Orchid Committee of the Royal Horticultural Society on January 31, when it was exhibited by Messrs. Armstrong and Brown, Tunbridge Wells.

CALANTHES AT CAVENHAM PARK GARDENS, MILDENHALL.

MR. GEORGE HEATH, the gardener, has kindly forwarded a photograph (not reproduced) of a group of Orchids, chiefly *Calanthes*, taken a few days before Christmas in Cavenham Park Gardens. Many of the flower-spikes of the *Calanthes* were 4 feet in length, and carried more than 50 flowers each.

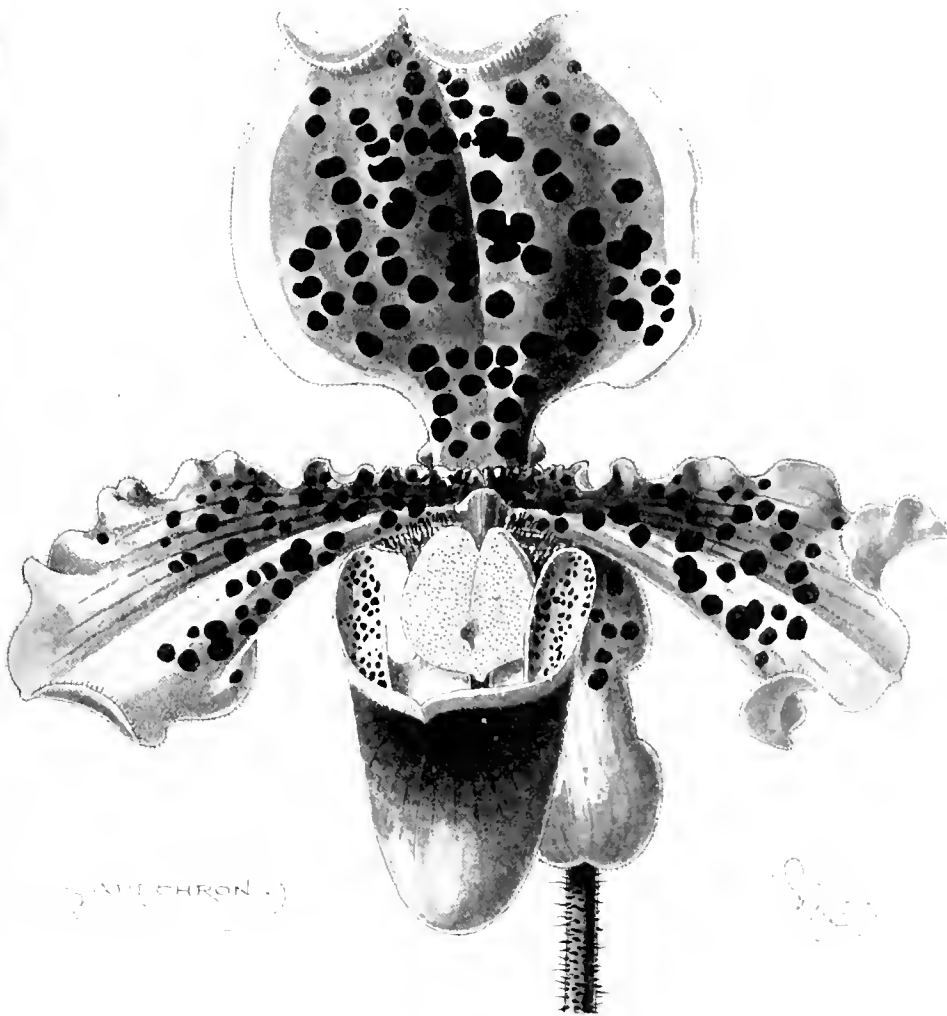


FIG. 43.—CYPRIPEDIUM "DUKE OF CONNAUGHT."
(Received R.H.S. Award of Merit on January 31.)

attention. There are 33 estates engaged in the industry in Trinidad and Tobago. Three experiment plantations are being established by the Government of British Guiana, and several concessions for land have been granted to public companies formed during the past year.

Rubber cultivation also is being established in British Honduras, where the central American Rubber tree, *Castilloa elastica*, is native.

An interesting part of the work of the Imperial Department of Agriculture has been the distribution of economic plants from the Botanic and Experiment Stations in the Windward and Leeward Islands and Barbados. These have consisted of established plants ready for planting of Cacao (from seed and grafted), grafted and budded Oranges and Grape fruit, grafted Mangoes, Rubber, Nutmeg, growing Cacao-nuts, Limes, Bay Rum, hedge and shade plants, &c. The

last ten years, with the result that probably no part of the Tropics is now more fully provided with the means for extending agricultural knowledge both among the growing members of the population or among the adult population. In the first instance, all teachers in charge of elementary schools were taken through successive courses of lectures and demonstrations in agriculture. They were afterwards supplied with school readers and a book of Nature teaching specially prepared for use in the Tropics. Jamaica may be regarded as having taken the lead in teaching agriculture in elementary schools, and by establishing annual courses of instruction to teachers in theoretical and practical agriculture at the Mico Institution and the provision of a staff of travelling agricultural instructors it has laid the foundation for an efficient scheme of agricultural education throughout the Colony.

FOKIENIA HODGINSII.

STRUCTURE OF THE WOOD.

The following notes upon the structure of the wood of *Fokienia Hodginsii* are based upon a portion of young stem, 4 inches in diameter, and showing 18 annual rings:—

The wood has the homogeneous structure of the family Cupressineae, being compact and even in texture, fine and fairly close in grain; and is moderately hard and firm. The colour is yellowish-white, tinged with pink; and no distinction between the heart and sap was observ-

outer periphery of each annual ring. The radial walls of the tracheids bear the usual conspicuous bordered pits, which, when seen on surface view (radial section), form a single row down the length of each tracheid. Each pit occupies about two-thirds of the total width of the tracheid. The tangential walls are only pitted in the case of the autumn tracheids, and on these walls bordered pits of a comparatively large size are more frequent than on the radial walls.

The medullary rays are almost invariably one cell wide, and vary from 1 to 20 cells in height, the average being 8 to 12 cells. Sometimes, as seen on tangential section, the cells become doubled about the middle of a ray. The tracheids adjoining the rays communicate with them by simple pits, which, in surface view, are seen on the radial wall as fairly conspicuous oval pits, lying somewhat obliquely to the long axis of the cell. In transverse and tangential sections these show a faint tendency to become one-sided bordered pits, the orifice of the pit being slightly narrower than the base. The horizontal walls separating one ray cell from another have simple pits, oval in surface view, with a wide-mouthed orifice, when examined in radial section.

The terminal (i.e., tangential) walls of the ray cells may be straight, oblique, or curved, but are rarely pitted or thickened, being usually very thin, about half the thickness of the horizontal walls.

The resin cells form longitudinal chains of cells, whose walls, both tangential and radial, bear simple pits.

Judging from Penhallow's* description of the wood of the Cupressineae, *Fokienia* seems more nearly related to *Cupressus* than *Libocedrus*. The thin terminal walls of the ray cells, the large numerous bordered pits on the tangential walls of the autumn tracheids, and the tendency of the rays to become two cells wide, connect the wood with *Cupressus* rather than with *Libocedrus*. On the other hand, the distribution of the resin cells in tangential bands is like that of *Libo-*

cedrus; but this character is, perhaps, not important, as the amount of resin varies enormously in different individuals of the same species, and appears to depend largely on conditions of growth. *E. R. Burdon, M.A., Cambridge.* [Mr. Henry asks us to state that fig. 32

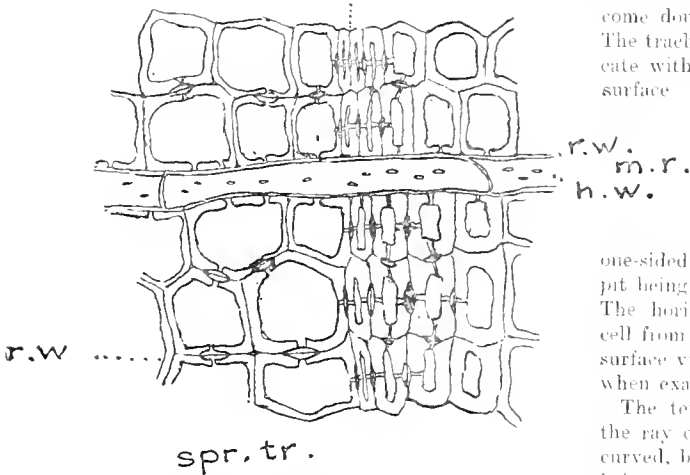


FIG. 44.—FOKIENIA HODGINSII: TRANSVERSE SECTION OF WOOD.

r.w., radial walls; m.r., medullary ray; h.w., horizontal walls; spr. tr., spring tracheids.

able in the young stem examined. The annual rings average 3 mm. wide, the zone of "spring wood" occupying almost the entire ring, the "autumn wood" being confined to a very narrow zone, which forms a fine clearly-marked ring boundary. The medullary rays are exceedingly fine, .03 to .05 mm. wide, .1 to .15 mm. high; in cross-sections barely visible in the solid wood without a lens; while on the tangential surface their limits are quite indistinguishable even with a compound microscope; on the radial surface they form a silver grain of narrow inconspicuous yellow bands. The rays are not very regularly spaced, the number varying from three to eight per millimetre in cross section.

The most noticeable feature is the abundance of resin cells, which are far more numerous than in any species of *Cupressus* which I have examined. Usually in *Cupressus*, the resin cells are scattered and isolated in the annual rings, so that it is difficult to detect them without recourse to microscopical sections. In *Fokienia* they are so numerous that they can be detected at once by the naked eye. In transverse section, they are disposed in tangential bands, as many as four bands occurring in a single annual ring. In longitudinal section, the resin cells are visible either as rose-coloured streaks (radial section) or patches (tangential section), which impart a distinct tinge to the colour of the wood. With a lens, ruby-coloured granules of resin can be seen lying in longitudinal rows in the cells. The wood examined is devoid of smell, but it is possible that fresh specimens possess a fragrant odour, due to the resin, such as occurs in the wood of species of *Cypress*.

The bulk of each annual ring is composed of spring tracheids, with comparatively large lumina, about .03 mm. in diameter; while the autumn tracheids, with small lumina, are limited to a narrow zone, 3 to 12 cell rows deep, at the

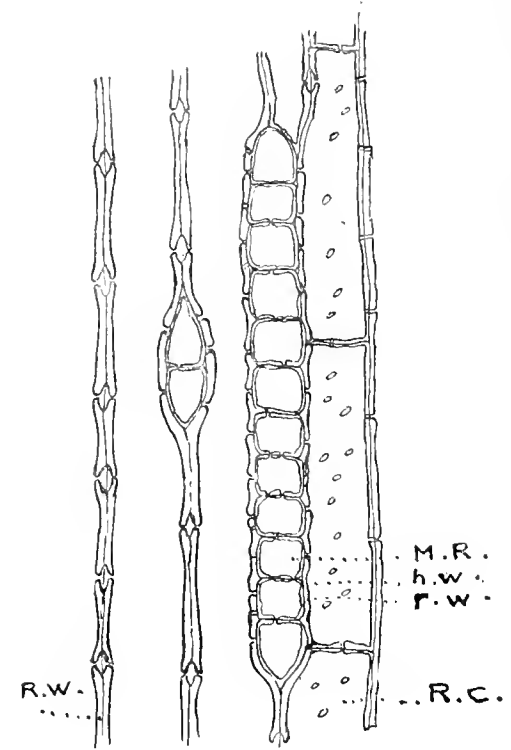


FIG. 45.—FOKIENIA HODGINSII: TANGENTIAL LONGITUDINAL SECTION OF WOOD.

m.r., medullary ray; h.w., horizontal walls; r.w., radial walls; r.c., resin cells.

on page 66, in our last issue, is a reproduction of a photograph of a branch of *Fokienia Hodginsii*, kindly lent by Mr. H. Clinton-Baker. The photograph, which was life-size, has been reduced in the figure to about one-third.—Eds.]

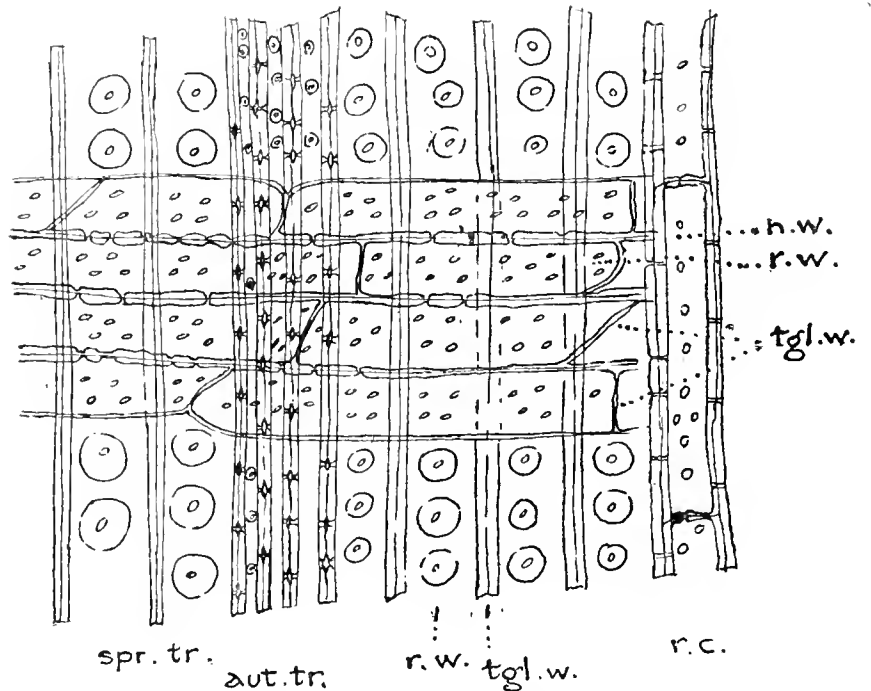


FIG. 46.—FOKIENIA HODGINSII: RADIAL LONGITUDINAL SECTION OF WOOD.

h.w., horizontal walls; r.w., radial walls; tgl. w., tangential walls; r.c., resin cells; aut. tr., autumn tracheids; spr. tr., spring tracheids.

D. P. Penhallow, in *Proc. & Trans. Roy. Soc. Canada* ii., 3 iv., p. 33 (1896).

The Week's Work.

THE KITCHEN GARDEN.

By JOHN DENN, Kitchen Garden Foreman, Royal Gardens, Windsor.

CELERY.—A small sowing of Celery may now be made in a house in which the temperature is 60°. The soil for this purpose should be made very fine, and the seed covered as lightly as possible. When the plants are large enough to handle, they should be pricked into boxes, or small pots, and kept close until they commence to make fresh growth, when air must be admitted. The plants should never be allowed to suffer for want of water.

BRUSSELS SPROUTS.—Sow seeds in boxes and place them in a temperature of 50° until the plants are through the ground, then remove them to a cool-house or pit, and gradually harden them off for pricking out in a cold frame. Cabbage may be sown and treated in the same way, so that young plants may be ready to put out as early in the season as possible. The same remark applies to Red Cabbage.

LEEKs. Make a small sowing of Leeks as soon as possible after this date, in order to obtain a few large stems early in the season. Sow the seeds thinly in boxes, and germinate them in a warm house. When the seedlings are well above the soil, place them close to the roof-glass in order to promote a sturdy growth. When large enough, they should be pricked out thinly into boxes filled with rich soil, or singly into small pots. For a few days after they have been disturbed, maintain a close atmosphere; but when they begin to grow again, afford fresh air freely, whenever the weather permits, so that the plants may be strong and hardy by the end of April, at which time they should be planted out-of-doors. As the Leek is a gross feeder, the trenches should be made some time in advance of the planting, and a liberal supply of manure placed at the bottom. If large specimens are required, a distance of 18 inches between the rows and 2 feet between the trenches should be allowed.

PARSNIPS.—The ground intended for this crop, having been trenched early in the winter, should now be dug with a digging fork, as soon as the soil is dry enough to permit of the operation. Break up the soil as finely as possible, and then allow it to remain undisturbed until it is dry enough to be levelled with a wooden rake. The drills should be drawn 18 inches apart, and the seeds sown thinly. If extra fine roots are desired, holes may be made with a crowbar to a depth of 3 feet and filled with finely-sifted soil. Sow a few seeds where each hole has been made, and when they have germinated, remove all but the strongest seedling. Soot and wood ashes make an excellent dressing for Parsnips.

JERUSALEM ARTICOKES.—Lift the tubers as soon as possible, selecting the largest ones for consumption, and those of a medium size for forming a fresh plantation. Plant the tubers in rows, at a distance of 18 inches apart, allowing 4 feet between each row. Select rich land for this crop in some secluded part of the garden.

SPINACH.—Make a sowing of summer Spinach as soon as the soil is in a workable condition. Provided a sheltered position is chosen, this sowing should afford a supply of leaves early in May. If sown in rows, make the drills 18 inches apart. Many growers, however, prefer to sow Spinach between rows of Peas or Broad Beans, and this system is a very good one, as the Spinach may be gathered and the plants cleared off before the other crops have matured. The plants of autumn-sown Spinach should have any decayed foliage removed, and the soil between the rows lightly disturbed with a fork, after which a dressing of soot should be applied.

MUSHROOMS.—Collect and prepare the materials for the making of fresh beds in order that a supply of Mushrooms may be maintained through the spring months. The manure should be placed in an open shed, and turned on every second day, during at least a fortnight. When it

is considered that fermentation has gone on long enough, the manure should be placed in the house in a layer about 2 feet thick. After remaining undisturbed for a day or two, and when the temperature has risen through fermentation to 85°, the litter should be turned over, and afterwards rammed together tightly. The bed should be spawned when the temperature has fallen to 80°. After a few days the surface of the bed should be covered with a layer of fresh loam, making it firm by beating it with a spade. Little further attention will be necessary for a month following beyond keeping the atmosphere of the house damp, and syringing the floor and walls occasionally. Beds in bearing should not be allowed to become excessively dry, and fire-heat should, as far as possible, be avoided. If a temperature of 55° can be maintained without artificial heat, there will be little need for moisture beyond that supplied by occasionally damping the walls with rain-water.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir C. J. HOLLIDAY, K.C.V.O., C.I.E., Westonbut, Gloucestershire.

WATERING.—This important detail of Orchid culture should always be performed with great care, but at no time in the year is this more important than at the present season, when many plants are just commencing to grow. When the pseudo-bulbous Orchids are finishing up their growths in late summer and autumn a liberal supply of water is required, even though the plants are apparently going to rest. The roots are then actively searching, as it were, for the moisture essential to build up a solid, sustaining pseudo-bulb, that will possess the rudiments, it may be, of the flowers for the following year, or, if the plants are late summer or autumn bloom-species, the vigour to carry them over the period of rest. But even at that season care must be taken not to promote an over-stimulating atmosphere in regard to heat. From the present time onwards, when these same plants are commencing to grow afresh, the treatment I have just described has, in a general way, to be reversed. The matured bulbs contain a considerable amount of stored nutriment, therefore, the roots are less active than they will become later. It will be seen that new growths nearly always appear before root-action is established, therefore water must be afforded only very moderately until the production of roots indicates that there is general activity throughout the plant. At that stage a moist atmosphere is essential. It should always be borne in mind that nothing so quickly injures young shoots of tender Orchids as lack of moisture in the air, and also that of excessive watering of the roots is disastrous.

ODONTOGLOSSUM HOUSE. The Odontoglossum house will become of greater interest each day. Most of the plants have made considerable progress since they were potted last autumn, and the roots have got into the new material. Such plants will now need more moisture, both at the roots and in the atmosphere, as their energies will be directed towards completing the pseudo-bulbs and developing their flower-spikes. Plants that are backward in growth, on the contrary, should still be watered sparingly, or the material may get soured and clogged. Maintain the atmosphere moist, and employ ventilation on all favourable occasions, but extra care is needed in admitting air, and observation must be made of the results upon the plants. As there are many tender flower-spikes now pushing forth, it will be necessary to keep a look out for slugs and snails. Popular baits include Lettuce leaves, slices of Potato and Carrot, and a little bran in small saucers placed about the house. If they are examined each night by lamplight, many of these pests may be destroyed. In regard to the choicer specimens, if a little cotton-wool is placed about the base of the flower-stems, it will preserve them from attack. Another good plan is to place the plant on an inverted pot, which is stood in a saucer of water; but, even if this is done, constant watch is necessary, for small slugs and snails are frequently hidden in the potting materials of the very plants it is wished to preserve.

BLINDS.—All blinds should at once be made ready for use, as the sun heat may be expected to show a considerable increase by the end of this month. Houses that contain *Cypripediums*,

Phalenopsis, *Odontoglossums*, *Miltonias*, *Masdevallias*, and other Orchids which have leaves of a soft texture, should be the first to be provided with blinds. For such houses the blinds should be made of a closely-woven, soft fabric. A similar material, but of a trifle lighter texture, may be used for houses containing species which are not injured by exposure to a strong light. All the blinds should be fixed on runners, placed at distances 9 inches from the glass, so that there may be a free passage of air between the plants and the roof-glass.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

PINEAPPLES.—Suckers of Queen Pineapples that were potted up last autumn should now be shifted into their fruiting pots. Use clean, well-drained pots of a large size, and cover the crocks with fibrous loam. The compost should consist of turfy loam with a good sprinkling of coarse road-grit, bone-meal and soot, and a little artificial manure. Water the plants some little time before they are potted to ensure the ball of soil being moistened thoroughly. Pot firmly and leave plenty of room for watering, as copious supplies of moisture at the roots will be required later in the season. Plunge the pots to their rims in a bed of leaves, made thoroughly firm and affording a bottom heat of about 80°. Maintain a humid atmosphere in the house by frequent dampings, and spray the plants on fine days. Water must be sparingly given in the pots until the roots have penetrated in the new soil. Maintain a night temperature of 65° or thereabouts according to the weather conditions. Suckers of other varieties that are large enough may be taken off and potted into 6-inch pots to form plants for successional fruiting. The pots should be plunged, and water must be carefully applied until the roots are active.

CUCUMBERS.—If Cucumbers are now planted in houses where a suitable temperature may be maintained, the plants may be expected to grow freely and provide quickly-grown, succulent fruits. I prefer planting Cucumbers on mounds of soil placed on a mild hotbed, composed principally of tree leaves and about one-third of long strawy litter. This should be brought into the house, and made thoroughly firm some time before planting. The soil may consist of good loam, with a liberal addition of leaf soil and coarse sand; the plants do not make such a rank growth in this compost as in one consisting entirely of loam and horse-droppings. Do not plant too firmly, and afford water, warmed to the temperature of the house, through a fine rose. Keep the foliage clean by frequent syringings whenever possible, and damp the surfaces of the house often. The evaporating troughs on the pipes should be kept filled, and a damping down last thing at night will be beneficial. Stop the plants when the shoots reach the trellis. Keep the soil free from weeds, and in a clean condition generally; when the roots appear through the ground give a sprinkling of artificial manure, and repeat this dressing on frequent occasions. Whilst the plants are small, remove the fruits as soon as they attain a useful size.

VINERIES.—Vines that were started early in pots will need plenty of water and feeding with liquid manure. Thinning should be carried out after the berries are well set, first removing small and worthless berries and those in the middle of the bunches. Fresh air should be given on all favourable occasions, but prevent cold draughts, and continue to close the vinery early in the afternoon. Permanent Vines that are approaching the flowering stage should have the growths stopped as soon as they have reached their limits; the amount of water should be reduced, but do not allow the house to become excessively dry. Padlicate the bunches with a rabbit's tail, or by drawing them through the hand. When the setting of the fruits is completed give the border a good watering, remove badly set bunches, and, when convenient, commence to thin the berries. Vines that are breaking into growth should be syringed to encourage them to break freely. In lofty houses it is a good plan to allow the tops of the rods to hang down from the roof. In houses where the Vines are ready for forcing the borders should be examined, and, if necessary, well watered.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOFOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

CHRYSANTHEMUM.—If cuttings of the large-flowered varieties of Chrysanthemum were not inserted last month, no further time should be lost before securing all the stock that is needed, allowing a considerable margin for accidents. It is better to put a single cutting into a thumb pot, than to put several cuttings into a larger size. Examine any cuttings that may have been inserted earlier, and if they have made roots, take care to admit sufficient air, and keep them near to the glass, and as cool as possible whilst excluding frost. I have had the cuttings covered up entirely for several days together in severe weather, and they have suffered no harm, but care was taken not to expose them too suddenly when the thaw came. Cuttings of the early-flowering, bush varieties, and single-flowered varieties may also be propagated now with the best results. At this season the Chrysanthemum cuttings here are placed on an ash-bed on a shelf in the Peach house, which has been closed recently for forcing. The cuttings of all but the large-flowered sorts are put three or more together in small pots, and the pots are placed under some square hand lights with movable tops. All the early-flowered varieties are rooted in this way. Now that seeds of single-flowering Chrysanthemums are obtainable each season, it is desirable for gardeners to sow some seed during February in a gentle warmth. At Gunnersbury we have raised several good varieties from seed, and we are propagating them by cuttings for another season. Some of these seedlings have a most desirable quality in that they form unusually dwarf plants.

HIPPEASTRUM (AMARYLLIS).—It is advisable to repot Hippeastrum bulbs each spring, and the work should be taken in hand without delay. This system will give good single bulbs, which are much better than larger ones having several offsets on each. At one time the Hippeastrum was not generally forced into bloom, but many now have them in flower well before Christmas. The bulbs that are intended for flowering in March, April, and May should be examined with a view to repotting any that need it. It will be found that most of them require potting; the old soil should be carefully shaken away, and dead and unhealthy roots removed. If the bulbs have become too large for their pots, larger receptacles must be afforded them. At the same time guard against over potting. Many bulbs will flower quite well in 6-inch pots, and the majority will not require pots larger than 8 inches in diameter. Pot firmly and carefully, employing a light fibrous loam to which a little old mortar rubble has been added. If the loam is of a heavy nature, mix some leaf-mould with it. After the potting is finished, make a selection of the bulbs with a view to introducing some at once into a temperate house, keeping others for successional flowering. Those that are started now should be plunged in leaves or other suitable material. Batches may be inserted at intervals of a fortnight or so, selecting each time the finest bulbs for the purpose. Should all the plants be required to flower at about the same time, arrangements must be made accordingly. In starting the bulbs a slight bottom heat is an advantage, but it is not essential. Any bulbs that have finished flowering must be treated carefully, and on no account must the leaves be damaged. Seedlings of last year and those in their second year may be repotted. The two-year-old plants which have not flowered this season will make fine specimens next year.

LILIUM.—The present is a good time to replenish the stock of Lily bulbs. Select those that are solid and heavy rather than the biggest specimens. Lily bulbs should not be exposed for a long time to the air, as this causes them to lose weight and the outer scale leaves to shrivel. Use pots of a moderate size only, and a soil consisting of light fibrous loam and peat in about equal proportions. Keep the bulbs well down in the pots and place a moderate layer of soil over them, leaving room in the pot for adding fresh soil when the growth is well advanced, but before the roots have begun to develop from the stem. The stem roots being of great value to the bulb should be looked after with care. After the bulbs are repotted, place them in a frame or cool pit secure from frost, and plunge them beneath a bed of cinders so that the pot is just out of sight. In

this position they may be allowed to remain until growth is well advanced in May. The old bulbs should be examined, and any that need it, repotted. If, on turning the plants out of their pots, they are seen to be rooting freely, they may be allowed to remain undisturbed, with the exception of removing a little of the old soil at the top, and replacing it by fresh loam. In the case of those needing repotting be careful not to employ pots of too large a size. A few of the largest offsets would repay for the trouble of growing them on. But nowadays bulbs can be purchased cheaply. The following Liliiums are suitable for pot culture: *L. auratum* and its varieties, including *L. a. platyphyllum* and *L. a. rubro-vittatum*; *L. speciosum* and its varieties (amongst the best of the race for autumn flowering); *L. speciosum Kratzeri* and *L. s. album novum* are both fine white Lilies; whilst of the coloured varieties of *L. speciosum*, *L. s. Melpomene*, and *L. s. roseum superbum* are of dwarf growth. *Lilium tigrinum Fortunei* and *L. t. splendens* are both excellent in pots for late September flowering. *Lilium longiflorum* (syn. *Harrissii*) is one of the most valuable of the race for growing in pots. The best forms are *giganteum* and *Takesima grandiflora*, the last named being the more vigorous as well as later in blooming. If bulbs are potted up now, these varieties may be depended upon to flower next July. *Lilium sulphureum* (syn. *Wallichianum*) and *L. nepalense* are both worth growing. A few bulbs may fail to flower, but most of them may be relied upon to furnish bloom. For these species I advise a soil containing an extra quantity of peat, but in all other respects they may be treated as advised for the other species. Both *L. sulphureum* and *L. nepalense* will do well in a cool conservatory or corridor, and they may be planted out in such structures. *Lilium Henryi* is another excellent species for conservatory decoration, but as it grows tall it is not so suitable as others for pot culture.

THE FLOWER GARDEN.

By R. P. BROTHESBON, Gardener to the Earl of HADDINGTON, K.T., Tyninghame, East Lothian.

BEDDING PELARGONIUMS.—Cuttings that were rooted in boxes may be potted, but if a heated structure is not available it will be just as well to wait a few weeks longer before doing this. Those of the Ivy-leaf section do best in 5-inch pots, but the stronger-growing Zonal-leaved sorts should be afforded pots a size or two larger. Instead of using crocks for drainage material, employ rough leaf-mould which has the advantages of providing additional root run, and there will be no crocks to remove at planting time.

BOX EDGING.—The annual trimming of Box edgings may be proceeded with at any convenient time. It can be done when ordinary operations on the land are rendered impossible by unfavourable weather. Where Box is used to form the design of flower-beds, the roots should be restricted occasionally by plunging a sharp spade deep into the ground in a line with the inner edge of the plants. Ivy also may be trimmed when the weather is unsuitable for ground operations. The finer leaved varieties, such as *digitata* do not require much trimming, but the Irish Ivy, and the variety *Emerald Gem*, will need considerable clipping; *Reginiana* needs little pruning beyond removing some of the largest leaves and shoots that have extended beyond the usual line of growth.

SHRUBS.—Any planting of shrubs that has still to be done should be proceeded with, but in cases where further planting can be left over until the autumn this alternative should be adopted, for, notwithstanding every care in lifting, transporting and replanting, spring planting involves much labour in watering during the summer. In the case of long-established shrubs to be removed next autumn, they may be prepared for the transplantation by pruning their roots at the present time. Plants of small proportions need only to have their roots cut round with a spade from 10 inches to 12 inches from the stem, but larger shrubs that need to have a mass of soil retained with the roots must be prepared with greater care. A trench should be thrown out, and the roots cut at the same time. A four-sided mass is much easier to handle than a round one, and, if it is so large as to need "boxing," the boards can be used only with effect on a square-shaped mass. The dimensions

of the root mass must be decided before proceeding to cut the roots. A fairly large shrub need not weigh more than a ton, and this weight allows for the sides to be each 4 feet long and 21 inches deep. The soil returned to the trenches should be well trampled. Roses left over from November should be planted at the earliest moment, and I prefer to shorten the shoots at once. Rose cuttings, which have been loosened during periods of frost, should be made firm in the soil, and the surface of the soil should be hoed. Shrubs which are cut down each year for the sake of their annual shoots, such, for instance, as the Dogwood (*Cornus*) and *Prunus Pissardii*, *Nedha opulifolia* and Willows may be pruned at once. Dwarf Willows should be pruned just below the surface of the ground.

RANUNCULUS. This is the proper time to plant collections of Ranunculuses. Those of the French section are very showy, and they are useful for furnishing vases. The plants should not be cultivated at less than 8 inches apart, and spaces of 10 inches may be allowed between the rows. The crowns of the claw like tubers should not be placed more than 2 inches below the ground surface. The claws from which the shoots proceed are uncommonly brittle, and much care in planting is called for.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARRIN, Aston Chilton Gardens, Buckinghamshire.

MEDLARS.—Young trees may now be planted, selecting a rich soil and a cool, moist but well-drained situation. The soil should be thoroughly prepared, and ample space given to each tree. If all goes well the trees will soon get into a fruiting condition, and they will afterwards need but little attention beyond an annual thinning out of the branches. For planting on the lawn or in grass orchards, standard or half-standard trees are best. They flower very late, escaping frosts in most seasons, and, therefore, seldom fail to bear good crops of fruit. The variety "Royal" is to be preferred to the "Dutch" or "Nottingham," notwithstanding that "Nottingham" possesses excellent flavour.

QUINCE. Like the Medlar, the Quince thrives best in a cool, moist situation. Young trees usually make rapid growth, but when the full-bearing condition is reached growth is relatively slow. Select a somewhat sheltered position for the Quince, because it flowers very late, and the fruit is still hanging upon the trees when autumn winds and rains are frequent. After the trees are fully grown, the annual pruning consists of merely cutting back the strongest shoots, and removing any weak growths that are likely to overcrowd the tree. A variety of the Quince known as "Pear" is hardy, prolific, and of good flavour.

MULBERRIES.—The Mulberry enjoys a warm, sheltered situation, and a deep, rich soil. The trees are amongst the latest of fruits to burst into bud, and therefore planting may be performed as late as April or even May. The roots are somewhat fleshy and easily bruised, unless great care is exercised in the lifting and planting operations. When the trees are in bearing they need a plentiful supply of moisture at the roots. During spells of dry weather water must be given in such quantities so as to penetrate the soil to a considerable depth. Standard trees are the most suitable kind for planting, and as single decorative specimens on the lawn or other suitable position they have considerable merit. Beyond seeing that the main growths are evenly distributed through the tree, the Mulberry requires little training or pruning. When the trees become aged, it is often necessary to support some of the main branches. Propagation can be effected by layers, though cuttings root freely, indeed, all that is necessary is to insert a good sized branch into the ground during autumn. Instances are known of branches falling naturally and taking root in the ground. The large black variety is the most suitable for growing out-of-doors.

PREPARATION FOR GRAFTING. It is too early to commence the actual grafting of Apples and Pears, but the necessary materials should be got in readiness. Old trees that have been renovated may be "headed" in preparation, and the trunk and remaining branches thoroughly cleaned. The scions now inserted in the ground should be examined to see that mice or other vermin are not injuring them.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEBRUARY 13—
United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, FEBRUARY 14—
Roy. Hort. Soc. Coms. meet at 12 noon. Ann. Meet. of Fellows at 3 p.m. Hort. Club Ann. Meet. Proposed National Daffodil Society; meeting at 4 p.m. at R.H.S. Hall.

WEDNESDAY, FEBRUARY 15—
Roy. Meteorological Soc. meet.

THURSDAY, FEBRUARY 16—
Linnean Soc. meet.

SATURDAY, FEBRUARY 18—
British Gardeners' Assoc. meet at Birmingham.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—39.3°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, February 8 (6 P.M.): Max. 38°; Min. 37°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 9 (10 A.M.): Bar. 30.1; Temp. 41°; Weather—Dull.

PROVINCES.—Wednesday, February 8: Max. 43 Land's End; Min. 35 Sea-borough.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Hardy Bulbs, Perennials, &c., at 12; Roses, Fruit Trees, &c., at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Herbaceous and Border Plants, Hardy Bulbs, &c., at 12; 6,000 Roses, at 1.30. Japanese Liliums, &c., at 2.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY AND THURSDAY—
Clearance Sale of Nursery Stock at Tumlidge Well Nurseries, 16 T. Cripps & Son, Ltd., by Protheroe & Morris, at 11.30.

FRIDAY—
Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

**British
Botanists:
Stephen
Hales.**

The Board of Botanical Studies of the University of London, has conceived the excellent idea of arranging a series of lectures on the lives and work of British botanists. The lectures, the first of which was delivered by Dr. Francis Darwin, on January 20, at the University College, are, we believe, to be published in book-form, and will thus be available to all who care to learn how great is the debt that botany owes to British investigators.

Of those botanists none occupies a higher place than Stephen Hales whose career and achievements were described by Dr. Darwin. Of Hales it may be said with truth, that he was the founder of vegetable physiology. It is true that others before Hales had dabbled with the subject, and offered conjectures and speculations on the mode of life of plants; but Hales applied to physiology the experimental method, which not so many years before his day had been demonstrated by Harvey, of immortal memory, to be the one and only way of advancing natural knowledge.

The time was propitious for the application of the experimental method. The men of science of the latter part of the 17th century had broken away from tradition and authority; they had discovered that they must look

to Nature and not to the Greeks for inspiration. As a consequence, Hales found himself in a stimulating environment. Dr. Darwin points out, for example, that as a young man at Cambridge, Hales must have seen and been influenced by Sir Isaac Newton, and that he was the contemporary of Robert Boyle and Mayo, who contributed in large measure to the founding of the science of chemistry. It is also noteworthy that, like Boyle and Mayo, Hales was himself a chemist, and brought his knowledge of that science to bear on vegetable physiology.

Again, Hales was happy in the fact that,

less an active parish priest, concerned with the welfare of his parish, and particularly solicitous in securing for it a proper water supply. He both preached and wrote against alcoholism, made experiments on ventilation, effected improvements in the ventilation of prisons, and—particularly interesting as showing the perennial nature of the problem—interested himself in the amelioration of the ventilation of the House of Commons. Greenhouses, he urged, should be ventilated by warm air, so that the plants might be rid of the "rancid air."

Altogether the picture of Stephen Hales

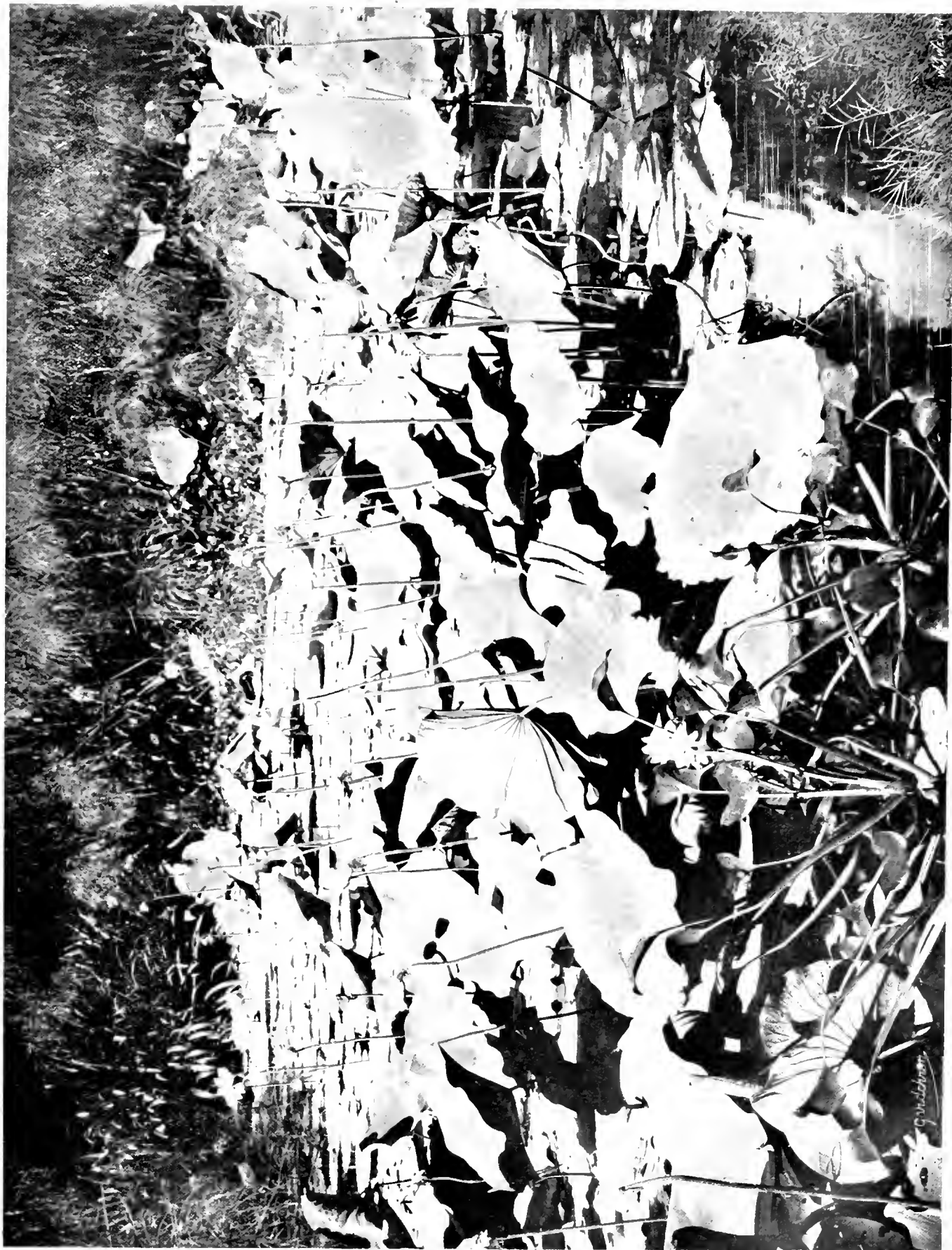


STEPHEN HALES (1677—1761).

like so many of our greatest scientific investigators, he was not what may be called a professional man of science. Like Cavendish, Charles Darwin, Galton and many other ornaments of British science, Hales was an amateur, in the sense that he carried on his investigations, not as a profession, but solely for the love of science. Born in 1677, Hales lived to the ripe age of 81, and passed more than 50 years of his life as Curate of Teddington. In spite of the fact that he found time to carry on the many experiments described in his *Vegetable Statics*, Hales was neverthe-

presented to us by Dr. Darwin, is that of a great man of broad views and sympathies, with a remarkable bent for practical affairs. Would that the type were commoner!

When we consider the state of science in the 17th century, and remember that the chemical nature of the atmosphere was unknown, that the existence and properties of oxygen had yet to be discovered, Hales's contributions to vegetable physiology impress us as being truly remarkable. Thus he was the first to arrive at the conclusion, published in his *Vegetable Statics* in 1727, that plants get food, not only



Photograph by F. H. Stone

NELUMBIUMS AND PONTEDERIA IN THE BOTANIC GARDENS, DAIPUR, INDIA.

from earth, but also a "sublimed and exalted food from the air."

He demonstrated experimentally that plants transpire—or "perspire" as he has it—and he measured the amount of loss of water from Sunflower and other plants by the method of weighing, which is still the best for the purpose. Further, he ascertained experimentally, that the water is given off by the leaves, and determined the rate of loss per unit of leaf-area. He ascertained that, in the Sunflower, "perspiration" goes on seven times faster in the day than on a dry, warm night; though, since stomata were unknown in his time, he failed to account for the fact. Finally, in this connection, he discovered the existence of root-pressure, measured its amount, and demonstrated that water, in passing from root to leaves, travels in the woody part of the stem.

This, though by no means the full tale of Hales's achievements in vegetable physiology, suffices to show the extraordinary insight which he gained by his own devices and experiments, without help from predecessors, into the mode of life of plants.

SUPPLEMENTARY ILLUSTRATION.—Our Supplementary Illustration represents *Nelumbium speciosum* and *Pontaderia hastata* growing in the Botanical Gardens, Coimbatore, India. The superintendent, Mr. E. H. STERRY, who obligingly furnished us with the photograph, informs us that the pond in which these plants are flourishing is 6 feet deep in the centre, and is situated in the Rose garden. The *Nelumbiums* in bloom are rose and white-flowered varieties, and both sorts produce a profusion of flowers in their season. The banks of the pond, planted with *Panicum fragrans*, *Papyrus antiquorum*, Bamboos, and other subjects, enhance the beauty of the fine aquatics. Though specimens of *Nelumbium speciosum* are sometimes cultivated in tropical houses in gardens in this country, they never grow and flower in such luxuriance here as they do out-of-doors in this Indian garden.

ROYAL HORTICULTURAL SOCIETY.—The annual general meeting of the Fellows of this Society will take place at the Horticultural Hall, Vincent Square, Westminster, on Tuesday, the 14th inst., at 5 p.m. The Committees will meet as usual. It is expected that there will be a very large show on this occasion.

THE R.H.S. SCHOOL OF HORTICULTURE.—During the past year, 38 young men between the ages of 17 and 22 have been in attendance at the School of Horticulture of the Royal Horticultural Society at Wisley, and 11 of these students gained the Society's diploma. With one exception, all have gone into some business or work connected with horticulture or forestry. Some have entered private gardens, others nurseries, others are taking up fruit-growing on their own account, either at home or in the Colonies, and so on. The course, which extends over two years, includes a thorough training in the elementary principles of scientific horticulture, and in the application of these principles to all branches of gardening work. About 11 hours a week are spent in studying scientific subjects and 29.0 practical garden work, every student being required to take his share of the ordinary work of the garden.

R.H.S. OLYMPIA SHOW.—The Council of the Royal Horticultural Society has decided to offer for open competition at the Olympia Exhibition to be held in July a 50-guinea silver-gilt challenge cup, to be called "The Coronation Challenge Cup." It will be awarded

to the exhibit which, in the opinion of the Council, is the most meritorious in the show. The Council has accepted Mr. N. N. SHERWOOD's offer of a 20-guinea silver cup. It will be awarded for fruit shown in open competition. A silver-gilt cup, valued at 20 guineas, has also been offered to the Council by the New Olympia Company, Limited, and will be awarded for Roses shown in open competition.

HORTICULTURAL CLUB.—The annual Dinner will be held on Tuesday next, February 14, at 6 p.m., at the Hotel Windsor. Ladies are specially invited. The annual meeting will take place at 5 p.m., and it is hoped that all interested in the club will be present.

ROYAL SCOTTISH ARBORICULTURAL SOCIETY.—MR. A. T. GILLANDERS, forester to the Duke of Northumberland, at Alwick, has been elected

KENNEDY BECKHANA, tab. 8558.—This species is described as the largest-flowered of the *Kennedya* in cultivation, being most nearly allied to *K. macrophylla*. The plant is a climber and produces two flowers along the shoots at each node; the blossoms are red, except for a greenish yellow patch at the base of the standard. A specimen flowered in the greenhouse at Kew, the growths being trained along the rafters.

URECOCHARIS EDENTATA.—An interesting hybrid, raised by Messrs. CLIBRAN & SON, from *Urecedina pendula* and *Eucharis grandiflora*, was described and figured by the late Dr. MASTERS in *Gard. Chron.*, 1892, vol. xii., page 214, under the name *Urecocharis Clibranii*. It is interesting that a plant almost identical with Messrs. CLIBRAN's generic hybrid was found wild by Mr. FORGET whilst plant collecting for Messrs. SANDER & SONS in Peru, the only difference



FIG. 49.—MASDEVALLIA PACHYURA: FLOWERS GREEN, WITH RED MARKINGS.

an honorary member of the Society in recognition of his services to forestry, and particularly for his work on forest entomology.

THE BOTANICAL MAGAZINE.—The issue for February contains descriptions and illustrations of the following plants:—

MELIOSMA CUNEIFOLIA, tab. 8557.—This ornamental shrub is one of Messrs. JAMES VEITCH & SONS' numerous introductions from China through their collector WILSON. The species was originally discovered by the ABBE DAVID in 1869 in the mountains of Moupin. *Meliosma* is the only genus of the *Sabiaceae* which can be grown in the open in these islands, and prior to the new introduction, *M. myriantha* was the only species that had flowered in England. Plants raised in the Coombe Wood Nursery of Messrs. JAS. VEITCH & SONS have grown about 4 or 5 feet high, and flower annually in July. In a wild state, *M. cuneifolia* attains the dimensions of a tree.

being that Messrs. CLIBRAN's plant has two teeth, each about one-third the length of the filaments, between each pair of stamens, whereas they are absent in Messrs. SANDER & SONS' specimen.

PRUNUS MICROCARPA, tab. 8560.—*Prunus microcarpa* appears to be a very variable plant, so much so that some of the forms have been described as distinct species. The plant under notice has been grown at Kew since 1900. It has glabrous leaves and finely pubescent young twigs, but another form is pubescent all over, whilst still another has small leaves and flowers, the form figured in the *Bot. Mag.* being intermediate between the two. The plant is also found to differ in the length of the fruit stalks and colour of the fruit. *Prunus microcarpa* appears to be perfectly hardy at Kew, and flowers annually in May. It does best when afforded a situation facing south.

MASDEVALLIA PACHYURA, tab. 8561.—This species (see fig. 49) was first described by REICHE in *Gard. Chron.*, September 12, 1874, p. 322.

INTERNATIONAL EXHIBITION, 1912, AND THE ROYAL HORTICULTURAL SOCIETY.—We extract the following particulars from the report and list of Fellows just issued by the R.H.S.: Subscribers and guarantors to the International Exhibition, 1912, who happen to be Fellows of the Royal Horticultural Society, are requested to understand clearly that the privileges they become entitled to in return for their contribution to the International, have nothing whatever to do with the R.H.S. With reference to such privileges they must correspond only with the International. On the other hand, the distribution of the privileges to which Fellows of the Society are entitled as a result of the arrangement made by the Council of the R.H.S. with the Executive of the International will be effected by the officers of the R.H.S., the officers of the International having nothing whatever to do with the carrying out of the arrangement. Consequently, (1) for all matters relating to or connected with subscription or guarantee to the International Exhibition, address ED. WHITE, Esq., Hon. Sec., International Exhibition, 7, Victoria Street, Westminster; and, (2) for all matters relating to privileges pertaining to anyone as a Fellow of the Royal Horticultural Society, address Secretary, R.H.S., Vincent Square, S.W. It will further be seen from this, that, (3) if a Fellow of the R.H.S. subscribes, say, £10 10s. to the International, obtaining thereby the privilege of tickets for the International to the value of £12 12s., the number of tickets to be issued by the International in respect of that £12 12s. cannot be computed on the basis of the arrangement made with the R.H.S., but must be calculated simply on their face value, and will be sent direct from the International Offices, 7, Victoria Street, Westminster. ED. WHITE, Hon. Sec. International, 1912, W. WILKS, Secretary, R.H.S.

NATIONAL SWEET PEA SOCIETY.—We are informed that the Sweet Pea *Annual* and the schedule of prizes for 1911 will be sent to all members of the N.S.P.S. at the end of the present week. Since the annual general meeting, 63 new members have joined the society, and several additional local societies have become affiliated. A number of Sweet Peas have been sent to Guildford by raisers at home and abroad; consequently the society's trials promise to be as interesting as in any previous year. Particulars of membership and affiliation may be obtained from the hon. secretary, Mr. C. H. CURTIS, Adelaide Road, Brentford.

ROYAL METEOROLOGICAL SOCIETY.—A meeting of this Society will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on February 15, when the following papers will be read:—"Variation of the Depth of Water in a Well at Delling, Maidstone, compared with the Rainfall, 1885-1909," by Messrs. RICHARD COOKE and SPENCER C. RUSSELL; "The Actinograph; an Instrument for Recording Changes in Radiation," by Mr. ARTHUR W. CLAYDEN, M.A.; and "New Cloudiness Charts for the United States," by Mr. KENNETH M. CLARK.

NURSERY EMPLOYEES ENTERTAINMENT.—The employees of Messrs. DICKSONS & Co., Royal Nurseries, Craigmillar, Edinburgh, held a social gathering on Friday, February 3. The company, which included Mr. JAMES WELSH, one of the partners of the firm, numbered between 40 and 50. Mr. WILLIAM McARA, the oldest employee of the firm, occupied the chair.

JUBILEE SHOW OF THE BOSKOOP POMOLOGICAL SOCIETY.—In order to celebrate the Jubilee of the Boskoop Pomological Society, a show will be held at Boskoop from April 6 to 30.

MIDLAND CARNATION SOCIETY.—The annual exhibition will be held on August 2, 3, in the Botanical Gardens, Edgbaston, Birmingham. The schedule includes 27 classes for Carnations, and special prizes are offered by Mr. ROBERT SYDENHAM in two classes for Sweet Peas. The Birmingham Botanical and Horticultural Society offers silver medals to the exhibitors obtaining the greatest number of points in the first and second divisions. The Midland Carnation and Picotee Society offer a silver medal to the exhibitor obtaining the greatest number of points in the third division, also a large bronze medal to the second highest. The Hon. Secretary is Mr. T. HUMPHREYS, Botanical Gardens, Edgbaston, Birmingham.

A NATIONAL DAFFODIL SOCIETY.—We are informed by Mr. W. B. CRANFIELD that a meeting of Daffodil growers will be held in No. 3 committee room at the Horticultural Hall immediately after the annual general meeting of the R.H.S. on Tuesday next, to consider the desirability of forming a National Daffodil Society.

ROYAL WARRANTS TO NURSERY AND SEED FIRMS.—We have received information that the Royal Warrant of Appointment to the King has been conferred on Messrs. SUTTON & SONS, Reading; WILLIAM BULL & SONS, Chelsea; WILLIAM WOOD & SON, LTD., Wood Green; EDWARD WEBB & SONS, Wordley, Stourbridge; LITTLE & BALLANTYNE, Carlisle; and JAS. CARTER & Co., Holborn.

VISITORS TO KEW.—The number of visitors to the Royal Botanic Gardens during the year 1910 was 5,546,302. These figures show an increase of 186,031 over those of the previous year, and are the largest numbers on record. During the 10 years 1900-1909, 20,023,749 persons have visited the gardens, giving an average of 2,002,374. The total number of visitors on Sundays during 1910 was 1,614,085, and on week days 1,952,217.

ADDITIONS TO THE KEW COLLECTIONS.—According to the *Kew Bulletin* the largest consignment of new trees and shrubs received during 1910 was from the Arnold Arboretum. The Assistant Curator visited this establishment during the summer with the result that about 500 species and varieties were noted as desirable for the Kew collection. Almost all these were sent by Professor SARGENT, and arrived in perfect condition early in December. An experiment was made in bringing over fresh cuttings. The Assistant Curator returned on the "Campania" and, by the kindness of the Cunard officials, was allowed to place two baskets containing about 50 packets of cuttings in one of the cold storage rooms where the temperature during the voyage was kept at about 42° Fahr. Ten days elapsed between taking the cuttings from the plants in the Arnold Arboretum and placing them in the propagating frames at Kew, but although this was in mid-July, they arrived almost as fresh as when they were cut, and only six sorts failed to strike root. Among the more interesting plants sent by Professor SARGENT were a set of American Amelanchiers—a genus which badly needs revision; several new species of North American *Esculus*, a set of dwarf American *Crataegi*, about 160 Chinese trees and shrubs introduced by Mr. E. H. WILSON, a set of American and Asiatic Willows, and such rare plants as *Leitneria floridanum*, *Larix lyallii*, *Kalmia caroliniana* and *K. microphylla*, *Pinus pentaphylla*, *Pteroceltis Davidiana*, *Tripetalicia bracteata*, and *Vaccinium membranaceum*. Of special interest was a new and undescribed species of *Hamamelis* from Missouri remarkable as flowering in spring like the Asiatic species; the only American species previously known, *H. virginica*, flowers in

autumn. Mr. MAURICE L. DE VILMORIN sent in March a most interesting consignment of new species raised by himself from Chinese seeds. Most were unnamed, but amongst them were *Ailanthus sutchuenense*, and the beautiful and very distinct *Clematis chrysocoma*, which has since flowered and been figured for the *Botanical Magazine*. Messrs. VEITCH have, as usual, been generous donors of their new Chinese plants, and through them the following have been added to the Kew collection: *Meliosma cuneata*, *Picea complanata*, *Pterocarya hupehensis*, *Rosa Willmottiae*, *Rhododendron nigropunctatum*, *Viburnum thaeiferum*, *V. buddleifolium* and *V. Davidii*, *Lonicera yunnanense* and *Tsuga yunnanense*. From the Japanese authorities at the recent exhibition at Shepherd's Bush several Japanese trees, shrubs, and seeds were received, amongst which the most noteworthy were two specimens of the Japanese Douglas Fir (*Pseudotsuga japonica*); although in rather poor health they are on their own roots, and hitherto this Conifer has only been known in Britain by a few miserable grafted plants. A packet of seeds of *Picea Breweriana*, hitherto the rarest of Spruces, was sent by Miss ALICE EASTWOOD, and the seeds germinated freely. Cuttings of *Populus Thevestina* were brought from Algeria by the Assistant Director, some of which have taken root. This Poplar is very distinct in its white bark and fastigate habit.

APPOINTMENTS ABROAD.—According to the *Kew Bulletin* Mr. F. C. McCLELLAN has been appointed Director of Agriculture, Zanzibar, in succession to Mr. R. N. LYNE, who has been appointed Director of Agriculture, Mozambique. Mr. M. T. DAWE lately Officer-in-Charge and Superintendent of Forests in the Botanical, Forestry and Scientific Department, Uganda, has been appointed Director of Agriculture under the Mozambique Company. Mr. HARRY THOMAS, a member of the gardening staff at Kew, has been appointed by the Secretary of State for India in Council, on the recommendation of Kew, a probationer gardener for service in India.

DILIGENT INTEREST IN PLANTS.—The Council of the Royal Horticultural Society have introduced a card of "Recognition of Diligent Interest in Plants." Issued in response to frequent applications by school authorities for some token of encouragement of work with plants amongst scholars, it is to be awarded to the boy or girl (or both) who, in the yearly school competitions in plant cultivation, or garden plot-keeping, or nature study, has secured the 1st prize. The cards are 12 inches by 8 inches, and may be had on application to the Secretary, R.H.S., Vincent Square, London, S.W. (price 6d. each), signed by the head master or mistress, and a member of the educational authority concerned. The application should contain information as to (a) the nature of the competition, (b) the number of competitors, (c) the judges, (d) the number of prizes awarded in the competition, (e) the full name of the 1st prize-winner. The Council of the R.H.S. will at their own absolute discretion grant or withhold this "recognition."

EUROPEAN ALPINE PLANTS.—Messrs. ROUTLEDGE expect to issue a volume on the Alpine plants of Europe by H. STUART THOMPSON during next month. The work will comprise botanical descriptions of 700 of the more important Alpine plants which inhabit the Swiss Alpines and other mountain ranges. Short cultural hints will be provided on plants suitable for British rock gardens, and the work will contain coloured plates representing 300 species. Our readers who are familiar with Mr. THOMPSON'S notes upon Alpine subjects will look forward with interest to the publication of his further contribution to our knowledge of Alpine plants.

FOG AND FROST IN THE GLASGOW DISTRICT.

—Glasgow has been visited recently by a dense fog, which lasted for four days and was accompanied by frost. In order to show the effect on vegetation in the public parks of the city, Mr. WHITTON, the Superintendent of the Parks and Botanic Gardens, has sent us specimens of shrubs and trees coated with sooty matter as had as may be found in a London park in November. Mr. WHITTON states that the fog was the worst experienced in Glasgow since November of 1909.

THE EFFECT OF BASIC SLAG ON PASTURES.

—So long ago as 1896 Professor SOMERVILLE introduced the ingenious method now known as "manuring for mutton;" the value of a manure being estimated in terms of weight of sheep pastured on the manured plot in comparison with the weight of an equal number of similar animals pastured on unmanured land. The experiments, of which a full summary is published in the *Journal of the Board of Agriculture* (vol. xvii., No. 10, Supplement No. 5), demonstrated in a striking manner the high efficiency of basic slag in improving the feeding value of pasture. A single dressing at the rate of half a ton per acre not only brought about an immediate increase in "mutton," but continued to produce this result for no fewer than nine years. It is curious, moreover, that in these experiments the basic slag produced a better effect when put on in mid June than when applied at the more usual time, namely winter. Basic slag proved superior to superphosphates. Potash, in addition to a phosphatic dressing, further increased the yield, but the cost of the manure was not made good by the increase. Lastly, the subsequent addition of nitrogenous manure in the form of sulphate of ammonia or nitrate of soda, though it increased the herbage, reduced, as a rule, the yield of mutton; whence Professor SOMERVILLE concludes that the use of such nitrogenous manures on pasture would appear to be bad practice.

BLACK CURRANT "BOSKOOP GIANT."

—In the experience of most cultivators, the vigorously-growing variety of Black Currant known as Boskoop Giant, has proved itself in a special degree capable of resisting attacks from the Bud Mite (*Eriophyes ribis*). That there is a limit to its resistant powers, however, is proved by some photographs which have been sent us by an old and trusted correspondent in Worcestershire. The bushes illustrated have every shoot attacked with the pest. Indeed, they present as bad an appearance as we have ever seen in any variety of Black Currant. There is no reason to suppose that the general experience of cultivators is at fault, or to doubt that the Boskoop Giant is still the best variety for planting in most districts. We only refer to the matter to show that there are exceptions to the rule, for our correspondent states that six years ago he saw the variety bearing evidence of the disease in another garden in Huntingdonshire.

TREATMENT OF POTATOS FOR SCAB.

—The usual methods of treatment of seed Potatos for scab consists in steeping them either in formaldehyde (formaline), one pint of commercial formaline to 30 gallons of water, for 2 hours, or in a solution of corrosive sublimate made by dissolving 2 ounces in 16 gallons of water for 1 to 1½ hours. When larger quantities have to be treated it is recommended by Mr. L. C. CORBETT (U.S. Department of Agric. Farmers' Bulletin 407) to subject them to formaldehyde gas, produced by acting on commercial formaline with potassium permanganate. Where an airtight shed is available, this treatment is found to be both effective and economical. The sacks are placed fairly close together, but not so close as to prevent air circulating freely between them; nor should they stand directly on the ground or floor, since it is advisable that it should be moistened before the fumigation. A space of about 6 feet is left in

the centre of the shed, and in this space a galvanised tub or pan is placed. Permanganate of potash is spread in a thin layer in the pan, formaline is added, the mixture is stirred, and the shed vacated and closed. After 24 hours the door may be opened and the room ventilated. For every 1,000 cubic feet of space 25 ounces of potassium permanganate and three pints of formaldehyde are required.

"THE ORCHID REVIEW."—In the issue for February we note with interest a first instalment of the continuation of the *Orchid Stud-Book*, in which the genus *Odontioda* is fully dealt with. Primary and secondary hybrids are now separated, the former containing 15 additions and the latter 14, which shows how rapidly the genus is growing. A new hybrid genus is also described, in which the rules of the committee appointed by the R.H.S. to consider the nomenclature of multi-generic hybrids are applied for the first time, a hybrid between *Miltonia vexillaria* and *Odontioda Vuylsteke* being named *Vuylstekeara*, in honour of its raiser. An article is devoted to the habitat of *Cymbidium Tracyanum*, on which definite information is at last forthcoming, and another to the much-debated *Laelia Crawshayanum*, which has now been raised artificially from *L. anceps* and *L. albida*. The illustrations include a portrait of Sir Trevor LAWRENCE, Bart., and a half-tone picture of the new hybrid *Paphiopedilum Sladdenii*. The work is now printed on art paper, with a much improved effect in the illustrations. We note that the sign of hybridity is no longer used, and the *Orchid Review* is thus brought into line with our own practice. The sign was adopted many years ago to distinguish hybrids from species, but in the case of Orchids it may be said to have broken down under its own weight.

APIOS TUBEROSA.—In respect to Mr. LYNCH's note and illustration of *Apios tuberosa* (January 7, p. 4), Mr. J. J. POTTER, writing from Exhibition Park, Toronto, Ontario, states that the species, which is native there, is one of the most accommodating of climbing plants. He has seen it growing on the cliffs at Niagara Falls, where it was constantly saturated with the spray, and also growing on exposed dry banks and yet flowering well. At the same time, the plant may be said to prefer moisture. It is rather a shy seeder, and the best way to propagate it is from tubers, which are easily procured. Our correspondent is surprised that such a useful plant should not be found oftener in cultivation.

THE POLYTECHNIC.—The Regent Street Polytechnic, founded by QUINTIN HOOG in 1882, is being rebuilt at a cost of £90,000. The rebuilding fund was inaugurated by a grant of £20,000 from the London County Council and a loan of £20,000 from the City Parochial Foundation. In addition to the £40,000 thus contributed, a further sum of £47,500 has been subscribed and promised by Lord LEITH of Fyvie, the governors, members and students of the Polytechnic, and other friends intimately associated with the institution. The rebuilding fund will be kept open till Easter next, and a sum of £2,500 has been reserved for members past and present, so that as many as possible may, in varying amounts from £100 to £1 be participators in the scheme. Subscriptions may be paid in instalments, terminating in June 1912, and should be sent to the Secretary, 309, Regent Street.

PUBLICATIONS RECEIVED.—*Agricultural and Horticultural Association, Ltd.* Forty-third Annual Report of the Association's Operations with Report of the Annual General Meeting of Members, 1910. (London: Agricultural and Horticultural Association, Ltd., Long Acre.)—*The Feeding of Crops and Stock*, by A. D. HALL, M.A., F.R.S. (London: John Murray) Price 5s. net.—*The Liverworts (British and Foreign)*, by Sir Edward FRY, G.C.B., and Agnes FRY. (London: Witherby & Co.) Price 1s. 6d. net.—*Simple Lessons in Nature Study*, by John O'NEIL. (London: Blackie & Son, Ltd.) Price 1s. net.

SCOTLAND.**THE PHARMACY ACT IN SCOTLAND.**

CONSIDERABLE trouble is being caused to nurserymen and seedsmen in Scotland by the efforts of the Pharmaceutical Society to secure convictions in case of any departure from the legal formalities in the sale of poisons by seedsmen. In several cases, members of the licensing bodies have raised the objection that sufficient conveniences for the supply of the articles required are provided by chemists, and that, therefore, licences should not be granted to seedsmen. In few cases, however, have these objections been of any avail, for in the vast majority of instances applications for licences have been granted.

The efforts to obtain convictions have been attended with better success, and several seedsmen have been convicted for selling the articles in a manner not allowed by the Act. In one case, selling from unlicensed premises was the cause, it being alleged that the articles were removed from the licensed store and sold at a counter at which articles of food were retailed. This point has in many cases been used to enforce the construction of separate counters from those on which articles of food, such as fruit, are sold. Quite a number of convictions have been obtained on the ground that the actual licensee did not effect the sale, and that unauthorised persons were the actual sellers. The frequency of these convictions has led to greater precautions on the part of the seedsmen, and in most establishments strict orders have been given to salesmen not to supply the articles asked for in the absence of the actual licensee. Greater elasticity is required in the working of the Act, and some arrangement should be effected by which more than one member of a firm, or manager of a firm, should be licensed. The question of the fee payable for the licence is also worthy of consideration, this varying according to the discretion of the licensing body. Five shillings per annum is, we believe, not an uncommon fee for each person included in the licence.

AN ANCIENT SCOTTISH GARDEN.

THE old garden at Kenmore Castle has for some years suffered comparative neglect, although the bowling green, on which Viscount Kenmore is said to have been playing when he was summoned to join the Stuart army in 1715—an ill-fated enterprise, which ended in his execution—and the famous Beech hedge have been kept in good order. Since the castle has been leased to Mr. and Mrs. John Gordon, members of a branch of the old family, great improvements have been in progress in the gardens, which will soon be worthy of the fine castle to which they are attached. Magnificent old wrought-iron gates have been placed at the principal entrances to the gardens, and good herbaceous borders planted, together with many Roses and other shrubs. The sundial, one of the oldest in Scotland, and dated 1625, still stands in the garden, and all the old features of value are being carefully preserved. The Beech hedge is inferior in size to that at Meikleour, in Perthshire, but, so far as Scotland is concerned it probably ranks next to that fine specimen.

A FRAUDULENT EMIGRATION SCHEME.

THE sequel to the alleged fraud recorded in these columns on p. 74, took place in the Sheriff's Court, Glasgow, on February 2, when Alexander McKinnon McIntosh, described as a jobbing gardener, was charged with fraud and attempted fraud. The accused pleaded guilty. Fortunately, the bulk of the money had not been remitted. Sheriff Boyd, who said that the case was a serious one, sentenced the prisoner to 18 months imprisonment. It appears that the persons engaged by the so-called Scottish Gardeners' Association included 12 in Dundee, 15 in Oban, and others in Edinburgh and St. Andrews.

ODONTOGLOSSUM CRISPUM PEACOCK.

In fig. 50 is illustrated the variety of *O. crispum* which was shown by Lieut. Colonel Sir George L. Holford, K.C.V.O., Westonbut, at the meeting of the Royal Horticultural Society on the 51st ult. The flowers are pure white, with bright red-crimson blotches on each segment. The fringed lip has a chestnut-brown blotch in front of the yellow crest. The illustration of the flower spike is reproduced from a photograph, and the single flower is shown natural size from a sketch by Mr. Worthington Smith. The Orchid Committee awarded this handsome variety a First-class Certificate.

English fruits. Of all the growers sending to Covent Garden, I doubt whether there are half-a-dozen who pack fairly and trouble to select and grade in two or three sizes the produce they send. The majority fill the bottom of the bushels with small and mixed sizes of fruits, finishing off the top with a couple of layers of good, large fruits. From this cause the buyer always mistrusts the package. Now, with the imported fruits, whether in barrels or boxes, you may rely on the grading, whether of No. 1, 2, or 3, and that the size and quality at the bottom is equal to those found on the top. As regards cooking

varieties as Bramley's Seedling or Wellington would, at least this season, have found it profitable to hold for present sale, as 8s. to 10s. per bushel is now being paid for these varieties. Some good fruits of Bramley's Seedling from Ireland, packed in barrels similarly to the Canadian, are now arriving in Covent Garden, and appear to sell readily at about 22s. per cwt. These fruits are well packed and graded. The price mentioned is for best samples. With dessert Apples, home-grown fruits are nowhere seen, and the supply appears to be exhausted. Mr. Bartlett suggests that the imported Apple is more favoured because of the

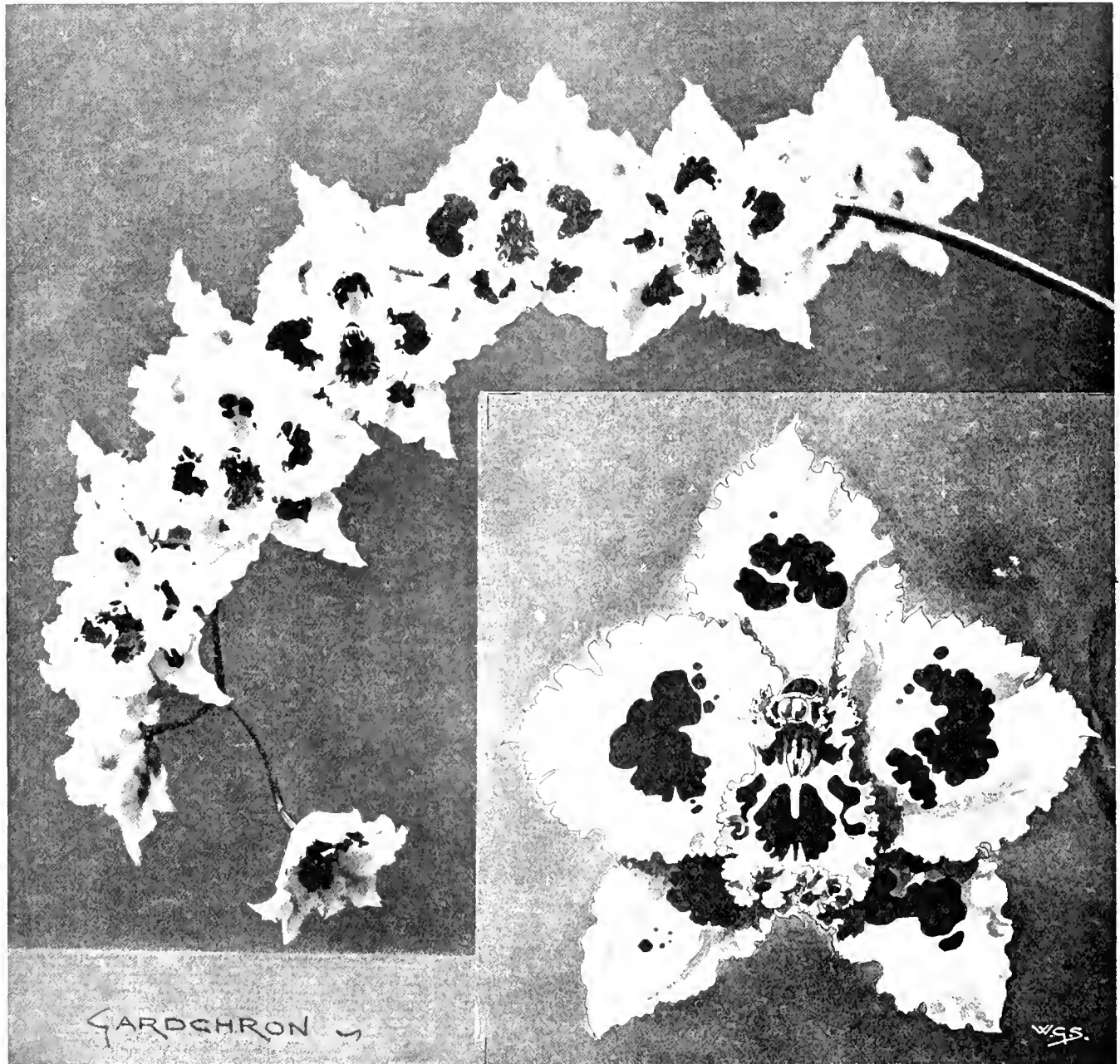


FIG. 50.—ODONTOGLOSSUM CRISPUM "PEACOCK;" FLOWERS, WHITE WITH REDDISH-CRIMSON MARKINGS.

(Awarded R.H.S. First-class Certificate on January 31 last.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

IMPORTED V. HOME-GROWN APPLES. In the discussion regarding the sale of imported and home-grown Apples (see pp. 58 and 76), it seems that neither correspondent has exactly stated the right cause for the frequent preference of trade buyers of Canadian or Nova Scotian fruits over home-grown fruits. What I refer to is the bad packing and grading so often found in bushels or

varieties of Apples, the appearance does not so much matter, although many of the public that do not really know the quality of home-grown cooking Apples would be more likely to purchase a pretty Baldwin than a green Bramley's Seedling or other variety. There are, however, many purchasers who are willing to give an extra penny per lb. for a good English Dumelow's Seedling (Wellington) or Bramley's Seedling for its sterling quality as compared with the more showy imported fruits. I should have imagined that English growers with good crops of such long-keeping

softness of its flesh and easy mastication. This may be so in some instances, but, seeing that the sale of Newtown Pippin as a dessert variety, with its comparatively hard flesh, exceeds that of all other kinds put together, I am inclined to think that appearance is a more potent factor in the sale of these imported fruits. It would, no doubt, be interesting to many growers if Mr. Bartlett would state what varieties of Apples have been treated as recommended on p. 41, and the date of gathering. C. Herrin, Fruiterer, North Finchley.

SOCIETIES.

ROYAL HORTICULTURAL.

THE following extracts are taken from the *Report of the Council to be presented at the 107th annual general meeting of the Society to be held at the Royal Horticultural Hall on Tuesday next, February 14:*—

DEATH OF OUR PATRON

The lamented death of King Edward has been a great loss to our Society, of which he was the patron, and in which he took a warm interest. The Council have subscribed one hundred guineas, in the name of the Society, to the Lord Mayor's Fund for a National Memorial.

NEW PATRONS.

Fellows will be glad to hear that their Majesties King George V. and Queen Mary have graciously consented to become Patrons of the Society.

VICE-PRESIDENT.

His Grace the Duke of Bedford, K.G., has accepted office as a vice-president of the Society.

WISLEY GARDENS.

The Council are pleased to notice that the interest taken by the Fellows in the Society Gardens continues to steadily increase, as testified by the number visiting Wisley.

Suitable accommodation for the gardeners employed is being gradually provided, and the past year has seen the erection of a new Bothy for a foreman and five journeymen.

Several recent valuable gifts of Orchids, and the necessity of giving the students a proper training in the cultivation of this very popular class of plants, made it essential to erect an Orchid house.

A new stable has also been built. Research and experimental work is being regularly carried on, and reports on soil sterilization, and on the trial of various plants, will appear shortly in the *Journal*.

A large number of Mr. Wilson's newly introduced plants from China, generously sent by the Hon. Viscountess Gibbs and Messrs. James Veitch, have been added to those already planted.

The death of the hardy plant foreman, Mr. Frost, is recorded with sincere regret.

SHOWS.

SPRING BULB SHOW.

The Spring Bulb Show on March 5 and 6 was one of the greatest successes of the year. It will probably be an annual feature. The Show in 1910 was on March 14 and 15.

TEMPLE SHOW.

It is hardly necessary to say that the Temple Show was a great success, being favoured with glorious weather. The Society is much indebted to the treasurer and to the exhibitors for again lending their gardens.

HOLLAND HOUSE SHOW.

The Holland House Show proved more popular than ever, the number of visitors exceeding the highest record of any previous year.

The President and Council, speaking in the name of the Society, thank Mrs. Countess of Helstorf, most warmly, for her kind and oft-repeated hospitality in lending her park to the Society.

Fellows are particularly asked to notice and assist in making it widely known that, owing to circumstances over which the Council have no control, the Summer Show of 1911 will not be held at Holland House but at Olympia, Kensington, on July 4, 5, and 6.

AFFILIATED SOCIETIES CHALLENGE CUP.

The cup, competed for by exhibits of Apples and Pears from our Affiliated Societies, was won by the East Anglian Horticultural Society. It will be offered for competition on October 19, 1911, the winners of the last two years being excluded from again taking the Challenge Cup. Should, however, the winners of 1909 or 1910 exhibit again, and either of them be again adjudged first in order of merit, the Council will award to such Society a smaller silver cup, instead of the medal offered as a second prize.

THE VEGETABLE SHOW.

This Show having been fixed for a late date, to avoid clashing with another similar Show, was not an unqualified success. In 1911 it will be held on September 26; the schedule will be enlarged in some directions, and modified in others, to accord more nearly with the wishes of exhibitors.

AUTUMN FRUIT SHOW.

The Autumn Fruit Show attracted the usual admirable display of British-grown fruits, there being hardly any noticeable falling off, in either the number or the quality of the entries, as a result of the distinctly unfavourable fruit season of 1910. The Council regret the comparatively small number of Fellows visiting this Show. In 1911 they have fixed Tuesday and Wednesday, October 10 and 11, for the Show, instead of the Thursday and Friday on which it has been hitherto held, hoping that the habitual Tuesday attendance of Fellows will bring more visitors to the hall.

COLONIAL FRUIT SHOW.

The Colonial Fruit Show was an unprecedented success, both in the magnificence of the display and the number of visitors. The Right Hon. Sir Edward Grey, Bart., H.M. Secretary of State for Foreign Affairs, opened the exhibition. The large orchestral platform, which rises in many tiers to a height of 15 feet or more, was entirely covered, from one side of the hall to the other, with boxes of splendid Apples from British Columbia. This exhibit was of such a unique character that the Council voted it a Gold Hogg Memorial Medal, this being the only occasion on which such an

award has been made. A full report of the Show will appear in the *Journal*.

MASTER LECTURES.

The third and fourth Lectures in memory of the late Dr. Masters were delivered by Mr. A. D. Hall, F.R.S., on February 22 and March 22. His subject was "The Adaptation of the Plant to the Soil" (see R.H.S. *Journal*, vol. XXXVI, part 1).

Mr. G. F. Scott Elliott, M.A., B.Sc., F.L.S., will deliver the 10th lectures on February 28th and March 14. Subjects, "Recent work in Seed Selection," and "The Origin of Varieties."

LAWRENCE MEDAL.

The third Lawrence Gold Medal has been awarded by the Council to Messrs. James Veitch for a series of highly meritorious exhibits during the year 1910, including the wonderful collection of stove and greenhouse plants shown on October 25.

HOSPITALITY TO JAPANESE.

An opportunity of recognizing the debt which British horticulture owes to Japan, was afforded by the Japanese British Exhibition, and the Council took advantage of it in two ways. A deputation visited the gardens and horticultural exhibits at the Shepherd's Bush Exhibition, and made a considerable number of awards. They also invited the Japanese horticulturists in London, with a few other prominent Japanese gentlemen, to be guests of the Society at luncheon at the Holland House Show. These courtesies were warmly appreciated.

VISIT TO WOBURN.

One of the pleasant recollections of the year is a visit to the Experimental Fruit Farm at Woburn, by special invitation of His Grace the Duke of Bedford. The party, consisting of members of the Council and of the Scientific and Fruit Committees, were shown all the valuable and interesting research and experimental work which the Duke, with the assistance of Mr. Spencer Pickering, F.R.S., is carrying out at Woburn, and were also most handsomely entertained at the Abbey. The President and Council desire to thank the Duke and Mr. Spencer Pickering for the great interest they take in the Society and its work.

DEPUTATIONS.

Deputations from the Council attended the following shows, and made awards, viz.:—The National Flower Show at Hadden, on April 15, and the Fruit Congress at Ilsham, on October 29.

ORCHID NOMENCLATURE.

A report in nomenclature, summarising the opinions of experts and hybridists at home and abroad, was sent from the Council to the Brussels International Horticultural Congress, which met in April 1910. Dr. Kende, F.R.S., and Mr. E. A. Bowles, M.A., represented the Society at the Congress, and it is gratifying to know that the report of the Society was approved in some of its most important details. The report is now awaiting final confirmation by the next International Botanical Congress, before being finally adopted for international use.

PRITZEL'S INDEX.

The negotiations for the re-issue of *Pritzel's Iconum Botanicarum Index* by the co-operation of a number of horticultural and botanical societies, not having progressed satisfactorily, a committee was appointed by the Council to consider the matter. This committee has met many times during the past year, and the Council hope that success may even yet crown their labours.

LIBRARY.

One of the most gratifying results of the past year's work is the establishment of the Lindley Library on a sure basis, as a perpetual adjunct of the Society. Under the original terms of the trust, the trustees might at any time have removed the books from the custody of the Society. As long as that state of uncertainty existed the Council never felt justified in spending more than a small sum annually out of the funds of the Society, in developing this valuable collection of horticultural and botanical works. The trust deed has at last been modified—the existing trustees have retired, and the Royal Horticultural Society, acting by and through its Council, has now been made sole trustee, with the determining voice as to where the books shall be kept. The library having thus become permanently attached to the Society, the Council have no longer any hesitation in spending the Society's funds on the purchase of valuable books, and a Committee consisting of Messrs. H. J. Veitch (Chairman), E. A. Bowles, C. Barnard Payne, J. T. Bennett-Poe, and Dr. Daydon Jackson, with the Treasurer and Secretary ex-officio, has been appointed, to advise and assist the Council in the work of strengthening the library.

OLYMPIA SHOW, JULY 4, 5, 6, 1911.

Holland Park, as has been already mentioned, not being available this year, a new site for the Summer Show had to be found, and after considerable anxiety Olympia was fixed upon as the most advantageous place. The Great Hall and Annex of Olympia will afford ample space for a magnificent exhibition, and the Council are sparing no effort to so arrange its details that the Show may be an unqualified success in every way. The usual features of a summer show—the open air, spacious lawns, and canvas tents—will be absent, but in their place there will be the advantages of wider gangways, dryness under foot, freedom from any of the unpleasant vagaries of our English climate, and last, but by no means least, the possibility of keeping the Show open in the evening.

The Main Hall will be surrounded by tiered staging rising to a height of 15 feet, upon which imposing groups of plants and flowers can be arranged, and at a lower level the smaller exhibits on talling will be so placed as to leave a wide central avenue. The Annex is being reserved for rock and water gardens, grouped around a testoom and pillared Rose garden.

Application for the tiered staging for large groups (each allotment has a frontage of 28 feet with a depth

HAMAMELIS MOLLIS.—On p. 65 Mr. Wyndham Fitzherbert mentions only one of the Witch Hazels, namely, *Hamamelis arborea*. This is a native of Japan, and a beautiful shrub, but is surpassed by the newer Chinese species, *Hamamelis mollis*. This differs from *H. arborea* in many well-marked features, principally in its large, broadly-ovate leaves, clothed with soft, felt-like hairs, from which character the specific name is derived, and also from the flowers, which are larger than those of *H. arborea*, and instead of the petals being crimped, as in that species, they are flat, or nearly so, with hooked tips. What is more, instead of the old-gold tone of *H. arborea*, the flowers of *H. mollis* are of a rich, golden yellow, and open a fortnight or so earlier than those of the older species. *H. mollis* is of a more bushy habit. Both species are, however, so beautiful, that there are not many gardens where a space could not be found for the two. *H. japonica*, somewhat like *H. arborea*, but of dwarfer habit, and a pale-yellow form known as *Zuccariniana*, are also well worthy of recognition. Concerning *Hamamelis mollis*, it is generally regarded as having been found by Dr. Henry in 1887, and introduced into cultivation some years later by Messrs. Veitch, but *Hortus Veitchii* claims Charles Marries as its introducer. W.

WINTER-FLOWERING SHRUBS (see p. 65).—*Daphne indica rubra* is exceedingly hardy and established plants flower from Christmas to June. I suppose it does not like a deep clay soil or else resents the blossoms being cut, because after about 10 to 15 years the plants here are apt to die. Well-drained leaf-mould would probably be the best rooting medium. *Daphne indica alba* is a very tender subject and dies almost at once with us. *Lonicera fragrantissima* is an evergreen species with roundish, dark green leaves. It grows into a large bush or tree, and does especially well in the Bath Botanic Gardens. *L. Standishii*, which has long leaves that are deciduous, is not nearly so attractive as *L. fragrantissima*. The following varieties of *Erica mediterranea* are in bloom from December till late in spring:—*hibernica* (red), *hybrida* (paler red), *alba*, and *glauca*. *Hamamelis arborea* is a fine-flowering shrub. In the Bath Botanic Gardens there is a specimen nearly 12 feet high. The best type of *Hamamelis arborea* is erect in growth, and the lateral branches develop from the main stems at an acute angle. The so-called improved varieties are not nearly so good as the type. *F. Kitley, Oldfield Nursery, Bath*.

A PROPOSED GLADIOLUS SOCIETY.—There have been references in these columns on several occasions to a society formed in America for the purpose of furthering the cultivation of the Gladiolus. It has been suggested in several quarters that a Gladiolus Society should be formed in like manner in England on the lines of the Rose, Chrysanthemum, and Sweet Pea Societies. As I take a great interest in the cultivation of the Gladiolus, I am endeavouring to organise a society, and should be greatly indebted if you would kindly give the project some notice in your valuable journal. I have received a promise of support from the Royal Horticultural Society if a society is established, and I am in correspondence with several gentlemen and professional growers, with a view to forming a council to elect a president and draw up rules for such a society. I shall be pleased to hear of anyone wishing to become a member, and I will send particulars on receipt of a postcard addressed to me as below. It is proposed to fix the subscription at £1 1s. per annum. I need hardly point out how much a society could do for the improvement and extended cultivation of the Gladiolus, which at present is not nearly so well known in this country as it should be. On the formation of the society, the R.H.S. are willing to grant us permission to hold an exhibition of Gladiolus at the Horticultural Hall during the flowering season, and prizes would be offered by the new society for the various types of Gladiolus. *K. Atkinson, Managing Director, Locksheath Nurseries, Ltd., Southampton*.

of 25 feet), or for a floor space in the Annex, should be made to the Secretary of the Society on or after February 14, when a ground plan of the Great Hall will be on view.

Accommodation for sundries has also been provided round the walls of the Main Hall. Those wishing to exhibit should at once book their position by applying to the Secretary.

1911 ALPINE HORTICULTURAL EXHIBITION, MAY 22-30, 1912

Most of the Fellows will have heard that an International Flower Show is to be held in London in the spring of 1912. It should be fully understood that the Royal Horticultural Society is not organizing this exhibition, which will be worked by an absolutely distinct and entirely separate and independent organization. The Council have, however, most warmly welcomed the proposal, and will render the exhibition every assistance in their power.

The Executive of the Exhibition, recognizing the importance of securing the great weight of horticultural interest vested in the Society, have approached the Council with a view to establishing a suitable friendly working arrangement between the two bodies. Negotiations have accordingly been actively proceeding, whereby it has been decided that—

(a) The Council agree—

- To forego in 1912 the great Spring Show hitherto held, by kind permission of the treasurer, master and members, in the gardens of the Inner Temple.
- To contribute £1,000 towards the expenses of promoting the International Exhibition, and
- To guarantee a further sum of £4,000 against the hardly probable contingency of there being an ultimate loss on the Exhibition.

(b) The Executive of the International Exhibition, 1912, agree—

- To give to all Fellows of the Society certain special and definite privileges (which will be published in due time) in regard to the purchase of tickets for the Exhibition; and
- To allow all such tickets purchased by Fellows of the Society to be transferable.

Fellows are particularly requested not to write to the Society on the subject of this Exhibition, but, if any communications are necessary, to address them to Edward White, Esq., Hon. Sec., International Horticultural Exhibition, 7, Victoria Street, S.W.

RECOGNITION OF DILIGENT INTEREST IN PLANTS.

In response to frequent applications by school authorities for some token of encouragement of work with plants amongst their scholars, the Council have founded a card of "Recognition of Diligent Interest in Plants." It is to be awarded to the boy or girl who, in the yearly school competitions in plant cultivation, or garden-plot keeping, or nature study, has secured the first prize.

OBITUARY.

In addition to the loss of our late Patron, King Edward, the first name which will occur to any Fellow of the Society who knows anything whatever of the Society's history will be that of Baron Schroder. From the very difficult days of 1887, up to the last year of his life, the Society had no better friend than the Baron. In 1888 he was one of the first to help pay off the debt which then threatened the Society's very existence, and much as he disliked the Drill Hall he loyally supported the Council, and was himself an active member of it. When prosperity came he began to urge the Council to embark on a hall of their own, and had it not been for the great financial difficulties in the City of London in the years 1891-2 he would then have succeeded in his project of building a hall on the Thames Embankment not far from the Temple. Greatly disappointed, the Baron was not disheartened, and no sooner was the question mooted—"How shall we celebrate the Centenary of the Society?" than he answered unhesitatingly, "Build a hall," and himself secured the present site, and gave £5,000 to the building fund, besides providing all the new book-cases, fittings and furniture for the library.

To perpetuate the memory of the Baron, the Council have established a Schroder life-pensionership, under the rules and regulations of the Gardeners' Royal Benevolent Institution, and Mrs. Wildsmith, the widow of an eminent gardener, who did much to help the Society in the difficult years of 1887, 1888 and 1889, has been appointed the first Schroder pensioner.

Death has removed many other prominent Fellows during the year. Well known amongst them were Mr. G. S. Saunders, F.L.S., F.I.S., a valued member of the Scientific Committee and for a short time Editor of the Society's *Journal*; Lord Decies; Sir Charles Strickland, Bart.; Louisa, Lady de Rothschild; Max Leadham, C. B. Plowright, F.L.S.; J. Forster Alcock; Brewitt O. Brewitt; W. J. Nutting; H. A. Tracy, etc., etc.

VICTORIA MEDAL OF HONOUR.

Gaps in the ranks of our Victoria Medal of Honour have occurred by the deaths of Mr. W. Buxall, Mr. R. W. Ker, Mr. James M. Indo, Mr. David Thompson, and Baron Schroder. To fill these vacancies the Council have appointed Mr. Coombes, Mr. Cypher, Mr. F. R. Edder, Mr. H. B. May, and Mr. A. H. Pearson, J.P., all of whom are well known in various branches of horticultural work.

PENSION SCHEME.

A scheme of annuity pensions for members of the Society's staff has been arranged during the year. The annuity is provided for by equal contributions from the salaries of the officials concerned and the funds of the Society. Each pension matures at the age of 65 or at death if occurring before.

THE HALL.

The hall has been kept in thorough repair. A travelling platform has been added in the highest part of the roof to ensure the safety of the men working there.

It is intended to redecorate the hall in August, 1911, and it will therefore be closed from August 2 to 28. In consequence there will be no flower show on August 15.

PRESENTS.

The Council acknowledge and tender their warmest thanks for the many gifts which have reached them during the year. Valuable contributions have been given to the library; also to be mentioned are portraits of the late Lord Penzance from Miss Jekyll, and of the late Sir Charles Strickland from his daughter, Mrs. E. A. Willoughby, the late Mr. George S. Saunders's collection of insects from Mrs. Edward Saunders; Orchids from Baron Bruno Schroder and Messrs. Sander; a further large assortment of Mr. E. H. Wilson's introductions from China sent by the Hon. Vicary Gibbs and Messrs. Jas. Veitch; a collection of Rhododendrons from Mr. John Waterer; a set of all the reports and papers published since 1843, recording Rothamsted investigations, presented by the Board of Agriculture with the sanction of His Majesty's Treasury, gifts of lantern slides from Mr. Jas. Hudson, V.M.H., and Captain A. Dorrien-Smith.

ANNUAL PROGRESS.

The following table will show the Society's progress in regard to numerical strength during the past year.

LOSS BY DEATH IN 1910.		
	£	s. d.
Hon. Fellows	7	0 0 0
Life	13	0 0 0
4 Guineas	3	12 12 0
2	50	105 0 0
1	71	74 11 0
	144	£192 3 0
LOSS BY RESIGNATION, &c.		
4 Guineas	2	8 8 0
2	122	264 4 0
1	197	206 17 0
Associates	15	7 17 6
Affiliated Societies	15	15 15 0
	351	£495 4 6
Total loss	495	£687 4 6
FELLOWS ELECTED IN 1910.		
Hon. Fellows	3	0 0 0
4 Guineas	5	21 0 0
2	75	1480 19 0
1	711	746 11 0
Associates	27	19 8 6
Affiliated Societies	24	25 4 0
Commutations	154	—
	= £372 48 6d	
	151	£2202 13 6
Deduct loss		687 4 6
Net increase in income		£1,515 9 0

FINANCE.		
	£	s. d.
New Fellows, &c.	1,503	
Deaths and resignations	495	
Numerical increase	1,008	
Total on December 31, 1909	11,645	
Total on December 31, 1910	12,643	

FINANCE.

It will be noticed that the accounts are this year presented in a somewhat different form. The trust funds are now becoming so numerous that the Council consider the time has arrived when each of them should be recorded separately and show (in) the manner in which the funds are invested, (2) the income received during the year, and (3) the disposal of the same.

EXAMINATIONS.

The Society's examinations were held for public parks gardeners, school teachers, and in general gardening, the number of candidates being considerably in excess of former years.

COMMITTEES, &c.

The Society owes a constantly recurring debt to the members of the committees, judges, writers of papers for the *Journal*, compilers of extracts, reviewers, lecturers, and the several examiners, who, during the past twelve months have done so much to contribute to the Society's usefulness, and to help maintain its high standing among the practical and scientific institutions of the world.

In consequence of the great increase in the work of the Floral Committee, it has been found necessary to appoint a second chairman, so that one may (as far as possible) devote himself to the plants for certificate, and the other to the groups in the hall.

The Council also acknowledge their obligations to the Press for their invaluable assistance in reporting upon, and calling attention to, the work of the Society.

LIST OF PLANTS CERTIFICATED.

From time to time it becomes necessary to issue a corrected list of plants and fruits Certificated by the Society. A new revision up to December 31, 1910, has been made, and may now be obtained from the office—Orchids, &c.; fruits and vegetables, decorative plants, ferns and flow'rs, &c. It is hoped that Fellows will provide themselves with these necessary records covering the last 50 years.

By order of the Council,

W. WILKS, Secretary.

Royal Horticultural Society

Vincent Square, Westminster, S.W.

December 31, 1910.

Scientific Committee.

JANUARY 31.—Present: Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Dr. A. B. Rendle, Messrs. J. Fraser, A. D. Michael, J. W. Odell, A. Worsley, E. M. Holmes, W. C. Worsdell, W. Fawcett, A. W. Sutton, and F. J. Chittenden (hon. sec.).

Cutting the Common Reed.—A question was raised concerning whether the best practice in cutting the Common Reed (*Phragmites communis*) was to cut annually or triennially. It was pointed out that in the Norfolk Broads, where this crop is a very valuable one, the practice where the best Reeds were grown was to cut annually, for if they were left longer they became very brittle, and otherwise deteriorated, making the cut sample very irregular.

Cedar cones.—Mr. J. FRASER showed cones of *Cedrus Libani* and *C. Deodara*. These cones had been collected in August, when they were both green. The cone of *C. Libani* was comparatively small, it became brown a month after gathering, and was hollow at the apex. That of *C. Deodara* was heavier and full of resin; it became brown only after two months; the apex of the cone was pointed, and each scale, unlike that of *C. Libani*, was ribbed near the apex.

Double Richardia africana.—Some large and well-marked examples of this well-known phenomenon were sent from Trowbridge.

Fasciation in Marsdenia.—Mr. BOWLES showed a fasciated stem of *Marsdenia erecta* from the Rev. Canon ELLACOMBE, at Bitton. It is rare for an example of fasciation in a plant belonging to the Asclepiadaceæ to be shown before the Committee. Mr. WORSDELL remarked that he had observed the phenomenon in a *Stapelia* in South Africa.

White Crocus Imperati.—Mr. E. A. BOWLES drew attention to a white form of *Crocus Imperati* which had occurred among some imported corms, and was shown by Messrs. BARR. The flower showed none of the barring on the outside of the perianth segments usual in this species.

NATIONAL CHRYSANTHEMUM.

(ANNUAL MEETING.)

FEBRUARY 6.—The annual general meeting of the members of this Society took place on Monday last, at Carr's Restaurant, Strand. The President, Sir Albert Rollit, D.C.L., occupied the chair, the company numbering about 50. Before the business of the meeting was proceeded with Mr. C. Harman Payne offered the congratulations of the members to Sir Albert Rollit on his recent appointment to a First-class Commandership of the Order of St. Olaf, Norway, this distinction being granted by the Norwegian Sovereign in recognition of Sir Albert Rollit's efforts in promoting business relations between this country and Norway, and in the settlement of disputes by arbitration. Sir Albert Rollit expressed his gratification for the kind remarks made by Mr. Payne, and said that the honour came as a surprise, although he was delighted to receive it, and not less the King's permission to accept it. Sir Albert Rollit then formally presented the annual report, of which we give the following extracts:—

EXTRACTS FROM THE REPORT.

The early Chrysanthemum show was held at the Crystal Palace on October 5 and 6, and the grand autumn exhibition also at the Crystal Palace on November 2, 3 and 4. Both shows marked a great advance on previous years, and in the opinion of many experts the November show was in point of quality the finest which has been held under this Society's auspices. The number of exhibits was considerably greater than in 1909, but did not constitute a record. Unfortunately the weather on the second and third days of the November show proved very mild.

Having in mind the great success which attended the proceedings at the Society's Conference in 1909, your Committee arranged for a further Conference in 1910, which was held at Essex Hall on December 5.

The question of publishing a full report of the proceedings of this Conference is under the consideration of your Committee.

Mr. D. B. Crane was unanimously re-elected Chairman of the Floral Committee at the first meeting held in 1910, and as a mark of appreciation of Mr. Crane's long and valued service to the Society he has been nominated for election as an Honorary Fellow at the annual meeting. The Committee met at Essex Hall and the Crystal Palace on eight occasions for the consideration of new varieties. Two hundred and thirty-two novelties were submitted to them, and of these 52 were awarded First-class Certificates, 22 were commended, and one received

the special Award for Colour instituted in 1909. The sections to which certificates were awarded were as follows:—Decorative, 20; Japanese, 19; Singles, 12; Incurred, 2; Semi-double Decorative, 1.

Difficulties have arisen on more than one occasion during the past season with regard to the sections in which novelties should be classified, and the Floral Committee are now taking into consideration the whole question of classification with a view to revising the list of sections, if thought necessary, and defining the characteristics of the various sections with due regard to the advancement in culture which has been made since the Society's catalogue was issued.

In the early part of 1910 the Floral Committee decided to hold trials of single varieties, with a view to drawing up a list of "too-much-alike" varieties, and also of "pointing" the best singles in each shade of colour.

The response was not as large as the Committee anticipated, but, at the same time, was sufficient to enable them to carry out full trials of all the varieties that were worthy of note. A report by the Floral Committee (on these trials) will be issued in due course. The report will contain a list of synonymous or "too-much-alike" varieties, and also a list of the best varieties, together with such other information as the Committee think will be of interest to the members.

FINANCE.—Your Committee have again the satisfaction to report that the whole of the ordinary liabilities of the Society were paid before the books were closed on December 31, 1910. In the early part of the year a sum of £50 was transferred from current account to reserve fund account; and it will be observed from the accounts that at the close of the year a sum of £50 8s. 8d. stood to the credit of the Society on current account at the bank. There are other sundry small amounts due for medals and advertisements, and these, together with the various properties at the Crystal Palace, and the money at the bank, make the total assets on December 31 last £121 12s. 9d.

The annual outing took place on July 25, and the annual dinner on Tuesday, November 29.

In connection with the International Exhibition held at Brussels during 1910, it was felt that a special effort should be made to send an exhibit to Brussels in the name of the National Chrysanthemum Society of England. Arrangements had practically been completed for the staging of an exhibit by this Society when the disastrous fire occurred in the month of August. After the fire the president brought up for consideration a proposition that the Society should send an exhibit of Chrysanthemums in pots. The matter was discussed in considerable detail and an estimate was arrived at of the total expenses. Unfortunately the figure suggested was considered by the Board of Trade to be prohibitive and the matter fell to the ground.

In connection with the International Chrysanthemum Show, which was held at Paris, in November last, the President, also Mr. T. Bevan and Mr. C. Harman Payne, were appointed members of the jury.

Whilst in Paris the President of the Society took the opportunity of presenting this Society's medals to the following three gentlemen:—Mons. Viger, President of the National Horticultural Society of France; Mons. A. Truffaut, Premier Vice-President of the National Horticultural Society of France; Mons. Maxime de la Rocheterie, President of the French Chrysanthemum Society.

Your Committee have had under consideration correspondence from the committee in charge of the arrangements for the International Exhibition to be held at London in May, 1912, and have offered to give National Chrysanthemum Society medals to be awarded to exhibits of Chrysanthemums at the exhibition. The matter will probably be referred to at greater length in the next annual report.

The management of the Crystal Palace being still in the hands of a Receiver, acting under the direction of the High Court, it has not yet been possible to complete the arrangements for the holding of the 1911 shows. Negotiations are, however, now proceeding, and the dates for the shows have been provisionally fixed as follows:—October 4 and 5, November 1, 2 and 3.

The statement of accounts showed that the annual subscriptions in 1910 amounted to £138 3s. 9d. The sum of £150 was received from the Crystal Palace authorities.

Sir Albert Rollit said the report was a record of good work performed by the executive committee, which carries out its labours well under the guidance of its chairman, Mr. Thomas Bevan, and with the assistance of the Secretary, whom he praised highly. The President said that the Society fulfils a useful purpose, and takes its proper place among the various horticultural bodies in this and other countries. The Society was asked last summer by the National Horticultural Society of France to send members to act as judges at the French autumn flower show. The speaker said the reception afforded the deputation, of which he was a member, was most cordial, and that visits such as these do much to promote international goodwill, and assist largely to preserve the peace of the world, objects which he had specially at heart. As their President, he took the opportunity on that occasion to present the Society's medals to the following distinguished French horticulturists:—Mons. Viger,

President of the National Horticultural Society of France, Mons. Truffaut, Premier Vice-President of the National Horticultural Society of France, and M. Maxime de la Rocheterie, President of the French Chrysanthemum Society.

Sir Albert next referred to the need for increased membership, which would not only give them a greater status in the horticultural world, but also increased funds. Referring to the work done by the Society during the past year, he said that the exhibits at their shows were, if not better, as good as ever. The Floral Committee had done good service, whilst the Conference had proved most useful. Referring to the International Exhibition to be held in 1912, he expressed the hope that the National Chrysanthemum Society would be worthily represented. It only needed the united efforts of horticulturists to make the exhibition a great success. The management of the N.C.S. had closed the year without a liability, and there was a reserve fund of upwards of £50, besides a balance at the bankers, which was always admitted to be a test of respectability.

The adoption of the report was moved by the chairman, Mr. Thomas Bevan, who referred to the report as one of the best ever published by the Society. The report and balance-sheet were adopted unanimously. The retiring auditors were thanked for their services, after which Mr. Bevan proposed the re-election of Sir Albert Rollit as President, the motion being seconded by Mr. D. B. Crane. The motion being put to the meeting it was carried with acclamation. The other officers, including the treasurer, Mr. John Green; chairman of committee, Mr. Thomas Bevan; vice-chairman, Mr. E. Hawes; foreign corresponding secretary, Mr. C. Harman Payne; and general secretary, Mr. Richard Witty, were all re-elected. Mr. Witty's good work as secretary was referred to by several speakers, including the President. The committee was also elected; Mr. R. J. Frogbrook and Mr. J. Kirkwood being appointed to fill vacancies.

Sir Albert Rollit next formally asked the member to ratify the gift of medals referred to, and also the election as honorary members of the Society of Mr. J. H. Witty, vice-chairman of the executive committee, and Mr. D. B. Crane, chairman of the floral committee, with M. Louis Gentil as corresponding member.

It was suggested by Mr. Thomas Bevan that some diploma or certificate should accompany the honorary membership, and it was finally decided that the Society's medal, duly inscribed, should be presented in each case.

WOOLTON CHRYSANTHEMUM.

FEBRUARY 1.—The annual meeting of the above society was held on this date, Mr. A. G. Dent presided. The annual report stated that the exhibition was fully equal to the average of the society's shows. Three of the challenge cups had been won outright, and it is hoped to provide others in their places. The finances showed a slight increase in favour of the society. The officials, including Mr. A. G. Dent, Treasurer, Mr. R. G. Waterman, Assistant Treasurer, and Mr. W. D. Skinner, Secretary, were all re-elected.

LIVERPOOL HORTICULTURAL.

The 32nd annual general meeting of this society was held recently, Mr. W. Mercer presiding over a small attendance. The report stated that the three exhibitions were, in each case, of high merit. The principal items in the statement of accounts were (receipts) subscriptions, £292 10s.; admissions to shows, £143 4s. 11d.; special prizes, £37 15s. 6d.; and entrance fees, £15 1s. 6d., and (expenditure) prize money, £220 3s. 6d. The society commenced the year with a balance in hand of £220 8s. 6d., and closed with a balance of £172 10s. 8d., the deficit being due to the holding of an extra show.

EDINBURGH MARKET GARDENERS.

FEBRUARY 3.—The annual dinner of this association was held in the Royal British Hotel, Edinburgh, on this date. Mr. King, the president, occupied the chair, and the company numbered between 40 and 50. Mr. Morrison, Musselburgh, who is leaving to engage in market gardening in the Birmingham district, was presented, at the meeting, with a roll-top writing desk.

VENTNOR HORTICULTURAL.

JANUARY 23.—The annual meeting of the Ventnor and Undercliff Horticultural and Chrysanthemum Society was held in the Town Hall, Ventnor. Mr. G. A. S. Saunders occupied the chair. The hon. secretary presented the balance-sheet, which showed funds amounting to £56 16s. 3d. After meeting all expenses, which totalled £44 10s. 1d., the balance in hand was £12 6s. 2d. Mr. McDougall was re-elected president. The vice-president, committee, secretary, and other officials were re-elected. It was decided to hold the annual show on Tuesday and Wednesday, November 7 and 8. The chairman raised the question of having a summer show, which was dropped last year, because the society could not afford it. Mr. Attrill moved that a spring show should be held. The chairman suggested the appointment of a small committee to ascertain what support they would be likely to get. Mr. Sheath seconded, and the motion was carried unanimously.

ROYAL SCOTTISH ARBORICULTURAL.

FEBRUARY 3.—The annual meeting of this society was held at 5, St. Andrew Square, Edinburgh, on this date. The president, Sir John Stirling Maxwell, Bart., of Pollok, presided, and there was an attendance of about 50 members.

The report by the council showed that there was an increase of 17 in the membership as compared with 1910, and that it now stands at 1,569. The excess of income over expenditure for 1910 was £129, and the funds amounted to £2,200.

In his address, the chairman made some stringent remarks regarding the treatment of forestry by the Government. There was no department of forestry, and all their difficulties sprang from their inability to persuade the Government that such a department was necessary. Money had been devoted by Parliament, under the Development Act, for forestry purposes, but the Development Commissioners had to be approached through the Scottish Education Department. The assistance of the society had been solicited, but this, he thought (and the council agreed with him), should not be given unless they obtained some definite assurance that, when the grant was given for the development of forestry it would be entrusted to men who were competent to administer it, and until they had a guarantee that the survey which the society had commenced would be taken up at once by the Government. The society had commenced the survey with the object of advancing afforestation in Scotland, and it would be foolish at this time to give their assistance unless they knew that an effective policy would be pursued. Without such assurances, it would be better for them to abandon their position as helpers and become instead formidable critics.

Lord Lovat made a statement regarding the sample survey which he and Captain Stirling had undertaken, from which it appeared that in the Loch Ness Valley there were 60,000 acres which could be planted with trees.

It was intimated that the excursion this year would be to the border districts, and that the society would have a forestry exhibit in connection with the Scottish Exhibition to be held in Glasgow this season.

Sir John Stirling Maxwell was re-elected president, and Dr. Borthwick and Mr. Sydney Gammell, of Drumlochty, vice-presidents.

Mr. A. T. Gillanders, F.E.S., author of *Forest Entomology*, was elected an honorary life member of the society.

A lecture on "The State and Private Woodlands" was afterwards delivered by Mr. Wm. Dawson, M.A., B.Sc., Lecturer in Forestry, Marischal College, Aberdeen.

BRITISH GARDENERS' ASSOCIATION.

A MEETING of gardeners will be held at the Cobden Café, Corporation Street, Birmingham, on Saturday next, February 18, at 7.30 p.m., to re-organise the local branch of the association. Since the meeting held on January 21 a large number of gardeners in the Birmingham district have joined the association, and the branch now promises to be one of the strongest and most enthusiastic in the country. The local secretary is Mr. J. D. Jones, 8, Acacia Road, Bournville, Birmingham.

ABERDEEN CHRYSANTHEMUM.

FEBRUARY 4.—The annual meeting of this Society was held on this date, Mr. A. M. Cocker, of Messrs. Cocker & Sons, Sunnyside and Springhill Nurseries, Aberdeen, vice-chairman, occupied the chair. The secretary, Mr. M. H. Sinclair, submitted the annual report and balance-sheet, which showed that there was a loss on the year's working of £27 15s. 3d., due chiefly to unfavourable weather on the occasion of the annual show.

In moving the adoption of the report and accounts, the chairman expressed his confidence in the future welfare of the society. He hoped it would continue for many years to do useful work in horticulture. Mr. J. Smith seconded, and the motion was carried. Miss Chalmers, of Ardbeck, and the Right Hon. Robert Fergusson, of Finzean, were added to the list of hon. vice-presidents. Lord Provost Wilson, of Aberdeen, was re-elected hon. president. Mr. W. J. Middleton was re-elected chairman, and Mr. A. M. Cocker, whose ungrudging and devoted services to the interests of the society are very highly appreciated, was re-elected vice-chairman. A committee of 20 was also elected. The secretary, Mr. M. H. Sinclair, was also re-elected. It was decided to hold the annual show in the Music Hall Buildings, Aberdeen, on November 24 and 25.

Obituary.

MRS. SUTTON.—Our readers will sympathize with Mr. Martin J. Sutton, of Holme Park, Sonning, Berkshire, and head of the firm of Messrs. Sutton & Sons, seedsman, Reading, in the death of his wife, which occurred last week. The funeral took place at St. Andrew's, Sonning, on Monday last, in the presence of many relatives and a very large gathering of people from all parts of the county. Mrs. Sutton was held in the highest esteem by all who knew her, and this esteem found expression in the attendance at the funeral of numerous deputations from religious, philanthropic, and educational institutions with which Mr. and Mrs. Sutton have been associated. The vault was lined with white and salmon-colored Cyclamen and Ivy, and the coffin bore but one tribute, namely, a large Palm leaf from the bereaved husband.

UHEI SUZUKI. We regret to announce the death of Mr. Uhei Suzuki, the founder of the Yokohama Nursery Co., Japan. Born in a country district in Japan, he went to Yokohama. Later, he was appointed head gardener to an English nobleman residing in Yokohama, who was a lover of Japanese gardens and horticulture. Mr. Louis Boehmer settled in Yokohama, and started to export Lily bulbs to Europe. Mr. Boehmer engaged Mr. Suzuki, and began to export bulbs in large quantities. Later, Mr. Suzuki commenced business for himself, founding, as stated, the Yokohama Nursery Co.

FREDERICK DORNER.—The American papers announce the death of Mr. Frederick Dorner, nurseryman, of Lafayette, Indiana, U.S.A. Mr. Dorner was a well-known cultivator of Carnations, and raised many varieties of the perpetual-blooming type. He was a native of Baden, Germany, and emigrated to America in the '50's, spending part of his time farming and part as a florist. In 1870 he commenced business as a florist at Lafayette. About 1889 he turned his attention to the raising of Carnations. It is said that he raised as many as 5,000 Carnation seedlings in one year. Mr. Dorner was also a grower of Chrysanthemums, and he raised many new varieties.

LEON VAN DEN BOSSCHE.—M. Leon van den Bossche, late Belgian Minister at Constantinople, died on the 31st ult., in his 70th year, at Tirlemont, Belgium, his native town. In the latter years of his life, M. Van den Bossche showed a remarkable interest in botany and horticulture. He devoted himself to the study of these subjects with extraordinary zeal, and, owing to his great wealth and wonderful activity, he was able to get together a very important collection of exotic plants and a herbarium of great scientific value. In 1893, the Castellon of Tirlemont published a

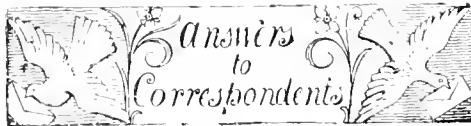
list of the trees and shrubs cultivated in the gardens of M. L. Van den Bossche, and a second edition of this work appeared in 1900. The deceased, with the collaboration of M. Em. de Wilde, edited the *Icones selecta horti Thencensis* and the *Planta nova vel minus cognita ex herbaria horti Thencensis*. Since 1899, six volumes of the *Icones selecta* have appeared, with 240 plates. Two volumes of the *Planta nova*, with 90 plates, have been published since 1904. All the plates have been reproduced from drawings by M. Maur. d'Apraval, a skilled Parisian draughtsman. It is to be hoped that in the interests of science the beautiful collections formed by M. Van den Bossche will still be preserved.

GARDENING APPOINTMENTS.

- Mr. W. F. WRIGHT, late Gardener at Caer Ebor, near Monmouth, and Clodd in Hill, Leebeck, near Monmouth, as Gardener to Capt. A. V. BISSONNETTE, Esq., The Florence, St. Braxels, Gloucestershire.
Mr. J. MAKESZIL, for 2 years and 9 months Foreman at Bawley Manor Gardens, Woodbridge, Suffolk, as Gardener to Capt. J. G. DUGDALE, The Abbey, Gloucester.
Mr. F. ZORER, for the last 3 years Foreman at Elford Park, Farnham, Surrey, as Gardener to G. BERT, Esq., J.P., Castle Hill, Rotherfield, Tunbridge Wells.
Mr. F. I. KRISTOF, for the past 6 years Foreman in the Pleasure Grounds at Hartham Park, Wiltshire, as Gardener to F. A. HASKELL, Esq., Notton House, Lacock, Chippenham, Wiltshire.
Mr. C. JONES, late Foreman at Nash Court, Faversham, as Gardener to J. B. DE VRIES, Esq., Holmbourne Manor, Kent.
Mr. W. FLESHAD, for the past 7 years Assistant Superintendent of Parks and Recreation Grounds, Leicester, as Superintendent of Parks and Open Spaces for the Corporation of Wolverhampton. (Thanks for 2s. for the R.G.C.F. box.—L.S.S.)
Mr. WM. STANFORD, late Gardener to A. HENDERSON, Esq., Fairmile Court, Cobham, Surrey, as Gardener to JAMES NEWSLEAD, Esq., West Ashby Manor, Harrogate, Lincolnshire.
Mr. HENRIET BACKGATH, for the past 4 years employed in Hartham Hall Gardens, as Gardener to SIR H. MELBURY, Bart., Pipewell Hall, Kettering, Northants.

CATALOGUES RECEIVED.

- SEEDS.
DORRIS & MASONS, 22, Oak Street, Manchester.
FRANK J. SMITH & Co., 15 & 17, High Street, Belfast.
JAMES WILSON & Sons, 69, Market Place, Leicester.
MISCELLANEOUS.
'Flora,' Egginton Vicarage, near Loughton Buzzard-Plants.
A. LITTLETON, Junr., Kirton, near Boston, Lincolnshire—Roses, Bulbs, Rock and Hardy Plants, Potatoes, &c.
BAKER & SONS, King Street, Covent Garden—Bulbous and Tuberosus-rooted Plants.
JOHN FORBES, LTD., Hawick, Scotland—Hardy Plants.
GARDENS, LTD., Watlington—Fruit Seeds.
Wm Wood & Sons, Ltd., Wood Green, London—Horticultural Sundries.
CHERRYS, Hale, Altrincham—Trees, Shrubs, Roses, Climbers, Fruits, &c. (Clearance List)
FOREIGN.
T. C. SCHMIDT, Lofna, Germany—Nativity Stock.
VIMONEX-AMBIEX ET Cie, 4, Quai de la Mégisserie, Paris—Chrysanthemums.
DR. RICHARD E. KEENE, Phoenix, Arizona, U.S.A.—Cacti.



The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

- ANCHUSA ITALICA: Enquirer. As your plants are old, you should certainly lift them and divide the roots, retaining the strongest to plant in fresh soil. This plant delights in a moderately light, rich and deeply worked soil.
AUBERGINES: Constant Reader. If you intend to exhibit a large collection of vegetables, Aubergines would furnish a good dish, but it would be better not to include them in a small group.
BELLFINCHES DESTROYING FRUIT BUDS: M. P. In the issue for February 16, 1907, p. 106, a correspondent recommends spraying the trees with gas tar and water as a preventive against

birds attacking the buds. The mixture is made as follows:—Place a quantity of newly-made tar in an old iron pan, half fill it with tar and half with water. Leave this undisturbed for 48 hours. One gallon of the water only (the tar must not be disturbed) should be mixed with 4 gallons of soft water, and the trees syringed with this mixture. In time the unpleasant smell is lost; then make another application of the mixture. The tar may be covered with water several times, and must be stirred occasionally in order to allow the water to become impregnated with the gases.

CORRECTION. The hybrid Cyripedium from C. glaucophyllum and C. bellatulum is named Charles Sladden (or Sladdenii), not "Sladdin," as printed on p. 50.

GRAFTING THE ORANGE: P. G. W. The Orange is usually worked upon the Lemon. Stocks are raised from seeds, and when two years old they are grafted. This work is performed under glass, and the plants are kept in a close propagating frame in a warm pit. They are covered with material to exclude the light. Ventilation is given after a time, and bottom heat is afforded for several months. Your seedling Oranges would flower earlier if they were grafted, selecting the scions from mature trees that have reached the flowering stage.

INSECTS ON ROOTS OF ADIANTUM: G. H. S. The white, filamentous insect living on the roots of your Adiantum Ferns is Ripersia terrestris, a near relative of Mealy-bug. Apply carbon bisulphide, making holes in the soil with a piece of wire, using about one teaspoonful of the liquid to each small pot.

LEGGY RHODODENDRON: W. E. If the plant is not very old, you may cut it back, with good prospects of shoots breaking freely. Success however, will largely depend on the condition under which the plant is growing and the amount of pruning that is required to bring the plant to a proper shape.

NAMES OF FRUITS: Correspondent. 2, Flower Kent; 4, Franklin's Golden Pippin.—Highgate 1, Dumelow's Seedling (Wellington); 3, Warner's King; 7, Blenheim Pippin; 9, Claygate Pearmain; 10, Cox's Orange Pippin; 11, Lane Prince Albert.

NAMES OF PLANTS: W. H. C. 1, Crataegus Biebersteini; 2, Saxifraga hypnoides; 3, S. cuspitosa; 4, Atriplex Halimus; 5, Thuya plicata; 6, Cupressus Lawsoniana lutea.—H. Clements. The Pelargonium (Geranium) leaf is similar to several varieties obtained by crossing the Ivy-leaf and Zonal sections. Until the plant flowers, it will be impossible to say whether it is a distinct variety or not.—G. I. The scented Pelargoniums are as follows: capitatum var. Unique; 2, capitatum; 3, crispum major; 4, viscosissimum, Phœasant foot var.; 5, Mrs. Kingsbury; 6, Attar; 7, Pretty Polly; 8, Little Gem; 9, Fragrans; 10, Shotesham Pet; 11, tomentosum; 12, Lady Scarborough; 15, abrotanifolium 14, this plant is Cytisus racemosus var. Atkinsii.—F. P. 1, Lastrea dilatata; 2, Asplenium trichomanes; 3, A. viride; 4, Adiantum hispidulum.—Pat. 1, Garrya elliptica; 2, Eriobotrya japonica; 3, Buddleia glabra; others next week.—H. 1, Skimmia japonica; 2, Picea nobilis; 3, Pseudotsuga Douglasii; 4, Abies nobilis; 5, Pinus Strobus; 6, Tsuga Pattoniana; 7, Cryptomeria japonica

PEACH-BUDS DROPPING: Nectarine. This is the result of some check to the tree, and it may be due to the root pruning every alternate year. In order to check the excessive growth of the tree, without resorting so frequently to root pruning, lift the plant next season and restrict the rooting area, mixing a quantity of mortar rubble in the soil. You do not state the variety; some sorts of Peaches are more liable to bud-dropping than others.

SALE OF SEEDS: Law. Your only remedy is to proceed through the county court for the recovery of the debt.

Communications Received.—J. W.—H. S. F. & S.—Rose-Hunts—A. M.—Pat. T. S.—J. G. M.—F. H. G. L. L., Wilts.—B. G.—W. H. W.—G. M. D.—T. P. G. W.—Roseland—W. C. W.—H. G. A.—J. D. W.—O. F. A. C.—W. T.—A. N.—A. G.—F. J. C.—W. R. D.—E. W. J. B.—H. L. N.—H. W. W.—J. R.—L. & H.—G. E. H.—P. A.—A. D.—R. G. G.—R. P. B.—S. C.—D. R.—A. & B.

THE

Gardeners' Chronicle

No. 1,260.—SATURDAY, February 18, 1911.

CONTENTS.

Agriculture in the West Indies, the Imperial Department of ...	101	Orchid notes and gleanings—	
Alpine garden, the—		Brasso-Cattleya Vil-	
How to build a moraine ..	100	moriniaria ..	98
Aquatics, new, for indoor cultivation ...	106	Collabium nebulosum	97
Books, notices of—		Mormodes Cogniauxii	97
Sweet Pea Annual, 1911 ..	105	Odontoglossum Harwoodii	98
The Development of British Forestry ..	98	Orphan Fund, Royal Gardeners ..	110
Publications received	106	Rosary, the—	
Bulb garden, the—		Bardou Job and Paul's Single White	101
Clintonia borealis ..	98	Rose President Taft ..	101
Colchicum hydrophilum ..	98	School gardens in London, 105; in Staffordshire ..	105
Coronation flower, the	103	Societies—	
Daffodil Society, a proposed national	104, 109	British Association ..	105
Florists' flowers—		British Gardeners ..	110
New Sweet Peas ..	99	N. of England Hort. ..	105
Herbarium, the Leo Grindon ..	106	Royal Agricultural	105
Laurels, dwarf ..	106	Royal Horticultural	101, 106
Law note—		Scottish Horticultural	110
Sale of an Orchid ..	112	Surveyors' Institution	105
Lettuce, Mäche or Lamb's ..	106	Symphoricarpos occidentalis ..	105
Market fruit-garden, the ..	97	Trees and shrubs—	
Market gardening—		Willow trees killed by Armillaria mellea ..	100
Gooseberry planting	99	Warrants, Royal, to nursery firms ..	105
Root-pruning in market gardens ..	99	Week's work, the—	
Nursery notes—		Flower garden, ..	103
Veitch, James, & Sons, Chelsea ..	101	French garden, the ..	103
Obituary—		Fruits under glass ..	102
Walker, James ..	111	Hardy fruit garden ..	103
Weeks, Alfred W. G. ..	111	Kitchen garden, the ..	102
Orchards, neglected ..	106	Orchid houses, the ..	102
		Plants under glass ..	103
		Women gardeners' social gathering ..	105

ILLUSTRATIONS.

Cattleya Trianae "Hydra," with ninety-six flowers ..	103
Moraine garden, formation of a ..	100
Odontoglossum Harwoodii ..	95
Symphoricarpos occidentalis (Supplementary Illustration)	
Walker, James, portrait of the late ..	111

THE MARKET FRUIT GARDEN.

THE second half of January proved to be the best period for the planting experienced this season, though it may be said that "bad was the best." The land had not dried sufficiently after rain on 10 out of the first 12 days of the month until about the 16th, and then, such land as is at all heavy was tough, and also wetter than could have been desired. On the 30th a stop was put to the work by frost for a few days; but mild weather, without rain, has set in since, and the land now works better than it has done at any previous time since the planting season began.

In my last notes it was remarked that, although the keeping of Apples had not paid well up to the end of December, growers who were holding their fruits for January would probably obtain good prices before the end of the month. This anticipation was realised, as good cookers have been quoted recently in London up to 9s. a bushel, Dumelow's Seedling (Wellington) touching 10s. The conclusion seems to be that only the best keepers should be held after November, and that these should be kept until January. English dessert Apples appear to be "conspicuous by their absence" from the markets.

There are but few dessert Apples which do not lose much of their flavour by being kept after Christmas. Charles Ross, I find, should not be kept after November, as it loses nearly all its flavour, becomes mealy, and begins to rot at the core after that month. According to my observations, the best Apples for retaining flavour when kept till January or later are Cox's Orange Pippin, which is always delicious; D'Arcy Spice (otherwise Baddow Pippin), Cornish Aromatic,

Duke of Devonshire, and Magnum Bonum. The last, which is not in Hogg's *Fruit Manual*, is one of the most aromatic of Apples. I am not sure as to its keeping limit, but doubt if it is long after the beginning of January; nor do I know anything about it, except the enjoyment of eating it. Duke of Devonshire will keep until May, although its spicy flavour may become less marked after January, but much depends upon the time of gathering. It is one of the most regular of croppers with me, and probably it would pay to grow for market if planted thickly, as it is of upright habit, and a feeble, though healthy grower. D'Arcy Spice is a good cropper in Essex, but fails to grow properly in my present place in Sussex.

Newton Wonder, perhaps the best of all long-keeping culinary Apples, is the most economical in use so far as my notice has extended, because it requires little or no sugar. It is one of the few Apples which, when baked without a crust, can be eaten without sugar by one who does not like sour fruit. It is also one of the richest cooking Apples for pies, stewing, or for making sauce. Moreover, at this period of the year, it is more juicy and pleasant to eat raw than many dessert Apples.

DRAWBACKS TO FRUIT CULTURE.

The growing of Corn and of fruit alike would be more or less satisfactory if it were not for a field of Corn or part of a fruit plantation falling so far below the average as to be nearly a failure. One may have to dig up an acre of Apple trees because they have become poisoned with canker, in spite of all efforts to restrict its spread, or a field of Gooseberries in consequence of an attack of American mildew, or, as in my case, of some mysterious disease called Collar Rot by one authority and Botrytis by another. These are extreme cases, and those of less complete failure are much more common. It is a rare orchard, if of any considerable size, in which some varieties of Apples or Plums are not found to be doing poorly. Two speakers, at a recent conference, defended Worcester Pearmain against the charge of being a "worn-out" variety. It must be admitted that the variety grows feebly on some soils. Apparently it prefers heavy to light land, for a friend whose soil is a stiff one over the London clay has a large number of Worcester Pearmain trees of great size, and finds the variety the most profitable of all the many Apples which he grows. With me it is a good and regular bearer, but not a free grower on a lightish soil, and in a part of one field its behaviour is so unsatisfactory that a good deal of grubbing-up will be done next autumn or winter unless much improvement takes place as the result of severe pruning. The faulty trees were planted five years ago, and they are a mass of fruit buds and twiggy growth, although they were cut back moderately in their early stages. Moreover, they have nearly as much canker showing in fruit spurs and bases of side shoots, and even bases of both leaf and fruit buds, as Cox's Orange Pippin. This canker is not the result of neglect, as much of it is on the new wood, and, every observed sign of the disease-spot has been dealt with from its first appearance. There is clear enough proof that canker is something more than a wound parasite, for last season there was no aphid attack to cause wounds in buds and fruit spurs. The infection must in some way travel up the shoots to allow of the disease breaking out as it does. In the best and most sheltered part of the field there are some fine specimens of Cox's Orange Pippin. A "fly in the ointment" with me is the existence of a large number of Duchess

of Oldenburg trees, which I was induced to raise and plant by a statement made to me by a very successful grower of Apples on a large scale. In reply to an inquiry as to which variety of Apple he found the most profitable, he replied, "Duchess of Oldenburg." Well, it is a good cropper, but the fruit is not nice enough for dessert or big enough to sell well for cooking, and, healthy young trees though they are, these Duchess trees will possibly be grafted with another variety next March.

A GOOD MANURE MIXTURE FOR FRUIT.

A dressing at the rate of 8 cwt. per acre, made up of two parts high grade superphosphate and one part each of sulphate of ammonia and muriate of potash, was applied last spring to a large patch of Black Currant cuttings, one small piece getting no manure. In the autumn the young bushes developed from the cuttings on the manured piece were fully double the size of those grown without the manure. The former as yearlings were as large as the best of some two-year-old bushes purchased. The land had received fully 10 tons per acre of chalk a year before, otherwise the sulphate of ammonia would not have acted so well, as the soil is naturally deficient in lime, of which sulphate of ammonia is an exhauster. The same mixture was also applied to a plantation of Apples and Black Currants planted three years before. It had a good effect upon the bushes, as shown by one row from which it was omitted; but no decided effect is noticeable in the trees at present. The mixture has been used for years for Potatoes, the yield of which, as compared with unmanured pieces, it fully doubles when no farm-yard manure is applied. Sometimes sulphate instead of muriate of potash has been used with about the same results. *A Southern Grower.*

ORCHID NOTES AND GLEANINGS.

COLLABIUM NEBULOSUM.

A FINE inflorescence of this singular terrestrial Orchid is sent by Sir Jeremiah Colman, Bart., Gatton Park, where it has been in flower for a considerable time, and probably for the first time in England.

The plant has fleshy stems, about 2 inches in height, bearing a single leaf on a rounded petiole, the blade being broadly ovate, acuminate, plicate; the pseudo-bulb and leaf-stalk are tinged with purple, and the leaf mottled with light and dark green. The stout, erect scape, some 2 feet in height, is purple, and bears numerous flowers, each about half-an-inch in length. The sepals are greenish, and continue into a pronounced mentum or spur. The petals are rather lighter, and both possess reddish edges. The column is simple, twisted. The singular trilobed, clawed lip is white and slightly fringed. The flowers are arranged in scattered, irregular whorls.

It is a very remarkable species of the order and most nearly allied to *Chrysoglossum*.

The plant was imported from Java as *Pleoclotis javanica*, and received a Botanical Certificate at the Royal Horticultural Society, subject to its correct identification. Examination shows that while bearing a fair resemblance to *P. javanica*, it differs therefrom in its botanical characters: thus *Pleoclotis* has no spur, while the spur of *Collabium* is highly developed.

MORMODES COGNIAUXII.

AN inflorescence of a light form of this interesting orchid is sent by Mr. F. Mimms (gr. to W. E. Balston, Esq., Berwin, Porter's Bar), who states that the plant has four similarly large spurs and two smaller ones.

This variety is lighter in colour than the type illustrated in *Lichnera*, vol. x., but is otherwise

similar. The stout spike bears 16 blooms, each an inch-and-three-quarters in length. The sepals and petals are greenish-white, tinged with rose, and uniformly striped with purple; the column and stalked labellum are rose-pink, the sides rolled back, forming a trumpet-shaped front, and bearing a short apiculus.

It is of *Mormodes Baccinator* section, and probably very variable in colour like that species.

BRASSO CATTLEYA VILMORINIANA

(C. MOSSIE \times B.C. MRS. J. LEEMANN).

This pretty novelty was shown by Monsieur Chas. Maron, Brunoy, Seine et Oise, France, at a recent meeting of the Société Nationale d'Horticulture de France.

It is a flower of good shape and texture, openly displayed, the sepals and petals magenta-rose, and the well-rounded lip rather deeper in colour than the other segments, and veined with purple in front, the tint of the veining being as bright as in a good form of *C. Mossie*. The disc is yellow, and the whole flower distinct and attractive.

ODONTOGLOSSUM HARWOODII.

This fine variety of *Odontoglossum* was awarded a First class Certificate by the Orchid Committee of the Royal Horticultural Society on the 31st ult. It was obtained by crossing *O. Wigandianum* and *O. maculatum auriferum*, the raisers being Messrs. Charlesworth & Co., Haywards Heath. The colour of the flower is a clear buttercup yellow, with a lighter shade in the centres of the broad sepals and petals, which are spotted with dark claret colour. The variety represents one of the finest hybrids of *O. maculatum*, being superior even to the variety that attracted such notice at the last Ghent Quinquennial Show.

THE BULB GARDEN.

COLCHICUM HYDROPHILUM.

COLCHICUM HYDROPHILUM was introduced from Asia Minor by Mr. Siche, of Mersina, and is proving useful for early-flowering. The mild winter has proved congenial to the plants, which have been in bloom in my garden since early in January. Lack of sunshine prevented the blooms from opening fully, but they were pleasing with their rosy-purple segments forming almost a cone. The blossoms have a much shorter tube than those of most *Colchicums*, and this enables them to withstand bad weather better. So little colour is seen in the garden in January that a clump of this *Colchicum* is doubly acceptable.

CLINTONIA BOREALIS.

THERE is apparently some confusion in nurseries respecting the colour of the flower of *Clintonia borealis*, an interesting North American plant. In some catalogues it is described as having rosy flowers, whereas they are of a greenish-yellow. I imagine that the plant described as "rosy" must be *C. Andrewsiana*, a Californian species. *C. borealis* is a native of the moist woods and thickets of North-east America from Newfoundland to Ontario and Minnesota, extending southwards to North Carolina and Wisconsin (see Britton & Brown's *Illustrated Flora of the Northern States and Canada*, I. p. 428).

C. Andrewsiana has been catalogued in this country, but the plant does not appear to be perfectly satisfactory in the colder districts, unless protected in winter and early spring. It is a prettier plant than *C. borealis* and deserves the notice of those who admire the less important members of the great Lily family, to which it belongs. It is taller than *C. borealis*, which grows about a foot high. Both species, together with *C. umbellata* (*umbellulata* of Michaux) and *C. uniflora*, appear to be in cultivation at Kew. S. Arnott, *Sunnymead, Dumfries*.

NOTICES OF BOOKS.

A NEW WORK ON BRITISH FORESTRY.*

IN view of unduly favourable estimates that have been published by a small minority among enthusiasts advocating a comprehensive scheme of afforestation in the British Isles, a judicial and reliable work giving a restatement of the whole case would not be superfluous. But those who look for such a reasoned judgment in the pages of Mr. Forbes's book will be disappointed. Apart from the author's controversial methods, which are to be deprecated, it is not easy to reconcile his conclusions with the facts and principles involved. This refers particularly to the two chapters (pp. 87-147) dealing with "Climate and Tree-growth" and "Soil and Surface," respectively, which are specially selected for review here, because the subjects treated form the essential basis upon which afforestation rests. If the fundamental conclusions in this section of

which extends from spring to autumn in the case of deciduous trees, and, to some extent, through winter in the case of conifers in the lowlands of at least parts of England and Ireland. Hence the author's arguments as to the rate of production of timber, based upon the temperatures during June, July, and August at different places in the British Isles and on the Continent are delusive, because they neglect the consideration of the length of the assimilating season. It is worthy of note that, in this latter respect, British trees, and especially evergreen conifers, may have often a clear advantage over Continental trees. Again, the author, in discussing the rate of production of timber, comes to an unjustifiable conclusion that after the first 20 years of its life a British tree, and, consequently, a British forest, will produce less timber per annum than a Continental tree, because "persistent clouded sky and the absence of intense isolation tend to check the height, growth, and development of most species."

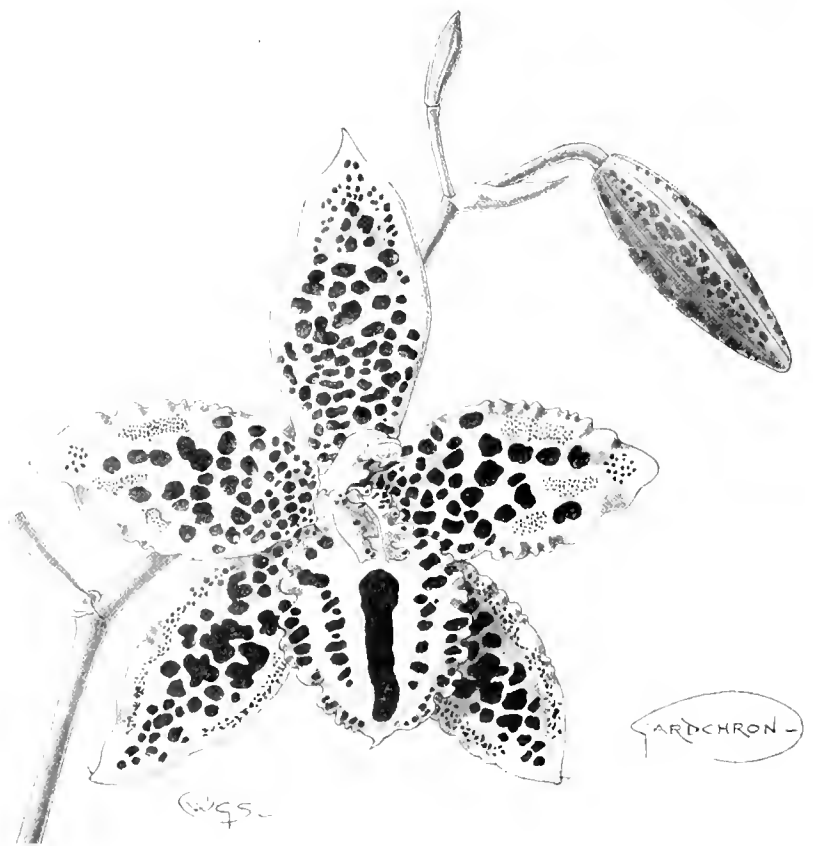


FIG. 51.—ODONTOGLOSSUM HARWOODII: FLOWER YELLOW, WITH DARK PURPLE SPOTTING.

the work cannot be admitted, then an examination of the author's financial views and detailed considerations becomes useless, so far as the main question of the prospects of forestry in the United Kingdom is concerned.

It must be pointed out, in the first place, that Mr. Forbes seems to have hazy impressions as to the physiological principles underlying the production of timber. In particular, he does not appear to realise the inward and vital significance of the wide difference between the "growing season" and the "assimilating season" of trees. The former is the relatively short season during which the twigs elongate and stems thicken, and is not, as Mr. Forbes assumes, represented by the months of June, July, and August, but mainly by spring and early summer. The food material for this growth is, however, prepared during a much longer period—the assimilating season—

* *The Development of British Forestry*, by A. C. Forbes. (London: Arnold, 1910.)

Apart from the fact that it is diffused light—not direct light—which is the best suited to a tree, it may be pointed out that frequent direct isolation may be a grave disadvantage to Continental trees, not only by necessitating the closure of the stomata of exposed leaves and the consequent partial cessation of the manufacture of food material, but also by causing rapid transpiration that may culminate in leaf-shedding or even desiccation. But the question is too complex for detailed discussion here, as it involves, among other things, the question of the difference of the arrangement and structure of the leaves under different conditions. What is wanted before confident assertions can be made is comparative measurement of British and Continental trees; yet even that is not sufficient, as a quality of the resultant timber steps in as an economic factor. Quite unjustified, too, is Mr. Forbes's statement that in Britain "it is practically certain that conditions are rarely favourable enough for the [annual] growth of timber

trees to be completed in six weeks"; whatever meaning is attached to "[annual] growth," it would be nearer the truth to replace the word "rarely" by "everywhere," as the author is referring to climate. Before passing away from this aspect of the subject, reference may be made to the sentence (on p. 89): "The principal climatic factors in promoting tree growth and timber production may be considered to be sufficient heat and moisture during the growing season." This statement might lead the lay reader to suppose that there must be an adequate rainfall during the growing season, or even during the summer (though the author does not say so), and this is especially probable when coupled with the statements on p. 96, where stress is laid on the rainfall in summer, as a decisive factor determining tree growth in the British Isles. It should be pointed out, in regard to the supply of moisture, that three factors which vary independently are of importance in determining the growth and kind of trees present: (1) the amount of annual rainfall; (2) the relative humidity of the atmosphere during the assimilating season; (3) the rainfall during the assimilating season. The fact is that lofty forests flourish in regions where the rainfall in summer is exceedingly scanty, and far less than in any place in the British Isles. The fundamentally important factor for tree-growth is the aggregate rainfall of the year. For the successful growth of our deciduous trees, and probably for a number of conifers, another factor of importance is the relative humidity of the atmosphere during the summer; the rainfall may be quite small so long as the air is moist enough. We cannot agree with Mr. Forbes that: "For the majority of conifers, however, a summer rainfall of not less than 9 or 10 inches is necessary to produce good growth, unless the soil is naturally damp or cool."

To resume the general consideration of the work under review: the author gives an account of the evil effects of wind in this country that requires serious qualification; this matter is of importance, because it gravely affects the question as to the suitability for afforestation of mountain slopes, where so much land is available for the purpose. Mr. Forbes does not appear to realise that the precise effect of wind depends not merely on its prevalence, but also upon its strength and relative humidity. Further, in contrasting the British Isles with the Continent, as regards the altitudes at which forests can be successfully grown, he makes no attempt to show that winds in the former actually or even probably have a greater drying effect than in the latter. Moreover, we cannot admit the accuracy of the following statement: "Examine any wood, clump, belt, or single tree on a western or southern slope within 50 or even 100 miles of the western coast-line of Great Britain, and one invariably finds . . . dwarfed, stunted, and leaning habit of growth." The same impression on the part of the author dictates his statement: "The general effect of such exposure is that mountain land in Great Britain and Ireland is incapable of growing large timber above 700 or 800 feet, apart from glens, exceptionally good soil, or eastern aspects."

In fact, as regards climate and tree growth in these isles, we do not think that Mr. Forbes's conclusions merit acceptance.

Nor can the author's ideas on the nature and effect of soils be accepted. He generally fails to disentangle clearly the effects of climate, especially wind, and of soil; see, for instance, his discussion on the afforesting of mountain slopes. It is certainly true that on many exposed sites where the soil is shallow, large timber cannot now be grown, but here it is often the unsuitability of the soil that is the cause of the impossibility. Such a defect is less serious than a great climatic defect—for it can be ameliorated by preparatory crops, just as the hostile influence of wind can be mitigated by the establishment of woodlands of increasing height. But

Mr. Forbes seems to estimate at a relatively low value both these methods of amelioration. In fact, he goes to the length of stating that "there is probably no good reason for the assumption that afforestation can do more than increase the fertility of a poor soil by a very small, and, in many cases, inappreciable, extent." Whatever meaning be attached to the term "fertility," this statement is amply disproved by the succession of plant formations on bare rock, on sand dunes, and even on spots in semi-deserts, where trees ultimately grow, as well as by numerous analogous cases of artificial afforestation. The improving effect of a crop of trees varies greatly with the species of trees, site, soil, and geological nature of the subjacent rock, but there is no doubt that, for instance, poor, shallow, or purely mineral soils may be vastly improved by the deposit of humus, by the disintegration of subjacent stones and rocks, and by the incidental introduction of animal or vegetable organisms living in the soil. The author arrives at the conclusion that profitable afforestation is impossible at British altitudes exceeding 1,000 feet, also because of the nature of soil, which he describes as follows: "A layer of wet, spongy peat usually covers the natural soil, on the surface of which Sphagnum and other mosses, Lichens, &c., mixed with coarse grass or bog Myrtle, usually predominate." This passage causes one to be surprised at the author's ideas of the constitution of our mountain soils at altitudes above 1,000 feet, rather than at his pessimistic conclusion based thereon.

In conclusion we may add that inasmuch as Mr. Forbes enjoys a wide and well-deserved reputation as a forester, and inasmuch as he occupies an important position in the Department of Agriculture for Ireland, his views are likely to have considerable influence in determining the fate of afforestation in that country. Hence, it is a matter of no ordinary importance to indicate, as we have attempted to do, wherein the principles which guide Mr. Forbes to his conclusions are, as we think, at variance with our knowledge of the physiology of trees.

The work is illustrated by a number of well-reproduced and interesting photographs of woodlands and trees growing on various sites in the British Isles. *Percy Groom.*

FLORESTS' FLOWERS.

NEW SWEET PEAS FOR 1911.

It has been suggested to the writer that he might suggest a few of the best novelties to be grown in addition to the list of 12 varieties which he gave in the issue for January 21. Naturally one turns to the varieties which have been recently honoured with certificates by the Royal Horticultural Society and the National Sweet Pea Society. First and foremost among these is the Silver Medal variety of 1910, Stirling Stent, but it is now impossible to procure seed of this. The supply was nothing like equal to the demand. Instead of Stirling Stent, Earl Spencer might well be grown. It received an Award of Merit from the Royal Horticultural Society when shown by Messrs. Dobbie & Co. In colour it closely approaches Stirling Stent. It was originally raised by Mr. Silas Cole, Earl Spencer's gardener, but it is now in several hands. Two varieties which received awards from the National Sweet Pea Society, namely, Masterpiece and Mrs. Hugh Dickson have been referred to already. Arthur Green, another of Messrs. Dobbie's introductions, is distinct, but in the opinion of the writer will never be a popular flower, and certainly has no claim to be considered decorative. Cherry Ripe (Gilbert & Son, Bourne) is a Spencerised form of Cocinea, and if it proves a vigorous grower will be a welcome addition. Several good varieties which obtained awards from the National Sweet Pea Society in 1909 were not widely distributed until this year,

owing to short crops of seed in 1909. Notable among these is Charles Foster, introduced by Mr. Bolton, Warton. It is most distinct in colour, being a metallic pink with a sheen of lilac over it. Dazzler from Mr. Breadmore, Winchester, is an improvement on St. George, and a most glowing flower as its name indicates. Edrom Beauty, from Messrs. Dobbie & Co., is an improvement on Helen Lewis in many ways. Mr. Unwin, of Histon, is responsible for the finest striped flower yet introduced, namely, Mrs. W. J. Unwin. These might all be termed 1909 varieties offered freely now for the first time, and they are all well worthy of a trial.

A remarkably fine dark variety is Nubian, of Messrs. Isaac House & Son, Westbury-on-Trym. It has been placed at the top of the dark or maroon section of the National Sweet Pea Society on account of its purity and rich chocolate coloring. Two very charming varieties come from Miss Hemus, and they have received the Award of Merit of the Royal Horticultural Society. Paradise Apple Blossom is white, with a deep edge of pale rose, and Paradise Cerise is, as the name also indicates, a warm cerise-coloured flower in the way of Zarina or Queen of Spain Spencer. Another variety which was honoured by the Royal Horticultural Society is named Elfrida Pearson. This was exhibited by Messrs. J. R. Pearson & Sons, Lowdham. Elfrida Pearson is claimed to be superior to Princess Victoria and Mrs. Harcastle Sykes; from what the writer has seen of it he thinks that this claim will prove to be correct.

The Royal Horticultural Society's Award of Merit was also gained by Thomas Stevenson, a glorious, orange-coloured flower, which is being sent out by Messrs. Sydenham, Birmingham, and by Ivanhoe, a warm-toned lavender flower (Messrs. Dobbie, Edinburgh).

From this list of novelties it will not be difficult to select half a dozen for trial, and the grower will doubtless be guided in his selection by his taste and fancy for particular colours. All the flowers are of the waved type. *A. B. C.*

MARKET GARDENING.

GOOSEBERRY PLANTING.

NOTWITHSTANDING the spread of American Gooseberry-mildew, the planting of Gooseberry bushes is on the increase in this district where few persons are cultivating Black Currants owing to trouble caused by big-bud. Gooseberries furnish an excellent crop for undergrowth to plantations, and whilst the trees are coming into bearing the Gooseberry bushes prove remunerative. The market growers do not cultivate many varieties. Whinham's Industry is the favourite sort, but some are growing "Careless," and others Cousin's Seedling. Other popular market sorts are Keepsake and Crown Bob. The demand for Gooseberries by the makers of preserves was good last season, and has no doubt stimulated the growers to further planting.

ROOT-PRUNING IN MARKET GARDENS.

Root-pruning is little practiced by market growers, but the work well repays the trouble. Any Apple or Pear tree which, whilst growing well does not give a satisfactory crop, should be root-pruned at once. The current year's supply of fruit is not endangered by judicious root-pruning, though the fruit may be smaller. A 14-year-old tree of Bergamot Pear which, although it flowered, never set fruit until root-pruned 50 years ago, has since borne a crop annually. In no instance have I ever had to root-prune the same tree a second year, unless the tree was to be lifted. My plan is to open a half-circular trench around the tree, and cut away the tap roots, filling in the trench with good soil. *Stephen Castle, Walspole St. Andrew.*

THE ALPINE GARDEN.

HOW TO BUILD A MORAINE.

A **MORAINE**, such as the many lateral ones which are found just below the Wellhorn, and close up to the rugged ice-fall of the Rosenlauf Glacier, which comes down from the Wellerhorn, in the Bernese Oberland, consists of broken stones, that have been pounded apart by glaciers, or disintegrated by frost. These stones or portions of rock accumulate by the side of ice

washed sand for making the concrete. At the lowest part of each compartment, I inserted the upper third of a champagne bottle to act as a valve, which could be securely corked during the summer. The bottle may be cut easily by heating it in a gas flame at the part where it is to be severed, keeping the bottle rotating the whole time. When very hot, plunge the bottle into a bucket of cold water up to the desired place, and it will part in two as cleanly as if cut with a diamond.

On the top of the concrete walls I cemented

pieces of rock, which gave a finished appearance to the moraine. Small spaces were left between these pieces of rock, so that, when the upper compartment was full of water, it could overflow into the lower one. The water level of the compartment was 6 inches or 8 inches from the top of the wall. The bottom of the moraine was filled with rough rubble and pieces of stone to the depth of 4 inches. This acted as drainage, affording a free channel at the bottom for the water to reach the valves. Smaller pieces of stone were filled in the spaces between the larger ones, to prevent the stony "soil" from above sifting down and choking the valves. The compartments were then filled with small, stony grit and fairly hard brick rubble that had been passed through a $\frac{1}{2}$ inch mesh sieve. These siftings were put through a very fine sieve to get rid of any dust. This is important, since fine, powdery sand would clog the drainage.

On the surface were arranged large pieces of stone, to give a rugged effect and provide stepping stones (see fig. 53). Water was allowed to trickle down the rocky side into the upper compartment, and overflow into the lower one, finally trickling into a bog-garden. *Reginald A. Malby, Essex.*

(To be continued.)

TREES AND SHRUBS.

WILLOW TREES KILLED BY ARMILLARIA MELLEAE.

The fungus, *Armillaria mellea*, is probably the most destructive root parasite of Conifers in this country, but, with the exception of the Birch, it attacks dicotyledonous trees with comparative rarity. It may be of interest therefore to give some details of a recent case in which this fungus proved to be very destructive to Willow trees (*Salix alba*).

Last summer, a Norfolk landowner who grows this species for the production of wood for cricket bats, noticed that a considerable number of Willow trees in the separate woods died rather suddenly. My attention was directed to the matter, and it was ascertained that *Armillaria mellea* was the cause of death of these trees. During October the fructifications of this fungus were present in great abundance in these woods, and from some of these fruit-bodies it was an easy matter to trace back the well-known



FIG. 52.—MORAINE GARDEN: SHOWING THE WATER-TIGHT WALLS AND MATERIALS FOR DRAINAGE.

streams, and vary in size from specimens a few feet across to fragments as small as shingle or grit.

The constant stream of snow water which runs through them washes away all fine particles of soil, leaving it a waste of soaking stone and shingle. It is probable, however, that, during the summer months, vegetable dust gets drifted or blown on to the moraine, and affords the plants nourishment. The moraine is copiously supplied with ice-cold water all through the growing season, but as soon as the temperature becomes so low that the growth of plants ceases, the supply of water is automatically cut off by the freezing of the glacier, and this is usually followed by a fall of snow. The snow may be several feet thick, and forms a protective covering to the plants till spring.

These are the conditions which need to be imitated as closely as possible in making a moraine garden. In my own case, operations were commenced by digging out the soil in one corner of the rock garden (see fig. 52), about half way from the summit, and in full exposure to the sun. Two compartments were excavated, one above the other, and each about 18 inches deep. The floor of the upper was about 3 inches above that of the lower compartment, and both sloped a little towards the front. The compartments were made watertight by forming the floors and walls of concrete, using well-



FIG. 53.—MORAINE GARDEN WHEN COMPLETED.

subterranean strands of the fungus to the roots of the affected trees. *Armillaria mellea* usually develops a parasitic manner of growth after having lived some time previously as a saprophyte; in these particular woods it had doubtless commenced its saprophytic existence on the stumps of the trees which remained after the felling of a former year.

It is common knowledge that this fungus enters the tree by the roots, whence the mycelium advances towards the base of the stem. By stripping the bark from the roots or collar of an affected tree one readily recognises the snow-white sheets of mycelium characteristic of the fungus when living parasitically.

In the woods to which reference has been made, Ash trees have been planted amongst the Willows, and so far not a single Ash has been affected by the fungus. It would seem, therefore, to be advisable to replace the dead Willows with Ash trees. The disease is so generally distributed in the woods that the operation of cutting trenches around affected trees in order to prevent the subterranean strands of the fungus from spreading to other trees would probably be of little avail in this case. *F. T. Brooks, Cambridge.*

NURSERY NOTES.

MESSRS. JAMES VEITCH & SONS,
CHELSEA.

A RECENT visit served to show that, whilst many subjects have been removed to the nursery at Feltham, others still thrive well in the old nursery at Chelsea. The Javanese Rhododendrons, as befits a class of plants that may be said to have originated on the spot, seem to be little if at all affected by the London atmosphere, and even in January the following varieties were all in bloom:—*Amabile*, pale flesh colour; *balsaminæformis roseum*, double flowers, pink, suffused with yellow; *Exquisite*, yellow, with a rosy tinge; *Edward VII.*, a grand flower of a rich yellow colour; *Imogene*, buff yellow; and *Ne Plus Ultra*, crimson-scarlet. Two delightful hybrids from the dwarf, compact-growing *R. multicolor* are *Ruby*, with rich, ruby-red flowers, and *Mrs. Heal*, pure white. These two varieties are, apart from their compact habit, remarkable for their shallow, thimble-shaped blossoms. From *R. malayanum*, a small but brilliant-flowered species, has been obtained *Little Beauty*, a distinct and richly-coloured form. It is a plant of upright growth, with narrow, somewhat Willow-like leaves, and tiny flowers borne in dense clusters.

Numerous examples of hard-wooded plants were represented in flower, including the following species:—*Erica hyemalis*; *E. gracilis vernalis*, quite distinct from the autumn-flowered form; *E. melanthera*; and *E. ovata*, a slender, bushy species, with roundish, mauve-coloured blossoms. *Daphne indica rubra*; *Acacia Drummondii*, one of the best of the small *Acacias*; *Camellias* of sorts, the varieties being represented by neat, bushy plants, full of blossom; *Grevillea alpina*, a curious, yet pretty, free-flowering Australian shrub; *Eriostemon densiflorum*, laden with its white, starry blossoms; *Correa ventricosa*, and *Veronica formosa (diomsæfolia)*. *Azaleas* were very showy, particularly *Deutsche Perle*, that well-known white variety; *Simon Mardner*, deep-rose, very double; *Madame Hermann Seidel*, white, occasionally striped with red; and *President Oswald de Kerchove*, rose, blotched with carmine, and having a light border.

Amongst what may be regarded as ordinary flowering subjects for this season may be noted *Lilium longiflorum* and *L. speciosum* from retarded bulbs, *Roman Hyacinths*, *Narcissi*, *Lily of the Valley*, *Marguerites*, *Moschosma riparium*, *Euphorbia fulgens*, and *E. (Poinsettia) pulcherrima*.

Less common plants in bloom included *Psychotria (Glouneria) jasminiflora*, a stove shrub,

native of South America, whose clusters of pure white flowers are very suggestive of those of a *Bouvardia*; *Luculia gratissima*, as small plants, each carrying a single head of blossoms; *Aphelandra aurantiaca* *Roezlii*, with terminal heads of vermilion flowers; *Torenia asiatica*, a pretty, trailing plant, whose flowers, violet, blue and white in colour, are freely borne; and *Dalechampia Roezliana*, an Euphorbiaceous plant, with rosy-pink bracts. Lastly, may be mentioned *Acanthus montanus*, a tender member of the Bear's Breech family. It is a native of West Africa, and forms an upright plant, with spiny leaves, the principal veins being of a lighter hue than the rest of the leaf. The flowers, borne in a terminal spike, much resemble those of the hardy kinds. They are white and rose. This species was given a First-class Certificate two years ago by the Royal Horticultural Society.

Gesnera Aurora, which Messrs. Veitch exhibited at the Horticultural Hall on January 3 last, is a delightful, winter-flowering subject. It well repays close inspection, for its charms are so many that they are not revealed at a casual glance. In its handsome, red-marbled, velvety leaves it somewhat suggests *Gesnera zehriana*, next comes the beauty of its flowers, which are of a rich orange colour, heavily suffused on the exterior with vivid scarlet, and dotted inside with bright red. The flowers, too, are not limited to the terminal spike, but they are borne all along the stem, a most notable feature.

Rhododendron Early Gem was seen in a fine group, which had been forced into bloom; the little bushy plants were laden with mauve-coloured blossoms.

Some of the *Laelio-Cattleyas*, *Odontoglossums*, also *Sophranitis grandiflora* and other species, went to make up a goodly show of Orchids, but, as might be expected at the present season, the greatest floral display is afforded by the *Cypripediums*. *W. Truelove.*

THE IMPERIAL DEPARTMENT OF AGRICULTURE IN THE WEST INDIES.

(Continued from page 85.)

A gratifying proof of the value of the work of the Imperial Department of Agriculture is the formation of a series of departments on somewhat similar lines in other portions of the Tropics. The first of these was the important Imperial Department of Agriculture in India. This was followed five years ago by the formation of the Department of Science and Agriculture in British Guiana under the control of Professor Harrison. The other agricultural departments that have been since formed are those in the Federated Malay States, British East Africa, the Gold Coast, Southern Nigeria, and more recently at Jamaica under Mr. Cousins, and at Trinidad under Professor Carmody. A similar Agricultural Department is in course of being formed at Barbados under Mr. Boyell. It is interesting to note that two officers trained in the West Indies (one of them Mr. Maxwell Leffroy) are attached to the Imperial Department of Agriculture in India, two (the Director and Mycologist) attached to the Agricultural Department in the Federated Malay States, one in British East Africa, one in Fiji, and three in the Indian Provincial Departments of Agriculture. It is noticed that in a recent article in the *Standard* it was recommended that the new Agricultural Department in Egypt should also follow "on the lines of the Imperial Department in the West Indies."

It is sometimes remarked that the planters in the West Indies have been slow to try new methods or believe in new introductions. In this they may be only following the attitude of planters in other countries and of our own farmers at home. So far as the West Indies are concerned, the remark has never been generally true, and I am in a position to state that it has become less and less true in recent years. It is a sign of awakening in agricultural matters when the planters at Trinidad and Grenada voluntarily agree to an increase of the export duties on their produce in order to provide larger funds for obtaining scientific advice and assistance and extend agricultural efforts in those Colonies. The

improvement in the methods of cultivation and manufacture of sugar, as already shown, have been largely extended by the planters themselves, as also greater attention has been devoted by them to the introduction of improved varieties of Sugar canes, the more skilful use of artificial manures, and the more effective treatment of diseases. New implements and machinery are being introduced and tested, and the results of the work of the experiment stations are carefully observed and adopted when found of real advantage. There is also, I am happy to say, a more cordial spirit existing between the planters, both large and small, and the scientific workers. It may be the latter are becoming more agricultural and the planters more scientific. In any case, there is hope that by the hearty co-operation of both planters and experts, agriculture in the West Indies will be placed on a sound and progressive basis.

In discussing the progress of agricultural efforts in the Tropics, it is impossible to overlook the valuable services rendered for more than half a century by the Royal Gardens at Kew. Three successive directors of that institution have given their gratuitous services as advisers to the Colonial Office, and the Botanic Gardens at Ceylon, Singapore, Malay States, Mauritius, Jamaica, Trinidad, and British Guiana have been utilised as centres for the distribution of new economic plants sent out from Kew and for the dissemination of information which undoubtedly laid the foundation of much of their present prosperity. Similar work was also done for the Indian Empire. In addition, a systematic investigation of the local floras was undertaken, and we owe the existence of a series of standard botanical works relating to India and the Colonies, as well as the unique collections of Indian and Colonial products and specimens accessible to scientific and commercial men in the museums of the Royal Gardens, Kew has also trained and sent out scores of capable men, who, in their own particular sphere, have rendered valuable services in all parts of the Tropics.

Perhaps the most striking service rendered by Kew was the successful introduction of *Cinchona* (or quinine-yielding) trees from Peru to India and Ceylon. Also the introduction of the Para and other rubber trees from Brazil and Central America to the East. It is these latter which have made it possible to establish the important rubber industries now existing in India, Ceylon, and the Federated Malay States. This is a favourable opportunity of bearing testimony to the splendid services rendered by the greatest of living botanists, Sir Joseph Dalton Hooker, who is still among us, and who follows with deep interest the results of his father's and his own efforts to develop the resources of our Indian and Colonial Empire. It would be impossible to overlook, also, the exceptionally large share taken in similar work by my friend Sir William Threlkeld-Dyer, who for more than 30 years ably maintained the traditions of Kew and ungrudgingly devoted himself to Colonial matters.

THE ROSARY.

BARDOU JOB AND PAUL'S
SINGLE WHITE.

BARDOU JOB is often described as a desirable pillar Rose, but I do not recommend it, as the stems are apt to become bare of shoots, and, in consequence, the plant presents a naked appearance. Paul's Single White is a much better variety as a climber, being more vigorous, with a tendency to make lateral growth. But if the shoots of both sorts are pruned quite close in the manner of the H.F. section vigorous growths will result, and these will continue to flower all through the summer and well into the autumn. The plants are induced to make ample foliage by this treatment, and the leaves enhance the beauty of the flowers.

ROSE PRESIDENT TAFT (SPITFIRE).

This variety is an addition to the hybrid China Roses, and it has many good points. In growth it is vigorous, yet compact, carrying abundant foliage, which in colour resembles the leaves of *Grass an Tepitz*. As a bedding Rose in a mass it should be valuable, as the plant flowers freely. The colour of the blossoms is a bright blood red, whilst the pleasant perfume is not the least valuable attribute of this new variety. *E. M.*

The Week's Work.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

RAISING VINES FROM EYES.—For this method of propagation, the eyes may be started by putting the shoots thickly together in boxes containing leaf-mould, and placing them in a Melon pit or other forcing house. When the shoots have callused over, and roots are beginning to show, an excellent plan is to insert them into square pieces of good turfy loam, about 4 inches square, placing one eye in the centre. If the loam is moist at the time of planting, little water will be required beyond the usual syringings necessary to promote a good growth and keep the young foliage clean. When it is intended to plant the young vines in their permanent quarters in April, I prefer to give them a further shift into a larger turf in preference to planting them in pots, as, by so doing, there is no danger of breaking the roots, and the young plant receives no check. Whilst making their growth, the plants should be exposed fully to the light, and the shoots must be secured to sticks and not allowed to become entangled with one another. When the roots have multiplied in the new soil, occasional waterings with diluted liquid manure will be beneficial, and a sprinkling of a quick-acting patent manure may be also given. The turves must be moved occasionally to prevent the roots from entering any other soil. Those that receive a shift into pots and are intended for pot culture must be watered carefully until the roots have got a good hold of the new compost. Air should be admitted freely, but with discretion, as it is of great importance that the growth shall be strong and vigorous.

EARLY PEACHES.—The disbudding of the growths on early trees should be commenced as soon as possible, and should be done gradually, removing first all those shoots that are badly placed, finally leaving the best shoot at the base of last season's growth, with the leader and an intermediate one when the shoots are of a good length. Nothing is gained by allowing too many growths to remain, and the earlier the surplus shoots are removed the better. When the roots reach a length of 4 or 5 inches, these should be tied in, putting the first tie near to the base of the shoot. Twin-formed or malformed fruits should be removed, but do not thin out the fruits too severely at present, as the thinning may be continued. Syringe the trees at intervals in bright weather, and damp the houses frequently. During severe weather, when extra fire-heat is required, damp the houses last thing at night. Give the borders a good soaking of water if the soil is at all dry, but, before applying the water, lightly fork in a good sprinkling of artificial manure. Keep the borders free from weeds, and remove any suckers that may come from the roots by tracing them down as far as possible to their origin and cutting them off. Ventilate the houses gradually when the temperature commences to rise in the morning, and close them early in the afternoon, taking the fullest advantage of the sun's rays. Make sure that a gentle warmth is circulating in the water pipes before the sun-heat declines.

SUCCESSIONAL PEACH HOUSES.—Houses containing permanent Peach trees for supplying a succession of fruits must be started according to the time ripe fruits are required. The trees should be forced gradually into growth. If the borders show signs of dryness, give a good soaking of clear water before closing the houses. Houses containing trees of late varieties intended for providing a few dishes of fruits very late in the season must be kept as cool as possible. Open the ventilators to their fullest extent whenever possible, and the lights can be removed temporarily; these should not be replaced until the trees show signs of growth. Attend to Peach trees in flower, and, if the weather is bright, open the front ventilators to ensure a free circulation of air. If the weather is cold and dull, continue to pollinate the flowers as recommended for early Peaches. Late trees should receive a slight fumigation before the flowers expand.

STRAWBERRIES.—Continue to introduce fresh batches of plants to ensure a succession later in the season. If shelves are not available for staging the plants, they may be placed in warm pits near to the glass. Plants in flower should be afforded a position where a free circulation of air can reach them. The earliest batches of Strawberries that are swelling their fruits should be placed in a warm house, where a night temperature of from 60° to 65° may be maintained. The plants will require plenty of water and food. Keep the pots and the foliage well moistened by syringing with tepid water. Mildew frequently attacks the plants, especially those of the earliest batches; if any sign of mildew is detected dust the affected parts with flowers of sulphur. Plants that have set fruits imperfectly or are in any way inferior should be discarded at once.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

MEXICAN LÆLIAS.—The Mexican Lælias form a most useful class of Orchids for flowering in winter. *L. autumnalis*, *L. Gouldiana*, and the coloured varieties of *L. anceps*, are compact growing plants that flower freely from Christmas time until the end of January. But even more beautiful than those already named are the white varieties of *L. anceps* that flower during the latter part of January and early in February. The flowers of the white varieties last longer in a fresh condition than those of the coloured forms, and they are most valuable as cut blooms. In some gardens there is a difficulty in getting the plants to flower well, but this is due to imperfect knowledge as to their cultural requirements. A great point to observe is to allow the plants a proper period of rest, which does not mean the withholding of moisture to such an extent as to cause the plants to shrivel, but rather treatment that will cause a natural cessation of growth after the plants have passed out of flower; the longer they are allowed to enjoy this rest the better will they flower in the following season. During this resting period the plants should be placed in a light position in a well-ventilated house, and they should be given just enough moisture to keep the pseudo-bulbs in a plump condition, and the roots, which are active during this stage, in a healthy condition.

AFFORDING FRESH COMPOST.—As already stated the roots of these Lælias are active during the so-called resting period, and it is usual for the plants to produce a cluster of new roots from the latest formed pseudo-bulbs soon after flowering. As soon as these new roots are observed, the plants should be examined, and any that require it afforded some fresh compost. Do not disturb any of the plants unless the condition of the compost necessitates it. In the case of those plants that are not disturbed, it must be seen that the rooting material is not only in a proper condition, but that it is likely to remain so for some considerable time. In cases where repotting is decided upon, shake the old compost from the roots, remove any dead roots, and useless pseudo-bulbs, taking a special care to preserve as many of the healthy roots as possible. If the plants are to be suspended from the rafters, teak-wood baskets will be the best receptacles, but pots and pans may be employed if they are to be grown on the stage. The receptacles should be of a sufficient size to accommodate the specimens for a few years without need of further disturbance. In repotting, place the growths in such a manner that the rhizomes will have a considerable distance to grow before reaching the sides of the baskets or pots. These Orchids do not need a great quantity of rooting material, and the little that is afforded should be of a very porous nature, and plenty of drainage should be provided. The compost may consist of Osmunda fibre two parts, Sphagnum-moss one part, and Polypodium fibre one part. Press the materials firmly about the roots and finish with a surface layer of pure Osmunda fibre. When top-dressing takes the place of repotting some of the old rooting material should be removed, also the dead roots and useless pseudo-bulbs; the drainage material should be examined and put in order, and then a fresh layer of compost added, but do not use too much material. Plants that have been repotted are best accommodated on a stage, where they

may be sprayed overhead during fine weather, until the roots are growing freely in the soil. On no account allow the rooting material to become sodden with moisture, as this would cause the new roots to decay. Another important factor in the successful culture of these plants is cleanliness both from dirt and insect pests. Admit a liberal supply of fresh air whenever the weather is favourable.

THE KITCHEN GARDEN.

By JOHN DENN, Kitchen Garden Foreman, Royal Gardens, Windsor.

ASPARAGUS.—The present is a good time to prick over the surface of Asparagus beds with the point of a digging fork. If any manure from the autumn dressing remains on the surface and is likely to retard the growth of the young shoots, it should be removed, and dug into the alleys, in order to lighten the soil for next season's covering. As digging proceeds, some of the lightest soil procurable from the alley should be spread over the surface of the beds until the crowns are 6 inches under the surface. The beds should then be lined out about 1 foot from the outside row of plants. If new plantations are to be made, the ground should be trenched at once, and a liberal supply of farmyard manure applied. In choosing the ground for new beds, that with a porous sub-soil should be selected if possible; but if the soil is of a heavy, retentive nature, means must be devised to render it more suitable for this crop. In trenching soil of this nature, the bottom should be well broken up to the depth of 4 feet, and a quantity of old rubble or any porous matter mixed with it; rough river sand also may be applied for this purpose. Asparagus will not grow to perfection in soil of a stagnant nature. When the time for planting arrives, a stout stick should be driven into the corner of each bed, and the centre row planted in the middle. The two outside rows may then be planted 1 foot from the edge of the bed, and 18 inches from the centre row. An alley of 3 feet should be allowed between each bed. Planting should not take place before April, and no time should be lost when once the plants have been lifted until they are placed in position and covered with 2 inches of fine soil. There can be no greater mistake made than to allow young Asparagus plants to remain unplanted after receipt from the nursery.

FRENCH BEANS.—French Beans sown in pots a month ago will now be ready for top-dressing. Place a few sticks round the plants to keep them in an upright position, and water them freely with diluted liquid manure, keeping the syringe at work amongst the foliage to prevent red spider. Frequent small sowings in pots should be made, and placed in a temperature of 65°. If heated pits are available, Beans may be planted in rows 18 inches apart, and covered with 2 inches of soil. The soil for this purpose may consist of loam and leaf-mould, and it should be at least 9 inches deep, so that frequent waterings may be unnecessary.

LETTUCES.—The Lettuces raised from seeds sown in October will now be ready for planting on a south border, putting them in rows 1 foot apart, and protecting them from rough winds. If Lettuce seeds were sown early in January, the seedlings will soon be ready to prick into a cold pit, where they should be allowed to remain until ready for cutting in April.

PARSLEY.—Seed may be sown now in boxes and placed in gentle heat for raising plants destined to be grown in some sheltered part of the garden in April. A sowing may be made about the end of the month to afford supplies through the summer. Parsley is a deep-rooting plant, and repays for liberal cultivation. This sowing should be made in an open position, and when the young plants are large enough they should be thinned to 9 inches apart in the rows.

CARROTS.—If seed was sown in pits in December, the seedlings will now be ready for thinning. This should be done before the young plants become drawn, allowing 3 or 4 inches between the plants each way. Give a gentle watering after the crop has been thinned to settle the soil about the roots. Admit air freely when the weather is favourable, and keep the crop well supplied with water.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tyninghame, East Lothian.

THE PLEASURE GROUND.—Any alterations that may be necessary in the lines of paths in the pleasure ground should now be carried out. It is difficult to alter parts of paths unless the alterations are allowed to extend to portions that may seem scarcely to require anything done to them. Therefore, before beginning operations, the lines should be marked clearly by laying a not very thick rope along the parts which it is proposed to alter, and carrying it far enough to join the new to the old without the linking-up being detected. The lawn grass has started to grow, and the lawns should be swept and rolled preparatory to mowing them. It is usual to apply a dressing of lawn sand at this season to lawns infested with Daisies, and in gardens where Daisies are disliked this treatment should be carried out at once. In this establishment, Daisies are destroyed only on the bowling green, and the seedlings are picked out by means of a blunt knife, as are also Hawk-weeds (*Hieracium*) and Plantains (*Plantago*) later in the year. If Stinging Nettles (*Urtica*) are growing anywhere near, they may also be looked for among the shrubs; but they are quite easy to eradicate. The stolons spread only a few inches below the surface, and a workman with a spade which he can pass under the plants and upraise them, will soon cleanse a large area of ground. The Spear Thistle (*Carduus lanceolatus*) also infests shrubberies, and the application of a few drops of sulphuric acid to the centre of each plant is a certain means of destroying them.

DAHLIAS.—In order to obtain a supply of cuttings the old tubers should be introduced into a heated structure. It may not appear necessary to plant the tubers in soil, as they will make plenty of growth if they are merely placed on a bed and kept moistened, but experience teaches that Dahlias, as well as some other plants, form shoots that strike more readily when they have to push their way through soil, leaf-mould, or cocoanut fibre. The old crowns should therefore be covered to a depth of 2 inches with either of these materials, and, as soon as these growths are large enough, they should be severed quite close to the crown. Some good propagators reject the first shoots, selecting only the later ones. Dahlia cuttings form roots readily in an ordinary propagating bed, but they must not be allowed to flag through exposure to bright sunshine.

SALVIA PATENS.—This *Salvia* may be propagated in much the same manner as Dahlias. The tubers may be placed in boxes of leaf soil, and, when the cuttings are formed, they may be dibbled into boxes of light soil, where they will soon form roots.

VERBENA VENOSA.—If the old plants of *V. venosa* have been saved, a stock may easily be raised from the stronger roots. These should be cut into short lengths, each with two "eyes," that are produced opposite to each other; these will give rise to two growths.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

CHERRIES.—The pruning of Morello Cherries growing against north walls should be completed as soon as possible. The pruning and training of this variety differ somewhat from those of sweet Cherries, for the trees bear less frequently on spurs than on the wood of the previous year. The method of pruning and training, therefore, should be carried out on similar lines to that adopted for the Peach and Nectarine, cutting away old or useless branches and retaining the young growths, almost or quite their entire length. All Cherries are impatient of severe pruning, and the less the knife is used the better. Much may be done by summer pinching to keep the spurs and young growths within reasonable bounds, and so restrict the use of the knife, which not infrequently is the direct cause of gum and canker. Orchard or standard Cherries require careful annual pruning, always bearing in mind that varieties differ considerably in habit. Branches inclined in a crosswise direction should be promptly removed or reduced; the rubbing of branches should be avoided at all costs. The pruning of older trees, already trained into the required

shape, consists, principally, in cutting back all side growths to two or three buds from the base, and the shortening of extra strong or long leaders. The buds remaining on the latter will, in their turn, produce side spurs and clusters of fruiting buds during the following season. Trained trees growing upon south or west walls are the most reliable for the production of choice dessert fruit. With careful cultivation, fruit may often be grown equal to that produced under glass. Trees of this description usually blossom profusely, hence the necessity sometimes of carefully thinning or shortening some of the fruit spurs. As standard trees, May Duke, Bigarreau, Knight's Early Black, Bigarreau Napoléon, Noble, and Kentish, are some of the most reliable dessert varieties to grow; whilst Early Rivers, Elton, Frogmore Bigarreau, Bigarreau de Schrecken, Black Eagle, Géant d'Heldeffingen, Black Tartarian, Windsor, and Florence, are all excellent dessert varieties suitable for wall culture.

NUT TREES.—The present is considered by some to be the correct time to prune Nut trees; whilst others favour a much earlier date, at which time there is little or no risk of injury to the flower-buds now in an advanced state; but, by pruning late, the male catkins have had time to serve their purpose, and the infertile branches are more easily discerned. The pruning should consist mainly in keeping the spurs and branches well thinned, cutting back or removing all strong-growing branches, and in clearing away all suckers growing at the base of the stem. Promptly destroy all trees that are in a sickly condition. Trees that receive liberal treatment and a systematic course of pruning, usually bear remunerative crops of fruit. Filbert bushes are often deficient in catkins. It is, therefore, a good plan to plant some tree-blooming varieties amongst the choicer varieties, to act as aids in fertilising the female blossoms. The White, Kentish, Purple and Red-skinned Filberts, and the Kentish and Costard Cobs, are the best varieties to grow to maintain a supply of Nuts throughout the year.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gannerysbury House, Acton, Middlesex.

THE CONSERVATORY.—Camellias are expanding their blossoms, and the plants will need a slightly increased supply of water. Do not, on any account, allow the roots to become dry, and specimens in tubs or pots will need a closer attention in this respect than those planted out. *Luculia gratissima* will soon begin to expand its fragrant blossoms; as a plant for a conservatory border there is scarcely its equal, and it is remarkable that it is not more frequently seen. It should be grown in a well-drained border, in a position not overshadowed by other plants. A mixture of loam and peat, the latter predominating, will suit the *Luculia*, and spring is the best time for planting. *Salvia Heeri*, a slender-growing and rather tall, scarlet-flowering species, is another excellent plant for decorating the conservatory at this season. A few of these plants may be employed as backgrounds to dwarfier subjects, being as suitable for the purpose as forced shrubs. Magnolias flowering in tubs are remarkably showy at this season, as are also Lilacs, Deutzias, varieties of *Prunus*, Wistarias, and other flowering shrubs. Various bulbous plants will now flower quite easily, and there will be no need to hasten them into bloom. Endeavour to secure plants with short, sturdy growths, such as are obtained by the market growers. Summer-flowering plants, such as *Fuchsias* and *Daturas*, in conservatories should receive the necessary pruning and training. Climbers should also be attended to. Look carefully for the presence of insect pests, for this is the season when they can be destroyed most easily. Do not employ high temperatures either by day or night: 45° after nightfall, with a rise to 50° by fire-heat during the day, will be suitable. The blinds will be needed in a few weeks' time, therefore see that they are in proper order.

PALMS.—The various Palms that are grown for decorative purposes may need a thorough overhauling, and the present is much the best season to attend to this work. Kentias, which are the finest Palms for the decoration of dwelling-rooms and corridors, are always in the best

condition when the pots or tubs are well filled with roots; but increased rooting space must be afforded as the plants become larger. Overhaul the stock and, where needed, afford a slightly larger receptacle. In doing this, do not disturb the roots more than is necessary, for if the roots are reduced the plants will need very great care and attention for several months afterwards. Fibrous loam mixed with good peat and some well-broken mortar rubble added, forms a suitable rooting medium for Palms. Take care to pot firmly, and allow a fair space at the surface for watering. Afterwards, if it is possible, keep the plants in a genial growing atmosphere at a temperature of about 55° Fahr. at night, with a slight increase by day. Palms that do not require repotting may be given a top-dressing and an occasional application of a stimulating manure. After several years' experience, I consider Standen's chemical manure the best manure for Palms. It is more powdery than most artificial compounds, and is easily absorbed into the soil, and as readily assimilated by the plants. A pinch given once a week is ample for plants of medium size. After a few applications of the fertiliser, the foliage assumes a darker green colour. Look closely for insect pests, especially scale and red spider.

THE FRENCH GARDEN.

By PAUL AGATIUS.

HOTBEDS.—The mild, dry weather has been favourable for the making of the hotbeds on which cloches will be placed. The beds should be completed within a week or so from this date. Those which were made first have been planted for more than a week, and in each space between the cloches on the south side another Cos Lettuce "Grey of Paris" will be set at once to form the second batch. The plants are placed deeply in the ground, and made firm at the roots. The paths between are kept level with the soil in the beds to prevent the latter being displaced and to facilitate the changing of the cloches. The paths are filled, as often as necessary, with dry, well-broken manure. The Carrots in the frames are well through the soil; they are liable to damp-off, therefore, keep the Lettuces and Radishes in the same frames as the Carrots free from decayed leaves, and allow plenty of light to reach the plants, covering the frames only in case of frost.

FRAMES WITHOUT HOTBEDS.—The Radishes are coming through the ground, and the Lettuces have grown well during the recent fine weather. Where the Lettuce "Little Gem" is grown, ventilation is given moderately and in fine weather only, but where the variety "Passion" has been planted fresh air must be given whenever possible. Most of the cloches are now at liberty; those intended for this branch of the French garden must be placed in position without delay. When cabbage Lettuces and Cos Lettuces are grown under the cloches, a few seeds of Carrot "Chantenay" may be inserted as a catch-crop before placing the cloches in position; should Cauliflowers and Cabbage Lettuces be planted, Radishes or Spinach may be chosen as the intercrop, as the Cauliflowers would require the room before the Carrots are ready for market.

NURSERY BEDS.—The first main sowing of Melons should now be made in a greenhouse, or in a sheltered part of the garden where a hotbed 18 inches thick has been made to accommodate one light. This batch will supply strong plants by April, when the frames and lights from the unheated frames will be at liberty. A few seeds of self-blanching Celery, either Golden Chémou or Pascal, should be inserted on a mild hotbed. This crop must be grown without a check, as the plants are liable to run to seed early in July.

CROPS IN THE OPEN.—The seedling "Passion" Lettuces should now be planted in the open at a distance of 10 inches apart each way, which will give about 2,000 plants for a full-sized bed measuring 65 feet by 11 feet. Spinach or Radish should have been sown previously on the same site as an intercrop. The plants must be set deeply and made firm at the root to withstand the effects of heavy winds and rains. A well-sheltered bed may be sown with Carrot "Chantenay." The seeds should be covered with a good layer of well-decayed manure, in order to promote a quick growth of clean roots.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEBRUARY 20—

Nat. Chrys. Soc. Executive Com. meet.

WEDNESDAY, FEBRUARY 22—

Irish Gard. Assoc. and Benev. Soc. meet.

THURSDAY, FEBRUARY 23—

Women's Agricultural and Horticultural International Union Dinner at Imperial Restaurant, Regent Street.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—39.7°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, February 15 (6 P.M.): Max. 49°; Min. 40°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 16 (10 A.M.): Bar. 30.3; Temp. 49°, Weather—Dull.

PROVINCES.—Wednesday, February 15: Max 55° Ireland S.; Min. 38° Hull.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Herbaceous Plants, Hardy Bulbs, Lilies, &c., at 12; Roses, Fruit Trees, &c., at 1.30, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—

Hardy Bulbs and Roots, Lilies, Perennials, &c., at 12; Roses, at 1.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

Imported Cattleya Mossie and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.45.

The Royal Horticultural Society.

The 107th annual meeting of the Royal Horticultural Society passed off most satisfactorily. As Sir Trevor Lawrence said in his opening remarks, if there were any Fellows who were dissatisfied with the state of the Society as revealed in the report of the Council for 1910, they must, indeed, be "singularly constituted." The only word of criticism was a complaint from Mr. Elwes that the Society, notwithstanding that it made a profit last year amounting to over £8,000, nevertheless is issuing a journal distinctly inferior to the *Transactions* published by the Society at an early period of its history. Mr. Elwes's remarks were supported by Mr. Engleheart, and the President promised that the subject should receive the careful consideration of the Council.

The meeting was glad to have the assurance of the President that the future custody of the Lindley Library had been made perfectly safe, and a small Committee had been appointed to advise the Council in respect to the purchase of books. He declared that the intention of the Council was to make the Lindley Library the best horticultural library anywhere. For the rest there was not much needling comment. Sir Trevor Lawrence referred to some of the

principal items in the report, and these were almost without exception of a satisfactory nature. His remarks on the Olympia Show seemed to point to the probability that this year the Society's summer show will be of such a character and extent as to excel any similar exhibition which has been held in London during the present generation. The great area covered by the Olympia building will provide an opportunity for arranging the exhibits in a different fashion to that in which they have been seen at the Temple Shows, or even at Holland House, and in this respect, the Olympia Show may foreshadow the greater and more important International Exhibition to be held at Chelsea next year.

In referring to the obituary list, the President made good an omission in the Annual Report by mentioning the name of Dr. Melchior Treub, the great Dutch botanist, who died in October last.

The presentation of the Victoria Medals was a pleasant incident of the meeting, and following the presentation of these medals, Mr. Harry J. Veitch was presented with the Lawrence Medal for a series of highly-meritorious exhibits made by Messrs. James Veitch & Sons during the past year. This is only the third occasion on which the Lawrence Gold Medal has been awarded.

The speech of the Society's treasurer, Mr. Gurney Fowler, was a plain statement of financial progress. He showed that every possible means is being taken to secure the Society against insolvency and to provide for deteriorations. In these respects the present condition of the Society is eminently satisfactory, and there is every reason to congratulate those responsible for its management. As Sir John Evelyn remarked, when proposing a vote of thanks to Sir Trevor Lawrence, there have been eight Presidents of the Society, but never, during any former presidency, has there been such extraordinary developments and prosperity as have been achieved since Sir Trevor Lawrence first presided over the deliberations of the Council.

Sir Trevor has contributed very greatly to this success, and he has been assisted by the present secretary, the Rev. W. Wilks, to whose sagacity and indomitable energy the President paid a very high tribute.

The various committees are usually remembered on such occasions as the annual meeting, and Sir Trevor Lawrence on Tuesday referred to the valuable services they render the Society. Mr. W. Marshall, who has presided at the Floral Committee for twenty-six years, will now have the assistance of Mr. Henry B. May. These gentlemen will act as joint Chairmen of the Committee, Mr. May upstairs, where the novelties are inspected, and Mr. Marshall downstairs, where the groups are judged for awarding the medals. Mr. Marshall's sense of hearing is slightly impaired, and this fact has caused him to seek Mr. May's co-operation.

The Proposed Daffodil Society.

There appears every indication that a sufficient amount of support has been promised towards the formation of a Daffodil society to ensure the realisation of the project, provided that the promoters decide that such a policy is the best that is open to them. In regard to the general question of forming a society, it may be admitted that a live and

corporate body with headquarters in London would be decidedly advantageous to Daffodil cultivators. But there are special circumstances connected with Daffodils which do not apply to any flower—if we except Orchids and Tulips—that at present supports a separate organisation, for none other gives its name to a special committee of the Royal Horticultural Society. In view of this fact, it is scarcely to be wondered at that the meeting on Tuesday last decided not to proceed hastily to establish a fresh society.

It appears that the desire for a separate society arises from a feeling that the Royal Horticultural Society through its Narcissus Committee is not doing all that it might do to satisfy the requirements of Daffodil enthusiasts. Many of these latter think that there is need for a Daffodil "Annual," on something of the lines of the Rose "Annual," and they desire that there shall be one great exhibition of Daffodils in London every spring. These requirements are believed to be impracticable unless a separate society is established, and, if such is really the case, then there is nothing left but for the promoters of the Daffodil Society to press forward the scheme with what energy and support they are able to command. But it is to be hoped that they will first satisfy themselves that there is no alternative course for them to adopt. At one time it was thought by many that the ultimate policy of the Royal Horticultural Society would be directed towards absorbing all the special societies within its fold. This is not likely to happen in the immediate future.

But the present time seems to present a favourable opportunity for the Royal Horticultural Society to prevent the number of special societies being increased. It has plenty of funds and it possesses an influential and representative Narcissus Committee. Why should not the Society empower that committee to hold a Daffodil Show and publish a Daffodil "Annual" every season? The arrangements would be subject to the control of the Council, though emanating from its committee, and the expenditure of the committee in a particular year would also be a matter over which the Council would have perfect supervision. In any case, the Royal Horticultural Society should be given the opportunity of considering proposals of this nature. We do not say that the Council would adopt them, but we believe that it would not lightly disregard reasonable requests. It may be asked why should the Royal Horticultural Society show a preference of this kind to the Daffodil? The answer is that it has already a Daffodil Committee, and, seeing that Daffodil growers are in favour of strengthening that committee, and that plenty of funds are available for the purpose, it would be a logical development of the first intentions of the Council. It may further be asked, if a National Daffodil Society is established, and it includes amongst its principal supporters most of the members of the present Daffodil Committee, what further need will there be for the existence of the committee itself?

In our opinion, the legitimate aspirations of Daffodil growers may easily be met, and the prestige of the Royal Horticultural Society increased, provided that the Daffodil growers are reasonable in their demands and the Council of the Royal Horticultural Society is sufficiently alive to the wishes of the Fellows.



SYMPHORICARPUS OCCIDENTALIS (MOLLIS), FRUITS, WHITE.
FROM SPECIMENS EXHIBITED BY MESSRS. JAMES VEITCH & SONS, LTD.

SUPPLEMENTARY ILLUSTRATION.—A small specimen of *Symphoricarpos occidentalis*, Hooker, was exhibited by Messrs. JAS. VEITCH & SONS on October 11, 1910, at the Royal Horticultural Hall, under the name of *S. mollis*, and it was given an Award of Merit. *S. occidentalis*, the "Wolfberry," bears a considerable resemblance to the common Snowberry (*S. racemosus*), having pure white berries of about the same size. It is, however, a superior plant, for whilst that species has the flowers (and berries) confined to a terminal spike, *S. occidentalis*, as will be seen from our Supplementary Illustration, has the terminal cluster supplemented by axillary ones. The end of the shoot thus becomes a striking panicle of fruits made pendulous by its own weight. *S. occidentalis* is a shrub up to 6 feet high, with oval or oblong leaves, 1 inch to 2 inches long, either entirely glabrous or somewhat downy beneath. The flowers are produced in dense spikes; the corolla is bell-shaped, deeply five-lobed, $\frac{1}{4}$ inch long, pinkish and densely hairy on the inside. The chief botanical distinction between this species and *S. racemosus* is in the relative length of the stamens and style to that of the corolla. In *S. occidentalis* the two former are longer than the corolla; in *S. racemosus* they are shorter. The Wolfberry is a native of the United States from the Rocky Mountains eastwards to Michigan. The species has been in cultivation 70 or 80 years, but, although very ornamental, never seems to have held its own in gardens against the common Snowberry, which appears to have naturalised itself in some districts. The true *S. mollis* is a distinct shrub, being low or even prostrate, the young shoots and leaves always velvety and grey with down; the fruit is white and $\frac{1}{4}$ inch to $\frac{1}{2}$ inch wide. The species only occurs westward of the Rocky Mountains.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting, being the second of the two afternoon meetings arranged for the convenience of country members, will be held in the Lecture Hall of the Institution on the 20th inst., at four o'clock, when a paper will be read by Mr. F. J. LLOYD, entitled "Sugar Beet: Will it Pay to Grow it in Great Britain?"

THE BRITISH ASSOCIATION.—The British Association for the Advancement of Science will be held this year on August 30 and following days at Portsmouth. Professor F. E. WEISS, of the Victoria University, is President of the Botanical Section, and Mr. W. BATESON, Director of the Innes Horticultural Institution, is Chairman of the Agricultural Sub-section.

THE INTERPRETATION OF EXPERIMENTAL RESULTS.—At a time like the present when a considerable amount of experimentation on crops, manures and kindred subjects is being carried on, it is important that those engaged in the work should be in a position to appreciate the sources and extent of probable error in their experiments. We, therefore, draw attention to a valuable paper by Professor Wood and Mr. F. J. M. STRATTON published in the *Journal of Agricultural Science* (vol. iii., part iv., December, 1910), on "The Interpretation of Experimental Results." Among the conclusions reached by the authors, one of the most important is that the probable error of field experiments is about equal to 5 per cent. of the crops. This being the case, it is important for the experimenter to know how many duplicate plots must be employed in order to reduce the probable errors to the extent that may be desired. The authors publish a useful table, which gives information on this head, and point out that more accurate results may be obtained by employing large numbers of small plots than by the use of a smaller number of large plots.

ROYAL AGRICULTURAL SOCIETY.—The Royal Agricultural Society of England will hold its annual show at Norwich from Monday, June 26, to Friday, June 30. The total value of the prizes offered (inclusive of champion prizes, special prizes, and medals) is £10,600, of which sum £2,075 is made up of contributions from the Norwich Local Committee. Prizes amounting to £402 will be given for poultry, including ducks, geese, and turkeys; £28 for butter; £64 for cheeses of 1911 make; £56 for cider and perry; £66 for wool; and £52 for hives, honey, and bee appliances. A horticultural show will be held in connection with the exhibition.

NORTH OF ENGLAND HORTICULTURAL SOCIETY.—We are informed that the council of this Society is already receiving hearty support. It has been decided to hold a monthly meeting and show on every third Wednesday in the month, unless local or other circumstances suggest an alteration of date. These events will take place on the following dates:—March 22, April 19, May 17, June 7, July 19, August 15 (perhaps at Harrogate), September 20, October 18, November 15, and December 20. The council and committees will meet, and a lecture will be given at each meeting. The council is willing to hold a show in co-operation with local societies, and will send deputations to award the Society's diplomas for new plants, fruits, flowers, &c., and award cups if they are invited to do so. The R.H.S. is also willing to send deputations through the northern society and award its medals at representative shows and meetings. It is essential, however, that the North be united and centralised to make this possible. As regards educational work the Society is already receiving the co-operation of the Agricultural and Horticultural Staff of Leeds University. The Scientific Committee, states the Rev. J. BERNARD HALL, promises to be a strong and representative one. A monthly magazine is under consideration.

SCHOOL GARDENS IN LONDON.—At a meeting of the Education Committee of the London County Council on February 8 a discussion took place on the question of "School Gardens." The Day Schools Sub-Committee recommended that the formation of school gardens in connection with public elementary schools maintained by the County Council be approved in principle. In their report on the subject, the sub-committee stated that there were already about 171 of these gardens in, or adjoining, the playgrounds of public elementary schools maintained by the Council, and 60 applications for the formation of gardens had been postponed pending a decision on the general question. The importance of nature study as a subject in the school curriculum was recognised, and in the last few years there had been a steady development of this feature of school life. Although the gardens at many of the schools had been formed for some time, the experiment of utilising them for nature study was a comparatively recent one, as at first they were used for decorative purposes only. The Council's district inspectors were unanimously of opinion that school gardens were of high educational value. The sub-committee were of opinion that it was desirable that gardens should be provided wherever the conditions were favourable. They proposed that a selection should be made from the applications now before them, and that during the next few years about 20 gardens should be formed each year. The average cost of forming a school garden was about £15 each. On the ground that the matter had not been sufficiently considered, and that in many cases the teachers were unable to teach gardening, Mrs. WILTON PRUITS moved that the pro-

posal be referred back to the sub-committee. Miss LAWRENCE, chairman of the sub-committee, said that there had been a prolonged inquiry into the whole subject. It was perfectly true that some of the school gardens at present were not very satisfactory, but they had already had some brilliant successes. Dr. SCOTT LIDGETT declared that they could do much to brighten their poor streets and teach the love of flowers, provided that they worked with skill and enthusiasm and were prepared to incur a very limited outlay of public money. Only three members voted for the amendment.

ROYAL WARRANTS FOR NURSERY AND SEED FIRMS.—In addition to those firms mentioned in the last issue (see p. 90), the Royal Warrant of Appointment to the King has been conferred on Messrs. DICKSON & ROBINSON, Manchester; Mr. T. JANNOCK, Dersingham; W. CUTEUSH & SON, Highgate; and DICKSON, BROWN, & TAIT, Corporation Street, Manchester. Messrs. JOSEPH BENTLEY, LTD., Bafflow-on-Humber, Hull, have received the Royal Warrant as horticultural chemical manufacturers to the King.

WOMEN GARDENERS' SOCIAL GATHERING.—We are asked to announce that the third annual dinner, organised by the Women's Agricultural and Horticultural International Union, of lady farmers and gardeners, will take place at the Imperial Restaurant, Regent Street, on Thursday, February 23, at 7.30 p.m. Tickets may be obtained from the Secretary, Miss ELLA GILL, 64, Lower Sloane Street.

STAFFORDSHIRE SCHOOL GARDENS.—The scheme for school gardening adopted by the Staffordshire County Council in 1904 is proving very successful, no fewer than 170 classes having been held at 146 public elementary schools during the past session. The committee, in issuing in pamphlet form the scheme in general use, attribute a large measure of the success of the school gardens to the County Horticultural Instructors, the late Mr. R. COOK and his successor, Mr. J. STONEY.

SWEET PEA ANNUAL, 1911.—This bright little volume is issued by the National Sweet Pea Society. As a frontispiece to the present number appears a portrait of the President for the year, Lady NORTHCLIFFE. A note on the bibliography of the Sweet Pea, from the pen of Mr. C. HARMAN PAYNE, intended as a supplement to an article in a former volume, shows that more than 20 works on Sweet Peas have been issued since 1907, besides the numerous publications of the Sweet Pea Society. The Rev. JOSEPH JACOB gives an interesting account of the Telenly Sweet Peas, a type that is forced into flower in February. It originated in the garden of the Rev. EDWYN ARKWEIGHT at Telenly, overlooking the town and bay of Algiers. The report of the sub-committee appointed to investigate diseases in Sweet Peas shows that there is still some uncertainty as to the cause of "streak." Many of the specimens sent for examination were found to be attacked by eelworm and by the fungus *Thielavia basicolor*, whilst others showed indications of bacterial disease. The proceedings at the conference are given in detail. The official catalogue of Sweet Pea names has been brought up-to-date by Mr. HORACE J. WRIGHT, whilst the work of the committee, the Society's classification of Sweet Peas, list of too-much-alike varieties, trials and audit of the varieties exhibited are dealt with in separate chapters. Mr. THOMAS STEVENSON gives his experience on lavender-coloured Sweet Peas; Mr. WM. LUMLEY deals with the price of Sweet Pea seeds; and Mr. S. B. DICKS writes on Sweet Peas in British Columbia.

NEW AQUATICS FOR INDOOR CULTIVATION.—

Mr. H. BAUM, in an article on new water plants (*The Gardener*, No. 51, xiv.), describes several new or rare water plants, viz., *Ambulia sessiliflora*, *Ottelia alismoides*, *Aponogeton Dinteri* and *Echinodorus grandiflorus*. *Ambulia sessiliflora*, which is well adapted for cultivation in aquaria, bears more coarsely divided and brighter green leaves than *A. heterophylla*. The flower-bearing shoots rise out of the water and produce white flowers with bright violet flakes and a bluish border. The plant may be propagated by division or from seed. *Ottelia alismoides*, a submerged water plant from the West Indies, resembles in its youth-form a *Sagittaria*, but develops better heart-shaped, enrolled leaves. The plant can only be propagated from seed, which, however, does not germinate well. *Aponogeton Dinteri* was introduced into commerce as *A. flavum*, but when flowered at Dahlem was recognised to be a new species and named *A. Dinteri*, in honour of Mr. DINTER, who discovered and imported the plant from South-west Africa. The plant is rare, owing to the facts that it cannot be increased by division and that its seeds germinate with great difficulty. *Echinodorus grandiflorus*, Michx., is a stately swamp plant, a native of South America; it requires a water temperature of 64° to 77°. When grown in a tank in a suitable house it produces beautiful, large, leathery leaves, and a flower-stalk which bears white male and female flowers. It produces fertile seeds which germinate best in spring.

PUBLICATIONS RECEIVED—*The Selborne Magazine*, edited by G. S. Boulger, F.L.S., F.G.S. (London: George Philip & Son, Ltd.) Price 3d.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE LEO GRINDON HERBARIUM.—The Manchester University has recently, through the generosity of Mr. Grindon, come into possession of the extensive herbarium of the late Mr. Leo Grindon, the well-known botanist and author of *The Manchester Flora*, *Country Rambles*, *British and Garden Botany*, and many other useful and popular books. Mr. Grindon, who died at a ripe old age in 1904, had been lecturer in botany in the Manchester Medical School up to its incorporation with the Owens College, and remained for many years afterwards a capable and enthusiastic teacher of Botany. His herbarium was arranged and used as a teaching collection, and had several characteristic features, which will render it of great service to the botanical department of the University. Instead of confining himself to the formation of a "hortus siccus," Mr. Grindon incorporated in his herbarium many hundreds of plates and thousands of cuttings descriptive of the plants, which he had collected from many botanic gardens or which were sent to him from collectors and correspondents from all parts of the world. Thus the student consulting the Leo Grindon herbarium will find not only dried specimens of the plant he is anxious to see from different parts of the world, but illustrations and diagnoses from standard works of reference, as well as copious plates and references as to their growth in this country, chiefly from the pages of the *Gardeners' Chronicle*. The usefulness of the incorporation of these scientific and horticultural notes in a herbarium is so obvious, that it has been decided by the authorities of the Manchester Museum, in which the herbarium is deposited, to keep Mr. Grindon's collection separate from the general herbarium and to continue to add to it plates and cuttings from the *Gardeners' Chronicle* illustrative of the plants contained in the herbarium. P. E. W.

THE CORONATION FLOWER.—A London daily newspaper is making efforts to boom the Sweet Pea. Not that anyone would think the Sweet Pea required booming: it has already attained

a great hold on gardeners of all classes. But the journal in question, with its characteristic insistence, dogmatically declares that "the Sweet Pea will be known as the Coronation Flower." As is well known, successful journalism has been aptly described as "an intelligent anticipation of events," but in this case the intelligent anticipation seems to be lacking, or perhaps what is more probable, the responsible person has but a very slight knowledge of the appropriateness of any particular flower. The daily repetition of the phrase "it will be known as the Coronation Flower," accompanied by certain cultural directions, tends to make one believe that the writers are not so sure about it after all. It would be interesting to learn on what grounds they claim this distinction for the Sweet Pea. With the majority of growers it will not be in season at the time of the Coronation, for it must be remembered that thousands of persons in the kingdom grow the Sweet Pea almost solely to exhibit it during July and August. If any flower has claims to be called the Coronation Flower it surely must be the Carnation, for not only will it then be in season, but its very name is derived from the word coronation, which, as Professor Henslow showed in *Gard. Chron.*, Dec. 30, 1905, p. 449, was a corruption of "Coronaria." As a buttonhole flower it is far superior to the Sweet Pea. However came the daily newspaper people to overlook the "York Rose" when casting about for a suitable Coronation flower? A. C. Bartlett, *Bookham Grove Gardens*.

DWARF LAURELS.—It is surprising that although dwarf varieties of the common Laurel (*Prunus Laurocerasus*) have existed for a long time, they are finding favour only very slowly. As a hedge plant the variety *schipkensis* is much superior to the common kinds. The leaves are small and of dark colour, whilst the plant is of slow growth. *Zabeliana*, with its narrow glossy leaves and almost horizontal habit of growth, makes an excellent carpet for upright-growing shrubs or trees. It flowers freely, and generally just as well in the autumn as it does in the spring. *Mischeana* and *pygmaea* are two other dwarf varieties, but they lack the special qualities of the others I have mentioned. Z. Smith, *Newry*.

MACHE OR LAMB'S LETTUCE.—Respecting Mr. Bartlett's note on p. 68, I should like to say that, owing to the hardness of Mache, it deserves to be cultivated by those who require salads during the winter. When mixed with Beetroots it makes a salad which is appreciated by many as a winter delicacy. The Italian Mache (*Valeriana ericarpa*) does not run to seed so readily as the common Mache, but it is more susceptible to injury from frost. The seeds may be sown broadcast, but the germination is slow and uncertain in very dry weather unless frequent and light waterings are applied. To obtain good specimens late in December the last sowing ought to be made at about September 15. The seeds will germinate more readily in ground just raked over after a crop than in land freshly dug. As a product for marketing in England Mache cannot be recommended, although I know of special cases where many hundredweights are sold in winter. Paul Aquatics.

NEGLECTED ORCHARDS.—There is need for reform in the fruit orchards of other counties than those named by your correspondents on pp. 33, 76. The principal fault is a lack of pruning. Standard trees that are crowded with superfluous wood should have at least two-thirds of the shoots thinned out, removing those in the inner parts of the tree, and all crossing and inter-crossing branches. G. A. Bramfield.

PSEUDOTSUGA JAPONICA.—Will you allow me to point out an error in regard to the introduction of this Conifer, in the *Kew Bulletin*, and reproduced in your last issue (see p. 90). In 1909 I obtained four plants of *P. japonica* from Bovelli of Pallanza; also six from the Yokohama Nursery Co., all raised from seed. These are thriving here and in other places where they have been distributed by me. I am not aware of the introduction of even "grafted" plants to Great Britain previous to these. H. Clinton Baker, *Bayfordbury*.

Elwes and Henry: *Trees of Great Britain and Ireland*, 813 (1909).

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 14.—The annual meeting of the Fellows is always the occasion of a large exhibition, and it was not surprising to find the Hall well filled with exhibits on Tuesday last. Displays of Orchids were as imposing as ever, the fine plants of white varieties of *Laelia anceps* and specimen of *Cattleya Trianae* var. *Hydra* (see fig. 54) shown by Sir GEORGE HOLFORD being of outstanding merit. The ORCHID COMMITTEE granted one First-class Certificate, three Awards of Merit, and one Botanical Certificate. The exhibits before the FLORAL COMMITTEE embraced showy groups of forced shrubs, Primulas, Carnations, Camellias, Roses, and many exhibits of Alpines. The FLORAL COMMITTEE granted one Award of Merit to a variety of Carnation. The FRUIT AND VEGETABLE COMMITTEE made no award to a novelty, but there were several good groups, including a fine collection of vegetables shown by Mrs. DENISON.

The annual meeting took place in the Lecture Room at 3 o'clock, and the President, Sir Trevor Lawrence, Bart., presided. A report of the proceedings is given on p. 109.

Floral Committee.

Present: Mr. W. Marshall, and Mr. H. B. May (Chairmen); and Messrs. Charles Dixon, W. Bain, W. J. James, W. Cuthbertson, Chas. E. Pearson, Charles E. Shea, A. Turner, H. J. Cuthbush, Jno. Jennings, Jno. Green, R. W. Wallace, W. Howe, J. H. Barr, George Gordon, C. R. Fielder, G. Reuthe, W. J. Bean, Jas. Douglas, C. T. Druery, W. B. Cranfield, E. H. Jenkins, C. J. Lucas, R. C. Reginald Nevill, J. F. McLeod, and R. Hooper Pearson.

Messrs. R. & G. CUTHBERT, Southgate, Middlesex, again showed a large group of forced flowering shrubs, which formed the showiest exhibit in the Hall. There was a wealth of Rhododendrons (*Azaleas*), Lilacs, Wistarias, *Staphylea colchica*, Laburnums, Magnolias, Forsythia suspensa, and species of *Prunus*, with Palms, Ferns, Acers, and other foliage subjects for relief. (Silver-gilt Banksian Medal.)

Messrs. SUTTON & SONS, Reading, furnished a large table with Primulas, mostly varieties of *P. sinensis*, the others being forms of *P. obconica*. There were 350 plants, all well-flowered, compact specimens, representing a good selection of varieties. Two excellent blue varieties were seen in Reading Blue and The Czar, the latter being the darker variety. There were also fine strains of salmon, pink, white, crimson, and other varieties. The Duchess variety was represented by some of the Ivy-leaved type, with a similar lengthening in the petals to that seen in the leaves. Amongst varieties of the stellata type was one of the purest white, even the ring usually seen about the eye being absent. On a table opposite the Primulas, the same firm showed Tulips, arranged in batches of colours, the plants being very compact and dwarf. (Silver-gilt Flora Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, again showed a beautiful exhibit of indoor-flowering plants, the various blooms affording a fine display of colours, arranged with excellent taste. There were many species of Primula, including some fine forms of *P. obconica* and *P. kewensis farinosa*, the latter with large, clear-yellow blooms, like a Jasmine. There was also a large assortment of Rhododendrons (*Azaleas*), all the plants being flowered profusely. Other subjects included a batch of *Boronia megastigma*, another of Lily of the Valley, dwarf Lilacs, and varieties of Rhododendrons of the javanico-jasminiflorum type. As a separate group, Messrs. VEITCH showed a number of standard plants of Rhododendron (*Azalea*) indicum. (Silver-gilt Banksian Medal.)

Messrs. W. CUTHBUSH & SONS, Highgate, London, staged a large exhibit, comprising Carnations, Alpines, forced shrubs, and flowering and fine foliage greenhouse plants. The Carnations provided a showy bank of colour, such beautiful sorts as Pink Delight, Mrs. Fortescue (rose), Mrs. C. W. Ward (rose pink), White Enchantress, O. P. Bassett (scarlet), and Lady Elphinstone (pink) being shown in large bouquets of fine blooms. Amongst the Alpines were splendid spikes of

Iris reticulata and I. Sind-Pers. Other good things noticed were Magnolias, *M. amabilis* and *M. conspicua* being especially finely flowered; *Rhododendron Xmas* Cheer, a floriferous variety; *Boronia megastigma*; *Paphie indica rubra*; and *Dracena Bruantii* variegata, a handsome, greenhouse, foliage plant. (Silver-gilt Flora Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, staged a batch of well-flowered Cyclamens, including their fine Salmon King variety. This firm also showed Carnations, making a very pretty exhibit with vases, epergnes, and bowls of these flowers.

Messrs. W. PAUL & SON, Waltham Cross, Hertfordshire, showed pot trees and cut blooms of Camellias. At the back were large specimens of the old *alba plena* variety, still one of the finest of white sorts. *Fimbriata* is also a choice white variety, the petals being lightly fimbriated. Other good ones were *alba simplex* (single), *Donckelaarii* (crimson), *Marchioness of Exeter* (rosy-cerise), *Montionii vera* (white), *Mathotiana* (a very large, crimson-coloured flower), and *L'Avenir* (rose, striped with white). (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond, again filled a large table with *Rhododendron* (*Azalea indicum*), Orange trees in fruit, and *Francisca calycina*, as at the last meeting. In addition were several fine plants of *Anætochilus* and *Bertolonia*, with splendidly-coloured foliage. (Silver Banksian Medal.)

Messrs. R. B. MAY & SONS, The Nurseries, Upper Edmonton, showed an interesting exhibit of epiphytal Ferns, in about 20 species and varieties, represented by the genera *Polypodium*, *Drymoglossum*, *Niphobolus*, *Anapeltis*, *Oleandra*, *Davallia*, *Asplenium*, and *Drynaria*. *Davallia heterophylla* has, as the specific name implies, two forms of leaves, one being entire, the fertile fronds only being pinnate. *Oleandra articulata* sends down long aerial roots from the cord-like rhizomes; the leaves resemble those of the common *Scolopendrium*. An interesting exhibit in this group was a board on which were arranged fronds of *Nephrolepis exaltata* and 15 varieties of this species. The type has a simple, pectinate frond, but in some of its derivatives the leaves had become so divided and sub-divided as to resemble a bunch of moss. (Silver Flora Medal.)

Mr. H. BURNETT, Forest Road, Guernsey, again exhibited a display of perpetual blooming Carnations, having the flowers finer than ever. The beautiful pink variety *R. F. Felton* was seen in magnificent blooms, whilst others specially fine were *Niagara* (white), *Britannia* (scarlet), *Marmion* (red on a white ground), *White Enchantress*, *Mrs. C. P. Raphael* (cherry-red), and *Dorothy Gordon* (cerise). (Silver-gilt Banksian Medal.)

Mr. C. ENGELMANN, Saffron Walden, Essex, made a pretty display with Carnations, having a large assortment of perpetual-blooming varieties, including *Carola* (maroon), *Enchantress* (pink), *Harlequin* (yellow, heavily marked with red), *Rose Doré* (reddish, with orange tint), *Britannia* (scarlet), *Regina* (salmon pink), and *Sarah Hill* (white). (Silver Flora Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, again showed varieties of Zonal-leaved Pelargoniums and Cinerarias. Of the former, we may mention, as being especially good, *Mars* (crimson), *Clevedon* (orange), *Hibernia* (red), *King Victor* (cerise-red), *Venus* (white), *Jupiter* (scarlet), and *Lady Curzon* (pink). (Silver Banksian Medal.)

Mr. HERBERT CHAPMAN, Rye, Sussex, showed a number of seedlings of Cyclamen ibericum and varieties of *Freesia*. Of the latter, *Flambeau*, with pale-yellow upper and deeper-coloured lower segments, with an orange blotch on the anterior one, and *Virginalis*, white, with a yellow blotch, were the more noteworthy.

Messrs. W. WELLS & CO., LTD., Merstham, Surrey, showed a few novelties in Carnations, also *Chrysanthemum Kathleen May*, a single crimson variety with a raised, yellow eye.

Mr. HARRY DIXON, Spencer Park Nursery, Wandsworth Common, showed a double-flowered form of *Primula obconica*.

Messrs. G. MOUNT & SONS, LTD., Canterbury, exhibited choice blooms of *Rose Richmond*, on long, stiff stalks, making them valuable for decorative purposes. (Silver Banksian Medal.)

Messrs. R. WALLACE & CO., Colchester, showed a number of early-blooming bulbous plants, having a large assortment of *Crocuses*, *Iris reticulata*, *I. Bakeriana*, *Tulipa Kaufmanniana*, *Cyclamen*

ibericum, *C. Coum*, and *Fritillaria imperialis chitralensis*, with *Hepaticas*, *Saxifragas*, *Snowdrops*, *Primulas*, and other species in season. (Bronze Flora Medal.)

Messrs. J. CHEAL & SONS, Crawley, again put up a rock-garden exhibit, formed of large stones, and planted with an assortment of suitable subjects in flower, and a border of dwarf shrubs at the back. (Bronze Flora Medal.)

Mr. G. REUTHE, Keston, Kent, showed interesting and rare Alpines and uncommon shrubs. *Saxifraga kestoniensis* was about to expand its large, white flowers on crimson stalks; *S. Pauline* is a fine yellow-flowered variety; *S. Kyrillii* is also a yellow variety and quite new; *S. porophylla* is a crimson-flowered species. (Bronze Banksian Medal.)

Mr. MAURICE M. PRICHARD, Christchurch, Hampshire, exhibited Alpines extensively. Forms of *Primula denticulata* were shown well, also the rose-tinted *Megasea speciosa*, *Helleborus subpunctatus*, *Morisea hypogaea*, *Soldanella montana*, *Viola gracilis*, and *Irises* of sorts. (Bronze Flora Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, showed bulbous plants in bloom. There were many species of *Crocus*, including *C. Leichtlinii*, with petals of the palest blue colour; bulbous *Irises* were well represented, also hardy *Cyclamen*, *Snowdrops*, *Scillas*, *Adonis amurensis*, and many others.

Messrs. T. S. WARE, LTD., Feltham, showed Alpines set in rock-work, also *Bletia hyacinthina* and several greenhouse species of *Primula*. Amongst the Alpines, *Megasea ciliata* was conspicuous with its large, white, bell-shaped flowers. (Bronze Flora Medal.)

Messrs. JOHN PEED & SONS, Norwood, also showed Alpines in flower, having the plants in pots. At one end of the exhibit was a collection of succulent plants.

The Misses HOPKINS, Mere Gardens, Shepperton on Thames, showed a rock-garden exhibit planted with *Hepaticas*, coloured *Primroses*, *Helleborus niger*, *Petasites japonica*, *Snowdrops*, and other early-blooming subjects.

Messrs. HEATH & SON, Cheltenham, staged a rocky exhibit as a corner group, having a variety of Alpines in bloom, with dwarf conifers and small shrubs as a background.

Mr. H. C. PULHAM, Elsenham, Essex, was also the exhibitor of a small rock-garden exhibit.

Messrs. WHITELEGG & PAGE, Chislehurst, Kent, exhibited a large number of pot-plants in bloom of *Primula malacoides*.

Miss M. WALTERS ANSON, The Studio, 5, Broadway, Streatham, showed very fine paintings of flowers and vegetables.

AWARD OF MERIT.

Carnation "Coronation."—This is an attractive, pink-coloured *Carnation* of the perpetual-flowering type. Shown by Mr. B. BELL, Guernsey.

Orchid Committee.

Present: Mr. J. Gurney Fowler (in the Chair); and Messrs. Harry J. Veitch, Stuart Low, Fred J. Hanbury, Guney Wilson, T. Armstrong, A. McBean, Walter Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, H. G. Alexander, J. E. Shill, Arthur Dye, W. H. White, H. Ballantine, J. Wilson Potter, W. Bolton, de B. Crawshaw, C. Cookson, J. S. Moss, and Sir Jeremiah Colman.

Lieut.-Col. Sir GEORGE L. BOLFOED, K.C.V.O., Westonsbirt (gr. Mr. H. G. Alexander), received a Silver gilt Lindley Medal for an excellent group of *Laelia anceps*, which included most of the named white varieties. There were about 20 plants, several of them having as many as 36 flowers on each, the total number of spikes being 94 and carrying in all 350 flowers. A magnificent specimen of *Cattleya Trianae* Hydra received a Cultural Commendation (see fig. 54). *C. Dirce* Westonsbirt variety (*Vulcan* × *gigas*) was also shown in good form.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), exhibited a group of the pretty *Dendrobium* *Lady Colman*, a large-flowered hybrid raised from *D. Artemis* × *D. Findlayum*.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), exhibited a richly-coloured variety of *Cattleya Trianae* named *Goodsonii*, the

petals were flushed with deep rose; *Odontoglossum ardentissimum* G. E. Day, a new variety with distinct markings, and shown for the first time; also *O. ardentissimum* var. *Lamas*, were noticed in this group.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Cypripedium Wellesleyae*, a pretty, light-coloured flower; *C. Little Gem* Westfield var., and a pleasing variety of *Cattleya Trianae*.

The Duke of MARLBOROUGH, Blenheim Palace (gr. Mr. Hunter), exhibited a dark-spotted form of *Cypripedium bellatulum*.

A fine plant of *Odontoglossum Valeria* (Edwardii × *Vuykstekei*) was shown by DE BARRI CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables). The plant had a spike of 36 flowers, which were of a mauvish-brown colour, the lip being reddish-brown with a light-rose apex. In *O. Verona* (*Adrianae* × *Vuykstekei*) the markings were of a reddish-brown colour. *O. Lambearianum* "Purple Queen" is a promising hybrid of intense purple colour. Mr. CRAWSHAY also showed *O. Vuykstekei* and a variety of *O. amabile*.

R. G. THWAITES, Esq., Chessington, Christchurch Road, Streatham Hill (gr. Mr. Black), showed *Sophro-Cattleya Wellesleyae* (*labiata* × *grandiflora*) and *S.-C. Saxa* (*Trianae* × *grandiflora*).

Messrs. CHARLESWORTH & CO., Haywards Heath, received a Silver-gilt Flora Medal for a fine group, containing in the centre some finely-flowered plants of the beautiful *Phalopsis Schilleriana*. The new *Cypripedium Nerissa* (*Maudiae* × *San Acteus*), a well-formed flower of a pleasing greenish-yellow colour, having a few spots on the dorsal sepal, was included in the group, also several *Brasso-Cattleyas*, a grand selection of *Odontiodas*, the richly-coloured *Sophro-Laela Marathon*, a good variety of *Zygocodax Charlesworthii*, and other interesting plants. The front row consisted of *Dendrochilum glumaceum*, which added a graceful effect to the display.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, received a Silver Flora Medal for a group containing many choice *Cypripediums* and *Laelio-Cattleya* *Wilhelmina* (*labiata* × *elegans*), a hybrid of intense mauve colour; the yellow *L. C. Daffodil* (*Hongheana* × *Mercia*); several *Brasso-Cattleyas*, and other interesting Orchids.

Mr. E. V. Low, Vale Bridge, Haywards Heath, was awarded a Silver Flora Medal for a good group of *Cypripediums*. Amongst varieties especially noticed were *Fulshawense*, *Lord Ivor*, *Olivia*, *Maudia*, and *Beryl* West Point var.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Banksian Medal for a group containing many rare and interesting Orchids, including the striking *Selenipedium caudatum*, a fine mass of *Odontoglossum coronarium brevifolium* with eight spikes; *O. Thompsonianum*, the bright-yellow *Laelio-Cattleya Oriens*, *Vanda Watsonii* with pure white flowers, and the curious *Maxillaria luteo-alba*. A fine variety of *Cattleya Trianae* named *Imperial* was also shown well.

Messrs. STUART LOW & CO., Enfield, obtained a Silver Flora Medal for a group, at the back of which were many good plants of *Dendrobium Wardianum*. Other interesting Orchids were *Cattleya Percivaliana* Little Gem, *Bulbophyllum comosum*, *Angraecum citatum* with several graceful spikes, a large plant of *Pleurothallis Roezlii*, and *Cypripedium Mimos Vomgii*.

Messrs. JAMES CYRER & SONS, Cheltenham, received a Silver Flora Medal for a large group which embraced many species and hybrids. *Cypripedium Beckmannii*, *C. Acteus*, two good plants of *Lycaste Skinneri* *alba*, the pretty *Cirrhopetalum picturatum*, and *Cymbidium eburneum* were the more noteworthy examples.

Messrs. J. & A. A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for a neat group, in which were several good varieties of *Odontoglossum crispum*, two excellent forms of *Cattleya Trianae*, and a fine form of *Odontoglossum Lambearianum*, having a cream-coloured ground with reddish-brown markings.

Mr. JENSEN, Lindfield, Haywards Heath, exhibited *Cattleya Schroderae* *ilicina*, a well-shaped flower of a pleasing, pale-lilac tint.

Messrs. HASSALL & CO., Southgate, showed *Cypripedium Carola* (see Awards), *C. Beryl*, *Lycaste Skinneri* (with deep-coloured flowers and a white lip), and an almost white form of *Cattleya Mendelii*.

Messrs. KIEHLING & SONS, Westgate Hill, near Bradford, showed *Cypripedium Amanline*: the percentage is unknown, but it is probably derived from *C. Spicerianum*.

Messrs. THEODORE PAUWELS & Co., Meirelbeke, near Ghent, Belgium, exhibited *Brassica-Cattleya Senateur de Bast* (see Awards), a finely-blotched variety of *Odontoglossum crispum*, and *Cymbidium Pauwelsi*.

Flowers of *Dendrobium chesingtonense* Hanbury's var. were exhibited by FRED J. HANBURY, Esq., Brockhurst, East Grinstead.

AWARDS.

FIRST-CLASS CERTIFICATE.

Brassica-Cattleya Senateur de Bast (B.C. *Diphyana-Mossia* B.C. Mrs. J. Leemann), from Messrs. THEODORE PAUWELS & Co., Meirelbeke, near Ghent.—An extremely beautiful hybrid. The sepals and petals are very broad

with rose. The lip is marked with a large red blotch, the side lobes being spotted.

BOTANICAL CERTIFICATE.

Marillaria leontoglossa, from Sir TREVOR LAWRENCE, Bart., K.C.V.O.—The plant bore five spikes of cream-coloured flowers, which are slightly spotted.

CULTURAL COMMENDATION

to Mr. H. G. Alexander, Orchid grower to Lieut.-Col. ST GEORGE HOLFORD, K.C.V.O., Westonbirt, for a magnificent specimen of *Cattleya Trianae* Hydra, bearing 22 spikes, bearing altogether 96 flowers (see fig. 54).

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. A. H. Pearson, J. Cheal, C. G. A. Nix, W. Bates, C. Walter, A. Dean, E. Beckett,

the old Wyken Tiffin. (Silver-gilt Knightian Medal.)

Messrs. T. RIVERS & SONS, Sawbridgeworth, staged a large group of Oranges, Shaddocks, and Lemons in pots, also many gathered fruits of the same. Amongst Oranges, fine varieties were seen in Dom Louise, The Egg, Achilles, Queen, and Navel; whilst Lemons, Shaddocks, and Limes were shown in many varieties. (Silver-gilt Knightian Medal.)

Mrs. DENISON, Little Gaddesden (gr. Mr. A. Gentle), exhibited a specially fine collection of vegetables, including 36 dishes of capital Potatos. Of these, Royalty, First Crop, Advance, Snowdrop, Surprise, Early Puritan, Imperator, and Goldfinder were white, and Exhibition, King of the Russets, King Edward VII., and Invieta, coloured varieties. The exhibit also contained splendid samples of Ailsa Craig and Record Onions, Holborn Marrow and

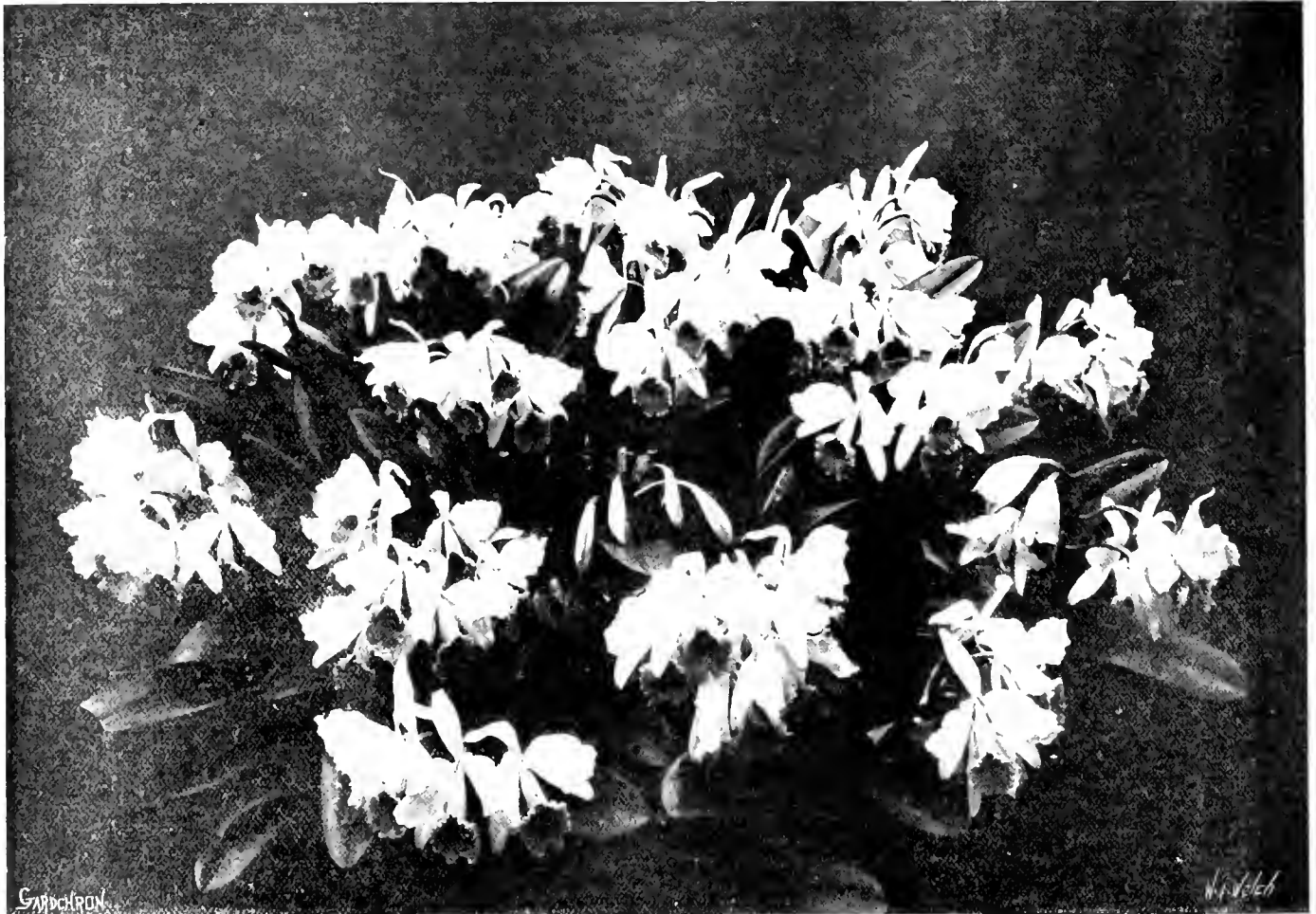


FIG. 54.—CATTLEYA TRIANA VARIETY HYDRA AS EXHIBITED BY LIEUT.-COL. SIR GEORGE HOLFORD.

(Received R.H.S. Cultural Commendation on Tuesday last.)

and of a pleasing rose colour. The lip is large, deeply fringed, and undulated, the centre being richly coloured with gold and prettily veined.

AWARDS OF MERIT.

Cypripedium Carola (*Thompsonianum magnificum* & *Euryale splendens*), from Messrs. HASSALL & Co., Southgate.—A well-shaped flower, the dorsal sepal being white, flushed with deep rose; the petals are broad, and stained a mahogany tint.

Cypripedium aurum lackense (*Sallieri Hypanis* & *Spicerianum*), from Mr. E. V. LOW, Haywards Heath.—The dorsal sepal is white, marked at the base with light greenish-yellow and slightly spotted. The broad petals are yellowish brown.

Cymbidium Pauwelsi (*Cinque* & *Laurinum concolor*), from Messrs. THEODORE PAUWELS & Co., Meirelbeke, near Ghent.—An interesting hybrid, which carried a single flower, having cream coloured sepals and petals slightly flushed

J. Willard, H. Humphreys, A. R. Allan, A. W. Metcalfe, G. Wythes, G. Kell, O. Thomas, G. Reynolds, W. H. Divers, T. Coomber, J. Harrison, H. S. Rivers, J. Jaques, and J. Vert.

Lord HILLINGTON, Uxbridge (gr. Mr. A. R. Allan), showed fruits of McIndoe's Russet Apple, an Australian variety bearing a close resemblance to Royal Russet.

The Duke of Rutland, Belvoir Castle, Rutlandshire (gr. Mr. W. H. Divers), staged a fine collection of Apples, grown in the open in that unfavourable district. Many of the fruits were of exceptional excellence, whilst all were clean, firm, and well preserved specimens. There were 45 dishes in all. The finest cooking varieties were Belle Pontoise, Stone's Pippin, The Queen, Anne Elizabeth, Lord Derby, Gascoyne's Scarlet Seedling, Bramley's Seedling, Mère de Moutage, and Lane's Pince Albert. Of dessert varieties there were excellent fruits of Ribston Pippin, Cox's Orange Pippin, King of the Pippins, Rosemary Russet, Barnick Beauty, White Paradise, King of Tompkin's County, and

Maltese Parsnips, Scarlet Perfection, Scarlet Horn, and Intermediate Carrots, several long and round Beets, Jersey Lily and Golden Ball Turnips, and other kinds. (Silver-gilt Knightian Medal.)

Messrs. SUTTON & SONS, Reading, put up a very attractive collection of vegetables, all from the open ground, including some 36 dishes or mounds, with a big group of Al Curled Kale in the centre. Notable dishes were Early White and Winter Mammoth Broccoli, Royal Favourite and Musselburgh Leeks, New Year Savoy, Tender and True Parsnips, Scarlet Intermediate Carrots, Six Weeks Turnips, Celoriae, *Stachys tuberifera*, and Sullivan Prize Celery. (Silver Knightian Medal.)

Sir WALTER GILBEY, Elsenham Hall, Essex, exhibited an interesting collection of bottled fruits, jellies, and essences. (Silver Banksian Medal.)

Some fine bottled fruits were also shown by Mr. W. POPPART, JUNR., Twickenham; whilst Mrs. MILLER, Moylan, Marlow, had a collection of bottled jams, jellies, and chutneys.

ANNUAL MEETING.

The President, Sir Trevor Lawrence, presided at the anniversary meeting of the Fellows, which took place at 3 o'clock, in the Lecture Room. There was a good attendance.

After 76 names had been proposed and accepted for Fellowship, the President submitted the Council's annual report, which was published in our last issue (see p. 95). He referred to the loss the Society had sustained in the death of King Edward, and said that much satisfaction was felt that King George and his Consort had consented to become patrons of the Society. Speaking of Wisley Gardens, Sir Trevor Lawrence praised the work of Mr. Chittenden, both as director of the laboratory and editor of the *Journal*. The students, he said, had done extremely well during the past year, and the Society possessed an excellent staff of under-gardeners, for whom a new bothy had been erected. Turning to the shows held during the past year, the President made reference to the exhibition at Holland Park, and regretted that it would be the last held in those beautiful grounds; at least, for the present. The show at Olympia was something of the nature of an experiment, but the Council had every reason to anticipate a magnificent exhibition. The Colonial fruit show was the finest of the series. The position of the Society with regard to the Lindley Library had been regularised, and the books had been placed under the control of the Council, with the sanction of the Charity Commissioners. Referring to the losses by death the Society had sustained during the past year, Sir Trevor Lawrence made special reference to Baron Schröder and Dr. Treub. Speaking of the admirable work of the permanent staff, he referred to a recent article in the *Times* newspaper, on the Royal Horticultural Society, in which the writer referred to "its cordial and tranquil efficiency." If such a condition existed, it was due, said Sir Trevor Lawrence, to their secretary, the Rev. W. Wilks. The President concluded his speech with a tribute to the good work performed by the various Committees.

The Treasurer, Mr. Gurney Fowler, seconded the adoption of the report, and referred to some of the items in the financial statement. He said they had closed the year with a balance of £3,370, which represented a gain of £721 over the balance of 1909. The principal items which showed an increase in revenue were subscriptions, dividends and interests on investments, hall lettings, shows, and meetings. The Holland Park Show proved a financial success, but there was a loss on the Colonial exhibition, which had never yet paid its way. The cost of the *Journal* showed an increase of £452, and Wisley gardens an increased expenditure of £154. There were some special items of expenditure in the accounts which were not yearly payments. These included £1,000 contributed to the funds of the Royal International Exhibition 1912, 100 guineas given to the King Edward Memorial Fund, and £557 14s. 6d. to fund the Schröder pension. If these extraneous items were omitted, it would be found that the Society was £2,383 better off than last year. A new bothy, stable, and Orchid house had been erected at Wisley Gardens; over £500 had been added to the depreciation fund, and £14,845 had been invested or re-invested in various stocks. With regard to the Lindley Library, Mr. Fowler said the Council would endeavour to make it second to none as a horticultural library. The Library Committee was holding fortnightly meetings, and would be glad to receive suggestions from the Fellows in respect to the acquisition of books they thought desirable to purchase.

Mr. H. J. Elwes next spoke as follows:—The Society has now accumulated a large capital, which is increasing at the rate of six thousand pounds or more a year, and it is, I think, the largest and wealthiest horticultural society in the world. We have invited the horticulturists of the world to visit England next year, and, no doubt, we shall be able to show them a greater number of well-grown plants than has ever been brought together before. In various ways the Council has shown that they realise the importance of the Society's work. But, in the matter of our publications, I do not think that we are doing justice to our position, for however useful the present *Journal* may be, I think that, if it is compared with what was published by the Society when it was first founded, there is no

ground for satisfaction. A great deal of the matter printed in the *Journal* shows signs of being hastily written, without serious study of the subject. Some of the papers are quite unworthy of the *Journal* of the greatest horticultural society in the world. I am not blaming anyone. The secretary and editor of this Society have to do their best to gather material without assistance from a publication committee, such as are found necessary to control the publications of the Zoological and Linnean Societies, empowered to reject papers which they do not think up to the standard, and to submit them to specialists if they think that such a course is necessary. I have previously advocated the appointment of such a committee to assist our editor, but, so far, nothing has been done. In many cases we are merely reprinting matter which has already appeared in the horticultural Press; in other cases, the papers are of ephemeral interest. In my own literary work, I very rarely have to refer to, or to quote from, the more recent volumes of the Society's *Journal*; while I have to quote frequently from the older volumes, and from the *Gardeners' Chronicle*. What I should like to suggest is that we should keep the *Journal* for all matter relating to exhibitions, committees, trials, and so forth, and institute a quarto publication, under the title of "Transactions," which might be liberally illustrated, and serve to perpetuate papers of permanent horticultural value. There are members of this Society who have found, as I have found, that, unless they are prepared to publish a work privately, they are obliged to put themselves in the hands of publishers, who naturally look principally at the financial aspect of the work. I am sure that, if it were known that this Society would welcome and do justice to a higher class of horticultural papers, by liberally illustrating them in colour when necessary, such papers would be forthcoming, and they would do as much credit to the Society as to their authors. I do not propose that such quarto "Transactions" should be issued gratis to all Fellows of the Society, but I am confident that, if 10 or even 5 per cent. of the 12,000 members were willing to pay an extra subscription, the additional cost of these "Transactions" would be very trifling.

Take, for instance, the very large number of new, beautiful and interesting plants which have been introduced from China by Mr. Wilson in the last few years. Many of them are as yet unknown to the great majority of horticulturists. Mr. Veitch has illustrated some in his *Horibus Veitchii*, the *Gardeners' Chronicle* has figured others, and the *Botanical Magazine* a few more. Professor Sargent, in America, is no doubt preparing to publish a great many more. A series of these plants properly described and figured might, I am certain, for the next 10 years be a most popular and valuable commencement for our "Transactions." Then take the great and horticulturally important family of Amaryllids, of which, since Herbert's work appeared 60 years ago, no collected account has been published except by Mr. Baker. Mr. Worsley has a mass of descriptions, cultural notes and beautiful drawings from his own plants, waiting for an opportunity of publication. What could be more valuable or more popular than an annual instalment of such a work as he could give us? How many members of the Society would be glad to subscribe for an up-to-date revision of such popular and difficult genera as *Primula* or *Saxifraga*. Are we to leave all such work as this to foreign authors or to the chance of amateurs being found who are sufficiently wealthy and enthusiastic to do this work themselves? Of Orchids I do not speak, because they receive a greater degree of attention than most plants on account of their high commercial value. Of fruits also I do not speak, because I know too little about them, but you have only to look at the papers by Knight and others in the old series of "Transactions" to see that in those days, when the income of the Society was not comparable to what it is now, much money was spent in describing and illustrating them. I am sure that, if the Council makes up its mind to make the most of its opportunities, it will be supported by many fellows of the Society of whom they now hear and see little or nothing.

The Rev. George Engleheart agreed with Mr. Elwes that the *Journal* was the one weak spot in the Society; it was not of such a literary or scientific standard as might be expected from such

an Institution as the Royal Horticultural Society. He agreed that a publication committee was necessary. The last volume of the *Journal* was a good one, but there was plenty of room for improvement. He thoroughly supported Mr. Elwes in his remarks, and hoped that the Council would take notice of the subject.

Sir Trevor Lawrence, in reply, said that the matter would receive the serious consideration of the Council, but he was bound to say that, in his opinion, the *Journal* fulfilled its purpose very ably.

The next business was the election of officers and members of the Council, and there being no opposition to the official list, it was carried.

The only other business of the meeting was the presentation of Victoria Medals of Honour to Messrs. Coomber, Cypher, Fielder and May (see *Gardeners' Chronicle*, vol. xlviii, p. 451), and the "Lawrence" Medal to Mr. Harry J. Veitch.

On the motion of Sir John Llewelyn, a vote of thanks was passed to Sir Trevor Lawrence for presiding.

PROPOSED DAFFODIL SOCIETY.

FEBRUARY 14.—A public meeting was held in the Royal Horticultural Hall on Tuesday last to consider the advisability of forming a society, to be called the National Daffodil Society. There was a moderate attendance; amongst those present we noticed Miss Willmott, Rev. G. H. Engleheart, Rev. Joseph Jacob, and Messrs. W. B. Cranfield, R. Sydenham, H. Smith, C. H. Curtis, P. R. Barr, R. W. Wallace, Chas. E. Shea, E. T. Cook, F. H. Chapman, E. M. Crossfield, H. R. Darlington, H. Thomas, J. Douglas, E. A. Bowles and J. Harrison Dick.

The Rev. Geo. Engleheart was appointed chairman of the meeting, and he called upon Mr. Cranfield to make some remarks.

Mr. Cranfield, at the outset, deprecated any suggestion that the work of the new society should conflict with that done by the Narcissus Committee of the Royal Horticultural Society. He considered there was special work which could be undertaken by a society, but which the Daffodil Committee of the Royal Horticultural Society was unable to do. It was not intended to interfere with the work of local associations, which are doing a good work; but they wanted a society centred in London that would hold a Metropolitan show and publish a journal, such as is done by the National Rose Society. Mr. Cranfield read letters from many who had promised their support.

The Rev. Engleheart said that, whilst in no way opposing the formation of such a society, he recognised that there were difficulties. He said there existed already a well-organised association in the Midland Daffodil Society, which almost fills the place of a National Society. There was also the position of the Daffodil Committee of the R.H.S. to consider. But there appeared to be a desire for a legislative body which would represent the Daffodil rather better than did the R.H.S. Committee. There was also a strong need for a metropolitan show.

Mr. Cranfield said he wanted the Royal Horticultural Society to still remain the premier Society. But the end would probably be that the Royal Horticultural Society's Committee would go and the National Society take its place. After Mr. Robert Sydenham had spoken, the Rev. Joseph Jacob brought forward a proposal to ask the Royal Horticultural Society to subsidise its Daffodil Committee, so that it would be enabled to arrange an annual show and pay for the publication of suitable literature, including a Year-Book. If the R.H.S. Council would accept such a proposal, the prestige of the Royal Horticultural Society would be preserved and Daffodil growers would obtain what was wanted.

Mr. Wallace said he considered Mr. Jacob's proposition irrelevant to the business before the meeting. He did not consider the Royal Horticultural Society would entertain such a proposal, and he would support the claims for a National Society.

Mr. Chapman said the Daffodil Committee was of no use, and no great loss would be experienced if it ceased to exist. What was wanted was an annual show to obtain the support of the public.

Mr. Barr supported the scheme for a National Daffodil Society, and said he considered such a body could do the work at present undertaken by the R.H.S. Committee, as well as absorb the Midland Daffodil Society. What was wanted was a

two-days show in London and a Year-Book. He suggested the amalgamation of the Royal Horticultural Society's Committee and the Midland Daffodil Society to form a new body, to be known as the National Daffodil Society.

Mr. C. L. Adams, a member of the Midland Society, strongly deprecated the suggestion of his society losing its individuality. He considered if the Daffodil Committee could be made to meet the needs of the Daffodil world that was all that was needed.

(At this stage Mr. Engleheart was obliged to vacate the chair, and Mr. Barr took over his duties as chairman.)

Mr. Adams proposed that "the meeting be postponed until the Daffodil Committee finds out what the Council of the R.H.S. would be willing to do."

Mr. C. H. Curtis seconded, and Mr. J. Harrison Dick supported the proposition. Several others, including Mr. Bowles and Mr. Darlington spoke, but Mr. Adams's proposition appeared to be in accord with the feeling of the few that remained, and the meeting was therefore adjourned until March 14.

SCOTTISH HORTICULTURAL.

FEBRUARY 7.—The monthly meeting of this association was held in the Goodd Hall, 5, St. Andrew Square, Edinburgh, on this date. The retiring president, Mr. Whytock, occupied the chair, and there was an attendance of 120 members. After the formal business of the meeting was concluded Mr. Whytock introduced his successor in the presidency, Mr. W. H. Massie, who took as the subject of his inaugural address, "Looking Forward or the Future of Our Association." He gave an interesting historical account of the efforts of the association to attain its chief aim, the formation of a horticultural institution in Edinburgh, and he appealed to the members to give their serious consideration to the following proposals which he put before them for their acceptance, namely:—

- (1) To start a fund to provide for a Horticultural Institution, to contain at least a library, and reading room, hall for meetings, and suitable offices, and other accessories.
- (2) To readjust the finances of the Association and of the Chrysanthemum Exhibition.
- (3) To adopt means for the encouragement of the younger members to take a larger share in the work of the Association by providing more facilities for the reading of papers and for discussions amongst themselves, and by offering prizes to those who acquit themselves with most merit, and by instituting examinations and granting to young gardeners certificates of proficiency in theoretical and practical horticulture.
- (4) By instituting a Scottish Benevolent Fund for the behoof of gardeners and others and their widows and children.

On the motion of Mr. McHattie, seconded by Mr. Whytock, and supported by Messrs. Cuthbertson and Todd, Mr. Massie's proposals were remitted to the Council for consideration and report.

Thirty-four new members were elected.

The paper for the monthly meeting on March 7 will be by Mr. Wm. Cuthbertson, J.P., the subject being "A Talk About New Sweet Peas."

BRITISH GARDENERS' ASSOCIATION.
(LONDON BRANCH.)

FEBRUARY 9.—The monthly meeting of the London Branch took place at Carr's Restaurant on this date, when Mr. W. H. North presided. An interesting paper was read by Mr. F. J. Longmire on "Rosaceae." The speaker dealt with the species of the different genera, and gave many interesting facts concerning their history, economic value, and horticultural usefulness.

The chairman announced that the Concert sub-committee had arranged to hold a social evening on Saturday, February 25, commencing at 7.30 p.m., in aid of the Royal Gardeners' Orphan Fund. Mr. Preece and many other artists had kindly offered their services, and everything pointed to the concert being a success. Tickets and programmes, single, 1s., lady and gentleman (double tickets), 1s. 6d. each, may be obtained from the Hon. Sec., Mr. V. Cockram, 37, Bolin Street, Battersea Park, S.W.

ROYAL GARDENERS' ORPHAN FUND.

ANNUAL MEETING AND ELECTION.

FEBRUARY 10.—The 24th annual meeting of the supporters and friends of the Royal Gardeners' Orphan Fund took place on the above date at Simpson's Restaurant, Strand. The Chairman of the Executive Committee, Mr. Henry B. May, presided, and the attendance was equal to the average on these occasions.

The minutes of the last general meeting were read by Mr. Brian Wynne, the secretary, after which the Chairman proposed the adoption of the report and balance-sheet for 1910. These were as follow:—

REPORT OF THE EXECUTIVE COMMITTEE.

In presenting their twenty-second annual report, covering a period of public unrest and excitement which involved the managements of all charitable institutions in great anxiety and concern, the committee are much gratified in being able to congratulate the supporters of the fund on the continued steadiness of its progress and increasing usefulness. With great regret, however, they have to acknowledge that the receipts from annual subscriptions do not show the same amount of expansion as other sources of revenue. The total receipts for the year are satisfactory on the whole, but the committee would be glad indeed to welcome more support in the form of annual contributions, however small, and once more appeal for greater consideration on the part of those for whose children the fund is designed to benefit in their hour of need.

At the commencement of the year there were 117 orphan children receiving the full benefits of the fund, and 18 candidates waiting for election were in receipt of compassionate allowances. Fifteen of them were elected to receive full benefits at the annual meeting, bringing the roll of duly elected beneficiaries up to 132. During the year 28 nominations of candidates were carefully examined and accepted, and from this list 26 have been selected to appeal for election. It is with extreme regret that the committee can only recommend the election of 15 children at the annual meeting, and therefore it has not been considered desirable that the name of more than one child from a family should be placed on the voting list. The total amount disbursed in allowances again exceeded any previous total by some £20, the increase being largely due to the increasing number of candidates appealing for assistance while waiting for election. Since the fund was established the total amount disbursed in allowances made to orphans amounts to no less a sum than over £22,958.

The number of children who have received the benefits conferred by the fund is 203, and it has been a deep source of gratification to the committee to know that one of the earliest girls to be elected on the fund has shown her gratitude for the benefits she received in the past, by becoming an annual subscriber, an example which in due time it is sincerely to be hoped others will follow.

Through the deeply lamented death of his most gracious Majesty, King Edward VII., the annual festival was held at the Hotel Cecil in May, under the shadow of a great national calamity, but the committee rejoice in being able to record the fact that under the able presidency of Sir Jeremiah Colman, Bart., the festival was well attended, and the length of the chairman's list of contributions greatly exceeded their expectations, the total, indeed, exceeding all previous collections. Sir Jeremiah Colman's great love for horti-

culture and the sincerity of his kindly regard for the workers in gardens, was admirably shown on that occasion by his deeply sympathetic appeal for support from those who derive pleasure from their gardens, and by his own munificent donation. The committee are deeply grateful to Sir Jeremiah Colman for all his kindness and encouragement, and they invite the subscribers to share in their gratitude by to-day electing him a vice-president of the fund.

To the stewards on that occasion, through whose kindly efforts the length of the chairman's list was so greatly extended, and to all who so generously assisted in the floral decoration of the Victoria Hall and the adornment of the dinner tables, the committee tender their grateful acknowledgment with the assurance that the results of their labours greatly contributed to the enjoyment of all present.

Arrangements have been made for the next festival to take place at the Hotel Cecil, on Thursday, May 4, and the presidency of one of the earliest supporters of the fund—Nathaniel N. Sherwood, Esq. It will be within the recollection of the earlier supporters of the fund that Mr. Sherwood was one of the first to give the movement, for the establishment of the charity, a helping hand, and gave proof of the sincerity of his desire to set the new institution on a solid foundation, by presiding at the second annual dinner in 1889, and by later undertaking the duties of the responsible office of treasurer. From the first the fund has had no more generous supporter or more ardent friend than Mr. Sherwood, and the committee feel assured that his occupancy of the chair at the Coronation festival will give pleasure to every well-wisher of the fund, and ensure for him their presence and support on that occasion.

The members of the Chislehurst Gardeners' Society, the Scottish Gardeners' Association, the Bradford Chrysanthemum Society, the Leeds Gardeners' Lodge and Panton Societies, the Reading Gardeners' Association, and other gardening bodies are all most cordially thanked for their continued exertions on behalf of the fund, and the committee would most gladly welcome the support of other combinations of horticultural workers who could give valuable help in the same way.

The various honorary local secretaries are also heartily thanked for their much valued assistance. To Mr. George Carver and his horticultural colleagues in the Leeds district, special thanks are due for having organised amongst themselves a system of monthly collections of small sums from gardeners and under-gardeners, and with the happiest results, the fund having benefited considerably by their action.

To Mary, Countess of Echester, Sir Frank Crisp, Mr. Sherwood and his sons, Mr. Leonard Sutton, the Messrs. Rothschild, Mr. E. Rochford, Mr. J. C. Eno, Mr. Anthony Waterer, Mr. H. J. Veitch, Mr. Thomas Smith, Messrs. Parr & Sons, the Messrs. Cuthbert and others who have given most generous support during the year, the committee acknowledge their indebtedness with hearty thanks.

It is again the Committee's regrettable duty to record their sense of the heavy loss which the Fund has sustained by the deaths of old and well-proved supporters whose places it will be most difficult to fill. In Baron Schroder, who bequeathed to the Fund a legacy of five hundred pounds, the horticultural charities in particular, and horticulture in general, have indeed suffered a grievous loss. The name of Mr. William J. Nutting will also be sadly missed by all who knew him, so greatly was he esteemed. In Mr. E. C. Mott and Mr. William Denning, the Fund has also lost friends who always had the welfare of the Fund very near to their hearts.

The members of the Committee who retire by rotation are Mr. William R. Alderson, Mr. George H. Barr, Mr. George H. Cuthbert, Mr. William Howe, Mr. John Lyne,

CASH STATEMENT FOR THE YEAR ENDING DECEMBER 31, 1910.

RECEIPTS.		EXPENDITURE.	
	£ s. d.		£ s. d.
To Subscriptions: General	205 15 0	By Allowances to Orphans	1,595 5 0
Local Secretaries	73 4 0	Grants in Aid	145 11 8
Donations: General	124 17 0	"Emma Sherwood Memorial"	13 0 0
Local Secretaries	13 0 0	"Maybud Campbell Grant"	13 0 0
Receipts from Annual Festival	137 17 6	Secretary's Salary	1,736 16 8
Legacy, Baron Schroder	905 0 5	Printing and Posting List of Subscribers	200 0 0
Advertisements in List of Subscribers	500 0 0	Rent, Insurance, Firing, Lighting, &c.	38 11 2
Dividends on Stock and Interest on Deposit	30 14 0	Printing and Stationery	32 15 6
Income Tax returned	370 1 0	Advertising	30 1 11
	6 12 6	Annual General and Committee Meetings	4 9 6
		Postages	24 7 7
Balance Last Account	2,409 8 11	Bank Charges	26 6 4
	595 2 7	Petty Cash: Sundries	8 17 0
	£2,014 11 6		5 6 6
			131 15 4
NOTE.—INVESTMENTS.		Balances: Cash at Bank	2,107 3 2
3 per cent. London and County Consolidated Stock	£7,240 15 10	Cash on Deposit	657 2 7
3 per cent. Canada Stock	2,000 0 0	Cash in hand	150 0 0
E. and N.W. Railway 4 per cent. Preference Stock	340 0 0		0 5 9
Great Indian Peninsula Ry. Guaranteed 3 per cent. Stock	514 0 0		807 8 4
2 per cent. Consols	1,000 0 0		£2,014 11 6
"Thomson Memorial Trust"			
East Indian Railway B Annuity of £14 cost	430 11 0		
"Emma Sherwood Memorial"			
Metropolitan Water (B) 3 per cent. Stock	516 15 11		
"Maybud Campbell Grant"			
Metropolitan Railway 3 per cent. Preference Stock	301 0 0		

Having inspected the Securities and examined the Books and Vouchers supplied to us, we hereby certify the above Account to be correct.

P. RUDOLPH BARR } Auditors.
M. ROWAN }

January 11, 1911

Obituary.

JAMES WALKER.—It is with deep regret that we record the death, on the 12th inst., of Mr. James Walker, in his 74th year, from pleurisy. Mr. Walker was a conspicuous example of those men who take up a new pursuit comparatively late in life, yet, by diligent study and observation, attain a high rank amongst competent judges and experts. Mr. Walker was born at Rutherglen, one of the oldest burghs in Scotland. In 1875 he relinquished a grocery business, in which he was then engaged, and came to London, determining to devote himself to horticulture. For this purpose, he acquired a market-garden at Whitton, near Hounslow, formerly occupied by Mr. Decimus Clarke. Eight years later, he removed to his present well-known and extensive nurseries at Ham Common. At the commencement, he made a speciality of Cyclamens, and, later, was extremely successful in the cultivation of Peaches and other fruits. He took up the cultivation of Daffodils, and, by assiduous study, aided by a wonderful memory for form and colour, he became one of the foremost of Daffodil experts. Mr. Walker was a member of the R.H.S. Daffodil Committee from its inception, and was a pioneer in Daffodil culture for the market. Since 1885 he has been a member of the R.H.S. Floral Committee, where his peculiar knowledge of most florists' flowers rendered his services invaluable. He was offered the Victoria Medal of Honour, but his characteristic modesty led him to decline this richly-deserved distinction. For some years he served on the Committee of the Royal Gardeners' Orphan Fund, and after his retirement he continued to take a lively interest in the prosperity of this charity. A shrewd, typical Scot-man, he possessed a quaint and kindly humour, coupled with an outspoken candour that caused him to be loved and respected by all who knew him. The funeral took place on Wednesday last at Ham in the presence of a very large number of mourners, amongst whom we noticed many horticulturalists, including Miss Willmott, Mr. Henry B. May, Mr. Poupatt, Mr. J. F. McLeod, and Mr. W. Bates.

ALFRED W. G. WEEKS.—The announcement of the death, on the 9th inst., of Mr. Alfred W. G. Weeks, for many years associated with the old-established firm of John Weeks & Co., horticultural builders, Chelsea, will be received with deep regret. Few men in the horticultural building trade have been better known, or were more deeply respected than Mr. Weeks, who was a man of wide sympathies and great kindness of heart. He was a son of the Mr. Edward Weeks (a member of an old Welsh family) who, at the commencement of the last century, carried on a market-gardening business on the site now occupied by the nursery of Messrs. William Bull & Sons, and the old manufactory of John Weeks & Co., Chelsea. From the market-garden sprang the nursery of Messrs. John Weeks & Co. It was in this nursery, in 1851, that the Victoria regia was flowered in an open-air tank, heated with hot water. The horticultural building business seems to have originated with the patenting of a plant protector by Mr. Edward Weeks in 1818, and to have been greatly developed by Mr. John Weeks, his brother. Mr. Edward Weeks was also the inventor of the kitchen range (afterwards patented by Dr. Kitchener), and subsequently of the system of heating by hot water on what is called the ascending and descending principle which superseded the old flue system, and worked a complete revolution in the mode of heating horticultural and other buildings. Some 40 years ago the firm of John Weeks & Co. consisted of Mr. Alfred Weeks, Mr. George Deal, and Mr. A. O. Saunders, of whom the last-named only now survives. Mr. Alfred Weeks was a lifelong supporter of the Gardeners' Royal Benevolent Institution, and on the death in 1890 of Mr. George Deal, the first chairman of the Royal Gardeners' Orphan Fund, he became a member of the committee, and subsequently a vice-president of that charity. He was also a supporter of a number of other charitable institutions. ☞

mation was conveyed to the committee that the child had expressed a desire to become a gardener, and further that, for certain reasons, it was desirable that he should be removed without delay from the immediate locality. Steps had been taken to provide a place for him in the School of Handicrafts at Chertsey, where he would be taught gardening, but that school would not take him unless a sum of 5s. a week for two years was guaranteed. In these circumstances he, the Chairman, had asked the committee to guarantee that sum, and he now asked the general meeting to approve of the step the committee had taken in this matter. After some remarks by Mr. Alexander Dean, the meeting unanimously approved of the expenditure.

The meeting then proceeded to the re-election of officers and the retiring members of the committee. Mr. Brian Wynne was re-elected secretary. Scrutineers of the ballot were appointed,



THE LATE JAMES WALKER.

and the meeting adjourned till 4.30 p.m. On re-assembling, the Chairman announced that the 15 successful candidates were as follow:—

	Votes.
John H. Jones	363
William A. Bailey	353
William G. Wright	341
Samuel Rainey	339
Cyril M. Foster	316
Monica A. Hulks	299
Frederick J. Moore	289
Leslie R. King	288
Victor Powlesland	287
Maurice L. Johnson	269
Winifred Pearson	257
Ada M. Holloway	248
Albert W. Whitlock	234
William N. Glide	233
John C. Gould	231

The unsuccessful candidates were:—Evelyn M. Stokoe, Ralph G. Deadman, William Sprackling, Marjorie E. Billings, Winifred G. Lockyer.

The Chairman stated that there were, in addition to the five unsuccessful candidates, 10 fresh candidates whose claims had already been allowed by the committee, and two candidates whose claims would be considered at an early meeting. These made a list of 15 or 17 candidates already for their election next February. In these circumstances, he need hardly say how important it was that every effort should be made to increase the income of the Fund.

In the evening of the same day, the members of the committee and a few friends dined together at Simpson's, when Mr. Henry B. May again presided.

Mr. William Poupatt, Mr. Thomas A. Sanders and Mr. William P. Thomson, and being eligible, offer themselves for re-election.

The auditors, Mr. M. Rowan and Mr. P. Rudolph Barr, are again most cordially thanked for the great care which they have taken in the examination of the accounts, a duty which yearly becomes more onerous, but always most cheerfully discharged. Mr. Barr is the retiring auditor, and the Committee are glad to have received his consent to be nominated for re-election.

Mr. May said that he thought all present would agree with him when he said that the report and balance-sheet were equally satisfactory. If the Fund had not made phenomenal strides, there had, at the least, been steady and continual progress. Like other institutions of a kindred nature, the committee of the Orphan Fund had found it more difficult last year than usual to collect subscriptions and donations. This difficulty seemed to be felt more acutely towards the end of the year, and certain sums which should have been received in the autumn, were not actually paid until the commencement of January. These facts were shown in the balance-sheet to some extent, but subscribers might bear in mind that any deficiency noticed in this respect had been made good since the turn of the year. He was sorry that the committee felt itself unable to recommend more than 15 candidates for election that day out of the 20 printed in the list. But earnest consideration had to be given to ways and means in respect to the responsibility the fund incurred. He might tell them that they had for the time being gone almost to the extent of their tether. This and similar institutions were governed by rules in regard to their main policies, but he felt that beyond the observance of these rules there was room for the exercise of common-sense on the part of those charged with the responsibility of management. In their own case they had not merely to provide 5s. per week for elected orphans, but there were frequent applications for "grants in aid." Half-a-crown a week was given to accepted candidates whose circumstances made it impossible for them to wait for election before receiving any aid from the fund. Then there were further grants in aid to children about to leave school. For his own part, he considered it would be a most unwise policy to maintain children for several years and to withhold a little extra help from them at a time when it was most essential they should be helped to make a good start in life. He was glad to say that the committee made grants to enable a child to be provided with clothes or with other requisites at the period when they were leaving school for some kind of work. Again, in some cases beneficiaries were found to be in such circumstances at the age of 14 that it was desirable to continue the allowance for another year. This had been done in several cases, and in one at least the allowance had been extended for two years. Last year the committee had distributed in weekly allowances a sum of £1,565 5s. and in grants-in-aid a sum of £145 11s. 8d.; these results were fairly satisfactory. Mr. May then made an appreciative reference to the grant of £20 which had been made by the Société Française d'Horticulture de Londres, and expressed the thanks of the committee and subscribers to that society. He hoped that Mr. Schneider, the president, would soon be restored to his usual health. The motion having been seconded by Mr. Alderson, it was accepted without comment.

The Chairman then rose to make an explanation in respect to a grant which had been made to an orphan who was above the age of 14 at the time of his father's death. It appears that the committee possess the power to continue the allowance, in particular cases, beyond the age of 14 years, but they have not the power to grant a fresh allowance to an orphan who has already attained that age. During last year a particularly sad case had arisen, in which the father died in February at the age of 38 years. His wife was confined on the day previous to her husband's death, and she was buried two days later than her husband. They left seven children; the oldest was just turned 14 years, and the youngest was three days old. The circumstances were so distressing that a local subscription was made to help the children to tide over a short period. Later, some were sent to one institution, and some to another, but the boy of 14 years was found to be too old for any institution, and, unfortunately, he was past the age when a child is eligible for the Royal Gardeners' Orphan Fund. The infor-

LAW NOTE.

AN ORCHID DISPUTE.

BEFORE the Lord Chief Justice and a special jury on the 8th inst., the hearing was concluded of an action in which Mr. Horace Thos. Pitt, of Rosslyn, Stamford Hill, claimed damages for alleged breach of warranty on the sale of a plant against Mr. Henry Whateley, of Spring Gardens, Kentworth, Warwickshire. The defendant denied that the plaintiff was entitled to recover.

Mr. Vachell, K.C., and Mr. Groser appeared for the plaintiff, and Mr. Hugo Young, K.C., and Mr. H. Maddocks represented the defendant. Mr. Vachell, K.C., explained that the plaintiff bought a specimen of *Odontoglossum crispum* from the defendant for 100 guineas in April, 1904, the bargain being made between them at a house of refreshment in Chipping. The defendant said the variety was of the finest blotched type, though he had never himself seen it in flower. In buying it, Mr. Pitt relied upon the custom that he would be able to have his money back if the plant did not turn out as represented. The plant was christened "Hidden Treasure," which was a good name, said counsel, because the treasure had not been discovered yet. The plant was sent by the plaintiff to be looked after by a gentleman in the country. In 1903 the plant came into flower. Mr. Pitt then found it was perfectly worthless from a commercial point of view, the bloom not being of the kind expected. The plaintiff sent the plant back to the defendant and wanted his money returned.

Mr. Pitt gave evidence in support of his case. When the flower appeared it was "perfect rubbish," worth about half-a-crown.

Cross examined by Mr. Hugo Young, the witness said he had given as much as £1,000 for an Orchid. He had bought one parent plant for £300 and sold three bits from it for £3,000.

Between 1904 and 1905 has there not been a slump in Orchids, so that plants which formerly fetched pounds now fetch shillings?—That is true of cheap Orchids, but not of valuable ones. Really good "crispums" have gone up in price.

The witness said he knew the plant was a weakly one when he bought it, and that is why he called it "Hidden Treasure." He denied that he purchased on the authority of a third person who was present at the sale.

Mr. Gods-f, manager to Messrs. Sander & Sons, was shown a picture of the Orchid in dispute, and said it was worth £5.

The defendant, giving evidence in support of his case, said he had not seen the Orchid in question in flower before he sold it. He had previously sold one of the same variety for 700 guineas. Mr. Walters, plaintiff's agent, went with the witness to Birmingham to inspect this plant, which was in bloom. Mr. Walters offered him £105 for the plant in question in this case. The witness said, "You will buy it at your own risk," and he did not say anything as to how it would turn out. Subsequently, the plant was delivered to Mr. Walters. Later, in London, he saw the plaintiff, who said the plant did not look as though it would live. The witness never said that the plant was one of the finest blotched crispums in the world. The Orchid was returned in bloom in 1903. Had the plant in 1904 a bloom like it had in 1910 he would have asked 100 to 150 guineas for it.

Cross-examined, witness said that on an invoice of Orchids everything was described as "fine."

The Lord Chief Justice remarked that everything his gardener supplied to him was always described as fine.

A verdict was returned for the defendant, and judgment was given accordingly, with costs.

GARDENING APPOINTMENTS.

Mr. WM. EDWARDS, for the past 3 years Gardener to Mrs. DE BOEFIELD LARSEN, Hollowood, London, Colchester, and presently Foreman at Stoke Park, Guildford, Surrey, as Gardener to THOS. HENDERSON, Esq., 11, Breckchurch Hall, Colchester, Essex. (Thanks for donation of 2s. for R.G.O.F. box.—F.H.S.)

Mr. F. ARLES, for the past 4 years at Albury Hill Gardens, Woking, as Gardener to E. MATHIAS SMITH, Esq., Godalming, Surrey, near Welwyn, Bedfordshire.

Mr. C. FELL, for the past 5 years Foreman in the plant and fruit department at Hebbury Gardens, Moor Green, Birmingham, as Gardener to CORA COURLESS OF STRAIGHTON, Houghton Hall, King's Lynn. (Thanks for your contribution of 1s. for the R.G.O.F. box.—F.H.S.)

ANSWERS TO CORRESPONDENTS.

ABUTILON VITIFOLIUM: *C. Prentis.* As your tree is in good health and it blooms profusely, it is scarcely likely that the treatment is at fault. The individual flower does not usually last more than two or three days. It is a characteristic of the natural order—Malvaceae—to which it belongs that the flowers should be of short duration. In certain species of Hibiscus, for example, the flower only lasts a single day.

AQUILEGIA: *Amateur.* When the garden area is limited, it is essential that the ground be deeply dug, so as to bring as much new soil as possible under climatic influences. Every other year a good supply of stable or farmyard manure (six barrow loads per square rod) should be well incorporated with the soil at the time of digging during the winter season. In the early spring before the soil is levelled down, sow over the surface the following manurial mixture at the rate of 6 ounces per square yard, 4 parts superphosphate or basic slag, 3 parts bone-meal, and 2 parts kainit. Lightly dig this mixture in before planting. Aquilegias are true perennials not biennials.

BRUSSELS SPROUTS: *D. C. Tambridge Wells.* There is no reason to assume that the seed stocks of your Brussels Sprouts were at fault in the plants failing to produce solid, hard Sprouts. The soil was no doubt too rich, soft and porous. Sow the seeds this season at the end of March, scattering them thinly in shallow drills on ground of medium quality. When the seedlings are 6 inches in height, plant them in ground that has not been manured recently. Lift the plants from the seed-drills with the aid of a fork, preserving intact as many roots as possible. Plant them without unnecessary delay and tread the soil firmly about the roots. The very best of all Brussels Sprouts are produced in market fields, where the soil is made quite hard. Plant in rows at 30 inches apart, and allow the plants a distance of 15 inches in the rows.

CELERY DISEASED: *Hants.* The plants are affected with heart-rot caused by the fungus *Sclerotinia*. The soil is infected, and should be treated with gas-lime.

EARTHWORMS IN POTS: *J. N.* Add three or four handfuls of freshly made quicklime to one gallon of water, and apply the liquid, when clear, to the soil. Worms in potting soil may also be killed by applying a solution of corrosive sublimate at a strength of ½ ounce in 15 gallons of water. Messrs. Cooper, Taber & Co. sell a preparation known as "Chinese Worm Soap," which will cause worms to come to the surface of the soil in pots or in lawns. See that the drainage of the pot is in proper order, as when worms are present in pots the crocks frequently become clogged with fine soil.

ELM TREE DISEASED: *V. H. L.* The tree is attacked by *Nectria ditissima*, the same fungus which causes the "canker" of Apple trees. Diseased branches should be removed. The treatment you have followed is the correct one.

GRUBS IN ASPIDISTRA POTS: *J. G. O.* The plant is infested with the common white spring-tail, *Larva Ambulans*. Soak the soil with lime and soot water at intervals, and sprinkle a little lime on the surface.

HARDY FRUIT: *O. R. J.* The following varieties are amongst the best for training with horizontal branches against a wooden fence. There are eight Pears, four Plums, and three Cherries. The varieties are arranged in their order of ripening, and consist of early, mid-season, and late sorts. *Pears*.—Beurré Giffard, Williams's Bon Chrétien, Marguerite Marillat, Conference, Marie Louise, Doyenné du Comice, Winter Nelis, and Le Lectier. *Plums*.—Bayer's Early Prolific (dessert or cooking) Greengage, Kurke's, and Jefferson (American Gage). *Cherries*.—Bigeurau Schrecken, Governor Wood, and The Noble. In respect to the double cordons, as your fence is low the cordons should be trained obliquely in order to permit of a greater length of stem. The following varieties are suitable for the purpose: *Pears*.—Sonvenir du Couerès, Triomphe de Vienne, Louise Bonne of Jersey, Emile d'Heyst, Doyenné du Comice, (Gou Moreau), Santa Claus, and Marie Benoist. *Plums*.—The Czar, Oulin's Greengage, Coe's Golden Drop, and Late Transparent Gage.

HEATHS: *Rosa.* 1, *Erica gracilis alba*; 2, *E. gracilis*.

MARISCUS OVULARIS VAR. ROBUSTA: *B., M.-R.* This plant belongs to the natural order Cyperaceae. It is a native of the southern United States, where it is said to grow in dry, rocky woods, and in the Pine barrens of New Jersey. The variety *robusta* grows from 2 feet to 3 feet high, and in appearance somewhat resembles our native *Cyperus longus*, but it does not get so tall. It should be planted in a sheltered, shady position in well-drained, loamy soil with plenty of leaf soil added. As the plants come mainly from Texas protection should be given them in severe weather. The species is also known as *Cyperus ovularis*.

MUSHROOM SPAWN: *Correspondent.* To obtain an increase of spawn stable sweepings, with other manures, are mixed with loam and moistened, so that they can be made into "bricks" or cakes. They are then placed to dry. When moderately dry a small piece is cut or scooped out of the centre of each. A small portion of an old cake is inserted into the cavity formed. The cavities of the two cakes are then placed opposite each other, the sides of each two meeting. The cakes when done are placed in one heap, closely packed and fitting together, and either by aid of well-seasoned fermenting material, a flue or otherwise, a dry warmth is maintained throughout this mass, the result being that the spawn permeates the whole. Immediately this is seen the cakes are separated and dried. Thus is maiden spawn held in suspension, as it were, until such time as it is again set to work growing in the prepared beds.

NAMES OF FRUITS: *James Wilson.* Gascoyne's Scarlet Seedling or Glory of England.—*Regular Subscriber.* Reinette Van Mons.

NAMES OF PLANTS: *J. B.* *Garrya elliptica*.—*G. J.* 1, *Juniperus chinensis*; 2, *J. communis*; 3, *Sequoia sempervirens*; 4, *Cephalotaxus drupacea*; 5, *Abies Lowiana*; 6, *A. nobilis*.—*Pat.* 4, *Thuja orientalis*; 5, *Cupressus pisifera squarrosa*; 6, *C. p. var. filifera*.

ORCH SPROUTS WITH SWELLINGS: *Nomad.* The swellings are caused by groups of arrested buds. No disease is present.

PRIMULA OBOVATA AND CATS: *R. C. W.* We have never heard of any animal being poisoned by *Primula obovata*, and it is unlikely that a cat would eat the leaves. When cats have no ready access to a garden they have been known to nibble Ferns in pots in a dwelling room. In the garden they generally prefer to eat the striped grass. The only way to decide if the death of the cat was caused by eating *Primula obovata* leaves would be to examine the contents of the stomach. You will find information on the poisonous properties of *Primula obovata* in an article on "Plants and Skin Irritation" in the issue for August 8, 1908, p. 110.

RICHARDIA (CALLA): *S. P. & Sons.* The crowns are badly infested with a fungus which spreads and passes into the new portions, which should not be used for purposes of propagation.

VIOLETS UNHEALTHY: *J. N.* No disease is present. The decay is due to unsuitable cultural treatment.

YOUNG VINES: *J. S.* The vines should not have been planted until the buds showed signs of bursting in spring. At that time there is a moderate amount of sunshine, and a proper temperature can be maintained without the use of much fire-heat. Since you have already planted them, they should be started into growth, but do not employ too much fire-heat till the shoots and roots are active. Close the house for a week or two, and then apply fire-heat sparingly till the vines are growing freely. Do not cut the rods back now, or the vines will bleed. The better plan is to disbud the rods to the point from which you desire the leading shoot to grow. Should the vines make fairly good progress, in seven or eight years they may be allowed to furnish a trellis of the length you mention.

Communications Received.—*G. J.* (thanks for 1s. for R.G.O.F. box) *W. H. B., W. B., D. H., L., F. T., A. G., G. T. P., A. H., A. R. H., J. F. W., Rotterdam*—*E. M., A. D., F. W., C. W. H. Y., R. P. B., W. H. C.*—*M. R., F. W. M., J. S. G., Rochester, N.Y.*—*B. G., A. A. B., G. D., T. S., E. C. B., C. M., France.*—*B. E., B. W., Jumbo Scendras, F. W. N., Arundo, W. D. W., Clapham General T., D. B., S. C., H. S. B., A Reader*—*T. B., H. S., H. J., V. L. M., Germany*—*F. H., H. N. E., H. E. K., M. L., O. B.*

THE

Gardeners' Chronicle

No. 1,261.—SATURDAY, February 25, 1911.

CONTENTS.

Alpine garden, the— How to build a moraine ... 117	Saxifraga < Clibranii ... 123 Seeds, protecting ... 121 Societies— Boskoop Pomological Horticultural Club ... 121 Irish Gardeners' Association and Benevolent ... 126 National Fruit Growers' ... 126 Royal Caledonian ... 121 Royal Horticultural (Scientific Committee) ... 120 Scottish Horticultural ... 124 Stirling & Di. Hort. West of England ... 124 Chrysanthemum ... 124 Sweet Peas, prizes for ... 120 Trachymene cœrulea ... 111 Trees and shrubs— Bamboos cultivated at Kew ... 115 Turin International Exhibition ... 121 Vegetables— Select varieties of Peas ... 115 Week's work, the— Apiary, the ... 119 Flower garden, the ... 119 Fruits under glass ... 118 Hardy fruit garden ... 118 Kitchen garden, the ... 118 Orchid houses, the ... 119 Plants under glass ... 119
Apples, imported and home-grown ... 123	
Baron Hill, Anglesey ... 122	
Benevolent Institution, Gardeners' Royal ... 121	
Books, notices of— Agricultural Chemistry ... 116 Garden Foes ... 115 Guide to Mr. Smith's drawings of Mushrooms ... 116 Kew Guild Journal ... 121	
Botany, the rise of systematic, in England ... 113	
Gardeners, municipal, and their wages ... 121	
Grass, the romance of a International Horticultural Exhibition, 1912 ... 121	
Japan, a journey to ... 116	
Journal, the R.H.S. ... 123	
Obituary— Daniels, George ... 128 Foster, Charles ... 127	
Orchids, large plants of ... 123	
Plant physiology and pathology ... 121	
Potatoes, wart disease of ... 120, 122	
Rosary, the— Cultural notes for March ... 114	

ILLUSTRATIONS.

Baron Hill, Anglesey, views of (also Supplementary Illustration) ... 122, 123
Daniels, George, portrait of the late ... 128
Foster, Charles, portrait of the late ... 127
Saxifraga oppositifolia growing in a Swiss moraine ... 117
Thlaspi rotundifolium growing in a Swiss valley ... 116
Trachymene cœrulea ... 114

THE RISE OF SYSTEMATIC BOTANY IN ENGLAND.

THE third lecture of the course of advanced lectures on the History of British Botany was delivered on February 3, at University College, Gower Street, by Dr. Vines, F.R.S., Professor of Botany in the University of Oxford, the subject being "The Rise of Systematic Botany in England," with special reference to Morison and Ray.

The lecturer began by stating that the earliest attempt at a classification of plants that had come down to us was that of Theophrastus of Eresos, who lived B.C. 371-286. It consisted in grouping plants as trees, shrubs, under-shrubs and herbs. This very elementary method remained in force until the time of Linnaeus. No material progress in the science of classification was made during the 2,000 years or so that elapsed between Theophrastus and Morison, though in the works of the later herbalists, such as Boeck, Dodœns and de l'Obel, some attempt at arranging plants otherwise than alphabetically or by their medicinal or economic properties, can be traced. De l'Obel, in particular, succeeded in grouping together most of the plants which now constitute the class Monocotyledons (*Nova Stirpium Adversaria*, 1570).

No definite system of classification was, however, propounded until 1583, when Andrea Cesalpino published his *De Plantis Libri xvi.*, and thereby founded systematic botany. His system was based upon the characters of the fruit, and was, therefore, to some extent artificial; nevertheless, it sufficed to bring together a considerable number of plants into groups which were the antecedents of several of the existing natural orders.

Cesalpino's method was not received with any enthusiasm, and it failed to produce any effect upon the botanical writings of his time. The

need of some method of arranging plants in accordance with their botanical characters seems to have been less and less regarded, as the 17th century came on, and Caspar Bauhin's *Pinar* (1623) may be cited to illustrate the utter lack of any reasonable system at this period.

It was about this time that Morison was born (1620), at Aberdeen. He grew up and studied in his native city, and had begun to teach in the university when the Civil War broke out, in which he took part on the Royalist side, and was severely wounded in 1644. As soon as he was well enough, he fled to France, and pursued there the study of natural science and medicine. Eventually he devoted himself entirely to the study of botany, and was appointed by the Duke of Orleans, in 1650, to take charge of the Royal garden at Blois, a post that he held for 10 years. In 1650, he was presented to King Charles II., who was about to return to England, and immediately after the Restoration the King summoned Morison to London, giving him the title of King's Physician and Professor of Botany with a salary. Morison found time, during the nine years that he spent in London, to write his first work, the *Præudia Botanica*, that appeared in 1669.

In the meantime, by the munificence of Lord Danvers (afterwards Earl of Danby), some progress had been made in the development of botany in the University of Oxford. A physic garden was founded in 1621 (not, as is generally stated, in 1632); but it was not in full operation until about 1640, when it was placed under the charge of Jacob Bobart the elder. At length, in 1669, the state of the funds permitted the appointment of a professor of botany, and Morison was elected the first professor.

Morison, in his *Præudia Botanica*, had called attention to the crying need of a system of classification, and, without actually formulating a system, had made suggestions of importance. He set to work, whilst at Oxford, upon his great *Historia Plantarum Universalis Oronensis*, which was to illustrate his system of classification, and he produced a volume of it (called *Pars Secunda*) in 1680. This volume dealt with only about one-third of the herbaceous plants. Whilst actively continuing his work, Morison was unfortunately run over by a coach in the Strand, in November, 1683, and was so much injured that he died the next day. His unfinished work was entrusted by the university to Jacob Bobart the younger for completion; after many delays, a second and last volume (the *Pars Tertia*), dealing with the remainder of the herbs, was published in 1699. The *Pars Prima*, which was to have treated of trees and shrubs, was never published nor, indeed, written.

Morison died without leaving behind him any complete statement of his system of classification. Such a statement was, however, published in 1720, long after his death, and after Bobart's death, in the form of a small tract, called the *Historia Naturalis Scenographia*, but it is no doubt a very much modified expression of Morison's views. The system is in many respects so similar to that of Cesalpino as to leave no doubt as to the source of Morison's inspiration; nevertheless, as both Tournefort and Linnaeus have testified, Morison's system, although it cannot claim any great originality, yet it accomplished a most useful work in arousing interest in the subject of classification and in reviving the forgotten method of Cesalpino.

Another system of classification was already in the field when Morison began to publish his botanical works, the system of John Ray. Ray was born at Black Notley, Essex, in 1728. He went up to Trinity College, Cambridge, in due course, graduated with distinction, and became Fellow and Lecturer of his College. He was obliged to give up his Fellowship and to leave Cambridge in 1662, on his refusal to sign the declara-

tion against "the Solemn League and Covenant" prescribed by the Act of Uniformity. From that time Ray devoted himself entirely to those studies of natural history in which he had already made considerable progress. His first essay in the department of systematic botany was an article, the *Tables of Plants*, contributed to Dr. John Wilkins's encyclopedic work, *Real Character and a Philosophical Language*, published by the Royal Society in 1669: this is the first systematic work in the English language. The method therein adopted is not of any great value, and called down such severe criticism from Morison that a life-long hostility between him and Ray was the result (see Blair's *Botanick Essays*, 1720). After a few years, Ray produced a more elaborate systematic work, the *Methodus Nova*, 1682. So far as comparison is possible, it does not appear to be very different from Morison's; in fact, it seems clear that Ray, as well as Morison, followed the lead given by Cesalpino a century earlier. Shortly before his death in 1705, Ray issued a new version of his system, the *Methodus Emendata et Lucta*, 1705, which marked a great advance, particularly in the sub-division of flowering plants into Monocotyledons and Dicotyledons. The influence of Ray on the development of systematic botany is to be traced, through Tournefort, to A. L. de Jussieu, who, in 1789, established definitely the Natural System.

Ray was probably more of a naturalist than Morison. The latter wrote nothing on field-botany, whereas Ray produced a *Flora of Cambridge* (1660), as well as a *British Flora* (1670), which was almost the earliest work of the kind, having only been anticipated by William How's *Phytologia Britannica* (1650). Ray's alphabetical catalogue of British plants developed, however, into the first systematic flora, the *Synopsis Methodica Stirpium Britannicarum* (1690).

Thus it is clear that the renaissance of systematic botany was due to the labours of the two distinguished Britons, Morison and Ray; Morison laid the foundation, and Ray built upon it.

The lecture was illustrated with lantern slide portraits of Morison, Ray and the two Bobarts. A printed syllabus, giving a summary of the systems of classification mentioned in the lecture, was distributed.

THE ROMANCE OF A GRASS.

THE *Agricultural Gazette* of New South Wales contains the following interesting history, by Mr. H. C. L. Anderson, of the introduction and spread of the grass *Paspalum ovatum* in the state of New South Wales. In the year 1890 a small packet of grass seed named *Paspalum ovatum* was sent by Baron Von Mueller, Government Botanist of Victoria, to the Department of Agriculture in New South Wales, in the hope that the grass would succeed better under the sub-tropical conditions in this state than it had hitherto done in Victoria, where it had been tried with but partial success for several years.

The packet was divided amongst a number of men who used to experiment with new seeds, and about ½ ounce was sent to Mr. Edwin Seecombe, of Wollongbar, who was the keenest experimenter in the State, and had already done much to introduce new economic plants to the Richmond River district, so little known in those days.

In 1891 Mr. Seecombe, who was the only one that ever took any trouble with this grass, reported that he did not think much of it, as it was rather tussocky, but would continue to propagate it. On May 19, 1892, he sent a specimen of a grass in full seed to be named, and said: "I have only four roots, which are now well rooted. They grow right through our dry summer and keep beautifully green." The grass was identified as

Paspalum dilatatum by Mr. Fred Turner, the Botanist of the Department at that time.

In the following year Mr. Secombe had a small area covered with this grass, which is identical with the *Paspalum ovatum* that Baron Von Mueller had obtained from South America, and which was known under that name in many of the States of North America.

A year afterwards seed was being sold at £1 per lb. To-day there are 190,000 acres of land in this State planted with this grass along the whole of the coast, from the Tweed River to Eden. It is found in such widely different places as Glen Innes, in the New England district, with 30 inches annual rainfall, and at Pera Bore, beyond Bourke, where it grows excellently with 8 inches rainfall, supplemented by artesian water. Its real home, however, is on the coast between the Manning and Tweed Rivers, where it has doubled the productive value of the best land, and has quadrupled the grazing value of inferior land, which 20 years ago was useless for dairying. Mr. Secombe reported in 1890 that there were many farms for sale on the Richmond River at from £2 to £5 per acre, and more sellers than buyers. To-day these farms are eagerly sought by buyers at from £20 to £40 an acre, and many tons of *Paspalum* seed are now yearly exported at 5d. per lb.

Much of this is due to the wonderful properties of *Paspalum dilatatum* as a forage grass, but its very success gives cause for concern now, and the dairy farmers are beginning to realise that this grass alone is not a complete fodder for their milking cows, and that they must either conserve and encourage the white clover or any other leguminous plants which will grow in combination with it, or must cultivate cowpeas and other leguminous plants suitable for the district, to be fed with the *Paspalum*, in order to make a complete ration.

It must be recognised that even the rich North Coast soils cannot continue indefinitely to produce such heavy crops of this prolific grass as they have done in the past without showing signs of exhaustion; but the greatest danger of this grass is its very dense and rank growth, which is apt to choke out the Clover and other subsidiary herbage, and make a single crop for the cows' pasture, which can never be a well-balanced ration for dairy cattle.

It is intended to experiment in the direction of top-dressing *Paspalum* paddocks with bone-dust and other phosphatic manure, both alone and in conjunction with lime and potash manures, to ascertain whether the feeding value of this valuable grass can be maintained and perhaps improved for another generation.

TRACHYMENE CÆRULEA.

This half-hardy annual is a member of the Umbelliferae, a family that is not remarkable for the number of its attractive flowering plants. Growing from 1 foot to 2 feet high, the flower-stems are erect and much branched, each branch terminating in a flat umbel about 2 inches in diameter (see fig. 56). The flowers, which are small and of a pleasing shade of blue, are produced freely during the late summer months. Seeds should be sown in heat in spring, and when the seedlings are large enough they should be pricked off into boxes, and finally transplanted into the border where the plants are intended to flower in April or May. The seedlings are impatient of excessive moisture in the early stages of their growth, and hence require careful treatment in watering. *T. cærulea* is a native of Western Australia, whence it was introduced in the early years of last century, and is the only member of the genus worth growing. There is another species, *T. pilosa*, with small umbels of rather dull flowers, grown in botanic gardens. *T. cærulea* may be sown out-of-doors in April, when the seeds germinate freely, and the plants flower late in the autumn. The plant is also known as *Didiscus cæruleus*. W. I.

THE ROSARY.

CULTURAL NOTES FOR MARCH.

TOWARDS the middle and end of March, the pruning of Roses should be generally undertaken. The Austrian and Scotch Briars, the Penzance Sweet Briars, the Wichuraianas, Macartney, Japanese, and most others of the stronger-growing type need no pruning after the first year from planting, at which time they do best if cut down rather closely. Afterwards it is only necessary to cut out the dead and decaying wood. But the Provence, Damask, and Moss Roses should be pruned rather closely each year. Banksian and other strong climbers trained on

classes need special pruning. A few that should not be cut too closely are (Hybrid Perpetuals) Clio, Dupuy Jamain, Duke of Edinburgh, Hugh Dickson, Magna Charta, John Hopper, Maharajah, Rev. Alan Cheales, and Paul Neyron; (Hybrid Teas) Bardou Job, Augustine Guinoisseau, La France, Grace Darling, Gloire Lyonnaise, Gustave Regis, Gruss an Teplitz, Marguerite Appert, Mme. Pernet Ducher, Papa Gontier, Marquise de Salisbury, and Viscountess Folkestone. The beautiful Lyon Rose needs only the tips of the branches and growths injured by frost cut away. China and dwarf-growing Polyantha Roses also need thinning in the centre, cutting the shoots a little below the old flower trusses. Some few varieties from each section



FIG. 56.—TRACHYMENE CÆRULEA.

walls or trees should have the whole of the sound wood retained; but no shoots that have been injured by frost should be retained.

The more hardy Hybrid Perpetual Roses may be cut back about two-thirds of their length, and should be well thinned in the centre to admit as much light and air as possible. Should extra good flowers be required, much closer pruning must be adopted, and this also applies to the Hybrid Tea varieties. Tea-scented Roses need only thinning where the shoots are crowded, and the remainder cut back about half-way. If specially fine flowers are desired in this section, thin out the young shoots as soon as it can be determined which are the strongest, leaving those that are developing in the best positions.

Some few varieties in all three of these main

being but indifferent growers, need very close pruning. It is a good general rule to prune the weaker growers much harder than those that grow freely. Standard plants need not be pruned quite so closely as would be practised with dwarfs of the same variety.

Pruning should vary a little according to the locality of the garden. From the middle to the end of March is generally suited for the more hardy growers, but the first two weeks of April is better for Tea and other tender varieties. Much will depend upon the season and on whether the plants are growing in a warm or cold district. The dates I have given are suited for gardens in the Midlands during an average season. Pruning should not be hastened simply because the young growth is precocious, as early pruning will cause

the plants to push the dormant buds, and growths thus formed are liable to injury from frost. The first growths that develop at the tips of the shoots assist to keep the more valuable lower eyes in a dormant condition until danger from frost and cold winds is over.

Always cut close down to the last eye or bud, and see that this is so placed that the resulting shoot will grow away from the centre of the plant. By collecting the prunings as soon as possible, and burning them, numbers of insect and fungous pests are destroyed.

After pruning is finished, make good any dead plants, and replace weakly ones from the reserve plants in pots, which I recommended to be grown for the purpose in a former note. Apply a mulch after planting, and dig it in very lightly as soon as the weather permits, preferably after a shower has washed into the soil some of the fertilising properties of the manure. On no account dig the ground deeply; but a slight moving of the top soil will prove an advantage in destroying weeds, and the hoe will work to better advantage throughout the summer.

If Roses trained on walls and fences are unevenly distributed it is advisable to release the shoots and relay them afresh. Bare spaces at the base of the plants can be furnished with dwarfier growing varieties; Tea Roses with a habit similar to Marie Van Houtte, Anna Olivier, and Souvenir de Pierre Notting, are very suitable for the purpose.

ROSES UNDER GLASS.

THE last batch of plants should be started into growth. Care should be taken to destroy insect pests, which are always troublesome during March and April. Feed the more forward plants freely with liquid manure, giving weak but frequent doses. A rise in the temperature of 10 degrees or more during bright sunshine will do no harm, especially towards mid-day. An excessively high temperature may be rendered harmless by sprinkling water among the plants and on the walls or paths, but do not do this so freely as to cause the atmosphere to be so moist at night-time that the house is still damp on the following morning.

Young grafted Roses will need repotting as the plants progress, first warming the pots and the compost to the temperature of the house in which they are growing. This precaution is often neglected, and cold causes a serious check to the roots. Most of the strong growers will need a copious watering with some liquid stimulant, preferably diluted drainings from a cow-stall, or where beasts are being fattened. Let it be given freely, but not too strong. The borders where Roses are planted are frequently dry a little below the surface, and the roots need a considerable amount of moisture at this season. A capital and perfectly safe wash for mildew and insects generally is made from Mo. Effie and Cylin soft soap. Use them together, but at a slightly lower strength than is recommended by the makers. *Practice.*

VEGETABLES.

SELECT VARIETIES OF PEAS.

Owing to the unfavourable summer of 1909 the seeds of culinary Peas ripened badly, and certain varieties in particular germinated unsatisfactorily. The summer of last year proved little, if any, better than the previous one, and much disappointment will probably be experienced with Peas again this season. In looking through the seed catalogues I find that some varieties are omitted from the lists owing to failure of the seed crops. It is well-known that some varieties do better in a wet and unfavourable season than others, and it may be of service to growers to give a list of those which

did best with us last year. Chelsea Gem proved itself worthy of its reputation, and produced a heavy crop of well-filled pods for early supplies. Early Giant, a grand Pea in every respect, proved one of the best and most reliable varieties. Hundredfold, grown here for the first time last year, proved a most useful and profitable Pea. After having furnished an average crop of pods, the fruiting was, to all appearances, finished; but in a short time the plants broke into fresh growth, and flowered, giving a splendid second crop of pods.

Centenary proved to be a thoroughly reliable maincrop variety; while for late supplies, Gladstone and Latest of All proved satisfactory. Another variety which did especially well here was an unnamed sort, which I received for trial from Mr. E. Molyneux, of Swanmore Park Farm. This variety produced a heavy crop of delicious Peas, the flavour being especially good. It is a tall-growing plant, and the pods (though freely produced) are somewhat small. There were no signs of mill dew. *Wilmot H. Yates, Rotherfield Park Gardens, Hants.*

TREES AND SHRUBS.

BAMBOOS AT KEW.

FROM time to time enquiries are received with regard to the species of Bambuseæ in cultivation at Kew; a revised census, based on the Kew *Handlists*, and brought up-to-date, has therefore been printed in the *Kew Bulletin*. This list is as follows:—

- Arundinaria anceps (Mitford).
- " argenteo-striata (Hort.).
- " aristata (Gamble).
- " auricoma (Mitford).
- " chrysantha (Mitford).
- " falcata (Nees).
- " " var. glomerata (Gamble).
- " Falconeri (Mitford).
- " Fortunei (A. & C. Rivière).
- " Hindii (Munro).
- " " var. graminea (Bean).
- " Hookeriana (Munro).
- " humilis (Mitford).
- " intermedia (Munro).
- " japonica (Sieb. & Zucc.).
- " khasiana (Munro).
- " Kokantsik (Kurtz).
- " Kumasasa (Kurtz).
- " macrosperma (Mchcz.).
- " " var. tecta. (A. Gray).
- " nitida (Mitford).
- " pumila (Mitford).
- " pygmaea (Kurtz).
- " racemosa (Munro).
- " Simoni (A. & C. Rivière).
- " " var. Chino (Makino).
- " " variegata (Hook. f.).
- " Veitchii (N. E. Brown).
- Bambusa "Alphonse Karrii" (Hort.).
- " angustifolia (Mitford).
- " arundinacea (Willd.).
- " disticha (Mitford).
- " himalayensis (Hort.).
- " macroculmis (A. Rivière).
- " Nagashima (Marliac).
- " nana (Roxb.).
- " " var. variegata (Hort.).
- " nepalense (Hort.).
- " quadrangularis (Fenzl).
- " tesellata (Munro).
- " vulgaris (Schradi).
- " " var. striata (Lodd.).
- Cephalostachyum flavescens (Kurtz).
- " pergracile (Munro).
- Dendrocalamus giganteus (Munro).
- " latiflorus (Munro).
- " sikkimensis (Gamble).
- " strictus (Nees).
- Gigantochloa atra (Kurtz).
- Melocanna bambusoides (Trin.).
- Olyra floribunda (Raddi).
- Oxytenanthera abyssinica (Munro).
- " albo-ciliata (Munro).
- Phyllostachys aurea (A. & C. Rivière).
- " bambusoides (Sieb. & Zucc.).
- " fastuosa (Hort.).
- " flexuosa (A. & C. Rivière).
- " tulva (Mitford).
- " Henonis (Mitford).
- " mutis (A. & C. Rivière).
- " nigra (Munro).
- " " var. Boryana (Hort.).
- " " " Castillonis (Hort.).
- " " punctata (Bean).
- " puberula (Munro).
- " Quiloi (A. & C. Rivière).
- " " var. Marliacea (Mitford).
- " ruseifolia (Hort. Kew).
- " sulphurea (A. & C. Rivière).
- " violaceus (A. & C. Rivière).
- " vivid-glaucescens (A. & C. Rivière).
- Schizostachyum Zollingeri (Steud.).

NOTICES OF BOOKS.

GARDEN FOES.*

IT seems a pity that the proofs of this work did not pass through the hands of some scientific expert, as then this cheap and admirably got-up book could probably have been unreservedly recommended; as it is, the errors which have escaped correction detract considerably from its usefulness.

To mention a few of the mistakes in the entomological part:—The Apple Tree Mite is stated to do considerable damage, whereas it is innocuous or even beneficial; the larva of the Blue Cabbage Flea (*Haltica*) do not form tunnels in foliage; the hibernation of the viviparous females of the Woolly Aphis is the rule, and not the exception; the statement that the lime and salt wash destroys *ora* is erroneous; the scientific names given for the Celery Fly, Narcissus Fly, Onion Fly, Diamond Black Moth, and others are either wrong or obsolete.

With regard to fungous pests, in the case of many of the diseases, insufficient information is given as to the life-history of the fungus, with the result that a gardener (if relying on this book) would be seriously handicapped in the practical work of dealing with the pest. For instance, no mention is made of the fact that the Apple "scab" or "black spot" fungus attacks the young wood of the Apple—here reliance has evidently been placed on the obsolete leaflet of the Board of Agriculture. Again, in the treatment of the Rose mildew, no mention is made of the "winter-stage" on the shoots. In both these cases, a lack of knowledge on the part of the gardener as to where to look for these fungi in the winter might easily lead to continued ill-success in dealing with the disease. The two scabs of the Potato, viz., *Oospora* and *Sorosporium*, are hopelessly confused; and the erroneous statement first published by the Board of Agriculture that the "Black Scab" of the Potato attacks Mangold and Beet is here repeated. The erroneous identification of the Chrysanthemum "Rust" with *Puccinia Hieracii* is perpetuated also. The conidial stage shown at p. 152 is ascribed to *Plasmopara*, whereas it is that of *Uncinula spiralis*; the illustration at p. 246, purporting to be a "fruiting tuft" of *Septoria*, bears no resemblance to this genus, but is apparently a *Cercospora*. The account of "Finger-and-Toe" is unsatisfactory; for instance, no mention is made of the fact that *Plasmodiophora* is liable to attack common Cruciferous weeds, such as Shepherd's Purse, Charlock, &c.; and the reason adduced for not using sulphate of ammonia on soils liable to this disease is quite wrong. The European Gooseberry-mildew is described as covering the *under* surface of the leaf with a white mould; it is the *upper* surface which is thus attacked. Whilst some of the photographs, e.g., that of "Black Scab" are excellent, others, e.g., that of *Eutypella*, show no recognisable characters of the disease.

The advice given with regard to fungicides is also open to criticism. The only recipe given for the making of Bordeaux mixture—that best of all fungicides—is with "lime water"; it is a serious omission not to mention the well-tried and thoroughly efficacious mixture made with "milk of lime." This latter form of Bordeaux mixture—containing an excess of lime—is invaluable for the gardener for use against Potato "blight" and Apple and Pear "scab." The frequent recommendation to use "Bordeaux emulsion" (a combined insecticide and fungicide) when only a fungicide is needed, as e.g. for Potato "blight," is likely, if followed, to cause gardeners much trouble. The term "dilute Bordeaux mixture" is used without any definition of what is meant by dilution. The formula given for the lime-sulphur spray (if not a

By T. W. Sanders, F.L.S. (London: Collingridge.) 21s pp., Numerous illustrations. 2s. 6d. net.

misprint) is quite out of date. Among insecticides the Paris Green wash (together with Blundell's Paste) should not have been recommended for use; they are often unsafe and are quite superseded by Arsenate of Lead.

The scope of the book is wide; beside the insect and fungus pests of fruit, vegetables, hardy and greenhouse plants, such "foes" as cats, moles, mice, rats, rabbits and hares, lawn and path weeds are well dealt with. There is certainly a mass of very useful information in this book—which, moreover, is well illustrated. *E. S. Salmon.*

GUIDE TO MUSHROOMS.*

MR. WORTHINGTON SMITH'S series of coloured drawings of field and cultivated Mushrooms, which is exhibited in the Botanical Gallery of the Museum of Natural History, South Kensington, has been rendered yet more valuable by the issue of a *Guide*, which contains reproductions of the drawings and descriptions of the varieties figured therein. With this *Guide* in his hand, the student should have no difficulty in determining the several varieties of Agarics, and also in ascertaining whether a given specimen of "Mushroom" is edible or poisonous. Readers of these pages in particular will need no assurance that Mr. Worthington Smith's drawings are wholly admirable and conceived not only in the spirit of an artist, but also in that of a man of science, who has devoted many years to the study of this group of plants.

PRACTICAL AGRICULTURAL CHEMISTRY.†

(A Course for Senior Students.)

TEACHERS of advanced classes in agricultural chemistry will find Professor Wood's syllabus, issued in pamphlet form, of great assistance. The course, which is well planned, is the outcome of 17 years' experience of teaching practical agricultural chemistry. Though designed primarily for use in the Agricultural Laboratory of the University of Cambridge, it will be found invaluable to teachers in similar institutions, and will doubtless, in spite of its high price, find its way generally into their hands.

A JOURNEY TO JAPAN.

(Continued from p. 87.)

THE Buitenzorg botanical gardens are situated on the banks of the River Tjiliwong. Rivulets, streamlets and lakes abound, and in these the Victoria regia, Nelmumbiums, and varieties of *Nymphaea Lotus* grow. Tropical trees, Palms and woody climbers are found in rich collections in the gardens, besides great numbers of Aroids, Bambusas and species of Pandanus. The gardens have existed for 150 years, and during that period have passed through many vicissitudes, at times being nearly demolished. They were founded in 1817 at the suggestion of Reinwardt, and were managed for some years by C. L. Blume, and later, up to 1830, by James Hooper, a Kewite. Teysmann, who followed, was guided by a clear insight, and possessed a keen aptitude for organisation. He was assisted by two clever men, T. K. Haskarl and S. Binnendyk. There are some 10,000 plants in an area of about 150 acres. Binnendyk followed Teysmann in 1869, and later was succeeded by Dr. R. H. C. C. Scheffer, who founded a special garden of more than 180 acres for agricultural and experimental purposes. Dr. Treub, whose recent death was chronicled in these pages, became director in 1880. He enlarged the botanical gardens, the collections and laboratories, also the branch gardens at different localities of Java, especially at Tjibodas and the gardens and instru-

tutions at Buitenzorg. The present chief is Mr. Lovrak.

Buitenzorg makes a special point of the study of trees. The Malayan Islands produce timber trees of high quality, and their straight, up-growing stems are only surpassed in height by North American forest trees, such as Wellingtonia and *Abies Douglasii*, or the Australian Eucalypti. The habits of the tropical giants differ largely from those of trees of more temperate regions. Their leaves are mostly evergreen and of a very firm structure, not exposing their whole surface to the full rays of the sun, but to one side, so that rain and light pass through the trees. The most striking feature are the many trees with broad "buttress" roots, the upper surface of which rises out of the ground and reaches a height of several yards. Sometimes the ground is covered with these thick, board-like, roots twisted in all directions and growing one within the other. The many species of Ficus are especially notice-

time, finally sending down roots to the soil. These young plants grow rapidly, and in time overwhelm the older tree, covering it with roots and branches.

Of fruits, that of *Durio zibethinus* (the Durian) is often praised as being the finest flavoured of any, but it has a very disagreeable smell. Most Europeans never taste it, because they object to the smell. The fruits are heavy, and grow on tall trees.

Nephelium mntabile and *N. lappaceum* are delicious fruits, having a taste much in the way of Grapes. They have a thick skin, something like that of a Horsechestnut and of a beautiful red colour. In the centre is a delicious, pearl-white, roundish, soft fruit, like the inside of a very large Grape. Fruits of *Garcinia Mangostana*, too, are plentiful.

At Buitenzorg, is a fine collection of Palms, which plants grow well in the rich, fibrous loam that is found in most parts of Java. Some, such as *Oreodoxa oleracea* and *O. acumi-*



FIG. 57.—*THLASPI ROTUNDIFOLIUM* GROWING ON A MORaine IN A SWISS VALLEY.

able in this connection, and so also are the tropical species of *Quercus*, *Canarium*, *Shorea*, and many *Stereuleas*. The branches, too, are very often broadened near the stem, forming firm structures capable of resisting every storm. The plant associations are different from those of temperate regions, and it is uncommon to find two trees of the same kind near one another or even in the same neighbourhood. I have mentioned already the trees remarkable for their buttress roots; others have not less remarkable aerial roots, which, when they reach the soil, increase enormously in size, forming new stems, which soon supplant the old ones that pass to decay. They cover, in this way, large areas, and form shelter for many cottages. *Ficus elastica* is planted largely all over this part of the tropics; it forms a gigantic tree, sending out aerial roots from the stem and forming large masses of root and trunk. Seedlings of the same *Ficus* appear on the bark of the trees; they grow as epiphytes for some

nata, have stems nearly 3 feet in diameter close to the ground; others that grow to a large size are *Raplia vinifera*, *Scheelea insignis*, *Elaeis guineensis*, *Attalea spinosa*, *Cocos oleracea*, *C. coronata*, *Borassus flabelliformis*, *Arenga saccharifera*, *Livistona*, and *Sabals* in many species. *Livistona altissima* is a fine, fan-leaved Palm, the fresh green leaves being developed along the stems for several yards. *Acclorhaphie Wrightii* has small, fan-shaped leaves, but the plant forms a large bush of graceful habit 4 to 5 yards high. *Caryota mitis*, *Chrysalidocarpus* and *Phoenix* in many species are represented in these gardens by graceful and large specimens. There is also a remarkable collection of rotans, including species of *Calamus*, *Desmoncus*, and *Dæmonorops*, some with stems several hundred yards long. Very remarkable, too, are such Palms as *Eugeissona triste*, *Oncosperma filamentosum*, *O. horridum*, and *Metroxylon Rumphii*, which has stems of very large size. There are very many other rare, beautiful, and showy

* *Guide to Mr. Worthington Smith's Drawings of Field and Cultivated Mushrooms and Poisons or Worthless Fungi often Mistaken for Mushrooms*, 1910. 1s.

† *A Course of Practical Work in Agricultural Chemistry for Senior Students*, by T. B. Wood, M.A. (Cambridge: The University Press.) 2s. 6d.

Palms. Two large areas of ground are covered with them, each kind being planted in two's or threes, and they grow exceedingly well. Specimens of Pandanus are equally flourishing, their stems sometimes rivalling those of the Palms, whilst all are very graceful. Pandanus graminifolius, the well-known, small, dark-leaved species, covers large areas. P. labyrinthicus develops its branches on thick, stick-like roots; the leaves of P. furcatus are used for making mats and other useful things. But the Bamboos are the most graceful plants. Bambusa arundinacea has most claim to beauty, whilst Dendrocalamus giganteus is the largest. Next to it in size are Gigantochloa verticillata, G. robusta, G. aspera, G. ater, and G. Apus. Detdrocalamus strictus and Bambusa polymorpha form graceful heads, the stems arising very near together, but branching at some distance from the ground. Only the tree Ferns can rival with them in gracefulness. Like the

THE ALPINE GARDEN.

HOW TO BUILD A MORAINE.

(Concluded from p. 100.)

PLANTS FOR A MORAINE GARDEN.

THE following plants will succeed in a moraine: —*Ethionema coridifolium*, *Androsace Laggeri*, *Anemone vernalis*, *A. narcissiflora*, *Campanula Allioni*, *C. alpina*, *C. cenisia*, *C. morettiana*, *C. pulla*, *C. Zoyssii*, *Cyananthus lobatus*, *Dianthus glacialis*, *D. alpinus*, *D. neglectus*, *Draba pyrenaica*, *Eritrichium nanum*, *Gentiana bavarica*, *Geum reptans*, *Gypsophila cerastoides*, *Douglasia vitaliana*, *Houstonia cerulea*, *Linaria alpina*, *Lychnis alpina*, *Papaver alpina*, *Aquilegia alpina* (true), *Primula integrifolia*, *P. glutinosa*, *P. viscosa*, *P. minima*, *Ranunculus glacialis*, *R. alpestris*, *R. parnassifolius*, *Saxifraga aizoides*, *S. oppositifolia* (see fig. 58), *Silene acaulis* and

spread upwards to the stone itself, so that the original patch on the moraine can be removed afterwards.

When autumn approaches the water supply should be reduced, and at about the end of October the corks should be withdrawn from the bottle-necks. These improvised valves may be covered with a flower pot turned bottom upwards and sunk in the soil.

It will be readily seen that rain-water will sink through the stony soil to the bottom of the moraine, and then escape through the bottle-neck into the next compartment, and finally on to the bog. In winter it is necessary to protect the plants from rain, as well as from smoke and dirt during foggy weather, by pieces of glass, each a little larger than the plant, and supported on wires. If these are arranged about 3 inches or 4 inches above the plants, the latter will be kept quite dry.

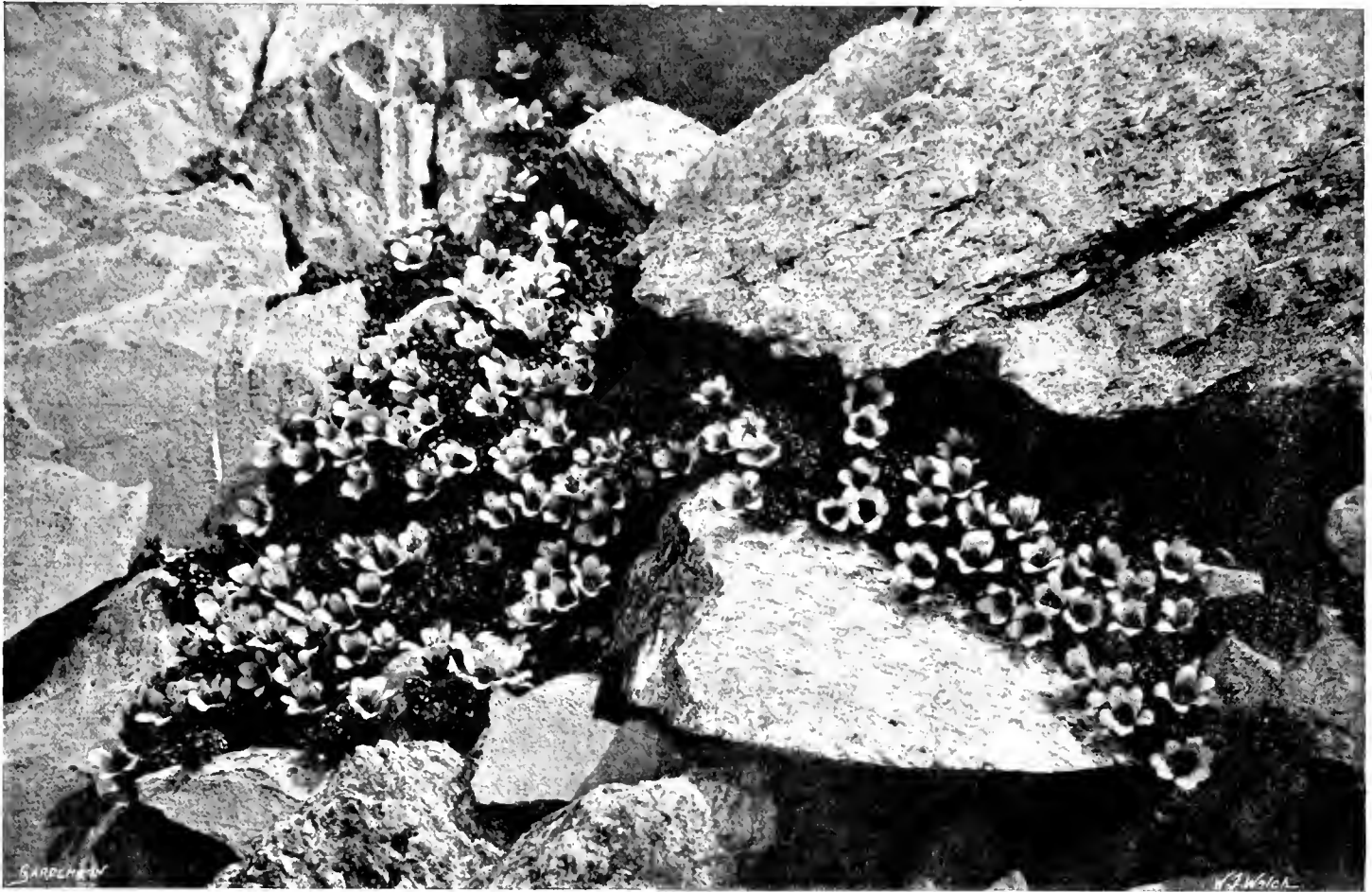


FIG. 58—*SAXIFRAGA OPPOSITIFOLIA* ON THE MORAINE AT ROSENLAUI, SWITZERLAND.

Pandanus, they form forests, but mostly in mountainous regions, where they grow nearly as high as Palms. The collection of Ferns is interesting, though not large, and there are many climbers, including climbing Aroids. The woody climbers are planted on an island, opposite the Tjiliwong River, where they grow on all sorts of trees. It is very interesting to observe how they grow and fasten themselves to their hosts. There are climbing Bamboos, *Dmochloa Tjankorreh*, the giant *Bauhinias* and *Entadas*. Many, like some of the *Anonaceæ*, have beautiful flowers; others are interesting in the way they cling for support; some, including many species of *Asclepia*, *Dischidia*, and other allied genera which associate with ants and develop roots inside cup-like structures formed by the leaves, are real epiphytes. Nearly 2,000 different Lianes may be found at Buitenzorg. *Fr. Henkel*.

(To be continued.)

varieties), *Thlaspi rotundifolium* (see fig. 57), *Trifolium alpinum*, *Viola biflora*, and *V. calcarata*. This list is not an exhaustive one, as there are other subjects which can be introduced if desired.

Care should be taken when turning the plants out of their pots to dislodge the loose soil without unduly disturbing the roots, and especially to remove any mould that is attached about the neck of the plant. The plants will need watering carefully overhead for the first fortnight or so after planting. Most of them are comparatively slow-growing species; many of them develop fine, thread-like rootlets, which cling to the adjacent stones, forming a matlike growth. The bare spaces between the plants may be carpeted with *Ionopsidium acaule*, and the big stones may be draped with *Arenaria balearica*, which, if planted at the base of the stone, will quickly

It is especially important to afford this protection to plants, such as *Draba androsace* and *Eritrichium*, which have leaves that hold the moisture.

The glasses allow a free current of air to pass over the plants and do not in any way "coddle" them.

It is advisable, once or twice each year, to lightly dust the surface of the moraine with finely-sifted leaf-mould: the merest sprinkling will suffice. The leaf-mould will in time be washed down amongst the stones. In spring, as soon as the plants become active, but not during the first few warm days of February or March, the plugs may be reinserted, and when growth is well advanced, water may be again introduced. The first season in the moraine garden will find strong, healthy plants that will flower profusely, and much better than in the ordinary garden. *R. J. Gold A. Malby, Essex.*

The Week's Work.

THE KITCHEN GARDEN.

By JOHN LYNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

ONIONS.—The main crop of Onions may be sown as soon as the state of the soil permits. If the ground for this purpose was trenched early in the winter, the soil should now be forked over and allowed to remain loose until it is dry enough to crumble under the foot, when the whole surface of the bed should be trodden as even as possible, and raked level with a wooden rake. The drills should be drawn 15 inches apart and 1 inch deep. Let the seeds be sown thinly, lightly covering them with fine soil. Afterwards, the bed should be trodden very carefully and raked lightly, taking care not to disturb the seeds. There are many good varieties of Onion, but those of good keeping quality are the best for general use. At Windsor we grow about 2 acres of Onions, and we prefer those varieties which are known to keep best.

CARROTS.—Make a small sowing of Early Gem or some other stump-rooted variety on a south border, first breaking the ground very finely. Sow the seeds in shallow drills drawn at 9 inches apart, to allow the free use of a ditch hoe between the rows. Slugs are troublesome amongst early Carrots, but may be kept in check by frequent dustings of soot, which will also benefit the crop if applied in moderation.

TOMATOS.—If seeds were sown a month ago, the young plants should now be ready for potting. Employ a compost of loam and leaf-mould in equal parts. After potting, they should be placed quite close to the glass, in order to promote a stocky growth. Plants in fruiting-pots should be confined to single shoots, all side growths being removed as they appear. When the plants are in flower, special care should be taken to fertilise the flowers as they become ripe, by conveying the pollen from one to the other by means of a camel's hair brush or by frequently shaking the trellis on fine, sunny days. Sow seeds for raising plants for out-door cultivation, sowing them thinly in pans or boxes and placing them in a temperature of 65° until the young plants are well above the ground, when they should be placed near to the roof glass.

POTATOS IN PITS.—Air should be admitted freely to this crop during mild weather. Let the plants be earthed up as soon as they are 6 inches high. If sufficient space has been allowed between the rows, the soil may be drawn up to the stems in the usual way without injury to the roots, but if the limited space will not permit this operation, some old potting soil may be placed among the plants. Previous to the earthing up, the bed should be watered carefully with clear, tepid water. Further plantations should be made under glass to maintain a supply until tubers can be obtained from the garden. A small plantation of the variety May Queen may be made in a sheltered part of the garden, where a covering can be applied without being unsightly. Tubers intended for planting should not be allowed to remain together in large quantities after this date, or they will make spindly shoots, and their value for planting will deteriorate. The tubers should be laid singly in a well-ventilated shed, where protection from frost can be applied if necessary.

FRUITS UNDER GLASS.

By E. ECKERTY, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

THE ORCHARD HOUSE.—Make the house tidy and have everything in order so that it may be closed for starting the trees whenever required. Fruit trees in pots that have been plunged out-of-doors during the winter months in ashes or other materials must be lifted and prepared for housing. Plants that were potted last autumn will only require the surface soil to be cleaned and made tidy. Those that were not repotted should have a quantity of the surface soil removed and be given a good top dressing of a compost con-

sisting principally of loam. The soil should not be in too fine a condition, and a sprinkling of wood-ash, bone-meal, and mortar-rubble should be incorporated with it. The top-dressing should be pressed firmly. Examine the drainage, and wash the pots. The plants in Orchard houses containing a variety of fruits should be started into growth very gently. In the early stages of forcing the night temperature should not exceed 45° with artificial heat. An abundance of fresh air should be admitted throughout the day, and the trees started into growth as naturally as possible. Watering must be done carefully, and though an excess of moisture must be guarded against, the soil must never become dry. To ensure a proper degree of moisture at the roots much judgment will be required, especially when new compost has been placed on the surface of the pots. Keep the surroundings moist, and syringe the trees lightly on favourable occasions. Before the flowers expand, fumigate the house with XL-All vapouriser to destroy any aphid that may be present.

THE MUSCAT VINERY.—Vines of Muscat varieties require a long season of growth to properly mature the bunches, and, for general purposes, houses containing Muscat Grapes should now be closed. For a commencement, a night temperature of 50° will suffice, and it may be even lower during very cold weather. Maintain a moist atmosphere by frequently damping the bare spaces and spraying the rods once or twice daily according to the weather. Early vines of Muscat varieties that are approaching the flowering stage should have the growths stopped at two joints beyond the bunch, and, if the shoots are in danger of coming in contact with the glass, draw them down carefully and secure them with strands of raffia; if there is no danger of them touching the glass do not train them in for the present, as the flowers set better, and especially at the lower part of the rods when near to the light. At this stage ventilation must be afforded carefully, and, until the flowers commence to expand, a humid atmosphere must be maintained, with a night temperature of 65° to promote a strong growth. When the vines are in flower a rather drier atmosphere is required, but not excessive atmospheric dryness. The temperature may be slightly increased, but do not employ an excessive amount of fire heat, and much of the syringing and damping should be withheld, although on bright mornings, and when ventilation can be given without danger of a check, the border and paths may be sprayed. Muscat Grapes are very uncertain in setting the berries, therefore artificial pollination should be resorted to, either by tapping the trellis sharply, dusting the bunches with a rabbit's tail, or drawing them carefully through the hand.

LATE VINERIES.—These will now require closing, for if the vines are grown gradually they will furnish well-coloured bunches that will keep much better than those that have to be hurried at the last in order to get the berries coloured properly. In the case of Black Hamburgh, the vines will need retarding, as this Grape matures much quicker than most sorts, the houses may therefore be ventilated freely until the vines show signs of growth. Houses containing Gros Colmar, Lady Downes, and Lady Hunt will merely require to be kept closed at night time, freely ventilating them during the day. The vines must be sprayed frequently during fine weather to encourage them to break evenly, and the rods should be allowed to hang down to check the flow of sap to the top.

GENERAL REMARKS.—Examine carefully any bunches of Grapes still in the fruit room, and remove any berries that show signs of decay. Replenish the water in the bottles, and remove a portion of the old stalk with a sharp knife. Such plants as Melons, Strawberries, and Cucumbers require all the light possible at this season, therefore, with the aid of a flat brush or mop, attached to a stout bamboo rod, wash the roof glass thoroughly and rinse the panes afterwards with clear water. Make arrangements for obtaining a good supply of manure water for the fruit trees in pots. The drainings from a farm-yard, when obtainable, provide an excellent stimulant for plants in pots and borders, but it needs to be diluted. Failing this, cow manure mixed with soot should be placed in a coarse bag and dropped in a tank to provide liquid manure.

Endeavour to keep the borders in forcing houses free from weeds, and, once a week, lightly stir the soil with a fork. Oftentimes, and especially under trellises and stages where the drainings from pot plants fall, the border is apt to become soddened and sour. An occasional stirring of the surface promotes aeration and assists in drying the border besides disturbing woodlice and other ground pests.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

PRUNING WALL TREES.—The pruning of all kinds of wall fruit trees should be completed as quickly as possible. Peaches, Nectarines, and Apricots growing upon south walls are the most pressing, as the buds will soon be so advanced as to make it impossible to handle these without causing damage. Espalier and other trained trees in the open should next receive attention. Remove all the old ligatures, and tie the branches afresh, arranging them in such a manner that the sun and air may have free access to every part of the tree when in full leaf. Prune newly-planted trees, and stake all standard and half-standard trees, making them secure against high winds. Lately-planted bush trees, especially those on shallow soils, should be mulched before the advent of drying winds and sunny weather.

FRUIT TREE BORDERS.—Complete the digging and dressing of fruit borders as advised in a former Calendar. Bush fruit trees showing signs of weakness may be assisted by giving them a surface dressing of Guano or some other quick-acting stimulant; this is best applied during showery weather. The pruning of outdoor vines and Figs, whether growing on walls, pergolas or arches, should be completed during the present month, or bleeding will result if it is left until the sap is on the rise.

PROTECTION FROM BIRDS.—A sharp lookout should be kept for bullfinches amongst the Gooseberry and Plum trees at this season, for if left undisturbed, even for a few days, they will do much mischief. The gun should be brought into use. We have found sometimes, by spraying the trees at about this date with an approved "Bud Protector Composition" that the mischief usually wrought by small birds has been lessened.

PLANTING WALNUTS.—Walnut trees may yet be planted, and, unless the soil and situation are unfavourable, they will soon become established and rapidly grow into handsome trees of considerable size. They thrive best when growing in a rich, loamy soil with good natural drainage. Although the Walnut may easily be grown from seed, few growers now resort to this method of propagation beyond raising stocks, on which the choicer varieties are grafted, preferring rather to purchase from the nurseries worked trees that have been properly prepared for removal. The tap root is removed to make the tree more fruitful, and the branches trained to incline to an outward, rather than in an upward direction; trees so treated always spread their roots nearer to the surface of the soil, and are more satisfactory to deal with in every way. Sometimes a line of Walnut trees is planted at the end of an orchard to serve as a screen to other fruit trees; in this way they conveniently serve a double purpose if planted at about 25 or 30 feet apart. If planted on park land, the distance from tree to tree should be not less than 80 feet, that is, if fully-developed trees are desired, and especially if the trees are seedlings. If worked trees are planted, it may become necessary from time to time, to remove any growths that may appear below the point of union, otherwise the common stock will outgrow the more valuable variety. Like other fruit-bearing trees, the Walnut may, if showing signs of deterioration, be brought into a state of fertility by giving the trees a suitable top dressing or mulching of well-decayed manure. Although there are several varieties of the Walnut, which vary considerably in size, flavour, and fertility, the "Thin shelled" is now generally considered to be the best. The shells are well filled, and the nuts are of excellent flavour, whilst, if properly stored, they keep better than some other varieties.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

SPRING-FLOWERING BULBS.—Narcissi and other bulbs in beds are showing signs of growth, and it must be decided whether it will be advantageous to apply a dressing of superphosphate between the rows. This manure exerts a marked influence for good when Narcissi have been two or more years in the same ground. A sufficient dressing is as much as will cover the surface of the ground lightly. The soil should be dug at the time the manure is applied, and be very lightly forked over immediately afterwards. The same manure is sometimes beneficial for late Tulips, Spanish and English Irises. Lily-of-the-Valley should be top-dressed with a layer of fresh compost, applied evenly, $\frac{1}{2}$ inch thick. The finest variety of this popular flower is Fortin's, but here it has never been the success that it is on a heavier soil, nor does the Berlin variety succeed so well as the ordinary English sort, therefore do not root out the latter until it is seen how the others are likely to do.

LILIUMS.—Many species of Lily are unsatisfactory "doers." They grow all right for two or three years, and then dwindle away. The more useful kinds and easiest to grow are *L. pomponium*, *L. croceum*, *L. Martagon*, especially its varieties *album* and *Dalmaticum*, *L. chalcidonicum*, *L. tigrinum splendens*, and *L. tigrinum Fortunei* are valuable for an autumnal display. The last named sometimes flower too late in the North to be useful, but the other, though less stately, never fails. The bulbs of the Lilies may be planted at once, and it is well worth the trouble to stir the soil deeply before they are inserted, and to replace some of the natural staple with a turfy compost. The bulbs should be placed not less than 6 inches below the surface, and a much of exhausted Mushroom dung pressed through a fine sieve should be spread evenly over the whole. Much of the beauty of these Lilies lies in their stately stems and handsome foliage.

CELSIAS.—Seeds of *Celsia Arcturus*, *C. cretica*, and others should be sown at once in order to secure strong flowering plants. After the seedlings have been transplanted into boxes to gain strength, they should be kept growing in an intermediate house till the middle of April. The plants are, if not absolutely handy, at least practically so. Planted in a fertile soil *C. Arcturus* makes a fine addition to the border flowers in autumn, but the others are rather coarse-growing plants. *C. Arcturus*, *C. pontica*, and *C. coromandelina* have flowered the same year here from seeds sown in the open, but it is preferable to raise the plants under glass.

LARKSPURS.—Seeds of Emperor and Stock-flowered Larkspurs should be sown in boxes and germinated under glass in order to have plants in flower at a reasonably early date. The Stock-flowered is one of the most meritorious of the taller types of this plant for massing, Sutton's Rosy Scarlet being the most popular variety; Double Blue and Veitch's Branching Blue are also of much value. The plants are, unfortunately, liable to a root affection, which sometimes destroys them almost wholly. To lessen the effect, if not to prevent attack, the seedlings should be dibbled into the positions set apart for them while they are quite small, and as a precaution the surplus ones should be retained to make good any losses. These are varieties of *Delphinium consolida*, and are absolutely hardy. They have been cultivated in gardens since the 16th century. Some of the Rocket Larkspurs (*D. Ajacis*) are also pretty, but they should not be sown till April, and then in places where they are to flower. Other plants that require sowing now include the large-flowered varieties of *Scabiosa*, *Statice Suworowii*, which should be very strong when planted out to obtain the best results; *Perilla Nankinensis*, *Polygonum orientale*, this also needs to be well advanced at the time of planting; *Chamaepeuce diacantha*, and any others requiring a long period of growth before they are finally planted.

GRASS PATHS.—In not a few walled gardens grass paths have been substituted for gravel paths, and always to the enhancing of the effect of the borders they separate. There is not much difficulty in transforming a gravel into a grass walk.

Those which I have altered have merely had the hard gravel loosened with a pick, levelled, and a layer of soil placed on the top to bring it to the higher level necessary for sowing the grass or placing the turves. The seeds may be sown any time after the middle of March, but a turf of fine grasses, where it can be procured, is to be preferred for immediate effect and use.

THE ORCHID HOUSES.

By H. C. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

EPIPHYTAL ORCHIDS.—Plants of *Vanda*, *Aerides*, *Angreecum*, and *Saccalabium* are commencing to grow again, which may be seen in the activity of the roots. All these plants require fresh rooting material annually, but healthy established specimens need not be disturbed beyond having all the old material picked out from amongst the roots, an operation that should be performed without damaging or unduly disturbing the latter, especially those that are clinging to the receptacle. All decayed roots should be cut away, and the sound ones re-laid amongst the new material, at the same time burying the ends of any long, aerial roots present. Specimens that have become ungainly through loss of foliage should, after the soil has been carefully shaken away, have sufficient of the lower portion of the stem removed to allow the plant to be placed deeper in the receptacle, so that when it is repotted the lower leaves are on a level with the rim of the receptacle. Ample drainage should be afforded the plants, and the compost should consist of equal parts *Osmunda* fibre, *Polypodium* fibre, and *Sphagnum*-moss, with a liberal addition of coarse silver sand, finely broken crocks, and charcoal, well mixed together. Pot moderately firmly, and finish with a layer of clean-picked fresh *Sphagnum* moss. For a time, and until growth becomes active, water must be afforded the roots sparingly, but there should be plenty of moisture in the atmosphere. The majority of these Orchids are best accommodated in the warmest division of the Orchid houses, but they are sometimes found growing well in a house having an intermediate temperature. *Vanda cœrulea* is usually a difficult plant to cultivate satisfactorily for any great length of time. Like many more in the genus it is a free-blooming, healthy-growing plant under favourable conditions, but, unfortunately, it is not always easy to find the position and conditions which suit it best. During this season the plants may be accommodated in any light, airy house, where they can enjoy plenty of heat by day, with moisture and air in abundance, whilst at night time they prefer a cooler temperature. *V. Amesiania*, *V. Kimballiana*, and *V. Watsonii*, are three dwarf-habited species that thrive under similar conditions to *V. cœrulea*, but in a cooler day temperature. When the weather is bright, shading is necessary, but when the plants are established the light they receive must not be too much subdued, or the foliage will not be so healthy and solid, and flowering will be unsatisfactory.

RENANTHERA IMSCHOOTIANA.—This fine, showy species thrives well in the *Cattleya* house. The plants do well in pots placed on the stage or in baskets suspended from the roof-rafters. These are now exhibiting signs of fresh growth, and the affording of new rooting material should receive attention forthwith. The compost and procedure in potting should be similar to that advised for the Epiphytal Orchids.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

STOVE PALMS.—*Hvophorbe* (*Areca*) *lutescens* is an excellent Palm for many purposes. Both this species and *Cocos Weddelliana* should be kept during the winter in a hot plant house, but in the summer they may be used freely for decorations like *Kentias*. Such Palms thrive well in quite small pots, and the cultivator should guard against over-potting. Through careless potting and unsuitable soil many a *Cocos* is quite ruined. *Enterpe edulis* is another valuable Palm for vases of moderate size, and it is quite distinct with its graceful and arching foliage. Examine

all the Palms and only repot those that require more root space. Palms are often troubled with scale insects whilst they are kept in a stove temperature, but these can be destroyed by careful sponging.

CALADIUM.—If the *Caladiums* have been stored in the pots in which they were grown last season, the tubers may now be shaken out of the soil and cleansed of any decaying matter. *C. argyrites* is very useful in many ways, too, therefore an increase in the stock may be found serviceable. I prefer to start this variety dibbled into seed pans, potting them up later on when they have made some growth. The smaller bulbets are quite useful in thumb-pots, and even those of a larger size must never be overpotted. If a wall in the stove has to be covered with varied growths, a few plants of *Caladium argyrites* will be of service for the purpose. The larger-growing *Caladiums* should also be started into growth in small pots, and some at least should be kept in small pots for furnishing. The aim should be to grow more of those with moderate-sized foliage and compact habit rather than the more robust varieties.

GLOXINIA AND ACHIMENES.—The seedling *Gloxinias* of last year, and any older corms, should now be shaken out, carefully examined and repotted into smaller pots than those in which they were flowered. After potting, give one watering, and afterwards be careful not to apply much moisture until active growth is manifest. *Achimenes*, not now so much grown as formerly, are nevertheless useful decorative plants in 6-inch pots, whilst the more scendant varieties are of considerable service as basket plants in the stove, and also in the conservatory during the summer months. *Achimenes* should be shaken out of the soil in which they have been grown and each corm carefully dibbled into shallow pans. When they have grown 2 or 3 inches high they may be transferred to their flowering pots or to baskets and placed near to the glass. Some of the plants should be kept cool to form a succession.

BEGONIAS.—Varieties of the *Gloire de Lorraine* section should now be looked after for propagating purposes. If the growths have not been cut down, do not lose any time in getting this done. See that the stock is kept quite free from insect pests, otherwise the troubles with these will increase rapidly. We prefer to propagate from basal shoots rather than from leaves. Each cutting should be inserted into a thumb-pot containing sandy soil. If the stock is short then leaf-cuttings can also be taken. Our plan used to be to insert each leaf with its petiole intact, one plant will result in this way from one leaf, not as in the case of the *B. Rex* varieties, which produce young plants from the leaf veins. The stock of the "Rex" varieties may now be increased in the way mentioned or by division. The tuberous-rooted varieties should be shaken out and repotted, keeping them somewhat cooler than the others, and keeping them in batches to flower in succession.

THE APIARY.

By CHLOEIS.

FEEDING.—The honey season in 1910 was a very bad one, and, unless sufficient artificial food were given the bees last September, there is a danger that they will die from starvation between now and the end of March. Whenever a fine day occurs, apiarists should place a cake of candy under the quilts. Breeding is proceeding, and an increasing number of young bees will be hatched daily, so that there will be an extra demand for food. When brood-rearing has commenced and the supply of pollen is short, it is advisable to give the bees some pea-flour. It should be mixed with some shavings and placed in a warm corner, where the sun can shine upon it.

PLACING OF ORDERS FOR MATERIALS.—Many beekeepers delay ordering their requisites until something is required urgently, and then they find fault with the manufacturers because they are kept waiting for the goods. Some makers of beekeeping requisites offer special terms to those who order before the middle of March, when the rush of trade generally commences, so that ordering early has a double advantage.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, FEBRUARY 28—

Roy. Hort. Soc. Coms. meet. (Fifth Masters' Memorial Lecture at 3 p.m., by Mr. G. F. Scott-Elliott, M.A., on "Recent Work in Seed Selection.")

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—40.4°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, February 22 (6 P.M.): Max. 51°; Min. 45°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, February 23 (10 A.M.): Bar. 29.5; Temp. 49°; Weather—Dull.

PROVINCES.—Wednesday, February 22: Max 50° Ireland S.E.; Min. 40° Scotland, N.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Herbaceous and Border Plants, Hardy Bulbs and Roots, at 12; Roses, Fruit Trees, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—

Hardy Bulbs, Perennials, Border Plants, &c., at 12; Roses, at 1.30. Trade sale of Miscellaneous Bulbs and Plants, at 12; Japanese Lilies, at 2.30. Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

Choice Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Wart Disease of Potatos. The most recent, and, in many respects, the most valuable, contribution to our knowledge of wart disease of Potatos is contained in a recent bulletin issued by the Harper Adams Agricultural College. The bulletin records the results of experiments made by Messrs. Malthouse & Williams, and its special value lies in the proof which it appears to afford that certain varieties of Potato are immune from the disease. The experiments and observations described in the report cover a considerable amount of ground, and deal with the effects of fungicides and of soil dressings on the disease, the modes whereby wart disease spreads, and its present geographical distribution in England and Scotland. Horticulturists generally are greatly indebted to Mr. Belleville Stanier, M.P., who not only proposed to the authorities of the Harper Adams College that they should undertake this experimental inquiry, but who also bore the cost both of the inquiry and of the publication of the present bulletin. Public-spirited generosity of the kind exhibited by Mr. Stanier is to be encouraged, and it is therefore particularly gratifying that this instance thereof has resulted in information of considerable practical value.

Wart disease is due to the infection of the Potato by a micro-organism (*Synchytrium endobioticum*, Percival), which gains access to

the tubers from the soil. Though it is probable that there is yet more to be learned of its life-history, the essential fact is well established that, as is the case with the organism responsible for "Finger and Toe," the infecting stage of the wart disease organism consists of motile spores. The diseased tuber contains large bodies (sporangia), each of which encloses vast numbers of spores. When the tuber rots, the sporangia are set free in the soil, their walls burst, the spores are liberated, and from each spore there escapes a minute, flagellated organism which is able to move through moist soil and to penetrate and infect a new host. Whence it follows that the disease is distributed in two main ways, namely, by "seed" and by soil. Diseased tubers used for seed may not only produce diseased plants, but may serve as centres for soil-infection. Again, diseased tubers fed to pigs or other stock may lead to further soil infection through the manure. Infested soil may also spread the disease, for any agency which distributes the soil—implements, workers on the soil, poultry and so forth—may distribute the resting sporangia. We dwell upon these matters, which are well brought out in the report, because it is evident that control of this, as of any other disease, depends on a knowledge of the mode of life of the parasitic agent which produces it. A further point which deserves notice is that the disease may progress in the tubers after they have been lifted and stored. It follows, therefore, that "clean seed" must be used, that is to say, seed from a region where the disease is unknown; for tubers from a diseased field, though they do not show the external signs of wart disease (*Gard. Chron.*, July 31, 1909, figs. 33, 34) may nevertheless carry it. It follows also that, till preventive methods are discovered, infected land should not be planted with Potatos, at all events in the following season. Another matter of practical importance, to which attention is drawn in the report, requires emphasis; that is, that boxing and greening the Potatos tend to lessen the risk of diseased tubers being planted. For, evidently, the symptoms of the disease will have had more time to manifest themselves in tubers which have been treated in this manner than in those which are purchased just before sowing. A further method of combating the wart disease consists in giving the widest publicity to its existence and nature. Thus it is significant that the malady is much more widely spread in allotments and gardens than in the field, a fact that suggests that many small cultivators are unaware that tubers with wart like excrescences are anything more than interesting curiosities.

As is to be expected from a knowledge of the life history of *Synchytrium endobioticum*, spraying the crop with various fungicides fails to arrest the progress of the disease. The more promising method of preventive treatment, that of drenching the soil with a fungicide with the object of destroying the motile spore, has unfortunately not given decisive results. There is, however, some evidence that soil-spraying with copper sulphate in July produced beneficial effects, and it is to be hoped that further experiments in this direction will be made. Associated with these various methods designed to prevent the motile spores from reaching the tubers is the

practice of earthing up, which practice, as the report makes clear, has a decidedly beneficial effect on Potatos grown in infected land. But, as we have already indicated, the most promising method of prevention consists in the planting of immune varieties, and it is encouraging to find that, according to the various trials which have been made at Newport, immune varieties not only exist, but are also fairly common. We cannot give here the complete list of immune varieties (see p. 122), but may note that it includes Longworthy, Discovery, Southern Star, Peacemaker, Laird, White City and many others. The final selection made by Messrs. Malthouse & Williams is as follows:—Early: Aberdeen Early, Milecross Early. Second Early: Abundance, Conquest. Maincrop: Provost, Crofter, Golden Wonder and What's Wanted.

Among the most interesting features of the report is a series of maps showing the geographical distribution of wart disease. A glance at the map of Great Britain shows that the disease has spread north and south till it extends now through a section of the western and western-midland counties from Perth to Warwick. So far, the whole of the East Coast counties of England remain free from the disease, as do also the counties south of a line drawn from the estuary of the Severn to the Wash. The interesting enquiry is thus opened up, whether the wart disease is closely associated with some special geological or climatic conditions? In conclusion, we commend this excellent report to all our readers interested in Potato cultivation, and have only one or two minor adverse comments to make. First, we suggest that the bulletin should bear a number for purposes of reference, and second, we confess to being puzzled by the cryptic remarks (p. 40) with respect to the possibility of other crops being attacked by wart disease. We read that Finger and Toe has been suspected to be identical with wart disease, and that the nodules of leguminous crops have been subject to like suspicion. For our part, we know of no particle of evidence for either suggestion, and unless the writers have some serious evidence in their favour, we think that it would be wiser to refrain from giving currency to hypotheses of which the latter at all events must, in the present state of our knowledge, be regarded as fantastic.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees of this Society will take place on Tuesday, the 28th inst. At 3 p.m. the fifth "Masters" Memorial lecture will be delivered by Mr. G. F. SCOTT-ELLIOTT, M.A., F.R.S., V.M.H., on "Recent Work in Seed Selection."

ONE THOUSAND POUNDS FOR SWEET PEAS.—The *Daily Mail* has announced that it will hold a show in the month of July next, when prizes will be given for bunches of Sweet Peas, consisting of not more than 12 sprays, and each bunch representing not fewer than three varieties. The 1st prize for the best bunch will be £1,000, 2nd prize £100, and the 3rd prize £50. A thousand medals will also be given. Those who grow flowers for profit and amateurs who employ more than one gardener are debarred from the competition. In case the judges should not be able to choose between two or more competitors, the prize or prizes will be awarded to the competitor or competitors exhibiting Sweet Peas grown without the assistance of a gardener.



Photographs by W. J. Vasey.

VIEWS IN THE GARDENS AT BARON HILL, BEAUMARIS, THE RESIDENCE OF
SIR RICHARD H. WILLIAMS-BULKELEY.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—The spring exhibition of the society will take place on Wednesday and Thursday, April 5 and 6, in the Waverley Market, Edinburgh. The show will remain open until 10 p.m. each day. The schedule embraces some 135 classes, and there are sections for plants, cut flowers, fruits, and vegetables. The most valuable prizes are offered for groups of plants. As on former occasions there is a competition, open to under gardeners only, for laying out a portion of land as pleasure ground and kitchen garden, an outline sketch of the estate being furnished.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The members of the Liverpool Auxiliary will hold their 10th annual concert in aid of the funds of the Institution on March 3. The treasurer, Mr. HARRY J. VEITCH, V.M.H., will preside, and the secretary, Mr. GEO. INGRAM, will be present. Mr. R. G. WATERMAN, Woolton, is the hon. secretary for the Liverpool district.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.—According to a paragraph issued by the Hon. Press Secretary, Mr. R. HOOPER PEARSON, several valuable cups have been presented for competition at the Royal International Horticultural Exhibition to be held in May, 1912, at Chelsea. Amongst the donors are: the Treasurer (Sir JEREMIAH COLMAN, Bart., V.M.H.); the Chairman of the Executive Committee (Mr. J. GURNEY FOWLER); the Worshipful Company of Fruiteers; and the Worshipful Company of Gardeners; the Proprietors of the *Gardeners' Chronicle*; Messrs. SANDER & SONS, St. Albans; J. CHARLESWORTH & Co., Haywards Heath; DOBBIE & Co., Edinburgh; BARR & SONS, Covent Garden; and GEORGE BUNYARD & Co., Maidstone. Others wishing to contribute cups should communicate with the Hon. Secretary, Mr. EDWARD WHITE, 7, Victoria Street, Westminster, or Mr. HARRY J. VEITCH, Chairman of the Schedule Committee.

—A Science and Education Committee has been appointed to promote a congress and advance the scientific section of the exhibition. The Chairman of this Committee is the Rt. Hon. A. H. DYKE ACLAND, P.C., and Mr. E. J. CHITTENDEN will act as Hon. Secretary. The members include: E. A. BOWLES, Chairman of the Royal Horticultural Society's Scientific Committee, Professor WILLIAM BATESON, F.R.S., Prof. BAYLY BALFOUR, F.R.S., Sir THOMAS ELLIOTT, K.C.B., ANDERSON GRAHAM, Dr. BRET-LAND FARMER, F.R.S., GEORGE GORDON, V.M.H., H. RIDER HAGGARD, Sir EVERARD IM THURN, K.C.M.G., Dr. D. JACKSON, F.L.S., Dr. F. KEEBLE, M.A., DONALD MACDONALD, W. MARSHALL, V.M.H., FRED W. MOORE, M.A., SPENCER PICKERING, F.R.S., Lt.-Col. D. PRAIN, C.I.E., F.R.S., Dr. A. B. RENDLE, M.A., B.Sc., T. A. H. RIVERS, A. G. L. ROGERS, E. S. SALMON, ARTHUR W. SUTTON, V.M.H., Prof. SOMERVILLE, HARRY J. VEITCH, V.M.H., Prof. S. H. VINES, D.Sc., F.R.S., and Rev. W. WILKS, M.A.

BOSKOOP POMOLOGICAL SOCIETY.—We have received further particulars of the flower show which will be held at Boskoop in April, to celebrate the jubilee of the Boskoop Pomological Society. It will consist largely of forced shrubs and perennials, and will be accommodated in a heated building that will be illuminated during the evening by electric light. The committee has received already a large number of entries, including more than 100 for novelties. The nearest railway station to Boskoop is Gonda, and, during the time of the exhibition, there will be a steamboat service hourly between the two places. A committee consisting of 40 members has been appointed.

TURIN INTERNATIONAL EXHIBITION, 1911.—In connection with the forthcoming international exhibition at Turin, a permanent horticultural exhibition will be held from April to November, 1911, and also three temporary shows. The permanent section forms part of the general exhibition, and includes matters relating to the cultivation of fruits, vegetables, and flowers; garden implements and tools; and teaching and appliances for teaching. The three temporary flower and fruit shows will be held as follows:—Spring show, May 15 to 25; summer show, September 16 to 24, and the autumn show, October 25 to November 4. Copies of the regulations and schedules relating to these shows may be obtained from the Secretary to the Horticulture Committee, 21, St. James's Square, S.W.

ROYAL WARRANTS FOR NURSERY AND SEED FIRMS.—We are informed that the Royal Warrant of Appointment to the King (see pp. 90, 105) has been conferred on Messrs. SANDER & SONS, Orchard Growers, St. Albans. Messrs. THOMAS GREEN & SON, LTD., Leeds, have received the Royal Warrant of appointment as horticultural machine makers to the King, and Messrs. DICKSON & ROBINSON, Manchester, have been appointed seedsmen to her Majesty Queen Alexandra.

PLANT PHYSIOLOGY AND PATHOLOGY.—Professor V. H. BLACKMAN, M.A., Sc.D., formerly Hutchinson Research Student and Fellow of St. John's College, Cambridge, and Walsingham (Biological) Medallist of the University, who has since 1907 occupied the Chair of Botany in the University of Leeds, has been appointed to the Professorship of Plant Physiology and Pathology at the Imperial College of Science and Technology at South Kensington.

PROTECTING SEEDS.—The season when some sort of protection will be necessary for small seeds in the kitchen garden being at hand, Mr. ELLISON sends us a sample of the Dunsmore Gosamer Seed and Plant Protector. This is a half-circular metal disc with notched edges and steel feet for inserting in the ground. Most gardeners employ wire-net guards, or fish netting to keep off birds, but some adopt the more simple device of strands of cotton or thread secured to pegs of wood. These metal discs are said to have an advantage over wooden pegs for securing the cotton or thread.

MUNICIPAL GARDENERS AND THEIR WAGES.—The Parks and Open Spaces Committee of the London County Council recently intimated to the Education Committee that they proposed to recommend the Council to increase by 2s. a week each, as from April next, the wages of three gardeners in charge of the Botanical Gardens at Victoria Park, Battersea Park and Horniman Gardens respectively during such time as these men were employed on their present duties. The Committee stated that they were advised that these men were highly qualified in gardening work, that they had carried out in a most satisfactory manner their duties, which, having regard to their educational character, required special knowledge and ability, and that they had also proved of considerable assistance to students using the gardens. The Parks Committee also expressed the opinion that the additional expenditure involved in the proposal should be charged against the education account, and asked the Committee to concur in the course proposed, and to arrange for the grants from the education account in respect of the maintenance of the gardens to be increased by the extent of the additional remuneration. Provision has been made in the annual maintenance votes for the current financial year for the sum of £170 to be transferred from the education account to the

general county account in respect of the use made for educational purposes of the botanical beds at Victoria Park and Horniman Gardens. In the draft maintenance estimates for the financial year 1911-12, the sum of £255 has been provided for similar purposes in connection with the three parks referred to by the Parks and Open Spaces Committee. This sum, the Education Committee think, is quite adequate as an inclusive payment in respect of the facilities afforded at these parks. At the meeting of the Education Committee on February 15, it was decided to inform the Parks and Open Spaces Committee that the Committee regret that they are not prepared to agree to the increase.

THE KEW GUILD "JOURNAL."—The members of the Kew Guild are to be congratulated on the number of the *Journal* recently published. It contains much information upon the happenings in the Royal Gardens, Kew, explains recent alterations and additions, gives lists of appointments and retirements, and interesting notes upon the doings of Kew men in various parts of these islands. This is the kind of news that makes the *Journal* so valuable to Kew men in India and the Dominions, who are thus enabled to maintain touch with horticultural activities at home. In return for this many of the oversea members contribute descriptive letters from their own stations, and these are excellent reading for gardeners who have no personal experience of any other vegetation than that of a temperate clime. There are letters from Zomba, Nyassaland, Portuguese East Africa, United States of America, Singapore, and other places. Kew men are widely distributed; as Sir William Dyer once said, "They dot the Cape to Cairo Railway," and representatives of the Kew Guild may be found in every quarter of the globe. It is this fact that makes the *Journal* so much appreciated, for it serves as a link, uniting the older men who are taking their part in the work imposed by the responsibilities of Empire, with the youngest members now in training at Kew. The present issue, which has been prepared by Mr. HERBERT COWLEY, the new Secretary and Editor, is so much enlarged and so interesting that it compensates in some measure for the non-appearance of the *Journal* last year. The frontispiece is a portrait of Mr. R. HOOPER PEARSON, who forms the subject of a few personal notes by "W. W."

THE NATIONAL VEGETABLE SOCIETY.—The Society's pamphlet containing the schedule of prizes to be offered at the second annual exhibition of vegetables on August 30 next comprises 40 pages. There are some 80 classes, which are so varied in character as to encourage exhibits from every description of grower. The Duke of PORTLAND (the president) repeats his prize of 10 guineas in the first class for a collection of 12 dishes, and Lord HOWARD DE WALDEN adds a second prize of seven guineas, the Society adding a third prize of four guineas. A class for nine dishes follows, and Lord NORTHCLIFFE gives prizes to the value of £12 in two classes, one for six dishes of vegetables and one for six dishes of Tomatos. Mr. GEORGE MUNRO's prizes are offered for Tomato plants in pots, those of *Country Life and the Garden* for six dishes of Peas, and Messrs. CLAY & SONS offer prizes for six dishes of Potatoes. The Chairman continues his prizes for Surrey cottage gardeners and allotment workers. A large number of firms offer prizes for classes in which the competition is more or less restricted. Finally, there are 18 classes for amateurs and cottagers. The trials report is included. Those wishing for copies of the schedule should write to Mr. E. J. QUICK, "KelmScott," Harrow View, Wealdstone.

BARON HILL, ANGLESEY.

(See figs. 59 and 60, also Supplementary Illustration.)

BARON HILL, the residence of Sir Richard II. Williams-Bulkeley, is situated near Beaumaris, on the banks of the Menai Straits. Those who have passed through this narrow stretch of water will recall the beautiful scenery of the Anglesey and Welsh coasts which border it. Anglesey appears to be covered with beautiful woodlands, whilst, on the Carnarvon side, rises in majestic splendour almost from the water's edge, a range of mountains that run through the centre of Wales. Baron Hill nestles amongst the woodlands, and is reached by a road which runs along the coast-line from Menai Bridge towards Beaumaris, and is overshadowed for miles with Oak trees. The residence at Baron Hill is situated a distance of two miles beyond the entrance to the grounds, and is reached by a carriage drive. My first visit was made in summer time, and I found, immediately on entering the gates, groups of Veronicas and Fuchsias in bloom, with a background of Hollies, conifers, and Beeches. The long road-

road passes beneath the dense shade of Beech trees, and later the scene opens out, affording a view of the town of Beaumaris, with its ancient Ivy-covered castle. There are yet two bridges which must be passed before the mansion is reached. The ground rises to a considerable height in front of the main entrance of the residence, and is planted with groups of Rhododendrons, amongst which are intermingled very large plants of Fuchsias, some of them being 15 to 20 feet in height. Between the groups of flowering shrubs, are patches of Heather which show well against a background of graceful trees at a higher level. A part of the pleasure grounds near to the house is known as the "pulpit" garden, from a stone structure, on either side of which is a row of Laurels 12 feet high. A gravel path runs at right angles to the "pulpit," and divides the garden in two parts. On either side of this pathway are flower-beds cut in the turf. In summer time, they are planted with Antirrhinums, Larkspurs, Godetias, Gladioli, Nigella, and other plants of this type. An oval bed in the centre is furnished with sub-tropical

bounded by a stone wall. This wall is covered with Rambler Roses, and between the shoots of the Roses Ferns peep out from many crevices. Vases are arranged at intervals along the wall, and are filled with suitable flowering plants. At the base of the wall is a mixed border planted with herbaceous subjects. Numerous rambling Roses are trained to brick columns about 3 feet high and 14 inches square. From the Rosary, the pathway leads to a Cedar walk, and this leads in turn to the terrace garden (see fig. 59). This latter is formed of beds of various shapes, most of them being outlined in Box. In summer time they are filled with Pelargoniums, Heliotropes, Petunias, Calceolarias, Begonias, and other showy bedding plants; each bed having only one kind of plant. The hedges of Myrtles, some of them 10 feet high, Pittosporum Tobira, Choysia ternata, Oleandra fragrans, and Ceanothus are conspicuous objects. On the sides of the steps which lead to the terrace garden are specimens of Aloysia citriodora (Lemon plant), more than 10 feet high. Two large Bay trees growing in iron boxes stand at the top of the steps. The climate is so genial in this region, that Ivy-leaved Pelargoniums, trained up the walls of the mansion, live throughout the winter. On the lawns are to be found at intervals Camellias, Palms, Dracaenas, Bamboos, Pampas Grass, Myrtles, Fuchsias, Azaleas, Yuccas, Acers, Maples, Gunnera manicata, Hydrangeas, Magnolias, and others. In the midst of woodland is a side walk, leading to a nook cut in the rocks, wherein is a sarcophagus containing a stone coffin. Near by this spot Ferns grow in great numbers, making a natural Fernery. A number of Alpines have been planted amongst the Ferns, and by a pool, water-loving plants, such as Montbretias, Spiræas, Iris and Liliums, brighten the surroundings with their showy flowers.

The kitchen gardens are situated in a lower part of the grounds, at some distance from the house, and contains extensive ranges of glass-houses. Mr. R. Carter has been gardener at Baron Hill for the past two years. F.



FIG. 59.—BARON HILL: THE TERRACE GARDEN.

way passes in places between the solid rock, which had to be removed by boring and blasting; sometimes it is diverted to avoid rugged points which every now and again present obstructions. At other places it skirts a sloping bank, which is planted at intervals with groups of Rhododendrons and common and Portuguese Laurels, these shrubs being clipped in a dome shape. The bank rises in places to a height of 300 feet above the roadway, which is flanked on the opposite side by a dwarf wall. Ivy and numerous Ferns grow on this wall. Looking downward from the roadway, the landscape is seen to be covered with trees that appear to reach to the water's edge.

The scenery constantly changes as the visitor traverses this long drive; here and there are to be seen perpendicular rocks, in front of which hang festoons of Ivy, their summits being crowned by aged trees of Fuchsia, which spread out their graceful shoots laden with blossoms. In other places, the banks are covered with bushes of Escallonia, which were in flower, and, further on, were masses of Rhododendrons interspersed with variegated Hollies. At one point is a beautiful dell, with a natural waterfall. The

plants, and other beds contain standard Roses. Turning to the left, and passing between an avenue of standard Rhododendrons, the part of the grounds shown in the upper picture of the Supplementary Illustration is reached. There are some exceptionally fine trees at this spot, including three large specimens of Araucaria imbricata, one of which is shown in the picture. There are also imposing specimens of Cryptomeria japonica, Sequoia gigantea (Wellingtonia), and Cedars. Continuing in this direction, the visitor reaches a garden containing a Lily pond (fig. 60) and herbaceous borders, surrounded by a large clipped Yew hedge, over which Tropæolum speciosum creeps in summer time. Some ornamental iron gates lead to a herbaceous garden, but if the opposite direction is taken, a good view of the summit of Snowdon may be obtained through an opening in the trees. The Palm garden (see Supplementary Illustration) is planted with a variety of Palms, Dracaenas, Bamboos, Aralias, Fuchsias, Yuccas, Acers, Andromedas, Phormium, and other sub-tropical species. The garden is surrounded by hedges of Fuchsia and Myrtle. Near to the Palm garden, is a Rosary, situated on a slope, the higher side being

WART DISEASE OF POTATOS.

A BULLETIN issued recently from the Harper Adams Agricultural College, Newport, Salop, deals very fully with this subject (see p. 120). The college authorities in part at the request of the Board of Agriculture have carried on during the seasons of 1909 and 1910 a series of experiments to discover *first*, the varieties that are immune to the disease; *second*, the result of the application of certain fungicides.

In looking over the varieties reported on both in 1909 and 1910 one is struck with the fact that all varieties of the Up to Date type seem most susceptible to wart disease. In short varieties, which are the farmers stand-by and are the best resisters of the ordinary Potato disease (*Phytophthora infestans*), are most liable to suffer from this new wart disease or black scab (*Synchytrium endobioticum*), and some varieties of the Abundance type which succumb quickest to the old or ordinary Potato disease are resistant to the wart disease. Why should this be? It is just here that accurate pedigrees would be helpful. Varieties of the Langworthy type again are resistant both to the old and the new disease, and they, as all growers know, are quite distinct from both the Up to Date and Abundance types.

In 1910 the Harper Adams College trials embraced 57 varieties, nearly all in duplicate. Those which were immune were:—

Early varieties.—Aberlady Early, Milecross Early, Snowdrop, Southern Queen, Southern Star, Twentyfold.

Second early varieties.—Abundance, Conquest, Dobbie's Favourite, Supreme.

Maincrop varieties.—Chiswick Favourite, Crofter, Discovery, Golden Wonder, Laird, Langworthy, Prolific, Provost, Reading Giant,

Rector, Schoolmaster, White City, Peacemaker, What's Wanted.

The crops of some were very poor, and the report puts forward the following eight varieties as the best in their respective classes:—

Early.—Aberlady Early, Milecross Early (for rapid maturing).

Second early.—Abundance, Conquest.

Maincrop.—Provost, Crofter, Golden Wonder, What's Wanted.

Some thoroughly practical suggestions are made as to the mitigation of the ravages of the disease: "The application of raw nightsoil tends to increase the severity of the attack." "Ridges should be well crowned up and no hollow left at the top." "The indiscriminate use of tools on infected and clean ground is to be deprecated." "Poultry should not be allowed to roam over infected plots and clean ground." "Diseased tubers should not be used for pig feeding." These are a few of the trite hints set forth. *W. Cuthbertson.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE R.H.S. JOURNAL.—The remarks upon this subject made by Mr. Elwes at the annual meeting will be echoed very sincerely by many members, and thanks are due to him for calling the attention of those in authority to this matter. Now that the library, thanks largely to his efforts, has been placed upon a sound footing, the *Journal* is, without doubt, the most pressing question. It must be realised that the Society is attempting to supply in one publication the needs of two different classes of readers. The amateur is, of course, interested in the cultural and descriptive articles, and the ethics of rock and water gardening are to him questions of the gravest import. Another section of amateurs is doubtless interested in details of elementary botanical study, but these may be found in any primer dealing with this subject, and are certainly not suitable matter for a quarterly journal. The other class of reader is found in smaller numbers, perhaps, but the geographical distribution of the species is wide. It is for this class that the *Journal* offers but little material, and this little, it would seem, in a diminishing quantity. For example, the Society did great service in translating and publishing Mendel's epoch-making paper, but since then the student of heredity has a steadily-diminishing cause to refer to the files of the *Journal*. The description and registration of the hundreds of new plants introduced are not treated in a systematic manner, and are left to the chance of private trade members' efforts, with the result that much information obtainable at the date of introduction is lost. The neglect of fruit in recent times, as compared with the great interest shown in the days of Knight, Salisbury and Thompson, is conspicuous, and if it be charged that public interest is not now so keen as it was—a debatable point—the answer can surely be made that it should be the object of the Society to direct, as well as follow, horticultural tastes. The more punctual publication of the *Journal* at the present time should make it an attractive medium of publicity to the scientific worker, but one notes with regret the few original papers now contributed by the worker in the borderlands of horticulture and botany. Many features, such as the "Science Abstracts," are of great value, and if these and scientific and botanical papers were published, as Mr. Elwes suggests, in a separate form and under the supervision of a publication committee, it would, in the writer's opinion, greatly increase the utility, as well as the prestige, of the Society. *A Fellow.*

SAXIFRAGA × CLIBRANII.—There is no perplexity that besets the amateur more constantly than *Pembarras de choix*, the difficulty of choosing the best from the excessive abundance and multiplicity of varieties in the different species of flowering plants. In no group has more variety been developed of late than in the red-flowered, mossy Saxifragas. We were delighted some years ago by the appearance of "Guildford Seedling," and a charming little plant it is; but it has been quite eclipsed, both in flower and foliage, by the variety called after the raiser, *S. Clibranii*. This plant has a very robust constitution, increasing rapidly, and its foliage, consisting of closely-set rosettes of grass-green colour, is particularly decorative in winter, and never turns rusty in summer. The flowers are set on firm, erect stalks 5 inches or 6 inches high, and are of a deep, clear rose colour. In the original *S. Rhei* and *Guildford Seedling* the colour is fleeting, fading away when exposed to sunshine. I have *S. Clibranii* in various exposures, and although when facing full south the blossoms do get paler with age, they keep their beautiful colour longer than any other variety known to me. When cultivated in positions facing west or

best. Will anyone argue that price is remunerative? Taking English varieties of desert Apples, what is there that is worth eating after Cox's Orange Pippin is finished at Christmas? It is all very well to praise varieties like Baumann's Red Reinette, Sturmer Pippin, Lord Burghley, and the many other so-called late dessert Apples, but none of them is comparable to Winesap, Golden Newtown, White Winter Pearmain, Golden Russet, and other foreign sorts obtainable in magnificent condition after Christmas. The British grower is not altogether to blame for his inferior fruits. In British Columbia, the Wenatchee Valley, for example, no rain falls from the end of July until the fruit is gathered; the district enjoys a cloudless sky and brilliant sunshine. What have we experienced during recent years: more often rain than sunshine, and that during the most critical period. Climate is the salient point in the whole question, and over that we have no control. Quite recently I was talking to a grower from British Columbia who has a fruit farm of 160 acres, and he said it was merely a question of climate, soil, irrigation, and an enforced system of spraying that was responsible for the great success which

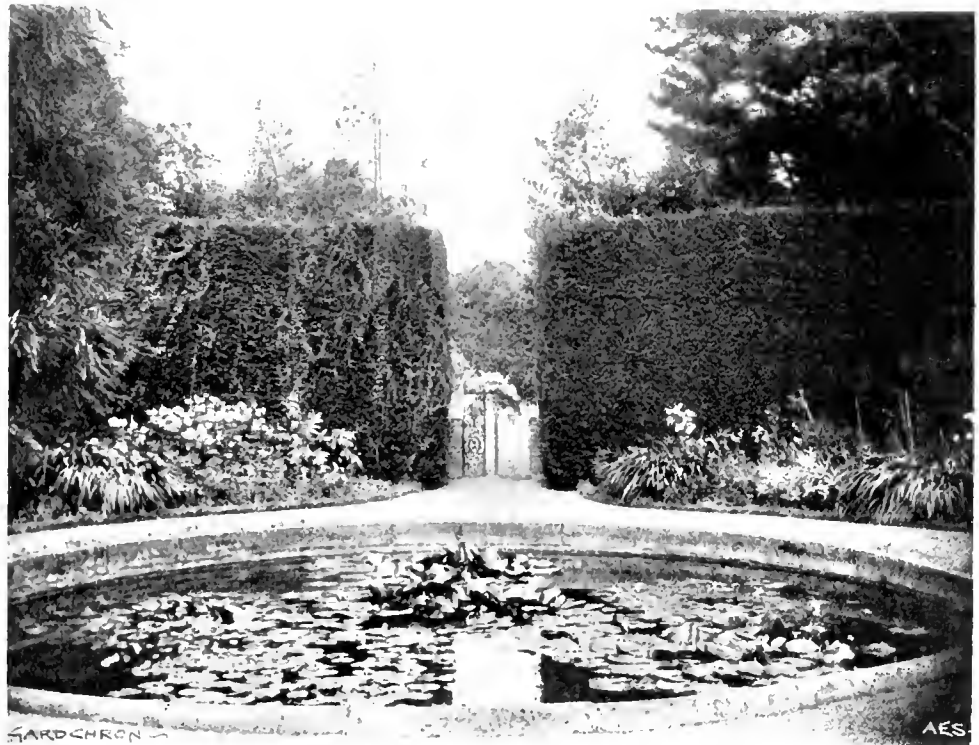


FIG. 60.—WATER-LILIES AT BARON HILL.

north-west, the flowering season is greatly prolonged, and the bright colour does not fade. *Herbert Maxwell, Monroith.*

IMPORTED V. HOME-GROWN APPLES.—Only those who grow English Apples for sale and those who are in business as fruiterers are capable of giving an opinion as to whether English Apples can be grown and sold at a profit in competition with the imported Apples. Persons who judge from exhibits of fruit staged at the R.H.S. meetings by nurserymen for the purpose of selling their trees are not qualified to express an opinion on the subject. What loss must have occurred between the time such fruit was first stored and when it was shown? What was done with those of second quality as none but the best specimens would be reserved for exhibition? The opinion expressed in one line from *Southern Grower* contains more weight than a column from *A* on this subject. Does it pay the ordinary grower to store his fruit, say Bramley's Seedling, from October until January, or even later, on the chance of obtaining 2s. or 4s. per bushel more than would be obtained at the time of gathering? Personally I do not think it would, as I have tested the matter. In Southampton, last October, the best price obtainable for a bushel of 48 lbs. of fruit was 6s., and in this case the sample was of the

prevailed there in Apple culture. The small fruits are used for making cider. My advice to English growers is to grow early varieties and market them before the imported fruits come to hand. *E. Molyneux.*

—It is very pleasant to again see Mr. Herrin's signature in the *Gardeners' Chronicle*: time was when it appeared frequently, but the claims of a business are inexorable. I am sorry to say I cannot give exact replies to his pertinent questions, for I am living in a temporary home and am unable to unpack my notes and books. The Apples treated as described on p. 58 comprised such sorts as Alfriston, Annie Elizabeth, Beauty of Kent, Bismarck, Dumelow's Seedling, Loddington Seedling (Stone's Apple), Lord Derby, Peasgood's Nonesuch, Striped Beefing, and Tom Putt. Such kinds as Lord Derby and Bismarck, which, under ordinary conditions, are in season at about November, were gathered, I believe, during the last half of July, whilst the later Apples were gathered about a fortnight afterwards. *A. C. Bartlett.*

LARGE ORCHID PLANTS.—The illustration of a splendidly-grown variety of *Cattleya Triana* on p. 108, affords an excellent example of the greater decorative value of Orchids when large

plants are grown. Far too often gardeners aim at increasing the number of their plants, and in the houses under their charge one sees scattered about a number of small plants which, generally speaking, have little decorative value. Last autumn, I saw in a west-country Orchid house quite a number, probably 30, small plants of *Cypripedium Spicerianum* growing in 3-inch pots. They were flowering well, and were arranged in straight lines at the edges of the stagings. The comparative rareness of the *Cypripedium* arrested attention, but had it been one of the commoner Orchids, a passing glance would suffice. But if, instead of a number of tiny plants in small pots, *Cypripedium Spicerianum* had been potted in a few goodly-sized pans and arranged in a group, what an admiration-compelling display there would have been! *B.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

FEBRUARY 14.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Sir J. T. D. Llewelyn, Bart., Drs. J. A. Voelcker and O. Stapf, Messrs. A. D. Michael, J. Fraser, W. Cuthbertson, W. Hales, G. Gordon, H. J. Elwes, E. M. Holmes, A. Worsley, R. Hooper Pearson, C. T. Drury, J. Douglas, R. A. Rolfe, and F. J. Chittenden (hon. sec.).

Variation in Wheat.—Dr. J. A. VOELCKER showed grains of wheat from plants grown in pots to which had been added successively larger quantities of magnesium oxide. The examples varied much in appearance, from a plump, starchy-looking grain, where the proportion between the calcium and magnesium present in the soil was low, to a hard-looking grain, where the proportion of the two elements was nearly equal. The nitrogen content varied in the same way, so that it was much higher where the calcium and magnesium content of the soil approached equality than where the calcium content was much in excess of the magnesium. The crop also increased with the increased content of magnesium, until the ratio between calcium and magnesium reached unity. Dr. VOELCKER exhibited these specimens to illustrate the influence of the chemical composition of the soil upon the character of a variety. The experiments were carried out in triplicate, and with three different varieties, with similar results. Mr. ELWES expressed himself in agreement with Dr. VOELCKER's views as to the influence of soil and climate in changing the characters of Wheat, and said that his own experience led him to the belief that many of the supposed varieties of Wheat were not fixed, and, probably, could not be fixed.

Hymenocallis macrostephana.—Mr. H. J. ELWES showed flowers of this plant (figured in *Botanical Magazine*, t. 6456). *H. macrostephana* is reputed to be a hybrid between *Ismene calathina* and *Hymenocallis speciosa*. Both species are now included in the genus *Hymenocallis*. Mr. Hoog, of Haarlem, some time ago, repeated the cross, and raised the fine form *Hymenocallis "Daphne,"* very similar to, but finer than the original *H. macrostephana*. (See note by Mr. Worsley in *Gardeners' Chronicle*, XXIX. (1901), p. 72.)

Galanthus.—Mr. ELWES also showed a fine and vigorous form of *Galanthus*, which Mr. BOWLES thought to be of hybrid origin, and took for further examination.

Dasyliion glaucophyllum.—Mr. HOLMES showed portions of a plant of the fodder plant, to which attention was drawn by Dr. VOELCKER at a recent meeting, and which was then thought to be a species of *Hechtia*. He was now able to identify it as *Dasyliion glaucophyllum*.

Achillea millefolium var. rubra.—Mr. FRASER showed a dark-red form of *Achillea*, similar to that often grown in gardens, which he had found growing wild at Killin, Perthshire.

Polypodium vulgare var.—Mr. C. T. DRURY showed a form of a *Polypodium* very nearly approaching the beautiful variety *combiense*, which had been found growing near Barnstaple, North Devon.

Odontioda × Cr. uniana.—Mr. R. A. ROLFE showed flowers of this hybrid, raised by Messrs.

Charlesworth & Co., between *Cochlioda Noezliana* ♀, from Ecuador, and *Odontoglossum cordatum* ♂, from Mexico, and remarked upon the great differences between the parents. The hybrid was bright scarlet, like the *Cochlioda*.

Fasciated Wallflower.—Mr. E. KNOWLDIN sent from Dublin a fasciated Wallflower, which had been found growing on a wall. The specimen broadened out and forked at the top of the stem.

HORTICULTURAL CLUB. (ANNUAL DINNER.)

FEBRUARY 14.—The annual dinner was held on this date at the Hotel Windsor. The president, Sir John Llewelyn, Bart., presided, and there was a fairly good attendance of members and friends, including ladies. The tables were prettily decorated with flowers by the kindness of Messrs. Veitch.

After Sir John Llewelyn had proposed the loyal toasts, the Rev. Joseph Jacob proposed in happy terms the toast of the "Royal Horticultural Society." Mr. Harry J. Veitch responded in a speech which showed how thoroughly satisfactory the affairs of the premier horticultural society really are. Incidentally, he stated that the Council was about to form a rockery at the Wisley Gardens, and that already a sum of £1,000 had been voted for the purchase of stone and other materials for this purpose.

The president proposed the toast of "The Club," which he said intended to heartily fulfil its social functions on the occasion of the great International Horticultural Exhibition of 1912 by extending hospitality to the visitors that event would bring to our shores. Mr. Rudolph Barr responded. The toast of "The President" was proposed by Mr. Bilney, and received with all the honours. The toast of the visitors proposed by Mr. George Paul, J.P., was responded to by Mr. Chiappini, the commercial agent in this country for United South Africa. He related interesting incidents in South African life, and said that the trade between Britain and South Africa was increasing by leaps and bounds. Some figures and other details given to illustrate this latter statement caused considerable surprise and satisfaction. The speeches were interspersed with songs and instrumental music.

Previous to the dinner, the annual meeting of members took place in the club room, and a report for the year 1910 was presented by the committee. The number of members was stated to be 127, but two deaths have taken place since the report was compiled, namely, Mr. George Hobday and Mr. T. Simpson. The financial statement submitted by the hon. treasurer, Mr. Harry Veitch, showed that the accounts were satisfactory.

STIRLING AND DISTRICT HORTICULTURAL.

FEBRUARY 14.—A lecture on "Weeds, their Control and Extermination" was given before the members of this society on the above date by Professor Macalpine, of the West of Scotland Agricultural College, Glasgow. The president, Mr. Jas. Johnston, presided over a large assemblage of the members. Professor Macalpine dealt with the uses and foods of plants, and described the methods by which seeds of weeds were distributed.

WEST OF ENGLAND CHRYSANTHEMUM.

FEBRUARY 15.—The annual meeting of this Society was held at the Mutley Grammar School, Plymouth, on this date. The president, Mr. C. Bewes, occupied the chair. The society has been in existence for 21 years.

The report showed that the past year had been a successful one, there being a balance in hand of £17 4s. 6d., being double that of the previous year.

On the motion of the president, the report and balance-sheet were adopted. The president, Mr. Bewes, and the vice-presidents were re-elected. The resignation of the hon. secretary, Mr. Wilson, was accepted, and a vote of thanks was accorded him for his services during 21 years. Mr. E. Arnold was elected hon. secretary, and Mr. F. T. Bulteel hon. treasurer.

SCOTTISH HORTICULTURAL.

THE PRESIDENT'S ADDRESS.

FEBRUARY 7.—In our last issue we referred briefly to Mr. Massie's presidential address at the annual meeting of the Scottish Horticultural Association. The following extracts from the address relate to Mr. Massie's proposals in respect to the future work of the Association. The proposals were remitted to the Council for consideration:

Our aims, I hope, as an association, will rise yet higher than the reading and discussion of papers, profitable as these have been. A horticultural institute was one of our early dreams, and I see no reason why we should not have one by-and-by. It would serve as home of horticulture, where a systematic course of theoretical and technical instruction is available to all young gardeners, and where an examining body grants diplomas of fitness that would be a certain passport to all gardeners possessing them to the highest places of preferment in the profession. Why should there not be a Faculty of Gardeners, admission to which would be a certificate of fitness? It is often said that the remuneration of gardeners is, as a rule, so low that there is no encouragement to pursue higher attainments. No doubt the wages of gardeners are much too meagre for the varied services rendered and expected, but still we find the highly qualified men generally get the few prizes that are going, and I am certain that high attainments will always find some fitting reward, and many an employer would soon see it to be to his best interest to retain the services of a really qualified man, even at the cost of a considerable rise in wages. It would be a crowning success to our association to be the means of thoroughly educating and fitting gardeners for the very best positions, and also of effecting the long-wished-for improvement in remuneration. To establish such an institute might be a matter of difficulty, but difficulties only exist to be overcome, and there are brains and enterprise and energy enough amongst the members of the Scottish Horticultural Association to overcome greater difficulties than any likely to be met with here. It might be quite possible to raise the necessary funds by some such spirited movement as the carrying through of a great open-air summer carnival and floral festival. Such fêtes have already raised large sums for public objects, and no public body I know of is more capable of more successfully inaugurating and carrying through such an undertaking as ourselves. To hold our meetings, gentlemen, in our own room, its walls hung with the portraits of great horticulturists to inspire us, a well-stocked library, a thorough system of technical education going on, and young men going out into the world periodically bearing the stamp of our approval, and a thorough system of benevolence to aid the widows and orphans of gardeners or those of their number who by misfortune might come to poverty, would be indeed a consummation devoutly to be wished. This concludes my historical references to this subject, which have necessarily been full in order to show those of you whose connection with the association is of somewhat recent date that this question has from the very first been kept in the forefront among the aims and objects of the association, and to show you that what I am about to propose is no innovation, but would merely be the logical outcome of this persistent advocacy. I propose nothing new to you except that you should exchange a philosophy of words for one of deeds and actions.

FIRST CHRYSANTHEMUM SHOW IN WAVERLEY MARKET.

It is now 19 years since Mr. Welsh referred to the formation of a gardeners' institute as being almost within our reach. Three years before that, in 1889, the association had commenced to hold its Chrysanthemum shows in the Waverley Market, and, owing to the great success with which these were attended, it may be that the office bearers and members alike became so obsessed with them that the greater question was completely lost sight of, at any rate, with the exception of the allusion to it by Mr. Todd in his address 14 years ago, no further reference to it is to be found until four years ago, when it was resuscitated by one of my immediate predecessors in this chair, Mr. D. W. Thomson, who, in his

presidential address, strongly urged the formation of a great horticultural centre for Scotland in this city, and at the present moment an undischarged motion by our friend Mr. King to make a commencement by raising a fund for the purpose stands in our council minutes.

Ex nihilo nihil fit is a classical phrase as trite as it is true. Out of nothing nothing can come, and unless we cease our talk and begin to act we shall be no further forward in the next decade than we were in the last, or than we are to-day, if, indeed, we have not retrogressed. Times have changed. There is no reasonable prospect at present or a return to the palmy days of Chrysanthemum shows of 5 to 20 years ago. There is small prospect at present, even with the greatest attractions we can legitimately offer, of drawing £1,200 at the gates, nor of any sum approaching it. In 1908 and 1909 we had a heavy loss. Last year, with a somewhat novel departure in our show-procedure, we scraped through with a small surplus, but it was only accomplished by exercising the most rigid economy. The unpleasant fact has to be faced that there is at present a steady decline in the attendances at our shows, and we have no assurance that the decline will not go on. The question then, comes to be, how far can we go in this direction? There must be a limit to our economy if there is none to the smallness of our attendances, and if the decline in the latter goes on, what then? I sincerely hope we have reached bed-rock in our attendances, but who can tell? Counter attractions, which 10 years ago had no existence, have sprung up—and are still springing up—in all directions. The best military bands can be heard elsewhere in the city almost any season. The Waverley Market, when compared with other up-to-date halls for entertainments, has earned an unenviable notoriety as a kind of refrigerator in the month of November, a fact which cannot be too strongly impressed on the Corporation, to whom the building is a source of very large revenue, most of which is derived from rents for shows and other entertainments. Times are bad, and, above all, in spite of the huge efforts which are being made by educational authorities to raise them to a higher level intellectually than they ever had an opportunity of rising to before, there seems, generally speaking, a strong desire on the part of our youth for less intellectual forms of enjoyment than was formerly the case. Flower shows have ceased to attract as they used to do, and as the holding of them was not part of the original work of this association, I think we should pause and reconsider the whole question afresh. As I have said, we cannot hope for an immediate return at present of the palmy days of our Chrysanthemum shows of 20 or even 5 years ago. Our funds are not increasing, but our association is growing, and its work is increasing. But restricted revenue will strangle its efforts to expand. How, then, are we to exist? For years the revenue of the association has not met its expenditure, and the deficit has had to be made up out of show surpluses. But if these, too, are to cease, how is the work to be carried on? It seems to me that we must move, and move at once.

PUBLIC LIBRARIES. BOTANICAL MUSEUM. SECTIONAL LIBRARIES WANTED. HORTICULTURAL INSTITUTION. JOURNAL. TRANSACTIONS.

I have already given you a résumé of what has been done since the starting of the association with regard to a library, museum, and reading room, the acquirement of which, according to its original constitution, was one of its principal objects. In the matter of libraries, there has been a great change since the association was formed, and we have now in Edinburgh, and many of our other towns, thanks to the munificence of our honoured countryman, Mr. Carnegie, excellent public libraries. In this city, too, we have a museum in connection with the Royal Botanic Garden, and a very excellent botanical collection is now housed in the Royal Scottish Museum, and as the latter institution is open on certain evenings, this collection, being more accessible is, perhaps, of even greater value to the working gardener than that of the former institution. So far as we are concerned, the formation of a museum seems now not to be so necessary as it formerly was—if it is necessary at all—but it is otherwise with a library. The public libraries are intended chiefly to supply the wants of the great general reading public, and for purposes of reference; but sec-

tional libraries, it seems to me, in these days of technical training, are more urgently required than ever, for the literature on specific subjects is vast compared with what it used to be. One could not expect to find in, say, the Edinburgh Public Library all the weekly and monthly and other horticultural papers and magazines, but that is what our young men require, and it goes without saying that a reading room is necessary where such literature is provided. This then was what was aimed at in the original constitution. In the revised constitution of 1908, the words "Horticultural Institution" are used, and this embraces all that was stipulated for in the original constitution, and more if necessary. As for the starting of a journal, this, I think, however much the want might be felt at the time the demand was made for it, is in these days unnecessary. But there is no reason why our transactions should not be improved, more especially as they are the only medium by which members living in the distant parts of the country are kept in touch with the centre. Not only should they contain reports of the papers read at the meetings, and of the proceedings, but they should be made a medium of reference to papers, &c., of outstanding importance published elsewhere, so that the members may know where to lay their hands on what they want.

FINANCES OF ASSOCIATION. FLOWER SHOW FINANCE. SUBSCRIPTIONS.

Having said so much about the attainment of one of its objects, I now wish to glance at the financial working of the association. As I have already mentioned, the ordinary revenue of the association does not meet its expenditure, and any deficit there is has to be made up out of flower show surpluses. But if there is a loss on the show, as there was in 1908 and 1909, it means that this, plus the deficit on the association account, has to be taken out of the funds. Now this, I think you will admit, is not only unsatisfactory—it is very bad finance. The association ought to, and must, be self-supporting if it is to go on progressing. It should be quite independent of show surpluses, and, of course, it follows that it should not be involved in losses on the show. How is this to be done? Well, I think that show surpluses should be carried to a reserve fund to provide against losses on the show when these occur, and the revenue of the association from members' subscriptions and interest on its investments should be so adjusted as to cover its expenditure. But it is quite apparent to me that it is impossible to make ends meet in the association account on the present basis of a £2 2s. life membership subscription and an ordinary annual subscription of 2s. 6d. At the rate of interest we at present receive on our invested funds (and it is likely to decrease when we realise the major portion of our stocks and invest them in Trust securities), we are getting about 1s. 6d. yearly out of every life member's subscription, and out of this we are paying 1s. in actual cash for the publications they receive and the postage of them, leaving 6d. as the price of the season ticket which they get for the show and to help to cover the working expenses of the association. We are in a little better position as regards the ordinary members, for, allowing the same out-of-pocket expenses in their case (it is a little more), there remains 1s. 6d. as the price of the show ticket, and the covering of the working expenses of the association, but this is too favourable a statement of the case, for it takes no account of expense connected with members who fall into arrear, which has to be met. According to our method of accounting, the show is not credited with any portion of the interest on the life members' subscriptions, or of the ordinary members' annual subscriptions as the price of admission; if it were, how long would it take to exhaust the life members' subscriptions? And where would the revenue from ordinary subscriptions in the association account be? I put the question to any business man present, is this good finance? Now, my proposal—there is nothing alarming about it—is that there should be a graduated scale from, say, £2 2s. downwards to 2s. 6d. in the annual subscriptions, but that none but under gardeners or other horticultural employees should be admitted at the lowest figure. I recognise, however, that it might be somewhat unfair to compulsorily raise the subscription in the case of the present members, and I would suggest that they should have the option to continue on the present basis, but that anyone resigning or lapsing would be

required to pay on the new scale on rejoining. Only in this way do I think it possible to put the finances of the association on a sound basis, and I appeal to you to give the matter your earnest consideration in the best interests of the association, the welfare of which I am sure you all have at heart.

YOUNGER MEMBERS OF THE ASSOCIATION.

There is another aspect of our work, which, I think, does not receive sufficient attention from us, and that is our interest in the younger members of the association. The young members do not, as it seems to me, take a large enough share in the work. It is to them that we must look to carry on the work of the association after those of us who are now in the sear and yellow leaf have fallen out of its ranks, and I think they should lose no time in buckling on their armour and entering the lists. About a dozen years or so ago, there was in existence in connection with this association what was called the "Junior Horticultural Association." This was composed of young men who were members of our association, who formed themselves into this body for the purpose of reading papers and conducting debates, and the association lasted for several years. I do not advocate the reformation of such a body, but I do think that the young members should have more consideration at our hands, and in order to give them facilities for the reading of short papers, the council have, at my suggestion, arranged to give up the April meeting this session to their exclusive use, and I appeal to them to come forward and take their legitimate share in the work. Many sermons have been delivered to the youth from this chair. I do not propose to preach at them, but I do invite—may, urge—they to take a fuller advantage of our meetings in training themselves to giving intelligent reasons for the faith that is in them. In order to give a stimulus to the project, I may say that the council have arranged to offer prizes in books to those who acquit themselves most creditably at the April meeting.

TEACHING OF HORTICULTURE. EXAMINATIONS FOR CERTIFICATES.

As regards the teaching of horticulture, which is referred to in some of the past president's addresses, from which I have quoted as a thing which this association should take a part in, I am of opinion that, while we no doubt should keep a watchful eye on what is being done in the matter, we should have no active hand in it. The time for this association taking up teaching as part of its work has gone past. We have now an Agricultural College in Edinburgh in which horticulture is taught by an efficient staff, and it would only be waste to overlap the work of the college in any way. But there is one thing in connection with the teaching of horticulture in which it seems to me this association might be of use to young gardeners. The time is not far distant, we hope, when the Edinburgh and East of Scotland College of Agriculture, to the governors of which your council have already made a representation on the subject (which has been courteously responded to), will institute a diploma in horticulture, and this will meet the case of all those who have the time and the means to go through a prescribed curriculum of study in the college; but there are many working gardeners who have neither the time nor the means to attend prescribed courses of lectures in the colleges, and who must, perforce, pick up their technical knowledge in any haphazard way they can, to whom some hallmark would be valuable, and it is in such cases as these that this association might be of some service by granting to them certificates of proficiency. This, of course, would involve an examination by competent examiners in the theory and practice of horticulture, but it would in no way overlap or interfere with the work of the colleges; it would, in fact, benefit them, for many of these young men would be induced thereby to take advantage of the evening classes in these institutions, and this association might also materially assist in this by granting small bursaries to deserving young men so as to enable them to take advantage of these classes. By instituting lectures on horticulture and allied subjects, this association has done a great deal for the technical training of gardeners in the past, and it would not be at all inappropriate were it now to take up this question of granting certificates such as I have described.

BENEVOLENT FUND.

There is one other matter to which I wish to refer before I close, and it is one which, I think, deserves your serious consideration; and, like some of the other subjects I have touched upon, I find it has not escaped the attention of some of my predecessors in this chair. It is the question of aiding the widow and the fatherless, and those who, through no fault of their own, have met with misfortune amongst the gardening fraternity. I am not prepared now to go into the details of such a scheme, for it would require a great deal of careful thought and consideration before it could be launched, but I for one feel that it is a scheme which should be faced, and I am sure that if it were gone about in the proper way it would succeed. I have frequently noted a generous spirit amongst you in the voting of doles from the association funds for various benevolent purposes, but I am strongly of opinion that these contributions should come direct from the pockets which we individually control. We have, of course, great charities like the Gardeners' Royal Benevolent Institution, and the Royal Gardeners' Orphan Fund, both of which are doing splendid work, but the sphere of the former is restricted to the relief of aged, distressed and disabled gardeners and others and their necessitous widows, and that of the latter to the relief of the orphans of gardeners and others. In the case of the Gardeners' Royal Benevolent Institution, the only persons who are eligible for the pension are those who have been head gardeners or their foremen, market-gardeners, market-growers, nurserymen and seedsmen, and foremen of nurserymen and seedsmen, and the widows of such persons. To be eligible, gardeners must have served in the capacity of head gardeners or their foremen in the establishments of ladies or gentlemen for 30 years, and the foremen to nurserymen and seedsmen must have served as such for the same number of years. Market-gardeners must have cultivated not less than five acres of land for 30 years, and market-growers, nurserymen and seedsmen must have been regularly engaged in the business for thirty years. Further, unless totally incapacitated through accident or incurable disease, no person is eligible for the pension under 60 years of age. No provision is made for the relief of distress in the case of the large army of younger gardeners and their widows in this charity. In the case of the Royal Gardeners' Orphan Fund, the beneficiaries must be the orphans of gardeners, foremen in gardens, or managers or departmental foremen in nursery or seed establishments. We have also in operation now a State Old Age Pension Scheme, but as no one is eligible under this till he or she is 70 years of age, it, like the Gardeners' Royal Benevolent Institution, of course, does nothing for the young or middle-aged who may require pecuniary assistance to tide them over a period of distress. Such a fund as would aid the journeyman gardener and those dependent upon him when misfortune overtakes him in early or middle life, is a desideratum, and I think we should make an effort to have a benevolent fund of this sort instituted for Scotland.

[The summary of Mr. Massie's proposals was published in our last issue, p. 110.—Eds.]

NATIONAL FRUIT-GROWERS' FEDERATION.

FEBRUARY 15.—The annual meeting of the above association was held on this date in the Royal Horticultural Hall, Vincent Square, Westminster.

Mr. C. S. Martin, the president, stated that eight important societies had been affiliated to the Federation. The Council had, he said, been able to do a great deal of good in influencing the railway companies to prevent the pilferages of which complaint had been made, and he was convinced that a meeting with the representatives of the companies as business men would bring about better results in the interests of the trade than any legislation. The Council was considering the establishment of a standard for Apple boxes, to enable British growers to compete with foreign produce which, to a great extent, held the market. The balance-sheet showed a deficit, towards the wiping off of which they had received some donations, and he reminded the members that the more the Council had to do the more they had to spend. The report was adopted.

Professor E. S. Salmon read a paper on "Lime

Sulphur Washes for Use on Foliage," describing various experiments for determining the effect of these washes on various fruit trees.

Dr. W. Goodwin dealt with "Soil Analysis and its Use to Fruit-growers," advocating mechanical as distinguished from chemical analysis, for the purpose of determining the texture of the soil and the size of its particles.

Mr. J. E. Newman described some experiments in "Electricity as Applied to Agriculture," and Mr. W. Masters, a member of the Evesham Growers' Association, read a paper on "Market Growers and Trade Protection."

SOUTHERN COUNTIES GARDENERS (SCOTLAND).

FEBRUARY 16.—The first annual dinner of the Association was held in the King's Arms Hotel, Dumfries, on this date, and was a great success; more than 50 being present. The chairman, Mr. T. Young, C.R.I., Dumfries, gave a short address on the objects of the association, and it was decided to hold a general meeting on March 4 for the purpose of appointing a committee. The proceedings included a musical programme.

IRISH GARDENERS' ASSOCIATION AND BENEVOLENT.

This society was established in 1895 as a horticultural association. Subsequently it was considered advisable to enlarge its scope of usefulness, and in 1897 it was converted (under the Friendly Society Act) into a Benefit and Mutual Improvement Society.

Monthly meetings are held in the Society's rooms, when papers on practical gardening subjects are discussed, and occasional excursions to gardens of interest are also organised.

The annual report shows that the membership continues to grow. The past year's balance-sheet shows a marked increase on the credit side, due principally to an item of £52 contributed by the seed and nursery trade.

Some two years ago a special committee was appointed to draft new rules for the better guidance and working of the association. The results of their deliberations were confirmed at a special general meeting called for the purpose. These rules have since been duly registered under the Friendly Society's Act, and copies have been circulated among the members.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending February 22.

Forty-one days with less than three-quarters of an inch of rain.—This proved a warm week for the time of year. On the two warmest days the temperature in the thermometer screen rose respectively to 55° and 54°, making these the two warmest days as yet of the present year. On the warmest night the exposed thermometer did not fall lower than 45°, which is an exceptionally high minimum reading for the month. The ground is now getting warmer, and is at the present time 1° warmer at 2 feet deep, and 4° warmer at 1 foot deep than is reasonable. Rain fell on four days, but to the total depth of only one-third of an inch. The present dry period has now lasted 41 days, during which less than three-quarters of an inch of rain has been deposited. We have to go back to January and February, 1909, in order to find any consecutive 41 days as dry. But what makes this dry period so remarkable is that it has followed immediately a similar number of days which were as persistently wet. For the first time for nearly 5 weeks there was to-day some measurable percolation through both of the soil gauges. The sun shone on an average for 3 hours, 10 minutes a day, or for half-an-hour a day longer than is usual at the same period in February. The winds continued high throughout the greater part of the week, and in the windiest hour the mean velocity reached 21 miles—direction W.S.W. For the last 11 days the wind has come exclusively from some southerly or westerly point of the compass. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by five per cent. E. M., Berkhamsted, February 22, 1911.

SCHEDULES RECEIVED.

Clevedon Horticultural Society's 35th annual flower show, to be held in the Clevedon Hall Paddock, on Tuesday and Wednesday, August 8, 9. Hon. secretary, Mr. F. Seckington, Seavale Road, Clevedon.

Lymington Horticultural Society's annual exhibition, to be held in the Public Hall, Lymington, on Saturday, August 26. Secretary, Mr. T. Hamilton, Schoolhouse, Lymington.

Knaresborough and District Horticultural Society's show, to be held in the grounds of Convingham Hall, on Tuesday, August 8. Secretary, Mr. Wm. Gelder, Hambleton View, Knaresborough.

MARKETS.

COVENT GARDEN, February 22.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Anemone fulgens, per doz. bunches	2 6-3 6	Narcissus, Soleil d'Or, doz. bun.	1 6-2 0
Anemones (French), per doz. bunches	1 6-2 0	— Van Stou, per doz. bunches	3 0-4 0
Arums (see Richardias), ...	2 0-3 6	— Golden Spur, p. dz. bunches	4 0-6 0
Azaleas, white, per dozen bunches	3 0-4 0	Orchids, Cattleya, per doz.	10 0-12 0
Camellias, per doz.	1 6-2 0	— Cypripediums, per dz. blooms	2 0-3 0
Carnations, p. doz. blooms, best American varieties	1 9-2 6	— Odontoglossum, per dozen blooms	2 6-3 0
— smaller, per doz. bunches	9 0-12 0	Pelargoniums, Zonal, Raspail	6 0 —
Gardenias, p. doz.	8 0-12 0	Ranunculus, double yellow, per dz. bunches	10 0-12 0
Helleborus (Christmas Roses), per doz. blooms	1 0-1 6	Richardias, per dz. blooms	2 0-3 0
Hyacinth (Roman), p. dz. bunches	9 0-10 0	Roses, 12 blooms, Niphotos	2 6-4 0
Lilac, white, p. bch.	3 6-4 0	— Bridesmaid	4 0-5 0
— mauve	3 0-4 0	— C. Mermet	4 0-5 0
Lilium aratum, per bunch	3 0-4 0	— Liberty	4 0-5 0
— lancifolium album	2 0-2 6	— Mme. Chateau	6 0-8 0
— lancifolium rubrum	2 0-3 0	— Richmond	3 0-5 0
— longiflorum	3 6-4 0	— Sunset	2 0-3 0
Lily of the Valley, p. dz. bunches	6 0-10 0	— The Bride	2 0-3 0
— extra quality	10 0-12 0	Tuberoses, p. gross per doz. blooms	5 0-6 0
Marguerites, white, p. dz. bunches	2 6-3 0	— yellow, per doz. bunches	4 0-8 0
— yellow, per dz. bunches	2 0-2 6	— double	10 0-18 0
Mimosa, per pad.	4 0-5 0	Violets, per doz. bunches	1 3-2 6
Narcissus Paper White, per pad	8 0-10 0	— Princess of Wales, per dz. bunches	3 0-3 6
		— Parma, bunch	3 0-4 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum canescens, per dozen bunches	6 0-8 0	Ferns (English), per doz. bchs.	4 0 —
Asparagus plumosus, long trails, per doz.	3 0-6 0	— (French), per dozen bunches	4 0 —
— oedium, doz. bunches	12 0-18 0	Ivy leaves, bronze long trails per bundle	2 6-3 0
— Sprengeri	6 0-9 0	— short green, per dz. bunches	1 0-2 0
Berberis (Mahonia), per dz. bunches	2 0-3 0	Moss, per gross	6 0-6 0
Croton leaves, per dozen bunches	10 0-12 0	Myrtle, dz. bchs. (English), small-leaved	4 0-6 0
		— French	1 6-2 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Aralia Sieboldii, p. dozen	5 0-6 0	Ferns in pots, per 100:	
— larger specimens	9 0-12 0	— in small and large 60's	12 0-20 0
— Mossen	6 0-8 0	— in 48's, per dz.	5 0-8 0
— larger plants	9 0-15 0	— choicer sorts per dozen	8 0 12 0
Ataraxia excelsa, per dozen	12 0-30 0	— in 32's, per dz.	10 0-18 0
— large plants, each	3 6-5 0	Ficus elastica, per dozen	9 0-12 0
Asparagus plumosus nanus, per dozen	9 0-12 0	— repens, per dz.	5 0-6 0
— Sprengeri	6 0-9 0	Genistas, per dz.	8 0-10 0
Aspidistras, p. dz., green	15 0-24 0	Ilyacintus, per dz.	6 0-9 0
— variegated	24 0-36 0	Isolepis, per dozen	4 0-5 0
Azaleas (indica var.), each	2 0-3 6	Kentia Belmoreana, per dozen	18 0-24 0
Begonia Gloire de Lorraine, p. dz.	8 0-12 0	— Fosteriana, per dozen	18 0-24 0
— Tarnford Hall	12 0-24 0	Latania borbonica, per dozen	15 0-18 0
Coccoloba Weddelliana, per dozen	18 0-30 0	Lilium longiflorum, per dz.	12 0-18 0
Crotons, per dozen	12 0-18 0	Lily of the Valley, per doz. pots	24 0-30 0
Cyclamen, per doz.	12 0-15 0	Marguerites, white, per dozen	6 0-8 0
Cyperus alternifolius, per doz.	5 0-6 0	Mignonette, per dz. pots	6 0-8 0
— laxus, per doz.	4 0-5 0	Narcissus obvallaris, per doz.	6 0-9 0
Erica hyemalis	9 0-12 0	— (white)	6 0-9 0
— melanthera	12 0-18 0	Selaginellas, per dozen	4 0-6 0
Euonymus, per dz., in pots	4 0-8 0	Spiraeas (pink), per doz.	12 0-18 0
— from the ground	3 0-6 0	— (white)	6 0-9 0
Ferns, in thumbs, per 100	8 0-12 0	Tulips (from boxes), per doz.	0 8-1 3

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples (American), per barrel:		Apples (Nova Scotian), per barrel:	
— Russets	21 0 —	— Golden Russet	28 0 —
— Ben Davis	19 0-21 0	— Spy	23 0 —
— Greening	25 0 —	— Extra fine	24 0 —
— Baldwin	20 0-24 0		

Fruit: Average Wholesale Prices (continued).

	s.d.	s.d.		s.d.	s.d.
Apples (Nova Scotia) p. barrel			Grapes (Cape)		
— Virginia Albenarle	32 0	—	black, per case	4 6	6 0
— Blenheim Pippin	22 0	24 0	— (Cape) white	5 6	7 6
— Baldwin	22 0	24 0	Lemons:		
— Ben Davis	21 0	22 0	— Naples (300)	10 0	16 0
— (Californian)			— Messina (300)	12 6	18 6
— Newtown Pippin, per case	9 0	11 0	Mangoes (Cape), dozen	6 0	10 0
— 4 tiers	8 9	9 6	Melons (Cape) each	0 7	1 0
— (Oregon), Newtown Pippin	12 0	14 6	Nectarines (Cape)	8 0	12 0
— Oregon Spitzenburgh	12 0	—	Nuts, Almonds, p. bag	36 0	42 0
— (Wenatchee Valley), Winter Pearmain, per case	8 6	—	— Chestnuts (Italian), per sack	20 0	—
— (English) Bramley's Seedling, per bushel	8 0	10 0	— (Redon), p. bag	12 6	14 6
— Blenheim Pippin, per bushel	7 0	10 0	— Brazils, p. peck	3 0	—
— Wellington, pr. bushel	8 0	10 0	— per cwt.	48 0	—
— Newton Wonder	7 6	9 0	— sorted	55 0	—
Bananas, bunch:			— New Brazils, per cwt.	80 0	—
— Doubles	10 0	12 0	— Barcelona, per bag	32 0	34 0
— No. 1	8 0	9 0	— Cocoanuts (100)	10 0	14 0
— Extra	9 6	11 0	— English Cobs, per lb.	0 7	0 8
— Giant	12 0	13 0	— shelled, 1 lb. box of Walnuts	1 0	1 2
— Red coloured	4 0	5 6	— 1 lb. bx. Barcelona	0 9	—
— Red Doubles	8 0	9 0	Oranges, Messina Bitters, case	7 6	9 6
— Loose, p. doz.	0 8	1 3	— (Jamaica), p. case	8 6	9 6
— Jamaica (per bunch)	8 0	10 0	— Dena	12 6	25 0
— Giants	5 0	7 0	— Mandarin, p. case, 96's	3 6	6 0
— Ordinary	5 0	7 0	— per box 25's	0 8	10 0
— Loose, per dz.	0 6	0 8	— Seville Sour, per half chest	20 0	—
Cranberries, per case (30 qts.)	11 0	—	— Jaffa, case (114)	9 0	9 6
Dates (Tunis), per doz. Cartons	4 3	4 6	— Californian Navels, per case	16 0	17 6
Grape Fruit, case:			Peaches (Cape)	4 6	9 0
— 96's	13 6	16 0	Pears (Californian), per case:		
— 80's	13 6	16 0	— Glou Morceau	13 6	14 6
— 64's	13 6	16 0	— Easter Beurte	12 0	—
— 54's	13 6	16 0	— Winter Nelis	13 6	—
Grapes (English), per lb.:			— (French), cases		
— Black Alicante	1 9	2 6	— Passe Crassane, per dozen	10 0	18 0
— Canon Hall Muscat	7 0	10 0	— (Cape) Williams' Bon Chretien	4 6	5 6
— Gros Colmar	1 6	2 6	Pineapples, per case	2 6	4 6
— Almeria (tinted), per barrel	17 6	25 6	Plums (Cape) Wickson	2 6	4 0
— per doz. lbs.	7 6	—	— Apple	7 0	12 0
			— Satsuma	4 6	6 0
			— Chalcot	3 0	4 0
			Strawberries, p. lb.		
			— Best	14 0	20 0
			— Seconds	6 0	8 0

Vegetables: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Artichokes (Globe), per dozen	2 0	4 0	Onions, Dutch, bags	7 0	—
— (ground) 1/2 sieve per bag	3 6	—	— New Spanish, case	6 6	8 0
Asparagus, Paris Green	4 0	5 0	— (English) per bag	7 0	8 0
— Giant	20 0	25 0	— Shallots, per lb.	0 2	0 8
— Lauris	12 0	14 0	— pickling, 1/2 sieve	2 0	3 0
— Sprue	0 10	1 0	Radishes (French), per dozen	2 0	—
Beans, per packet	1 6	2 0	Rhubarb, dozen	1 0	1 3
— Jersey, per lb.	3 6	4 6	Parsley, 1/2 sieve	1 3	1 6
— Beetroot, bushel	1 3	—	Farsnips, per bag	2 6	—
— Cabbages, tally	2 6	—	Peas (French), per packet	0 6	0 7
— (Savoy)	4 0	6 0	— Jersey Telephone, per lb.	4 0	5 0
— Carrots (English) — cwt.	2 0	2 6	Potatoes (Jersey), p. tubs	0 5	0 8
— washed	3 0	—	— Seakale, bundle	1 0	1 3
— (French), pad	3 0	4 0	Sprouts, 1/2 bushel	1 6	2 0
— Cauliflowers, English, per doz.	2 6	3 6	— bags	2 0	2 6
— Italian pads	2 6	3 0	Tomatoes — (Canary), per bundle of 4 cases	11 0	14 0
— Celery, per dozen	6 0	14 0	Turnips — per bag	2 0	—
— Chicory, per lb.	0 34	0 4	— washed	2 3	—
— Cucumbers, p. doz.	8 0	10 0	— (French), doz. bunches	10 0	—
— Endive, per dozen	1 0	1 3	Watercress, p. dz. bunches	0 6	0 6 1/2
— Herbs (sweet), packets, per gross	7 0	—			
— Horseradish, 12 bundles	10 0	12 0			
— Mint, p. doz. boxes	2 0	—			
— Mushrooms, p. lb.	0 8	0 10			
— Broilers	0 4	0 6			
— Mustard and Cress, pr. dz. punnets	1 0	—			

REMARKS.—The Grape trade shows a decided improvement all round. Imported Apples are fairly plentiful, and the best samples are realising good prices. English Apples are limited to Dumelow's Seedling (Wellington), Bramley's Seedling, and Newton Wonder; these also are selling well. A consignment of Cape fruit, per s.s. "Kildonan Castle," received this week, amounted to 10,000 cases, consisting of Peaches, Pears, Plums, Nectarines, Melons, White and Black Grapes and about 150 boxes of well-coloured, kidney-shaped Mangos of first-rate quality. Strawberries are being sent from the Worthing district in increasing quantities. The berries are of much finer quality and appearance than earlier ones. Tenerife Tomatoes are arriving in larger consignments, and prices are lower than those of last week; the quality of the berries is very good. The supply of Mushrooms is in excess of the demand. Broad Beans and Peas are a limited supply, and are realising high prices. Ordinary vegetables continue to sell well. Trade generally is firm in all departments. E. H. R., Covent Garden, February 22, 1911.

Potatoes.

	per cwt.	s.d.	s.d.		per cwt.	s.d.	s.d.
Kents—				Lincolns—			
British Queen	4 3	4 6		Northern Stars	3 9	4 0	
Up-to-Date	4 3	4 6		British Queen	4 0	4 6	
Bedfords—				Up-to-Date	4 0	4 6	
Up-to-Date	3 9	4 3		Mancrop	4 3	4 9	
British Queen	3 9	4 0		Blacklands	3 6	—	
Lincolns—				Donbars	—	—	per bag
King Edward VII.	4 0	4 3		Up-to-Date	4 9	5 3	
Evergood	3 6	3 9		Mancrop	5 3	5 6	

REMARKS.—Trade still keeps very steady, and prices have not altered. Stocks of tubers in London are very heavy, and there are no prospects of obtaining higher prices at present. Edward J. Newborn, Covent Garden and St. Pancras, February 22, 1911.

Obituary.

CHARLES FOSTER.—It is with great regret that we record the death of Mr. Charles Foster, director of the Times Experimental Station, at Sutton Green, near Guildford. Mr. Foster, who had been seriously ill for some months, died on the 16th inst., at the early age of 43. He was born in Lincolnshire, where his father is still in business. Early in his career he was employed in the celebrated gardens belonging to the late Mr. A. H. Smee, at Hackbridge, in Surrey, at the time when Mr. G. W. Cummings



THE LATE CHARLES FOSTER.

was head gardener there. On leaving Hackbridge, he was appointed head gardener at Dolwais, in South Wales. There he laboured strenuously and successfully until his appointment to the charge of the gardens at Aberpergwm, Glyn Neath. Though a most beautiful place, the gardens of Aberpergwm were scarcely in a condition at the time of his appointment to satisfy Mr. Foster. He entered into the task of remodelling the grounds with characteristic zeal and energy. The present writer remembers visiting him at Aberpergwm, when Mr. Foster was frequently to be found in the gardens at 4 a.m. in the morning, and till dusk in the evening. His great industry and capacity soon received their reward. Although still under 30 years of age, and having only the facilities afforded by a small garden, Foster, nevertheless, ventured forth to meet in competition the most successful vegetable exhibitors at the Shrewsbury Show, and at the exhibitions at Cardiff, Chester, and other places. When he was successful at these shows, it was such men as Edwin Beckett, William Fife, and William Pope whom he excelled; and they were among the first to congratulate him and to urge him to further efforts. His fame as a gardener spread

far and wide, and Foster of Aberpergwm became a name of weight in the horticultural world. After a little time he was called upon to take a more important charge, that of Doddington Hall Gardens, near Lincoln. Here, again, Foster made remarkable improvements, whilst his untiring energy became more and more known amongst gardeners. Later, he was appointed as gardener to the Earl of Stradbroke, Henham Hall, Suffolk. He was as successful at Henham as he had been elsewhere. Under his care the gardens became in every way a model of first-class culture and cleanliness. Indoors and out-of-doors, in the fruit, vegetable, and flower departments, there was evidence of the most skilful management. At Henham, Foster closed his career as a private gardener, relinquishing his post to superintend the gardens attached to the new horticultural department of the University College, Reading. His duties in this post consisted not only in managing the College gardens, but also in lecturing on horticulture to the students of the department. It was during his Reading period that Mr. Foster achieved his greatest success. Those who were present at the formal opening of the horticultural department of the College a few years since, will remember the extraordinary crops of Tomatoes and Cucumbers in the span-roofed houses on that occasion, and the wonderful fruitfulness and heavy cropping observable both indoors and in the out-door vegetable garden. As soon as he had organised his teaching work, and developed the resources of the College garden, Foster commenced to exhibit vegetables and other horticultural produce at the Royal Horticultural Society's meetings in London. As a consequence of the excellence of these exhibits, he came to be looked upon as one of the foremost cultivators in the country. His strenuous labours on behalf of the horticultural department of University College, Reading, were appreciated by the council of that institution, and won for him the position of assistant director of horticulture. In 1909 Foster left Reading to take up a position under Lord Northcliffe, who had decided to convert a Wheat field on his Surrey estate, at Sutton, into what is now known as the Times Experimental Station. On the occasion of his leaving Reading he was the recipient of the well-deserved honour of election to the associateship of University College. Mr. Foster's task at Sutton was an uphill one. There was much rough work to be done. Nevertheless, in an incredibly short space of time the Wheat field came to present the appearance of a cultivated garden, and those who had not visited the place since he commenced operations there were startled to see Foster coming to the R.H.S. meetings with marvellous vegetables from the newly-developed Experimental Station. Though never an enthusiastic advocate of what is termed "French gardening," he was in every sense of the word an intensive cultivator, and his work at Sutton was a splendid demonstration of the methods best adapted for small holdings and market-gardens. Foster took an immense interest in Sweet Peas. He was a member of the Executive and Floral Committees of the National Sweet Pea Society, and his trials in the grounds of the college at Reading produced results equal to the best to be seen at the exhibitions. Hence, when the National Sweet Pea Society commenced to institute comparative trials of varieties, Foster was asked to conduct them in the Reading University grounds. In this case, as in every other direction, the college authorities encouraged Foster in his work, and afforded him every facility for carrying out this important work; with what results may be seen in the reports these trials attained. On his removal to Sutton, the Society requested Foster to continue the trials there. This he did, and also provided facilities for the newly-formed Vegetable Society, on the committee of which he served, to conduct trials of vegetable seeds on the Sutton ground. In addition to these manifold activities, Foster found time to act as a member of the Fruit and Vegetable Committee of the Royal Horticultural Society, and he was a past chairman of the Council of the British Gardeners' Association. He was a frequent judge at horticultural shows. Mr. Foster leaves a widow and two sons. Mrs. Foster and the younger son (who is a student at Wisley) remain in their present

home by the express desire of Lord and Lady Northcliffe. The funeral took place at Old Woking cemetery on Monday last, when a large gathering of representative horticulturists were present. A number of floral wreaths were sent, and amongst them tokens of sympathy from the Reading University College, the National Sweet Pea and National Vegetable Societies, British Gardeners' Association, Messrs. Sutton & Sons, and others. Mr. Foster was remarkable not only for his strenuousness and extraordinary efficiency, but also for an almost intuitive knowledge of the habits and requirements of plants. Under his masterly and persuasive care, all plants flourished, obedient to the magic of his method. He was a man of genial disposition and possessed of great personal charm.

GEORGE DANIELS.—By the death of Mr. George Daniels on the 10th inst., East Anglian horticulture loses one who took a very prominent part in the last decades of the past century. One of the founders of Daniel Brothers, seed-men, of Norwich, he was also an enthusiastic supporter of the local horticultural society, and was one of the promoters of the East Anglian Horticultural Club. For some years past he had ceased to take an active in-



THE LATE GEORGE DANIELS.

terest in public affairs, owing to advanced age, and for the same reason he retired from the firm of Daniel Brothers when this business was converted into a limited liability company. Many of our older readers in the east of England will recognise in the portrait which we reproduce the familiar figure of one whose name will be held in esteem for his untiring efforts to spread a love of horticultural pursuits.

CATALOGUES RECEIVED.

MISCELLANEOUS.

E. J. WOOTEN, Fair Oak, Eastleigh—Carnations.
SUTTON & SONS, Reading—Farm Seeds.
W. DRUMMOND & SONS, Stirling and Dublin—Farm Seeds.
KENT & BRYDON, Darlington—Farm Seeds.
KELWAY & SONS, Langport—General List of Plants, Seeds, and Bulbs.
BOULTON & PAUL, Norwich—Golf Club Requisites; Garden Furniture.
NORRIS & CO., 7, York Road, Stepney, London—Tradesmen's Carrier Tricycles.
CLARENCE ELLIOTT, Six Hills Nursery, Stevenage, Herts.—Alpine and Herbaceous Plants.

FOREIGN.

J. M. THOMPSON & CO., 33, Barclay Street, New York, U.S.A.—Seeds.
FRANÇOIS GERBEAUX, 21, Rue de Cronstadt, Nancy, France—New Plants.
W. ALLEN BURDELL & CO., The Turpin Buildings, North Fifth Street, York Avenue, and Buttonwood Street, Philadelphia, U.S.A.—Seeds.

DEBATING SOCIETIES.

ELSTREE AND BOREHAM WOOD HORTICULTURAL.—A lecture on "Hardy and Half-hardy Annuals" was delivered before the members of this association on Tuesday, the 14th inst., in the Church Room, at Elstree, by Mr. Townsend, of Messrs. Sutton & Sons, Reading. Mr. COX, of the same firm, gave a series of lantern slides, illustrating Mr. Townsend's remarks. There was a large audience present, and great interest was evinced in the lecturer's remarks, and also the many excellent coloured and other slides. Thirteen new members were elected.

READING GARDENERS'.—The annual tea and entertainment in connection with this association, took place at the Abbey Hall, on Wednesday, the 15th inst. About 100 members and friends were present to tea, and later between 700 and 800 assembled for the entertainment.

CHELMSFORD GARDENERS'.—The weekly meeting was held at the County Laboratories, on Friday, February 17, when Mr. J. Seabrooke, of Chelmsford, read a paper on "Insect Pests." Mr. G. Stewart occupied the chair. Mr. Seabrooke gave the following methods for destroying insect pests:—By poisoning, by destructive fluids sprayed on the insects, by fumigating or vaporising, and mechanical contrivances, such as grease bands. Winter washes were described as the best preventive methods.

CROYDON & DISTRICT HORTICULTURAL.—The eleventh annual dinner was held on February 15, at the Greyhound Hotel, Croydon. The Mayor of Croydon, in proposing the toast of the society, speaking as the head of the municipality, said they realised that it was their duty to further every beneficial object in the borough, and that was the reason why he was there that evening. Dr. Jackson, who replied, said that the society was doing excellent work, and he congratulated the president on the attendances at the fortnightly meetings. The membership was greater than at any period of the society's history.

WATFORD AMATEURS' & GARDENERS'.—At the meeting of this society, held on February 10, a lecture on "Insect Pests" was given by Mr. A. S. Brooks, of Aldenham House Gardens, Elstree. The lecture was illustrated by lantern slides.

CHESTER PAXTON.—At the meeting of this society, held on February 18, Mr. G. Atkins, of Erding Park Gardens, Wrexham, delivered a lecture on "The First Principles of Fruit Growing." Mr. N. F. Barnes presided. The lecturer dealt with his subject, which was chiefly in relation to Apples and Pears, under the following heads: choice and preparation of soil, varieties, planting, aspect and shelter, pruning, feeding, spraying, and fruits on walls.

GARDENING APPOINTMENTS.

Mr. W. WALKER, for the past 5 years at Criche Gardens, Wimborne, Dorset, as Gardener to Mr. SHENLEY, Warsash, Southampton.
Mr. F. T. HURFORD, late Gardener at Becton Hall, Neatishead, near Norwich, as Gardener to HENRY LEWIS, Esq., Walsingham Abbey, Norfolk.
Mr. ERNEST P. PANNELL, formerly Foreman at Gosfield Hall Gardens, Halstead, Essex, and recently Gardener to H. FERENS, Esq., The Bounds, Hernhill, as Gardener to Wm. C. DAWES, Esq., Mount Ephraim, Hernhill, Faversham, Kent.
Mr. R. JAMES, late Gardener to SAMUEL BAMFORD, Esq., Hawthornden Manor, Uttoxeter, and previously Foreman at Wroxton Abbey, as Gardener to Lord NORTH, Wroxton Abbey, Banbury.
Mr. JAMES MCNERLIN, as Superintendent at King's Heath Park, King's Heath, near Birmingham.

ANSWERS TO CORRESPONDENTS.

BAMBOOS FOR LEICESTERSHIRE: *Arundo.* Success with Bamboos depends largely upon a careful choice of position. They will not succeed in places exposed to north and east winds, but if the plants are provided with good shelter from those quarters, the following Bamboos would be likely to do well in your neighbourhood, for we have seen very good Bamboos in Leicestershire: *Arundinaria japonica* (Bambusa Metake), *A. nitida*, *A. fastuosa*, *Phyllostachys viridi-glaucescens*, *P. nigra*, and *P. Henonis*. You might try these six sorts and watch the results. In any case you must expect the plants to present a certain amount of shabbiness in spring. The great charm of Bamboos is their beauty in autumn and winter. The *Arundo* is not likely to succeed anything like so well as Bamboos, and it is very apt in cold districts to die out in a year or two. The ground should be well trenched before planting Bamboos.

BOOK ON THE HOLLY: *Dea. Holly, Yew, and Box* by W. Dallimore. You will find the other particulars you require in this work. It may be obtained from our publishing department, price 8s., free by post.

CAMELIAS: *A.P.* The dropping of the flower-buds before they are expanded is a common trouble in the cultivation of the Camellia. It is usually due to dryness at the roots and in the atmosphere. When the plants are grown in pots, the roots often become matted together,

compressing the earth, so that when water is applied it does not thoroughly moisten all the soil.

CLIMBING ROSES: *Furze-Bush.* Mme. Alfred Carriere, Reine Olga de Wurtemberg and Ards Rover are three varieties which have a long season of bloom. Such ramblers as Dorothy Perkins, White Dorothy, and most of the hybrid Wichuraiana Roses make a grand show over a very large space, but their season of bloom is a short one. The most effectual way to prevent bare spaces at the bottom of the walls is to plant free but compact growers such as Marie Van Houtte and Anna Olivier between the stronger-growing varieties. We would recommend 10 tall plants upon each wall with the dwarfier varieties between them.

CÆLOGYNE CRISTATA: *M. L.* A plant of *Cælogyne cristata* bearing 1,400 blooms formed the subject of the Supplementary Illustration in the issue for January 15, 1910. We shall be pleased to receive the photograph of your specimen for inspection.

CORRECTION.—In the review entitled *A New Work on British Forestry* (see p. 99), the last paragraph but one should have been enclosed in brackets and initialled "Eds."

FIG LEAVES WITH MARKINGS: *D. H. L.* No disease is present; the markings are apparently the result of scorching.

GRAPE-GROWING IN AUSTRALIA: *H. E. K.* We are informed that there is plenty of opportunity for Grape-growing in Australia, principally in the Southern parts. Write to the Agent-Generals for New South Wales, 123, Cannon Street; Queensland, 409, Strand; Victoria, Melbourne Place, Strand; and Western Australia, 13, Victoria Street, London, for particulars.

NAMES OF FRUITS: *Myhill.* Dredge's Fame.

NAMES OF PLANTS: *J. G.* You have sent more than the proper number. 1, *Cyperus alternifolius*; 2, *Carex brumnea variegata*; 3, *C. sp.*; 4, *Ophiopogon Jaburan variegatus*; 5, *Curculigo orchadioides*; 6, *Rhapis flabelliformis*; 7, *Maranta sp.*; 8, *Selaginella Braunii*; 9, *Adiantum cultratum*; 10, *Justicia magnifica*; 11, *Asplenium bulbiferum var.*; 12, *Maranta bicolor.* The remainder next week.—*W. H. H.* 1, *Epimedium rubrum*; 2, *Aucuba japonica var.*; 3, *Daphne Mezereum*.—*R. P.* 1, *Dracena Sanderiana*; 2, *Cordyline obtecta*; 3, and 4, *C. stricta*.—*M. S., Morpeth.* *Hamamelis japonica* (arborea).—*J. S.* 1, *Garrya elliptica*; 2, *Berberis stenophylla*; 3, *B. Darwinii*; 4, *Cotoneaster horizontalis*.

PARCEL LOST IN THE POST.—We have received from the Returned Letter Office a label detached from some parcel addressed to the Editor, and bearing the Tunbridge Wells postmark of February 10.

PEACH BUDS DROPPING: *S. C., Colworth.* The dropping of the buds of Peach trees is usually caused by some check or by overcropping. The most frequent cause is keeping the borders too dry in the autumn, when the trees are ripening their shoots. But it must be remembered that excess of moisture at that stage will also set up bud-dropping. Some varieties of Peaches are more prone to drop their buds than others.

RAISING SEEDLINGS OF ASTER CORDIFOLIUS AND A. ERICOIDES: *Bippo.* Sow the seeds when they are ripe in the autumn in well-drained, shallow pans or boxes, filled with a light, sandy compost. Germinate them in a gentle heat, and prick off the seedlings when the second leaf has formed. Frequently the seeds remain dormant for five or six months, so that patience must be exercised. It is very seldom that the best varieties of these Asters come true from seed.

ROSE DISEASE: *A. Boulder.* The markings on the leaves are caused by a fungus—*Peronospora sparsa*. Dust the plants with flowers of sulphur when the foliage is damp, and be careful to apply it to the under surface of the leaves.

Communications Received.—*J. H. R.*—A. S.—*J. W. D.*—*P. W. C.*—*S. C.*—*E. P. W.*—*A. P.*—*F. T. B.*—*H. W. W.*—*W. W. F. B.*—*E. M. T.*—*S. A. H.*—*G. T. P.*—*W. D.*—*A. D.*—*W. H. Y.*—*W. H. C.*—*F. M.*—*J. S. G.*—*H. N. K.*—*B. G. A.*—*B. T. B.*—*J. S.*, Scotland. *Myrtle*—*L. M.*—*Germany*—*G. M. D.*—*B. G. R.*—*P. B.*—*G. W. K.*—*F. W.*—*H. H. F.*—*A. B.*—*W. J. V.*—*W. H. J. C.*—*A. & Co.*—*W. R. B.*—*J. G. H. A.*—*P. L.*—*C. G.*—*A. B.*—*H. W. C.*—*H. J. W.*—*G. L. G.*—*H. R.*—*B. S.*—*E. T.*—*W. B.*

THE
Gardeners' Chronicle

No. 1,262.—SATURDAY, March 4, 1911.

CONTENTS.

American notes—	Obituary—	
Ampelopsis Veitchii 131	Beddome, Col. R. H. 143	
Apple growing for profit 138	Cooke, John Newbold 143	
Apple season in Australia, 1911 138	Rawlings, Arthur 143	
Apples, late dessert 139	Peas, select varieties of culinary 139	
Beech, transplanting a large 133	Plants, new or noteworthy—	
Birds, protection of 137	Primula Winterei 130	
Books, notices of—	Poisoning by Ivy 139	
British Ferns and their Varieties 131	Ranunculus, the 138	
Simple Lessons in Nature Study 131	Rose Rayon d'Or 141	
The Liverworts 131	Roses, the pruning of 129	
Brasso-Cattleya "Sena-teur de Bast" 137	Sale at St. John's Nur-sery, Worcester 138	
Clover, romance of a 139	Scotland, notes from 132	
Destructive Insects and Pests Act 136	Seed-select ion 139	
Florists' flowers—	Societies—	
The Dahlia 131	Manchester and North of England Orchid National Dablia 138	
Fokienia Hodginsii 134	Royal Horticultural Street trees and gas 139	
Forestry, Mr. Forbes's book on 134	Wart disease of Potatoes 138	
Lang, Dr. W. H. 136	Week's work, the—	
Market gardening—	Apary, the 135	
Cucumber culture 132	Flower garden, the 134	
Nursery notes—	Fruits under glass 134	
Delgany Nurseries, Co. Wicklow 133	Hardy fruit garden 135	
Oak timber, brown 140	Kitchen garden, the 134	
	Orchid houses, the 135	
	Plants under glass 134	

ILLUSTRATIONS.

Beech tree, removing a large, at Warren House, Hamp-shire 133
Brasso-Cattleya Senateur de Bast 137
Primula Winterei 130

THE PRUNING OF ROSES.

SPRING is upon us, and we Rose-growers are turning our thoughts to a fresh pruning season and the final training of our Roses. We have finished cutting down the stocks budded last summer, which always seems, as it were, to introduce us to the pruning season, and we are looking round for a fresh task. "Never prune until you know what kind of Rose you are dealing with" is the first rule in pruning, and placed by Mons. Viviani Morel at the head of his *Pruner's Alphabet*.

We generally start with the Rugosas, and for these the usual direction given is to "go as you please," i.e. whether you prune severely or lightly does not much matter. But this is not quite correct, for we have now three distinct types of Rugosa, requiring different consideration in pruning.

First, there is the old-fashioned Rugosa, which will give us the well-known, beautiful red berries in autumn. Calocarpa, Delicata and the charming Blanc Double de Coubert, which last will give us flowers and fruit on the plant at the same time, are examples of this type. It is true that we may prune them either hard back or devote most of our attention to thinning and tying, but we shall get very different results, according to which method we employ. The system of hard pruning will give us flowers, but they will be late, and one of the chief points of the Rugosa is its earliness, so unless we do not want early flowers and are cramped for space, it is best to make use of the second method and thin out the old wood, confining the pruning, properly so called, to such slight shortening of the shoots as the plant may require for the sake of shapeliness.

I assume, as a matter of course, that an old plant is being dealt with, for there is

another rule of pruning which scarcely admits of an exception, viz., that every Rose planted the previous autumn must be cut hard back, regardless of the result in the first year. I had a remarkable illustration of the application of this rule last year. I had sent me in the previous autumn a Multiflora x Wichuraiana hybrid that was new to my garden. Now, Roses of this class make roots very quickly and sometimes form the exception that proves the rule, and, wishing to see the flowers, I merely cut back the tops of the shoots a little and put them in as cuttings. At the end of the season I found the cuttings had given me more vigorous growth than I had obtained from the rooted plant. Nevertheless, I will confess that, while I admit the rigidity of the rule, it is one which, in the case of new climbers, I find hardest to bring myself to carry into effect.

To return to our Rugosas. The second group contains those of the Conrad F. Meyer type, great, strong growers with very thorny stems. These do not give us any choice of method, for they should have very little pruning at all. We should confine our operations to merely removing damaged wood and thinning out that of two years and upwards. When, however, it is possible to do so, some at least of the branches should be bent and tied down, either permanently or till the buds towards the base have started. The fault of the Roses in this group is that they are not naturally very free flowering, so everything should be done to induce them to shoot from the whole length of the stem, otherwise the crop of flowers will be small. So far as I can judge, the new yellow Rugosa, "Daniel Lesueur," which seems very nearly related to the Dijon Teas, should be treated in the same way as those of this group.

The third group is a small one, not, perhaps, very generally grown as yet, and of decidedly less vigour than either of the preceding groups. Probably its members contain a greater proportion of Tea-Rose blood in their composition. With regard to these, I think the nearer they approach in character to the Tea or Hybrid-Tea the harder they should be pruned.

THE HYBRID PERPETUALS.

These next claim consideration, and at the outset we are met with two distinct schools, which may be said to be headed respectively by our two most successful amateur exhibitors. They may conveniently be called the early and late schools. The followers of the early school begin to prune in February, finish early in March and cut right back to one or two eyes, with a view to encourage the plant to break from dormant buds at the junction of the Rose with the stock, though a few varieties, such as Charles Lefebvre, are left with somewhat longer stems. This school of rosarians holds that early pruning is preferable on four grounds: (1) The buds which are left to develop are in a very backward condition and are not suddenly forced into growth, but permitted by the early period at which they are called on to take the sap from the roots to develop slowly and gradually, and it is thought

they are thereby able to produce better-shaped flowers than if pruning is deferred till the sap is in full flow, for, if this course were pursued, these backward buds would suddenly be called upon to make use of the full flow of the spring sap. (2) The plants suffer less from bleeding. (3) The operator has a greater choice of weather. (4) The severe pruning and constant supply of young wood keep the plants healthy. The late school, on the other hand, prefers to leave pruning of the H.P.s till the third week in March, and does not advise so severe a pruning, even for exhibition Roses, leaving from 2 inches to 6 inches of old wood, say from three to five buds, or even more in the case of the strong-growing varieties such as the Duke of Edinburgh or Hugh Dickson. The advocates of late pruning think that by this practice they run less risk from frost, which may injure the buds just as they are starting to grow, and cause them to produce malformed flowers; further, that the new growth "gets away" quicker, and that rapid development is better than slow growth.

Where doctors differ who shall decide? Personally, I feel no difficulty, because I have little choice. It is almost a matter of necessity to get the H.P.s attended to as soon as possible, in order to leave time to deal with the rest of the Roses before other garden work demands attention. Whatever method is chosen, I think the rule for pruning H.P.s must be "the earlier the harder."

Where the plants are not required to produce flowers for exhibition or for specimen vases, but for the decoration of the garden, it is usual to find a direction to prune more lightly, some advising that a foot or more of last year's wood be left intact. This may be necessary where the object in view is to form a specimen bush, but I think the H.P. is hardly the most suitable Rose to grow for that purpose, and, in spite of the great preponderance of authority in favour of this view, I hold the method of treatment to be wrong, or at least undesirable. Where a larger number of flowers from the individual plants are required, resort should be had to "pegging down." This is an admirable method of growing the stronger varieties of the H.P.s. From two to four of the longest and best-ripened shoots of the previous year are carefully bent downwards and secured in a horizontal position by pegs or, what is sometimes more convenient, by tying them to long pieces of strong telegraph wire inserted in the ground. They can either be left their whole length or shortened somewhat to suit the space they are desired to cover. These shoots will flower up their whole length and the plant will throw up strong shoots from the base. In the following spring the shoots that have flowered are cut right away, and the requisite number of young shoots bent down to take their places. By this method we secure a result similar to that aimed at in close pruning, namely, the renewal of the life of the plant by the production of strong shoots from the base and the annual removal of all the old wood.

One matter that has of late years

acquired some importance must be mentioned, and that is the necessity to examine carefully the cuts made in last year's pruning, whether it be left or cut away. If a little hole is found in the stem it shows that the larvæ of a Saw-fly have found a winter home there, and either the shoot should be cut off and burnt or the stem slit down till the grub is found and destroyed. These Saw-flies have recently become a serious nuisance to the Rose-grower both in France and England, and a good deal more information as to their life history is desirable.

The Rose-leaf-curling Saw-fly has, I

NEW OR NOTEWORTHY PLANTS.

PRIMULA WINTERI.

HE is a bold man who proposes a new name for a Primula from the Himalayas, yet this appears to be the commonsense way of dealing with the distinct and beautiful blue Primrose shown at the meeting of the R.H.S. last Tuesday by Messrs. R. Gill & Son, Penryn. It was raised from seeds collected in Kumaon by a Mr. Winter, the plants shown being about 10 months old. They were grown in a cold frame, but Mr. Gill states that equally good plants were produced in the open without any protection.

serrated, mealy and green leaves, many or few sessile or pedicelled flowers, more or less deeply-cut calyx, mealy on the outer or the inner or on both surfaces, and a longer or shorter corolla tube with very variously-formed lobes. . . . Many of the forms are, no doubt, constant and reproduced with much constancy by seed." He also recognised six varieties of *P. petiolaris*, another most variable Primula. One of these varieties, called *pulverulenta*, may be the same as Messrs. Gill's plant; unfortunately, we have already a Chinese Primula named *pulverulenta*, and as typical *P. petiolaris* is not mealy and has elliptical leaves, it simplifies matters to name the Kumaon plant after the man who collected and sent home seeds of it, although botanically it may

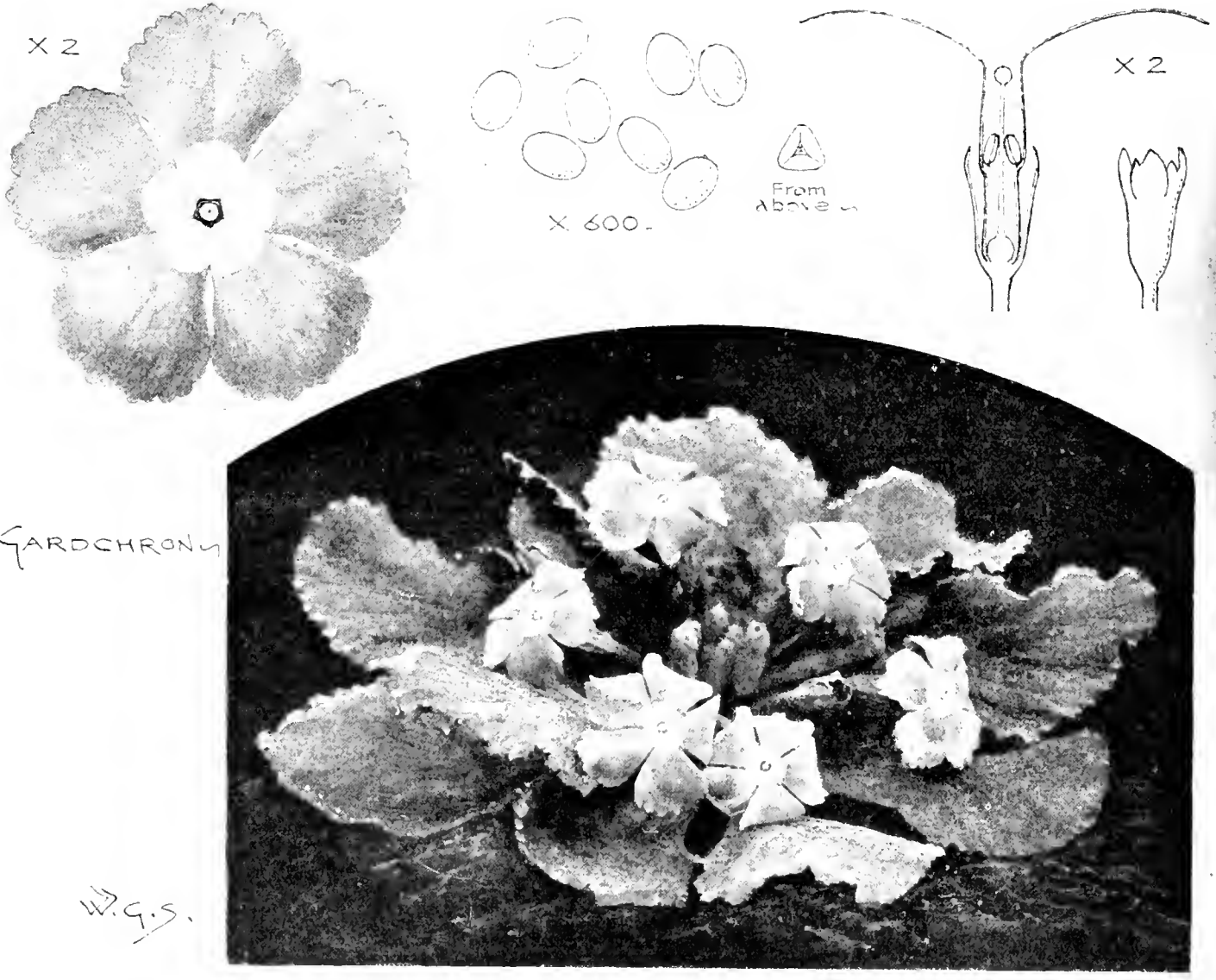


FIG. 63.—PRIMULA WINTERI, RECENTLY INTRODUCED FROM THE HIMALAYAS. COLOUR OF FLOWERS PALL PURPLE. (Awarded R.H.S. First-class Certificate on Tuesday last.)

think, two complete life cycles in the year. The eggs laid in the curled leaves in May produce larvæ, which pupate and hatch out Saw-flies in early September, and these lay eggs again in October. As to what happens to them later I have no certain information. I have not at present any evidence that they are the same variety of Saw-fly one finds in the rose-wood, and the books say they are different. The Frenchmen suggest they have an affection for Parsley! *White Rose*,

Primulas are notoriously difficult to classify, and this is particularly the case with the Himalayan species. The wild plants vary so much that it is impossible to say which are species and which varieties; and some of them are probably hybrids. Sir Joseph D. Hooker, in the *Flora of British India*, says of *P. Stuartii*:—"After long study, I am unable to draw any specific characters between the many forms of purple and yellow (rarely white) Primulas included under this. If there are species amongst them, they hybridise so as to defy recognition by description. Each of the following five varieties may have its small and great form with narrower or broader, entire and

be included among the forms of *P. petiolaris*, which is abundant in the temperate Himalayas, where it flowers in autumn and winter.

P. Winteri (see fig. 63) has the habit of the common Primrose, with obovate spatulate leaves 4 inches long, the flat blade 2 inches wide, the base narrowed to a stout petiole, margins irregularly toothed; the whole covered with whitish fine meal, as in *P. denticulata*. Flowers are borne in a crowded umbel on a very short scape, with 20 or more flowers in the umbel. Stout plants produce several umbels, the effect being that of a well-flowered type of the common Primrose; calyx ½ inch long, narrow, urceolate, ribbed,

with teeth-like lobes; corolla tube narrow, 1 inch long, inflated half-way up, limb flat, 1¼ inch across, formed of five broad, roundish lobes, elegantly toothed, and coloured pale purple, with a broad, white ring surrounding the yellow eye; underside mealy. W. W.

NOTICES OF BOOKS.

BRITISH FERNS.*

THE appearance of a new illustrated book on this subject is an indication of a revival of public interest in a branch of horticulture formerly popular, but which has, of late years, been somewhat neglected. The author is well known as a prolific writer on this subject.

The present book may be conveniently divided into three parts, consisting of (1) ten short introductory chapters on life history, selection, culture, &c.; (2) a list, with short descriptions and many illustrations, of the species and varieties; (3) an appendix of 96 nature prints of varieties selected from those printed by the late Col. A. M. Jones, of Clifton, and reproduced on a reduced scale, together with his notes and descriptions.

The opening chapters are almost uniformly excellent. The author writes *con amore* and with a thorough knowledge of his subject. In Chapter I. he pleads for a more discriminating study of varieties, and protests against the wholesale destruction of species by hawkers and other vandals, among whom he includes, not undeservedly we think, the pseudo-scientific collector of herbarium specimens. In the "Life History of Ferns," not the least interesting part is the account of the discovery by the author, and the subsequent working out by Professor Bower and others of the curious phenomenon of apospory. The chapter on selection gives as examples the evolution of three very beautiful new groups of varieties by sowing and selection. Two of these are from the author's own work and, in all, the workers are to be warmly congratulated on the results of their efforts.

The descriptive parts of the volume are of somewhat unequal quality. The descriptions of species are popular rather than scientific, but this is the less to be regretted, since full botanical descriptions may be found in the numerous books on the British Flora. With regard to the varieties, it is clearly impossible, in a book of moderate size, to give complete descriptions, and the section is consequently reduced to little more than a catalogue, although the brief descriptive notes are often illuminating and are assisted, in many instances, by woodcuts and in a few by coloured plates. We cannot think, however, that the best use has been made of the available space, since many obsolete and obscure forms are figured and described with as much detail as is given to the better ones, and some of the latter are omitted altogether. Many of the forms figured are really handsome, especially those of the plumose and crispum (in *Sclopendrium*) sections, and the neater crested ones; but it is not difficult to pick out a score or two which could have been well spared, and room would thus have been found for a greater number of illustrations of the more choice varieties.

The appendix, which occupies more than a third of the volume, is alone worth the price of the book. All the varieties printed, with one or two exceptions, are of the highest excellence as garden objects, and most of them exhibit the characteristics of the varieties in the highest development. The notes by Col. Jones are, if possible, still more valuable than the prints, as the histories are recorded with extreme care, and can be thoroughly trusted. Fern-growers should be grateful to Mr. Drury, and to Col. Jones's representative, for the publication of these prints and notes, which have for so long remained unknown.

* *British Ferns and their Varieties*, by Charles T. Drury, F.L.S., V.M.H., Routledge. Price 7s. 6d.

There are a few discrepancies between the descriptions and nomenclature in the appendix, and those in the body of the work, and in the latter a few printer's or clerical errors which should be corrected in a future edition.

Notwithstanding defects, however, the book is the best yet published on this subject, and it is one which no Fern-lover can afford to neglect. It is handsomely got up and well printed, and forms altogether a most attractive volume. P. W. Stansfield.

SIMPLE LESSONS IN NATURE STUDY.*

THE purpose of this little book is to assist those who are engaged in the teaching of nature study. Any book which achieved this end would be a great boon; for it is certain that natural history is both one of the most interesting and worst-taught of school subjects.

Though these simple lessons have one outstanding merit, namely, that of simplicity, we cannot feel that they are altogether satisfactory. For without being disposed to pedantry, we would urge that accuracy is, above all, essential to the teacher, and yet, on p. 12, he is informed that the coats of seeds are full of tiny holes, through which air and moisture pass. They are not.

The time-honoured partial truth that "in the day time plants give off oxygen; at night time they give off carbonic acid gas—men and animals breathe oxygen always," forms the legend of a confused picture (p. 30) of cows, pigs and Poppies, and on p. 31 is the statement that the portion of the plant which escapes on burning was taken chiefly from the air.

In the section devoted to the "work of leaves," not a single experiment is described or referred to—the scholar is apparently to be told things only. The least the teacher can do is to demonstrate experimentally the work of the leaves to his class; if he cannot for one reason or another do that, he had better leave the subject alone. The latter part of the book is devoted to animals, and, like the former part, is illustrated by numerous figures.

THE LIVERWORTS.†

THOSE who are acquainted with Sir Edward Fry's interest in mosses, and with his contributions to the literature of the subject, will open this dainty little volume, dealing, as it does, with a kindred race of plants, with expectant interest. Nor will they be disappointed with it. The subject is charmingly handled, and the amateur, as well as the professed botanist, will find much of value within its pages. Most people, perhaps, and especially horticulturists, are accustomed to regard liverworts as an intolerable nuisance, if, indeed, they recognise them at all. *Marchantia* and *Lunularia*, two common forms met with in every fernery and the cooler houses, are apt to grow rampantly when they are not wanted, but, after all, they are merely the ruffians of an otherwise delicate and delightful race, and even they will repay nearer study. The liverworts stand at the parting of the ways between the lower and the higher plants, and they show innumerable foreshadowings of those specialisations in vegetative form which have proved so entrancing a subject of study in connection with the vegetative adaptations of the flowering members of the vegetative kingdom. Thus, although in themselves, perhaps, most of the liverworts possess but little horticulture (*sensu stricto*) interest, still to the intelligent lover of plants they hold forth the promise that they will repay closer study.

The book is one we can cordially recommend to all whose keeness in plants travels beyond pure floriculture, and we are convinced that the knowledge now rendered so accessible, and, we would add, presented in such an attractive form, will be gladly acquired by many who have hitherto been debarred from it.

* By John O'Neill, (Hackie & Sons) Es.

† *The Liverworts, British and Foreign*, by the Rt. Hon. Sir Edward Fry, G.C.B., with the assistance of Agnes Fry, (London: Witherby & Co.) 1911. Price 1s. 6d.

FLORISTS' FLOWERS.

THE DAHLIA.

TUBERS which were stored in the autumn have doubtless been examined several times and the decaying portions removed. The best method is to cut such parts clean away and give the cut surface a dusting with powdered lime. If cuttings are not required, the tubers should be allowed to remain in their winter quarters until March, but if it is purposed to increase the stock by means of cuttings the roots should be started as soon as possible in a warm greenhouse. They can either be planted out in a bed of soil and cocoa fibre on a greenhouse stage, or be put into boxes or pots filled with similar materials. At first very little water should be afforded, but when growth commences, which will be indicated by the buds beginning to swell, moisture may be given freely. The first growths are usually rather thick and are difficult to root; it is the custom of the best propagators to discard such growths. They may be cut off about an inch above the crown of the root, when, in a few days, fresh, young, wiry growths will spring from the base of the part of the shoot left. These secondary shoots make excellent cuttings and root readily in sandy loam, provided a bottom heat of about 65° to 75° is afforded. The cuttings require to be shaded and watered carefully to prevent damping.

POT ROOTS.

Pot roots, that is roots which were grown all last season in small pots instead of being planted out in the usual way, should shortly be started in a temperature similar to that indicated above. The great advantage of growing Dahlias from pot roots is that stronger plants are obtained by planting-out time, and they bloom earlier. The small roots should be potted up singly into 60-pots, and after the plants are 6 to 9 inches tall they should be shifted into larger pots. This may be done twice before June with great advantage if early flowers are required. When the time for planting-out arrives it is possible to have fine, bushy plants nearly 18 inches tall. During the month of May they must be grown for the most part in an almost cool greenhouse or frame, every precaution being taken at night-time, if in frames, to cover the glass as a protection from frost. At no time should young Dahlias be cramped for space, for they grow undesirably tall, unless plenty of room is allowed them. D. A.

AMERICAN NOTES.

AMPELOPSIS VEITCHII.

YOUR leader in the issue for December 10 last was very interesting to me, as it carried me back to my halcyon days when, as a young man, I thought myself (from the tuition I had received at Longleat) equal to any gardening occasion. It appeals to me particularly, in that I claim to have been the first to introduce and offer for sale this charming climbing plant in the United States. I heard of *Ampelopsis Veitchii* when it was exhibited at the first Paris International Exhibition by the Messrs. Veitch, where it attracted much attention. It was exhibited growing on a slab of bark, and was beautiful and perfect in appearance.

The plant was, as you say, sent out by James Veitch & Sons in the fall of 1868 and spring of 1869. I procured plants of it, and, giving generous treatment and growing them on quickly, I soon had a good stock from cuttings. In October and November, 1869, I advertised it for sale in the *Gardeners' Monthly*, then published at Philadelphia. This periodical was edited by Thomas Meehan, a graduate of Kew, and a man possessed of unusual knowledge of trees, shrubs, and plants, as well as of all matters relating to gardening, and whose memory I very

much reverse. As the result of my advertising I sold two plants, but I was not discouraged, being sure it would be wanted in large quantities later on, and the results have borne out my anticipations. Its popularity here is increasing from year to year, and from my selling two plants in the fall of 1869, 2,500 plants of it are now required annually for our present needs. *Ampelopsis Veitchii* is a unique, wonderful climber, adapting itself to all circumstances, and, as you say, "growing an outline of its own, and filling it in perfectly later on." All things considered, I think it is the most serviceable climbing plant in existence; when planted in the right place it takes care of itself.

When first introduced I used it quite freely in hanging baskets, vases, &c., with good effect, as it made a first-rate drooping plant. This variety has been extensively planted in and around Boston, where it has been dubbed the "Boston" Ivy. It is also called the Japanese Ivy, and is perhaps best known as *Ampelopsis Veitchii*, the name by which it will be known the longest. I do not care if the systematist calls it *Ampelopsis tricuspidata*, or *Cissus*, *Vitis*, *Quinaria*, *Parthenocissus tricuspidata*, or *Psedera*. Gardeners will have none of these names. They will continue to call it *Ampelopsis Veitchii* as long as grass grows and waters run.
John Charlton & Sons, Rochester, N.Y.

NOTES FROM SCOTLAND.

FINANCES OF EDINBURGH PUBLIC BOWLING GREENS.

An interesting point arose at a recent meeting of the Town Council of Edinburgh in consequence of a remark by one of the members that the policy of the council was that recreations should be free, at all events beyond the point necessary for regulating play. This was made with reference to a proposal to amend the charges for golf on the Braids golf courses. At the end of the discussion on this matter, Treasurer Leishman elicited the fact that in 1909 the income from all the public bowling greens was £2946 and the expenditure £2338, in 1910 the income was £895 and the expenditure £1,021. It also transpired that the expenditure did not include the erection of bowling houses.

THE STAFF OF EDINBURGH CORPORATION PARKS.

The number of employees in the Edinburgh Public Parks last year was 51 more than were employed in 1894. This fact gives some idea of the increase in the work of the City gardener, Mr. J. W. McHattie, but it hardly conveys a sufficient impression of the vast improvements showing in the Edinburgh parks, gardens, and playgrounds.

PRIZES FOR GARDENS AND WINDOW BOXES.

The Countess of Selkirk, while resident on her late husband's estate of St. Mary's Isle, Kirkcubright, instituted a cottage garden competition, which has had a great influence upon the appearance of the cottage gardens in the neighbourhood. On the death of the Earl of Selkirk the estates passed to another branch of the family, and the Countess removed to Bahnae, in the same neighbourhood, where she continues the annual prizes which served such a good purpose previously. We understand that the Countess of Selkirk now contemplates offering prizes for window boxes in the neighbouring town of Kirkcubright.

DOUBLE SWEET PEAS.

A RATHER prolonged correspondence on the subject of double Sweet Peas has appeared in the columns of *The Scotsman*. Some of the writers appear to know but little regarding the appearance of double Sweet Peas

in Scotland, although not a few interested in the flower are aware that Mr. William Angus, now of Penicuik, exhibited a bunch of double Sweet Peas at an autumn show of the Royal Caledonian Horticultural Society several years ago, and received an award. It is evident, however, that double sports are appearing more frequently than before, and Messrs. Dobbie & Co. have a double Spencer Pea which gives a very large proportion of flowers possessing double standards.

EDINBURGH SPRING SHOW.

THIS show has presented of late years some signs of increased interest, although the attendance is still far from satisfactory, and the Royal Caledonian Horticultural Society always sustains a considerable loss on the exhibition. Thus the receipts at the show last year and the cash for tickets sold in shops amounted only to £159 2s. 6d., while the show expenses amounted to £185 8s. 4d., and the prize money to £201 18s. 3d., a total of £387 6s. 7d., an apparent loss of upwards of £200. There are a few items under different heads which would reduce this deficiency, but, on the other hand, a proportion of the other expenses, properly attributable to this spring show, would increase the debit balance. The spring show is, however, so much an integral part of the society's work that it could not well be dispensed with. Interest in the show to be held on April 5 and 6 next will be increased by the prize called "The Sander Cup," value 25 guineas, presented by Messrs. Sander & Sons, St. Albans, for the Orchid group class, the cup to become the property of the competitor who wins it thrice. A cash prize of £3 3s. goes with the cup. S.

MARKET GARDENING.

CUCUMBERS.

THOSE who cultivate Cucumbers for market usually grow the plants on ridges or mounds of soil placed on borders on either side of a central pathway, in low, span-roofed houses, running north and south, and varying in length from 100 to 200 feet, and in width from 12 to 15 feet. Some growers sow seeds in November to raise an early batch of plants that will furnish fruits fit for marketing about the third week in February, when Cucumbers realise good prices. Other growers sow the seed a month or six weeks later to raise plants that will produce good saleable Cucumbers by the middle or end of March. The cost of production is much lower by this latter method, and the crop usually pays quite as well, the weather conditions being more favourable to the building up of strong, free-fruited plants. The November sowing has an advantage in furnishing a longer supply.

The seeds should be sown singly, in the centres of 3-inch pots, filled with a compost consisting of equal parts short stable manure and good loamy soil that has been passed through a 3-inch mesh sieve. The seeds should be placed with their points downwards, and pressed firmly into the soil to a depth of about 1½ inch. Care should be taken to protect the seeds from the attacks of mice by covering the pots with panes of glass or paper until the seedlings appear. The young plants should be shifted into 6-inch pots before they become root-bound, and the soil at the roots should be quite moist before giving them this shift. Place a few potsherds in the bottom of each pot for drainage, covering them with a little half-rotted manure or moss. Use the same kind of compost as recommended above, making this firm in potting. Place a small stick to each plant for support. From the time the seeds are sown until the plants have finished bearing, a night temperature of from 65° to 70° should be maintained, with an increase of 5° to 10° higher

in the daytime: during bright sunshine the temperature may be allowed to reach 95° or 100°, provided there is plenty of moisture in the atmosphere.

The houses should be cleansed thoroughly, washing the woodwork and glass with soft soap and water, and coating the brickwork with hot liquid lime before the borders are prepared. It may be necessary to employ some ground insecticide, such as "Clubicide," to kill worms and other insect pests; but this must be done at least one month before the Cucumbers are planted.

Place freshly-cut turves, grass side downwards, to a width of about 2 feet, keeping the turves nearly close up to the flow pipe on each side of the pathway, the entire length of the borders. This done, coat the turves well over with freshly-slacked lime, to destroy any vermin present. Next place a layer of short stable manure, free from worms, to the thickness of about 2 inches. Upon this foundation, form hillocks, or mounds, at intervals of 2 feet, using the same kind of compost as before, but in a rougher state. About one peckful of the compost will be sufficient for each plant, making the soil firm about the ball of earth and roots in planting. When the roots have pushed through the soil, add fresh compost, placing some of the finer particles around the stems of the plants to encourage the development of roots. Continue to add fresh compost as the roots protrude through the mounds, until the intervening spaces are nearly filled. The houses should be warmed a day or two before the plants are brought in for planting. The holes for the reception of the plants should also be opened in advance of planting, in order to raise the temperature of the compost.

Turves used as recommended above will not only prevent the soil from becoming waterlogged, but will also afford additional stimulating food to the plants when the roots have reached them, at a time when they need additional food to enable them to develop their fruits. Some growers of Cucumbers are unable to obtain turves readily for the purpose indicated; but the results obtained thereby amply repay for their extra cost. By planting on hillocks as advised, the compost is exposed all round to the warmth of the hot-water pipes, thereby promoting and hastening root-growth, and the consequent early furnishing of the trellises with fruit-bearing shoots. Moreover, there is no soil between the plants to become sour before the roots reach it, as is the case where the plants are set out on continuous ridges. H. H. Ward.

SEED POTATOS.

THERE is a good demand for "seed" Potatoes. The variety *May Queen* is selling at £5 10s. per ton, and this probably represents the highest price for any variety. This district is well supplied with Scotch grown tubers for seed purposes; they are sent by water transit, either to Sutton Bridge, Lincolnshire, or Wisbech, Cambridgeshire. In our case we are placing the sets in trays before planting.

BLACK CURRANTS.

OUR oldest bushes, which are nine years old, are being pruned severely. We find that hard pruning results in a development of strong wood, and also assists in the destruction of big-bud. For this trouble hand-picking and burning of the infested buds is practised. If the spring frosts were not so destructive to the flowers, Black Currants would furnish a very remunerative crop.

LIME SPRAYING.

WE have been busy finishing the work of lime spraying, and as birds were very destructive to the buds of Gooseberries these bushes were sprayed twice.

STRAWBERRIES.

SEVERAL acres in this district have been planted with Strawberries recently. The older beds have been cultivated first with the *Planet Jnr.* Scuffler and then with the double-breasted plough. Between the scuffling and

ploughing, a rotary machine has been worked along the rows for sowing manure. Asparagus is largely grown in this district on the flat, and the ground is being treated in a similar fashion to the Strawberry beds.

NARCISSUS VICTORIA.

This fine Trumpet Daffodil is of great promise as a variety for market purposes. A leading salesman in the Midlands has recently stated that, in his opinion, the variety will be in great demand for forcing. Blooms have sold for as much as 4s. 6d. per dozen. It is of the Magni coronata section, and it has a large, bold, erect flower, with broad creamy-white perianth and rich golden trumpet. The variety Cardiff is also in great demand for market purposes, the blooms being especially fine. *Stephen Castle, Walpole St. Andrews.*

NURSERY NOTES.

DELGANY NURSERIES, CO. WICKLOW.

ANYONE in the neighbourhood of Dublin, and who has an hour or two to spare, could not spend it better than by paying a visit to the picturesque nurseries of Messrs. Pennick & Co., Delgany. The nearest station is Greystones, a charming little watering-place about five miles south of Bray. It is a pleasant walk from the station to the nursery, either along the main road or across the golf links, the visitor finding a gentle rise all the way until he reaches an elevation of 500 feet on entering the nursery. Thence a magnificent view of the Irish Sea is obtained, and owing to the altitude it almost looks as if one could drop a stone into the ocean. The nurseries face due east, but are also well exposed to the northwards and southwards. The gales from these quarters are sometimes severe and search out the tender plants. At the back of the nursery, and apparently towering above it, is the Sugar Loaf Mountain on the one side, the small Sugar Loaf near the centre, and at the other side the Downs Mountain. Set in such surroundings Messrs. Pennick's nursery grounds, over 100 acres in extent, may be regarded as having been placed in a most ideal spot.

There is practically no glass in the nursery beyond a few small frames and a greenhouse used for the raising of seedlings. Everything is grown as hardy as possible. Being partly situated on the hillside and partly in the valley there is naturally a great range of variation in the soil. On the upper portions a deep rich and rather reddish loam prevails, gradually passing downwards into a more friable material, until peat or almost bog-land is obtained in the hollows. Messrs. Pennick & Co.—whose leading spirit is Mr. Ireton P. Jones—have taken full advantage of these variations of soils and altitudes, and have their wonderfully varied collection of trees and shrubs, herbaceous plants, fruit trees, and Roses disposed to the best advantage.

Notwithstanding the exposure to the keen winds, I was astonished to see so many plants flourishing here that would not well withstand the winter out of doors in the neighbourhood of London. For instance, one of the first things to catch the eye as the visitor walks along the drive is a clump of *Cordyline australis* about 20 feet high, with fine heads of sword-shaped leaves borne on the ends of branching stems. This particular specimen has borne as many as 23 huge clusters of blossoms at one time, and suggests Italy rather than Ireland. A tree of Winter's Bark (*Drimys Winteri*) about 30 feet high forces itself upon the view by its crimson stems and *Rhododendron*-like leaves. It forms an ornamental and picturesque tree when allowed plenty of space, and Messrs. Pennick have a good stock of sturdy young plants. The New Zealand Laburnum, *Edwardsia* or *Sophora grandiflora*, flourishes as well here as I have seen it in Guernsey and Jersey, and there ought to be fine

specimens in various parts of Ireland. One of the Delgany trees is not far short of 30 feet high. The South American Firebush (*Embothrium coccineum*) also does well, but even at Delgany it requires to be sheltered from the north-easterly blasts. In April and May, when almost every young shoot is laden with clusters of fiery-red flowers, there is no more vivid feature in the landscape. Another fine tree not often seen in gardens is *Olea lucida*, an Olive with rich, glossy *Camellia*-like leaves. It makes a splendid compact bush or small tree, the one at Messrs. Pennick's being about 10 feet high, and almost as much through. It is in an exposed situation, and should prove to be hardy in many parts of the United Kingdom. *Myrtus Luma* (or *Eugenia apiculata* as it is sometimes called), a fine Chilean Myrtle, grows remarkably well, and makes fine bushes 6 feet to 8 feet high. During the summer and early autumn months it is covered with masses of large, pure white flowers, which are rendered more conspicuous by the shining, deep green surface of the broadly ovate, apiculate leaves, each about an inch in length. One particularly fine specimen, perhaps the very finest in the kingdom, stands about 30 feet high, and is remarkably impressive when its beautiful cinnam-

Amongst the many kinds of Oaks grown was one (*Quercus glabra* or *latifolia*), which attracted attention. It is an evergreen species, and has broadly lance-shaped leaves about 6 inches in length, perfectly smooth and shining, resembling more a Laurel or a *Rhododendron* than an Oak. As an ornamental plant for the lawn or shrubbery it should prove very effective. It would be impossible in a brief notice to detail all the good things to be seen in the way of rare and beautiful trees and shrubs at Delgany.

Conifers are to be found in abundance, and some fine specimens of *Ataucaria imbricata* about 40 feet high will convey an idea as to the length of time the nursery has been established. As a matter of fact, I believe "Pennicks" dates from the year 1820, when the original proprietor spared no pains to bring together one of the finest collections of plants in the kingdom. His views and his enthusiasm are well maintained at the present day.

Apart from fine specimens of *Wellingtonias* or *Sequoias*, Corsican Pines (*Pinus Laricio*), Stone Pines (*P. Pinea*), of which there is one over 50 feet high, there are thousands of young Larches, Firs, Pines, Spruces, *Cupressus*, *Abies*, Cedars, Yews, &c., all in the best of health.



FIG. 64.—REMOVING A LARGE BEECH TREE AT WARREN HOUSE, MINLEY.

mon-brown bark is seen gleaming in the sunshine. It should be cultivated in all the most favoured parts of the kingdom.

The Snowdrop Tree (*Halesia tetraptera*) is rarely seen in such fine condition as it is at Delgany Nurseries. Here there is a noble specimen about 25 feet high, and in May, when bearing its drooping clusters of pure-white Snowdrop-like blossoms, it is a sight not to be forgotten by the lover of beautiful-flowering trees.

There are several species of *Pittosporum* that may be grown in the open air under climatic conditions like those at Delgany. *P. Mayi* is undoubtedly the best of all as a fine, compact-growing bush or small tree, often 10 feet to 15 feet high, its undulating leathery leaves of a peculiar olive-green always being conspicuous, even at a distance. Other kinds worth mention are *P. engenioides*, of which there is a rarer variegated form, *P. nigrescens*, *P. Colensoi*, *P. Buchananiai*, *P. Tobira* (also with a variegated form), and *P. undulatum*. The Tassel Bush (*Garrya elliptica*) is now a pretty well-known shrub that does well even in the neighbourhood of London. Its relative *Garrya macrophylla*, however, is not yet so well known as it deserves to be. It has large, leathery, oblong-ovate leaves that are distinctly ornamental.

Roses deserve special mention. Messrs. Pennick have devoted several acres to the best varieties. The mountain air and the sea breezes evidently agree with them.

The same may be said of the fruit trees. Here again several acres are devoted to the culture and propagation of the choicer varieties. II.

TRANSPLANTING A LARGE BEECH.

THE illustration in fig. 64 shows a large Beech tree in Mr. Profit's grounds at Warren House, Minley, Hampshire, after its preparation for transplanting a distance of 35 yards. The tree was about 80 years of age, and measured 4 feet 6 inches through the centre of the butt at the ground level. The ball of earth measured 20 feet by 20 feet and was about 6 feet deep, and it is estimated that the tree and soil weighed 120 tons. The ground was excavated for the whole distance of the 35 yards, and the undertaking found plenty of employment for the staff at Warren House from December until the beginning of February, about 1,500 yards of soil being disturbed and afterwards replaced. There is every reason to believe that the removal of the tree has been attended with success.

The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K. L., Tynninghame, East Lothian.

GALTONIA CANDICANS.—A portion of the stock of corms of *Galtonia candicans* should be inserted at once, the others being planted a few weeks later to provide a succession. The corms are very liable to disease, and it is a difficult matter to retain healthy plants, even by raising seedlings annually. It is a suitable time to sow the seeds; they should be placed rather thinly in rows, and the seedlings allowed to remain undisturbed until they have reached the flowering stage, which is usually when they are three years old.

GLADIOLI.—*Gladiolus Childsii* and the varieties known as *Groff's* Seedlings may be planted at any convenient time from this date; in this case also, a portion of the stock may be reserved for planting later. Both these *Gladioli* are very decorative subjects, and are suitable for planting in mixed borders, where they give the best effect when arranged in masses, placing the corms a few inches apart. Some of the corms of *G. Breuchleyensis* may also be planted now, and I am inserting some of the new hybrids of *G. primulinus* at this date. In northern and cold districts it is advisable to start such varieties as *G. gandavensis*, *G. Lemoinei*, and *G. Nauceianus*, including the blue varieties, under glass. The corms should be arranged almost touching each other on the surface of a 2-inch layer of a light compost in cutting boxes. Stand them in a cool pit or late propagating house. Very little water will be needed till the roots appear, and when the shoots are a few inches high, the plants may be transferred to their permanent quarters, the ground having been previously well prepared. The small corms which are found clustering around the bases of the old ones may be planted in boxes and grown on in a mild heat. If these are dibbled into a border about May or June, and allowed to grow undisturbed for two years, they will furnish a supply of strong flowering plants.

PERMANENT EDGINGS.—*Hypericum calycinum* used as a border plant requires trimming annually. If the shoots have been injured by frost, they should be cut to within a few inches of the ground, otherwise all that is needed is to trim the plants to the desired height and width. Edgings formed of *Cerastium tomentosum* sometimes need renewing, and this may be done now. Small portions of the plants, either with or without roots, should be dibbled into the soil about 2 inches or 3 inches apart, or this *Cerastium* may be planted in the same manner as is practised with *Box*, by simply laying the plants in rows. Plants that need trimming should be cut with a pair of shears, severing the shoots close to the ground. Remove any weeds that are present, and then spread some light soil over the crowns. The plants will also need clipping at intervals throughout the summer months. The yellow leaved *Stellaria* should be treated in much the same manner, but not just at present. The ornamental grass, *Poa glomerata variegata* needs to be divided and replanted annually. The old clumps should be broken into small pieces, and these should be planted close together. By this method a more even edging will be obtained than when large pieces are planted at wider intervals.

THE KITCHEN GARDEN.

By JOHN DURN, Kitchen Garden Foreman, Royal Gardens, Windsor.

CUCUMBERS.—If seeds were sown as advised early in January, strong plants should now be ready for planting out. When the house has been cleansed and the walls white-washed with hot lime, a hot-bed should be formed and mounds of light, rich soil placed 4 ft. apart on the bed; then, after a few days, when the temperature of the soil has reached 85°, the plants may be put out and their roots covered lightly with soil. A few holes should then be made in each mound

to allow of the escape of water vapour and gases from the hot-bed and to keep the soil from becoming too hot. The soil for planting may consist of loam and leaf-mould in equal parts. When the plants have made considerable growth, they will need frequent top-dressings and a moderate quantity of horse-droppings may be mixed with the soil used for this purpose. The atmosphere of the house should never be allowed to become dry or stunted growth and deformed fruit will be the result. With lengthening days, the syringe should be used freely, but care should be taken not to fill the house with steam from overheated pipes. Keep the foliage well exposed to the light, and never allow the growth to become crowded. The number of fruits to be left on each plant must be governed by the demand, and not more should be left than are necessary to keep up the supply. A night temperature of 70° will suit the plants well, and by day the temperature will vary with the amount of sunshine, and may be allowed to rise to 90° by sun heat.

PEAS.—A sowing should be made now to afford supplies in the beginning of July. If the ground was trenched and manured early in the winter, the trenches may be dug 6 inches deep, so that the roots may reach the manure while growing freely. The seeds should be covered with 2 inches of soil taken from the trenches, and the remainder may be worked in amongst the plants when they are high enough to require earthing up. Peas treated in this way are not so likely to suffer from the effects of dry weather as they would be if sown in shallow drills and earthed-up in the usual way, which turns off the rain water so necessary in the cultivation of this crop. *Gradus* and *Early Giant* are good varieties for this sowing, and *Telegraph* sown on the same day will provide a good succession. The first sowing will now be well above the ground, and should be protected from rough wind by placing a few *Spruce* branches along the rows as the ordinary *Pea* sticks are being placed in position. *Early Peas* sown in pots for planting on a south border should be thoroughly hardened off before planting out, and they must be given protection from rough winds.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Mid-Bees.

STOVE AQUATICS.—March is a suitable time for the overhauling of aquatic plants in stove-houses. In some gardens the plants are started into growth earlier than March, but the results are not justified by the extra expenditure of fuel. There are various methods of wintering aquatic plants. In some cases I advise a rest by keeping the plants partially dry for some six or eight weeks prior to starting them in growth afresh. But each case must be governed by its particular requirements. At Gunnersbury we have wintered the tubers of *Nymphaeas* in the soil, merely withdrawing the water from the tanks. We have, in other cases, shaken the soil from the roots and stored the plants in silver-sand in a warm house. Our present practice is to keep the plants in the water, which is kept at a reduced temperature, until the present time, when the tubers are examined. *N. stellata* winters safely in water warmed to a temperature of 55° to 60°, but *N. gigantea* needs about 5° more. Both of these species are deciduous, but others, such as *N. pulcherrima* and *N. zanzibarensis rosea*, only partially lose their foliage in winter. These latter do not naturally lose all their roots during the resting period, hence it is safer to preserve some of the roots. In each case the tubers should be carefully removed from the old soil, cleansed, and potted into small pots. Stand them afterwards in a tub of water in a warm house, whilst the *Lily*-house and tank is thoroughly cleansed and put in order. At Gunnersbury the plants are grown in tanks, some of which are covered with a span-roofed frame, whilst others have no protection, but in all cases the water is warmed. Each spring, if possible, the frames are painted, but when other work prevents this, they are thoroughly cleansed, including the cement work. The tanks are left unoccupied for some six weeks, the *Nymphæas* meanwhile growing in the pots indoors. During that period the soil is prepared and everything got in readiness for

planting in April. We do not cover the whole of the bottom of the tank with soil, but enclose a quantity with clean bricks that are placed loosely together. This bed, when completed, is about 2 feet to 2½ feet in diameter, and three bricks placed on the flat in depth. The soil consists of turfy loam, decayed leaves and road grit. After planting, a clean layer of gravel is covered over the soil, and this keeps the tubers firm. A diligent search is made in the old soil for any offsets of last season's formation. Other choice water-plants, such as *Eichornia crassipes* and *Papyrus antiquorum*, need careful treatment. The former may be increased freely by means of offsets, whilst the latter can be propagated from seeds or by division. The *Papyrus* is a very difficult plant to keep alive throughout the winter, when it is used, as we employ it, to furnish tanks in the open during the summer. *Zizania aquatica*, another graceful water plant, may be raised readily from seed sown each season, the plant being an annual.

STANDARD FLOWERING PLANTS.—*Indocr* flowering plants grown as standards have become increasingly popular of late years, and they are found extremely useful for many purposes. Some of the most suitable plants for the purpose are *Heliotropes*, *Salvias*, *Fuchsias*, *Lippia citriodora*, *Cassia corymbosa*, and *Zonal-leaved Pelargoniums*. It requires a season for the plant to form a fairly good head, and even longer in some instances. Such as lose all of their leaves in winter may be pruned into a shapely head, and, if desirable, be shifted into larger pots. I do not advise reducing the ball of soil in the case of *Pelargoniums*, but rather removing as much of the old surface soil as possible, and then affording top-dressings.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

THE SEASON.—In the early spring months there are frequently periods remarkable for cold north-west winds. At such times there is considerable difficulty in maintaining the proper temperatures in the various houses, especially if the structures are lofty or in other respects inferior. Considerable benefit may be derived from the use of tiffany or mats for protecting the roof-glass during cold nights, but this refers more particularly to houses of low dimensions, such as forcing pits.

FIG TREES IN BORDERS.—The earliest trees are now growing freely, and the fruits are swelling. Attend to the tying down of the growths and to the stopping of the shoots at the fourth and fifth leaf. If there is no likelihood of the trees being crowded with shoots, it will be desirable to remove entirely those which appear weakest. The thinning may be extended also to the fruit, if there appears to be an extraordinary crop. Remove the less-promising fruits from portions of the tree where they appear too numerous. Syringe the trees thoroughly in the morning and afternoon with clear water, for if this syringing is neglected the foliage is almost certain to become infested with red spider. Admit air to the house in the morning, when the weather promises to be bright, and the atmospheric temperature has commenced to rise; increasing the amount of air gradually if the weather renders this desirable. Vigorous trees bearing satisfactory crops of fruit require frequent supplies of manure water; the borders should not be allowed to approach dryness. They may be given a mulch of farmyard manure which is well decayed.

EARLY FIG TREES IN POTS.—Continue to afford applications of diluted farmyard manure to plants now swelling their fruits. Maintain an atmospheric temperature at night of about 65°. Attend to the stopping and thinning of the growths, and as the fruits approach ripeness expose them to the light and air. Employ the syringe frequently and maintain a moist atmosphere in the house, remembering that when the earliest fruits commence to ripen it will be necessary to discontinue the use of the syringe to some extent, this being conducive to good quality in the fruit. At that stage an increased amount of air should be admitted to the house, but the temperature should not be allowed to fall to any great extent.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

MILTONIA.—*M. vexillaria* is the most popular species of this genus, owing to the amenability of the plant to cultivation, and to its value for decorative and exhibition purposes. The practice of growing plants in a high temperature has been almost discontinued, most cultivators having learned that the temperature that suits the plants best is one a little higher than that of the cool house. *M. vexillaria* is a restless Orchid, which frequently starts into growth again as soon as the pseudo-bulbs are completed; the roots also are nearly always active. This being the case, it is clear that no long period of rest is needed, although, for obvious reasons, there must be some difference made in the treatment afforded in the various stages of the plant's growth. At the present time the plants are developing their flower-spikes from the partially-developed growths, and they are producing fresh roots freely from the base; therefore, from now onwards till the flowering season is past, a more liberal treatment is required than hitherto. An increase of moisture both at the root and in the atmosphere should be given, and the foliage should be syringed freely with tepid soft water whenever the weather is favourable. In a suitable atmosphere and conditions, the plant can be kept free from insect pests, but every endeavour must be made to prevent thrips, and especially the small yellow thrips, which are very fond of the tender flower-buds. Should the thrips put in an appearance, a mild fumigation with some safe vaporising compound should be employed at intervals until the pest is destroyed. *M. Roezlii* and *M. Bleiana* need similar treatment, except that *M. Roezlii* should be placed in a shaded corner of the warmest house, whilst *M. Bleiana* should be placed in a similar position in an intermediate house.

REPOTTING.—The present is a suitable time to repot any vigorous plants that require more rooting space. The roots should not be disturbed more than necessary, and the developing growths will soon produce numerous roots, which will quickly get a hold of the new compost. *Miltonias* are frequently given too great a depth of rooting material. Pans are better than pots for receptacles, and these should drain two-thirds of their depth with potsherds. A suitable potting mixture is one composed of *Osmunda* fibre two parts, *Poly-podium* fibre one part, and *Sphagnum* moss one part. Press the materials moderately firm, and apply to the surface a thin layer of clean peat *Sphagnum*-moss, which should be clipped neatly. Exhausted specimens may also be given attention at the present time by breaking up and starting them afresh. Plants so treated must not be allowed to bloom next season.

MILTONIA SPECTABILIS.—This species, with its varieties and others of the late-summer and autumn-flowering species and hybrids, require a shady position in a house where an intermediate temperature is maintained during the whole of the year. The plants are now making their growth and require copious supplies of water at the root. This section has creeping rhizomes, and require more surface space than *M. vexillaria*, for instance. If any of the plants are needing more rooting material, it should be afforded just before the growths are about to produce new roots. The potting compost may be similar to that employed for *M. vexillaria*.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

The general grafting of Apples, Pears, and Plums may soon be commenced. Young trees may be purchased at such nominal prices from the nurseries that many gardeners do not find it desirable to raise young stock by grafting, yet it sometimes happens in the garden there are one or more thriving trees that are either worthless varieties or bad bearers. In such cases the trees may very well be headed down and grafted with an approved variety. This method often gives better and quicker results than are obtained by removing the trees and planting young ones. Grafting is the mode of propagating many kinds of fruit trees at this time of the year. They are also propagated by budding in the months of July and August, but this latter method will be ex-

plained in a subsequent calendar. In grafting, it is necessary that a perfect adhesion should take place between the stock and the scion; to secure this end great care must be taken that the barks of both stock and scion are placed in close contact with each other, for success very largely depends upon an accurate adjustment. Where the stock and scion are similar in size the adjustment can scarcely fail to be accurate, even in unskilful hands. Cleft or crown-grafting is the method generally adopted when dealing with established trees that have been headed down for re-grafting. When it is intended to renovate a tree all the branches should be headed and grafted. Two or more grafts may be placed on each branch according to its size, so that the success of one at least may be almost certain. This mode of grafting consists of cutting a triangular notch in the stock, into which a correspondingly prepared scion is fitted. This method is preferable to the older one of splitting the stock and inserting the scion. Rind grafting may also be resorted to where the bark or rind is easily lifted. This method consists of making a vertical slit in the bark, and inserting a thin-cut, properly-prepared scion. Side or whip grafting is the method usually employed when dealing with young stocks, or when it is desirable to furnish a tree with side branches where these are deficient, as is sometimes the case with wall trees. Whatever may be the method of grafting adopted, after the fitting together of scion and stock, they should be firmly secured with raffia or budding cotton, and the whole covered with grating wax or clay. The sole purpose of these coverings is to protect the surfaces of both scion and stock from extreme influences of the atmosphere, so that it matters but little what materials are employed, so long as they will not act injuriously upon the cut surfaces of the bark. A good grating mixture is one composed of two-thirds strong clay and one-third cowdung, with an admixture of finely broken moss or chopped hay and straw. Thoroughly mix these materials together several days before being required for use, adding just sufficient water to make them bind together. Grafting wax may be made by mixing together Burgundy pitch two parts, and spirits of wine (alcohol 95 per cent) one part; dissolve the wax in a saucepan over a slow fire, then gradually add the spirits of wine and boil together for three or four minutes, thoroughly stirring the mixture meanwhile; this may be used quite cold, and is easily applied with a suitable brush. A useful and easily made wax may be made of equal parts of lard, beeswax, and resin, melted and thoroughly mixed together. A composition now extensively used is the *Mastic L'homme-Lefort*; it is cheap, easily applied, and may be used cold; it is generally acknowledged to be a perfectly safe paste to use.

THE FRENCH GARDEN.

By PAUL AGATIAS.

THE HOT-BEDS. The Radishes are ready for pulling, and directly the Lettuces are growing well, they should be removed with delay. Radishes are not considered a very remunerative crop, yet they are always grown as the first crop of the year. The earliest Lettuces should be ready for cutting, and the heads should command good prices, as they will be in the market before the bulk of the crop arrives about the 20th of March. The time for the removal of the Lettuces depends largely on the size of the Carrots growing in the same frames, as the Carrots must not be overshadowed by another crop if profitable results are desired. The hot-beds are now completed for the placing of the cloches. The third batch of *Cos* Lettuces "*Cosy of Paris*" should now be planted, one in each space between the cloches on the north side. By planting the three batches of *Cos* Lettuces at an interval of 8 or 10 days a succession is assured, and it permits of the transfer of the cloches early in May.

FRAMES WITHOUT HOT-BEDS.—The first batch of Cauliflowers is now being planted in these frames. The variety being either "*Diamant*" or "*Leerd*"; of these large-growing sorts, five plants should be allowed per light, but smaller varieties, such as "*Early London*" or "*Salomon*," may be planted six plants to each light. The larger varieties are preferable for market purposes as they compete successfully with

the Dutch Cauliflowers. Some growers plant eight *Cos* Lettuces instead of the Cauliflowers in each light, but this method is not a profitable one. Cauliflowers are also set under each cloche in the outside rows in the cold beds; the middle rows are planted with *Cos* Lettuces. As the growth of the Lettuces progresses, much attention is paid to the covering of the cloches, so as to minimise any danger from a check, owing to changes in the temperature. This detail is often overlooked, probably because the damage caused to the leaves is apparent only in the first days of April.

NURSERY BEDS.—The Melons sown early last month are ready for potting in "60" pots in a compost of equal parts good loamy soil and well-decayed manure that has been silted. The pots are filled with soil to the rims, in order to prevent excess of water reaching the roots, and the soil is not pressed hard. A hot-bed 14 inches in thickness is prepared for the plants. Seeds of Melons are inserted every week in order to have a supply of plants ready for planting at all times. Tomato seeds should now be sown in trays and placed on a mild hot bed close to the glass. To obtain clean and healthy Tomato plants in frames, it is essential that water be afforded only when absolutely necessary. If the soil is in a proper state of moisture before the sowing, or the pricking off is done, the natural dampness of the bed is generally sufficient to meet the demands of the plants, which should be strong, hardy specimens by May 10. A sowing of Cauliflowers should now be made under cloches or in a cold frame. This batch will be planted as an inter-crop amongst Cabbage or *Cos* Lettuces late in April.

THE APIARY.

By CHURTON.

THE "ISLE OF WIGHT" DISEASE AND HOW TO COMBAT IT.—This disease is assuming a very serious aspect, for it has invaded every part of the country. Most beekeepers are aware that nearly all the bees in the Isle of Wight were destroyed by the disease in 1906. I attended a meeting of beekeepers recently, and the matter was discussed in all its bearings. It was decided to institute a campaign against the disease in the locality. Diseased colonies form a centre of contagion, and should be burned, together with all combs and quilts from the same hive. Wash and disinfect the hives, frames, and section or shallow frame racks that have been in contact with the diseased bees. During the spring many colonies will be in want of food, and when the bees find plenty of sealed honey in hives where the bees are dead, they will make the most of their opportunities, carrying home the food and the germs of the disease also. If every beekeeper, who reads these few lines, will set to work in his own district, much may be done to eradicate the disease this year. Some are hoping for legislation in connection with bee diseases, but it will not do to wait until laws are passed, for by then the mischief will have been done.

DYSENTERY. This disease has already made its appearance this year in many parts of the country, and the fact is not surprising when the causes are known; they are: (1) feeding with syrup that was too watery, and consequently could not be sealed before the winter; (2) syrup made of glucose, Beet, or brown sugar, for these increase the amount of excrement and render the bees more liable to the disease; (3) draughty and leaky hives. Dysentery in bees may be detected by the brownish-yellow and evil-smelling excrement voided about the entrances, and in bad cases the combs will be stained with the same. The bees will be seen moving about slowly, and many will be found dead. When bees are in good health they never void the faeces except whilst on the wing, so during wet and stormy weather they are unable to take a much-needed cleaning flight. Good honey and thick syrup made of good cane sugar contain so little waste that bees can bear confinement for a much longer time than when fed on the other foods named.

REMEDY FOR DYSENTERY.—Remove the bees from the infected hives, and, if the combs are filthy, provide clean combs. Contract the brood chamber so as to crowd the bees together, give them some good, warm syrup and a cake of soft candy. Provide warm quilts, making them fit the corners of the hives, and take care that the roof of the hive is watertight.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communication should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. It is noted, the signature will not be printed, but kept as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR MARCH.

SATURDAY, MARCH 4—
Soc. Française d'Hort. de Londres meet.
TUESDAY, MARCH 7—Scottish Hort. Assoc. meet.
THURSDAY, MARCH 9—
Soc. Nationale d'Hort. de France (Paris) Exh.
MONDAY, MARCH 13—
United Hort. Benefit and Prov. Soc. Ann. Meet. at R.H.S. Hall, 8 p.m.
TUESDAY, MARCH 14—
Roy. Hort. Soc. Coms. meet and Spring Bulb Show (Sixth Masters' Memorial Lecture at 3 p.m. by Mr. G. F. Scott-Lihot, M.A., on "Origin of Varieties").
WEDNESDAY, MARCH 15—
R.H.S. Bulb Show (second day). Roy. Meteorological Soc. meet.
THURSDAY, MARCH 16—Linnean Soc. meet.
TUESDAY, MARCH 28—
Roy. Hort. Soc. Coms. meet (Lecture at 3 p.m. by Mr. R. C. Reginald Nevill, on "Alpines in Their Native Homes").
WEDNESDAY, MARCH 29—
Irish Gard. Assoc. and Benev. Soc. meet.
THURSDAY, MARCH 30—Torquay Spring Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—40.9°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, March 1 (6 P.M.): Max. 51°; Min. 38°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, March 2 (10 A.M.): Bar. 30.2; Temp. 54°; Weather—Sunshine.
PROVINCES.—Wednesday, March 1: Max 51° Ireland S.E.; Min. 43° Scarborough.

SALES FOR THE ENSUING WEEK.

MONDAY—
Herbaceous and Border Plants, Hardy Bulbs, &c., at 12; Roses, Fruit Trees, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
TUESDAY, WEDNESDAY, THURSDAY & FRIDAY—
Final Clearance Sale of Nursery Stock, Utensils in Trade, &c., at St. John's Nurseries, Worcester, re R. Smith & Co., Ltd., in voluntary liquidation, by Protheroe & Morris, at 11.30.
WEDNESDAY—
Hardy Bulbs and Roots, Perennials, &c., at 12; Roses, at 1.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe and Morris.
FRIDAY—
Liliums and other Hardy Bulbs, in variety, Herbaceous Plants, &c., at 12; Roses and Fruit Trees, at 1.30, Imported and Established Orchids, at 12.45; by Protheroe & Morris.

The Destructive Insects and Pests Act.

The report of the Intelligence Division of the Board of Agriculture concerning the proceedings taken during 1909-10 under the above Acts is now published. It contains much interesting information both on the working of the administrative measures which have been framed to cope with certain plant pests and also on the present distribution and possible dangers of these destructive agents.

The bulk of that part of the report which deals with fungous diseases is devoted to American Gooseberry-mildew and the wart disease (black-scab) of Potatoes, the former being the only fungous disease with which it has yet been found possible to deal on administrative lines in this country.

* Copies may be purchased from Wyman & Sons, Ltd., Fetter Lane, E.C. Price 1s. 6d.

According to this official report, American Gooseberry-mildew in 1909-10 spread little beyond the area affected by this disease in the previous year. In all, 3,013 gardens were found to be infected, but of these only 610 showed disease for the first time during the year under review. A considerable number of these cases include allotments in which only a few bushes are grown. The disease is undoubtedly worst in those districts where it was first discovered, but beyond those areas it has not yet become widespread. The districts most badly affected are those where Gooseberry bushes are grown on a commercial scale. Thus parts of Norfolk and the Isle of Ely, Kent, Worcestershire, Huntingdonshire and Cambridgeshire comprise the chief centres of disease, but even in these counties a large number of gardens have not yet become infected.

It is satisfactory to know from the report that in only a small number of cases was the fruit seriously attacked. This is doubtless chiefly due to the effective pruning and tipping of diseased shoots generally practised during the last two winters. It is not surprising that the severest attacks on the fruit occurred in the county where the local authorities did not appoint a properly-qualified inspector to deal with the disease.

In regard to the relative susceptibility of different varieties of bushes, it has been found that Keepsake, Golden Drop, Crown Bob, and Whinham's Industry are the most readily affected. Golden Drop seems to be more liable to attack on the fruit than any other kind. No really immune variety has yet been found, but Whitesmith appears to be only slightly affected.

Little fresh knowledge of the sources of infection has been obtained during the last year. Emphasis is again laid on the possibility of infection by means of returned "empties," and attention is directed to the likelihood of the baskets becoming contaminated even while the "top fruit" is being gathered on account of the fact that the latter is often planted between rows of Gooseberry bushes.

The importance of exercising care in the purchase of new bushes is clearly shown by the proof that the outbreaks of disease in Northumberland and East Suffolk were directly traceable to bushes which had been bought from infected nurseries. Licences are now required to allow of the movement of bushes from infected premises, but in spite of this a few cases are known in which the bushes have not been freed from disease before being planted in a garden hitherto healthy.

Stress is again laid upon the great danger of re-infection arising from the winter spores which drop into the soil from the summer onwards. There is a small amount of evidence to show that these spores may retain their vitality in the soil for more than a year.

Concerning remedial measures, the Board advise the destruction of infected bushes only in exceptional cases, where, for example, a few bushes are found to be diseased, or where the bushes are so badly attacked that it is not possible to prune

away all the infected portions. Spraying in the spring is only advised when it is considered that by this means the fruit will be saved from infection and spraying with liver of sulphur during the summer is left to the option of the grower in most cases. The remedial measure, however, which has undoubtedly proved most effective in fighting this pest is the removal of all diseased wood by pruning and tipping in the early autumn.

The Board have carried out some experiments to test the efficacy of Bordeaux mixture, made up in various ways, as a winter spraying fluid, but no favourable result has come from them. Other experiments have been tried to see if success followed the winter treatment of the soil with Bordeaux, kainit, and lime respectively, but in each case the result was disappointing.

The wart disease or black scab of Potatoes receives considerable attention in the present report. Since the complete life-history of the fungus causing this disease has been followed, the parasitic organism responsible for it has been named as *Synchytrium endobioticum*. Opinion seems to be rapidly gaining ground that this disease has been longer in the country than was formerly thought to be the case. The wart disease is only present to an appreciable extent in certain parts of the country, e.g., Staffordshire, Cheshire, Lancashire, Fife, and even there is chiefly confined to allotments and small gardens.

Experiments have been made to test the effect of treating the "seed" at the time of planting with lime, sulphur, and soot respectively, but none of these substances appears to have any effect in checking the disease. Greater success (see last issue, p. 120) has followed the attempt to discover varieties immune to this pest, and, of the many different kinds tried, the sorts known as Conquest, Langworthy, What's Wanted, and Golden Wonder are almost, if not entirely, immune.

The other scheduled fungous pests mentioned in the report are the Tomato leaf spot (*Septoria lycopersici*) and the Melon and Cucumber canker (*Mycosphaerella citrullina*). The former has not spread beyond the area in which it was first discovered, and is less virulent than before.

The only non-scheduled pest of an allied nature dealt with in the report is that of a bacterium, *Pseudomonas campestris*, which has seriously affected large beds of Horse Radish in Cheshire. According to experiments made at Kew this bacterium is identical with that which causes the black rot of Cabbage.

ROYAL SOCIETY.—Among the 15 names of gentlemen recommended by the Council for election as Fellows of the Royal Society, botany is represented by Dr. LANG, Professor of Cryptogamic Botany in the Victoria University, Manchester. Dr. LANG, who was formerly of Glasgow University, is well known for his researches in the Ferns and Liverworts and for his contributions to the study of "Alternation of Generation" in plants.

JOHN RAY.—Mr J. G. BAKER draws our attention to a misprint in the article on British Botanists printed on p. 115. JOHN RAY was born in 1627, not 1728. He died in 1705.

BRASSO-CATTLEYA SENATEUR DE BAST.—The beautiful hybrid illustrated in fig. 65 is obtained from a cross between *Brasso-Cattleya Digbyano-Mossiae* and *B.C. Mrs. J. Leemann*. The sepals and petals are very broad, and of a pleasing rose-colour. The lip is large, deeply fringed and undulated, the centre being richly coloured with gold, and prettily veined. The

plant was exhibited by Messrs. THEODORE PACWELS & Co., Meirelbeke, near Ghent, at a meeting of the Royal Horticultural Society, on the 14th ult., and it gained the award of a First-class Certificate.

PROTECTION OF BIRDS.—The annual meeting of the Royal Society for the Protection of Birds

will be held at the Westminster Palace Hotel, Westminster, on Tuesday next, March 7. The chair will be taken at 5 p.m. by Her Grace the Duchess of PORTLAND, the President of the Society. The Rev. and Hon. EDWARD LYTTELTON will speak on "Real Friends and Enemies of Birds." The awards in the Public Schools Competition will be presented.

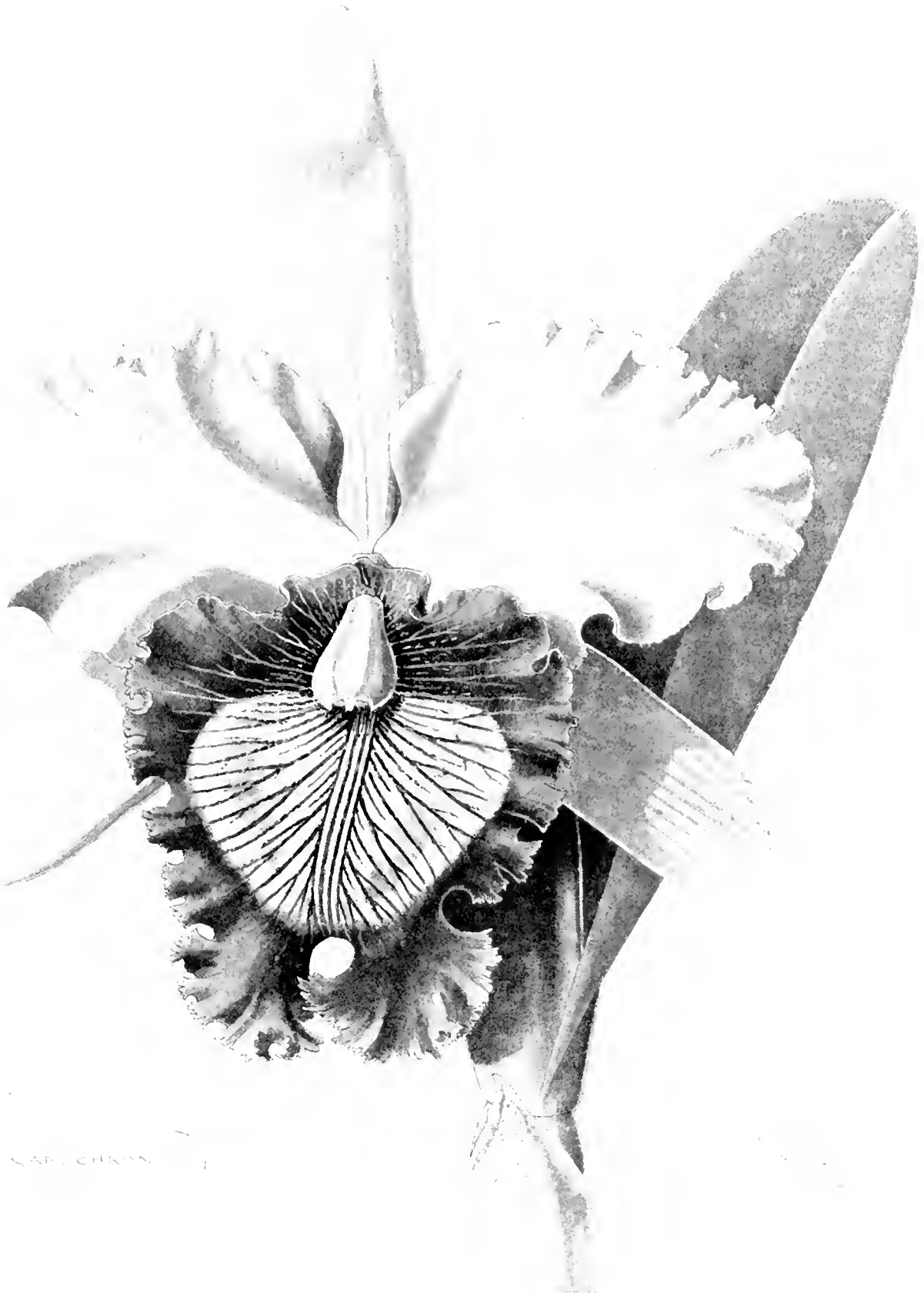


FIG. 65.—BRASSO-CATTLEYA SENATEUR DE BAST: SEPALS AND PETALS ROSE COLOURED, LIP GOLDEN-YELLOW WITH DARK VEINING.

ROYAL WARRANTS TO NURSERY AND SEED FIRMS.—The Royal Warrant of Appointment to the King has been conferred on Messrs. HOBBS, LTD., Dereham; JOHN FORBES, LTD., Hawick; JAMES VEITCH & SONS, LTD., Chelsea; and LAING & MATHER, Kelso.

NATIONAL DAHLIA SOCIETY.—We are asked to announce that a conference on Dahlias will be held at Carr's Restaurant, Strand, on the 17th inst., at 6 p.m. Information respecting the subjects to be discussed will be published later.

THE GARDENS AT THE WHITE CITY.—In preparation for the purposes of the Coronation Exhibition, the gardens at the White City are being remodelled. This year, it is said that there will be a varied display of British plants and blooms. Nearly half-a-million plants have been laid out with a general colour scheme. "Visitors will walk through old-English gardens and will be surrounded by such a varied display of exquisite British flowers as will be a revelation even to the most accomplished gardeners."

THE ST. JOHN'S NURSERY, WORCESTER.—An advertisement in this issue states that Messrs. PROTHEROE & MORRIS will hold the final sale at St. John's Nurseries, Worcester, on March 7 to 10, at 11.30 each day, by order of the Receiver for the debenture holders of R. SMITH & Co., LTD., in voluntary liquidation. This sale will complete a series which has extended over 46 days. The stock of this old-established nursery included many thousands of fruit trees, ornamental trees, specimen conifers and shrubs, herbaceous plants, climbers, and other plants. The area of the nursery was about 250 acres. This last sale will include the remainder of the herbaceous plants, climbers, fruit trees, utensils in trade, and sundries. The freehold of the home nursery, comprising the whole of the glasshouses and large range of pits, has already been disposed of by the firm already mentioned.

WART DISEASE OF POTATOS (see p. 120).—Mr. G. T. MALHOUSE, writing with reference to the *Bulletin* on "Wart Disease," published by the Harper Adams Agricultural College, and reviewed in these columns last week, asks us to state that the word "erroneously" was omitted by an oversight from the last sentence of the *Bulletin*, and that this sentence should read:—"The nodules in the roots of Peas, Beans, Scarlet Runners, and other leguminous plants have also been attributed erroneously to wart disease."

THE RANUNCULUS.—"A bed of choice Ranunculuses presents one of the most attractive objects Nature can exhibit in her gayest mood. There you behold black, purple and violet of every shade mingled with others as white as snow. There you see crimson, red and rose of various tints; orange, yellow and straw of every dye. Many are striped or distinctly as the Carnation; some are red and white, and others scarlet and gold. Numbers are edged like the Protea, having white, buff or yellow grounds, others are shaded, spotted or mottled in endless variety. The sight of such a collection instantly fills the spectator with admiration and delight." These were the enthusiastic words of a great cultivator of Ranunculuses, the Rev. JOSEPH TYSO, of Walsingham, Berks., written in 1834. The methods of culture adopted by the old growers, of whom the Rev. JOSEPH TYSO was a type, are applicable today. The roots should be planted in well-prepared beds in February or early in March. The secret of obtaining success is to keep the plants always supplied with moisture. To help this, a top-dressing of sifted mould and old cow dung spread an inch thick over the beds early in May is desirable. A cloth awning to cover the beds in brilliant sunshine is necessary if the fine,

rich tones of the purple, blue and black shades are to be preserved in perfection. In old days, hundreds of named varieties were grown. Nowadays, though named varieties are obtainable, it is usual to cultivate the fine mixtures that are offered by leading firms under the names of Turban, French and Persian. They are all types of R. asiaticus. The Turban varieties are the hardest, most vigorous and free growing. Their flowers are larger than the others but looser and more open. The French varieties are compact and shapely, whilst the greatest range and brightest colourings are generally found among the so-called Persian varieties.

THE AUSTRALIAN APPLE SEASON, 1911.—The following table, compiled by our special correspondent, is a forecast of the imports of Australian Apples from the present time until the end of July. The average weight of a case of Apples is about 40 lbs.

Dates of Sailing.	Steamships.	Quantities. Cases.	Due in London.
Feb. 15...	Orontes	14,000	April 1
Feb. 17...	Somerset	30,000	April 25
Feb. 18...	Medie	45,000	April 15
Feb. 22...	Macedonia	21,800	April 8
March 1...	Orsova	17,000	April 15
March 7...	Telamon	20,000	April 21
March 8...	India	28,500	April 21
March 14...	Pera	50,000	May 6
March 15...	Otranto	20,000	April 28
March 21...	Afric	45,000	May 13
March 19...	Ascarnus	20,000	April 30
March 21...	Suffolk	30,000	April 30
March 22...	Moldavia	20,100	May 6
March 29...	Otway	20,000	May 13
April 5...	Mongolia	19,900	May 20
April 12...	Orvieto	20,000	May 27
April 15...	Svevic	45,000	June 10
April 18...	Essex	20,000	May 28
April 19...	Hector	20,000	May 30
April 19...	Morea	32,000	June 3
April 22...	Themistocles	32,000	June 11
April 26...	Omrah	20,000	June 10
May 10...	Persic	20,000	July 2
May 16...	Ayrshire	20,000	June 25
May 19...	Orestes	20,000	June 30
June 7...	Runic	20,000	July 30
June 9...	Anchises	20,000	July 17

Total 690,300 cases.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FOKIENIA HODGINSII (see *Gard. Chron.*, February 6, p. 66)—I have about a dozen small specimens of this new plant raised from seeds sent home by Capt. Hodgins to his sister, who is niece to my employer, Mrs. Wyburn. The seeds were handed to me last April. I do not know of any other case in which seedlings of *Fokienia* have been raised in this country. *F. Hadley Manor Gardens, High Barnet, Herts.*

A NEW WORK ON ENGLISH FORESTRY. I read the review of Mr. Forbes's new work by Dr. Percy Groom in your issue of February 18 with surprise, because it seemed to me misleading to your readers, and unfair to the author. I had read and reviewed the same work in *Country Life* of January 14, to which I will refer any of your readers who may want a good illustration of the different opinions which may be taken by two persons writing from different points of view. Dr. Groom's point of view is, as I understand it, that of a pure physiologist. My own is that of a man who has paid much attention to arboriculture and forestry from a practical point of view; and I imagine that the majority of your readers will also take that view. I thought the book one of the best books I had read on the subject, and said that it should be carefully read by all those who are interested in the subject, as its purchase would be a good investment, and might save a great deal of unprofitable and unsuccessful expenditure on planting, if its conclusions were adopted. Dr. Groom appears to me to have unfairly attacked an author, whose experience in forestry is, perhaps, second to none in Great

Britain, by selecting certain passages for criticism in a manner which misinterprets Mr. Forbes's real views. I feel certain that he could give details of the facts on which he based his statements, and though in some cases these may be opposed to ideas which are founded rather on books than on Nature, yet I believe that Mr. Forbes can defend himself successfully if allowed to do so in your columns or elsewhere. *H. J. Elwes, Coleborne.*

I have taken Mr. Elwes's advice and read his eulogistic review of Mr. Forbes's book. In that review he condemns members of the Land Erosion Commission; in his letter he accuses me of unfairness. I do not know whether or no I ought to be grateful for the distinction; clearly those who differ from Mr. Elwes are to be commiserated. It appears to me that, from the standpoint of public interest, the fairest method of testing the reliability of a book is for the reviewer to consider that portion of the work dealing with the section of the subject on which he is best informed, and that, from the point of view of the author, it is fairest to mention this limitation and to select specific examples, at the same time quoting the author's own words. Such was the method that I adopted. Mr. Elwes, in suggesting that my standpoint is that of a "pure physiologist," might perhaps, in fairness, have mentioned that I have made a practical study of trees and tree-life for many years. But to pass from the unimportant personal aspect of Mr. Elwes's letter, I may be permitted to explain more fully my point of view in regard to Mr. Forbes's book. When forests are already established, and Nature or prolonged experience has taught us the capabilities of a place, work can be continued by practical foresters and the continuance demands no careful analysis of the surroundings or of the demands of the trees, so long as the same forest policy is pursued. But where forests are to be established afresh in this country the matter is very different. In dealing with any proposed site answers must be given to two questions: first, "What are the conditions prevailing as regards soil and climate?" Secondly, "What are the conditions under which the various cold-temperate species of trees can flourish?" Mistakes in answering these questions will end in fundamental errors in answering the third question which is practical. "Are there any kinds of trees that immediately or ultimately can be grown on the proposed site with sufficient profit to the community?" To answer the first two questions, it is by no means sufficient to be merely a practical forester or practical arboriculturist, however able. Answers can be obtained only by the aid of men who have an analytical knowledge of the underlying principles, based upon adequate training in science and forestry. Erroneous conclusions formed in regard to these fundamental problems, if promulgated with authority, are liable to do serious harm to the cause of afforestation in this country. And it was from this fundamental standpoint that I reviewed Mr. Forbes's book. *Percy Groom.*

APPLE GROWING FOR PROFIT.—The articles by *A Southern Grower* are always interesting and of educational value. I was pleased to read his remarks on Cox's Orange Pippin Apple retaining its flavour later than January, whereas the season of this variety is generally held to be November and December. I often wonder that growers, where it succeeds, do not produce a large quantity of this Apple, and store the fruits until late in the new year, instead of relying, for example, on such poor sorts as Bannam's Red Reinette, Sturmer Pippin, and Lord Burghley. *A Southern Grower* has no strong opinion apparently as to the cause of canker, a disease which is responsible for more destruction to Apple trees and greater disappointment to planters than any other pest. Many theories have, from time to time, been advanced as to the cause of canker appearing in Apple trees, but I think we are as far off as ever in our knowledge of the subject and of any cure. My opinion, gained from experience, is that the soil, more than anything else, is to blame. Certain varieties of Apples have not the constitution to withstand the effects of unfavourable rooting medium. As a rule a heavy, cold and naturally retentive ground, with a stronger sub-soil, is a fertile source of canker in trees of many varieties. In such a soil trees often exhibit cankered shoots of the current year. I have always noticed that the trees suffer more

from canker after a wet autumn. There are two points to observe: (1) plant varieties that are known to be immune from canker; (2) in planting, trench the whole of the ground 3 feet deep. Trenching may cost more at the outset, but I am positive it will prove remunerative in the long run, and instead of planting the trees even a few inches deep, plant them on the surface of newly-trenched soil, using just sufficient soil to cover them, always remembering that the trees will settle down later into their proper position. *E. M.*

LATE DESSERT APPLES (see p. 123).—If Mr. Molyneux is correct in saying that there are no English dessert Apples worth eating after Cox's Orange Pippin is finished at Christmas, it is a reproach to the many men who have spent years of their lives in endeavouring to improve the qualities of our Apples. Mr. Molyneux attributes this alleged absence of good late dessert Apples to the shortcomings of the English climate. True, our autumns often leave much to be desired, but a climate which renders possible such a delicious Apple as Cox's Orange Pippin—an Apple admittedly fit to eat at Christmas, and often still later—surely is not to blame for the lack of Apples worth eating later in the winter. For the other late Apples named by Mr. Molyneux are gathered only a little later in the year than Cox's Orange Pippin, and are not exposed to the vicissitudes of climate very much longer than that superb variety. Whilst agreeing with him that many of the so-called dessert Apples in season after Christmas are far from being of first-class quality, yet, in my opinion, there are a few exceptions. Rosemary Russet is a most delicious little Apple, one that, with moderate care, can be had in first-class condition well into March. Its only fault, if it be a fault, is want of size, but for table purposes it will usually be found quite large enough. Like most Russet Apples, it should be stored away from the light and air. In shape it is broadly pyramidal; the skin is yellowish, lightly flushed with red on the sunny side, and covered with light-brown russet. The flesh is tender, but crisp, very juicy, yellowish in colour, and it has a distinctive aromatic flavour. Cornish Gilliflower is another Apple to which I would also give three marks. It is known by name to almost everyone, but comparatively few know it by experience, or this perfectly delicious Apple would be grown in every garden. Although it takes its name from our most western county, yet it is not at all common there; it is much more often grown in fair Devon, where the villagers know and appreciate its good qualities. The fruits are heavy, and, as they are produced on the ends of the branchlets, this variety should only be planted in shelter, or the autumn gales will remove the fruits long before they should be gathered. If the fruits are allowed to hang as long as possible, and are stored properly, they will be well worth eating even in May. In fact, its real flavour does not seem to develop until Christmas is past. *A. C. Bartlett.*

STREET TREES AND GAS EFFECTS.—I read with interest the account on p. 44 of street trees and gas, also the article in the issue for February 12, 1910, p. 101. As one who has had until very recently the control of 12 miles of street trees, I will give some experience of gas affected trees. The trees which were under my care were comprised of Wych Elm, English Elm, Cornish Elm, Sycamore (both green and purple and variegated foliage), Horse Chestnut, Laburnum, London Plane, Canadian Poplar, Lime, Mountain Ash, and Silver Poplar, and numbered almost 3,000 of the finest street trees to be seen in any part of the kingdom. There is no question apart from systematic pruning which should absorb the town gardener's attention so closely as the searching for gas-affected areas and other evils which cause either death or badly-mutilated trees. A fungus attacks the bark of some trees and covers the part affected with little red spots, which if not discovered in time will kill a beautifully-placed branch or the whole tree. If this fungus disease is not understood by those having the care of the trees, it is the easiest thing in the world to come to the conclusion that it is gas which is the cause of the injury or death, because the appearance is much the same. I have made it a personal study to find out the reason of the mischief which affected trees, before

I could report to the engineer in chief that it was gas leakage which was responsible. This has prevented unnecessary complaint to the gas committee of the borough, and I have been able to find a remedy for the fungus disease in a painting over with a mixture of Stockholm tar and flowers of sulphur. If a branch or trunk can be discovered before the fungus attack has got all round it can be saved. Respecting the gas nuisance, I know what it means for a Highways committee responsible for street trees to have to deal with the gas committee which manages the gas mains, also borough engineers who may know their own affairs but who do not understand a town forester's duties and difficulties, nor yet those of a gardener or park superintendent. Officials are often the cause of much unnecessary expenditure through their meddling influence with the expert. All municipal authorities would find it to their advantage to see to it that more confidence is placed in other municipal officials than engineers. I have often thought that a discussion on interference by engineers who are in office where gardeners come under their jurisdiction would create a very profitable source of education to all our craft who are engaged in municipal work, and to others who look forward to such occupation. It is of vital necessity that if a town forester knows his business and he reports certain areas as being affected with gas that his word should be credited, as he is, as your correspondent says, a paid public servant. About three years ago I reported leakages in a certain area, which report was discredited by the gas committee. When I determined to resign my position in consequence, it was decided to open up the gas main for the length of a mile, and it was found that almost every joint in that length was defective. The examination had the double effect of saving the trees and preventing a waste of gas which had puzzled both the gas manager and the gas committee. How did I find out that it must be gas? I had an apprentice with the necessary knowledge of insect and fungous diseases, whom I sent to examine every tree in this particular length of road, with instructions to record in a note-book any diseased or insect-infested branch. This gave the youth valuable work and myself some sure data. Where there was no disease or insect and the tree was sickly-looking, I put men with sharp-pointed steel crowbars to bore into the earth between the line of trees and the gas main, and in every instance where there was leakage it showed by the emission of gas fumes following the pulling out of the bar. This plan of testing for gas I suggest to all who have to do with street trees, and on private avenues which have a gas main running from a town's main; often there are such avenues flanked on each side by banks of shrubs and trees, some of which have died, and a leakage of gas has not been suspected. Where a tree has died from the effects of gas, it is not safe to replant in the same space for a long time; a great deal depends upon the soil, whether it is clay or gravel or sand. These are all matters of much importance for the town forester to study. The question of planting new avenues of street trees is a very complicated one, and no town authority should undertake to embark on any pretentious scheme of planting unless it is guided by a trained horticulturist. Some 10 months ago, I took up my present position as outdoor assistant master and head gardener at the Sheffield Union, and I found a state of things in evidence among the trees on each side of a $\frac{1}{4}$ mile avenue that at once made me report to the guardians that drastic steps would have to be taken to deal with them, and at present I am dealing with them in a drastic fashion. I know of nothing in avenue and street tree culture which is so detrimental to the welfare of the trees as allowing them to become overgrown and full of inside growth which is not wanted. Let there be a good open tree inside, every branch of whatever kind of tree independent of each other, no crossing, with a nice base bearing a shapely pyramid. *V. H. Lucas.*

SEED SELECTION.—The subject of Seed selection, as dealt with by Mr. Scott-Elliott at the Royal Horticultural Hall on the 28th ult., is a matter of the greatest importance to horticulturists. Few persons are more fitted to deal with this subject than are seed-men and seed-growers, for their range of knowledge is wide.

Whilst Mr. Scott-Elliott's remarks were throughout favourable to the selection of the finest seeds, Mr. H. J. Elwes's example of the equally strong growth obtained from small and, indeed, almost starved Acorns, as compared with the growth from quite large, fat Acorns, showed that no rule can be laid down in relation to so uncertain a subject. On the lecturer's hypothesis, the finest seeds from Sweet Peas should come from plants of great height and strength. But far more reliable seeds come from plants 4 feet in height, because whilst the former plants are creating wood or stem, flowers and leaf-production, the latter are centring their efforts on the production of seeds. These sown under most liberal conditions, the following year will excel in strength of growth and of wood production what would come from the very gross-grown plants. In many cases, seeds which are of an even character, though not specially large, give the truest and the desired results. Then in relation to flowering plants, how common it is that specially fine seeds throw somewhat coarse growth and irregular flowers, whereas the smaller seeds, and perhaps rather slower in germinating, give the most perfect flowers and the more satisfactory growth. Seeds, moreover, depend far more on maturation, or perfect ripening, than on size. It is well that the gardener should realise that myriads of plant shrubs and trees raised from immature seeds develop into poor specimens, and, therefore, that he should neglect no effort to secure good seeds. *D.*

SELECT VARIETIES OF PEAS.—I read with interest Mr. Vates's notes on p. 115, and can fully endorse all he says of Chelsea Gem Pea. I have grown it now for the past 11 years in these gardens, and not once has it failed to produce more satisfactory results than any other Pea of this height. Two other varieties I strongly recommend are Criterion and "The Clipper." Criterion is 5 ft. in height, and a prodigious cropper; the Peas are large, and tightly packed in medium-sized pods. I think that this variety is the very best and sweetest flavoured Pea in commerce. "The Clipper" grows 5 ft. in height, is a good doer, and may be recommended as an excellent cropping Pea of very fine quality. Many of the pods are equal in size to the variety Quite Content, and are better filled; we grow three-quarters of "The Clipper" in succession to Criterion, using one quart of seeds to rows 54 yards long. *A. Jeffries, Moor Hall Gardens, Harlow, Essex.*

ROMANCE OF A CLOVER.—A similarly curious history to that of the Grass *Paspalum dilatatum*, in New South Wales, referred to on p. 113 of your last issue, deserves to be recorded of the Strawberry Clover (*Trifolium fragiferum*), a rather rare native of some parts of the British Isles. Some years ago the Hon. Mr. Irving, proprietor of one of the leading Melbourne papers, related to me the story of its introduction into the Colony of Victoria. He had occasion to import a piece of furniture from Ireland, if I remember rightly, and the packing material was thrown out into his farmyard. Soon afterwards a plant of Clover appeared on the spot, which was quite new to the district, and, as it was found to be much more drought-resisting than the ordinary species known to farmers, he perpetuated it, and I believe it is now cultivated extensively throughout Victoria. Perhaps someone on the spot could tell us more about it, as the story, if confirmed, would be exceedingly interesting. *Donald McDonald.*

SKIN POISONING BY IVY.—Two of the young gardeners here were recently engaged in trimming the Ivy which grows on the walls of the mansion, and two days afterwards both complained of skin trouble. In appearance they were suffering from a rash such as would be caused by a bad Nettle sting. One man recovered in a day, or so; the other has been, and is still, covered from head to foot with great sores, and is in a sorry state to look at. His head, arms, and legs are all attacked and he is quite unable to resume work. A doctor who has attended him states that he has been poisoned through cutting the Ivy. Is this of rare occurrence? I have never known such a case before, and should be greatly interested to know if others have any such knowledge. *B. J. Mercer, Winton Place Gardens, Maid tone.*

ROSE RAYON D'OR.—This Rose has been very disappointing as regards propagation. Almost without exception, there has been failure in this country, and I hear the same complaint from Continental friends. It appears to be a very difficult Rose to propagate by grafting. The new class of Roses raised from crosses with *R. Pernettiana* are by no means so certain as others, the wood not lending itself to any excitement from artificial heat. We find the same with the Austrian and Persian Briers, and it was also experienced with *Soleil d'Or* and *Gottfried Keller*; more especially upon plants not grown in pots. There is something peculiarly sensitive about the wood of these Roses, and as many others have been disappointed, it may be some relief to them to hear of its general failure among the leading propagators of the day, who possess every possible convenience. We shall probably be a little more successful with lateral wood from pot plants later on; but at present it appears better to use the wood as buds; even to budding stocks in pots, a method we have found far the best with this section or class of Rose. The flowers and ground plant exhibited at the National Rose Society, and which gained a gold medal last year, were all that could be desired, and I feel we should not condemn the plant too soon. I do not look upon this case as a question of over-propagation alone, because the *Pernettiana* varieties have all been difficult, except as budded plants. Since writing the above, I have heard from the raiser of *Rayon d'Or*, who says he also has had difficulty with this Rose, and attributes it to the soft and unripened wood from last season's dull weather; also the development of "black spot," a complaint to which *Soleil d'Or*—the first of the *Pernettianas*—is very prone. *A. P.*

BROWN OAK.—In the issue of February 4, p. 74, the very interesting question of brown Oak timber is referred to, and I can assure all those who have forestry interests that it is as completely in their hands to grow such wood as it is for a florist to grow a new Rose or Apple. I assisted, in 1858, in grubbing four pollard Oaks that had been bought for fuel, and though three of the trees had pale, shaggy timber of no value, one was of dark, mahogany-coloured wood. Though only a lad I preserved some of the dark wood and have it now. This brown wood was also of a mild, crisp, solid texture, resembling mahogany in colour as well as in working. A thousand times have I wondered if such a specimen existed elsewhere. The circumstance points directly to the existence of a sport, and foresters should graft it upon seedling Oaks by the thousand. It would be well for the Rockingham Forest specimens to be used for this purpose and not to fell them. Some Oak timber is a dark olive green in colour, whilst other trees are notable for their splendid growth. It would pay also to treat these in the same way as breeders of scions for producing timber of high value. *A. Dawson, Teddington.*

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 23.—An imposing display of flowers was seen at the meeting held on Tuesday last, the Hall being filled with exhibits. The groups were mainly forced shrubs and early-flowering hardy plants, but there were also many showy displays of Carnations, Cyclamens, a few Roses, *Richardia Elliottiana*, and miscellaneous indoor flowering plants. The Floral Committee granted one First-class Certificate and one Award of Merit.

The groups of Orchids were remarkably good and varied, and the Orchid Committee granted one Award of Merit and five Botanical Certificates. The exhibits before the Fruit and Vegetable Committee were not numerous, and this body made no award to a novelty.

At the three o'clock meeting in the lecture-room 101 new Fellows were elected, and Mr. G. P. Scott Elliot delivered the fifth Masters' Memorial Lecture, his subject being "Recent Work in Seed Selection."

Floral Committee

Present: W. Marshall, Esq., and Henry B. May, Esq. (Chairmen); and Messrs. T. W.

Turner, George Paul, C. E. Shea, W. J. James, Jno. Green, G. Reuthe, George Gordon, R. Hooper Pearson, J. F. McLeod, W. Howe, Jas. Douglas, J. W. Barr, A. Kingsmill, E. A. Bowles, W. J. Bean, C. Black, Chas. E. Pearson, E. H. Jenkins, H. J. Jones, Arthur Turner, Chas. Dixon, H. J. Cuthbush, R. W. Wallace, R. C. Reginald Nevill, J. T. Bennett-Poe, Ed. Mawley, W. B. Cranfield, and R. C. Notcutt.

Lady TATE, Park Hill, Streatham (gr. Mr. W. Howe), exhibited a remarkably showy group of forced bulbs, interspersed amongst *Spiraeas*, *Calliopsis purpurea*, *Richardia*, *Rhododendrons* (*Azaleas*), and other forced plants, with numerous Palms and Ferns for relief. The extent of the exhibit showed the great wealth of blooms available for decorative purposes in the gardens at Park Hill at this season. (Silver-gilt Flora Medal.)

Mrs. LESCHELLAS, Highams, Windlesham, Surrey (gr. Mr. Farmer), showed a beautiful batch of *Richardia Elliottiana*, the spathes being extra large and of richest yellow colour. The plants were splendid, vigorous specimens. As a separate exhibit, Mrs. LESCHELLAS showed a group of *Eupatorium bathimum*. (Silver Flora Medal.)

Messrs. R. & G. CUTHBERT, Southgate, again put up a showy group of forced shrubs, of subjects similar to those displayed by them at the last two meetings. (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond, showed *Rhododendron indicum* (*Azalea indica*) of superb quality, each plant appearing like a posy of flowers. The colour, size, and substance of the blooms were all that could be desired, whilst the varieties represented the choicest in commerce. (Gold Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, filled a large table with greenhouse flowers. In the centre was a batch of fine *Hippeastrums* (*Amaryllis*), in about 30 varieties, the choicer sorts being *Valetta* (crimson), *Hermia* (white and rose), *Orion* (velvety-crimson, with reflexed segments), and *Cygnets* (of a distinct shade, being salmon-rose, with a white edge). *Rhododendrons* (*Azaleas*) were displayed in great numbers, some standards of these being exhibited as a separate group. There were also batches of *Abutilon megapotamicum variegatum*, *Primula kewensis* (a fine strain of this plant), *Boronia megastigma*, *Erlangea tomentosa*, *Kalanchoe Dyeri* (with extra large inflorescences), and *Camellia reticulata*. In another part of the Hall, Messrs. VEITCH showed a large group of forced-flowering shrubs, having a magnificent display of the usual subjects, such as *Rhododendrons* (*Azaleas*), *Laburnums*, *Amelanchier canadensis*, *Lilacs*, and *Deutzias*. Some very small plants of white-flowered *Wistarias* were remarkable for the large number of flowers present, and white-flowered *Lilacs* were equally well-bloomed. (Gold Medal.)

Messrs. W. CUTHBUSH & SON, Highgate, showed an imposing display of spring flowers, forced shrubs, and Carnations, filling two long tables with the various subjects. The flowering shrubs included floriferous *Rhododendrons sinense* (*Azalea mollis*), *Spiraea confusa*, *Magnolia Soulangeana*, *Camellia reticulata*, *Lilacs*, the double white variety *Mme. Lemoine* being remarkably good, and *Viburnum Vossii*. The Alpines were shown in a bank of rockwork, with a row of shrubs at the top, *Ledum compactum*, *Corylopsis panicifolia*, and *Hamaelis Zuccarini* being finely bloomed. The Carnations were, as usual, shown well, the cerise-pink variety *Mrs. Fortescue*, *Lady Coventry*, *Lady Elphinstone* (pink), *Britannia* (scarlet), *White Perfection*, and *My Maryland* (white) being amongst the more attractive flowers. (Silver-gilt Flora Medal.)

Messrs. STUART LOW & CO., Enfield, filled a large table with an assortment of greenhouse flowering plants and Carnations. There were many species of *Acacia*, good *Rhododendrons*, *Grevillea alpina*, *Daphne indica rubra*, the graceful *Eriostemon linearifolium*, *Primula malacoides*, and others. The Carnations represented most of the best kinds in commerce. (Silver Flora Medal.)

Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. Ed. Beckett), filled a large table with Cyclamens. The plants were arranged in batches of different colours, the salmon and white varieties being especially fine. (Silver Banksian Medal.)

ST. GEORGE'S NURSERY CO., Harlington, Middlesex, showed Cyclamens, having the finest plants we have observed so far this season. They were

shown in batches of colours, all the specimen plants being well bloomed. Plants with crested flowers had fringed foliage, some of the leaves being divided at the margins like lace work. (Silver-gilt Flora Medal.)

Mr. SEWARD, The Beeches, Hanwell, exhibited a large collection of Cyclamens, not quite so fine as we have observed from this exhibitor in some previous seasons, but a remarkably fine display nevertheless. (Silver-gilt Banksian Medal.)

Mr. H. BURNETT, Guernsey, again showed Carnations of very fine quality, there being no finer blooms in the exhibition. *Scarlet Glow*, *Mrs. H. Burnett*, *Snow Queen*, *Mrs. Tatton*, and *Aurora* may be mentioned as being especially good. (Silver Flora Medal.)

Mr. A. F. DUTTON, Iver, Buckinghamshire, showed varieties of perpetual-blooming Carnations, including *Britannia*, *Rose-pink Enchantress*, *Rose Dore*, *O. P. Bassett*, *Winsor*, and other well-known varieties. (Silver Banksian Medal.)

Mr. C. ENGELMANN, Saffron Walden, Essex, also showed varieties of perpetual-blooming Carnations, the large crimson *Carola* figuring conspicuously in the group. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, staged a collection of filmy Ferns, having 34 species and varieties. Nothing in the collection approached the beautiful *Todea superba* in its size and general magnificence. The next largest were species of *Trichomanes*, *T. maximum* var. *umbrosum*, *T. radicans* var. *cambricum*, *T. radicans* var. *dissectum*, *T. alabamense*, *T. reniforme* (quite distinct in its leafage), and *T. scandens*. Others of interest were *Hymenophyllum demissum*, *Todea pellucida*, *T. intermedia*, and *T. grandipinnula*. (Silver-gilt Banksian Medal.)

Messrs. J. HILL & SON, Edmonton, filled a large table with Ferns in great variety. There were many specimens with new fronds that were prettily tinted. Amongst these, a plant of *Lomaria attenuata*, about 3 feet tall, had finely-coloured foliage, also the rare *Adiantum Hendersonii*, *A. roseum*, *A. fulvum*, and, in the centre of the group *Polypodium conjugatum*. There were many choice *Gleichenias*, including a good example of *G. flabellata*. *Lomaria aspera*, the Spider Fern, has pendulous growths, and buds at intervals, which give rise to young plants. Along the background were arranged excellent specimens of *Dicksonia squarrosa*, *D. antarctica*, *Nephrolepis elegantissima*, *Platynerium grande*, and *P. Hillii*. (Silver-gilt Banksian Medal.)

Messrs. SUTTON & SONS, Reading, exhibited Tulips in half-circular batches of distinct varieties, bordered with *Adiantum* Ferns. In the centre of the display was a large bay, comprised of a dark-red *Cineraria*, labelled *New Scarlet*, intermingled with the yellow-flowered *Primula kewensis*, a pretty combination of colours. The more noticeable of the Tulips were *Meteor* (rose and yellow), *Apple-blossom*, *Sir Thomas Lipton* (scarlet), *Orange Blossom* (white and yellow), and *Pink Pearl* (blush). (Silver Banksian Medal.)

Messrs. GEO. MOUNT & SONS, LTD., The Nurseries, Canterbury, showed Roses *Richmond* and *Lady Hillingdon*, having the blooms as beautiful as ever. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, again showed varieties of Zonal-leaved *Pelargoniums* and *Cinerarias*, with a few large plants of *Cyclamens*, some of the last-named having crested petals. (Bronze Flora Medal.)

Messrs. R. GILL & SONS, Penryn, Cornwall, showed trusses of *Rhododendrons*. There were also extra large flowers of *Violet Princess* of Wales and the new *Primula Winteri* (see fig. 63), that attracted much attention. (Bronze Flora Medal.)

Messrs. C. BROOKS & SONS, Worthing, Basingstoke, showed flowers of *Primula sinensis*, arranging them in batches of varieties. The finer sorts were *Orange King*, *Delicata* (faint pink with a bold, yellowish rim), *Brooks's White*, *Crimson King*, *Giant Pink* (a very fine variety of this colour), *Queen Mary* (rose with a magenta shade), *Giant Crimson*, *Queen Alexandra* (a large white variety), and *Giant Salmon*.

Messrs. ROBERT SYDENHAM, LTD., Birmingham, staged forced flowers of *Narcissi*, and showed how well bulbous plants and *Lily of the Valley* can be grown in moss fibre, without provision for drainage, having splendid examples grown in this material.

Messrs. BARR & SONS, King Street, Covent Garden, showed an extensive exhibit of early-blooming plants. There were large patches of Crocuses in numerous species and varieties, Cyclamen ibericum, Eranthis cilicica, Snowdrops, Pulmonaria angustifolia rubra, Saxifraga linguata (with large heads of rose-coloured flowers), Lachenalias, Iris stylosa, I. reticulata, and other bulbous species. There were also varieties of Narcissi and a large-flowered strain of Primula obovata named Queen of Roses, the colour of the petals being much deeper than usual. (Silver Banksian Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hampshire, showed choice Alpines in bloom. At one end of the exhibit was a batch of Primula denticulata and its varieties, the plants having splendid inflorescences and sturdy foliage. Other choice plants noticed were Saxifraga burseriana Gloria, Viola gracilis, Bulbocodium vernum, Megasea speciosa rosea, and Anemone blanda var. Ingramii. (Silver Banksian Medal.)

Messrs. BAKERS, LTD., Wolverhampton, staged boxes of Alpine plants in flower, with a showy bank of Rhododendron præcox at the back. Several plants of Daphne Mezereum album were covered with flowers. Amongst the Alpines we noticed good forms of Primula rosea, Anemone ranunculoides, and the double-flowered variety of Adonis amurensis. (Bronze Banksian Medal.)

Messrs. G. & A. CLARK, LTD., Dover, exhibited, amongst other early flowers, some exceptionally fine Primroses in many shades, the purple varieties being especially good. The flowers were very clean, the plants having been afforded the protection of a cold frame. (Bronze Flora Medal.)

Messrs. JOHN PEED & SON, West Norwood, showed a large batch of well-flowered Lachenalias and a few Alpines. (Silver Banksian Medal.)

Messrs. R. WALLACE & CO., Colchester, showed a rock-garden exhibit, varieties of bulbous irises being a feature, especially I. Tauri, I. Danfordia, and I. reticulata. Primula viscosa Mrs. J. H. Wilson was shown well, and other choice plants in bloom were Saxifraga burseriana major, Shortia galicifolia, Tulipa Fosteriana, Fritillaria imperialis chitralensis (with clear, yellow flowers), and Corydalis tuberosa.

Messrs. J. CHERAL & SONS, Lowfield Nurseries, Crawley, staged varieties of Alpines in bloom, with a few dwarf shrubs as a background. Of Erythronium there were E. revolutum, E. Hartwegii, E. grandiflorum, and E. Hendersonii in bloom.

Mr. F. HERBERT CHAPMAN, Guldeford Lodge, Rye, showed bulbous Irises, including many seedlings of I. reticulata and I. Krelagei. The beautiful variety of I. reticulata Aspasia was conspicuous amongst the seedlings. Iris "Melusine" is a pale blue colour. Mr. CHAPMAN also showed a few seedling Narcissi, including Lullaby (poeticus) and Treasure Trove, with a creamy-coloured trumpet, as well as a number of seedling Freesias.

Messrs. T. S. WARE, LTD., Feltham, had fine examples of Pulmonaria rubra, Shortia uniflora, and S. u. grandiflora in a large exhibit of Alpines and bulbous plants. (Silver Banksian Medal.)

Mr. H. C. PULHAM, Elsenham, Essex, also displayed a rock-garden exhibit planted with a variety of subjects.

Mr. JAMES DOUGLAS, Edenside Nursery, Great Bookham, exhibited a remarkably fine specimen of Primula megaseaefolia.

Mr. R. UPTON, Guildford Hardy Plant Nursery, showed hardy plants of early-flowering subjects, including a large number of Saxifragas and Andromeda calyculata in flower.

Mr. GEORGE REUTHE, Keston, Kent, also exhibited hardy plants, including Alpines, and choice flowering shrubs.

Mr. H. HEMSLEY, Crawley, showed a rockery exhibit, well arranged, and planted with suitable subjects.

Messrs. HEATH & SON, Cheltenham, staged a rock-garden exhibit, planted with a variety of subjects in flower, amongst them Pulmonaria azurea (with exquisite blue flowers), and Saxifraga juniperifolia.

The Misses HOPKINS, Shepperton-on-Thames, also showed a rockery, having a very attractive display; coloured Primroses, Hepaticas, Anemone blanda, and Daisies affording bright patches of colours.

Mr. H. WARD, Oak House Nursery, Enfield Road, Southgate, showed Primula malacoides.

Several displays of pictures of floral subjects were staged, including some delightful views in gardens, shown by Miss GUNDRY, Foot's Cray, Kent, for which a Silver-gilt Flora Medal was awarded.

Mr. Wilfred Mark Webb, on behalf of THE SELBORNE SOCIETY, 12, Bloomsbury Square, London, showed an assortment of nesting boxes for wild birds, such as have been used with success in the Brent Valley Bird Sanctuary, where species of birds have been induced to nest that have not previously bred in the district. Some were square, wooden boxes made of plain boards, whilst others were natural logs, mainly of Birch. In some of the latter the tops could be removed, and in others a part in the centre was made to slide out like a drawer for the purpose of cleansing the interiors. These nesting boxes are produced in this country, and have been found as serviceable as those formerly imported from Germany.

AWARDS.

FIRST-CLASS CERTIFICATE.

Primula Winterei.—This is a new Primula from the Himalayas, introduced by Messrs. R. GILL & SONS. The plants, as shown, had something of the habit of the common Primrose, except that the flowers are produced in umbels on short scapes. The flowers were pale purple, and the leaves covered with a whitish meal. The plant is described and illustrated on p. 150. The illustration is of a pin-eyed flower, but other flowers were thrum-eyed, a distinct novelty of great value.

AWARD OF MERIT.

Saxifraga × Burseriata.—This is a pretty and free-flowering hybrid from *S. burseriana* major ♀, and *S. apiculata* ♂. It is remarkable not only for its freedom of flowering and vigorous habit of growth, but also for the evidence it bears of the influence of both parents. For example, in the height of its clustered flower-trusses, the greenish peduncles and calyces, can be seen the unmistakable influence of the pollen parent, *S. apiculata*, whilst the whiteness of the flowers and the crimping of the petals affords evidence of the influence of the seed parent. The spiny and glaucous characters of the leaves again resemble that of the first-named parent, while the size of the rosettes and the decidedly horizontal spread of the leaves of the rosettes favour *S. apiculata*. Apart from its interest from these points of view, the hybrid promises well as a garden plant, and, above all, it is distinct. Exhibited by the raiser, Mr. E. H. JENKINS, Hampton Hill, Middlesex.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Gurney Wilson, F. Menteith Ogilvie, A. A. McBean, T. Armstrong, J. E. Shill, J. Charlesworth, J. Cypher, W. H. Hatcher, W. P. Bound, A. Dye, W. H. White, C. H. Curtis, J. Wilson Potter, W. Bolton, John S. Moss, and Walter Cobb.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), exhibited a group of interesting plants. The collection embraced well-flowered plants of *Catasetum scurra*, with greenish-veined flowers; *Maxillaria variabilis*; the minutely-flowered *Scaphyglottis Behri*; *Pleurothallis scapha*; and *Masdevallia Chamberlainiana*.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. Day), showed *Odontioda Floryi* (C. Noezliana × *O. Andersonianum*), having a reddish flower that shows the characters of the latter parent.

GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. Davis), exhibited *Odontioda keighleyensis* Fowler's var., which has previously received a First-class Certificate.

H. S. LEON, Esq., Bletchley Park (gr. Mr. Cooper), exhibited a choice selection of *Cypripedium* flowers of varieties raised at Bletchley Park.

Mrs. NORMAN COOKSON, Oakwood, Wylam (gr. Mr. Chapman), displayed a fine variety of *Odontioda Bradshawiae* superba; also *Odontoglossum percutum purpureum*, having a richly-coloured flower, with a white lip; *Dendrobium oakwoodiense*, a hybrid derived from *Dendrobium* "T. B. Haywood"; the broad petals are rosy-purple, and the lip has a dark blotch.

R. G. THWAITES, Esq., Chessington, Christchurch Road, Streatham (gr. Mr. Black), exhibited a small group of choice *Dendrobiums*, including *D. mirandum* (Wiganæ × Thwaitesiae),

D. Austinii, *D. nobile* Thwaites' var., *Odontioda Bradshawiae*, and a good variety of *Sophracattleya warhamiensis*.

EDWARD ROBERTS, Esq., Park Lodge, Eltham (gr. Mr. Carr), obtained a Silver Banksian Medal for a group of *Cypripediums*, which included the beautiful *C. Emile Cappe*, which received a First-class Certificate at Paris; a dark variety of *C. St. Albans*; *C. nitens* Prince Olaf; and *C. beechense* Sander's variety.

Messrs. CHARLESWORTH & Co., Haywards Heath, received a Silver Flora Medal for a large group, consisting mainly of large plants of their well-known hybrids. At the back of the group were many graceful spikes of *Odontoglossums*, and good varieties of *Laelio-Cattleyas*. Other choice subjects were *Zygo-Colax Charlesworth*, *Cologyne sparsa*, *Cypripedium Rossetii*, a splendid form of *Brasso-Cattleya Cliftonii* (*Digbyano-Messie* × *C. Trianae*), *Sophracattleya Marathon*, *Laelio-Cattleya Bella alba*, and a number of *Odontiodas*.

Messrs. SANDER & SONS, St. Albans, obtained a Silver Flora Medal for an interesting group. Amongst the finest plants were *Miltonia* St. Andre (*Roezlii* × *Bleuana*), *Cymbidium Holfordianum*, *C. eburneo-Lowianum*, and *Renanthera lmschootiana*. Several excellent varieties of *Cattleya Trianae*, the curious *Catasetum tridentatum*, and many beautiful and richly-coloured *Odontoglossums* were also noticed in this exhibit.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, received a Silver Banksian Medal for a good group, in the centre of which were some finely-flowered plants of *Dendrobium Wardianum*, and on either side of these many interesting species, such as *Bulbophyllum cupreum*, *Odontoglossum cordatum* Low's variety, the rare albino form of *O. secptrum*, *Cypripedium Harrisonium* albens, several good varieties of *Lycaste Skinneri*, a large variety of *Cattleya Emd*, and *Cattleya Schroderae* "White Queen," having white sepals and petals, with a distinct flush of colour on the lip.

Messrs. MANSELL & HATCHER, LTD., Rawdon, were awarded a Silver Banksian Medal for a well-staged group of rare and pretty Orchids. The yellow *Phaius flavus*, *Eria lanata*, the new *Odontioda Zephyr* (*O. Noezliana* × *O. Willekeanum*), the rare *Oncidium ampliatum* concolor, a good plant of *Miltonia Bleuana* and a selection of well-flowered *Dendrobiums*, constituted the more important subjects.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, obtained a Silver Flora Medal for a neat group of well-grown plants, including the pretty *Cymbidium Woodhamsianum*, the scarce *Odontoglossum cristatum*, a strong plant of *O. Rollia*, with a spike of more than 50 flowers, *Brasso-Cattleya Helen*, and two distinct varieties of *Odontoglossum Harryano-cusum*.

Messrs. J. CYPHER & SONS, Cheltenham, received a Silver Banksian Medal for a group of excellent *Cypripediums*, some bright-coloured varieties of *Laelio-Cattleya Cappei*, several good spotted *Odontoglossums*, including *O. excellens*, and well-flowered plants of the popular *Lycaste Skinneri*.

Mr. E. V. Low, Vale Bridge, Haywards Heath, showed several distinct forms of *Cattleya Trianae*, the finer being *C. T. The Marquis*, *C. T. Titania*, and *C. T. alba*; also a large form of *Cypripedium Maudie*, and *C. Franconia* (*callo-Rothschildianum* × *callosum* Sanderae), having a large, bold flower that favoured *C. Rothschildianum*.

Messrs. J. & A. A. McBEAN, Cooksbridge, received a Silver Banksian Medal for a group containing several good varieties of *Odontoglossum crispum*, a fine plant of *Cymbidium insigne*, with a grand spike of bloom, several choice *Cypripediums*, and the elegant, red-flowered *Epiphrontis Veitchii*.

Messrs. HASSALL & Co., Southgate, exhibited a pretty variety of *Cattleya Trianae*, with a bluish tinge on the sepals and petals, and a deeper blue on the lip; also *Cypripedium aureum* Hycanum.

Mr. JENSEN, Lindfield, Haywards Heath, exhibited a selection of distinct forms from his well-known type of *Cattleya Schroderae*.

Mr. A. SCHLEIGEL, Lewes, showed *Brasso-Cattleya* Mrs. J. C. Hirst (*B. nodosa* × *C. Trianae*), which has many of the characters of the *Brassavola* parent.

Mr. J. STEVENSON, Alton Manor Gardens, near Derby, sent cut flowers of a seedling *Cypripedium*.

The CURATOR OF THE ROYAL BOTANIC GARDENS, Glasnevin, showed flowers of *Pleurothallis pterygachis*, *P. rhombipetala*, *Ione scariosa*, *Cologyne sulphurea*, *C. Whitmeriana*, and *C. perakensis*, *Eria globifera*, and *Maxillaria Lindenii*.

Messrs. T. ROCHFORD & SONS, Broxbourne, Hertfordshire, exhibited a rich form of *Odontoglossum Thompsonianum*, also a distinct form of *O. lochristiense*, and some good varieties of *Sophranitis grandiflora*.

AWARDS.

AWARD OF MERIT.

Cymbidium Veitchii (*C. Lowianum* × *C. Devonianum*), from Messrs. J. VEITCH & SONS, Chelsea.—An apparently strong-growing plant, with a long spike of 14 flowers; the sepals and petals are a greenish-brown colour, the lip having a large blotch of reddish-brown.

BOTANICAL CERTIFICATES.

Phytolipsis glumacea valida.—A strong-growing variety of *P. glumacea*, with many racemes of yellowish-white blooms.

Dendrobium delicatum (Bailey).—A species having erect spikes of white flowers slightly spotted on the lips.

Maxillaria callichroma.—An elegant species, with yellow sepals and petals, the latter being purplish-brown at the base; the lip has a yellow disc. All three shown by Sir TREVOR LAWRENCE, Bant.

Eria lanata, from Messrs. MANSELL & HATCHER.—A pretty species, with spikes of yellowish-green flowers, with numerous hairs on the outside of the blooms.

Grobha fascifera.—A curious species, shown by Messrs. MANSELL & HATCHER, Rawdon.

Fruit and Vegetable Committee.

Present: C. G. A. Nix, Esq. (in the Chair); also Messrs. O. Thomas, A. Dean, E. Beckett, F. Perkins, G. Woodward, P. C. M. Veitch, W. Poupatt, J. Davis, A. R. Allan, J. Vert, A. W. Metcalfe, G. Wythes, G. Reynolds, and J. Harrison.

The Hon. VICARY GIBBS (gr. Mr. E. Beckett) exhibited large, richly-coloured fruits of Hoary Morning Apple from an orchard tree that was planted 13 years ago.

Messrs. SUTTON & SONS, Reading, had an interesting group of various hardy winter Kales, including, in the centre of the exhibit, some with very ornamental leaves. There were masses of Al Scotch Kale; the dwarf green and purple Arctic Kales, tall stems of Sutton's Hybrid Kale, having smooth leaves and giving a wealth of young sprouts, and Hardy Sprouting having curled leafage. (Silver Banksian Medal.)

A large collection of bottled fruits and vegetables was staged by Mrs. BANKS, Park Street, Grosvenor Square. No one has exhibited better preserved vegetables at the meetings than this exhibitor, who showed Asparagus, Spakale, Peas, Broad and Kidney Beans, Beets, Carrots, Cauliflowers, and Rhubarb. Of fruits there were Apricots, Plums in variety, Loganberries, Gooseberries, and others. (Silver Banksian Medal.)

Sir W. GILBEY, Elsenham Hall, Essex, showed a small collection of preserves and distilled Lavender, and other perfumed waters.

THE MASTERS MEMORIAL LECTURE.

The fifth Masters lecture was given by Mr. G. F. Scott Elliot on Tuesday, February 28, in the hall of the Royal Horticultural Society. There was a good attendance of members, and the chair was taken by Mr. William Bateson, F.R.S. After expressing his views on the subject of the inheritance of acquired characters, the lecturer proceeded to give an account of the results of recent work in seed selection, and emphasised the importance well understood by those who are engaged in the commercial distribution of seeds—of a proper system of seed selection. At the conclusion of the lecture, Mr. Elwes proposed a vote of thanks, and drew attention to the pressing need for the institution of a research station for forestry in this country.

COVENTRY CHRYSANTHEMUM.

FEBRUARY 15.—The annual dinner of the above society was held on this date. The Deputy-Mayor of Coventry, Alderman A. H. Drinkwater, J.P., presided over a numerous company. It was reported that the show held last November had proved a success financially. The schedule had already been drawn up for this year's exhibition, and it was proposed to continue the practice of giving free admission to the whole of the children attending the public elementary schools, besides providing refreshments for those belonging to the charitable institutions in and around Coventry. Alderman Drinkwater was re-elected president; Alderman Batchelor, treasurer; and Mr. G. Griffin, secretary.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 16.—Committee present: Messrs. E. Ashworth, R. Ashworth, Thorp, Ward, Cowan, Keeling, Holmes, Arthur, Crombleholme, Cypher, Sander, and Weathers (hon. sec.).

There was only a moderate display of plants at this meeting, the best group being staged by Messrs. J. CYPHER & SONS, Cheltenham. Particularly noticeable in this display were several fine forms of *Laelia anceps* alba and choice *Cypripediums*. (Silver-gilt Medal.)

J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney), exhibited *Odontoglossum* × *Jasper*, a hybrid between *O. crispum* × *O. amabile*. The Committee desired to see the plant again. *Sophranitis* *Marathon*, from the same collection, received an Award of Merit.

W. R. LEE, Esq., Haywood (gr. Mr. Woodhouse), exhibited *Cypripedium* × *fulshavense* *Plumpton Hall* var., quite distinct in form to the type and much paler in its markings.

S. GRATRIX, Esq., Whalley Range, Manchester (gr. Mr. Brown), was awarded a First-class Certificate for *Cypripedium* × *Duchess of Comaught*, a hybrid between *C.* × *Maudie* × *C. Sanctus*, also an Award of Merit for *C.* × *Prince Albert*.

J. McCARTNEY, Esq., Bolton, exhibited *Lycaste Skinneri* var. *Alice McCartney*, which received an Award of Merit.

Rev. J. CROMBLEHOLME, Clayton le-Moors, exhibited *Cypripedium* × *Youngie*, a cross between *C. bellatulum* and *C. Hookeri*. The plant was given an Award of Merit.

W. THOMPSON, Esq., Stone (gr. Mr. Stevens), exhibited a fine plant of *Cypripedium* × *chryso-toxum*, and he was awarded a Cultural Certificate.

J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson), received Awards of Merit for *Cypripedium* × *Queen of Italy* Holden's var., *Odontoglossum* × *Sambo*, and *O.* × *Purple Monarch*.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gidden), exhibited *Odontoglossum* × *Ashworthianum*, a hybrid between *O. Uro-Skinneri* × *O. cirrhosum*, a pretty and interesting plant. *O.* × *highfieldense* received a similar award.

Other exhibitors were Messrs. E. V. Low, Haywards Heath; J. ROBSON; A. J. KEELING; and W. SHACKLETON.

LEEDS GARDENERS' FRIENDLY BENEFIT.

FEBRUARY 21.—The 44th annual dinner of the above society was held on this date. Alderman W. Penrose-Green, J.P., presided.

According to the annual report, the society's income for the year amounted to £231 14s. 4d., and the expenditure to £138 4s. 8d., leaving a balance of £93 9s. 8d., which brings the accumulated funds of the society up to £1,765 19s. 11d. The trustees have purchased £200 worth of Leeds Corporation 4 per cent. stock, the total sum invested being £1,700. There was not much sickness experienced during the year, the amount of benefits paid being £52 12s. 1d., and £30 has been paid in sums at death of members, making the total sum paid out of the benefit fund £82 12s. 1d. In addition to this sum, £12 14s. 7d. has been paid in cases of prolonged sickness out of the surplus benefit fund, and grants made to distressed members from the same fund amounted to £1 10s. 7d. Fourteen new members have been admitted, the present number being 161.

Councillor Owen, in proposing the toast of "The Gardeners' Lodge," congratulated the

management upon the extremely low expenditure connected with the management of the society. The balance-sheet, he said, was an excellent one.

The President, Mr. Donoghue, outlined briefly the progress made by the society, stating that over £3,000 had been distributed amongst the members since the society's formation.

Mr. George Carver was accorded a high tribute of praise for his services as secretary. Mr. John Franklin completes, this season, 21 years' service as treasurer.

CROYDON HORTICULTURAL IMPROVEMENT.

FEBRUARY 21.—An illustrated lecture on "Pretty Gardens and Flowers" was delivered to the members of this society on the above date by Mr. M. E. Mills, Coombe House Gardens. Another item of interest at this meeting was a number of photographs in colours taken by Mr. J. Noaks.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending March 1.

The wettest week for over two months.—The past week has been, on the whole, a very warm one, both during the daytime and at night. In fact, there has not been a single cold day and only two cold nights for nearly three weeks. The ground is at the present time 2° warmer at 2 feet deep, and 4° warmer at 1 foot deep, than is seasonable. Rain has fallen on each of the last six days, and to the total depth of an inch—making this the wettest week since the third week in December, or for over two months. The recent dry period may be said to have lasted 42 days, during which only about three-quarters of an inch of rain was deposited; or less than a quarter of the average rainfall for the same 42 days. During the week 4 gallons of rainwater have come through the bare-soil percolation gauge, and 3½ gallons through that on which short grass is growing, which is not far short of the total rainfall for the same six days, showing that notwithstanding the recent long spell of scanty rainfall the soil has remained moderately moist. The average sunshine during the week amounted to 3½ hours a day; or for about three-quarters of an hour a day longer than is usual at the end of February. On two days the sun was shining brightly for nearly eight hours each day; whereas, on two other days, no sunshine at all was recorded. The wind has remained high during the week, and in the windiest hour the mean velocity reached 23 miles—direction W. There was about a seasonable amount of moisture in the air at 3 o'clock in the afternoon. A selected patch of yellow Crocuses in my garden first showed an open flower on February 24. This is one day earlier than the average date for the previous 24 years, and five days earlier than last year.

FEBRUARY.

Warm, dry and windy, with about an average duration of sunshine.—This proved a warm February. The first 10 days and nights were nearly all cold, and the first two nights very cold. On the other hand during the rest of the month the weather continued warm, and for the last 12 days very warm. On the warmest day the temperature in the thermometer screen rose to 55°, which is about the average extreme maximum for the month, and on the coldest night the exposed thermometer registered 22° of frost, which is rather colder than the average extreme minimum for the month. Rain fell on 15 days, and to the total depth of 1½ inch, or half an inch below the February average. Of the total amount two thirds was deposited during the last six days. No snow fell during the month. The sun shone on an average for 23 hours a day, which is slightly above the average duration for February. On 10 days no sunshine at all was recorded. Taking the month as a whole the velocity of the wind was above the average, and the highest mean velocity in any hour amounted to 23 miles—direction W. The average amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 4 per cent.

THE WINTER.

Remarkably warm, wet, and rather stormy.—Taken as a whole this was a very warm winter, indeed, the warmest with three exceptions during the past 25 years. On the warmest day the temperature in the thermometer screen rose to 55°, and on the coldest night the exposed thermometer showed 22° of frost. The total rainfall amounted to 8½ inches, which is 1½ inch in excess of the average amount for the season. At no time was the ground completely covered with snow. The sun shone on an average for 1½ hour a day, which is slightly above the usual winter duration.

OUR UNDERGROUND WATER SUPPLY.

Since the winter half of the drainage year began in October, the total rainfall has been 14½ inches, or 1½ inch in excess of the average for the same five months in the previous 55 years—equivalent to an excess in rainfall on each acre in this district of 12,300 gallons. At the same time last year there was an excess of 31,445 gallons per acre. E. M., *Berkhamsted*, March 1, 1911.

GARDENING APPOINTMENTS.

Mr. F. WICKENS, for 5 years Gardener to Sir HORACE MARSHALL, The Chimes, Strathallan Common, S.W., as Gardener to Lady BRINCKMAN, Brinstead House, Ryde, Isle of Wight.

Mr. H. HOARE, recently Foreman at Bifrons and Balcombe Place Gardens, as Gardener to F. BARCHARD, Esq., Horsted Place, Uckfield, Sussex.

Mr. A. MADDOCK, for the past 4 years Foreman at Norbury Hall, Ashbourne, and previously Foreman at Hindlip Hall, Worcester, as Gardener to SAMUEL BAWFORD, Esq., Hawthornden Manor, Uttoxeter, Staffordshire.

MARKETS.

COVENT GARDEN, March 1.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing cut flowers and their prices, including Anemone fulgens, Narcissus, Azaleas, Camellias, Carnations, and various other varieties.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing cut foliage and their prices, including Adiantum, Asparagus, Sprengerii, and various ferns.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing plants in pots and their prices, including various ferns, Narcissus, and other potted plants.

Fruit: Average Wholesale Prices (continued).

Table listing various fruits and their prices, including Apples, Grapes, Lemons, Mangoes, Melons, Nectarines, and other produce.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Onions, Parsnips, Peas, Potatoes, and other garden produce.

rooms exceeds the demand; consequently they are cheap. Spring Cabbages are expected to arrive next week. There has been a very large arrival of Cauliflowers from many sources. Brussel Sprouts are finishing. Fair supplies of other vegetables are meeting with a moderate demand. E. H. R., Covent Garden, March 1, 1911.

Potatoes.

Table listing potato varieties and their prices, including Kents, British Queen, Up-to-Date, Bedfords, and others.

REMARKS.—Trade is very little better; prices remain about the same and the stocks in London are still large. Edward J. Newborn, Covent Garden and St. Pancras, March 1, 1911.

Obituary.

COLONEL BEDDOME.—The death of Colonel R. H. Beddome occurred at Sispara, Putney Heath, on the 24th ult. in his 81st year. He joined the Indian Army in 1848, and was appointed Quartermaster and interpreter of the 42nd Infantry Regiment in 1856. In the following year a forestry department was constituted to preserve the forests of Southern India, and Beddome was appointed chief assistant to Doctor Cleghorn, the first conservator. Three years later he became head of the forest department, and he continued to hold this appointment until his retirement in 1882. Colonel Beddome has done good botanical work both in India and since his retirement in England. The best known of his publications is The Ferns of Southern India, containing figures of 661 varieties. This work was published in Madras, 1856 to 1870, and we believe a copy can be seen in the Lindley Library. His other publications include The Flora Sylvatica for Southern India, with plates of 350 trees and Icones Plantarum, containing 300 plates of new and rare plants. The more important of Colonel Beddome's studies, since his retirement in England, are embodied in papers published in the Journal of the Royal Horticultural Society on the Natural Orders Acanthaceae (vol. xxxiv., p. 54), Campanulaceae (vol. xxxii., p. 96), and Gesneraceae (vol. xxxiii., p. 74). Deceased was a frequent visitor at the exhibitions in London, and at Kew Gardens and other places of horticultural interest. He was an occasional contributor to these pages.

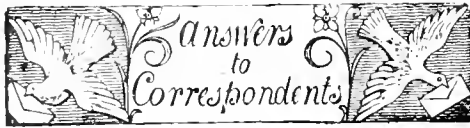
ARTHUR RAWLINGS.—The death of Mr. Arthur Rawlings, late of the Dahlia Nurseries, Romford, took place on February 14, at Grand Forks, British Columbia. Mr. Rawlings, who was in his 54th year, was a son of Mr. George Rawlings, of Bethnal Green, a well-known raiser of Dahlias. Mr. Arthur Rawlings, with his brother John, established the firm of Rawling Brothers, Oldchurch, Romford. The brothers were very successful in raising new varieties of Dahlias, and they put into commerce such fine sorts as Frank Rawlings, William Rawlings, J. T. West, Mrs. Glascock, Queen of the Belgians, and T. J. Saltmarsh. The elder brother died in 1890, and after his death the late Mr. Arthur Rawlings appeared to lose interest in the business, especially as the Cactus varieties, for which he cared little, had become the most popular type. In 1900 he decided to relinquish his connection with Dahlias, and proceeded to British Columbia to engage in fruit farming. Unfortunately he settled in a very exposed district, unsuited for fruit growing, and the disappointment he experienced with his new venture helped, it is feared, to hasten his death.

JOHN NEWBOLD COOKE.—The American horticultural papers announce the death of Mr. John Newbold Cooke, of Greenwich, U.S.A. Mr. Cooke was a native of Warwickshire. He emigrated to America 43 years ago to undertake the management of a private estate at Mamaroneck. Later he engaged in business on his own account, and retired in 1906.

SCHEDULES RECEIVED.

Haywards Heath Horticultural Society's summer show to be held on Wednesday, July 26, and Chrysanthemum show to be held on Tuesday, October 31, and Wednesday, November 1. Secretary, Mr. Geo. Prevett, The Rosary, Haywards Heath.

Table listing various apples and their prices, including American, Russets, Ben Davis, Greening, and Baldwin.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

BONEMEAL: *A. P., Cambridge.* The quantity of bonemeal to apply to an impoverished soil will vary according to the purpose for which it is supplied, and whether the gardener is using it without dung. If none or but little dung is used, then for fruit borders apply from 6 lbs. to 8 lbs. of bonemeal per square rod. In ordinary garden culture from 4 lbs. to 8 lbs. per square rod may be applied early in spring. If the dung is used the phosphatic manure may be reduced to about half these proportions. As the plants begin to grow, a little active nitrogen in the shape of nitrate of soda may be used at the rate of 4 lbs. per square rod, or a dressing of soot will be useful.

BOOK ON BERMESE ORCHIDS: *General T. The Orchids of Burma,* by Capt. Bartle Grant, Rangoon, printed at the Hanthawaddy Press, 1905. If a cultural work is needed *Orchids*, by James O'Brien [in Present Day Gardening series] price 1s. 6d., with eight coloured plates, would be useful. You can obtain both books through our publishing department.

CALANTHE VEITCHII.—The manner in which you arrive at the conclusion that the *Calanthe Veitchii* spikes, cultivated by Mr. Goodacre in the Moulton Paddocks Gardens, and referred to on p. 50, should be 8 feet long is scarcely to be relied upon. The habit of a *Calanthe* plant, even in respect to the distance which separates the individual bloom upon the flower-spikes, is modified very materially by the cultivation afforded. We have frequently seen instances where the spikes have been long and the flowers few, but, on the contrary, in other cases the spikes do not elongate to so great an extent yet bear a larger number of flowers. As a matter of fact, the spikes of the Moulton Paddocks plants averaged just a little over 6 feet in length. As stated in our note, the number of flowers ranged from 60 to 75.

CROCUSES: *W. H.* It is impossible to form a definite opinion as to the cause of the trouble complained of in your letter, unless specimens of the corns and of the black flies mentioned are sent for examination. We have not any knowledge of failure in Crocuses such as would fit the details in your letter.

DENDROBIUM NOBILE: *J. S.* You ask if growths of *Dendrobium nobile* made during 1910, which have lost their leaves during the resting season at the end of 1910 and early part of 1911, should produce flowers immediately after the resting season is over? The course you mention above is that usually aimed at by growers, though not necessarily for leafless pseudo-bulbs. In the *Gardener's Chronicle*, 1892, there was a discussion about cutting out flowered and flowering pseudo-bulbs of *Dendrobium nobile*, one of the best growers advocating the removal of the entire flowering pseudo-bulbs for decorative purposes, leaving young pseudo-bulbs to supply flowers in the following year. In the *Gardener's Chronicle*, June 4, 1892, p. 725, an illustration of an enormous specimen is given, the plant consisting solely of leafy, flowering growths, which were to be removed, leaving the short, young growths to form a similar plant for the next year. Such plants require a specially moist house. At the same time, *Dendrobium nobile* is obtained from widely separated localities, and there are many distinct varieties in gardens. Differences in cultural methods also give varying results, so that it is by no means uncommon to see the plants flowering from the two-year-old growths or from any pseudo-bulbs which have not flowered previously.

GALL ON OAK: *A. D. W.* The specimen sent is one of the uncommon galls formed by one of the Gall flies (*Cynipidae*). The name of the fly in the asexual stage (as sent) is *Andrius subdoli*. In the sexual stage it is called *A. testaceipes*.

HAILSHAMBERRY: *Rocks.* We believe specimens of this fruit were exhibited by Mr. W. Knight, Hailsham, at the meeting of the Royal Horticultural Society on October 11, 1910.

JASMINUM NUDIFLORUM: *A. P., Cambridge.* As your specimen of *Jasminum nudiflorum* has outgrown the position allotted to it, you may cut it back now with perfect safety in the way you suggest. At the same time, all old, worn-out wood near the base of the plant should be removed. A mulching of leaf-mould may be applied with advantage.

NAMES OF FRUITS: *A. Myhill.* Dredge's Fame.—*F. Carter.* 1, Catshead; 2, Grange's Pearmain.—*J. H. R.* Lodgemore Nonpareil.

NAMES OF PLANTS: *A. G.* 13, *Selaginella stenophylla*; 14, *S. Martensii* variegata; 15, *Phoenix rupicola*; 16, *Asplenium bulbiferum*; 17, *Pteris cretica albo-lineata*; 18, *Begonia albo-maculata*; 19, *Begonia Weltoniensis*; 20, *Begonia echinosepala*; 21, *Cyperus alternifolius* var.; 22, *Eononymus europaeus* variegated variety; 23, *E. japonicus albo-variegatus*; 24, *Asplenium obtusatum*; 25, *Adiantum pedatum*; 26, *A. Pacottii*.—*Perkins, Dorking.* *Dadaloanthus nervosus*, known in gardens as *Eranthemum pulchellum*.—*W. L. S.* 1, *Colletia cruciata*; 2, *Semele androgyna*.—*J. C., Wells.* 1, *Cotoneaster* (the species cannot be determined without leaves); 2, *Juniperus virginiana* var. *Schottii*; 3, *Cryptomeria japonica* var. *elegans*; 4, *Juniperus chinensis* var. *aurea*; 5, send when in leaf, or, preferably, in flower.—*E. T., Hartlepool.* 1, *Hedera Helix roegneriana*; 2, *Pseudotsuga Douglasii*.—*E. T., Hartlepool.* *Cypripedium exul* and *Cattleya Harrisoniana*.—*M. A.* *Dendrobium*. The darkest, rose-purple flower is near to *D. nobile nobiliss*; the one with orange in front of the dark disc of the lip is *D. Cybele* (*nobile* × *Findlayanum*). The others are forms of *D. Ainsworthii*. The *Cypripedium* appears to be a form of *C. Deedmanianum* (*Chamberlainianum* × *Spicerianum*). None is of any exceptional value.—*A. H.* *Dendrobium speciosum*.

PALM UNHEALTHY: *B. S.* A minute parasitic fungus is present. Sponge the plant with a deep rose-red solution of Condy's Fluid.

PELARGONIUMS UNHEALTHY: *A. H. E.* The nature of the injury cannot be determined. It does not appear to be due to fungi or insects, but is probably the result of planting the cuttings too deeply.

PINUS INSIGNIS: *Myrtle.* You may expect the best results from seeds of *Pinus insignis* taken from one and two year old cones, though seeds obtained from older cones will often germinate. The best way to open the cones is to subject them to heat. This may be done by placing them on a shovel and holding them over a clear fire. As soon as they burst remove them from the heat and allow them to cool. The seeds may then be extracted easily. It is also possible to extract the seeds by forcing the scales apart by means of an awl. This can be done by starting at the base of the cone and removing the scales in successive layers. The seeds may either be sown in a bed in a cold frame or in a bed in the open ground. It is a good plan to roll them in red lead to keep vermin away.

PLANTS FOR SUMMER BEDDING: *A. Le Spencer.* You omitted to mention the size of the beds for which the plants are required, and to indicate whether you desire to use annual or perennial plants. A pleasing effect could be obtained by planting your design in the following manner:—(1) a ground work of pink Ivy-leaf *Pelargoniums* with dot plants of *Nicotiana sylvestris*; (10 and 11) groundwork of white Ivy-leaf *Pelargoniums* with dot plants of white flowering *Antirrhinums*; (2, 3, 4, and 5) white Stocks mixed with pink *Antirrhinums*; (6, 7, 8, and 9) mauve-coloured *Viola* with dot plants of double white *Fuchsia*. The combination of *Lobelia cardinalis* with Sweet Alyssum ought to be quite satisfactory. As to whether these combinations of plants and colours are satisfactory or not depends, as a rule, very largely upon individual taste. Variegated Maize, Castor Oil plants, *Solanum pyracanthum*, and *Nicotiana sylvestris* are all suitable subjects for mixing with ordinary bedding plants.

ROSES DISEASED: *J. F. J.* The Rose-rust, *Phragmidium subcorticatum*, is present on the briars. The fungus is perennial in the tissues of the host, and appears from year to year, hence infected plants should be destroyed.

SPOTS ON LEAVES: *F. T.* The spots are punctures caused by insects. No disease is present. Spray the plants with an insecticide.

TOMATO CULTURE FOR MARKET: *A. B.* In an unheated house 20 feet by 8 feet, it will be advisable to set the Tomato plants about 1 foot apart close up to the side walls on either side of the house. That would allow 20 plants on each side. Train these on the single stem system to a trellis fixed at about 1 foot underneath the roof glass. Stop the plants at 3 feet from the groundline after they have shown a few trusses of flowers each. When these have set their fruits and produced a few more trusses of flowers stop the plants again, and so on until the plants have reached the top of the trellis. A few rows of plants may also be grown on the floor space at 2 feet apart, and at 1 foot in the rows on either side the longitudinal centre of the house, stopping the plants after they have shown four or five trusses of flowers. In order to get the trusses set and the fruit well developed and ripened before the plants trained up under the roof glass have made much headway, keep the growths persistently pinched. With generous feeding at the roots and judicious pinching of the lateral growths and leaves, you may secure a crop of 500 lbs. of fruit from your house, provided you have a little artificial heat at command to assist the swelling up and ripening of the fruit in the autumn. A No. 1 Wrought Plain Saddle boiler, capable of heating 150 feet of 4-inch piping, would answer your purpose, and would be available to heat another house or two of the dimensions of your existing one should you decide to make such additions. Of the two kinds of hardy fruit you mention, probably Strawberry plants set at 2 feet apart (say, 10,890 plants) in full bearing, should, if the ground is good and has been liberally dressed with farmyard manure, yield an average crop of $\frac{3}{4}$ lb. ripe fruit per plant, 8,167 lbs. (about 3 tons 12 cwt. of fruit). Thus at 2d. per lb. the crop would amount to £68 1s. 2d. (gross); the cost of gathering the fruit for market would be $\frac{1}{4}$ d. to $\frac{3}{4}$ d. per lb. according to the weight of the crop, £17 at the former price, and £25 10s. at the latter scale. Then if you dispose of your fruit through the medium of a salesman, his commission, together with the expenses of packing and conveyance to the market, should be deducted from the £68 1s. 2d. (gross).

TOMATOS DISEASED: *W. B.* The plants are attacked by the "damping-off" fungus. Water them with nitrate of potash solution, and admit more air and light.

TREE AND BORDER CARNATIONS: *H. H.* The difference between the Tree and Border Carnation is merely in the growth of the plants themselves. The Tree Carnation, like the true border type, throws up a central flowering stem, but it also develops side growths from the main stem, and it continues to do this for several years, forming a tree-like plant. The true Border Carnation does not produce these axillary growths. The Tree Carnation is not adapted for border culture, as the woody stems are killed or badly injured by frosts in winter.

TULIP AND NARCISSUS BULBS: *J. W. D.* The bulbs are attacked by bacteria, causing the disease known as "yellow stripe." No cure is known.

VIOLETS DISEASED: *Nook.* The trouble has been caused by a fungus, *Cercospora Viola*, which has been favoured by excessive dampness. Remove the diseased leaves and spray the healthy foliage and the soil with liver of sulphur at a strength of 1 ounce in 3 gallons of water. Give the plants as much fresh air as possible.

Communications Received. C. T. D.—A. D.—J. J. W.—G. M. D.—H. A. D.—J. B.—P. A. C.—A. F. W.—C. T.—J. S.—E. M.—C. U. P.—C. L. F.—E. F. A.—R. P.—A. G.—C. D.—H. A. M.—W. H. W.—W. D.—W. F.—W. H. D.—E. B.—R. P. B.—R. I. L.—S. C.—A. P.—W.—W. F. R.—T. S.—A. P. R.—A. D. C.—A. W. P.—H. W. C.—G. L. S.—J. O' B.—G. A. E.—J. G. B.—F. H. B.—J. F. W.—Holle—J. G., Borton on Trent—R. S. S. Ontario (we have read the article)—G. K.

THE

Gardeners' Chronicle

No. 1,263.—SATURDAY, March 11, 1911.

CONTENTS.

Agricultural education	153	Ivy, skin poisoning by	157
Apple Newtown Pippin	157	Japan, a journey to	148
Apples, late-keeping	157	Jubilee, a nursery employe's	156
Benévolo Institute, Gardeners' Royal	160	Lilies, notes on	145
Books, notices of—		Market fruit garden, the	146
Agricultural Note Book	153	Neotome as an insecticide	163
Botanical Magazine	153	Nursery notes—	
The Charm of Gardens	147	James Carter & Co.	155
<i>Botrytis cinerea</i> on green-house plants	154	Oak, brown	157
Brussels Sprouts	156	Orchid notes and gleanings	146
Chelsea Hospital, the gardens at	154	Pottery industry, the	153
Chrysanthemum, Madame R. Oberthur	153	Primula sinensis varieties	153
Chrysanthemums—		Rhododendron barbatum	157
Some new varieties	147	"Rocca Longa"	148
Coronilla glauca and Veronicas in Ireland	156	Rosary, the	147
Daffodil Society, the proposed	148	Shrub, forced	146
Douglas, David	149	Societies—	
Exportation of plants	157	Linnæan	153, 158
Floral arch at Johannesburg	155	National Paddy	153
Formosa, the Stinging Tree of	154	National Hardy Plant	140
Gooseberry mildew, the American	156	Royal Horticultural	153
Hepaticæ of Scotland	153	Royal Meteorological (Scientific Committee)	158
Hooker, Sir William	152	Scottish Horticultural	159
		Soil nitrites	141
		Specimen plants at exhibitions	157
		Trees and shrubs, spring flowering	154
		Week's work, the	150, 151

ILLUSTRATIONS.

Buitenzorg Botanic Garden, views in	118, 140
Chelsea Hospital, views in the gardens at (Supplementary Illustration)	154
Cymbidium langleyense (Veitchii)	146
Floral arch at Johannesburg	155
Mayes, Mr. George	156
Rhododendron indicum, a fine group of	159
Saxifraga × Bursiculata	158

NOTES ON LILIES.

It is gratifying to reflect that the vast majority of the Lilies at present in cultivation are, for the most part, of an accommodating nature, and admirably adapted for garden culture. Only a very few, such as *Lilium Wallichianum*, *L. Lowii*, and *L. nepalense*, which are mostly of Indian extraction, demand the cultural conditions of a conservatory.

Lilium giganteum is one of the most majestic of Lilies, but its impressiveness is much more attributable to its dimensions and its foliage than to any special fascination in its flowers; it is perfectly hardy, and may be grown successfully in any sheltered garden where it finds an adequately fertile, well-drained soil. As the great bulb, after four or five years' development, becomes exhausted by the production of the immense flowering stem, it relies either upon its seed (of which there is generally a super-abundance), or its offsets, for perpetuation. The greatest plant of *L. giganteum* I have grown in my own garden, under the most favourable conditions of atmosphere and soil, was 10 feet high; but I have heard of it reaching, in other regions, a somewhat greater height.

Nothing could exceed the delicate grace of *L. Szovitzianum*, with its pendulous, purple-tipped, citron-coloured flowers. Here it nearly rivals *L. giganteum* in height; and its aspect is much more graceful and refined.

Another reliable and richly-effective Lily for garden cultivation is *L. auratum*; of which the grandest form is *L. a. platyphyllum*, the flowers being frequently 12 inches across. Writers on Lily culture often recommend that this variety should be cultivated in Rhododendron or Azalea borders, which are usually strongly impregnated

with peat, or leaf-mould; but, like the Eremuri of Turkestan and Northern Persia, it grows admirably in ordinary garden loam. The most striking variety of the *auratum* family is *rubro vittatum*, whose gorgeous colour, seen from a distance, gives it a marvellous fascination. In my own garden, owing perhaps to the influence of our humid Scottish climate, it is generally short-lived, flowering for two seasons, perhaps, and then disappearing, having lost, in that short season of retrogression, all its vitality. A very beautiful form of *L. a. platyphyllum*, almost pure white, with the faintest approximation to golden rays, is known as *virginale*. Its flowers, though not numerous, are, as a rule, of great size. The only fault I have to find with *L. speciosum* is that some of its finest varieties, such as *album novum* and *Kraetzerei* (pure white, with green bands down the centre of the flowers), come exceedingly late much later. I should imagine, than they do in Japan; and, consequently, meet with adverse atmospheric influences that materially affect the texture and fine formation of their blooms. *L. speciosum* generally succeeds admirably when planted in fibrous or peaty soil. Where perfect drainage is not obtainable it is not likely to endure. Under stagnant conditions, Lilies like *L. Krameri* and *L. rubellum* soon suffer from root decay. The former is one of the most charming of all Asiatic Lilies, but, like many other beauties, it does not last. Perhaps in a drier and sunnier climate, and in conditions, such as those which it finds among the mountains of Japan (where it was originally discovered by Mr. Kramer, at a high altitude), it might be expected to be somewhat more enduring. Nor have I found the beautiful and delicately-odorous *L. Washingtonianum*, a native of California, much longer lived. This is very unfortunate, for it is a veritable gem.

Perhaps the most enduring Lily in my garden is *L. Henryi*, which, almost invariably strong and vigorous in growth, has flowered here, in the same situation, for at least twelve years. As Mr. A. Grove has pointed out, this Lily has a lamentable tendency to bend forward when growing; and this habit is extremely difficult, if not impossible, for the cultivator to counteract. Dr. Henry has stated that the species exhibits the same characteristic in its Central China habitats. This habit often renders staking—so important for its protection in exposed positions—an utter impossibility.

The beautiful and distinctive *L. Brownii*, which also comes to us from Chinese and Japanese regions, I have had sometimes flowering exquisitely for a single season.

But many enduring consolations remain, and among these the most abiding possessions are *L. speciosum rubrum*, *Kraetzerei*, and *Melpomene*; the radiant scarlet *Martagon*, *L. chalconicum*; *L. auratum platyphyllum*, *rubrum vittatum* and *virginale*; *L. monadelphum Szovitzianum*; *L. davuricum erectum* and *incomparabile*; *L. tigrinum splendens*; *L. longiflorum Wilsonii*; the richly-coloured *L. Humboldtii*; *L. Henryi*, bending forward, like the leaning Tower of Pisa; *L. giganteum*, *L. pardalinum* and its Burbank derivatives. *David R. Williamson, Mansie of Kirkmaiden, Wigtownshire, Scotland.*

THE ROSARY.

SOME DWARF-GROWING SINGLE ROSES.

ALTHOUGH the blooms of most single Roses are rather evanescent, many of the plants produce their immense trusses of flowers in such profusion that they are objects of continual beauty. The yellow stamens are an additional charm; and, indeed, in many varieties they constitute their greatest attraction. To write upon single Roses generally would need much space; therefore I purpose only to deal with some of the best dwarf growers.

Amongst the very earliest of Roses to open their flowers are the two beautiful varieties, Austrian Copper and Austrian Yellow, both of which were in cultivation in this country in 1596, considerably more than 300 years ago. Few varieties have flowers so strikingly distinct as these: those of the first-named are of a glowing reddish copper, and those of Austrian Yellow are perhaps of the purest yellow that is to be found in any flower. Both varieties are hardy and have a grand appearance near the foot of a hedge. After their first pruning they need little removal of shoots other than those that are dead and deteriorating. It is a pity that they are not perpetual bloomers. I have seen these plants especially effective grown as standards about 3½ to 4 feet in height. Parkfever is a hybrid of this class, with scarlet red blossoms, some of which come single and others slightly semi-double. Naturally, most of the species have single flowers, and these include some very pretty Roses. But the majority are apt to grow too strong for ordinary purposes. Another dwarf variety that flowers early is *Altaica*, with fairly large, lemon-white blossoms, much resembling those of the Scotch Briar and producing black berries in the autumn. The pretty yellow Abyssinian Rose, *Ece* I have had very early in bloom. *P. unifera* has single, bluish-tinted blossoms that are followed by large, scarlet hips. Another desirable class of this type of Rose is the *Wichuriana*, which develops blooms in clusters from July until frost appears. Although a vigorous grower in its natural state, it creeps closer to walls and other surfaces than any other Rose.

Then there are various sorts of *Rosa rugosa*, *alba* being one of the best white varieties, whilst *Rose Apples* has pale, silvery-rose flowers, these being followed by large hips. With me, *Atropurpurea* is a single Rose, but I note the raiser describes it as "very double." My plants are true to name and bear very showy hips after their intensely, blackish-crimson buds and deep-mauve flowers are over. The *rugosa* Roses are rather strong growers, and frequently form bushes as broad as they are high. *Maharajah* is a very large flower with me, seldom other than single; it has very deep, velvety-crimson petals and showy anthers. A much shorter grower is found in *Irish Engineer*, which is one of the most brilliant scarlet Roses. The series of single Roses sent out by Messrs. A. Dickson & Sons, all prefixed by the name *Irish*, are amongst the most beautiful in cultivation. I would give the palm to *Irish Elegance*, which is one of the most decorative of Roses: the blooms are tinted with bronzy-orange and scarlet in the bud, and become tinged with apricot as they expand. The plant is a good grower, and produces grand spreading trusses from late June until October. *Beauty* is a large, pure-white-flowered variety of good habit, and constantly carrying large trusses of blooms. I consider that *Engineer*, *Elegance* and *Beauty* are the three best varieties of the series. *Stella* and *Leuchtstern* are two varieties that do not quite form climbers with me, and, as they last so long in flower, especially *Stella*, I name them. Both are of a deep rose colour, with lighter centres, *Stella* being the brighter. The hybrid Sweet Briars are difficult to omit from my list, but as they grow as strongly as any of the so-called climbers I will only mention them in passing. Paul's

Royal Scarlet is aptly named, and is especially good late in the season, when many of the single Roses are over. Lady Curzon would appear, from its thorns and foliage, to be a hybrid of *R. rugosa*. The flowers are of a beautiful pink colour, and are very freely produced for some time in July. The buds of this Rose, if cut when quite hard, will travel well and expand better than those of any other variety with which I am acquainted. Mrs. O. G. Orpen, a single Damask Rose, should not be omitted, although it is a strong grower. The bright, rosy-pink flowers, with their prominent, golden anthers, make the variety valuable for decorative purposes. It has been awarded the Gold Medal of the National Rose Society. *A. Piper.*

ORCHID NOTES AND GLEANINGS.

BRASSO-CATTELEYA VILMORIANA.

We remark your note on p. 98 respecting *Brasso-Cattleya Vilmoriana* (*Cattleya Mossiae* × *B. C.* Mrs. J. Leemann), exhibited on January 26 by Monsieur Maron at the meeting of the Société Nationale d'Horticulture de France. We beg to say that we presented the

THE MARKET FRUIT GARDEN.

COMPLETION OF PLANTING.

FEBRUARY ended with a heavy rainfall, which brought the total for the month nearly up to average, whereas there had been a happy deficiency up to noon on the 22nd of the month. Therefore, although March opened with brilliant weather, the land was in very wet condition for any arrears of planting that were left. They could hardly be considerable, as there had been six weeks of generally dry and frequently sunny weather up to the time named above. My own measurement of rainfall for that period was a little under $\frac{3}{4}$ inch, and there was hardly a day when planting could not have been done well after the effects of the very heavy downfall of the first 12 days of January had subsided. Allowing a week for this, we had an almost uninterrupted period of five weeks, in which a great amount of planting could be got through.

CUTTING BACK YOUNG TREES.

Planters have now to decide which of the two opposed policies they will adopt in reference to trees set out during the current planting season, that is to say, whether they will cut them

in such a case is entirely wasted, for, unless the trees are to be permanently stunted, the young branches must be cut back below the fruit-buds in the second season. That is to say, they will require to be cut back as near the trunk in the second season as were those that were treated in the season of planting.

The weaker the habit of growth in a particular variety, or in the individual tree, the more severe should be the cutting back, and the more important it is to perform the operation in the season of planting. Similarly, the poorer the soil, the more necessary are severity and promptness in this work. Where trees that were fit to be planted at all have failed to start well after having been cut back in the first season, the reason, as a rule, is that they were not cut back severely enough. Never have I had reason to regret having exercised great severity in this operation in the first or second season, whilst I have often had reason to regret insufficient severity. As stated on a previous occasion, I tried the plan of deferring cutting back to the second season with one row of Lord Grosvenor planted four years ago, and the result was the formation of fruit-buds on almost the whole length of each of the young branches left



FIG. 66.—*CYMBIDIUM LANGLEYENSE* (VEITCHII): COLOUR OF FLOWERS GREENISH-BROWN WITH A BLOTCH OF REDDISH-BROWN ON THE LIP.

same hybrid at the meeting at Brussels on January 14, under the name of *Brasso-Cattleya amabilis*. The plant received a certificate of merit *par acclamation*. Having thus named our plant 12 days before Monsieur Maron presented his, we consider that the first name should be maintained. We exhibited at the last meeting at Brussels (February 19) *Cypripedium Glaucosigne* (*C. glaucophyllum* × *C. insigne* Harfield Hall var.). The plant received a certificate of merit. *Th. Pauwels et Cie.*

CYMBIDIUM LANGLEYENSE (VEITCHII).

THE hybrid illustrated in fig. 66 is from a cross between *C. Lowianum* and *C. Devonianum*, being the first hybrid we remember from the latter species. Messrs. Jas. Veitch & Sons, the raisers, exhibited a plant at the meeting of the Royal Horticultural Society on the 28th ult. This plant bore a spike with 14 flowers. The sepals and petals are of a greenish-brown colour, and the lip is marked by a blotch of reddish-brown. This new *Cymbidium* received an Award of Merit under the name of *C. Veitchii*, but that name being already in use in the *Orchid Study-Book* for a hybrid from *C. eburneum* and *C. Lowianum*, the raisers have determined to call the present plant *C. langleyense*.

back in this month or in April, or leave them uncut for another year. The controversy upon this point is as lively as ever, and probably it will be perennial. For my own part, theory and experience alike induce me to adhere to the old plan of cutting back in the season of transplanting. Theory teaches that the damage done to the roots in transplanting should be balanced by a reduction of the tops of the young trees. The opposing theory is to the effect that, until the roots of a tree are well established, they are not in a proper condition for stimulating the growth of the branches which are to furnish the tree; and that if the shoots are left entire for the first season, their call upon the roots stimulates the growth of the latter, and fits them for the full nourishment of the tree in the succeeding season. This reasoning seems to me to be fallacious. The shortened roots, I contend, are better fitted for nourishing fresh wood than for feeding old wood. Their failure in the latter object is often shown by the premature formation of fruit-buds upon the uncut branches of the young trees. There has been unavoidable root-pruning in the course of transplanting, and the usual result of root-pruning is apt to follow when trees are left entire for the first season. The energy devoted to the development of fruit-buds

entire; whereas the trees of the same varieties in adjoining rows formed strong new growth free from fruit-buds. It was necessary to cut back the former to mere stumps, in order to get wood growth, and if the variety had been a feeble grower, like Lane's Prince Albert or Golden Spire, it might have been impossible to find a wood bud on some of the branches. At present, the experimental trees are about equal to those cut back in the first season; but if the latter had been treated with the same severity in the first season as the former were in the second year, they would probably be now the better furnished and more vigorous trees.

USE OF TIES IN TRAINING APPLES.

In training young Apple trees of some varieties tying will often conduce to the symmetry of the trees. Perhaps some critic may say that the correction of mis-shapen or misdirected growth should be effected entirely with the knife; but this cannot be admitted, although it is true that much unshapeliness is due to insufficient force thought in pruning. Some varieties, such as Lane's Prince Albert and Beauty of Bath, send out shoots diverging too widely from the main branches, and pointing in a direction parallel with the ground level. This tendency, moreover,

is intensified as soon as the trees bear fruit by the weight of the crop. To correct it merely by cutting back severely to an upright bud would often be to sacrifice substantial growth and fruit that is about to be produced upon it. On the other hand, tying an erring shoot to a strong interior branch, or to another shoot diverging in the opposite direction, drawing them towards each other, will put the growths in proper shape, while preserving the sturdy portions of them. A very little drawing in of a divergent shoot will alter the pitch of it. In many a case a wide gap on one side of a tree may be filled by drawing together branches on either side of it, at the same time relieving those sides from crowding growths. Of course, the tying must be done with loops, to avoid girdling the branches. Moreover, it is not recommended that the tying-in of weak shoots should be substituted for cutting them back to buds pointing in the right direction, or for spurring them. The advice as to tying relates to substantial growths only, and to such growths only where there is plenty of room for them. Where horse-cultivation between the rows of trees is practised, some tying-in of shoots and branches that would be injured by the implement used or the harness of the horses is often the only alternative to their sacrifice. The same remarks apply to the Victoria Plum. *Southern Grower.*

CHRYSANTHEMUMS.

SOME OF THE NEWER VARIETIES.

NOVELTIES put into commerce during 1910 include some first-class varieties, and probably a dozen of them are suitable for showing in the keenest competitions during the coming season. A description of the habits and other qualities of the flowers may be found useful to intending exhibitors.

WHITE QUEEN is probably the best white Japanese variety, although, in the south, the blooms develop very early. The plants are of medium height, strong, healthy growers, flowering naturally on second crown buds. The large blooms possess florets of hard texture and enduring qualities.

GEORGE HEMMING has blooms of a distinct colour—a bright, purplish amaranth. The flowers "finish" well, the central florets standing erect. The plant is a tall grower, and, with us, flowered on first natural crown buds, but the hoots may be stopped early for blooming from second crown buds.

MARY FARNSWORTH is best rooted late and flowered on first crown buds. The plant is of a medium height, and a healthy grower, the flowers being broad shouldered and composed of very broad florets. The flowers are of no value when developed from any other than first crown buds.

HENRY POULTON is remarkable chiefly for the extremely long florets of the flowers and consequent large size of bloom. The colour is a deep narrow-crimson. The plants need to be stopped early in spring, and allowed to develop second crown buds, otherwise the variety is too early for exhibitions. The plants are slightly above the average height, and the growths are wiry.

SIR ALBERT ROLLIT is a large flower, of broad shouldered, reflexed form. The florets all show the reddish colouring, lying flat and compact. The plant is a healthy grower, with splendid foliage, and, like many other varieties, the blooms develop too early on first natural crowns, hence the shoots must be stopped in April for second crown buds to develop.

SHANKLIN SUNSHINE.—This is one of the best all-round Chrysanthemums, flowering naturally on second crown buds. The plant is a robust grower, and of dwarf habit, whilst the blooms are of good substance, with hard florets, that de-

velop even to the centre. The plant may be allowed to grow very strongly without fear of damping.

MRS. ROBERT BROWN.—In its long, broad florets, this variety is probably unequalled. It flowered with us on first crown buds about 5 feet high, the plants, weakly at first, growing strong and robust after the first break. The colour of the flowers is yellow suffused with chestnut.

FRANCES JOLLIFFE is a grand variety that flowers on first natural crown buds. The plant is of a medium height, and a free, healthy grower. The broad, deep blooms are remarkably clean and fresh in appearance.

MRS. F. C. STOOD.—Although rather a tall grower, this is a useful variety, the blooms being of a lovely form and distinct in colour. It is best stopped early, say, mid April, to obtain second crown buds.

MARY POULTON.—This proved a weakly grower in its younger stages with us, and the plants were finally potted in small pots; but the blooms are of a beautiful form, and of a lovely shell-pink colour. The plant should be stopped in April, for second crown buds, but it is a dwarf grower.

MRS. W. TIGGLEN is a sport from Mme. G. Rivoil, and is quite equal in point of merit to its parent, and also to Mme. P. Radaelli.

EMPRESS.—This variety also grew weakly up to the final potting. The flower is of a perfect incurved form, but lacks a sufficient number of florets to make a good exhibition bloom flower. It will, however, be tried again next year, as it has a striking and massive appearance. The colour of the florets is yellow.

CAPTAIN MITCHELL should also be taken on the first crown buds, but rather early; as an experiment, some of the plants might be stopped very early. The plant is a dwarf and sturdy grower, producing large, reflexed flowers of a rich rosy-purple colour.

BESSIE G. PAYNE is a somewhat unique grower, being very sparing of foliage, and with particularly wiry shoots. The florets are hard in texture, the flowers are large and last well. Cuttings may be rooted late for first crown buds to develop, or perhaps it would do best if stopped in April for second crown buds.

A few of the best of the older sorts are as follows:—

HON. MRS. LOPES.—The finest of yellow Chrysanthemums when obtained in good form, but the blooms are often shallow. Cuttings should be rooted early and well matured. We had a fine flower developed on a single-stemmed plant that was potted late, and flowered on the first bud that came.

MASTER JAMES. This variety develops grand blooms on first crown buds. It should be rooted late, and stood at the exposed end of the rows in summer-time. The flowers require an exceptionally long time to develop fully, but they are of splendid quality when properly finished.

LADY LEITCHWORTH.—A beautiful though rather early yellow Chrysanthemum, rather prone to show damping in the petals in patches. The cuttings should be rooted late in the season to flower on first crown buds.

W. MEASE.—One of the largest flowered varieties, but of no particular beauty of form or colour. It should be bloomed on second crown buds.

GEO. J. BRUZARD.—A flower of incurved and interlaving form, but of broad-petalled, massive style. The plants should be stopped very early, to develop second crown buds.

MISS A. NICOLLS.—A pure white sport from W. Jinks.

RECENT NOVELTIES.

Amongst others, the following novelties were exhibited exceptionally well during the past season:—

JAPAN.—A deep-yellow, incurved, Japanese

variety, with a tinge of red on the edges of the florets.

MIKAGO.—A large, deep flower, of rose colour.

RED CHILL.—A large, reflexed variety, with broad florets.

D. B. CRANE.—Yellow, shaded with bronze.

MAUD WILLIAMSON.—A large, reflexed flower, of the best exhibition type.

VICTORIAN.—A Chrysanthemum of compact and pleasing form, the colour being a deep bronze.

MRS. GEO. HARTMANN.—A perfectly round bloom, and chestnut-red in colour.

R. C. KELLY.—A large flower, of fine, incurved form, the colour being a dull amaranth.

MRS. R. A. WITTY.—A crimson variety, of large size, and with broad florets.

COUNTESS OF GRANARD.—A yellow Chrysanthemum, heavily shaded with reddish-buff, after the style of Shanklin Sunshine.

A SELECTION OF THE OLDER VARIETIES.

The following are well-known and excellent varieties:—Reginald Vallis, Splendour, Mrs. F. W. Vallis, Mrs. A. T. Miller, Bessie Godfrey, W. Jinks, F. S. Vallis, Edith Jamieson, Mrs. C. Penford, Mrs. L. Thorn, J. H. Silsbury, and Lady Talbot. *P. P.*

NOTICES OF BOOKS.

THE CHARM OF GARDENS.*

A GARDEN may have charms other than those that appeal to men interested in plants and flowers, or in effects and design. There are garden ghosts and garden saints, memories, associations, the thoughts that come as one walks or sits among the trees and flowers. Mr. Calthrop's book deals entirely with the sentiment of gardens and the historical sense of them, and avoids the more prosaic practical side. He has done it extremely well. Readers who can appreciate the writings of Richard Jefferies, Alfred Austin, Ruskin and Wordsworth will find Mr. Calthrop's book to their liking. Some of the chapters might be called thoughts by the wayside, and suggest whiffs of country air. Here, for example, is a passage redolent of the country:—"As I sat on my stile I felt this was all mine; no person knew the beauty of it as I did. No one but I saw the field of Oats laugh, or cared to note the business of the dragon fly, or the flashing patterns of the butterflies. I had seen these fields turned up, rich and brown, under the plough, and tender green when the seeds came up, and waving green, and gold when they bore their harvest of Corn, or silver and green with roots and red with Beets. I had counted the sheep on the hill sides, and watched the cattle stray in a long line to be milked at milking time, and though I did not farm an acre of it, I owned it with all my heart, and gathered its harvest with my eyes. Every field footpath had its story, the road was rich in old romance, and hidden by the trees at the head of the valley was the big house where my hostess lived, and with a loving hand directed all this little world—but I doubt if she owned it more than I."

The story of the itinerant tailor who grew tired of sitting cross-legged on a bench and went out and about to see the country lanes and cottage gardens, sewing only in winter, is a delightful episode. "There are men who find the whole of Heaven in a grain of Mustard seed; and there are those who, in all the pomp and circumstance of a hedge of Roses, find but a passing pleasure to the eye." The Roman Gardener in England; St. Fiacre the Patron Saint of Gardeners; A Lover of Gardens; The Olympian Aspect; these are the headings of chapters full of fine thinking. *Kalendarium Hortens.*, or the *Gardeners' Almanac*, 1664, follows a discourse on John Evelyn, the author of the *Kalendar*, and should be read

* By Dion Clayton Calthrop. (A. and C. Black.) Price 7s. 6d.

by every gardener who thinks there was not much good gardening in this country 300 years or so ago.

The chapter on town gardens is one of the best in the book. But Mr. Calthrop's gardens are chiefly in Piccadilly Circus, Oxford Circus, and those other central spots where the flower sellers congregate with baskets of Roses, Violets, Carnations, Daffodils, Anemones, &c. They are, he says, a perpetual flower calendar and reverence is due to them. They keep the grey, desolate winter alive with bright, sweet-smelling flowers. "A curious race, untidy, with a screw of hair twisted up under a battered hat of black straw, with faded shawls wrapped round them, and the weapons of their craft arranged about them—jam jars of water, wire, bast, rows of little sticks, on the ends of which buttonholes are stuck. . . . They have a certain dingy dignity, as of Lichens on the pavement."

There are some shocking mistakes in the spelling of the plant names, but the author is clearly not a man for labels—"let him name it who can, its beauty remains the same." Finally, we have to speak of the illustrations, of which there are 32, full page and coloured. They are charming little pictures of garden and woodland scenes, somewhat overdone perhaps, but they serve their purpose, which is that of an appropriate setting to the author's fine writing, the effect of which they heighten, as the elaborate scenery in a modern theatre does a play. The book is crown quarto, handsomely bound in cloth, the paper and type are good, and there is a fine broad margin. W.

A JOURNEY TO JAPAN.

(Continued from p. 117.)

A SMALL part of the island is devoted to herbaceous plants, annuals, and shrubs. *Gardenia pelenkahuana* has wonderful, bell-shaped blossoms; *Posoqueria longiflora* develops exquisitely-scented, white flowers, 6 to 8 inches long, and with a corolla 2 to 3 inches broad; *P. multiflora* has similar flowers, but broader leaves; *Ixora timorensis* develops a mass of very small, white flowers on a long thyrse, and is also finely-scented. Other interesting plants are *Randia maculata*, the flowers of which are white, with violet on the outside, and 10 inches long; *Oxyanthus tubiflorus*, with long, yellowish flowers; the star-like single-flowered *Gardenia florida*; *Cassia alata*, with trusses of orange and yellow blossoms; *Plumeria alba*; *P. acutifolia*, which are often found growing near Indian temples; *Isotoma longiflora*, with white, star-like flowers; many fine Hibiscuses; *Tithonia diversifolia*, a yellow composite which has spread all over the country; *Cesalpinia pulcherrima*, with yellow and orange flowers; and *Brunfelsias*, with white, blue, or yellow blooms. The flowers most prized by the Javanese are those of *Michelia Champaca* and *Jasminum Sambac*. *Aglaia odorata* and *A. odoratissima* are shrubs with very sweet-scented, small, yellow flowers. They are planted in the native gardens, as are also *Saraca declinata*, *Gardenia florida*, and *Poinsettia pulcherrima*.

The Orchid garden at Buitenzorg is sheltered by a tree of *Cephaelis (Evea) borbonica*, which bears scented, yellowish fruit. The bark is very rough, and *Grammatophyllum* grows on the stem. Some of the pseudo-bulbs of this Orchid are 3 to 5 yards in length. Thousands of flowers are developed on a single plant, which sends its roots over the tree to collect the necessary food. All over the Orchid garden, in regular lines about 1 yard distant from each other, are small trees of *Plumeria acutifolia*. Only a few branches are left at the top of each tree, and on all are planted some kind of Orchid. The collection comprises inconspicuous as well as large-flowering species. *Dendrobium crumenatum* abounds on nearly every tree and shrub. Palms and conifers are covered with it. In Ceylon I observed the plant in flower on April 7 and in Buitenzorg on April 23

and May 26. In certain localities all the plants of *Dendrobium crumenatum* flower at the same time, every four to eight weeks; and all the flowers open in the forenoon, some a little earlier and some a little later than others. The pseudo-bulbs are sometimes 1½ yards long; they branch freely, and the plant forms large masses. Plants of *Juniperus funebris* and *Podocarpus* are sometimes covered with this lovely Orchid in flower. The same evening all the flowers fade, and not a single flower-bud is left to open the next day. Other Orchids are also plentiful on wild trees. One of the least showy, but most interesting, is *Tamiophyllum*, which does not produce foliage, the green, flat roots, which grow over the mossy bark, performing the functions of the leaves. The small, yellowish flowers are produced on a small stem near where the roots originate, and the seed-pod is nearly as heavy as the whole plant. *Cattleyas*, *Cyrtopodiums*, and some other Orchids, especially those which require a dry season at times, are grown under glass roofs. Terrestrial Orchids are planted in beds. *Spathoglottis* are especially plentiful in private gardens in the neighbourhood, where they flower freely in large pots. *Phalenopsis* also suc-

ceded very well, and the plants flower freely on trees of *Cinarrum* planted as an avenue by Teysmann (see fig. 69). Every tree in this avenue bears some fine or rare climber. *Pothos aureus* surpasses all creepers by its luxuriant leaves, which are very large, and split like those of *Monstera deliciosa*. The branches which attach themselves to a neighboring tree, have only very small leaves, but as soon as they reach their objective they form large leaves again. *Philodendron panduriforme* has leaves of a very peculiar shape; *P. sagittifolium* ascends very high up the trees, whilst *Scindapsus Treubii* sends down its slender stems from the highest branches. Interesting *Gnetums* cover several large trees, and *Previnetia strobilacea* adorns the avenue with its red flowers, giving food to flying foxes which, whilst feeding on the fleshy flower, pollinate it. *Agaves* and *Yuccas* makes fine specimens in these gardens, and *Bromeliads* grow freely under the shade of the Tree Ferns and Cycads. *Nymphæas* are plentiful, these being mostly hybrids of *N. Lotus* and *N. rubra*. The flowers are of a remarkable size, and the colours range from white to dark red. I discovered an undescribed species of the Australian *Anechya* section

"ROCCA LONGA."

I AM determined to call this article *Rocca Longa*, in inverted commas. I gave fully-named stations for *Saxifraga florulenta* because, though that plant is a king of rarities, it is very abundant in its district, and that district is remote, high, hard and expensive to come at. And, finally, *Saxifraga florulenta* will never be a gardener's plant. The case is entirely different with *Daphne rupestris*; though its few stations are as far, nearly as high, and even more difficult to come at than those of the Saxifrage, it is yet a plant of such habits, beauty and popularity that the unscrupulous would gladly go and strip its native cliffs if I named them too openly. But those who are adepts in Alps, those who can be trusted, will know well what I mean by *Rocca Longa*.

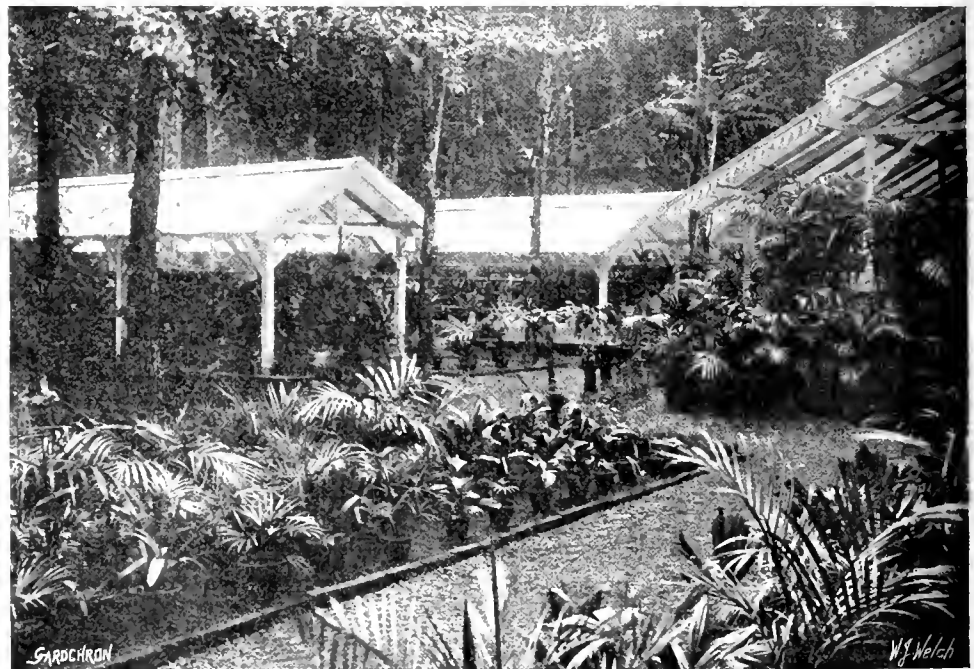


FIG. 67.—VIEW IN THE BUITENZORG BOTANIC GARDEN SHOWING THE PLANT-SHELTERS WITH OPEN SIDES AND ENDS.

Rocca Longa is a lonely high ridge of limestone, a very long way from any place that anyone has ever heard of. This is as well; for it is prodigiously rich in rarities. In earliest August, in the stone slides at its feet, exactly like the screes of limestone under Ingleborough, *Cyclamen europæum* is glorious in bloom, and everywhere, in all the bosage, are the great leaves of *Helleborus niger*. One climbs and climbs and climbs: the rocks are full of *Phyteuma comosum*, and among the shrubs are *Lilium croceum* and *Genista radiata*. Higher still begin the *Primulas*—*Auricula spectabilis* and another—*Auricularia*, but dark green, that I cannot yet name. Then there are a few pieces of *Saxifraga mutata*, *S. aizoon* among *Primula viscosa* on rocks, and *Cephalanthera rubra* on a high open shoulder. But this is only the preliminary Alp. We have yet more climbing before we reach the Col, where there is an enormous assemblage of cows, and a farm.

Then, for the first time, do we actually see the *Rocca*—it is a terrific, jagged rampart of limestone, far away in the distance and awfully high. However, the path continues till it reaches the base of the ridge, then mounts leisurely, at a gentle slant, round each successive buttress of the

Then, for the first time, do we actually see the *Rocca*—it is a terrific, jagged rampart of limestone, far away in the distance and awfully high. However, the path continues till it reaches the base of the ridge, then mounts leisurely, at a gentle slant, round each successive buttress of the

mountain. The vegetation here is a light, very low, alpine scrub, in peaty humus. *Saxifraga caesia* begins to occur on the rocks, and becomes increasingly abundant as one goes—tiresome thing, because one wants *S. tombeanensis*. But a foreign collector is supposed utterly to have exterminated *S. tombeanensis* on the Rocca. In another instant there is a big flash of crimson among the sparse and pallid *Rhododendrons*: it is *Silene Elizabethæ*. Queen Elizabeth's *Silene* does not grow in hot shale-slides as reported, but on rather cool exposures, in a limy soil full of chips. On the north side of the Rocca it is frequent here and there in such rocky inclines, and down below, in the Val Riario, it seeds abundantly on the

the end, we reach the little cowshed called the Casa della Rocca (or, in French, the "Refuge d'Arlet"). This sits in a hollow beneath the peak itself, and, just beyond, a scramble up the slope brings us under the great, rosy cliff which is the one home of *Daphne rupestris*. Neither to the right of this cliff will you find it, nor to the left; though the most precious of plants occurs again here and there in the district, it is almost uncannily local in its distribution; you will not see a sign of it on the precipice next to the one on which it abounds, though they are identical in aspect and formation.

In another moment the bitterness of years is wiped out; there on its cliff shines that *Daphne*,

yard, up and up to the very summit of the stark precipice, in places, mercifully, far beyond reach of the depredator. Not that the *Daphne* has not its own methods of dealing with the depredator. The rock is sound and hard as iron: no light labour, nothing short of hammer and coal chisel, wisely wielded on favourable chinks, will get you out sound pieces. (But the depredator has a foul habit of tearing the treasure out rootless, and thus killing alike what he takes and what he leaves. I have suffered under this habit of his almost as much as the *Daphne*.) The plant was only in flower on the highest cliffs when I saw it: up in inopprobrious places these exquisite rosy trumpets were still lying firm and flat on the flat, firm matting of foliage. Will it ever do thus on my cliff? It is thriving there, but a rabbit has just eaten the best plant down to the ground. I am in hopes, though, that it will think it has only been cut back. I saw no sign of any seed: old plants send up suckers, far away, out of some apparently unconnected cranmy.

All that slope of cliff and grass is agog with rarities. Here is *Mehringia glauco-virens* in the chinks; *Primula Auricula*, *P. spectabilis*; and, in dark hollows sheltered from moisture, that priceless marvel *Saxifraga arachnoidea*. This had been glorified to me, as a golden glow of flowers, above its tussocks of silver-fluffy leaves; and I found it to be the dowdiest of little pale weeds, flimsy and annual in appearance. I believe it to be perennial, however; though nearly impossible to cultivate. I have not got it, and I do not mourn it. But for this disappointment, I was soon indemnified, by rediscovering, on one isolated inaccessible pinnacle, several tufts of the best *S. tombeanensis*. This lovely little *Saxifrage*, close to *S. dapsenoides*, takes its name from the Cima Tombea in Southern Austria; and *Daphne rupestris* also occurs, as well, on the Cima Tombea. They seem to hunt in couples.

I have not left myself much room to tell of the Col d'Arlet, just round the corner, over which we have to make our way down into the Val Riario, and so, to the Lac d'Azur. All the Col, like all the Rocca, is of limestone; on the south side are masses of *S. caesia* and *S. mutata*, among which anyone may have the luck to collect—i.e., adventitiously—*S. Hausmanni*. And as soon as we are over on the shady northern slope begins the reign of *Ranunculus crenatus*, which abounds all down the white scree, under cliffs full of *Phytoloma comosum*. This rare Alpine Buttercup is a twin to the perfect *R. alpestris*, except that the glossy leaves are rounded in outline, with slight crenulation, and the petals are so much more deeply "echinaceous" that the flower, instead of being a snow-white circle like that of *alpestris*, is more nearly a tiny pure white Dog Rose. If I dared, I would say that *R. crenatus* has an even more fairylike loveliness than *R. alpestris*. And it seems to be quite as easy and unexacting in its wishes as even that most easy-going of all mountain plants. But I have such a craze for the white high Alpine Buttercups, that I dare not give rein to it. So I will only add that on the way down we despise acres of what M. Corveon has justly called "cette maudite" *Daphne striata*, and then come to a long stop among the innumerable royal *Silenes* by the dried-up bed of the Riario. *Reginald Farrer.*



FIG. 68.—THE BOTANIC GARDEN, BUITENZORG, JAVA: THE CANARIUM AVENUE WITH CLIMBERS AND EPIPHYTES.

shingle of the river-bed, and is everywhere in the rubble. I had no idea that a magenta-crimson flower could be so splendidly beautiful.

At last we come to the summit of the ridge, and the track now crosses over and leads along the turf slopes on the southern side of the Rocca. That turf is almost entirely composed of *Primula spectabilis*, in solid tufts all along the mountain side, interspersed with the brilliant blue of *Linum austriacum* (much more brilliant than *L. alpinum*) and matted with *Gentiana Clusii*. In open, stonier patches there is *Viola heterophylla*. What this ridge is like in flower-time I dare not begin to imagine. So, in

in cushions like a tiny *Globularia cordifolia* *Daphne rupestris* is wholly different from the rest of the family in its habits. It is purely a saxatile plant: as purely saxatile as *Androsace imbricata*. It grows from microscopic crannies of a sun-baked limestone cliff (and tolerates no variation of this sunny southern aspect), where you would think that nothing living could find sustenance. And from these fine rifts of the rock it spreads out its growth tight, tight against the precipice, tighter than any Willow or Cotoneaster. It will not grow anywhere except in this full exposure to the south: it has virtually no soil except a little humus. Yet here it is, by the foot, and by the

DAVID DOUGLAS.—A biography of this famous gardener and plant collector is contributed to *The Transactions and Proceedings of the Perthshire Society of Natural History* for 1909-10 (vol. v., part ii.), by Mr. R. Dow. DOUGLAS will be best remembered as the introducer of the Douglas Fir, *Abies Douglasii*, but he also enriched our gardens with *Abies nobilis*, *A. amabilis*, *Pinus Lambertiana*, and other Conifers, as well as useful flowering plants, such as *Clarkias*, *Calochortus*, *Penstemon*s, and *Eschscholtzia*. His plants were described in Hooker's *Flora Boreali-Americana* and in the *Botanical Magazine*.

The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHURSTON, Gardener to the Earl of Haddington, K.T., Tynningham, East Lothian.

CLEMATIS.—Some kinds of Clematis, such as *C. Jackmanii*, should be pruned now, but the shoots should not be cut too severely. *C. viticella* and the large-flowered varieties of *C. lanuginosa* will need pruning to induce the formation of spurs. *C. vitalba* is often allowed to grow unchecked, but far better results follow when pruning is practised, shortening back the side growths, though not the main or leading shoots. *C. montana* and its variety *rubens* flower in the early summer, and their pruning should not be performed until after they have flowered. *C. Davidiana* usually needs to be cut to the ground level, but, owing to the mild winter, many of the shoots are alive for a considerable distance, and if these are shortened to the buds nearest the ground, the plants will flower earlier and give a longer display of bloom than usual. *C. recta* is a beautiful herbaceous species that is propagated from seeds: the feathery appendages to the fruits form an additional attraction after the flowering is over. The Clematis often dies from no apparent reason, and I am inclined to believe that if the plants were propagated from cuttings instead of grafts, the trouble would not be experienced to so large an extent.

ROSES TRAINED UPON WALLS.—These need not remain unpruned any longer. In my own case I commence pruning very early in the new year those trained on hot-house walls, and in this way obtain very early blooms. It is possible to be too cautious in the pruning of climbing Roses. Plants are frequently to be seen in a debilitated condition, and flowering sparingly owing to the pruner having left upon them too much old wood. In such cases the older growths should be cut down to nearly the ground level, leaving a limited number of the stronger growths. Roses growing upon trellises and posts should also have all superfluous wood cut out in autumn, therefore at this season all that is required is to shorten the shoots, cutting back those which are weakly. The *Wichuraiana* hybrids are so hardy, so floriferous, and so late flowering that we are substituting them for other kinds. In some gardens I observe that the *Wichuraiana* hybrids are allowed to grow without restriction or pruning, but this is sure to result in the need for extra severe pruning at a later date, which is not a good practice. At the same time *Wichuraiana* Roses should be pruned less severely than other climbers, their small leaves allowing of many more shoots being trained in than is practicable on most other Roses. We are still cultivating *Reine Olga de Wurtemberg*, *Alister Stella Gray*, which needs much thinning out, the old *Aimée Vibert*, which flowers both on last year's wood and that of the current year, and *Blush Rambler*. So long as climbing Roses appear vigorous stimulants should only be afforded after careful consideration.

THE "MIXED" BORDER.—It is quite time to decide how to furnish the spaces which occur between the perennials in the herbaceous border. In settling this question, the season at which it is desired to have the best display of the year must be borne in mind. If it is in July and August, then such plants as Sweet Williams need not be replaced, but if the display is to continue through the autumn, then it is essential to provide a very varied selection. Again, instancing Sweet Williams, these should be planted wide enough apart to permit of later flowering subjects being interspersed among them. The plants for thus mixing with the Sweet Williams include such species as Scabions, tall Delicias, Gladioli, and such annuals as *Clarkia elegans*. Plants which are extensively employed elsewhere should not, as a rule, be planted in a mixed border. If intermediate Antirrhinums are made a feature in the formal garden, I would have very few or none in the mixed border, though taller growing Antirrhinums might very well be used in this latter arrangement. A mixed border permits of an inclusion of a large variety of interesting and gaily-

coloured plants, especially if perennials are arranged to occupy the back of the border, making exceptions in cases of less tall-growing plants such as *Anemone japonica*, *Rudbeckia speciosa*, *Papaver rupifragum*, and *Aster cordifolia*, which must be planted nearer the front. Sweet Williams, *Lychnis coronaria*, the white and blood-red varieties of *Violas*, and similar plants should be planted out at once. A mixed border planted with species which flower in succession during the greater part of the year cannot be kept gay unless other plants to succeed those which flower early are kept in reserve. Such plants as herbaceous Phloxes, perennial Asters, and annuals are very useful for the purpose. At the same time never allow a mixed border to be degraded until it is made a kind of receptacle for all the odds and ends left over from planting in the other parts of the grounds, or for receiving the refuse from the greenhouse. If the scheme is worked out thoughtfully, it may be so arranged as to provide one of the most pleasant features in the gardening year.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

PHALANOPSIS.—There are no Orchids more handsome than these, and very few more difficult of cultivation, especially in some establishments even though they get every care from skilled cultivators. Where a large collection is maintained, it will be found most convenient to devote a house especially to them, but in the case of a few plants only, they should be placed together in one part of the warmest division. The plants require an abundance of moisture in the atmosphere at all seasons, whilst water at the roots must be applied with great discretion, especially during the winter. Excessive moisture in the latter direction, improper temperatures, and imperfect ventilation are the sole causes of the dreaded spot in the leaves. During the winter, from November until March, a temperature of 65° to 70° by day, and 60° to 65° at night is sufficiently high, but during the remaining portion of the year the temperatures may range from 65° to 70° by night, rising to 75° to 80° by day, or even more with sun heat will be found to suit them best. These temperatures should be maintained with a free circulation of air, weather permitting, and the atmosphere should be well charged with moisture. It is essential that close attention be paid to shading, as few Orchids are more liable to injury from the sun's rays. *Phalenopsis* should be grown in baskets suspended from the roof rafters, and the leaves should not be nearer than 18 inches to the glass, in order that they may not suffer from sudden atmospheric changes. These plants generally commence making new roots during the present month and the work of affording fresh rooting material to those requiring it should receive attention immediately root action is observed. Healthy, established plants with their roots clinging firmly to sound receptacles should not be disturbed beyond removing the old rooting material. Carefully pick this out from amongst the roots, then make the drainage good and fill up anew. Those in need of fresh receptacles should have old material and drainage removed, and be carefully taken out of their pots or baskets by detaching any clinging roots with the aid of a thin-bladed knife. Following this operation, select for each plant a suitable sized basket, and afford perfect drainage, working this in carefully amongst the roots. A good rooting medium for *Phalenopsis* consists of *Osmunda* fibre two fifths, *Sphagnum* moss two fifths, and *Polypodium* fibre one fifth, broken up and well mixed together. This compost should be pressed firmly amongst the roots, finishing off the surface with a thin layer of clean-picked *Sphagnum* moss.

SELENIPEDIUM.—The present is a very suitable time to examine *Selenipediums*, when roots are pushing forth from the younger growths. These plants always give the best returns when they are root bound, therefore healthy specimens should not be disturbed, otherwise than by having the surface material removed and new material added. Should repotting be necessary, it is advisable to give a liberal shift, so that further root disturbance will not be needed for some time. Large specimens that are in a bad condition at the roots are best broken up and

potted separately, it being much more satisfactory to cultivate young plants than to make up large pots from small pieces. Let the pots be clean, and well provided with material for drainage, covering the latter with a layer of thin turf. The compost used may be similar to that advised for *Cypripediums* in a recent calendar (see p. 54), using this in as rough a state as practicable, with a liberal sprinkling of finely-broken crocks and coarse silver sand. The compost need not be pressed too firmly, but just firm enough to secure the plants, as the roots run more freely when the materials are not too close, and the amount of water they require soon settles it. *Selenipediums* when healthy may be watered liberally, even just after repotting. If roots are plentiful, they require inspection almost daily. A shady position with an intermediate temperature should be afforded these plants, and if the atmosphere is kept moist and the plants lightly sprayed over in hot weather insects seldom attack them, but should any put in an appearance they must be removed at once by the usual means.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

PROTECTING FRUIT BLOSSOMS.—The fruit-buds on almost all the trees are numerous and strong, and if they escape injury by late frosts, there is a good promise of an abundant fruit season. Early protection of the buds is very important. Apricots and Peaches trained upon walls should receive first attention. Even where they are protected with glass or other coping, it may still be necessary to place blinds or heavy nets in front of the trees. These blinds or nets should be kept quite clear of the branches, by the aid of wires or other supports, placed about 3 or 4 feet apart, and reaching from the ground to the top of the wall. This safeguards the blossoms from injury by the movement of the protecting material during gusty weather. In less exposed or warmer localities, light netting or tiffany may afford adequate protection; but whatever may be the material used, it should be so arranged that the trees may be covered or uncovered quickly, and without risk of damaging the blossoms. Early covering is, in many instances, desirable, especially in places where late frosts are usual: the trees may thus be shaded during very bright weather, and this will help to retard the expansion of the flowers. On mild, dull days the protecting material may be removed, or partly so, but not during unsettled or stormy weather, cold winds doing as much or more damage to the blossom than actual frost. The sudden transition from cold to heat, which is often experienced during the sunny days and frosty nights of early spring, is the frequent cause of the failure of the fruit crops. The effect of shading or protection, however slight, during such weather, counteracts this evil more or less, and, by its use, frost is often prevented from fatally injuring the blossoms, which frequently recover from the ill-effects of an unusually sharp frost owing to the shading material screening them from the direct rays of the sun until a gradual thawing has taken place. It should be borne in mind that the object of covering is to protect, and not to accelerate the expansion of the blossom, and, as seasons and localities differ so much, the cultivator must be somewhat guided by these considerations. Bush fruit trees growing in open quarters of the garden may be protected from frosts and cold winds by placing branches of evergreens around them, if more suitable material is not procurable. This easily-applied and temporary protection will often aid in securing a crop of fruit, when unprotected trees fail.

FIGS.—Fig trees may now be planted, and many successful cultivators consider the present time the most favourable season. Trees which have been growing in pots should be disturbed at the roots as little as possible, unless the latter are in a very matted condition by having remained too long in the pots, in which case the roots must be carefully separated and spread out during the operation of planting. If planted against a wall, the soil about the roots should be well watered, and, after allowing a few days for the soil to settle, the shoots should be carefully tied in or nailed to the wall to prevent them from being broken. Cover the surface of the soil with littery material in order to keep the roots moist

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

PELARGONIUM.—Plants of Show and Regal Pelargoniums that are intended to flower from late May until well into July should be afforded a shift into larger pots, provided that the ball was reduced in the autumn when the plants were started afresh after pruning. Employ a mixture of good, loamy soil, decayed leaf-mould and silver sand. Pot firmly, and avoid over-potting, which would cause the plants to make too much growth at the expense of flowering. Allow the plants to have all the light possible, keep a close watch for aphid, and afford water with great care. The old Fancy Pelargoniums do best in smaller pots than are allowed for the more vigorous-growing types. The batch of plants of the Zonal-leaved section intended for flowering next winter should now be raised from cuttings. It is preferable to place one shoot in a thumb pot rather than several in a large receptacle.

FERNS.—It is desirable to effect a general overhauling of the entire stock of Ferns early in the present month. During the period of comparative inactivity which is now closing, there have been plenty of opportunities of ridding the plants of thrips, scale, or other troublesome insects that are liable to attack them. With the numerous insecticides and materials for fumigation now available, the cultivator need have but little difficulty in keeping his plants clean, but if any specimens are affected with pests at the present time, they should be cleansed thoroughly before any repotting is commenced. It is probable that more Ferns are now grown as decorative plants than has ever been the case, and the plants constitute an interesting feature in Fern cultivation. But the cultivator, whilst paying every attention to decorative Ferns, should not neglect other useful and ornamental species and varieties. The gold and silver Gymnogrammes are worthy of more attention than is now given them, and the same may be said of the wonderfully attractive Ferns, the Gleichenias. It is a fact that the species of Gleichenia are not of the easiest cultivation, but this circumstance should not deter but rather encourage gardeners to endeavour to understand their peculiarities and satisfy their requirements. It is never expedient to force Ferns in any way whatever.

DECORATIVE FERNS.—Most of the decorative Ferns are probably in small pots; therefore, if the plants are vigorous they may be shifted into pots one size larger. In the potting of decorative Ferns it is scarcely desirable to select any but vigorous, healthy specimens for further cultivation. The weakly or unhealthy ones should be cast away. It is easy to raise stocks of decorative Ferns to supply as many plants as are required. *Adiantum cuneatum* is still without a rival for supplying fronds for cutting. At the present time many chance seedlings of this species may be found in the various houses, and it is a good plan to look out for and cultivate them. The older plants may be divided for the purpose of increasing the stock, unless they are required to make larger specimens. *Adiantum cuneatum* and *A. tenerum* Farleyense require a good proportion of loam in the soil. If this is used the fronds may not develop so deep a green, but they will be more enduring. Firm potting is essential in all cases. The plants require all the light possible during the next few months, indeed, I do not shade this species except in the very hottest weather. In potting *Gymnogrammes* more peat is needed, but the potting should still be done very firmly. *Gleichenias* require peat broken up roughly except in the case of *G. flabellata*, which thrives better in fibrous loam. All the filmy Ferns succeed best in a rough soil consisting chiefly of peat, but containing a small proportion of light, turfy loam. They need such a great amount of moisture that it is important to exclude all the finer particles of soil.

NEPHROLEPIS.—The development that has taken place in *Nephrolepis exaltata* is perhaps the most interesting fact in modern Fern cultivation and the beauty and utility of the many varieties are beyond dispute. The best of these should be afforded plenty of room, and cultivated as decorative plants, whilst for cutting, the fronds will be found more enduring than those of most other Ferns. *Nephrolepis* may be easily increased at the present time by division, or by offsets.

BASKET FERNS.—Many kinds of Fern appear to the best advantage when cultivated in baskets. *Adiantum assimile* makes a good basket Fern, so does *Asplenium caudatum*, whilst many *Davallias* and varieties of *Nephrolepis* are equally valuable. It is better to remake up any baskets containing Ferns which show signs of exhaustion than to attempt to increase their vigour by the use of stimulants.

TREE FERNS.—Attend to any tree Ferns in tubs or large pots that need more root room or a top dressing. It may in some instances be impossible to extend the rooting medium without reducing the balls of soil and roots, and this latter operation is rather a risky experiment. If it has to be attempted, some *Sphagnum*-moss should be wrapped around the stem, and kept damp until the plant is again established. It should be packed firmly, but not too thickly around the stem, and bound tightly in position. Tree Ferns that have been planted out should be given a top-dressing. The plants will soon be developing their growth, and it is important not to allow them to suffer from want of water. *Dicksonia squarrosa*, for example, will show injury if allowed to suffer the slightest draught. If there is any sign of thrips upon the fronds, syringe the plants frequently.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

PLANTING OF VINES.—If the borders have been properly prepared, the planting of young vines may now be commenced in gardens where the canes are planted out while they are still dormant. In our own case, we prefer to plant just when the buds are beginning to move. Shake out the soil from and carefully disentangle the roots, removing with a sharp knife any that are damaged, and always cutting from the under to the upper side. Lay the roots out evenly and flat, a few inches below the surface of the border and cover them with some of the finest soil, making the whole firm. Apply sufficient water to settle the soil about the roots and mulch the surface with spent horse-droppings or similar material. Support the young canes loosely until the roots and soil have settled into position. Damp the surfaces in the house frequently and close the ventilators sufficiently early in the afternoon to cause the temperature to rise from sunheat. If the vines were pruned to the required length whilst they were dormant in the pots, any buds not needed should be rubbed out, and the portion of the old cane thus disbudded retained for a time, as it will act as a support to which the young growths may be tied, and may be removed at a later date, when there will be no fear of any bleeding.

GRAPE THINNING.—The thinning of Grapes will occupy a considerable time during the next few weeks, and it may be found difficult to keep up with the work so that all the bunches may be given attention at the time they need it. In the case of free-setting varieties an early start should be made upon these bunches which set earliest, remembering that there is nothing to be gained by allowing the berries to swell too much before they are thinned. A good pair of scissors is essential, and they should be kept very clean by rubbing them with sand-piper at the close of the day, afterwards suspending them in a dry position. In addition to the scissors the operator will require a smooth, thin piece of stick, with a small fork, for holding the bunch in position and otherwise moving the berries. The extent of the thinning will vary in the different varieties, but at the commencement the berries in the interior of the bunch may be removed and any small and seedless berries, cutting them out as cleanly and neatly as possible. Any shoulders to the bunch should be neatly but securely tied up with a twist of raffia, so that the berries are clear of each other, and the shoulders do not rest upon the uppermost berries of the bunch. A common mistake is made in thinning these uppermost berries too severely; consequently the top of the bunch is made to present a naked appearance. In carrying out the necessary thinning give care to preserve the general outlines of the bunch. Any subsequent thinning that is required should be done before the berries get too large, otherwise the danger of pricking them with the scissors can scarcely be avoided. Care should be exer-

cised at all times not to handle or rub the berries in any way.

STRAWBERRIES.—The earliest Strawberries should be removed to cooler houses as soon as the fruits commence to colour. In this stage they need a less humid atmosphere, and may be kept just a little drier at the roots. If these details are not observed the fruits will probably be very insipid. Later bunches now in flower should have the flowers thinned, but not so severely as the earliest plants.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

RHUBARB.—The plants in the open garden may be given some protection in order that they may afford supplies as early in the season as possible. If only a small quantity is desired, a few large pots may be placed over the crowns and sufficient fermenting material placed amongst them to produce the necessary heat. But where large quantities are necessary, hurdles may be placed over the rows in span-roof fashion and covered with fermenting material prepared for the purpose.

TURNIPS.—A small sowing of the variety Early Milan may be made either in an unheated pit or on a warm border, sowing in drills 9 inches apart and 1 inch deep. When the seedlings appear, frequent dustings of soot will be necessary to preserve them from birds and other pests. Small sowings of Turnips should be made weekly during March and April in order to avoid a break in the supply through any plants bolting into flower. Turnips must grow quickly if they are to be mild, and they should be sown on good rich land, made moderately light.

BRUSSELS SPROUTS. The main sowing of Brussel Sprouts should be made at once, selecting a border sheltered from rough winds for the seed bed. Sow the seeds in drills drawn at 1 foot apart, as this will permit of hoeing among the plants. Two suitable varieties are Ideal and Dwarf Gem. These furnish small, solid Sprouts, but if larger ones are required select Scrymgeour's Giant or Aigbarth. Brussels Sprouts are the most reliable of all winter vegetables, and should be extensively planted where green vegetables are much in demand. The young plants raised from seeds sown early in February are now of a suitable size for transplanting, but they must be afforded protection. If it is convenient, plant them in a portable frame which can be removed entirely later, and utilised for some other crop.

CAULIFLOWERS. Seeds of Cauliflowers may also be sown at this date to furnish plants to succeed the batch sown in boxes about six weeks ago. Magnum Bonum and Early London are reliable sorts for early summer supplies. Veitch's Autumn Giant and Hallow'e'en Giant may be sown a fortnight later, and these varieties will furnish heads late in the autumn. Hallow'e'en Giant may be cut in good condition as late as the end of November if the plants are protected from severe frosts.

CABBAGE.—Seeds should now be sown, so that there may be no scarcity of plants for summer supplies. All these small seeds of the Brassica tribe need to be protected from birds by stretching some fish netting over the seed beds. Where slugs are troublesome they may be kept in check by a dusting of hot lime applied in the early morning.

SEAKALE.—Roots of Seakale intended for forcing in pits or other glasshouses should be lifted, and placed in a cool shed or stored until they are required. The crowns should not be exposed to the light after they have commenced to grow, or the quality of the heads will be inferior. Roots intended for forcing in the open should be covered with ashes in order to exclude the light until they are covered with inverted pots. Seakale grown in this way is altogether superior and stouter than when lifted and forced in a high temperature, but it is only at the commencement of March that profitable turnips can be obtained from this method of forcing. If the crowns are growing in clumps at a suitable distance apart, all that is necessary is to place the pots over them, and to fill in the spaces between the pots with some fermenting materials.

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Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

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APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MARCH 13—United Hort. Benefit and Prov. Soc. Ann. Meet. at R.H.S. Hall, 8 p.m.

TUESDAY, MARCH 14—Roy. Hort. Soc. Cons. meet and Spring Bulb Show (Sixth Masters' Memorial Lecture at 3 p.m. by Mr. G. F. Scott-Elliott, M.A., on "Origin of Varieties"). Horticultural Club Meeting.

WEDNESDAY, MARCH 15—R.H.S. Bulb Show (second day). Roy. Meteorological Soc. meet.

THURSDAY, MARCH 16—Linnæan Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich 41.6°.

ACTUAL TEMPERATURES:—LONDON.—Wednesday, March 8 (6 P.M.): Max. 47°; Min. 30°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 9 (10 A.M.): Bar. 29.9; Temp. 45°; Weather—Raining.

PROVINCES.—Wednesday, March 8 Max. 15 Ireland S.E.; Min. 4° Ireland N.E.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—Hardy Bulbs, Lilies, Herbaceous Plants, &c., at 12; Roses, Fruit Trees, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—Border Plants and Perennials, Hardy Bulbs and Roots, at 12; Roses, at 1.30; Trade Sale of 1 lumps, &c., at 2.30; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris. Clearance Sale of Surplus Nursery Stock, at the Central Hardy Plant Nursery, Cuthbert, by order of Mr. F. Brazier, by Protheroe & Morris, at 12.

FRIDAY—Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12 P.

British Botanists: Sir William Hooker.

The fourth lecture in the course of advanced lectures on the History of British Botany was delivered recently at University College, by Professor Bower, the subject being "Sir William Hooker." Sir William Hooker, for 29 years Regius Professor of Botany in Glasgow and for 25 years Director of Kew, may be styled the great founder of scientific gardens of the Victorian period. During his Professorship in Glasgow, he raised the garden just established there to a state of scientific efficiency it has never known since. He was appointed to Kew in 1811. When he entered into the office of Director he found the garden hardly a scientific establishment at all. He left Kew, at his death in 1865, with all the essentials supplied for its growth into the great scientific establishment it now is. In addition to this, he left a record of personal observation, in his published works, which is probably unequalled in extent by the achievements of any other systematic botanist.

Hooker was born in Norwich in 1785, coming of an old Devonshire family, which had established itself in East Anglia. He inherited a competence at the early age of four, and thus was saved the period of struggle for a livelihood in early life. His surroundings were favourable to his natural tastes for science, and he became acquainted, while still very young, with the leaders of botanical enquiry, such as Dawson Turner, Sir James Smith, Robert Brown and Sir Joseph Banks. Little need be said of his early years till 1820, beyond that they were marked by exact study, and by the publication of his *British Jungermannia*, which is still a classic.

In 1820 he was appointed by the Crown to the Chair of Botany in Glasgow. His 20 years there resulted in the raising of the newly-founded Botanic Garden to a position such that "it would never suffer by comparison with any other similar establishment in Europe." His work in the University included the instruction of medical students and others, who spread as collectors to various quarters of the globe. His own publications issued in a stream as continuous as it was voluminous. The most notable works of this period were the second edition of Curtis's *Flora Londinensis*, the *Flora Boracii Americana*, the *Botanical Results of Beccley's Voyage*, the *Foundation of the Icones Plantarum*, and the *Genera Filicum*.

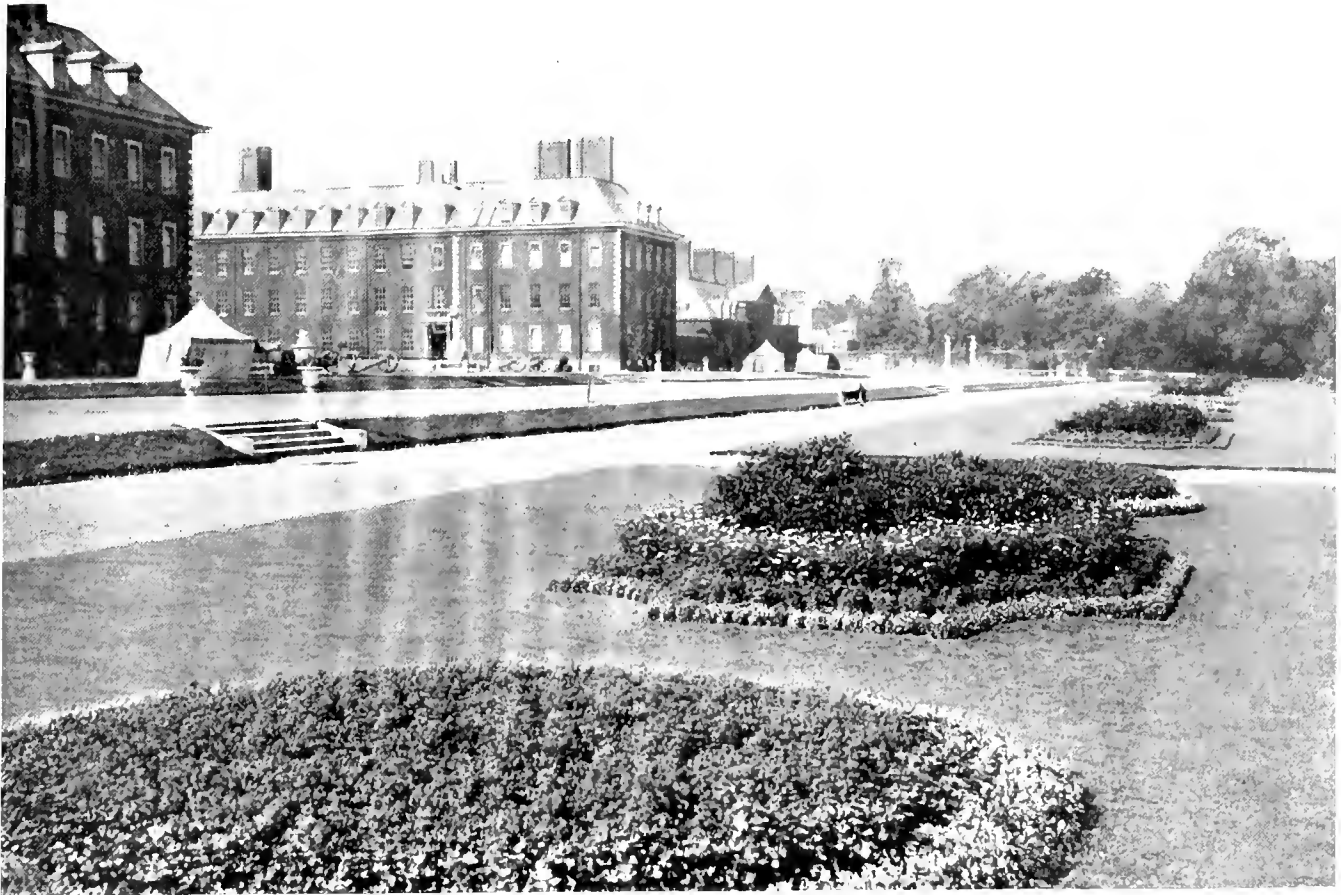
In 1811 came the appointment to Kew Gardens, which had just been transferred from their original condition as an appanage of Kew Palace, to the Commissioners of Woods and Forests. The garden was small; all the plant-houses were old; there was neither Herbarium nor Library; and the Chief Commissioner was unsympathetic. In the 25 years of his directorate Sir William Hooker saw the extent of the gardens greatly increased, new plant-houses erected—including the great Palm House, and the central block of the Winter Garden and the Museums, the Herbarium, and Library established. The Herbarium was indeed created out of the generous gift of his friend Bentham, together with his own unrivalled collections. These had throughout his official life been always accessible to students: they were finally purchased by the nation after his death, but for many years previously they had been placed in the building now known as the Herbarium in the garden. The establishment at Kew has grown greatly since Hooker's death in 1865; but as he left it the essentials were already present which should constitute a great Imperial garden. This was the object laid down by Dr. Lindley, the report of which was accepted as a guide by Sir W. Hooker when he entered office. The intention was to establish a co-ordinating centre for all the botanical enterprises of this country and her dependencies. This was in a measure realised by Sir Wm. Hooker himself, and has become more thoroughly established by his successors in office.

But notwithstanding the great demands upon his time and energies which the

foundation and extension of such an establishment necessarily made, Sir Wm. Hooker continued his own description and delineation of plants. In the figures, he was ably assisted by Walter Fitch, who was his botanical "limner" during all the later years. Sir Joseph Hooker has estimated that Sir William published during his life about 8,000 plates, of which about 1,800 were from drawings by his own hand. These illustrations ranged from flowering plants to Ferns and Hepaticæ, while his very first efforts were in illustration of the Fuci in Dawson Turner's work on those plants. But of all Hooker's works, probably the most permanent, as they were certainly the most coherent and exhaustive, were his contributions to the knowledge of Ferns. He may be held to have been by far the most distinguished pteridologist of his time.

He wrote three great works on the Ferns, each of them complete in itself. They were the *Genera Filicum*, in one royal octavo volume, with 126 coloured plates, published in parts (1830-1840). In it he accepted provisionally the limitations of Presl in his *Tentamen*. This was followed by the *Species Filicum*, which Sir Joseph mentions as probably the most enduring monument to his father's labour as a systematist and descriptive pteridologist. It appeared in five octavo volumes with 304 plates (1846-1864), and embraced 2,500 species. In it, however, many of the genera of Presl were merged in larger genera. The "lumping" of genera comes out more clearly in the *Synopsis Filicum*, which was left unfinished at his death, and was completed by Mr. J. G. Baker. This, which is the well-known book of reference for all who work with Ferns, is, in fact, a condensation of all his other work on the family. It deals with 75 genera and 2,252 species. Clearly there was a great reduction in genera upon the 135 of Presl. It may be said that the result of the later work has been to show that Sir William carried the fusion of genera too far, in the acknowledged interest of facility in diagnosis. Many of his merged genera are now being reconstituted. But this is only a question of method. The real value of these works which occupied him so worthily in his later years, and indeed almost to the day of his death, lies in the accuracy of observation, of delineation, and of verbal record. These are qualities which give his work a durability which time will not impair.

The life of Sir William Hooker was long and arduous. He worked early and late, and seldom took a holiday. His labours were continued to his 81st year. The output was immense, but its effect will be permanent and fundamental. It supplied the necessary basis for co-ordinating the scientific effort of the Empire. At the same time it supplied that foundation of trustworthily fact upon which the more modern phyletic structures can safely be built. He was essentially a botanist of the pre-Darwinian period. But the structural material which he supplied is durable in quality and lies ready to the hand of the evolutionist.



CHELSEA ROYAL HOSPITAL, IN WHOSE GROUNDS THE INTERNATIONAL HORTICULTURAL EXHIBITION WILL BE HELD IN 1912.

THE BOTTOM PICTURE SHOWS THE GARDEN PLOTS CULTIVATED BY THE SOLDIER PENSIONERS.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees of this Society will take place on the 14th inst. A feature of the show will be the displays of Spring Bulls. At 3 p.m. the Sixth Masters' Memorial lecture on "The Origin of Varieties," will be delivered by Mr. G. F. SCOTT ELLIOTT, M.A., B.Sc.

NATIONAL DAHLIA SOCIETY.—At the conference on Dahlias to be held under the auspices of the National Dahlia Society at Carr's Restaurant, Strand, on Friday, March 17, at 6 p.m., Mr. EDWARD MAWLEY, V.M.H., will occupy the chair. Mr. JOSEPH CHEAL will read a paper on "The Single Dahlia, its Cultivation and Use," and Mr. GEORGE GORDON, V.M.H., a paper on "Decorative Dahlias," with special reference to early and abundant production of flowers.

LINNEAN SOCIETY.—The next general meeting of the society will be held on Thursday, the 16th inst., at 8 p.m. Exhibitions:—1, Mr. R. S. ADAMSON.—An ecological study of a Cambridge-shire wood (with lantern slides); 2, Mrs. SCOTT, F.L.S.—*Traquairia*: an organism from the Carboniferous rocks (with lantern slides). Paper:—Miss S. M. BAKER.—On the Brown Sea-weeds of the Salt Marsh.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting of this society will be held in the Royal Horticultural Hall, Westminster, on Monday, March 13, at 8 p.m. The chair will be taken by Mr. CHARLES H. CURTIS.

ROYAL METEOROLOGICAL SOCIETY.—A meeting of this society will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, March 15, when Professor H. H. TURNER, D.Sc., D.C.L., F.R.S., will deliver a lecture, illustrated by lantern slides, on "What can we learn from Rainfall Records?"

ROYAL WARRANTS TO NURSERY AND SEED FIRMS.—The Royal Warrant of Appointment to the KING has been conferred on Messrs. WM. PAUL & SON, LTD., Waltham Cross, as Rose Growers to His Majesty. The same firm have also received a Warrant of Appointment as Rose Growers and Nurserymen to Her Majesty QUEEN ALEXANDRA. Messrs. DICKSON, BROWN & FAIT, Corporation Street, Manchester, have received the Royal Warrant of Appointment as seedsman to QUEEN ALEXANDRA.

WORSHIPFUL COMPANY OF GARDENERS.—QUEEN MARY has accepted an offer made by this old City guild to provide Her Majesty with a banquet on the occasion of her coronation. The QUEEN's brother, the DUKE OF TECK, has recently become a member of the company.

CHRYSANTHEMUM MADAME R. OBERTHUR.—This fine white Chrysanthemum is one of the best varieties for late blooming, the flowers being very suitable for decorative purposes. Some excellent blooms have been sent us, since the commencement of the present month, by Mr. G. F. HYLAND, Ashby St. Ledgers Gardens, Rugby. They are of medium size for a Japanese variety, with curling and reflexed florets, some of them showing a trace of rose colour.

THE HEPATICÆ OF SCOTLAND.—Students of the Liverworts will welcome Mr. SYMERS M. MACVICAR's work published in the *Transactions and Proceedings of the Botanical Society of Edinburgh*, xxv., on the "Distribution of Hepaticæ in Scotland." The records of localities for the several species are preceded by an interesting account of the Liverwort flora of the region and a comparison of Scotland with other countries with respect to this group of Cryptogamous plants.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The King has forwarded his annual subscription of £5 to the Gardeners' Royal Benevolent Institution, of which His Majesty was formerly President.

"THE BOTANICAL MAGAZINE."—The issue for March contains descriptions and illustrations of the following plants:—

RHODODENDRON SUTCHUENENSE, tab. 8362.—This species of *Rhododendron* is one of Mr. E. H. WILSON's earliest introductions from China, whilst plant collecting for Messrs. JAMES VEITCH & SONS. The plant bears a fine truss of rose-coloured flowers, and blooms whilst very small. Although perfectly hardy, it is advisable to select for it a position shaded from the morning sun, as the blossoms expand in March, and are liable to damage when frosted if caught by the early sun. *Rhododendron sutchuense* is common on the higher mountain slopes of Western Hupeh, and it also grows in the district of Szechuan.

PRIMULA MAXIMOWICZII, tab. 8363.—This purple-flowered species of *Primula* is described and figured in *Gardeners' Chronicle*, April 2, 1910, p. 221, fig. 96, from specimens exhibited by Messrs. JAMES VEITCH & SONS, who received it from their collector, Mr. W. PIERCE. It is a native of the mountains of Northern Wei ching, and has been recorded from Shansi.

MECONOPSIS SIMPLICIFOLIA, tab. 8364.—This species of *Meconopsis* is not new to gardens, but it is one of the most distinct, having clear, blue flowers. The plant was first met with by WATSON in Nepal in 1819, and was introduced to horticulture by Sir JOSEPH HOOKER, from Sikkim, in 1848. *M. simplicifolia* is rather difficult to cultivate, especially in the seedling stage, but it thrives fairly satisfactorily in the Royal Botanic Gardens at Edinburgh, and much better than it does in districts further south: the plants usually flower in their second season.

CLEMATIS MONTANA VAR. WILSONII, tab. 8365.—*Clematis montana* is a very variable species, and no fewer than 10 distinct varieties have been found in Sikkim, Tibet, and Yunnan. Plants of the variety under notice flowered in the Cobble Wood nurseries of Messrs. JAMES VEITCH & SONS in July, 1909. *Clematis montana* does best in a rich, loamy soil containing calcareous matter; at Kew, where lime is absent from the soil, slaked lime is added when planting this and other *Clematises*, with beneficial effects.

CIRRHOPETALUM LONGISSIMUM, tab. 8366.—This species of *Cirrhopetalum* was shown by Sir TREVOR LAWRENCE, Bart., at the meeting of the Royal Horticultural Society on November 23, 1909, and received a First-class Certificate from the Orchid Committee. A description of the plant was given in our report of the show (see *Gardeners' Chronicle*, November 27, 1909, p. 364).

AGRICULTURAL EDUCATION.—It is the common plaint that our rural industries are decadent, and that succeeding Governments offer no encouragement to remedy the existing state of affairs. Small holdings are on trial, but it is felt in some quarters that further facilities are needed in this direction before they can become a success, and also that children in rural districts need educating in those subjects which they will naturally follow in after life. It is interesting therefore to learn that a Bill has been introduced in the House of Commons by Mr. JESSE COLLINGS to afford further facilities for the creation of Small Holdings, and side by side is a movement, initiated by Mr. COLLINGS, for promoting agricultural education and nature-study in public elementary schools, to enable local education authorities to provide and maintain means and facilities for the purpose of giving instruction in any of the following subjects:—nature-study; fruit, flower,

and vegetable growing; poultry and bee keeping; budding, pruning, and grafting; cow and pig keeping; milking; rotation of garden crops; nature and properties of soils; use of manures; knowledge and choice of seeds; structure, life, and food of plants; action of birds and insects on crops; choice and use of simple tools; packing fruit, vegetables, and other produce for market.

THE AGRICULTURAL NOTE BOOK.—This attractive little pocket-book, which is a companion volume to *The Horticulturists' Note Book*, is a compendium of farm data, compiled by Mr. PRIMROSE McCONNELL, B.Sc. It deals with almost everything concerning the farm in statistical or tabular form, and there are useful notes on forestry for the farmer, as well as a few details on market gardening. If information is required on the cost of any farm operation, the value of a certain manure, the returns to be expected from different crops, the weight of a plough harness, or how to make axle grease, the pages supply the knowledge. Similarly may be found tables and data concerning the dairy, live stock, including poultry; machinery, buildings, levelling, and all ground operations. The student will find the book invaluable, and save him much research amongst text books and papers.

PRIMULA SINENSIS VARIETIES.—Mr. BUDDÉ, Curator of the Botanic Gardens, Utrecht, Holland, writes to say that he wishes to obtain for scientific purposes a dozen plants of *Primula sinensis* var. *Primrose Queen* and *P. s.* var. *Crimson King*. Mr. BUDDÉ would like to obtain long and short styled flowers.

NICOTINE AS AN INSECTICIDE.—A report from Mr. G. H. GARRAD, Botanist at the South-Eastern Agricultural College, Wye, Kent, on the growing of tobacco in Kent last season, calls attention to the urgent need of allowing fruit growers to grow tobacco for use as an insecticide. It was proved many years ago that excellent crops of tobacco, so far as bulk is concerned, could be grown in England, and the proof was repeated in Kent last year. As Mr. GARRAD points out, the crop could be easily rendered unfit for smoking by being sprayed with some offensive-smelling wash just before cutting it. There would be no need of any expense in picking the leaves or any elaborate process of extracting the nicotine, as the plants could be boiled, stems and stalks included, to obtain an extract for spraying. This would be cheap enough for extensive use by fruit and hop growers, whereas at present nicotine is so costly that its use is next to impossible. Irish farmers are allowed to grow tobacco under proper supervision; then why not British fruit and hop growers? The experiments in Kent were allowed by express authority. As they have proved successful, the Government might well be urged to pass a Bill authorising growers of fruit or hops to grow tobacco for their own use as an insecticide.

THE POULTRY INDUSTRY.—The *Journal* of the National Poultry Organisation Society (January, 1911) contains an interesting report by the hon. secretary, Mr. EDWARD BROWN on the poultry industry in Germany. The salient features of the report are, that Germany is now the world's greatest importer of eggs, that by reason of the proximity of Germany to various European centres of production, Russia, Italy, and Austria-Hungary, the supplies of eggs from these countries are likely to be diverted more and more from this country to Germany, that the price of eggs in Great Britain is likely to increase owing to the shortage in supplies, and "a 6d. new-laid egg is a probable proposition" in the near future; therefore, no effort should be spared to extend the poultry industry in Great Britain and Ireland.

THE STINGING TREE OF FORMOSA.—In the course of an interesting communication to *Nature* (March 2, 1911), Mr. TOKUTARO ITO suggests that an appropriate name for the Formosan Stinging Tree (*Laportea pterostigma*) would be *Mamushi-no-ki* or *Viper Tree*. Contact of the leaves of this tree with the skin produces maddening pain, which lasts a day and a night, and hence it well deserves the old Chinese name which signifies Man-biting-dog. *Laportea pterostigma* attains to a height of about 10 feet, has long and large leaves resembling those of the Tobacco plant, and provided—needless to say—with stinging hairs. Other species of the genus *Laportea* which belongs, like the Stinging Nettle *Urtica dioica*, to the *Urticaceae* also possess this remarkable property. Thus, as described in our pages (1882, xviii., p. 465), *Laportea crenulata*, the Stinging Tree of Queensland, produces even more agonising effects than those ascribed to *L. pterostigma*:—"Its effects are curious. It leaves no mark, but the pain is maddening, and for months afterwards the part, when touched, is tender in rainy weather, or when it gets wet in washing, etc. I have seen a man who treats ordinary pain lightly rolling on the ground in agony after being stung, and I have known a horse so completely mad after getting into a grove of the trees that he rushed open-mouthed at everyone who approached him, and had to be shot. Dogs when stung will rush about whining piteously, biting pieces from the affected parts." Mr. N. E. BROWN has also described, in the same number of the *Gardeners' Chronicle* that contains the above account, his personal experience of the virulence of the sting caused by plants of *Laportea crenulata* grown in the Palm House at Kew.

SPRING-FLOWERING TREES AND SHRUBS.—In the course of an interesting article on the cultivation of spring-flowering woody plants, Mr. B. VOIGTLÄNDER (*Die Gartenwelt*, xv., 8) draws attention to a number of shrubs and trees which have claims on the consideration of those who are able to practise this most charming branch of landscape gardening. Among the spring-flowering woody plants mentioned by Mr. VOIGTLÄNDER are the following:—*Corylopsis pauciflora* opens its yellow-white flowers before the leaves appear, bearing them in slender, somewhat depending branches. *Corylopsis spicata* bears larger flowers but is less free of flowering, and only comes into full flower-bearing state when it has reached a fair age. For propagation of these species, layering is recommended, or cuttings may be taken of the leafy shoots—with a heel of old wood—in May-July. They root in moderate warmth in a propagating house in from four to seven weeks; but great care must be taken to prevent the cuttings from withering. Potted up, the rooted cuttings may be placed in a cold frame, but should be protected during the winter from hard frost and planted out the ensuing spring in well drained soil. *Amygdalus persicoides* is a small tree bearing its blossom in early spring. The flowers are white, with a slight rosy flush and upwards of an inch in diameter. The decorative effect of the flowers is enhanced by a large carmine-red spot on each petal. Though, like most species of *Prunus*, the flowers do not last long, they have the merit that they are not destroyed by a light spring frost. Among the Peaches, mention is made of the red-leaved variety, *Amygdalus persica atropurpurea*, which bears dark rose coloured flowers. Of Ribes, *R. niveum*, *R. multiflorum* and *R. petraeum* are recommended. They bear respectively white, green-yellow, and bright brown flowers; in the two latter species the flowers arise in clusters, in *R. niveum* singly. In peaty soil, *Leucothoe nummularia* and *L. recurva* thrive well. The former species remains small, and is

covered in spring with small, starry flowers, the latter reaches 6 feet in height and bears upright racemes of white flowers. In addition to various species of *Prunus*, *P. baldschuanica*, *P. triloba*, &c., and species of *Berberis* as *B. Thunbergii* and the hybrid *B. stenophylla* (*Darwinii* × *empetrifolia*), Mr. VOIGTLÄNDER refers to *Diervilla hortensis præcox* (Lemoine), which is one of the first of early-flowering shrubs to produce its masses of deep rose-coloured flowers.

HORTICULTURAL CLUB.—The next house dinner of the club will take place on Tuesday, the 14th inst., at the Hotel Windsor. The members on this occasion will dine with the provincial secretaries of the Royal International Horticultural Exhibition. After the dinner, Mr. A. D. COTTON, F.L.S., will deliver a lecture on "Fungi." The lecture will be illustrated with lantern slides.

SOIL NITRATES.—The quantity of nitrate in a soil has long been regarded as affording an important criterion of its fertility, and it is equally well known that the amount is largely dependent on the kind of crop grown. Some recent experiments made by Drs. LYON and BIZZELL, of Cornell University, have added considerably to the knowledge of this question. On the same soil the amounts of nitrate under such crops as Timothy, Corn, Potatoes, Oats, Millet, were different for each crop and different from those in the soil lying fallow. It is of interest that during the most active growing periods there was more nitrate present in the soil under Corn than in the same cultivated soil bearing no crop, and it would appear that nitrification is directly stimulated by some of the processes connected with the active growth of plants, particularly Corn. On the other hand, during the later stages of growth, the nitrates in the cropped soil were actually disappearing, while those in the uncropped soil were increasing, pointing to the possibility of plants exerting a retarding influence on nitrification during their later period of growth. Inherent differences between different plants in their stimulating or inhibiting effect may afford an explanation of the large differences in the amount of nitrates under the various crops. The experiments serve to illustrate the important influence exercised on the soil by the plant grown in it, a factor which is too apt to be overlooked.

BOTRYTIS CINEREA ON GREENHOUSE PLANTS.—*Botrytis cinerea* frequently causes serious damage to various kinds of greenhouse plants. It usually begins its existence as a saprophyte upon leaves and other plant organs which have died from various causes, but after living for a time upon dead materials the mycelium, or spawn of the fungus, frequently attacks healthy tissues. If the conditions of temperature and dampness are favourable, the mycelium grows vigorously, and quickly kills the plants which it attacks. Once in this destructive phase, the fungus is very difficult to control. When the temperature is high and the atmosphere is saturated with moisture, the fungus may remain in a sterile state, not forming spores; under these conditions the mycelium may form a kind of network over the soil, and is then known to French horticulturists as "la toile." In other conditions, however, *Botrytis cinerea* produces innumerable spore-bearing branches, each of which, when seen under a lens or microscope, looks like a miniature bunch of Grapes. It is important to remember that when ventilation is good, and the plants are not watered excessively, there is little danger of an epidemic of this fungus. Should the pest, however, develop in virulent form, the soil becomes badly infected, and, under these circumstances, it is advisable either to sterilise the soil or to use fresh soil for the plants subsequently grown.

CHELSEA HOSPITAL.

(See Supplementary Illustration.)

CHELSEA HOSPITAL is of more than usual interest just now to gardeners, on account of the great International Horticultural Exhibition which will be held in its grounds in May next year. The hospital was founded during the reign of Charles II. to provide a home for old and disabled soldiers, the architect being Sir Christopher Wren. The foundation stone was laid by Charles in 1681-2, but the building was not completed until 1694. The lands of the hospital, including portions covered by buildings, comprise about 66 acres, situated between the River Thames and King Street, Chelsea, a street that has considerable horticultural interest in being the home of several famous nurseries, some of which have disappeared to meet the demand for building land. The grounds of Chelsea Hospital are in no fewer than three parishes, the major portion, including almost all the buildings, being in the parish of St. Luke's, Chelsea. When the hospital was built the district was open country, and about 27 acres was originally included in the grounds; as time went on other land was added, and at one time the place was much larger than now; but in 1698, 27 acres were granted by the King to the Earl of Ranelagh, although a portion of this land was repurchased from the trustees of Lord Ranelagh in 1742, and another portion in 1826. These parts formed the famous Ranelagh Gardens, which were long used as a place of public entertainment.

The main building, a portion of which may be seen in the upper picture of our Supplementary Illustration, is built in the form of quadrangles with three central courts. In the centre of the middle one is a statue of the founder, Charles II. The south front faces a series of terraces, three in number, the lowest being relieved with large flower-beds that may be seen in the picture; the largest of these beds measures about 30 feet by 8 feet; the oval ones are about 16 feet across. The photographs from which our illustrations were prepared were taken during the summer when the beds were filled with summer bedding plants. In the centres of the larger ones are permanent plants of *Rhododendrons*. These only occupy a portion of the beds, the remaining parts being ample for the scheme of flower bedding. The oval bed seen immediately in the foreground was last summer planted in the centre with *Golden Gem Calceolaria*, outside of which was a row of the scarlet *Pelargonium Vesuvius*, and an edging of *Viola Bluebell*. The next bed was of white *Marguerites* that showed up well against the greenery of the *Rhododendrons*, with *Calceolaria Golden Gem* and a border of *Lobelia compacta*. Another large bed was filled with yellow *Antirrhinum* with a border of *Pelargoniums*, and edged with *Lobelia*. The tower seen immediately above the flower beds is the clock turret of Chelsea Barracks, and the trees are in the part known as Ranelagh Gardens. Between the terrace gardens and the River Thames is an open space of from four to five acres, known as The Flats, to which the public has access as well as to the Ranelagh Gardens. In the centre of The Flats is a large statue erected to the memory of 255 officers, non-commissioned officers, and privates of the 24th Regiment who fell at Chillianwallah on January 13, 1849. The grounds are partially excluded from the roadway on the river side by a mound which is planted with shrubs, but it is very difficult to cultivate other than the very commonest kinds owing to the smoke laden and foggy atmosphere. At one time, when there were fewer chimneys around, avenues of trees formed noble vistas leading to various parts. One, known as the Royal Avenue, was intended to reach to Kensington Palace, but it was not carried beyond the King's Road, which was originally a private

royal way from the London palaces to Hampton Court. One of the avenues is of more than usual interest, and consists of pollarded Limes. These trees were transplanted about 40 years since, and, the success of their removal being a matter of doubt, a row of young Planes was placed on either side in case they failed. Both, however, lived, with the result that in time the Plane trees overshadowed and crippled the growth of the Limes, while the latter spoiled the shape of the Planes.

The Ranelagh Gardens provide a great surprise in charming landscape effect. The ground is undulating in parts with broad lawns that are broken up by the skilfully planted clumps of trees and shrubs, whilst the boundaries are screened with trees and shrubs. A few flower-beds add a touch of colour in summer time. The Ranelagh Gardens are situated on the extreme south-west of the hospital grounds, and are contiguous with the pensioners' garden plots shown in the lower picture. These tiny gardens number 140, and each consists of about one rod of land. Each is a veritable garden in miniature, and the number of subjects that are crowded in a small plot tells of the great enthusiasm of the cultivators. Sometimes the plots are laid out with paths and tiny summer houses, or, as showing the proclivities of the owner, it contains a fort, built of pebbles gathered from the adjoining river's bank. Amongst the most successful plants that grow in these little gardens are Carnations, which do remarkably well; Dahlias, the tubers being buried in the soil in winter to protect them from frost; Sunflowers of the multiflorous type, and specially the old double alba plena variety, *Artemisia abrotanum* (Old Man), *Gladiolus*, and annuals, such as *Godetias*, Cornflowers, *Mignonette*, and Sweet Peas. Some of the cultivators favour vegetables, and crop their plots with such things as Radishes, Lettuces, Potatoes, Cabbages, including hardy Kales, Parsley, Beet, and similar kinds. Roses are sometimes attempted, but they are always a failure. The owners are expected to keep their plots in order, but there is seldom ground for complaint in this respect as the old soldier is usually a keen gardener. Sometimes the cultivator makes a visit on foot to Covent Garden to secure something fresh for growing, but, as a rule, an interchange of subjects provides the necessary stocks.

A competitive show is held each season, and 1st, 2nd, and 3rd prizes are awarded in three classes for (a) the best flower garden, (b) the best vegetable garden, and (c) the best mixed garden. On the north-east side of the pensioners' gardens is the old burying ground of Chelsea Hospital, with numerous tombstones each marking the last resting place of some old hero, one of the most interesting being inscribed to the memory of Wm. Hiseland, who married when he was more than 100, and died at the age of 112.

Near this part is situated the framing ground, in which are several glass-houses and frames that are filled with a variety of bedding plants. The garden superintendent is Mr. T. W. Turner, who will be well known to frequenters of the old R.H.S. Gardens at Chiswick, where he was foreman for many years.

A FLORAL ARCHWAY.

THE floral arch shown in fig. 69 was erected by the South African Railways Company at Johannesburg Railway Station, on the occasion of the recent visit of H.R.H. the Duke of Connaught.

The decoration was designed by Mr. Robert Phillips, Superintendent of Parks, Johannesburg. The groundwork was composed of clipped sprays of *Cupressus macrocarpa*, the pillars and panels of a white *Helichrysum*, and colour was supplied by other species of *Helichrysum*, and flowers of *Gnaphalium*, *Erica*, and other species.

Twenty men were engaged for two days and two nights in forming the arch.

NURSERY NOTES.

PRIMULAS AT FOREST HILL.

THE display of Primulas in Messrs. James Carter & Co.'s branch nursery at Forest Hill, is as fine this season as ever. The mild, dry weather, with few fogs this winter, has favoured the plants, and they have flowered exceptionally well. Most important of all, the seed-pods are swelling freely, giving promise for a good seed harvest, as this is the reason why nearly all the glass-houses are filled with the plants. Every care is taken to ensure the seeds setting, the flowers being dusted with a small brush during the brightest part of the day. It may easily be seen which of the blossoms need pollinating, for those that have been dusted with the brush soon lose their bright colours, the difference between the young and old blooms being very marked in this respect. Plants of a

another of the red shades, and there is also one named *Carmine Empress*, with double flowers, having the deepest shade of all the double Primulas in the collection. *Princess of Wales* is another pleasing double variety, having white flowers delicately tinted with salmon. *Holborn Crested* is of a light carmine colour, fading to white, and with a beautiful yellow "eye." *Double Scarlet* is excellent for furnishing cut blooms as the inflorescences are very freely produced and the colour is the nearest approach to scarlet in any of these Primulas. *Snowflake* is really a pale blush; it is a very early bloomer, and more valuable on that account. *Holborn Rose*, *Holborn Pink*, and *Holborn Queen* (white) are three good Primulas in their respective colours. There is also a variety of rose-shade known as *Rose Queen*. This is a very pretty sort, and the plant sends up a big inflorescence bearing large flowers. Amongst the seedlings of the year is one of great promise, which has been named *Raynes Park White*. It is

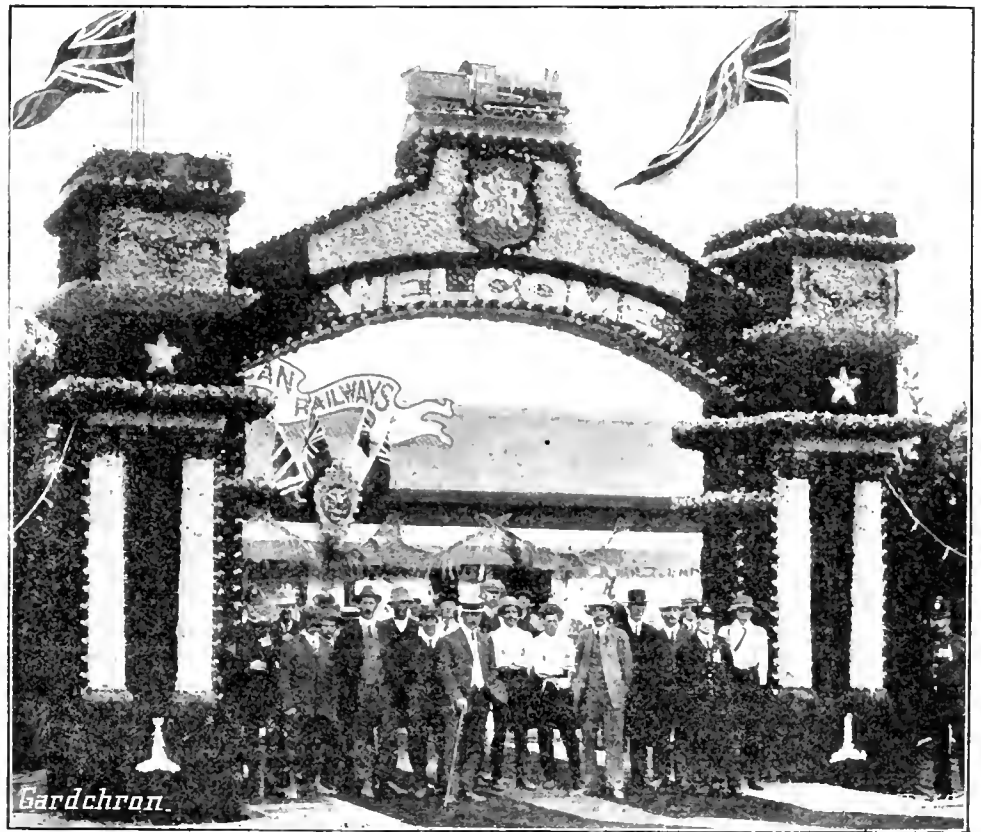


FIG. 69.—FLORAL ARCH ERECTED AT JOHANNESBURG, ON THE OCCASION OF THE VISIT OF H.R.H. THE DUKE OF CONNAUGHT.

moderate size give a better crop of seeds than vigorous ones, and the specimens are, for this reason, potted in small pots. Some of the varieties are much better seeders than others, and it is interesting to find that the fertile, double-flowered varieties are as prolific as any. The varieties grown by Messrs. Carter embrace all the beautiful colours seen in this flower, and there are examples with all the different types of foliage, including one with leaves like the Oak-leaved *Pelargonium*. The beautiful *Princess May* variety appeared as glorious as ever. It is one of the best types of a giant Primula, the blush-pink flowers being from 2½ inches in diameter. The plants are good growers, and have an excellent habit. *Holborn Coral* is one of a series of colours with the prefix *Holborn*, and it is one of the best of the set. The colour is especially clear and bright, and of a very attractive shade. The petals are large and of great substance, the variety being one of the best sent out by this firm. *Vermilion* is of the rich colour indicated by the name, whilst *Carmine* is

of the giant type, with stout, clear-cut petals, set off by a yellow eye; it has Palm-leaf foliage. The plant produces secondary trusses of bloom, so that the flowering is free.

An old favourite was seen in *Elaine*, which, to our liking, is one of the best of the white varieties in the nursery. There were large batches, too, which indicated its popularity in gardens. The blooms are certainly small, but this is compensated in their extra refinement and the plants' prolific blooming. The foliage, curiously enough, is dark in colour, and belongs to the palm-leaf type. *Giant Crimson* represents a large-flowered variety of this shade; the crimsons and other dark varieties are never so large in the flower as the paler ones, the most delicate colours, such as blush, salmon, and white, giving the biggest blooms. Thus, in *King Edward*, a white sort, the flowers are very large, and this Messrs. Carter regard as one of the finest varieties sent out by them. The inflorescences are developed well above the foliage, and bear a great number of

flowers. The petals have prettily-filled margins. In the variety Light Blue is seen the forerunner of this shade, and, although there are now others of deeper tone, it is still one of the clearest shades: lavender is perhaps nearer the tone than blue. The Bouquet type is remarkable for the leafy involucre, hence the name. Bouquet White was finely in flower, and stands up well above the circle of foliage borne on the flower-stalk.

In Giant Magenta the blooms are very true to colour, but the effect of pollinating them is at once seen, they become dull and the succeeding flowers much smaller. Orange King is of a most beautiful shade in the younger flowers, and efforts are being made to obtain the same tone in hybrids with large flowers. In other directions, too, crosses were being effected, as there are almost endless possibilities in the species, that has already provided greater variability, probably, than any other florists' flower. The stellata type, for instance, has furnished varieties with white, pink, blue, crimson, lilac, salmon, and other pleasing colours. These Star Primulas are as charming as any, and, with their lax inflorescences, are admirably suited for greenhouse and conservatory decoration.

Amongst other subjects observed at this Forest Hill nursery was a fine batch of Cinerarias, also a large house filled with Gloxinias, both these plants being in the finest condition, and promising a grand display of flowers in their season.

VEGETABLES.

BRUSSELS SPROUTS.

My method of cultivating Brussels Sprouts is as follows:—The seeds are sown in boxes about the end of February, and they are placed in ainery that has been started recently, or a glass-house with similar conditions. Germination takes place quickly, and shortly afterwards the boxes are transferred to a cold frame from which frost can be excluded. When the rough leaf has formed, the plants are pricked out into a cold frame at a distance of about 3 inches apart. They are sprinkled overhead with tepid water and kept close for a few days, after which time fresh air is admitted on all favourable occasions. The seedlings need to be shaded for a few days from bright sunshine, and the lights must also be covered when frost prevails. Throughout the latter part of April the lights are removed entirely, being replaced only if cold or frosty weather is evident, the object being to induce the plants to grow strong and sturdy by the time the weather permits them to be planted out. This is generally about the middle of May, the ground having been previously well prepared by manuring and deep working. The plants receive a thorough watering the day previous to planting, which is carried out carefully by means of a trowel. They are allowed a distance of 3 feet apart each way, and well watered after planting. If the ground is kept stirred occasionally with a hoe, the plants will grow quickly. When they are about 1 foot high, little mounds of soil are drawn up around the stems, to keep the plants steady in windy weather. The variety grown here is "Sutton's Exhibition," and treated as I have described, the plants never fail to produce an abundance of good solid Sprouts, furnishing a supply of buttons from October to the end of March. As the stem leaves turn yellow, they should be removed, for when these are left on the plants the flavour of the Sprouts is impaired. In addition to "Exhibition," we grow a few plants of the variety "Dwarf Gem." These are raised in the open ground, and furnish Sprouts after the main crop is over. *Wilmot H. Yates, Rotherfield Park Gardens, Hants.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

CORONILLA GLAUCA AND VERONICAS IN IRELAND.—Two plants of *Coronilla glauca* growing at the foot of a south wall here have been flowering since the middle of October. They are about 3 feet in height by 4 feet in diameter. Two other plants of the same species, which are not so favourably situated, have produced no flowers. The heavy rains during the month of December caused the flowers to damp, but, with this exception, the bushes have been a mass of bloom, and, at the time of writing (February 22), are conspicuous subjects. *Veronica Andersonii* flowered freely during November and December. Another dwarf *Veronica*, the name of which I am uncertain, has been flowering during the whole winter. The *Veronicas* are growing on a north border, and *V. Andersonii* has been injured somewhat by strong winds. A hedge of *Fuchsia Riccartonii*, 190 feet long, 8 feet high, and 3 feet in width, forms an attractive feature when in flower. Very slight frosts have been experienced this winter, and no snow has fallen. From the middle



MR. GEORGE MAYES.

to the end of January the weather was fine, clear, and calm. The first week in February was very bright. Lately, considerable rain has fallen, and strong gales have been experienced. *C. Ruse, Lambay Island, Rush, Co. Dublin.*

A NURSERY EMPLOYÉ'S JUBILEE.—A benevolent Government may some day institute a long-service medal for persons in civil life, and I have much pleasure in sending you a photograph of a veteran in the nursery trade who is deserving of the honour. Mr. George Mayes will be remembered by many of your Colonial readers who have worked in the Clapton Nurseries, for he has served in the Low family for half a century. Mr. Mayes still prefers to work, and, although he is turned 80 years of age, is as hearty as possible. *Lawrence P. Cook.*

FORCED SHRUBS.—The great variety of shrubs that may be forced into blossom at this time of the year has been well shown by Messrs. R. & G. Cuthbert at recent meetings of the Royal Horticultural Society. An outstanding feature of the displays was furnished by large bushes of *Magnolias*, of which *M. speciosa* may be especially mentioned. This, which is one of the garden forms obtained by crossing *Magnolia Yulan* or *conspicua* with *M. obovata*, is of freely-branched upright habit, and the leafless branches

are plentifully furnished with erect blossoms, white, or nearly so, inside, and with a purplish tinge on the exterior. Another *Magnolia* somewhat in the way of *M. speciosa*, but not so free in flowering, is *M. alba superba*. There have been also plants of *M. Yulan*, with pure-white blossoms, and *M. Lennei*. In order to break up the undulating surface of the group, numerous standard plants have been employed. Chief among these were the deciduous forms of *Rhododendron* popularly known as Azaleas; *Wistaria sinensis*, beautiful in its profusion of pendulous racemes of lilac-coloured blossoms; *Staphylea colchica*; *Prunus triloba*; *Laburnum*, most effective as a standard; Lilacs, and *Forsythia suspensa*. Dwarfier subjects of a more bushy habit included Lilacs, the pure-white *Marie Legraye* being very noticeable; *Rhododendron sinense* (*Azalea mollis* of gardens) in many forms, the rich, golden-yellow of *Anthony Koster* being in its colour still unsurpassed; *Staphylea colchica*, laden with blossoms; and the small, white-flowered *Spiraea Thunbergii*. This by no means exhausts the list of hardy shrubs available for forcing. The members of the *Prunus* family, which include the Almonds, Cherries, and Peaches, as well as Plums, are all available for forcing. Of the forms of *Prunus* proper, the pink and white varieties with double flowers, of *Prunus japonica*, known also as *Prunus sinensis*, are very beautiful as small bushes, and the blossoms remain fresh for a considerable time. *Prunus triloba*, alluded to above, is also a choice subject. The double-flowered Cherries are equally desirable, especially the form of *Prunus Pseudo-cerasus*, known as *J. H. Veitch*. This has very large flowers of a pink tint, while the tender, unfolding leaves are of a pretty, bronzy hue. Other subjects include *Amelanchier Botryapium*, the white flowers being borne in great profusion; *Andromeda floribunda* and *A. japonica*, pretty evergreens with white, wax-like flowers; *Choisya ternata*, with fragrant, white blossoms; *Cydonia japonica* and *C. Maulei*, of different colours; *Tree Peonies*; *Rhododendron Cunningham's White*, which seems identical with *R. caucasicum album*; *Cytisus Andreanus*, the flowers, when developed under glass, are richly coloured; *C. praecox*, with pale-sulphur blossoms; *Deutzia gracilis*, and some of the newer hybrid *Deutzias*; *Kalmia latifolia*; the *Laurestinus*, which blooms naturally during the winter months; *Ribes sanguineum*; *Spiraea confusa* or *media*, *S. prunifolia flore plena*, both with white blossoms; *Thorns* of sorts, which must not, however, be forced hard; *Viburnums*, particularly the Snowball Tree (*V. Opulus sterile*), and its Japanese representative known generally under the name of *V. plicatum*; *Weigelas* or *Diervillas* of sorts, especially the dark claret-red *Eva Rathke* variety, and the singular *Xanthoceras sorbifolia*. The Japanese Maples furnish beautiful foliage plants for mingling with these flowering shrubs. *H.*

SPREAD OF AMERICAN GOOSEBERRY-MILDEW (see p. 13).—So far as I am aware, no spread of this disease takes place in winter. The latest date on which the summer (or spreading) stage has been seen in this country was on November 8, at Wisbech. Curiously enough, this occurred in the same locality, and on the same date, in the years 1909 and 1910, but it is as well to remark that the quantity of summer stage then seen was very small indeed. However, a careful investigation of the case mentioned on p. 13, has been made, and the particular bushes mentioned have been closely examined. A few traces were found of twigs slightly affected with the usual winter stage of the disease, but beyond that there seemed to be nothing out of the common, or suggestive of any spread of mildew in winter. During a personal interview with the writer of the paragraph, I gathered from him that he had seen no white or true summer form of the disease during December, but the twigs to which he referred were simply brown at the tips, and of this discoloration there was very little indeed. There seems to be every indication that, as so often happens, some of the brown twigs were missed during the first two prunings mentioned. No doubt this would be on account of the dazing effect upon the eyes caused by constantly looking at the bushes. A fresh commencement of work after an interval would reveal the missed twigs to the workmen's eyes, which would naturally be keener after a period of rest. *M. M.*

SPECIMEN PLANTS AT EXHIBITIONS.—I was pleased to read the note by B. (see p. 123) on the specimen plant of *Cattleya Triana* exhibited by Sir George Holford at the Royal Horticultural Hall on the 14th ult. I agree with the writer that Orchids should be exhibited as fine specimens rather than as small plants in mixed collections. This *Cattleya* was more attractive than any group of mixed Orchids in the Hall. It is to be hoped that every effort will be made to present large, well-grown specimens of every description of plants at the Royal International Horticultural Exhibition in 1912. Not many of the present generation remember the wonderful specimens of Roses, Azaleas, Pelargoniums, and other genera which were such grand objects at the International Show of 1866. D.

LATE-KEEPING APPLES (see pp. 123, 139).—There is not the least doubt about English Apples paying for storing until February, provided that storage is done on a proper system. On p. 123, Mr. Molyneux quotes 6s. per bushel of 48 lbs. as the best price for Bramley's Seedling at Southampton in October last; at that time, the price in this district would be about the same, but now the same quantity is worth 8s. 9d. wholesale, which is an increase of nearly 50 per cent. It would be interesting to know if a similar increase in price occurred at Southampton. In regard to the loss through keeping, the decay does not amount to 1 per cent. with me, and in a good store loss of weight is very small. Annie Elizabeth is one of the best Apples for market purposes, being worth 1s. 9d. per bushel more than Bramley's Seedling. Whether the gross return per acre would equal Bramley's is very doubtful, as it is not such a sure bearer, although in a good season it often carries a heavy crop. The tree is a vigorous grower, and keeps very healthy. As a baking Apple, it is very useful, as it keeps its shape, which Bramley's will not do. Newton Wonder is another excellent keeper, and one that bears well, especially when grafted on established trees; I have a good quantity of it at present that will keep for a considerable time longer. It is a splendid cooker, and it is also very useful for dessert at this time of the year. Hoimead's Pearmain is not grown so largely as its merits deserve; it is very firm and fresh at present, and has the great merit of swelling out to an even size under good cultivation; it is a good cooker. I have a note of it cooking well on May 4 in a previous season. An Apple which much resembles the last in appearance, and other good qualities, is Hambling's Seedling; it promises to be a more vigorous grower, but I cannot speak decidedly as to its cropping qualities at present, as my trees are but small. The above are the best of the late-keeping, cooking varieties. Mr. Molyneux speaks of Cox's Orange Pippin being finished at Christmas! I have only lately commenced to use it, and have a fine lot in the store-room. I cannot give the market value, as mine are for private use, but it would range from 6s. to 9s. per dozen. Anyone who had a few bushels of this variety now would possess a small goldmine. No Apple imported from British Columbia or anywhere else can equal it for flavour, neither will any other fetch as much money in the market. It is an intermittent bearer, but in this district is not subject to canker as it is with *Southern Grower* (see p. 97). I find it repays good cultivation, even in the case of trees 30 to 40 years of age; it requires watching carefully as to its latest time for keeping, as it often commences to decay at the insertion of the stalk. I am surprised that Barnack Beauty has not made more progress as a late-keeping dessert variety; it keeps here until June, is of excellent flavour, and has a nice red colour on the sunny side. The principal point in regard to profit is that it bears heavily and regularly; if any trees bear here in a scarce year, Barnack Beauty is sure to be one of them. I do not recommend it for standard trees, as it crops so heavily, and the fruit is inclined to be small; but on the Paradise stock, with good cultivation, it grows to a good size. No doubt, in the South, it would be larger on standards than it is here in the Midlands. Another good late variety is Duke of Devonshire. At the present time this is very good in quality, and will keep for several weeks longer; it is a much better Apple than either Baumann's Reinette, Lord Burghley, or Sturmer Pippin, for a private garden (the last variety is of no use whatever in this district), but

Duke of Devonshire is marked with russet, and is without colour, and probably of no use for sale; it is a good cropper, but requires much care as to time of gathering, or it shrivels. It has another fault, in a tendency to drop from the tree prematurely during strong winds, and is therefore not adapted for growing as a standard. This latter point—care as to time of gathering—cannot be over-emphasised, if Apples are to keep well until late in the season; another important matter is a low temperature and an even one in the store-room; and the fruits must not be laid in heaps 3 feet deep, as I have seen them in Kent in my early days. I do not know if the practice there has improved since then—let us hope it has—but I am quite certain the majority of our trade growers have yet very much to learn before their produce is put on the market in as good a condition as the foreign produce. W. H. Piers, *Belvoir Castle Gardens, Grantham, February 25.*

—In connection with the interesting notes on late-keeping dessert Apples, I quite agree with Mr. A. C. Bartlett as to the good qualities of some of the Russets, and also of Cornish Gilliflower. There are two further varieties that I think are worthy of mention as late dessert Apples. The old Cackle's Pippin, though not a highly coloured Apple, is of good flavour when grown on young trees and the fruit thins. Dutch Mignonne is to be recommended, as it keeps well, comes in after Christmas, and is an Apple of good appearance, with a really good flavour; both varieties are good growers, and as a rule the trees bear well. J. J.

APPLE NEWTOWN PIPPIN.—In the discussion on late dessert Apples, I have seen no mention of this famous American variety, although it must have been tried in a good many gardens. Here, on a wall facing to the west, it behaves very well, and furnishes good crops of average-sized fruits in most seasons. In point of flavour, the fruits may not be quite equal to the best of those imported, but in its season, namely, February and March, it is generally as good as most varieties. The three best and most useful dessert Apples here are James Grieve, Cox's Orange Pippin, and Adams's Pearmain, and these are in season from October to March. J. G. Littlecote, *Hungerford, Berks.* [Our correspondent sent several fine fruits weighing $\frac{1}{2}$ lb. each. The skins were as clear and fresh as possible, and the fruits were quite agreeable eating, but the quality was not quite equal to imported fruits of this variety.—Eds.]

SKIN POISONING BY IVY.—Having read the paragraph on p. 139 respecting a case of poisoning by Ivy, I wish to give my experience of a similar case. Having a good deal of Ivy about my garden I instructed a jobbing gardener to cut it, which he did, but to my horror the poor fellow looked as though he had been stung by a hive of bees, and he said he was affected all over. Never again will I allow him to touch Ivy. He was a new hand, and a healthy looking young man. M. E. T.

—I was much interested in the note upon skin poisoning by Ivy. Some years ago after cutting Ivy I was troubled with exactly the same kind of thing, namely irritation of the skin on face, head, and forearm, which eventually broke out in large sores. I suffered more particularly round my eyes and on my forehead. This kind of thing happened two years in succession, although not quite so severe the second season as the first. I have trimmed Ivy on a great many different occasions, but have never felt any ill effects excepting the two occasions already mentioned, when, I might add, I was engaged at the work for 10 days at a stretch. The trouble commenced after the second day, and was probably aggravated by me continuing the work. I have never known anyone in those gardens or elsewhere to be troubled from the same cause. W. C. Leek, *Ryhall Hall Gardens, Stamford.*

BROWN OAK.—I think that Mr. Dawson is assuming too much (see p. 140) when he assures us that it is "as completely in our hands to grow such wood as it is for a florist to grow a new Rose or Apple." No doubt it would be interesting to attempt to produce brown Oak by grafting, as he suggests, but to assume that brown Oak is a

sport as he does is certainly not justified by the very limited knowledge which we have at present about this beautiful wood. Four years ago I published what little reliable knowledge I had been able to obtain on the subject in the *Trees of Great Britain and Ireland*, pp. 337-339. For years before, and ever since that time, I have taken every opportunity to learn more; but the various causes which, singly or in combination, produce brown Oak are still doubtful. It has lately been suggested that iron in the soil may be the cause, but if this is true in some cases, it will not explain what I have observed, namely, that the change of colour which usually commences at the ground and extends upwards, sometimes commences above and extends downwards. And if it is true that in some places quite young Oaks have their heartwood brown as soon as they form any, it would seem more possible to reproduce this peculiarity by sowing Acorns from such trees than by grafting. I should be glad to see Oak timber of a dark olive green colour, as mentioned by Mr. Dawson, as it is quite unknown to me in nature, though I have often seen it stained that colour. H. J. Elwes, *Colebourne.*

RHODODENDRON BARBATUM.—The mildness of the present season in this locality is easily observable, and shows itself, in particular, where the early flowering Rhododendrons are concerned. In Lord Annesley's gardens at Castlewellan, several species are now flowering with exceptional freedom, and the absence of frost has tended to the development of blooms perfect in form and colouring. But even here, in critical surroundings, *Rhododendron barbatum* has no serious rival when at its best. This species is represented in these gardens by several fine specimens, but one well-branched plant, in particular, standing 10 feet high and carrying more than 80 expanded trusses of from 12 to 18 flowers each, presents to-day a picture which would be striking at any season of the year, and is certainly very remarkable in February. The deep-green leaf-colouring provided a singularly suitable setting for the brilliant blood-red flowers, which a glimpse of sunshine only tended to intensify. The plants here are all on their own roots, and are well placed to escape the early morning sun, and they are screened from heavy winds by surrounding tree-growth. Beyond occasional top-dressings and thinning out of dead wood, they require but little attention, and, though now more than 20 years old, they continue to produce an abundant supply of fresh growth each season. *R. vulgare* has already opened the first of its many buds, and gives promise of a great show of flower in the immediate future. Such species as *R. argenteum*, *edilatum*, *Thomsonii*, *Campbellii*, *campanulatum* and *niveum* are especially well set with flower-buds, and, should the weather conditions remain favourable, they may be relied upon to bloom freely later on. These gardens are now under the management of Mr. T. J. Ryan, who is successfully carrying on the work so ably begun by his father, and the enviable reputation of the place promises to be well maintained in his hands. H. Armitage Moore, *Castlewellan, Co. Down, February 27.*

EXPORTATION OF PLANTS TO NEW ZEALAND.

—Can any reader of the *Gardeners' Chronicle* tell us who is the authority in this country capable of giving a certificate relating to the freedom from disease of plants intended for exportation to New Zealand? Twice we have received notice from the Department of Agriculture at Auckland, N.Z., that in future a certificate must accompany anything in the plant way sent to that country:—"Signed by an officer of the Department of Agriculture in England or other authority performing the functions relating to horticulture." We may say we invariably send with New Zealand consignments the usual Phylloxera certificate, declared and signed before a magistrate, but this evidently does not satisfy the overseas Department of Agriculture, and we are sure there must be others besides ourselves who would be glad to know who can certify. It seems to us that those who grow the plants best know if they are diseased, and if these are firms of honourable repute, and they declare them clean, the declaration is most likely correct. In the case of dormant trees and tubers, such as are usually exported, an outside authority who had never seen them in their growing state would have a difficulty in ascertaining whether they are free of disease or not. Keynes, Williams & Co.

THE PROPOSED DAFFODIL SOCIETY.—Previous to the meeting held on February 14, I supported the proposal (by letter) to form a National Daffodil Society on the grounds that there was scope for work over and above the functions of the R.H.S. Daffodil Committee as at present constituted. From what passed at that meeting, however, and on further inquiry, I gather that such is not the case. I understand that the R.H.S. may be both able and willing to undertake all that is necessary to satisfy the requirements of those interested. This, to my mind, would be far the more preferable solution of the matter. But it is probable that the support given by others to the national project has likewise been conditional, and on more or less the same grounds, tacitly or otherwise. Our chief requirements, I think, are: (1) In a general way we want a central organisation to focus the work of all the societies scattered throughout the country, to encourage their extension, and to link them together by affiliation, while leaving each absolutely independent. (2) A Daffodil exhibition in London each year. (3) The publication of an annual, both for the dissemination of matters of current interest and as a medium for the permanent records. (4) The compilation of an authoritative list of varieties—kept up-to-date—with parentage and their raisers, as far as this is possible (and while it is possible), which has already been arranged for. There are other things, less pressing, which I hope eventually to see the R.H.S. Committee take up. It should be possible to arrange for a series of illustrations (as for Orchid hybrids) as a record of the more notable varieties. Experimental work might also be carried out at Wisley—or by the co-ordinated labours of private members—under the direction of the committee or a sub-committee. The committee should also continue their especial function of guiding the improvement of the Daffodil by the wise and impartial discrimination of their awards, which has hitherto constituted their great value. Some of these things cost money, and if it should be necessary, I see no reason why there could not be a special and extra subscription from those members of the R.H.S. who were interested and wished to participate in the results of these extra labours of the committee—the Year Book, List of Varieties, the Annual Show, Reports, &c. Since the R.H.S. Committee is already in existence, and is certainly the most competent and appropriate body to undertake all these things, and could carry out all of them as well, and some of them better than a separate National Society, it would seem in every way desirable that it should be retained as the head and central body. With the R.H.S. Committee then as the national centre, the scheme would be ideally filled by the eventual formation of a few large societies, which would look after the exhibition side of the business throughout the country, in the same admirable way that the Midland Society now does. Each of these societies should embrace an equal seasonal area, grouped round already existing centres and forming natural and recognised divisions. A South-western, a Southern Counties, the Midlands, an Eastern Counties Society, and so on. There would still be scope for smaller local societies and shows. With the R.H.S. as a centre, every encouragement would be given to the formation of large district societies. But if a separate National Daffodil Society should be formed there would certainly be an opposite tendency for the now large societies to break up. Even the Midland Society would be injured, or absorbed into the National Society; and though this has been openly advocated by some, I feel sure most of us would regard it as a retrograde step. It is not at all sure either that it would not even practically destroy the R.H.S. Daffodil Committee—it would at any rate inevitably diminish its authority and prestige—and that would be an even greater loss. Furthermore, a single great National Society, with one large annual show, could not suit all the wide variation of season throughout the country and the wide range of the period of flowering of the different varieties of Daffodils in the different seasonal areas, beginning in early March (in the southern and lasting till nearly the end of May in the northern and eastern counties). It, to meet this, it was proposed for the National Society to hold three or four large shows in the different centres of the country, that would be much less satisfactory than that such shows

should be organised and held, each in its own centre, by the societies themselves. In this latter case, with several strong Daffodil societies of equal seasonal area, each holding large exhibitions, on successive dates, to suit mid-season varieties—directly under the aegis of the R.H.S., but otherwise quite independent—exhibitors would have the opportunity of showing the whole range of varieties grown under natural conditions. A far greater and wider stimulus would thus be given to the cult of the Daffodil than would be possible under the excessive centralization that a National Society would involve. *A. J. Bliss, Kent, Surrey and Sussex Daffodil Society.*

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

FEBRUARY 28.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (Chairman); Sir Everard im Thurn, Sir John Llewelyn, Rev. Canon Fowler, Prof. Boulger, Messrs. E. M. Holmes, A. Worsley, J. T. Bennett-Poe, J. Fraser, H. J. Elwes, R. Hooper Pearson, W. C. Worsdell, W. Hale, J. W. Odell, and F. J. Chittenden (hon. sec.).

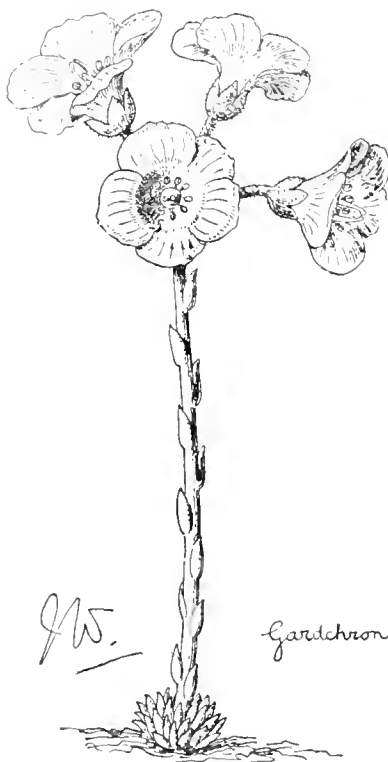


FIG. 71.—*SAXIFRAGA X BURSICULATA.*

Galanthus hybrid (?).—Mr. BOWLES showed drawings of the *Galanthus* exhibited by Mr. ELWES at the last meeting, and reported that in structure and appearance it approached certain hybrids of *G. Elwesii*. He thought it might be a hybrid of that species with *G. caucasicus*, but the characters shown by seedlings which Mr. ELWES said would probably flower next year would throw further light upon the parentage. Mr. ELWES showed a photograph of a group of plants growing in his garden.

Hippeastrum calyptratum.—Mr. WORSLEY showed flowers of the unspotted form of this species from his garden.

Lupinus racemosus.—Mr. ODELL showed flowering shoots of this plant, and commented upon the peculiar method of pollination.

Gall on Willow.—Mr. FRASER brought stem galls upon *Salix purpurea* Lambertiana similar in appearance and structure to those produced on *S. aurita*, &c., by the dipterous *Cecidomyia salicis*, and which he thought had probably been formed by that insect, although they were usually found attacking only willows.

Hybrid Hippeastrum.—Mr. ELWES showed flowers from plants the result of a cross between

Hippeastrum equestre and *H. x "Sir William."* The plants flowered at two years of age, and bore red flowers (as usual with equestre crosses), varying, however, in shade and markings. Mr. ELWES undertook to report later upon these hybrids when more of the same cross had flowered.

Fasciated Orchid.—Mr. GURNEY WILSON showed a plant of *Brasso-Cattleya x Fowleri*, in which one of the pseudo-bulbs had forked before flowering, and both forks appeared likely to flower. Mr. WILSON remarked that malformations of plant and flower appeared to be much more frequent in trigeneric hybrids than in crosses between the species.

Narcissus cyclaminus x N. minimus.—Mr. BOWLES showed a plant of this cross raised by Mr. CHAPMAN.

Saxifraga x Bursiculata (see fig. 71).—A hybrid between *Saxifraga Bursieriana* ♀ and *S. apiculata* ♂ came from Mr. E. H. JENKINS. The plant was remarkably vigorous and free flowering. In the length of the peduncle, its greenish colour, and in the form of the calyx, the hybrid resembled *S. apiculata*. The whiteness of the corolla and the crimped edges of the petals called to mind *S. Bursieriana*, as did the spiny and glaucous characters of the foliage. In the size of the rosettes and the horizontal spreading of the leaves it resembled *S. apiculata*. The other seedlings raised from the same capsule included two yellows, one poor and weedy looking, and 10 plants indistinguishable from *S. Bursieriana* (see p. 141).

Beetle boring bark of Austrian Pine.—Canon ELLIOMBE sent a piece of the bark of *Pinus austriaca* bored by a beetle, which Canon FOWLER reported upon as follows:—"The borings of the beetle in the bark of the Austrian Pine are very old, and there is no trace of either beetle or larva to be found. I think it probable, however, that the injury was done by *Hylastes ater*, which attacks various kinds of Pine, both roots and trunk; it is a rather common and widely distributed insect in England, but apparently commoner in Scotland. This is, however, surmise, as it is impossible to be certain; the wood looked as if it had been used for a pergola or fence of some sort, and was quite dry and ancient."

Double Arum.—Miss MUSGRAVE sent a specimen of *Richardia africana* having the leaf next to the inflorescence wholly white except for a slight green mottling. Miss MUSGRAVE said that the same plant had produced similar growths in former years.

Fasciation in Primula malacoides.—The Venerable Archdeacon DONNE sent a water-colour drawing of *Primula malacoides* with a fasciated stem.

LINNEAN SOCIETY.

MARCH 2.—At a meeting held on this date, Mr. C. E. Salmon showed British specimens of *Lepidium neglectum*, Thell., and *L. densiflorum*, Schrad. Mr. F. N. Williams, Mr. E. G. Baker, and Dr. O. Stapf discussed the probable origin of these forms, and Mr. Salmon replied.

Mr. H. W. Monckton showed a series of lantern slides from photographs taken during his visit last autumn to Sweden as a delegate on behalf of the Society to the International Congress of Geologists, especially those taken at Upsala, some of which showed places connected with Carl von Linné, including a front view of his house in the old Botanic Garden.

Mr. H. R. Darlington commented on the modern use in Sweden of the German prefix "von."

The general secretary then showed a supplementary series of lantern slides, chiefly from old prints, concerning the history of the old botanic garden. He stated that when Linné and Rosén had exchanged chairs in January, 1742, and the former had thereby become prefect of the garden, he took immediate steps to rearrange the garden, provide glass-houses, and rebuild the house attached, which belonged to the prefect. The last slide showed the old Poplar close to the entrance, the only specimen which can be regarded as coeval with Linné, inasmuch as the Laurels and a few other veterans had been transported to the new botanic garden early in the 19th century.

Dr. A. Strahan, F.R.S. (visitor), Mr. H. N. Dixon, Dr. A. P. Young, and Dr. James Murie joined in the discussion.

SCOTTISH HORTICULTURAL. LECTURE ON SWEET PEAS.

MARCH 7.—At the usual monthly meeting in Edinburgh on the above date, the president, Mr. W. H. Massie, occupied the chair, and there was a very large attendance. Mr. W. Cuthbertson was the lecturer, and his subject was "A talk about new Sweet Peas."

Mr. Cuthbertson said that prior to 1901 there were no Spencer or Waved Sweet Peas. Accepting the form of the flower as a standard there were two old types, which are still largely grown. The erect-standard type is well represented by Triumph and Prince Edward of York.

The hooded-standard type by Lady Grisel Hamilton and Dorothy Eckford.

These forms still appeal to a number of florists. The new Spencer varieties are to them anathema, just as the fancy Pansies were to the lovers of the Old English or show Pansies. But in horticulture, as in other things, the march is forward not backward.

How pleasant it is, too, when one feels that the forward march is a profitable one—profitable, not only in the sense of increasing the beauty and usefulness of the flower, but profitable also in so extending the area of interest that, to many,

two or three promising things, the rest being rubbish. The good ones I crossed with Prima Donna, and the next season, that was 1900, there was one plant among the seedlings much stronger than any of the others, and which flowered much later than the other varieties. That proved to be the original 'Countess Spencer.' I just managed to save five seeds—one pod only. The following spring, after sowing them, I lost three of them in one night owing to mice. The stock was thus reduced to two plants, but from them I saved 90 seeds. It was from these plants that I exhibited the flowers for the first time. In 1902 I sowed all the seeds, every one came true, but, owing to it being a wet summer, I only managed to save about 3,000 seeds, 2,200 of these were sent in 1903 to America to be grown for stock by Mr. Sydenham. What came back from America was a mixture of all sorts, no more like my true Countess Spencer than day is like night. With me Countess Spencer has never sported to this day. It has thrown reversions: that is, it has reverted to its parents, such as Lovely and Triumph, and on rare occasions to Prima Donna, but nothing else. To my mind, that is not sporting. That is all there is to tell about the origin of Countess Spencer."

PURITY AND FIXITY OF STOCKS.

According to the Sweet Pea Annual for the current year just over 300 trials of Sweet Peas were made at Guildford last year for the society by the late Charles Foster at the "Times" Experimental Station. Only 129 of that number were true stocks. No one knows better than I do the difficulties confronting seed growers and raisers of novelties, but no apologist could ever explain away such a disparity as these figures represent. True a very considerable number were novelties, but novelties ought to be fixed before they are unloaded on the British public.

There are two ways known to me of obtaining new varieties of Sweet Peas. First, by selecting and fixing variations; second, by cross fertilising approved varieties, and selecting new varieties from the progeny. A very large number of varieties on the market come under the first heading. I will give you one example. The well known "Helen Lewis," which obtained the silver medal of the National Sweet Pea Society in 1905, was brought forward in 1904 by Mr. Watson. That same year my firm found it among our Countess Spencers, and so did Mr. Sydenham. We both named it "Orange Countess," but, to avoid duplication of names when the Society gave the medal to Mr. Watson, we both withdrew our names, and united on "Helen Lewis." That has been the history of many other varieties, but the practice of withdrawing names has not been largely followed, hence we find similar varieties offered by different firms under different names. This is just where the list of synonyms, or "too much alike varieties" published by the National Society, comes in useful. I cannot commend it too highly.

The other method of raising new varieties, namely, by careful cross breeding, is the one which is going to give us the finest varieties in the future, but it can only be undertaken by those who have considerable scope and facilities to carry it on. Let me trace the process from the beginning. One decides what cross one is going to make. For the sake of illustration, let it be "Countess Spencer" x "King Edward." The pollen of "King Edward" is transferred to the stigma of "Countess Spencer." That sounds very simple, but it is well to try to realise what it covers. The pollen grain conveys a representation of all the constituent parts of a plant of "King Edward." Professor Bateson somewhere likens the process of cross fertilisation to the mixing of ingredients, represented by taking drops of fluid from a given number of bottles to represent the female side, with drops of fluid from another set of bottles representing the male side. This, at least, conveys clearly to the mind that in cross fertilising so simple a thing as a Sweet Pea, the characters of both parents are commingled. They are, or should be, commingled for a purpose, unless one is taking a sporting chance of a new break.

We now know, thanks to Mendel's law, but Henry Eckford must have known it long before Mendelism was published, that no reliance can be placed on plants of the first generation. They are only unfixd character carriers, but they follow certain well defined and pretty fully understood laws. For example, in the cross just referred to, there will be no waved flowers. They will be all reds and all King Edward, or old type. Seed saved from them, and sown out the following season, will give a wonderful revelation. There will appear many reds and pinks, the same in form as "King Edward," and there will appear a few true "Countess Spencer," and a very few "Countess Spencer" in shape, but red in colour. Time will not permit me further to go into this, except to say that plants which give the novelty desired should be tied up separately and saved separately, and the following season grown in quite distinct lines. It may be, it will be found, that many will vary again, but the ones which remain true must again be bred from single plants, and this should go on for several years until one is satisfied that the stock is homozygous, or breeding true to the character desired.

Mr. Cuthbertson described in the same way the breeding of "Clara Curtis," the best waved primrose from "Countess Spencer," crossed with "Mrs. Collier," and materially aided his remarks by exhibiting a series of coloured drawings. Continuing, he said, no one now used hooded or old type flowers to cross with Spencers, unless there



(Photograph by W. J. Vasey.)

FIG. 72.—GROUP OF RHODODENDRON INDICUM (AZALEA INDICA), EXHIBITED AT THE R.H.S. MEETING ON FEBRUARY 28 LAST BY MR. L. R. RUSSELL, RICHMOND.

the task of meeting the demand for seeds, &c., has become a lucrative business.

To the annual exhibition of the National Sweet Pea Society, in the month of July, 1901, Mr. Silas Cole, gardener to Earl Spencer, Althorpe Park, Northampton, brought a new Sweet Pea, which he named "Countess Spencer." I can see it before my mind's eye to-night, as well as I saw it that day, 10 years ago, in London. Its novelty and beauty captivated everybody, and it was unanimously awarded a first-class certificate.

I will show you that this new introduction made possible the great modern development of the Sweet Pea, and I think the name of Silas Cole will rank high in the annals of the Sweet Pea. It is worthy of being placed alongside that of Eckford. Quite recently I had a long letter from Mr. Cole, in which he told me fully how he raised "Countess Spencer." It is as follows:—

"With respect to the origin of 'Countess Spencer,' I will tell you what happened. Being always very fond of Sweet Peas, I turned my attention specially to them in 1898. That summer I crossed Lovely with Triumph, saved the seed, and the following year, 1899, there were

Why "Countess Spencer" appeared just at the moment it did will never, I fear, be known. It was the intention of the late Dr. Dixon Savill to try to raise "Countess Spencer" *de novo* had he lived by doing Mr. Cole's work over again. One thought strikes me in connection with the matter. Mr. Cole crossed his F₁ plants with "Prima Donna." I think this is an important point. It may have furnished just the needed extra excitement to cause the new form to "come forth."

Another type of waved Sweet Pea made its appearance a few years later than the Countess Spencer. It was raised by Mr. W. J. Unwin, of Histon, one of the most careful trade growers we have, but it lacked the massive proportions of Cole's Countess Spencer, and has, therefore, not been utilised to anything like the same extent for breeding, hence, all, or nearly all, the best modern Sweet Peas are Spencers or Giant Waved.

Mr. Cuthbertson passed in review all the named varieties which now stand at the top of the National Sweet Pea Society's selections, and also novelties which are likely to be candidates for a place in these selections in 1911.

still existed colours in the old type which do not yet occur in the waved, and he did not know of many. Modern raisers were crossing the very best waved types with the view of obtaining new colour combinations, as they were yet a considerable way off "the blue" of *Salvia patens*, the scarlet of the *Geranium*, and the yellow of the *Coreopsis* in the Sweet Peas.

A good discussion followed.

NATIONAL HARDY PLANT.

FEBRUARY 28.—A meeting of the Council was held at the Hotel Windsor on the above date. The Executive Committee reported that they had been in communication with various societies, and were co-operating with the York Gala, Cardiff, and Lemington Societies, and they hoped to cooperate with the new North of England Horticultural Society. They recommended that the *Gardeners' Magazine* gold medal and £3 cash be offered as 1st prize, a silver-gilt Coronation medal and £2 cash as 2nd prize, and £1 3rd prize, for a special class for an exhibit of hardy plants of not more than three kinds arranged in the form of a circular bed upon ground space of not less than 6 feet and not more than 8 feet in diameter, to demonstrate the value of herbaceous plants for bedding purposes. An edging of some other hardy plant may, at the discretion of the exhibitor, be used to heighten effect. A silver-gilt Coronation medal will be offered for the best exhibit of Alpines at the June show of the North of England Society if arranged. It was also recommended that a silver-gilt Coronation medal be offered to the Cardiff Society for the best exhibit of hardy plants or flowers in the show, to be awarded by a deputation appointed to attend. The report was adopted. It was resolved to issue a special circular appealing for members.

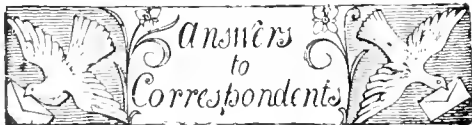
Mr. GULF of Penryn and Falmouth, exhibited a new hardy Primula (*P. Winteri*) from the Himalayan Mountains snow-line, 12,000 feet elevation. (First-class Certificate.)

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

(LIVERPOOL AUXILIARY.)

MARCH 3.—The tenth annual concert, under the auspices of the Liverpool Auxiliary, in aid of the funds of the Gardeners' Royal Benevolent Institution, took place on the above date. Mr. Harry J. Veitch presided. Previous to the concert, Mr. Allan H. Bright, J.P., entertained the chairman and other friends of the society at dinner.

The concert room was embellished with plants and flowers, contributed by various friends. During the evening the chairman delivered an address on the work and objects of the institution, and referred to the good work done by the Liverpool Auxiliary. Mr. G. J. Ingram, the secretary, also addressed the meeting. The officers of the Liverpool Auxiliary are Messrs. C. A. Young (chairman), J. Finnigan (vice-chairman), A. J. Crippin (hon. treasurer), and R. G. Waterman, Woolton (hon. secretary).



ADIANTUM FERN: *W. A.* The pests attacking the Ferns are common weevils. Trap them with pieces of vegetable, and hunt them at night-time, when they feed.

BEAN WEEVIL: *C. Anderson.* The seeds are infested with the bean weevil (*Bruchus rufimanus*). The larvæ of this insect enter the Beans when they are quite young, and the weevil therein completes the whole of its life-cycle. On no account should the seeds be planted. The weevils can be destroyed by the fumes of bisulphide of carbon.

COLD STORAGE OF BULBS: *H. Smith.* Thousands of bulbs of Liliiums, chiefly such as *L. longiflorum* and *L. Harrisii*, are now stored in cold chambers for several months, and suffer no injury in the process. Bulbs that have been kept as long as 18 months in a dormant condition in these refrigerating chambers force

well, and produce magnificent blossoms. The temperature maintained is from 26° to 31° Fahr., but sometimes a few degrees above the latter figure may be maintained for special reasons. The temperature, however, is never allowed to rise above 56° F. The bulbs are usually stored away exactly as they arrive in the stout wooden boxes in which they are packed in the soil, this method being a convenient one. Some growers, however, overhaul the bulbs on arrival, pick out any diseased ones, and afterwards repack the sound ones, prior to sending them to the cold storage chambers. Bulbs retarded now could be forced easily next September or October. The cost of storage is about one penny per cubic foot per month, so that a box measuring 3 feet long by 2 feet wide and 1 foot deep would cost 6d. a month.

CUCUMBER DYING: *C. H.* There is no disease due to fungi or insects present. The trouble is due to some cultural defect, apparently that of maintaining too much moisture in the atmosphere.

CYANIDING A VINERY: *H. J. W.* Reduce the temperature in the vinery to 50° or 55°, and employ 1½ ounce of sodium cyanide, 3 fluid ounces of sulphuric acid, and 9 fluid ounces of water for each 1,000 cubic feet contents, allowing an exposure of 40 minutes. The foliage should be dry when the cyaniding is done. You can obtain the necessary chemicals from the horticultural sundriesmen.

HOYA BELLA: *T. B.* A suitable compost for this stove plant consists of three-parts fibrous peat and one part fibrous loam, with some small pieces of charcoal, sandstone, and plenty of coarse sand added. Use the soil in a fairly rough condition, not breaking the loam and peat in too small pieces.

IVY "DISEASE": *W. Chitty.* The white, flocculent patches on the Ivy are the empty egg sacs of a species of scale insect (*Lichtensia vilumii*). The sacs are, for the most part, ruptured, and, if examined with a lens, may be seen to consist of waxy or mealy material, in which are incorporated the empty egg shells. The life-history of this insect is, briefly, as follows:—The young ones hatch in the late summer, feed for a time, and then hide themselves under the loose bark, remaining in a dormant state in such situations throughout the winter. In late spring they become active, crawling about the stems and leaves to feed; when mature, they closely resemble the young of the soft brown-scale, so common on cultivated plants. At this stage the female envelops herself in the white, flocculent sac, lays her eggs in it, and then falls to the ground and dies. In addition to the *Lichtensia*, there are also present a few other scale insects related to the mealy bugs, evidently a species of *Pseudococcus*; but these are immature. Spraying with paraffin emulsion would check the increase of these insects, but it is very doubtful if they can be exterminated by the application of insecticides, as they are so well protected by the accumulation of dirt that it would be impossible to reach all of them by spraying.

NAMES OF PLANTS: *J. Tomlison.* 1, *Lonicera Stanbushii*; 2, *Ceanothus*, probably *rigidus*; 3, *Azara microphylla*; 4, *Daphne pontica*; 5, *Erica carnea*; 6, *Taxus canadensis*.—*Taxus*. 1, *Taxus baccata* var. *elegantissima*; 2, *T. b.* var. *fastigiata* (probably); 3, *Cupressus obtusa* var. *aurea*.—*Ulex*. *Grant*, *Cedrus Libani*. The first fortnight in May is a good time to plant Yews and Hollies.—*J. H. Cromer.* 1, *Hebea Helix* var. *minima*; 2, *Erica carnea* var. *alba*; 3, *Erica carnea*; 4, *Buxus sempervirens argentea marginata*; 5, *Hebea Helix* var. *amurensis*; 6, *Acteaba japonica* var. *nana*, female form.—*W. J. C.* 1, *Cupressus Lawsoniana*; 2, *Juniperus virginiana*; 3, *Thuja plicata*; 4, *Cupressus Lawsoniana*; 5, *Cotoneaster microphylla*; 6, *Cryptomeria japonica* var. *elegans*; 7, *Cupressus Lawsoniana* var. *lutea*; 8, probably a form of *Juniperus chinensis*; 9, *Taxus baccata* variety; 10, *Sequoia gigantea*; 11, *Thuja occidentalis* var.; 12, *T. orientalis* var.—*E. C. Ashford.* *Odontoglossum gloriosum*. The resemblance of this plant to *O. Andersonianum*, which you note, is because *O. Andersonianum* is a natural hybrid, and *O. gloriosum* one of its parents.—*Sub-*

scriber, Norway. The Fern of which you send a frond was introduced from the neighbourhood of Port Elizabeth some years ago as *Adiantum O'Brienianum*. A similar species came from Japan, as *A. Mariesii*, and both are cultivated for market purposes under various names. The botanical affinity seems to be nearest to the widely-distributed *A. Capillus-veneris*, though, in size and amplitude of the frond, it approaches the tropical *A. tenerum*. The fronds last better when cut than those of most *Adiantums*.—*G. E. B.* *Miltonia Warszewiczii*, often called *Oncidium fuscum* and *O. Weltonii* in gardens.—*A. E. S.* *Dendrobium fimbriatum oculatum* and *Cyclogyne lactea*.—*A. W. G.* 1, *Galanthus Elwesii*; 2, *G. plicatus*; 3, *Populus alba*.—*C. L.* 1, *Oncidium flexuosum*; 2 and 3, *Cattleya Trianae*.—*Old Reader.* 1, *Omphalodes verna*; 2, *Anemone Hepatica*; 3, *Pulmonaria officinalis*. We do not undertake to name varieties of Violets or other florists' flowers.—*W. T. L.* *Dendrobium primum*.—*T. S. X.* 1, *Cypripedium Boxallii*; 2, *C. villosum*; 3, *Sedum carneum variegatum*; 4, *Peperomia arifolia argyrea* (*Saundersii*).—*G. H. H. W.* *Aselepis curassavica*.—*J. H. B.* *Dendrobium Brymerianum*.—*H. F. G.* *Crocus Madame Mina*.

NARCISSUS: *W. D. & Sons.* The plants are affected with yellow stripe, a bacterial disease. There is no remedy. It cannot be determined whether the bulbs were infected when planted, or whether they were planted in infected soil.

NECTARINE FLOWERS INJURED: *J. G.* The damage has apparently been caused by some insect or small animal seeking the nectar. There is no disease present.

NESTING BOXES: *T. W. B.* These can be obtained from the Selborne Society, 42, Bloomsbury Square, London.

PALM WITH INSECTS: *Enquirer.* The leaf you have sent us is infested with scale. Sponge the foliage thoroughly with some insecticide, rubbing as much of the scale off as possible without injuring the leaf. Paraffin emulsion, if made at not too great a strength, is suitable for destroying scale, or you might use Fir-tree oil.

PANCRATIUM UNHEALTHY: *L. T.* Most of the roots are completely destroyed by the bulb mite, which is present in great numbers. Four ½ fluid ounce of bisulphide of carbon on to the cracks through the hole at the bottom of the pot. This substance is highly INFLAMMABLE, and must be used with great care.

PELARGONIUM AND ASTER: *T. B.* Send the *Pelargonium* to some nursery firm, where it may be compared with the variety you mention. The *Aster* seedlings are probably attacked by disease. Send specimens to us for examination.

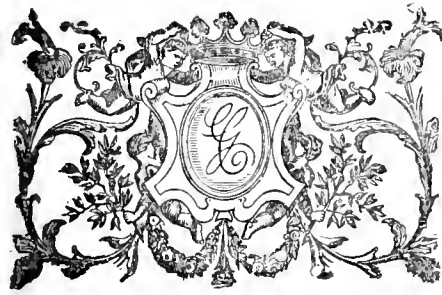
POULTRY MANURE: *Leguminous.* Fowls' dung is a valuable garden manure, and worth considerably more than farmyard manure. It should be stored in a shed to become dry, or mixed with dry soil and used fresh. Do not use it too freely to growing crops, as it is of a hot and fermentive nature. A dressing of 1 lb. to 2 lbs. to the square yard is sufficient.

RICHARDIA (ARUM) AND MARGUERITES: *H. R.* The spots on the *Richardia* leaves have been caused by moisture condensing and becoming chilled; no fungus is present. Spray the *Marguerites* with *Quassia Extract*, in order to render the leaves distasteful to the fly which lays the eggs that give rise to the mining larvæ.

SULPHIDE OF POTASSIUM: *A. C.* This fungicide is employed in solution, at a strength of 1 ounce of sulphide of potassium to 2½ gallons of water. Dissolve the sulphide of potassium (or liver of sulphur as it is known) in a quart of hot water, and then make up to 2½ gallons with cold water.

TELEMLY SWEET PEA: *T. W.* The variety you send is very pretty so far as we can judge from the flower received.

Communications Received.—*J. J.* (Thanks for photograph it is under consideration)—*H. G. C. W.*—*H. F. L.*—*F. J. C.*—*J. F. W.*, Holland—*Vincet veritas*—*D. M.*—*D. W.*—*W. H. W.*—*S. D.*—*W. F. R.*—*R. P.*—*A. G.*—*W. D.*—*E. B.*—*R. L.*—*S. C.*—*A. W.* (Thanks for Is, which has been placed in the R.G.O.F. box.)—*A. T.*—*C. T. D.*—*C. F. C.*—*R. J. P.*—*Rochester, U.S.A.*—*J. W.*—*C. U. P.*—*C. F. C.*—*A. & B.*—*K. R.*—*A. W. P.*—*W. W.*—*A. P. R.*—*J. L. B.*—*Sydney*—*A. F. W.*—*C. T.*—*J. S.*, Dalkeith—*C. J. F.*



THE

Gardeners' Chronicle

No. 1,261.—SATURDAY, March 18, 1911.

CONTENTS.

Abutilon Thomsonii ..	170	Obituary—	
Almond, the flowering of the ..	170	Cross, Robert ..	176
Alpine garden, the—		Mackenzie ..	176
Hutchinsonia alpina ..	154	George, J. ..	176
Asparagus Hatcheri ..	170	Hart, J. H. ..	176
Books, notices of—		McCarthy, Timothy ..	176
Orchids for Everyone ..	164	Murray, David ..	175
Goldfinches and Black Currant buds ..	171	Orchid notes and gleanings ..	
Coronation bouquet, Queen Mary's ..	169	Culture of Calanthes ..	163
Cultural memoranda—		Odontoglossum Rosefieldense ..	163
Flavour of Melons, the ..	165	Roses, the pruning of ..	161
Edgeworthia chrysantha ..	170	Roses, trial of, at Bagatelle ..	169
Florists' flowers—		Scotland, notes from—	
The Auricula ..	164	Gift of a public park to Lockerbie ..	165
Flowers in season ..	165	Societies—	
Flowers, packing, for transit ..	169	Proposee National Infirmary ..	175
Forestry, the development of British ..	171	Royal Horticultural ..	171
Graft hybrids ..	170	Scottish Horticultural ..	175
Hot-bed, the making of a ..	168	United Hort. Benefit and Provident ..	174
Itch, skin irritation from ..	169	Sweet Peas, new colours in ..	171
Law, appointments at ..	169	Veltheimia viridifolia ..	161
Madras and aphid ..	165	Vines, the forcing of ..	170
Market fruit garden, the ..	162	Week's work, the—	
Moraine, how we made a ..	162	Flower garden, the ..	166
Museums and economic ..	170	French garden ..	167
Native plants, the protection of ..	170	Fruits under glass ..	166
Nursery Notes—		Hardy fruit garden ..	167
Sutton & Sons, Reading ..	162	Kitchen garden, the ..	167
Oak timber, green and brown ..	170	Orchid houses, the ..	166
		Plants under glass ..	166

ILLUSTRATIONS.

George, James, portrait of the late ..	175
Hippastrum "Queen Mary" ..	169
Odontoglossum Rosefieldense ..	163
Saxifraga Petraschii ..	172
Veltheimia viridifolia ..	164

THE PRUNING OF ROSES.

THE HYBRID TEAS.

WHAT a wonderful variety of this section of Roses we have now in our gardens, and how numerous are the forms of beauty to which we can adapt them! First, there are the climbing and pillar Roses, like Carmine Pillar and Climbing Mrs. W. J. Grant; next Roses to make big bushes—Gruss an Teplitz, Reine Olga de Wurtemberg, and Gustave Regis; then come tall, upright growers like Pharisæer and Mrs. E. G. Hill, and branching symmetrical bushes of the Caroline Testout type. Again we find Roses which perversely try to grow in a lob-sided panicle, proceeding from a single strong shoot, such as Joseph Hill and Mme. Abel Chatenay; and typical bedding Roses like Dr. J. Campbell Hall. Further, there are Roses like Ecarlate, which nearly approach the Chinas, and others very close to the H.P.s, of which I will take as examples John Ruskin and Gladys Harkness. We have also the singles, Simplicity, Irish Elegance and several others with the prefix "Irish," and the semi-double Theresa. Then there is Bessie Brown, impossible as a garden Rose, but indispensable for the exhibitor, and which, even in the garden, ought to find a place in some infrequently visited corner, to give us the one or two superb

specimen Roses we get in a fine season; beside these, there are Roses of the spreading, branching habit of the Lyons Rose—Miss Willmott is, I think, clearly right in holding that we ought to spell this Rose with an "s" to emphasise its distinctness from the Lion, a red climber; and, after all, this would accord with the English way of spelling the town from which the Rose takes its name—and Roses like Mildred Grant of short, stumpy, upright growth, usually with a single flower on the top, expanding to a small cabbage. Of Mildred Grant, a year ago I should have written "good for nothing but the exhibition box," but who can recall Mrs. Orpen's superb basket at the Botanic Show, decorated, if my memory serves, with nothing but Mildred Grant and Frau Karl Druschki, combined in so clever a way as to give a wonderfully soft and "pink" effect to the blush Rose, and deny that Mildred Grant, when not too large, and used with discretion, is capable of most artistic treatment? I do not remember whether the basket won the first prize. I hope it did, for the use of this beautiful Rose, as Mrs. Orpen arranged it, revealed a touch of genius. Perhaps no one but a past mistress in the art of floral arrangement—or the veriest tyro—would have dared to attempt it. Curiously enough, at the same show and within a few feet of Mrs. Orpen's wonderful basket, was to be seen another example of the decorative value of what are usually called exhibition Roses, in a dinner table arranged very effectively with flowers of Lady Ashtown.

But I must get back to my "muttons." Surely there is no class of Rose in the treatment of which my first rule for pruning—"never prune until you know the kind of Rose you are dealing with"—is of so much importance as in the case of the Hybrid Tea. I have enumerated many types, but might perhaps have added as many more, and each and all require somewhat different treatment. I will begin at the end of my list and work backwards. With Mildred Grant there is no difficulty; we simply take out the dead wood, of which there is generally a certain amount, and cut the live stems to the ground; if we leave one or two buds it will be sufficient; and Marquise Litta is another Rose requiring the like treatment. It follows, I think, that these Roses may be planted closely together—a foot apart will be ample. Somewhat similar will be the pruning of the Roses that approach the H.P. type; but, if desired, John Ruskin, which is a strong grower, may be tried pegged down. Ecarlate and Roses of a character tending towards the Chinas, may be pruned either hard or lightly. The latter course is generally advised, and at least for a few years they do very well in the borders with very little pruning after the first year; but in this case care must be taken to provide for the production of new wood by a system of thinning and cutting back some of the growths, or in a few years the old stems become hard and unmanageable. I think that these Roses should be pruned rather later than most hybrid Teas, and both hard and long pruning employed, of course, on different plants. When Ecarlate and Marquise de Salisbury are in beds I like to shear the outer plants right down, pruning those in the centre rather less severely. The last remarks will indicate the way to treat the bedding varieties Dr. J. C. Hall, Mme. Ravary, Duchesse of Wellington, Richmond and Augustine Guinoisseau, at least when they are used in beds. The amount of pruning they receive should be dependent on their

position in the bed. There are some Hybrid Teas, of which Lady Ashtown is an example, which make beautiful bedding Roses when their flowers are not grown too large, but when grown as exhibition Roses they hang their heads in a manner altogether pitiable and useless in the garden. I prefer to correct this tendency however, when they are grown as bedding Roses, not by less severe pruning, but by disbudding with discretion, which is quite effectual, and produces a better plant for the position in which it is being grown.

To produce a good effect in the garden, the singles must be grown into fair-sized bushes, and, so long as they are doing well, the pruning may be confined to the removal of misplaced and unripened shoots, together with a little shortening of the summer growth. The effect of the spring pruning should be carefully noted in August, and it ought to give a good indication of the treatment to be adopted in the following spring; an observation that applies to all Roses grown as large bushes. When the growth has not been satisfactory, it may sometimes be necessary to cut back somewhat severely in order to obtain stronger growth, even at some sacrifice in the current year.

The section of the Hybrid Teas which is one of the most difficult to treat satisfactorily in pruning, contains those Roses which, in their second growth, tend to throw up a single strong shoot in the form of a panicle growing out at one side of the plant. The Rose usually behaves satisfactorily in the summer or first blooming, but, after this, a stout shoot makes its appearance, and seems to absorb all the growing energy of the plant. Joseph Hill, Mme. Melanie Soupert, and Mme. Abel Chatenay are examples of this type, but there are several others. If some measures are not taken to counteract this tendency the plants get more and more lob-sided. The first two Roses are often grown for exhibition, and where this is the case we may perhaps only be concerned to cut hard back to a promising bud, but where the appearance in the garden is the chief consideration some other method should be tried. In the case of Mme. Abel Chatenay something may be done by partially pegging or tying down the stems left after pruning to induce growth from the base of the plant, but the growth of the other two, particularly of Joseph Hill, is usually too stiff for this method of procedure. Mons. Vivian Morel recommends that when the stout shoot is seen to be starting in the summer it be pinched back to within 2 or 3 inches of the stem, when, instead of a single panicle, a fair number of flowers on moderately long stalks are obtained. This is often successful, but I find it is not quite so easy to catch the stout shoots at the right moment as it is to write about doing it. Short of this, the only thing to do is to encourage the plant to get back to a symmetrical attitude by pruning to the buds most likely to effect this, and afterwards by stopping buds which are making their way in the wrong direction.

Roses of the vigorous branching habit of Caroline Testout and the tall, upright growers like Pharisæer may be considered together. In both cases much will depend on the amount of room available and the character of the bush we wish to obtain. By leaving the best shoots about a foot long the second season, and afterwards pruning back to three or more eyes of the growth of the previous year, cutting to a bud pointing outwards and clearing the centre of the plant,

fine specimen bushes may be built up which will generally last for many years. It is quite worth while growing some Roses in this way for the effect they produce in the garden, but there will often come a time when the summer growth begins to get less satisfactory, and, indeed, may almost cease, and an examination of the stem near the ground will probably show an unsatisfactory condition of the bark. Then there is nothing for it but to dig up the plant and begin again with a young one. These Roses may also be treated with good effect by the severe method of pruning practised with the H.P.s. and are then apparently less liable to suffer from the evil I have described. Hard pruning will, of course, be adopted where exhibition flowers only are desired.

Now for the big bushes. There are some H.T.s that seem only to look and flower their best when grown as big free bushes. I think this applies to Gruss an Tepfritz, Gustave Regis, and (except when it is grown as a climber) to Reine Olga de Wurtemberg, and they are well worth growing in this fashion. Here pruning may for the most part be confined to a little thinning and snipping back of old flower-stalks. However, before the plants get old and the stems too hard and dry, whenever good young shoots are seen proceeding from anywhere near the base, it is well to cut one at least of the old stems right back to these and so renew the vigour of the plant.

Lastly come the climbing and pillar varieties: three of the most beautiful of these, Climbing Mrs. Grant, Climbing Papa Gontier, and François Grouse are at their best on a wall, but when not so grown it is of the first importance to remember that these Roses and, in fact, all the Hybrid Teas—and there are at least a dozen first-class Roses for the purpose in this section—tend to become leggy and bare at the base when tied up to a post. Steps must therefore be taken to prevent this. The most effectual thing to do is to untie the stems at pruning time and bend them down as near the ground as can be done without breaking them, leaving them in this position till the buds at the base have started into growth, when they can be retied to the pillar. Another plan, when there are enough stems, is to cut them to different heights. Thus, if you have eight stems, cut two to within a few inches of the ground, and the rest at distances a foot apart, only allowing one to reach the top of the pillar. It is often well to combine both these plans of treatment.

The pruning of H.T.s on wall, arch, and trellis will be confined to taking out shoots where they are not wanted and cutting out old stems whenever there is a chance of substituting young growths or allowing them to develop. Walls and the fan-like training given to plants growing on them afford such glorious opportunities for ripening the wood, that it can be left longer than in any other method of garden treatment, and we do not usually find ourselves in the difficulty with which we are faced in dealing with Roses on pillars.

All this may perhaps appear somewhat complicated to the novice in pruning, but let him have an eye for the development of his plant and carefully consider the growth of the previous year, and ordinary common sense will carry him far. "New wood" should be his watchword, new wood to give him flowers, and new wood to renew the life of the Rose, and, notwithstanding much that has been written in a contrary sense, I do not think he will go far wrong if he adds "when in doubt prune hard." *White Rose.*

NURSERY NOTES.

PRIMULAS AT READING.

Messrs. Sutton & Sons' collections of Chinese Primulas have been delightfully attractive during the past few weeks. The plants cultivated expressly for seed-saving purposes number 15,000; and many more plants are grown for the purposes of cross breeding, a work which the firm continues with marked success from year to year. As on previous occasions, we were impressed during a recent visit with the uniformity of foliage and flower of each of the many pure-bred varieties: a sure proof of careful breeding. It might well be supposed that in compactness of habit, at any rate, the seed grower has achieved

all he ever wished to obtain in the present forms of *Primula sinensis*. Nevertheless, of *Primula sinensis* it may be said with truth that "Ever out of it comes something new," and it is not unlikely that the novelties of the immediate future will rival those of the present. However that may be, it is impossible to over-appreciate the excellence observed in regard to colour purity, whilst the brilliance of the red and crimson varieties exceeds anything that this species might have been expected to furnish. The varieties Crimson King and Brilliant King, as they are grown by Messrs. Sutton, and grouped together in great batches of hundreds, produce a remarkably imposing impression of brilliancy of colour. The finer blue varieties, including Reading Blue and The Czar, appear best in a moderate light, rather than in the brilliant sunlight which appears to enhance the crimson flowers. Coral Pink and other varieties of pink or orange-pink shades are better when grown in a higher temperature than that given to most of the other varieties; hence it is well to place them at the warmer end of the house. Unless this extra stimulus is given to growth, the tardy development of the flowers prevents the perfect production of these charming shades; especially is this the case if the lower temperature is accompanied by more atmospheric moisture than is necessary. A freely-circulating atmosphere in conjunction with suitable temperatures are the main conditions for the successful cultivation of Primulas.

In the giant types we see the ordinary florists' flowers characterised by great heads of blossom and extreme vigour, and the qualities which distinguish the giants are not the results of cultivation, for they preserve the giant characteristics, even if their roots are confined within the small space of a 3-inch pot. In the "magnifica" strain one cannot help but admire the embroidery of the perfectly formed flowers. In each section the range of colour is wonderful. Pink Royal White, Giant White, Crimson, Salmon pink, or Terra Cotta and Giant alba magnifica all belong to the true giant race. The improved Giant Crimson, as seen at Reading, is a gorgeous piece of colour; its huge flower trusses and brilliantly-coloured flowers make it unique.

The greatest break in the modern *Primula* doubtless occurred with the advent of "The Duchess" some eight or nine years ago, and it is to-day one of the most popular and attractive varieties of its race. The flower has a white ground, and is rendered conspicuous by a large rosy zone surrounding a yellow eye. Quite a race of Duchess hybrids has been developed since the advent of the first plant, and the colours vary from blush-white to crimson, yet all are characterised by the zone of colour near the centre of the flower. Many of the hybrids from the Duchess are most inconstant, and they are offered as hybrids owing to this inconstancy. The "Stellata" group has numerous admirers, for its usefulness is greater perhaps than that of any other section. It may not be judged from the same point of view as the florist's *Primula*, but the Star *Primulas* are welcome companions to the more highly-developed dwarfier strains. Pyramidal in habit, free and profuse in flowering, the specimens are valuable in a cut state, and are capable of maintaining their freshness during long journeys. In usefulness they excel all other *Primulas*. The newer shades in this section and the different combinations of foliage and flower add increased interest to the group. Dark Blue Star and Ruby Star may be said to have almost approached in depth of colour the well-known varieties The Czar and Crimson King. One of the latest modifications in the *Primula* flower at Reading is the disappearance of the "eye," for flowers without this characteristic have been exhibited recently. They failed to find very much appreciation, but, at the same time, it is the business of the plant-breeder to be ever on the watch for anything that is a deviation from the normal and to seek by all the methods known to him to make use of new variation for the purpose of selecting characteristics that will eventually be accorded

public appreciation. This is appreciated nowhere more than in the Reading establishment, and for this reason and because also of the skill in cultivation displayed there, the *Primula* houses of Messrs. Sutton provide one of the most beautiful sights imaginable.

HOW WE MADE A MORAINÉ.

AFTER reading Mr. Reginald Farrer's description of a moraine and the plants to grow in it, we resolved last March to make one on a small scale at Holland House. Having selected a site at the end of a vine border, the site being 24 feet by 5 feet, we dug out all the soil to the depth of 2 feet, then put 6 inches of clinkers over the bottom, then 6 inches of half-rotted leaves, and a layer of broken sand-stones. On the top of the leaves was spread 6 inches of good fresh loam, leaving a smooth surface, over which was placed a layer 4 inches deep, of crushed granite, such as is used for surfacing paths. A slight slope was allowed towards a path that runs parallel with the moraine. Embedded in the granite are placed small tufa stones, varying in height from a few inches to 1 foot, among and on which are planted the Alpines. Along the front next the walk the moraine is bounded by a low wall of rough stones 9 inches high.

Between the stones we planted a variety of mossy Saxifrages, which have quite overgrown the wall; the varieties are *S. hibernica*, *S. muscoides*, *S. Warei*, *S. "Guildford Seedling"*, *S. decipiens*, *S. caespitosa*, *S. Rhei*, *S. muscoides*, *S. gemeliana*, *S. pedatifolia*, *S. hypnoides*, and *S. Stamfieldi*. These all grew so freely they had to be kept pinched to keep them from overgrowing one another. The encrusted or silver Saxifrages planted among the boulders have spread splendidly, covering some of the small stones. The sorts are *S. Aizoon*, *S. minima*, *S. stenoglossa*, *S. sabina*, *S. Portae*, *S. Engleri*, *S. adonensis*, *S. Cotyledon altissima*, *S. cultrata*, *S. gaudina*, *S. Macnabiana*, and *S. semipervoides*.

Of Campanulas the following were planted, and are all doing well, *C. barbata*, *C. Allionii*, *C. pusilla*, *C. caespitosa*, *C. phytameoides*, *C. garganica excisa*, and *C. Zoysii*. *Shortia galacifolia* and *Galax aphylla* revel in the granite as does *Achillea rupestris*, which flowered profusely. We tried a few varieties of *Draba*, but find that they are too weedy for this situation, so they will be removed, but *Erythraea diffusa* is a gem, and does far better on the granite than on the rockery. *Edraianthus serpyllifolius* has made a fine clump, and gave us a good show of flower. *Oxalis cuneaphylla* is a slow grower, but seems to like its place by the side of a boulder, and is making progress. It produced a few flowers early in summer. The *Dianthus*es, although small when planted, have grown finely, and promise a good display in this coming season; the sorts planted are *D. alpinus*, *D. glacialis*, *D. Freynii*, and *D. neglectus*.

We ought to have known better than to plant *Mentha Requienii*, which is too aggressive for a small moraine, and had to be continually pinched in, now it has succumbed, and we do not regret it. *Sedum brevifolium*, perched in the crevice of a boulder, looks quite happy, while *S. spatulifolia* has quite taken possession of a boulder all to itself, and *Sedum Anacamseros* likes to ramble over the granite floor. *Thymus alpina*, *T. micans*, *T. Azarica*, and *T. Serpyllum atro-coccinea* take to the moraine quite naturally, and will prove all too rampant for their situation.

These are a few of the plants we have tried, and the result has been so satisfactory that we are making a much larger moraine on a sunny site in the rockery, which will be constructed on the same lines as the smaller one. I may say that beyond watering the plants at the time of planting they received no further artificial waterings during the season. *Charles Dixon, Holland House Gardens, Kensington.*

ORCHID NOTES AND GLEANINGS.

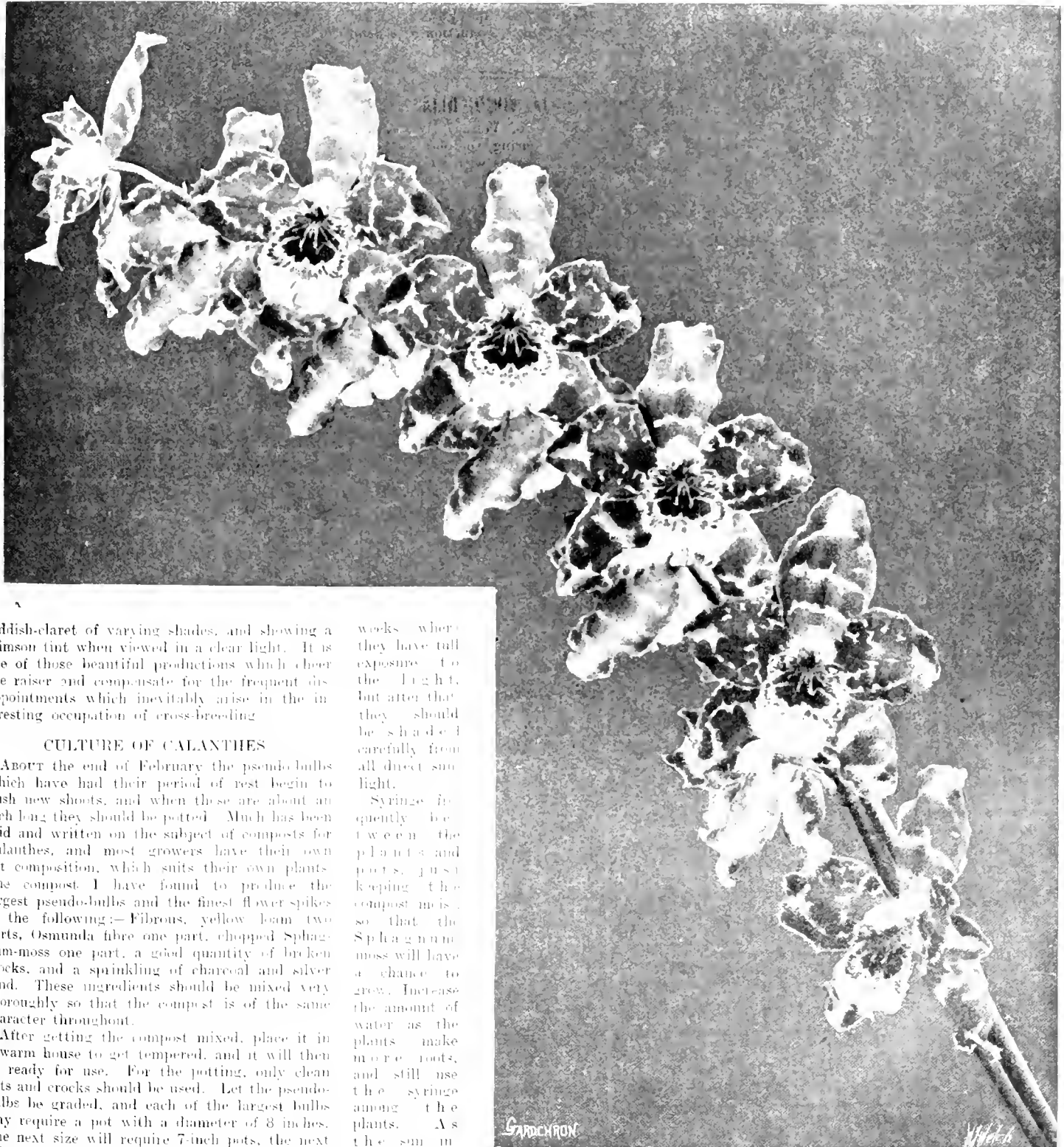
ODONTOGLOSSUM ROSEFIELDIENSE

THE illustration in fig. 75 represents an inflorescence of the handsome *Odontoglossum Rosefieldiense* (*O. Harryanum* × *O. Lambeanianum*) shown by the raiser, de B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), on January 17, when the hybrid was given an Award of Merit by the Orchid Committee of the Royal Horticultural Society. Mr. Crawshay has raised many hybrid *Odontoglossums*, but *O. Rosefieldiense* is probably the most important, it being excellent at all points. The flower is white, slightly tinged with pink on the sepals and petals, the blotching being

When potting, place the bulb so that the base of the young growth is at least an inch below the finished surface. By doing this, the bulb is not only made firm, but when the new roots are produced the risk of them being eaten off is not so great, and they take more readily to the soil. During the potting, keep turning the compost, as the corks have a tendency to work down to the bottom, and in the mixing of plenty of corks in your potting soil lies one of the secrets of growing *Calanthes* well.

The plants like a potting medium which can be well watered, and one in which the water drains freely. This condition is brought about by the broken corks. After potting, I find it advantageous to place the plants for about three

regard to shading, as the ever-increasing foliage is tender and very easily scorched. Nothing looks worse than foliage disfigured in this way. When the pots are full of roots, which will be probably about the end of August or the beginning of September, a start can be made with feeding. Weak liquid manure may be alternated with clear water for about 10 days, after which liquid manure may be given at every watering. To obtain stout bulbs and flower-spikes, use first a good open compost which develops a healthy root action, and follow with liberal supplies of manure water. With the exception of a few applications of soot water, after once commencing the liquid manure, I water solely with it until the flowers are opening,



reddish-claret of varying shades, and showing a crimson tint when viewed in a clear light. It is one of those beautiful productions which cheer the raiser and compensate for the frequent disappointments which inevitably arise in the interesting occupation of cross-breeding.

CULTURE OF CALANTHES

ABOUT the end of February the pseudo-bulbs which have had their period of rest begin to push new shoots, and when these are about an inch long they should be potted. Much has been said and written on the subject of composts for *Calanthes*, and most growers have their own pet composition, which suits their own plants. The compost I have found to produce the largest pseudo-bulbs and the finest flower spikes is the following:—Fibrous, yellow loam two parts, *Osmunda* fibre one part, chopped *Sphagnum*-moss one part, a good quantity of broken corks, and a sprinkling of charcoal and silver sand. These ingredients should be mixed very thoroughly so that the compost is of the same character throughout.

After getting the compost mixed, place it in a warm house to get tempered, and it will then be ready for use. For the potting, only clean pots and corks should be used. Let the pseudo-bulbs be graded, and each of the largest bulbs may require a pot with a diameter of 8 inches. The next size will require 7-inch pots, the next 6-inch pot, and the smaller bulbs may be placed three together in a 6-inch or 7-inch pot according to size.

weeks when they have tall exposure to the light, but after that they should be shaded carefully from all direct sunlight.

Syringe frequently between the plants and pots, just keeping the compost moist, so that the *Sphagnum*-moss will have a chance to grow. Increase the amount of water as the plants make more roots, and still use the syringe among the plants. As the summer increases, be more careful with

[Photograph by L. H. de Bari Crawshay.]
 FIG. 73.—ODONTOGLOSSUM ROSEFIELDIENSE.

when clear water is used exclusively. As the foliage ripens, less nourishment is required, and when the leaves have all fallen, just enough water to keep the bulbs plump should be given.

When in flower, *Calanthes* may be placed in a cooler structure. After flowering, store the pseudo-bulbs in a cool, dry place, allowing them to remain in their pots. Insect pests are not very troublesome, brown and white scale being the most common, and these may be destroyed by sponging the leaves with an approved insecticide. The members of the *C. vestita* group of *Calanthes* are most useful, and of these *C. Veitchii* is the favourite. *A. W. Proudlock.*

NOTICES OF BOOKS.

ORCHIDS FOR EVERYONE.*

THE object of this work, as is explained in an introductory chapter, is to extend the popularity of Orchids among that ever-increasing class of business people which has a love for plants and flowers, and finds in their study and culture a delightful recreation and an absorbing hobby. The book is divided into two parts, described as "The Most Useful Orchids" and "Orchids of Lesser Value," the former naturally comprising the bulk of the work. In it are enumerated the best kinds with which to commence Orchid culture, due regard being paid to beauty, interest, ease of culture, and cost.

Preceding this section, however, we find a chapter devoted to "Hybridisation: Seed and Seedlings," including a brief history of the question, with instructions as to the work of pollination, recording the crosses, raising the seedlings, and bringing them up to the flowering stage. Details as to potting, watering, temperature, and other cultural matters are given, which should enable anyone having the necessary appliances to embark in this fascinating branch of Orchid culture with a fair amount of confidence.

Coming to the systematic part of the work, we find an alphabetical enumeration of the most popular genera, with instructions as to their culture, brief descriptions of the most useful species and hybrids, and in some cases a list of "other species and hybrids," which seem to have wandered away from that part of the book devoted to "Orchids of Lesser Value," showing how difficult it is to follow a classification of this kind. Such genera as *Cattleya*, *Cypripedium*, *Dendrobium*, and *Odontoglossum* are necessarily treated in considerable detail.

Under "Orchids of Lesser Value," we find a short account of numerous genera which are not so generally grown, though a few species are included which, under another arrangement, might have been placed among the more popular kinds. On the other hand, it might have been much extended by the inclusion of the less important kinds included in the earlier part of the work. The fact is that no genus appears in both parts, which increases the difficulty of the system of classification adopted. We next find a chapter devoted to "Hardy Orchids," and a "Calendar of Reminders," including details requiring attention during the different months of the year.

The illustrations are the feature of the work. There are 53 in colour and 43 in black and white, the former being colour photographs and the latter half tone blocks. They are, however, scattered indiscriminately through the book, without reference in the text to the figures or references under the figures to the corresponding text. True, there is an enumeration of the figures at the commencement, but it is not alphabetical, and there is an alphabetical index at the end, but it gives no indication of what is figured. Altogether, the reader who wishes to find his way among the figures soon becomes rather distracted.

The colour photographs are in many cases very beautiful, and the colouring fairly accurate,

though there are exceptions, and, particularly among the greens, examples could be pointed out, as, for instance, in the plate of *Vanda cœrulea*, that are far from satisfactory. The plates of *Calanthe Veitchii* and its white variety, *Disa grandiflora*, and *Dendrobium thysisiflorum* are very successful. In the plate of *Odontioda Charlesworthii* and its parent, the reds are very far from correct. A group of *Laelio-Cattleyas* in Messrs. Charlesworth's nursery, however, illustrates very well the possibilities of the process.

A word in conclusion as to the vexed question of nomenclature. Mr Curtis has adopted the system of a rational and uniform system of nomenclature for hybrids, which the writer has long advocated, and has carried it out systematically, and the names *Cattleya Murrayi* and *Brasso Cattleya Veitchii* may be cited as illustrations. The author, artist, and publishers may be congratulated upon the production of a handsome volume. *R. A. Rolfe.*

VELTHEIMIA VIRIDIFOLIA.

THOUGH the flowers of *Veltheimia viridifolia* are not of brilliant colouring, the plant is a good garden subject, as it blooms with freedom every

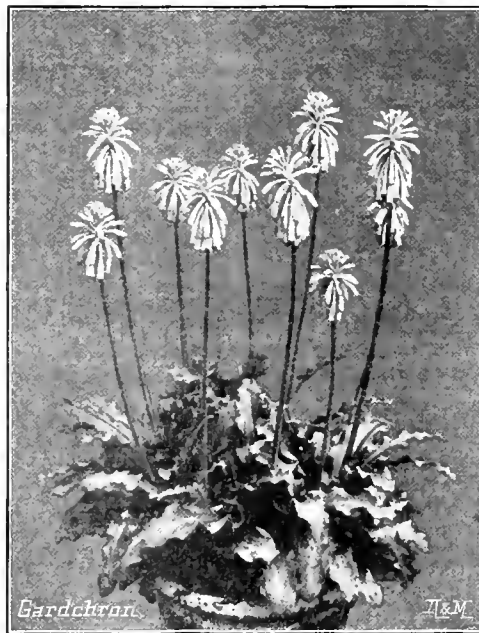


FIG. 74.—VELTHEIMIA VIRIDIFOLIA.

year, no matter what treatment has been afforded it. The plant shown in fig. 74 has probably not been potted for six or more years, although it could not well be surpassed in health and freedom of flowering. The flowers are of a reddish pink colour, and are produced on scapes about 2 feet high. The light-green foliage is also ornamental, whilst the membranous capsules and black seeds are both attractive. The plant is a native of South Africa, and is allied to *Lachenalia*. There are three other species of *Veltheimia*, but only one other is, I believe, in cultivation. This is *V. glauca*, which is distinct from *V. viridifolia* in its glaucous and longer foliage and smaller, inferior flower. I have two forms of the plant, one much more glaucous than the other. Little need be said about the cultivation of *V. viridifolia*. It should be potted truly in good sandy loam, and, like many other fleshy-rooted bulbs, it does much better if allowed to remain from year to year without disturbance. *Veltheimia viridifolia* is a well known plant in botanic gardens, but is rare in cultivation, and yet it certainly merits a place in any garden. The plant illustrated in fig. 74 was grown in the Botanic Garden, Cambridge. *R. Irwin Lynch.*

THE ALPINE GARDEN.

HUTCHINSIA ALPINA.

A PRETTY little plant with a somewhat indifferent reputation is *Hutchinsia alpina*. One grower tells us that it does not thrive with him, that it never makes a plant of any size, and that it will dwindle away and become one of the "lost ones of the garden." Another speaks in a different vein, and pictures a plant which threatens to crowd out its choicer neighbours, and become a perfect "old man of the sea" in the rock garden. Such are two diverse statements.

The behaviour of the plant is very much a matter of treatment. If the *Hutchinsia* is given a very dry place, where it is parched and sun-dried in summer, it will probably bear out the first statement, but if it is planted in close proximity to some exquisite little silvery Saxifrage, as, say, *S. cochlearis*, and allowed to spread in a mass, encouraged by plenty of moisture at the roots and the nourishment of a good soil, it will be little wonder if you find that it has encroached upon the quarters of the Saxifrage, or other gem of the Alpines, which may be close by. But no one who knows the ways of such plants will ever put choice, slow-growing subjects within the reach of a strong grower. A little care in surrounding the *Hutchinsia* with stones partly sunk and of some size will keep it in bounds.

The *Hutchinsia* will then make a cushion of charmingly cut foliage of a delicious dark green, which, in its season, is adorned with the little heads of white flowers. Despite it though some may, because it is a "crucifer," and therefore of a common race, the *Hutchinsia* is not worthy of ignominy. Plant it well up, but not in a place too dry, give it a chance to spread, and this North American flower will not prove itself unworthy of its position on the rockery in a climate not too dry. *S. Arnott.*

FLORISTS' FLOWERS.

THE AURICULA.

WITH the advent of March the Auricula starts into vigorous growth, and from that date, until the trusses of bloom are fully developed, at about the end of April, interest in the flowers increases day by day. I have been a cultivator of Auriculas for half a century, and my interest in them has never flagged. When I first began to take an interest in the plants they were grown principally by men who were shy to express any opinion on the culture of their plants. I well remember visiting the Auricula growers in Lancashire, principally in the neighbourhood of Manchester, nearly 40 years ago, and it was easy to see that their methods were quite contrary to good floricultural practice. The plants were in some instances overpotted, and in others coddled. They were shut up in frames that were covered with double mats or thick sheeting at night to keep out the fresh air. I have some 15,000 Auriculas in frames, and in a house specially built for them, but neither the frames nor the house has had any covering during the past winter. The ventilators have been open both night and day in the house, and the lights of the frames have been tilted. But now that the trusses of blooms are developing, it is well that they should not be frozen. There are two rows of hot-water pipes in the house, so that the temperature may be maintained above the freezing point. The plants were all surface dressed in February; a few of them, where a worm was suspected in the soil, were turned out of the pots to have their roots examined, or where the Auricula aphid was thought to be present. The best way to get rid of the aphid (*Trama auriculae*) is to apply methylated spirits, which causes instantaneous death to the pest. As the growth of the plants will now advance rapidly, it is well to give careful

* By C. H. Curtis, with coloured illustrations by T. Ernest Waltham. (London: J. M. Dent & Sons, Ltd.) Price 41 1s.

attention to watering, as dryness at the roots is very injurious to the plants, and checks the development of the inflorescences. Amateurs often enquire what is the difference between a show Auricula and an Alpine Auricula. They are both Alpine plants, but for garden purposes the show or edged Auriculas are the florists' forms of *Primula Auricula*, and this type has been grown and exhibited at Auricula shows for 150 years. There are green, grey, and white-edged types, as well as selfs. The leaves are in some instances covered heavily with a white farina, and foliage of this character is exceedingly beautiful, especially in March. The Alpine Auricula is now as freely exhibited at exhibitions as the "show" Auricula. It is derived from *Primula pubescens*; the leaves are green and quite free from farina. The Alpine Auricula makes an excellent rock-garden plant. The flowers are also not mealy. This type of Auricula has been greatly improved in recent years, and the florists now recognise two classes of Alpine Auriculas. The white-centred varieties have the margins shaded a purplish, violet, or lilac tint, with shades of blue occasionally. The yellow-centred varieties have the margin shaded also, but the colours are maroon red, crimson, and apricot-tinted. Some gardeners and amateurs are of the opinion that the Auricula is a plant very difficult to manage, but I never found this true. The use of a too rich soil has been the rock on which many have foundered. Keeping the plants closely shut up in frames is another evil. Let the potting soil be such as is used for Fuchsias, Pelargoniums, Calceolarias, or other soft-wooded plants; drain the pots well; pot firmly and never overpot. Pots of 4 or 5 inches diameter are large enough for the strongest plants. Allow the plants plenty of fresh air both night and day, and it is well to keep them from frost from the first of March until the flowering period is over. *Jas. Douglas.*

THE MARKET FRUIT GARDEN.

LIME-SULPHUR FOR SPRAYING.

At the present time the great subject of discussion among American fruit-growers is the policy of adopting lime-sulphur as a summer wash for fruit trees, in place of Bordeaux mixture, which often causes scorching and defoliation. The former has already come into extensive use as a winter wash; but it is only during the last three seasons that it has been tried in diluted form on the foliage of Apples and Peaches. For some years I have used it in winter or early in the spring as a protection of the buds of Plums and Gooseberries against birds when an attack has begun, and last year it was applied to Apples and Plums just before the buds burst, as a substitute for any other winter wash, apart from any consideration as to bird-eating birds. It was used at that time, as it has just been used again, with the object of killing any mother-queen aphides that might be on the trees, as well as for the usual purposes of a caustic winter wash, such as the possibly partial destruction of the eggs of aphides and Apple-suckers, and the cleansing of trunks and branches from moss and lichen. It is possible also that the fungicidal action of this wash may have some effect where scab or brown rot has attacked the wood of trees. For all these purposes an artificially-boiled solution is much more efficacious than the self-boiled mixture which is a chemical solution only to a small extent. In the United States many proprietary preparations of the kind are in the market; but in this country there were none until last year, when Messrs. Voss and Co. prepared one for my use. For application while trees are dormant, this solution is diluted, so that it contains about 10 lbs. of sulphur in 50 gallons of wash. So diluted, it is at least as strong as a self-boiled mixture containing 20 lbs. of sulphur to 50 gallons.

For the last three years, Professor Scott, of the United States Department of Agriculture,

has been experimenting with the self-boiled mixture on Peaches and Apples in foliage, and with commercial and home-made preparations artificially boiled, in addition, on Apples. The self-boiled mixture, made with 8 lbs. lime and 8 lbs. flower of sulphur to 50 American gallons of water (equal to fully 9½ lbs. to 50 imperial gallons) proved an effective preventive of Peach scab and to Peach brown-rot also, except when the disease obtained entry through the wounds made by the curculio, in which case lead arsenate had to be added. At the strength named, this self-boiled wash did no harm to the foliage of either Peaches or Apples; but it proved only a partial remedy for Apple scab. The artificially-boiled solution was much more effective against Apple scab than the self-boiled, and about equally so with Bordeaux mixture, whilst it produced less scorching to the foliage than the latter, if sufficiently diluted. This appeared to be especially the case when lead arsenate was mixed with it, as this substance appears to neutralise the scorching tendency. Professor Scott's results in 1910 are not yet published, but his experience up to the end of 1909 led him to recommend a trial on Apples of commercial or home-made lime-sulphur artificially boiled, so diluted as to contain not more than 4 lbs. of sulphur to 50 American gallons of water, equal to 4½ lbs. to 50 imperial gallons, with 2 lbs. of lead arsenate. In other words, Professor Scott recommends the dilution of 1½ gallons of a commercially-boiled solution, testing 32° on the Beaumé hydrometer, with 50 gallons of water. Used in that strength, no scorching, or none worth notice, took place.

Now, if self-boiled lime sulphur will not sufficiently control scab, its use alone on foliage may be dismissed. But, with the addition of 5 lbs. of iron sulphate (copperas) or 2 lbs. of copper sulphate to 50 gallons, the self-boiled mixture was found by Professor Waite, of the American Department of Agriculture, to be a highly promising preparation. The iron mixture is reported to have benefited the foliage and buds of the trees sprayed with it, and the only objection to it was that it appeared to delay the ripening of the fruit, while imparting an extra green colour to it.

Experiments carried out by Mr. E. S. Salmon, of Wye College, are reported by him in the *Journal of the Board of Agriculture* for February, in which, or in a leaflet issued at Wye, all instructions for preparing the washes are to be found. But readers must be warned, as Mr. Salmon recognises, against any trial of lime sulphur on foliage, except on a small experimental scale, until further experience has indicated whether it can be safely used at a strength sufficient to render it valuable as a fungicide. A trial on a few trees of a variety susceptible to damage, like Cox's Orange Pippin, will show in a few days whether it will be safe to operate on a more extensive scale. *A Southern Grower.*

MARKET APPLES.

In entering the names of the Apples grown by us in our *Stock Book*, I was surprised to see that the varieties were so few. The last three years we have planted several acres with Apples, and these have been sorts that have proved the best for the Midland markets.

Taking eight of the finest cropping varieties in alphabetical order these are:—Bramley's Seedling, good either on the Crab or Paradise Stock; Emmeth or Early Victoria, a local variety, of which we have a large number of trees; Grenadier, a tree of good, sound habits, producing fine market fruits by the end of September and October; Lord Derby, good both on the Crab and Paradise Stocks—we receive the highest price for this bulky Apple, and we are extending our plantings of it. Lord Grosvenor, which follows Emmeth for gathering, is a profitable variety, but the trees are subject to canker; Lane's Prince Albert, a sure fruiter, and too prolific in the case of the young trees; to encourage the growth we cut through a number of the fruit-buds when pruning or thinning the growths; Royal Jubilee,

a certain cropper with us, and a healthy tree; Worcester Pearmain, which we plant between Bramley's Seedling, and cut out the trees later.

FARMYARD MANURE FOR RED CURRANTS.

Market gardeners know well that only large, bright bunches of Currants are required by the market buyers. For the production of fine bunches, nothing equals a good layer of farmyard manure spread over the roots as late as possible in March, and then lightly covered with soil. The pruning of the bushes has been delayed, because birds destroy many of the buds if the work is done early. The wood of the Red Currant bushes cannot be too strong for successful cropping, and the farmyard manure will cause the growths to become extra vigorous. *Stephen Castle, Walpole St. Andrews.*

CULTURAL MEMORANDA.

FLAVOUR OF MELONS.

Of late years the English grown Melon has been in much greater demand than formerly. This is no doubt due to the many different ways in which it is served at table as a sweet. For this purpose, the scarlet or pink flesh kinds are preferred on account of the colour, which is more attractive than the pale flesh kinds. As a dessert fruit in the raw state, flavour is, of course, the most essential feature, and many people prefer the green or scarlet flesh fruits as being superior to those having pale flesh. This is a matter of opinion, and I think that equally good flavour is to be found in both sections. In experimenting with the crossing of Melons, I have noticed that the fruits which have been cross fertilised are invariably of excellent flavour. This would suggest that the constant raising of new varieties is necessary in order to keep up a high standard of excellence in regard to flavour. It is well known that the flavour of Melons deteriorates in time, more so than many other kinds of fruit. This being so, growers of Melons should not place too much reliance on old varieties which have been formerly held in high estimation. Probably no variety has stood the test of time so well as Hero of Lockinge, but it is difficult to recognise in the fruits which are shown now as Hero of Lockinge any resemblance to that variety of 20 years ago. This would seem to indicate that a new blood has been infused into the old variety.

Of course, culture has a great deal to do with producing flavour, and any checks in the growth of the plants, such as would be caused by over dryness at the roots, or very low temperatures when the fruits are swelling, are detrimental. The Melon needs a rich rooting medium, but it is possible to have it excessively rich, and stimulant should not be applied to the plants till the fruits are swelling, or it may cause canker. The plants must, however, be fed liberally when the fruits are swelling. Another important point is to know just when the fruit is in proper condition to send to table. They should be cut before they are quite ripe, and placed in the fruit-room for a day or two before being used. They will keep in good condition for four or five days in a cool room if taken from the plants at the proper time. *H., Frognour.*

SCOTLAND.

GIFT OF A PUBLIC PARK TO LOCKERBIE.

At a special meeting of the Lockerbie Town Council on March 7, a letter was read from Sir Robert W. Buchanan Jardine, Bart., of Castle-milk, offering to hand over to the burgh about five acres of land, known as the Volunteer Field, to be used as a public park, as a memorial of the late King Edward. The land is situated at Town-head, and is very suitable for the purpose of a public park. It was unanimously agreed to accept the gift, and to convey to Sir Robert Jardine the thanks of the council.

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALI VANDER, Orchid Grower to Lt.-Col. Sir G. L. Herford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

DECIDUOUS CALANTHES.—Those plants which bloomed early will now need attention, as the potting should be carried out as soon as the young growths are about 2 inches high. On no account should the plants ever be allowed to remain a second year in the same soil, for, however fresh it may now appear, it will be in a condition unsuitable for them long before they finish their season's growth. Large or small pots may be employed, according to the requirements of the plants. Strong pseudo-bulbs should be potted up separately in 5-inch and 6-inch pots, this being the best way of utilising Calanthes for decorative purposes in a growing state. When a mass of flower-spikes is desired, the smaller bulbs may be grown several together in 7-inch or 8-inch pots. The pots should be quite clean, and each must be provided with good drainage. Mere quantity of drainage material is not the only point to look after, as a pot containing one-quarter of drainage at the bottom properly placed is more effectual than double the quantity carelessly arranged. About an inch deep of chain cloaks is usually sufficient, covering these over with a thin layer of turf or dry Sphagnum-moss. Various kinds of potting material for these plants are recommended by different cultivators, both with and without the addition of dry, shady cow manure. A compost giving very satisfactory results is one largely composed of good fibrous loam; two parts of this to one of partly-decayed Oak leaves or chopped Sphagnum-moss, with a free addition of sharp silver sand and crushed charcoal to render the whole porous. When the loam is of a heavy character, I do not favour the practice of using manure in the compost, as an excess of it produces disastrous results. If given when the pots are full of manure is beneficial, and it can be supplied as a surface dressing or in a liquid state, the latter being preferable. As regards potting, the soil should be neither too wet nor too dry, and it should be thoroughly warmed before using. It will be found better to shorten the old, dead roots at the base of the bulbs to within an inch than to remove them, as by pressing the rooting material firmly round the shortened roots the bulbs are kept in their place until the new roots get firm hold of the soil. If the base of the pseudo-bulb is kept about an inch under the rim of the pot, a top-dressing may be given with advantage later on. A moist, warm atmosphere is necessary during the time the plants are making their growth. The temperatures should range from 65° to 70° by night, with a rise of 15° or 20° by day, accompanied with a light shade during the hottest part of the day. No water whatever should be given for several weeks after potting beyond merely keeping the surface soil moist to encourage root action. It is during the early stages of growth that discretion is needed, for if over-watered at first the soil becomes sated, and unhealthy growth is the result. In addition to the new growths produced from the base of the bulb, they sometimes push one or two from the upper portion. If a sufficient stock of Calanthes exist, with no necessity for further increase, these upper breaks should be rubbed off as they are formed, by which means the principal growths from the base will develop into larger bulbs. Calanthes should be given a place near to the glass.

THE FLOWER GARDEN.

By R. F. BROMFISTON, Gardener to the Earl of Hunsington, K.F., Tynninghame, East Lothian.

SEED SOWING.—Provided the soil is in a proper condition, the seeds of many kinds of hardy perennial plants may be sown during the next week. Seeds of some subjects lie in the ground for 12 months, or even longer, before germinating: Eremurus, Eryngium, and Aconitum being examples. But the majority are not long in appearing above ground. Polyanthus and Primrose seeds sown at once will produce plants

that will flower the following spring, and some may bloom in the autumn of the present year. Bulbous subjects such as English Bises, Brodiaeas, Alliums, Fritillarias, and Galtonias may be raised readily from seeds. In favoured districts hardy annuals may also be sown, but in the north and other colder parts it is preferable to delay the work till April. Small seeded species such as those of Linaria and Lobel's Catchfly (*Silene Armeria*), a delightful old plant, need only to be raked in and the surface soil smoothed with a spade, but seeds as large as those of *Saponaria calabrica* should be buried half-an-inch, and those the size of Sweet Peas 3 inches below the surface. Among the desirable annuals are *Alyssum minimum*, useful for carpeting and edging; *Calendulas*, Orange King, Lemon Queen and Meteor; *Chrysanthemums* in variety; *Centaurea Cyanus*, the type with blue flowers is best for effect; *Clarkia elegans*, the double salmon variety being of great value; *Convolvulus minor*, *Crocopsis*, *Dianthus chinensis*, *Salmon Queen* and *Scarlet Queen*; *Godetias Shamini*, and Sutton's Dwarf Pink; *Lavatera rosea splendens*, *Lupinus Hartwegii*, with azure-blue flowers; *Linaria* in many sorts; *Nigella Miss Jekyll*; *Cardinal* and *Salmon Pink Poppies*, *Salvia Hornum* and the pink variety; *Saponarias calabrica* and *alba*; *Senecio elegans* of the dwarf varieties; *Tropeolum peregrinum*, *Brachycome ibervilleana*, both blue and white flowered; *Sweet Sultan* and *Xeranthemum super-bissimum*, a beautiful old plant; whilst for transplanting, French and African Marigolds, Single China Asters, Cockscombs, *Colosia*, *Diascia Barbera*, *Dimorphotheca aurantiaca*, *Dwarf Cosmos*, *Matricaria Golden Ball*, and *Bilox Drummondii* are to be recommended. Seeds of *Rhodantha*, Ten-week Stocks, Sunflowers, *Tagetes signata*, and *Zinnias* should be sown in boxes of light soil and germinated under glass. All the above, in one or other of their many varieties, are well worth growing, but in most gardens it is better not to grow them all every year, but rather a selection of sorts one year and another and different selection the next.

ROSES. Continue the pruning of Dwarf Roses. In no case should old wood that has been injured by frost be allowed to remain, as it only weakens the plant, whereas, if cut close to the base, strong shoots are produced from near the ground. Worn-out standards may also be rejuvenated by hard pruning. After the plants are pruned, the surface soil should be forked neatly; and if it is considered necessary some decayed manure worked in. Roses such as *alpina* and *rubrifolia*, which produce coloured shoots, should have some of the growths cut hard back to induce the formation of long and vigorous branches. The variety *Reine Olga de Wurtemberg* is worth growing for its bright green shoots alone, but hard pruning is essential with this Rose.

SCHIZOSTYLIS COCCINEA. To obtain the best results with this beautiful subject the plants need to be highly cultivated. The present is a suitable time to hit the plants. Apply a thick dressing of cow manure and dig it into the soil, when, after selecting the strongest growths, they may be replanted at once.

FRUITS UNDER GLASS.

By L. BECKETT, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

MELONS.—There has been a fair amount of sunshine during the past month, and this has been favourable to the growth of Melons, for it has been possible to admit a little air to the houses. These conditions should have the effect of preventing attacks of canker on the stem of the plants, and the prospects therefore are good for crops of highly-flavoured fruits. Whilst the plants are in flower they will need rather more fresh air admitted whenever the weather will permit, but do not allow this to reduce the heat too greatly. The use of the syringe must be discontinued until the fruits are set. Lightly stir the surface of the soil of the bed, and damp the walls and paths during the period of setting the flowers, otherwise it is probable that the plants will become infested with Red Spider. As soon as a sufficient number of fruits is formed, let the foliage be given a thorough and vigorous syringing with clear water, and continue to keep the house well charged with moisture afterwards.

The trallis should be well clothed with healthy foliage, not too thickly placed. Remove laterals as they appear, stopping them at the first leaf. During the period when the fruits are swelling, the plants will need frequent applications of manure; liquid manure from the farmyard, properly diluted, and soft water make very good stimulants, whilst a sprinkling of some artificial manure on the surface soil, well watering it in afterwards, will afford a change of food. Let a further sowing be made for supplying successional plants.

TOMATOS.—The earliest batch of plants raised from seeds sown last November should now be ready for the final potting. At this season of the year the pots should not be excessively large; those of 9 inches diameter will be suitable. Pot firmly, using a compost of principally loam, to which has been added some leaf-soil and bonemeal. In potting, place the ball of soil as low in the pots as possible, and just cover the roots with soil. This will leave space for top-dressings to be applied as the growth matures and the fruits swell. The plants will require to be placed in a warm house, where they can obtain plenty of fresh air. Water must be applied with great care for some time after the plants have been potted. On fine days, they may be syringed lightly and the spaces between the pots damped. No stimulants of any kind should be given the plants until the first truss of fruit is set. If ripe Tomatos are required at an early date, their ripening may be hastened considerably by stopping the plants after they have set about three or four trusses of fruits. Keep the side growths removed and, if necessary, to admit the light to the fruits, remove some of the foliage by shortening the leaves. Special cultural attention might be given in the case of the yellow dessert varieties, such as Golden Nugget and Sunbeam.

PINEAPPLES.—The houses in which Pineapples are growing should be kept warm, allowing a night temperature of 70°, unless the weather is very cold. When the plants are in flower, a drier atmosphere must be maintained. Remove the "gills" from the fruit stems, and the suckers from the base of the plant. Support the stem by sticks placed in the beds. When the flowering period is over, the house may be damped freely again, and frequent syringings given, using tepid water. Plants that were potted for successional fruiting are rooting freely, but care must still be exercised in applying water to the soil. Fruiting plants will be benefited by occasional applications of diluted manure water.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gammersbury House, Acton, Middlesex.

IXORA. As stove decorative plants, *Ixoras* stand in the front rank. It is quite possible to have them in flower from May until November, the earliest plants to flower being those that make a late summer growth. *I. coccinea* is one of the best to grow for early flowering; but *I. javanica floribunda* is valuable for the same purpose. Indeed, this latter variety will flower twice in one season, or at least three times in two seasons. *I. macrothyrsa*, although of rather straggling habit, is a first-class variety, and has large flowering trusses. *I. salicifolia* is equally attractive, if not so showy; but, for freedom of flowering, the variety known as *Prince of Orange* is one of the very best; whilst *I. Fraseri* is a very showy plant. With the possible exception of *I. salicifolia*, all the sorts I have mentioned are useful for use as cut flowers in specimen vases, and the plants are decorative as vase plants in the summer-time. The present is a good time to prune, clean, and repot those which need repotting and are intended for flowering late in the summer. There is nothing to be gained by starting the plants too early into growth, it being better to wait until the days are a little longer and there is more sunshine. If the stock needs to be increased, cuttings may be taken at the present time, and they will root quickly in sandy soil over a hot-bed. *I. salicifolia* is more satisfactory when grafted upon *I. coccinea* than from cuttings. After *Ixoras* have been repotted, they are benefited by being placed over bottom heat, nothing being better for this purpose than a bed of Oak and Beech leaves.

The plants are very liable to mealy bug, therefore, as soon as they have been pruned, any plants affected with the pest should be syringed with water as hot as the operator can use it. Then dress the plants with an approved insecticide, which will be more effective after the application of hot water. If remedial and preventive remedies are practised, the pest can be eradicated.

THYRSACANTHUS RUTILANS.—This stove species is very showy in the early spring months, and its growth is quite simple. It has been my practice to grow the plant as standards 4 or 5 feet in height, for in this way the long racemes of flower are seen to the best advantage. Such plants can be so arranged when in flower as to hang over the pathway of the house. Cuttings should be inserted as soon as the young growth is made after the flowering season. They should be grown on the single-stem system until the required height has been attained. Older plants will still be serviceable, and these will thrive during the summer in a cooler house. In favourable localities in the south of England I have cultivated the plants out-of-doors during the summer-time.

CROSSANDRA UNDULÆFOLIA.—This Acanthaceous plant is a choice species for the stove during the summer season, for its spikes of brilliant orange-coloured flowers are very attractive. Cuttings may now be taken for raising plants to flower late in summer, and they will afterwards be found serviceable for cultivation another year. Seed may be saved in due course, but the seed-pods must be closely watched, otherwise they will burst when fully ripe, and the seed will be scattered, as in the case of *Aphelandras*.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

LEEKS.—Seeds of the main batch of Leeks should be sown as soon as possible in drills drawn one foot apart. Musselburgh is a good variety for general use. The plants may be permanently planted at a distance of 1 foot apart in the rows as soon as they are large enough to be handled. If large Leeks are required, select such varieties as *The Lyon* and *Dobbie's International*. Young Leeks growing in pots should not be allowed to become drawn through keeping the pits too close. A temperature of 50° is suitable, and a little fresh air may be admitted both by day and night. The plants will require to be shifted to a cold pit shortly, and, after the lapse of a few days, they must be allowed plenty of fresh air, in order to have them hardy when planting time arrives, about the second week in April.

CELERY.—Seeds of the principal batch of Celery should be sown, covering them lightly with fine soil. They should be germinated in a very gentle heat. Seedlings from the earlier sowings should now be ready for pricking out into boxes or small pots. Young Celery plants should be grown on without a check, and never allowed to suffer from lack of moisture at the roots.

TURNIPS.—A sowing of Turnips may be made now without fear of the plants bolting before they are large enough for use. Sow the seeds in drills 15 inches apart, and thin the young plants to 9 inches apart in the row when they are large enough to handle. A great deal depends on this thinning being done before the plants become drawn. If birds are troublesome, a net should be stretched over the bed for a few days, and when the seedlings begin to show through the surface, frequent dustings of wood-ashes will serve to promote healthy growth. Early *Milan* and *Snowball* are good varieties for this sowing. Make frequent small sowings in order to provide an unbroken supply of young roots throughout the spring and summer months.

RHUBARB.—There should be no delay in making fresh plantations of Rhubarb. The crowns are on the move early this season, and, if lifted after growth has commenced, they will receive a check. If land was trenched and manured early in the winter, sufficient plants should be lifted and divided into small pieces for planting out in rows, which should be at least 4 feet

apart, and, in the planting of permanent beds, a distance of 5 feet may be allowed. After planting, the crowns should be just visible above the surface, and if dry weather should set in, the ground should be mulched with farmyard manure.

POTATOS.—A plantation of early Potatos may be made as soon as possible in a sheltered part of the garden, where protection from frost can be given, as Potatos are liable to be frosty until the end of May, especially in damp, low-lying districts. If the ground is wet at the time of planting, the sets should be covered with leaf-mould or manure from a spent Mushroom-bed in sufficient quantity to take the place of the soil removed from the trench. No great quantity should be planted yet, but just sufficient to meet the demand early in the season. In order to ensure success with later crops, lay out the sets in trays as advised some time ago; they will then make sturdy growths, which are not so easily broken off when planting takes place. Give abundance of air to Potatos in pits and frames, and do not allow the plants to suffer from want of water. Cold pits will still require covering at night with mats or other material, but a little ventilation should be left on heated pits at night to keep the plants from becoming drawn.

THE HARDY FRUIT GARDEN.

By W. HIBBLE MARSH, Aston Clinton Gardens, Buckinghamshire.

PLANTING STRAWBERRIES. The present time is favourable for making new plantations of Strawberries, using for the purpose late-rooted runners, which have been wintered in cold frames, or plunged to the rims of the pots in the open. When preparing the ground, it is necessary that it should be dug deeply and manured liberally. Spring-planted Strawberries ought not to be allowed to ripen fruits during the first year, for this so debilitates them that they do not bear well in the following season. The distance apart to plant depends upon the variety and the nature of the soil. Strong-growing varieties may be planted 23 or 30 inches apart, whilst those of weaker habit require but 13 or 20 inches space in the rows. The duration of Strawberry beds depends upon a variety of circumstances, some plants lasting for years, whilst others are quite exhausted after they have produced two or three crops of fruit; cultivators, nowadays, seldom allow the beds to remain for more than three years. Young plants always produce much finer fruit than older ones, and plants, after carrying an ordinary crop of fruit for three years in succession, usually show signs of deterioration. Strawberries require a liberal supply of moisture at the roots to bring the fruit to perfection, hence, if a selection can be made, a not too dry position in the garden should be set apart for their cultivation. Perhaps the most suitable site is one where the ground slopes gently towards the south, and the soil is of a loamy and slightly tenacious nature. A loamy soil, of good depth, with a gravelly subsoil, will produce perfect Strawberries; and if the surface be somewhat stony, so much the better, for it will then conserve both heat and moisture, thus effecting a saving of labour in watering the plants. A mulching of half-decayed farmyard or cow manure may be placed between the rows of plants as soon as they are planted, such a dressing will aid in keeping the soil cool during the summer season. Established beds will now need attention in the clearing away of dead and decaying foliage that may have accumulated on the plants during the past winter, and the placing of a dressing of rich material over the surface of the soil. Before applying this mulching, a slight dressing of soot may be given; this will act as a check to ground pests and as a stimulant to the growth of the Strawberries. On dry soils, a light dressing of nitrate of soda, at the rate of 1 ounce to the square yard, or about 2 lb. per rod, may be given with beneficial results. This dressing not only aids the growth of the plants, but tends to preserve the moisture of the soil. When applying this manure, great care should be used in preventing its coming into contact with the foliage of the plants, or much harm will be done. This dressing is best applied during showery weather. Autumn-fruiting Strawberries might now be planted with every prospect

of the plants carrying a crop of fruit during the forthcoming autumn. If possible, a sheltered position should be selected for these, and, if so arranged that shallow frames can be placed over them, the crop will be almost or quite assured until late in the season, and the fruit will be of the best quality.

THE FRENCH GARDEN.

By PAUL AQUATIUS.

THE HOT-BEDS.—The bulk of the Lettuces grown in the frames on hot beds has been marketed. Whenever the weather permits, the Carrots will be thinned and afterwards mulched by a layer, 1 inch deep, of finely-sifted, well-decayed manure. Five Cauliflowers are to be set amongst the Carrots in each light. If the Carrots have not grown very strong, which is often the case when the Lettuces have grown extra well, it is preferable to delay planting them for a week or so. The hot-beds intended for growing Turnips are now at liberty. The soil in the frames should be loosened and made level with the rake, preparatory to sowing seeds of Turnips "*Long Early White*" or "*Milan Flat Purple Top*." Three seeds are sown together, there being 11 rows, each with 10 sowings of 5 seeds per light. For a successional crop of Turnips to these, another seed sowing is made similarly in cold frames. The sowing of Turnips is an easy operation; their principal cultural requirements are ample ventilation, but not so much as to cause a check to growth, and judicious watering from the time of germination of the seeds. The Lettuces under the cloches will form a succession to those grown in frames. Any decayed leaves should be removed from the plants. When the *Cos* Lettuces are well established under the cloches, fresh air may be admitted by pressing the soil under the rim of each cloche either with the closed fist or a block of wood. This aperture is kept open during the whole time the plants are growing. Attention must now be given to the shading of the cloches with mats, which should be placed over the glasses for two or three hours during the brightest part of sunny days.

NURSERY BEDS. The plants of the first batch of Melons that were potted early this month have formed their third leaves. They are stopped after the second leaf, and the cotyledons are removed close to the stem, an operation that requires to be done carefully and with a sharp knife. The plants will be ready for planting in their final quarters within 10 or 12 days from this date. The other batches of Melons should be potted when they are ready, and the pots plunged in a good hot-bed, which is preferable at this season to a greenhouse. Nursery bed utilised for Melons can be used for a second batch by turning over the material and adding some fresh manure. Tomatos raised from seeds sown early in March are ready for pricking out. Good, clean loam is placed in a frame on an old manure bed, and the plants are pricked out 200 to 250 per light. The frames are covered at night till the plants are well established. Plants of the main batch of Celery intended to be planted out in June behind the Cauliflowers that are growing at present in the hot-beds, should be inserted in a mild hot-bed. The best varieties for the purpose are *Chenu* and *Long Winter Green*; the red sorts are not suitable for planting on old manure beds, as the plants grow thin and leggy. The Cauliflowers pricked out under cloches should be allowed ventilation, for the plants must be sufficiently hardy in three or four weeks for planting out. A small hot-bed 6 inches thick is being formed for pricking-out under cloches the Celery that was sown in the middle of February.

OPEN-AIR CROPS. The Onions planted out last autumn are of a fair size, and the best plants may be marketed. Cauliflowers are planted amongst the Onions, six rows per bed of 11 feet. The Cabbages *Ox-heart* are very forward this year. Their growth will be further stimulated by stirring the ground; a slight watering will be beneficial in a week's time, should the weather be favourable. *Cos* Lettuce "*White of Paris*" is planted at this date, in the open, 14 to 18 inches apart, in richly-manured ground. Spinach is often sown, as an inter-crop, and gathered before the *Cos* Lettuces require the room.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

SALES FOR THE ENSUING WEEK.

MONDAY—

Herbaceous Plants, Hardy Bulbs, &c., at 12; Roses, Fruit Trees, Azaleas, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The Beneficial Interest in the Lease and Goodwill of Cripps's Nurseries, Tunbridge Wells, on the premises, at 11.0, by Protheroe & Morris.

MONDAY, TUESDAY AND WEDNESDAY—

Clearance Sale of the whole of the Stock at Cripps' Nurseries, Tunbridge Wells, by Protheroe & Morris, at 11.30.

WEDNESDAY—

Hardy Bulbs and Roots, Perennials, &c., at 12; Roses at 1.30; Palms and Plants, at 5; at 67 and 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

Border and Herbaceous Plants at 12; Roses, &c., at 1.30; a Collection of Established Orchids, at 12.45; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—42°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, March 15 (6 P.M.): Max. 42°; Min. 31°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 16 (10 A.M.): Bar. 29.6; Temp. 44; Weather—Fair.

PROVINCES.—Wednesday, March 15: Max 44 Ireland S.E.; Min. 37° Yorkshire.

Though every gardener knows what is meant by a hot-bed, and most gardeners are acquainted with the manifold

uses to which a good hot-bed may be put, especially in the spring months of the year, nevertheless the numerous enquiries which are addressed to us on this subject demonstrate that many younger practitioners and amateurs are by no means always certain that they are employing the best methods for the construction of this indispensable garden adjunct. We give, therefore, the following hints on this subject.

Complete success in the making of a hot-bed depends upon close attention to certain details, any one of which may be easily overlooked by the inexperienced. It must not be thought that the beginning and the end of the operation consist in taking four or five loads of manure and throwing them up into a flat heap large enough to take the frame which it is intended to place upon the bed. Much more care is needed in the construction of a serviceable hot-bed, although it is true that any heap of fresh manure, however roughly it may be put together, will answer the purpose after a fashion and for a limited time. The art of hot-bed construction lies in the ability to construct a heap of fermenting material that shall last not for a few days only, but for several weeks, or even longer. An improperly formed hot-bed may appear satisfactory enough for a day or two, but

the chances are that, within a week after it has been covered with the frame, the heat either increases to a dangerous degree or subsides suddenly until it is useless. In either case the plants in the frame are likely to suffer before it is possible to remedy the mistake that has been made.

Undue haste is probably responsible for nine out of every ten failures in hot-bed making. If the manure is quite fresh, as it should be, it needs a fortnight's treatment before it is ready to be formed into a bed. It should be prepared in some place under cover, for much rain may spoil the material by making it so soppy that it decomposes too rapidly and heats too fiercely. The whole of the manure must be thoroughly sweet before it is made up into the bed, and this can only be accomplished by frequent turnings. The turning over of the manure must be continued until the heap ceases to steam at the top during forty-eight hours after the last turning. It is difficult to describe the exact condition in which the manure should be when it is ready to be made up, but when, a day or so after its last turning, the heap appears to be pervaded by a gentle heat, the material is free from any rank smell, and is neither mouldy from overheating nor so wet that moisture can be squeezed out of it, then it may be said that the time has arrived for the making of the bed.

In the actual construction of the hot-bed two faults are common. One consists in making it too small; the other in not building it high enough round the edges. In either case valuable heat is lost. The edges should project for at least 18 inches beyond the frame, and the bed, from a space of 2 feet all round from its edge, should be built higher by 6 inches than the central square. This allows for the sinking due to the weight of the frame. Opinions differ as to the advisability of treading the hot-bed with the foot or of merely beating it firm with the fork. If leaves are used in conjunction with the manure a very good plan when manure is dear or difficult to obtain—or if the material contains more than half its bulk of long straw, then treading is likely to be not only necessary but conducive to the maintenance of heat in the bed for a long period. On the contrary, if the material is on the short side, it will be best not to tread it at all, since after being beaten with the fork the material will sink enough by its own weight to make a good, firm bed. After the frame is put on the bed, the temperature must be watched carefully, and the soiling of the bed should not take place until the thermometer shows that the temperature has ceased to rise.

A great deal depends upon the situation of the bed, but if the preparation has been thorough, and the situation is sheltered from the coldest winds, there ought to be a surface shade temperature when the frame is closed of about 75° Fahr. If the thermometer shows a reading much above this, the bed is too warm within;

and if it is much below, it is proof that the heat is declining faster than is desirable. In the former case, leaving the lights off for a day or so may do all that is necessary to prevent over-heating; in the latter contingency, some fresh and hot manure, built up all round the frame, will arrest the too rapid escape of heat from the bed, or a gentle application of water at about 100° Fahr. may be given inside and out. This latter is the easiest way of resuscitating a hot-bed that shows a tendency to cool, but if the watering is overdone, more harm than good ensues. Two gallons of water is quite enough to induce a rise in temperature in a bed measuring 9 feet by 7 feet, and the soil should be put on immediately after the watering.

A well-made bed seldom, however, needs any such treatment until it has been in existence for several weeks, when it will be necessary to encourage the heat if the bed is still wanted. To do this, as much of the sides of the bed as can be safely removed should be replaced by fresh manure, starting wide at the bottom and building right up to a point all round the upper edges of the frame. Oak and Beech leaves, or lawn mowings, may be used for the purpose of mixing with the manure, and we have always found that beds containing a good proportion of leaves have better lasting qualities than those formed exclusively of stable litter. The leaves should not be used too dry or the fermentation will be hindered.

Hot-beds retain their heat much longer if the sides and ends are cased with soil at the beginning, after the manner of a mushroom bed. If it is intended to do this, the edges must, of course, be built on the slope in the first instance, but they should be finished off flat at the top, as the platform thus provided will come in most useful during the spring and summer as a propagating bed for all kinds of plants which benefit from a gentle bottom heat. Miniature frames can be constructed over these beds with a few boards and pieces of glass for making the most of something, the original construction of which entailed considerable trouble and expense.

FLOWERS IN SEASON.—Mr. J. TAYLOR, Hardwicke Grange Gardens, Shrewsbury, has forwarded a seedling *Clivia* (*Imantophyllum*) with exceptionally large and brightly-coloured flowers. Accompanying the seedling was a truss of the ordinary variety, but its flowers were inferior to those of the seedling. Mr. TAYLOR supplies the following particulars:—The plant was grown in a pot of 6 inches diameter, and was raised from seed sown four years ago. The seeds of *Imantophyllum* take some considerable time to ripen, and should be sown in bottom heat early in the spring of the year after gathering. The plants should be kept growing in dry heat for a year or two, and when they have reached a flowering size, they should be placed in a house having a temperature of about 50° or 60°, and afforded water sparingly. A batch of the plants at Hardwicke Grange is introduced into heat every few weeks to supply flowers from mid-winter to spring. During the summer the plants are stood in frames; each day they are syringed and the lights closed early in the afternoon. In the autumn they are grown in vineries, and kept on the dry side until required for forcing.

APPOINTMENTS AT KEW.—The Lords Commissioners of His Majesty's Treasury have sanctioned, on the recommendation of the Board of Agriculture and Fisheries, the transfer of the foremen and storekeeper in the Royal Botanic Gardens from the temporary, to the established staff, and Civil Service certificates have been issued for the storekeeper, Mr. G. DEAR, and

the foremen, Messrs. W. IRVING, C. P. RAFFILL, A. OSBORN, T. W. TAYLOR, and J. COUTTS. Mr. HAROLD GREEN, a member of the gardening staff, has been appointed by the Secretary of State for the Colonies, on the recommendation of Kew, assistant superintendent of the Botanical and Forestry Department, Hong Kong. Mr. HARRY DODD, Curator of the Botanic Station at Onitsha,

Southern Nigeria, has been appointed by the Secretary of State for India in Council, on the recommendation of Kew, a probationer gardener for service in India.

ROYAL WARRANTS.—The Royal Warrant of Appointment, as hothouse builders and heating engineers to the KING, has been conferred on Messrs. MACKENZIE & MONCUR, LTD., Edinburgh and London. Messrs. DANIELS BROS., LTD., Norwich, have received the Royal Warrant of Appointment as seedsmen to the KING. This firm have also been appointed nurserymen to QUEEN ALEXANDRA. Mr. T. BLANCH, Church Street, Chelsea, has received the Royal Warrant of Appointment as van builder to the KING.

QUEEN MARY'S CORONATION BOUQUET.—We are informed by the Clerk of the Worshipful Company of Gardeners, Mr. ERNEST A. EBLEWHITE, that the bouquet which this guild will present to the QUEEN on the occasion of her Coronation will be composed of pink Carnations, Her Majesty having expressed a desire to this effect.

TRIAL OF ROSES AT BAGATELLE.—We are informed that during the past winter consignments of new Roses have been received at the Bagatelle Rosary (France), and that they still continue to arrive. No new varieties have been received from Italy, Spain, or Belgium, but Germany, England, the United States, Holland, Denmark, Luxemburg, and Switzerland have sent some remarkable novelties, which may be seen by those who visit the Rosary during the coming season. Those who have new varieties, and intend to send specimens, should despatch their five plants as soon as possible, as it is not expected that any will be received after the close of the present month. The trials of Roses at Bagatelle are inspected by all eminent Rose growers and the general public. Specimens should be sent, post paid, to the following address:—"Monsieur LE CONSERVATEUR DU BOIS DE BOULOGNE, 'Roseraie de Bagatelle,' au gare de Neuilly-Porte-Maillon-Seine."

LADYBIRDS AND APHIS.—The value of the ladybird in gardens is recognised in America, where we learn no fewer than 100,000,000 will be "trapped" within the next few weeks and sent to Melon growers and orchidists to wage war on the aphid. The ladybirds which are to be so employed have been hibernating in the snowdrifts about Towle, Placer County, U.S.A.; the trappers, who include the Superintendent of the State Insectary, hope to fill 500 cases with the insects.

CUT FLOWERS BY RAIL OR POST.—In a paper read before the joint meeting of the Illinois State Horticultural Society and State Florists' Association, and published in *The American Florist*, Mr. J. F. AMMANN makes a number of valuable observations on the consignment of cut flowers for carriage by rail. He recommends that, before being packed, cut flowers should be placed with their stems in water for as many hours as it will take them to reach their destination; if the journey is to be of 12 hours' duration, then they should be in water previously for 12 hours, and so on. Corrugated paper (cardboard) boxes are best for long distance transport. The box should be lined with thicknesses of paper according to weather. Each layer should be fastened down by twine, sewn over the layer, through and under the box, and the twine should be pulled tight and tied. Finally, Mr. AMMANN recommends that ice in small bags should be laid on the stems, even in cold weather, since, on arrival at their destination, cut flowers are almost certain to be put for some time in a warm place before being unpacked and supplied with water.

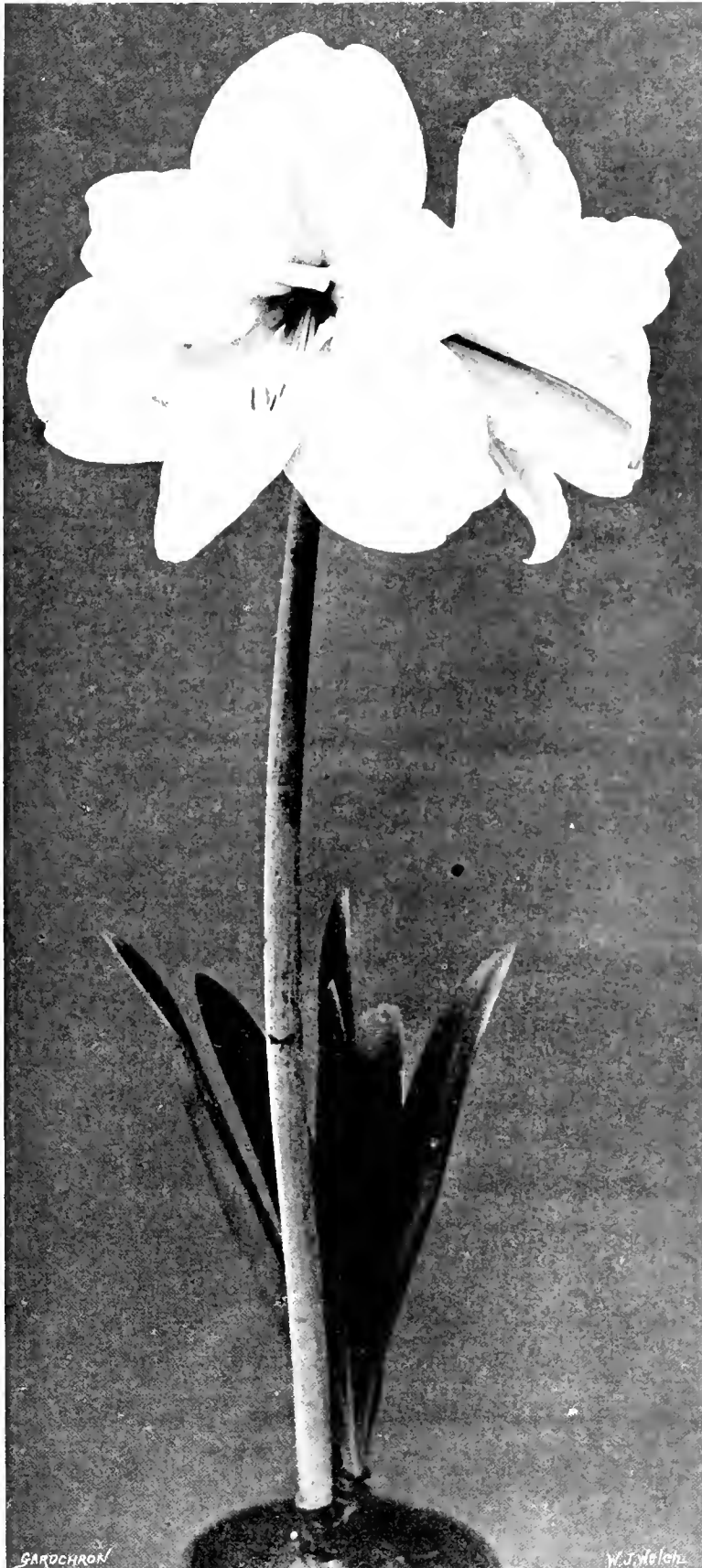


FIG. 75.—HIPPEASTRUM "QUEEN MARY": FLOWERS WHITE.

(Received R.H.S. Award of Merit on Tuesday last. See p. 172.)

BARR MEMORIAL FUND.—We have received information that Mr. HENRY B. MAY, the treasurer of the fund for promoting a memorial to the late PETER BARR, has received a donation of £100 from the Duke of BEDFORD, K.G. The committee will not close the fund until the Birmingham Daffodil Show has taken place in April.

THE FLOWERING OF THE ALMOND.—The first flowers on a tree situated in a favourable position in Wandsworth, five miles south-west of London, expanded fully on the 11th inst. Previous dates for the same tree are March 12 last year; April 1 in 1909; March 23, 1908; March 20, 1907; February 23, 1906; March 7, 1905; and March 21, 1904.

ASPARAGUS HATCHERI.—The new American Asparagus, named *A. Hatcheri*, appears, from a note and illustration in *Moller's Deutsche Garten-Zeitung* (No. 9, 1911), to be a considerable improvement on *A. plumosus nanus*. It is of stronger growth, the lateral branches are less delicate, and are borne more regularly. Under similar cultural conditions the newer form bears about three times as much foliage suitable for cutting as the older *A. plumosus nanus*.

MUSEUMS AND ECONOMIC BIOLOGY.—At the Bristol Museum a room has been set apart as an economical biology department, the necessary funds having been provided by Lady SMYTH, after whom the room is to be known. Many of the exhibits consist of farm and garden pests shown in their various phases. It is hoped that the department will prove of service to practical cultivators.

THE PROTECTION OF NATIVE PLANTS.—The fact announced in the January number of the *Selborne Magazine* that the Selborne Society proposes to take action with respect to the protection of British plants, will be welcome news to those who are interested in our flora. The Society has established a section to deal especially with this subject, and has appointed Dr. RENDLE, president, and Mr. A. R. HORWOOD (of the Leicester Museum), secretary. Mr. Horwood will be glad to receive offers of co-operation in this work.

GRAFT HYBRIDS.—When in 1826 M. ADAM, a nurseryman of Vitry, grafted *Cytisus purpureus* on the common Laburnum, he could not have guessed that he was starting a controversy which was to hold biologists for nearly a 100 years. DARWIN, DE CANDOLLE, and others added their contributions to the discussion, and Professor WINCKLER, of Tübingen, has lately proved by experiments the existence of such graft-hybrids. These results are so remarkable that a short account of them will be useful, though botanists will, of course, turn to the original paper.* The plants used were the Black Night-shade, *Solanum nigrum*, and the Tomato, *S. lycopersicum*. The latter is considered as belonging to the genus *Lycopersicum* by the Kew authorities. Wedge or saddle-shaped grafts were made from young plants and grafted reciprocally, and in both cases the union was readily formed. These grafts were then cut through at a point which left exposed the newly-joined tissue of stock and scion. In a damp atmosphere a callus was quickly formed on this surface, and in this new growth adventitious buds were formed. The development of these buds was encouraged, and though, naturally, most of them were either pure Night-shade or pure Tomato, growths were at last observed bearing every sign of a hybrid origin. Many shoots, however, were produced which were on one side Tomato and on the other Night-shade; these

monstrous growths are termed by WINCKLER "Chimera." The complete hybrids showed, however, a real fusion of parental characters, and the form named *S. tubigense* may be taken as a typical example. The Tomato has compound leaves, serrate leaflets, and is densely hairy. The Night-shade leaf is simple, not serrated, and with but few hairs. The hybrid leaf is simple, serrated, and densely hairy. The flowers are intermediate in size, but a strong yellow as in the Tomato. The fruit resembles the Night-shade, but is larger, and shows some red and yellow colouring. Seeds are set, but do not often reach maturity, and WINCKLER explains this as the probable effect of the quicker ripening of Night-shade fruits as compared with the Tomato. The inheritance of this "quick" factor from the former does not allow sufficient time for their development. Many other extremely interesting hybrids were developed, but space will not permit their description. A suggestion made by Professor BAUER as to the nature of these hybrids led to a careful cytological study, and a remarkable fact was discovered. The outer tissues were found to resemble one parent and the inner tissues the other. None of the cells was of real hybrid nature. As the wolf disguised in sheep's clothing, so in this hybrid: the Tomato is hidden beneath the Night-shade's epidermis. These cases of hybrids are considered by BAUER to be variations of the half and half hybrids described as "Chimeras," and it is therefore proposed to term them "Periclinal Chimeras." Of the great importance of these results as bearing on reversion, bud variations, and the study of heredity generally, it is needless to insist, and the further experimental work which these results are bound to stimulate will be awaited with great interest.

PUBLICATIONS RECEIVED.—*Administration Reports (1909), Ceylon*. Part IV.: Education, Science, and Art (Royal Botanic Gardens).—*The Irish Review*. March, 1911. Monthly. Price 6d.—*Transactions and Proceedings of the Botanical Society of Edinburgh*. Vol. XXV. (Edinburgh: Neill & Co., Ltd.)—*The British Fern Gazette*. March. (The British Peridological Society: Kendal, Westmoreland.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

ABUTILON THOMSONII FL. PL.—I am very much obliged to Mr. Truelove for his information about this form (see *Gardeners' Chronicle*, January 14, p. 29), for it is a valuable contribution to the history of garden plants. I venture now to remark that I should be deeply indebted to any reader for cuttings, and that I should especially be glad if American friends would note that this or the typical *A. Thomsonii* would be very acceptable from America in particular. Small plants could no doubt be transmitted by post in moss and some waterproof fabric. The object in having the common *A. Thomsonii* from a distance is to discover whether the different conditions likely to obtain here can so alter constitution as to provide the contrast upon which fertility may possibly depend. Self sterility in plants is no doubt for the purpose of ensuring cross fertilisation—and to secure it nature does make tremendous efforts—but no one has yet been able to explain how this valuable quality of self sterility comes about. Experiments (not mine) are now being made in the Cambridge Botanic Gardens for the purpose of obtaining information on the subject. It is possible that the doubling of the flower may have introduced a modification of constitution, so that the double form may be as useful for experiment as the typical plant received from a far distance. It is remarkable that so few are aware of the fact of self sterility. Instances are quite common. No case is known of a plant of *Chimera* that bore seed with its own pollen—I have made many

trials myself—the Composite indeed are frequently self sterile, and self sterility, I have no doubt, is the reason why many tropical plants that are cultivated in our houses refuse to set seed. That the highly organised Composite are almost invariably self sterile is evidence that self sterility is connected with an advanced stage of evolution, and that it is therefore an attainment. Like dioecism (in effect the same thing), it must be regarded, I think, as means to a valuable end. I am not at present interested in the white variegated *Abutilons*, but I should be glad to receive yellow variegated ones. *A. Darwinii tessellatum* and *A. vexillarium* variegatum would also be highly acceptable. *R. Irwin Lynch, V.M.H., Botanic Gardens, Cambridge.*

FORCING OF VINES.—Whilst not in any way wishing to criticise the excellent cultural advice given by Mr. Edwin Beckett in the "Fruits under Glass" calendar, I should like to say that during the past three or four years we have never syringed the vine rods when starting them into growth; the atmosphere has been kept moist by frequently damping the paths and syringing what plants happen to be put in the vineries. I find the buds break into growth equally as well as when the vine rods are syringed two or three times a day, but as soon as the leaves on the shoots begin to grow they are then lightly syringed, but not with sufficient force to wash off the winter dressing which was "painted" on the rods. I also have proved it to be quite unnecessary to hang the tops in a downward direction to check the flow of sap in either medium or late-started vineries. The vine rods, after being cleaned and dressed with a mixture of clay, soot, sulphur, and "Abol," are tied into their permanent places. I have never found any difficulty either in the vines failing to break into bud freely or in the plants making excessively strong top growth. *A. Jefferies, Moor Hall Gardens, Essex.*

—I am glad to know that Mr. A. Jefferies' vines break successfully without syringing and without the tops of the rods being lowered into a horizontal position. There are many gardeners who are not so successful, and it is to those my remarks will apply. I am convinced that syringing or spraying the vines with tepid water is of much assistance, especially on bright days, equally as much so as an April shower to the growth of outside vegetation. The lowering of the tops of the rods especially in young, strong vines, does much to prevent the rush of sap to the top, and it thus encourages the lower buds to start away more freely. *E. Beckett.*

EGDWORTHIA CHRYSANTHA.—This uncommon plant is now finely in bloom on a south wall. It is a Daphne-like shrub with terminal flower-heads, similar to a *Daphne*. The flowers are yellow when open and exceedingly fragrant. The plant flowers when quite destitute of leaves. It needs no special treatment beyond plenty of water during dry weather, for it is in September that the flower-buds are formed. It flowers very profusely, well-nigh every tip producing a flower similar to the one I enclose for inspection. *W. A. Cook, Leonardlee Gardens, Sussex.*

SKIN IRRITATION FROM IVY (see pp. 139, 157).—I suffered from a severe attack 10 years ago, and another in the following year at Achuarrey Castle Gardens, when I was foreman gardener there. The attacks started about two days after beginning to cut the Ivy. I consulted a professor at the Edinburgh infirmary, and he said that it might attack one person, but that someone else working at the same job might not be affected. The professor gave me a prescription for ointment which cured me in a few days. His statement was correct, for two men working with me at the same time showed no signs of the skin trouble. *L. Mackay, St. Baldred's Tower, North Berwick.*

GREEN AND BROWN OAK TIMBER.—I can assure Mr. Elvcs that there is such a thing as green Oak timber, a nice piece of which I sent to the Editors of the *Gardeners' Chronicle* about four years ago, from an estate in Kent. Why the timber of certain Oak trees assumes a rich brown colour is also known, and reference to it will be found in the fifth edition of my *Practical Forestry*, which is now in hand. *A. D. Webster.*

* *Solanum tubigense*, ein echter Profblastard Zwischen Tomate und Nachtschatten." Ber. d. deutsch. botan. Gesell.-chaft. 27, 595-608, 1908.

NEW COLOURS IN SWEET PEAS.—Mr. Cuthbertson, in his lecture on Sweet Peas (see p. 159), concludes his remarks with a few words on the new colours that modern enthusiasts are endeavouring to produce. He mentions the "blue of *Salvia patens*, the scarlet of the *Geranium*, and the yellow of the *Coreopsis*" as examples of the deep shades of the colours that we are yet far from obtaining in the Sweet Pea. But supposing varieties are raised possessing the rich yellow of the *Coreopsis*, or the intense blue of *Salvia patens*, would it not impart an artificial look to these lovely flowers? The lavenders, pale blues, and creams at present existing are perfectly natural and attractive, but could the same be said of *Coreopsis* or *Salvia*-coloured blooms? Their value as cut flowers for dinner-table decoration would be sadly discounted, in comparison with the lovely shades of colour which we now have in varieties, such as Earl Spencer, Edna Unwin, Helen Lewis, and the numerous soft-hued pink and cream Sweet Peas. No such objection, however, could be laid against the appearance of a scarlet *Geranium*-coloured Pea, but in that direction success in recent years has almost been achieved. *T. H. Bolton, Powderham Gardens, Exeter.*

BULLFINCHES AND BLACK CURRANT BUDS.—We have long been familiar with the fondness of bullfinches for Gooseberry buds in the early spring, but I have never known these beautiful pests attack Black Currants in the way they are doing at the present time. Unfortunately, our bushes (like many more in this district) are badly attacked by the Black Currant mite, and the birds evidently prefer the affected and swollen buds to the unaffected ones. Many bushes are half denuded of buds, so we shall have ample proof (if the bushes are left standing another season) to see if the practice of picking the buds as advocated by some has any good effect as a cure for the pest. I am wondering if the presence of the mite has attracted the bullfinches to the Currants. *T. H. B., South Devon.*

"THE DEVELOPMENT OF BRITISH FORESTRY."—I had no particular wish to comment upon Dr. Groom's article in the *Gardeners' Chronicle* of February 13, in which he deals with two chapters in the above book, but in his reply to Mr. Elwes in your issue of March 4, Dr. Groom states: "Answers (to the problems connected with timber production) can only be obtained by the aid of men who have an analytical knowledge of the underlying principles, based upon adequate training in science and forestry." If Dr. Groom includes himself amongst the men so described, I think I am entitled to ask, in the interests of British forestry, upon what grounds he controverts my arguments, in the first place, and puts forward others of his own, in the second? The fundamental point which is dealt with throughout Chapter IV is clearly expressed on page 83 (the second page in the chapter) as follows: "For the forester, the climate of the country must be largely valued by its ability to produce the commoner timber trees, such as Oak, Ash, Beech, Pines, Spruce, Silver Fir, Birch, &c., of ornamental dimensions in the comparatively short period of 50 to 100 years, according to species. Judged on this particular basis, how does the British climate compare with that of France, Belgium, Germany, Holland, and others lying between similar latitudes?" The general conclusions I arrived at are, that within 500 feet to 600 feet of sea level, and, so far as the majority of trees were concerned, the British climate is as favourable to timber production as the climates of the above-mentioned Continental countries, but that the development of trees at high altitudes on the Continent has no parallel in Great Britain (page 99). I mentioned that Oak and Beech require to be specially favoured as regards soil and situation before they will produce the same bulk per acre or the same size in individual trees as may be seen in France, Belgium, or Central Germany (page 112). Throughout his review, Dr. Groom does not give a single instance or example to prove the inaccuracy of the above conclusions, but adopts the somewhat questionable method of quoting portions of paragraphs or sentences, and omitting, for reasons which are not in accord with the principles he lays down to Mr. Elwes, the full paragraph or context by means of which his quotations can alone be properly understood. He ignores facts, and represents physiological principles as arguments which

can easily be shown to be absurdities. Take, for instance, the following quotations, and corresponding arguments made use of by Dr. Groom. To begin with, he asserts that I have hazy impressions as to the physiological principles underlying the production of timber, because I assume that June, July, and August are the critical months for the growth and making of wood in the majority of forest trees. Is this assumption less reasonable than the one put forward by Dr. Groom that the elongation of twigs and thickening of stems takes place only during spring and early summer? When, and on what species have Dr. Groom's observations and researches been carried out if he seriously believes this statement? Or, again, what does he hope to prove by referring to the weak assimilation which may go on in conifers during the winter months, and what appreciable effect has it upon the production of timber, as compared with vigorous assimilation during July and August? Take, again, his first quotation, and the reasons he gives for dissenting from it. Properly and fairly given, this quotation reads thus: "But after that stage (the twentieth year or so) persistent wind, a clouded sky, and the absence of intense insolation tend to check the height, growth, and development of most species, and the result is a diminutive yield of timber per acre, in a rotation of 80 to 100 years, compared with that obtained in Continental forests. On cold soils and exposed situations this diminution is most marked, while in sheltered valleys and warm soils it may disappear altogether." Dr. Groom then refers to the supposed advantages of diffused light, but forgets that diffused light, when accompanied by strong winds and a temperature approaching the minimum for a particular species, may be an unfavourable factor. Unless growth can be rendered immune against the cold winds and frosts of winter, it is of little advantage to the development of a tree, and a clouded sky is not conducive to well ripened shoots at high elevations or on cold soils, as may easily be seen if one examines in spring the tips and corners of trees grown under such conditions. With regard to rainfall, Dr. Groom says: "This statement (as to summer moisture) might lead the lay reader to suppose that there must be an adequate rainfall during the growing season or even during the summer." I should say the lay reader would be perfectly justified in such a supposition, and would find himself in agreement with every practical man. Does Dr. Groom seriously believe that if the whole of our annual rainfall was confined to autumn and winter, that tree or any growth over the greater part of Britain would be satisfactory? Has he never seen the effect of a two months' drought upon vegetation in the British Isles, and does he not know that the only trees unaffected by it are those growing on damp and fairly deep soils? The existence of forests may depend upon annual rainfall, but their satisfactory growth must depend upon sufficient soil moisture during the summer or growing season, and on the majority of soils this can only be provided by rain during the summer. Whether my views and conclusions regarding the effect of wind in exposed slopes and at high elevations are justified on physiological grounds or not is an open question. Those who take the trouble to verify them or prove their inaccuracy by observation will have little trouble in coming to a decision in this point. But when Dr. Groom complains that I fail "to disentangle clearly the effects of climate, especially wind, and of soil," he is surely making a remarkable suggestion for a physiologist and forester combined. Is it not the most elementary fact that growth is the result of innumerable factors, both physical and chemical, and given an individual tree or plantation, who can possibly estimate the value of any individual factor or group of factors? Briefly expressed, soil and climate are inseparable from all tree growths in the British Isles, or, for the matter of that, anywhere, and the poorer the former, the better the latter must be to produce a given growth. At low elevations in the British Isles, and away from the sea coast, it is perfectly obvious that unsatisfactory growth is usually the result of unsuitable soil. But on the vertical limits of tree growth, corresponding to elevations of 1,000 to 1,500 feet in Britain, no such conclusion can be arrived at, and it is generally impossible to say whether climate or soil have been most potent in producing certain effects. Dr. Groom's idea that the unsuitability of the soil on mountain slopes can be remedied by preparatory

crops depends for its correctness upon various conditions, which are fully discussed in Chapter V. But if he expects to find the same methods of amelioration applicable to maintain slopes in the British Isles as may possibly be effective, in the course of several centuries, on bare rock, sand dunes, and semi-deserts, it is evident that his acquaintance with mountain slopes above the 1,000 feet line is comparatively limited. "Poor, shallow, or purely mineral soils" are comparatively gardens of Eden when contrasted with peat-covered slopes exposed to a westerly wind, although Dr. Groom appears to have his doubts about the existence of the latter. Judging from Dr. Groom's reply to Mr. Elwes, he apparently assumes, as so many theorists have done, that nothing has been accomplished in the way of experimenting with mountain land by tree planting. Apart from that ghastly failure in County Galway, which venture any practical man would have pronounced hopeless from the first, every hill range in the British Isles has been more or less planted within the last century or so, and we know at least something of the conditions necessary for profitable tree growth. Much more has, of course, to be learnt, but I doubt very much if the final conclusions arrived at will be so fatal, opposed to practical experience as Dr. Groom would have us to suppose. I regret having taken up so much of your space over this matter, but I think it is important to show the fallacy of Dr. Groom's reasoning when dealing with the British Isles alone. All individual factors of growth have a relative rather than an absolute value, and this fact is often forgotten by the theorist or scientist who fails to apply his principles and deductions to every day conditions of life. *A. C. Forbes.*

SOCIETIES.

ROYAL HORTICULTURAL

MARCH 14, 15.—All available space in the Hall was filled with exhibits at the meeting on Tuesday last, for, in addition to a magnificent display of spring flowers and Orchids, there were competitive classes for Hyacinths and other bulbs. Both the amexes were requisitioned for the accommodation of exhibits. A larger number of medals than usual was given by the FLORAL COMMITTEE, including a Gold Medal for a splendid exhibit of Alpines from the gardens of Sir EVERARD HAMPERO. The FLORAL COMMITTEE granted also one First-class Certificate and two Awards of Merit.

There was a remarkable display of Orchids for the time of the year, and numerous novelties were submitted for award, the ORCHID COMMITTEE granting one First-class Certificate and four Awards of Merit.

The NARCISSUS COMMITTEE sat for the first time this season. There were several groups of Daffodils, and one very large display of Tulips. The NARCISSUS COMMITTEE recommended an Award of Merit to a variety of Tulip.

The FRUIT AND VEGETABLE COMMITTEE found but little to occupy their attention, and this body made no Award to a novelty.

At the 5 o'clock meeting, in the Lecture Room, more than 90 new Fellows were elected, and the sixth Masters' Memorial Lecture was delivered by Mr. G. E. Scott Elliot, his subject being "The Origin of Varieties."

The exhibition was continued on Wednesday, and on both days, but especially on Tuesday, the press of visitors rendered an inspection of the exhibits a matter of great difficulty.

Floral Committee.

Present: W. Marshall and H. B. May (Chairmen); and Messrs. C. Blick, W. Bain, W. Cuthbertson, Ch. T. Druery, G. Renhe, W. J. James, E. H. Jenkins, W. Howe, Chas. E. Shea, Geo. Paul, Chas. E. Pearson, Chas. Dixon, John Dickson, C. J. Lucas, Junr., Jennings, J. F. McLeod, C. R. Fielder, Jas. Douglas, W. J. Bean, R. C. Notcutt, Junr., Green, J. W. Barr, A. Kingsmill, F. Page Roberts, Arthur Turner, Reginald Nevill, R. Hooper Pearson, and Ed. Mawley.

MESSRS. JAMES CARTER & CO., Raynes Park, staged a novel and attractive display in the form of a spring garden scene. The design was a bold one and well carried out, a grass sward adding considerably to the effectiveness of the exhibit. At the back was a shrubbery, in the foreground

of this being a broad border of spring bulbs in flower, with two fountains at intervals. In the centre of the grass plot was an old stone vase, filled with pink Tulips, and at the base a ring of white Hyacinths. Along the foreground were half-circular beds of Tulips and Hyacinths, in various colours, all the flowers being magnificent specimens. (Silver-gilt Flora Medal.)

Messrs. JAMES VEITCH & SONS, LTD., Chelsea, made an attractive display with finely-flowered varieties of Rhododendron (*Azalea*) indicum and other greenhouse plants, including *Polygala dalmaniana*, *Primula kewensis*, *Cineraria Feltham Blue* (of a lovely shade, and with narrow, revolute florets), a striking batch of *Hippeastrums*, some good *Imantophyllums* (*Chivias*), and small, well-flowered plants of *Streptosolen Jamesonii*. (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, again made a bold and effective display with forced shrubs and Rhododendrons (*Azaleas*), a large group of tall plants of *Jasminum primulinum* at the back throwing the other subjects into greater prominence. In the foreground was a batch of *Franciscea calycina floribunda*, the plants being models of good culture. (Silver Flora Medal.)

Messrs. WM. PAUL & SON, Waltham Cross, exhibited species of *Prunus* and *Pyrus* against a background of *Camellias*. The group was exceedingly pretty, reminding one of a Japanese garden scene, the more attractive subjects being double-flowered Peaches, Almonds, and Cherries. (Silver Flora Medal.)

Mr. H. BURNETT, Guernsey, again displayed an exhibit of Carnations, all magnificent blooms, and unapproached for quality by any others in the show. The variety *R. F. Felton* was superbly displayed, and others that were specially good included *Alma Ward*, a peony-shaped flower of bluish shade; *Mrs. C. F. Raphael*, *White Enchantress*, *Mrs. Tatton*, and *Bridesmaid*. (Silver-gilt Flora Medal.)

Messrs. W. CUTBUSH & SON, Highgate, made a showy exhibit with Carnations, the following varieties figuring prominently: *Mrs. Fortescue*, bright rose; *F. Galsworthy*, a shade of rose suffused with lavender; *Lady Elphinstone*, pink; *Adna*, pale lavender, very fine; and *Countess of Bradford*, yellow, marked with rose. This firm also exhibited Alpines, including showy batches of the double-flowered blue *Hepatica*, *Primula rivalis*, a fine pan of *S. oppositifolia*, *Daphnoblagaiana*, *Kalmia glauca*, also shrubs in flower such as *Rhododendron Smithii aurea*, *R. Pink Pearl*, *Viburnum plicatum*, many sorts of *Lilac*, and other species. (Silver Banksian Medal.)

Mr. C. ENGELMANN, Saffron Walden, showed varieties of perpetual-flowering Carnations, the beautiful clove-coloured *Carola*, *Rex* (pink), *Beacon*, and *White Perfection* being the more conspicuous examples.

Messrs. STUART LOV & CO., Enfield, showed varieties of Carnations, a batch of *Acacias* in several species, and hybrid *Gerberas*.

Messrs. SUTTON & SONS, Reading, filled a table with varieties of *Primula obconica*, relieved with batches of the yellow-flowered *P. kewensis* and numerous *Palms* and *Ferns*. They showed the plants of *Primula obconica* in batches of colours, the finer sorts being of pink and crimson shades, whilst the white form was also very choice. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, displayed more than 40 varieties of *Zonal-leaved Pelargoniums*, including a new variety named *Scarlet King*, and a salmon-coloured form of the well-known *Paul Crampel* variety. (Silver Banksian Medal.)

The Earl of CLARENDON, The Grove, Watford (gr. Mr. Chas. Harris), showed *Violets* of the *La France* variety; the blooms and plants were extra vigorous, and a Cultural Commendation was awarded.

Mr. H. N. ELLISON, West Bromwich, staged splendid flowers of Messrs. Adnet's race of hybrid *Gerberas*, and varieties of *Freesias*, relieved with an assortment of *Ferns*. (Silver-gilt Banksian Medal.)

Messrs. G. MOUNT, LTD., Canterbury, exhibited the new pink *Rose Mrs. Geo. Sawyer*, a charming variety as shown in the bud stage; also others of the yellow variety *Lady Hill*. (Silver Banksian Medal.)

Messrs. R. GILL & SONS, Tremough, Falmouth, showed numerous trusses of *Rhododendrons*, many of the varieties being of their raising; also *Camellia reticulata*, *Erica codonoides*, *Dracena divisa vera* with variegated leaves, their new

Primula Winteri, *P. imperialis*, and other hardy flowers. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, exhibited well-bloomed plants of *Rhododendron (Azalea) indicum*, a variety of greenhouse *Ferns*, and a large plant of *Asparagus tenuissimus*. (Silver Banksian Medal.)

The Marquis of SALISBURY, Hatfield (gr. Mr. Prime), showed well-flowered plants of *Lachenalia Nelsonii* and *L. tricolor*. (Silver Banksian Medal.)

Messrs. R. & G. CUTBERT, Southgate, also showed plants of *Lachenalia*, for which a Bronze Flora Medal was awarded.

Messrs. BLACKMORE & LANGDON, Bath, showed baskets of coloured *Primroses* and *Polyanthuses*.

Messrs. G. PAUL & SON, The Old Nurseries, Cheshunt, were awarded a bronze Flora Medal for an exhibit of *Roses* and flowering shrubs, these latter including choice varieties of *Lilac*.

HARDY PLANTS.

Sir EVERARD HAMBRO, K.C.V.O., Hayes Place, Hayes, Kent (gr. Mr. J. Grandfield), showed, as in former years, a superb exhibit of Alpines. The plants were all of choice varieties or uncommon species, and remarkable for their splendid culture as well as great size. Large pans were filled with such beautiful *Saxifragas* as *S. Bursariana*, *S. apiculata*, *S. Boydii*, *S. B. alba* (especially good), *S. marginata*, the rare *S. Petraschii*, *S. Strbyinii*, *S. Vandellii*, *S. Obristii*, *S. Boryi*, and *S. cochlearis*. We have seen nothing



FIG. 76.—SAXIFRAGA PETRASCHII.

finer exhibited in *Saxifragas* than these remarkable specimens. There were three large batches of *Primula denticulata*, *P. d. alba*, and *P. Cashmeriana*, these plants also being superbly flowered. The background was composed of well-bloomed *Rhododendrons*, *Kalmias*, and other shrubs mixed with *Daffodils*, whilst interspersed amongst the group were numerous Alpines, besides those enumerated, including batches of *Primula malacoides*, *P. Forbesii*, *P. floribunda*, *P. cortusoides*, the rare *P. cynoglossifolia*, *Gentiana*, *Shortia*, *Juncka Heldreichii*, and many more. (Gold Medal.)

Messrs. R. WALLACE & CO., Colchester, put up a rock-garden exhibit, arranging it in a very natural manner, and having suitable plants in bloom, including many species of *Saxifraga*, of which we noticed *S. Boydii*, *S. B. alba*, *S. Paulina*, *S. Petraschii*, and *S. latina*. (Bronze Flora Medal.)

Mr. CLARENCE ELLIOTT, Stevenage, arranged with excellent skill a rock-garden exhibit, miniature ravines being sheets of flowers of *Saxifraga Bursariana speciosa* (yellow), *S. apiculata* (white), and *S. oppositifolia* (mauve).

Mr. H. HEMSLEY, Crawley, displayed, on a rockery, varieties of hardy plants in flower, amongst which were good specimens of *Saxifraga Boydii*, and *S. coriophylla*, *Viola Bowles's Black*, *Iris reticulata*, *Publunaria rubra*, *Erythronium densum alba*, also dwarf shrubs such as *Cytisus Ardoinii*, and *Rhododendron racemosum*.

Messrs. BARR & SONS, King Street, Covent Garden, exhibited Alpines extensively, their *Crocuses* and *Anemones* being especially good; a pan of *Crocus purpureus grandiflorus* was remarkably fine. They also showed *Gerberas* in a variety of colours and a large collection of *Narcissi*.

Messrs. J. PEED & SONS, Norwood, showed Alpines in variety and a batch of well-flowered plants of *Lachenalia Nelsonii*.

Messrs. GEO. JACKMAN & SON, Woking, also exhibited seasonable hardy plants, including a remarkably fine batch of *Draba azoides*.

Other exhibitors of rock-garden plants were Mr. H. C. PULHAM, Elsenham; W. WARE, LTD., Feltham (Silver Banksian Medal); the Misses HOPKINS, Shepperton (Bronze Flora Medal); Messrs. G. & A. CLARK, LTD., Dover, this firm's coloured *Primroses* being remarkably fine; Mr. MAURICE PRICHARD, Christchurch, Hampshire (Silver Banksian Medal); Messrs. BAKERS, LTD., Wolverhampton, *Primula Mrs. J. H. Wilson* being excellent; Messrs. HEATH & SON, Cheltenham; Mr. JAMES BOX, Lindfield, the exhibit having bulbous flowers, some of them arranged in epergnes (Silver Flora Medal); and Mr. G. REUTHE, Keston, Kent (Silver Flora Medal).

FIRST-CLASS CERTIFICATE.

Adiantum "Glory of Moordrecht."—This plant, which was awarded an Award of Merit when shown on a recent occasion (see p. 77), was given the higher award of a First-class Certificate. From Mr. FABIVS, Redlands Nursery, Emsworth.

AWARDS OF MERIT.

Hippeastrum "Queen Mary."—This handsome *Hippeastrum* is shown in fig. 75. The flowers measured 8 inches across, and were white in the interior, with just a suspicion of colouring on the exterior of the large and effective segments. Shown by Messrs. R. KER & SONS. We believe that the plant has passed into the collection of J. Pierpont Morgan, Esq.

Saxifraga Petraschii.—This charming little hybrid is from a cross between *S. tombeanensis* × *S. Rocheliana*. It has compact, glaucous foliage, red tinged, glandular stems 2 inches high, and it bears three or four pure white flowers in each head. Shown by Sir E. HAMBRO.

Narcissus Committee.

Present: E. A. Bowles, Esq., (in the Chair); and Messrs. Robert Sydenham, Alex. M. Wilson, Charles Dawson, W. F. M. Copeland, Walter T. Ware, John Pope, F. Herbert Chapman, Francis Barchard, Harold A. Denison, W. W. Fowler, Joseph Jacob, W. Poupert, P. Rudolph Barr, George Engleheart, R. W. Wallace, W. Goldring, Charles T. Digby, E. M. Crosfield, Arthur R. Goodwin, J. T. Bennett-Poë, W. B. Cranfield, and Miss E. Willmott.

An imposing display of Tulips was staged by Messrs. R. & G. CUTBERT, Southgate, the exhibit extending the whole width of the Hall. There were 38 distinct varieties, shown in batches, the plants being well-grown specimens in pots. (Silver-gilt Banksian Medal.)

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, showed varieties of *Narcissi*, having excellent flowers of such fine varieties as *Southern Star*, *Matthew Arnold*, *King Alfred*, *Barcarolle*, *Mrs. H. J. Veitch*, *Trojan Boy*, and *Fairy Queen*. (Silver-gilt Banksian Medal.)

Messrs. R. SYDENHAM, LTD., Birmingham, showed an extensive exhibit of *Narcissi*, having a splendid selection of the more popular varieties in well-grown blooms. We noticed *Lucifer*, with a fine, star-like perianth and beautiful, orange-coloured cup; *Weardale Perfection*, one of the finest of the giant bicolors; *Great Warley*, a large, creamy-white perianth that is sometimes more than 4 inches across; the yellow cup is of a proportionate size; *Una*, a very pretty variety because of the drooping habit of the flower, the lemon cup being tinged with orange; *Bandicoot*, with creamy-white perianth and pretty, canary-yellow cup, tipped with pale salmon colour; *Beacon*, the perianth being of a pale sulphur colour that sets off the large red cup; *Lila*, a white variety of the triandrous section; *Incognita*, distinguished by its large, flat, crinkled crown of orange-apricot colour; and *King Alfred*, a giant amongst trumpet *Daffodils*. In addition to the *Narcissi*, Messrs. SYDENHAM again showed bulbous plants grown in bowls with moss fibre.

Messrs. BARR & SONS, King Street, Covent Garden, had some interesting varieties of Daffodils, of which the more notable were Red Beacon, of the incomparabilis type, with a fine, orange eye; Czarina, a giant *Leedsii*; Admiral Makaroff, a giant trumpet Daffodil, with sulphur-coloured trumpet; King Alfred (this well-known variety was shown splendidly); Lycidas, an exquisite poet's Daffodil; Blackwell, a pretty Daffodil, of primrose colour, with a beautiful, orange-scarlet cup; also Elvira and Klondyke, both of the poetaz section. (Silver Flora Medal.)

Messrs. R. H. BATH, LTD., The Floral Farms, Wisbech, made a showy exhibit with bulbous plants grown in moss fibre. The various subjects were remarkably effective for floral decoration in dwelling-rooms, and the bowls were almost as pretty as the flowers. Crocuses and Hyacinths were growing and flowering with greater freedom than is often seen in ordinary flower-pots. (Silver Banksian Medal.)

Another showy exhibit of bulbous plants in fancy receptacles and planted in moss fibre was made by Messrs. CARTER PAGE & Co., London Wall.

A display of bright, clean blooms of Narcissi was put up by Mr. CHRISTOPHER BOURNE, Simpson, Bletchley. He showed Omar Khayyam, with pure white perianth and orange centre; Incognita, with broad, disc-like crown of apricot-orange colour; Dewdrop, with globular cup, tinged with apricot red; Lullaby (poeticus), with broad petals and clear yellow eye, edged with red; Tritoma, a crown of orange-red, set off by a creamy-white perianth; Walt Whitman, a fine poet's Narcissus; and Whitewell, with flat, yellow corona and white perianth. (Silver Flora Medal.)

Messrs. J. R. PEARSON & SONS, Chilwell Nurseries, Lowdham, exhibited varieties of Narcissi, having a large collection of varieties, including Lady Margaret Boscawen, Heroine (broad, white perianth and citron-coloured crown, with rim of orange—a beautiful flower), C. J. Backhouse, Duke of Bedford, Sir Watkin, Firebrand, Florence Pearson, Victoria, Van Waverin's Giant, and three choice sorts of the Giant *Leedsii* type in Vega, Nora Pearson, and Mountain Beauty. (Silver Banksian Medal.)

Mr. FRANK R. LILLEY, St. Peter's, Guedisey, showed varieties of Narcissi, spikes of the beautiful *Watsonia coccinea*, and vases of large-flowered Anemones.

AWARD OF MERIT.

Tulip Yellow Murillo.—A clear yellow, double variety, recommended for forcing. Shown by Mr. W. PROFITLICH, Twickenham.

COMPETITIVE BULB CLASSES.

The prizes presented by the General Bulb Growers' Society at Haarlem, brought together a wonderfully fine collection of Hyacinths. Most of these were staged in the annexe, where they attracted a constant stream of admiring visitors. In the division restricted to amateurs the competition was keen in every class, but the second division, for trade growers only, were disappointing from that point of view, as Messrs. R. & G. CUTHBERT, Southgate Nurseries, was the only competitors in each of the two classes; this firm was deservedly awarded the two gold medals for the best trade exhibits of forced Hyacinths. Messrs. CUTHBERT also secured this premier honour last year.

In the largest Hyacinth class for amateurs the Hon. VICARY GIBBS, Elstree (gr. Mr. E. Beckett), won the 1st prize, although the exhibit shown by the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), was very close. So evenly balanced were the merits of the collections staged by these two competitors in the class for four pans of Hyacinths, that the judges awarded them equal firsts. This recalls an interesting discussion recently carried on in our columns on the awarding of equal prizes. We fully appreciated the difficulty of the judges' task; he would indeed be a bold man who decided which was the better of the two exhibits. Considering the number of varieties there are to choose from, it was interesting to note how few of them the exhibitors had utilised. In each class the varieties shown by the different exhibitors were nearly similar. It would seem that the average variety of Hyacinth does not possess much value from the exhibitor's point of view.

DIVISION I.—AMATEURS' CLASSES.

Eighteen Hyacinths, distinct.—This class was closely contested, the leading exhibits were of high merit, and the colours of the flowers were happily blended. The stout, erect, densely-flowered spikes were very fresh and exuded an all-pervading perfume. The 1st prize was awarded to the Hon. VICARY GIBBS (gr. Mr. E. Beckett). The outstanding varieties in this exhibit were La Victorie and Garibaldi (red), City of Haarlem (yellow), Correggio (white), Jacques (an immense pink truss), and King Menelik (dark purple); 2nd, the Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), with Capt. Boyton (a gigantic pale blue spike), Jacques, La Grandesse (white with very large flowers), and Ivanhoe (dark blue); 3rd, A. HANSON, Esq., Ivanhoe, Wavertree, Liverpool. This exhibit was shown in smaller pots, which gave it a more decorative value, though the spikes of bloom were not quite so good. In this collection the variety Lord Balfour was specially noticeable.

Twelve Hyacinths, distinct.—Again the chief exhibit was shown in unduly large flower-pots. Although the spikes of bloom were fine, they were not so even as those in the preceding class. Some competitors were evidently more fortunate than others in their supplies of moss for covering the soil. Unless the moss is green and good its use is detrimental rather than decorative. The 1st prize was won by the Marquis of SALISBURY, Hatfield, Hertfordshire (gr. Mr. H. Prime). The varieties which specially attracted notice were La Victorie, City of Haarlem, Jacques, Electra and Schotel, a pale porcelain-blue variety; 2nd, J. R. DIXON NUTTALL, Esq., Prescott (gr. Mr. J. W. Barker); Lord Herby (a beautiful rose-pink), Menelik (the best of the dark sorts), and Correggio were amongst the finest spikes; 3rd, Lord HOWARD DE WALDEN, Saffron Walden (gr. Mr. Vert).

Six Hyacinths, distinct.—It was pleasant to see the plants in this class grown in more proportionate pots. In the leading collections the yellow-flowered varieties were the weakest. The remaining sorts were a repetition of those seen in the larger classes. The 1st prize was awarded to Lord HILLINGDON, Sevenoaks (gr. Mr. J. Skelton), with Schotel, very fine; 2nd, Mr. H. FAIRBairn PHILLIPS, Edenbridge (gr. Mr. H. Spittle); 3rd, F. HARRISON, Esq., Wavertree (gr. Mr. W. Betley).

Four pans of Hyacinths, 10 roots of one variety in each pan.—The schedule required the blooms of each pan to be of distinctly different colour to those of the other three pans. This class occupied a large central table, and made a bright and more attractive display than the exhibit of bulbs in pots. The leading collections had evidently been grown under perfect conditions. Equal 1st prizes were awarded to the Hon. VICARY GIBBS and the Duke of PORTLAND. The Welbeck Abbey exhibit consisted of City of Haarlem (exceedingly fine), King of the Blues, La Victorie, and La Grandesse (a large white spike with immense individual flowers). Mr. GIBBS's exhibit comprised similar varieties, except that the white was represented by Correggio, in which, if the flowers were smaller, the spikes were more compact. 3rd, The Marquis of SALISBURY. This fine collection was shown in green-painted pans.

DIVISION II: TRADE GROWERS.

As previously stated, the only exhibit of 100 Hyacinths in 25 varieties, four blooms of each variety, was one from Messrs. R. and G. CUTHBERT, which comprised a splendid collection, tastefully arranged. Of the varieties shown by the amateurs, Jacques and Schotel were here finely represented. King Alfred, Lord Balfour and Rose à Merveille were also exceedingly meritorious.

One hundred and twenty Hyacinths, in 12 varieties, in pans, 10 roots of one variety in each pan.—Here, again, Messrs. CUTHBERT were the only exhibitors. Their 12 pans made a charming display.

BULBS GROWN IN MOSS FIBRE.

The three remaining competitive classes were restricted to amateurs, and were for bulbs grown in moss fibre or similar material (not carted), and without drainage. The prizes were given by Messrs. Robert Sydenham, Ltd.

Six single Hyacinths, to be selected from 13 given varieties.—These were pleasantly shown in

the customary, wide-mouthed, green-coloured receptacles. An occasional plant had evidently suffered from excess of moisture at the root, but on the whole the plants were very creditable. The prizes were awarded as follow:—1st, Miss C. A. MICHELL; 2nd, Lady TATE; 3rd, Miss E. M. RAWLINS, Northampton; 4th, Hon. Mrs. BARING, Winchester.

Six vases of Tulips.—Any number of bulbs might be grown in a vase, but the varieties were to be selected from 13 given kinds. The Tulips, which were arranged between some of the Hyacinths, presented a gay appearance. These were the most meritorious of the fibre exhibits. The 1st prize was won by Lady TATE, Streatham (gr. Mr. W. Howe), whose collection included Queen of the Netherlands, Rose Gris de Lin, Duchesse de Parma and Prince of Austria; the names of the last two varieties had become transposed. 2nd, Lady TATE, whose Rose Gris de Lin was literally a vase full; 3rd, Hon. Mrs. GUY BARING.

Six vases of Narcissi.—Any number of bulbs were admissible in a vase, but the sorts must be selected from a given list. The competition here was very keen; the vases were full of well-grown bulbs. The 1st prize was won by Miss E. M. RAWLINS with C. J. Backhouse, Victoria, and Mme. de Graaff very fine. 2nd, Lady TATE. This collection had the additional merit of possessing labels easily seen and read. Victoria, Blood Orange and Horace were the outstanding sorts. 3rd, Hon. Mrs. GUY BARING.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., W. Cobb, R. G. Thwaites, Gurney Wilson, F. W. Moore, A. A. McBean, T. Armstrong, J. E. Shill, J. Cypher, W. H. Hatcher, A. Dye, H. G. Alexander, W. H. White, H. Ballantine, W. Bolton, F. M. Ogilvie, W. P. Bound, J. Charlesworth, J. S. Moss, and R. Brooman-White.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver gilt Flora Medal for a fine group containing several good novelties, the best of which, the new *Odontoglossum Jeanette* (Rossii rubescens × amabile heatouense) securing the only First-class Certificate given (see Awards). The centre of the group was of Phaius Norman, one of the handsomest and most floriferous hybrids, in great variety. At one end was a fine selection of hybrid *Odontoglossums*, including the elegant *O. Sylvia* (cirrhosum × Rolfeae). These were arranged with scarlet *Odontiodas*, various *Cattleyas*, *Laelio-Cattleyas*, &c. The other end was of fine forms of *Odontoglossum crispum*, *Dendrobium Jamesianum*, the violet-lipped *Zygocolax Charlesworthii*, *Laelio-Cattleya Myra*, and the very handsome *Blasio-Cattleya Veitchii* King Edward VII.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), was awarded a Silver Flora Medal for a pretty group of hybrid *Dendrobiums* raised at Gatton Park, and other interesting Orchids. The *Dendrobiums* were uniformly good, especially *D. Princess Patricia* Commaught, *D. Lady Colman*, one of the handsomest and most perfect in form, and *D. Margery Tyrrel* Giles. A fine white form of *D. melanodiscus*, with violet centre, was also shown, and the singular species *D. Hodgkinsonii* and *D. cucumerinum*, with short, fleshy, spiny growths and small fragrant flowers. Several handsome hybrid *Lycastes*, the pretty little *Maxillaria sanguinea*, *Pholidota chinensis*, and other species were also included, together with an elegant hybrid, *Odontoglossum Lady Roxburgh* (cirrhosum × perculum) nearest to *O. cirrhosum* in form.

Messrs. SANDER & SONS, St. Albans, secured a Silver Flora Medal for an effective group containing several fine novelties (see Awards). The *Odontoglossums* were well represented, and among other good *Laelio-Cattleyas*, L.-C. Firebrand (L.-C. highburyensis × C. Trianae) gave a brilliant colour effect. *Chysis Chelsonii*, *Cirrhopetalum acutifolium*, *Cattleya Jucunda* (labiata × Schroderea), *Schomburgkia undulata*, and some good *Cymbidiums* were noted.

Messrs. J. CYPIER & SONS, Cheltenham, staged an effective group, for which a Silver Flora Medal was awarded. The *Dendrobiums*, *Cypripediums*, and *Odontoglossums* were well shown, and *Miltonia Bleuana grandiflora*, some very fine

Cattleya Trianae, *Laelio-Cattleya Lady Miller*, the very fine *Cypripedium Bridgeri*, and *C. aureum Surprise*, a selection of *Masdevallias* and *Cymbidiums*, some bright-coloured *Sophro-Cattleyas* and finely-flowered *Dendrobiums* were also well displayed in the group.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, were awarded a Silver Flora Medal for a fine group, in the centre of which was a grand specimen of *Odontoglossum navium* with seven spikes, bearing collectively 216 flowers, surrounded by a very showy selection of good forms of *O. crispum*, *O. amabile*, *O. Ossulstonii*, &c. With these was a selection of *Dendrobiums*, one of the best being *D. nobile Armstrongiae*, a large white flower with deep violet centre. Amongst the *Cypripediums* was a new hybrid between *C. Euryades*, and *C. Godefroyae leucochilum*, an attractive novelty, *C. Mandie giganteum*, certainly the largest form yet shown, and others of excellent merit. The nearly black *Masdevallia chimera Roezlii* and other *Masdevallias* were also included.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, were awarded a Silver Banksian Medal for a group containing several fine specimens of their large type of *Dendrobium Wardianum* and *D. crassinode*, including the white forms, *D. atro-violaceum* bore five spikes, *D. aureum* had many of its violet-scented flowers, and *Cirhopetalum Mastersianum*, *C. picturatum*, *Masdevallia Schröderiana*, *M. triangularis*, and some *Laelio-Cattleyas*, &c., were remarked.

Messrs. J. & A. A. McBEAN, Cooksbridge, staged a very pretty group, for which a Silver Banksian Medal was voted. At the back were a good form of *Cymbidium eburneo-Lowianum*, several of the white *C. eburneum*, and good *Cattleya Schröderae*, the best and most distinct of which was the variety *dellense*, *Scarlet Epiphronitis Veitchii*, and a few hybrid *Odontoglossums*.

Mr. A. W. JENSEN, Lindfield, Haywards Heath, was awarded a Silver Banksian Medal for an effective group of showy Orchids, all of his own importation, and including a selection of a very fine type of *Odontoglossum crispum*, a very large *O. triumphans*, good *Cattleya Schröderae*, and *C. Mendelii*, and finely-coloured *Oncidium Kramerii*.

HAMILTON SMITH, Esq., Killoran, Church End, Finchley (gr. Mr. Coningsley), staged a group in which were two plants of *Lycaste Skinneri* Mrs. G. Hamilton Smith, one of the largest and best coloured *L. Skinneri*, *Cymbidium Balliae*, and *C. eburneo-Lowianum*, *Odontoglossum Edwardii*, *O. harvengtense* and *O. Mariettae* (*Lambeauium* × *Rolfae*), like a large spotted *O. crispum*, and other Orchids.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Staffes), sent the new hybrid *Odontoglossum Titania* (*Queen Alexandra* × *crispum Leonard Perfect*), a very large and remarkably coloured hybrid, the sepals and petals having densely-set, purplish-red markings, the tips being primrose-yellow and the large white lip having a distinct purple base and yellow crest.

J. B. SEATLE, Esq., Fairfield, Putney (gr. Mr. Paice), showed a small plant of a well-marked hybrid *Odontoglossum*.

HENRY A. INNES, Esq., Croft Spa, Yorks., sent *Odontoglossum eximium Monkend* variety, a very handsomely blotched flower; *Cypripedium villosum Stewartii*, and the finely-coloured *Laelio-Cattleya Dominicana Monkend* variety (see Awards).

The Rev. J. CROMBIE HOLME, Clayton-le-Moors, Aclington, sent *Cypripedium Johnsoni* (*Rothschildianum* × *philippense*) in good form.

The Hon. Mrs. FOLEY, Backham, Fordingbridge, sent a very fine plant of *Ansellia africana*, with many spikes; the pretty *Lissochilus purpuratus*, *Eulophia gracilis*, with erect spikes of greenish flowers, *E. lurida*, and *Megacalium* species out in flower.

R. BINGHAM-WHITE, Esq., Arddaroch, Garelochhead, showed two spikes of the handsomely blotched *Odontoglossum crispum Mercedes*, and one spike of a fine white form.

WILLIAM BOURN, Esq., Warrington, submitted a spike of *Dendrobium* of the *D. atro-violaceum* section, imported with *D. Ashworthiae*.

JOHN S. MOSS, Esq., Wintershill House, Bishop's Waltham, showed a fine, many-branched spike of a hybrid *Odontoglossum*, and a first inflorescence of a new rose-pink hybrid, with purplish-rose markings.

Major E. C. ROGERSON, Harpenden, showed *Odontoglossum eximium Ethel Rogerson*, a very handsome and richly-coloured flower.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Jeanette (Rossii rubescens × *amabile heatonensis*), from Messrs. CHARLES-WORTH & Co.—Another happy combination of the *O. Smithii* section, and with quite new features. As with all hybrids of *O. Rossii* that species predominates, but the two parts of *O. crispum* give size, and the one part of *O. Harryanum* (both got through *O. amabile*) helps to give firm texture. The sepals and petals are densely marked with claret purple, the tips being tinted rose. The extraordinary labellum has an almost circular front of a carmine-rose colour, and the base has a singular yellow blotch around the similarly-coloured crest. The spike bore several fine flowers.

AWARDS OF MERIT.

Cymbidium Alexanderi (eburneo-Lowianum × *insigne-Sanderi*), from Lieut. Col. Sir GEORGE L. HOLLARD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander).—Although in an immature condition, this new hybrid gave evidence of excellent quality, the flowers being as large as those of *C. insigne*, and similarly coloured. Sepals and petals broad, white, tinged with pink, and with rose lines. Lip large, white, blotched with blood-red in front, and striped on the side lobes.

Cymbidium Gottianum (eburneum × *insigne-Sanderi*), from Messrs. SANDER & SONS, St. Albans.—In this worthy hybrid, *C. eburneum* was the seed-bearer, and the flowers resemble that species more than the other. They are white, with a faint green tint on the sepals, with ruby-purple spotting on the front of the lip, and broken lines of the same colour on the side lobes.

Odontoglossum mirum Bruggense (crispum blotched variety × *Wilckeanum*), from Messrs. SANDER & SONS.—Resembling a very large and finely-formed, blotched *O. crispum*. Flowers with the segments heavily blotched with claret purple, with some white showing on the lip and tips of the other segments.

Laelio-Cattleya Dominicana Monkend variety (L. purpurata × *C. Dominicana*), from HENRY A. INNES, Esq., Croft Spa, Yorks.—Flower large; sepals and petals purplish-lilac; lip fine, deep-claret colour.

Fruit and Vegetable Committee.

Present, G. C. A. Nix, Esq. (in the Chair); and Messrs. H. S. Rivers, J. Harrison, W. Crump, J. Jaques, G. Reynolds, P. C. M. Veitch, H. Markham, W. Bates, A. Dean, T. Coomber, J. Vert, A. W. Metcalfe, A. R. Allan, J. Davis, W. Humphreys, G. Wythes, J. Gibson, E. Beckett, O. Thomas, G. Kelf, and W. Poupert.

Mr. W. POUPERT, Malsh Farm, Twickenham, showed varieties of Blubarb. The collection included remarkably fine stems of *Daws's Champion*, that had been forced. These were about 18 inches in length, and the exterior was richly coloured. There was other produce of the same variety from out-of-doors, to show its early cropping. *Hawke's Champagne*, grown under the same conditions, was also shown; whilst the flesh of *Daws's Champion* is red, that of *Hawke's Champagne* is white. Stems of *Royal Albert*, an old variety, were much smaller. Mr. POUPERT also showed roots of the varieties *Daws's Challenge*, the *Sutton*, *Victoria*, and *Limaucus*.

Messrs. SUTTON & SONS, Reading, set up a collection of vegetables of very high quality. The central feature was a fine cone of some three dozen white, solid heads of *Superb Early White Broccoli*. There were also dishes of *Early Paris Cabbage Lettuce*, baskets of the new and wonderfully early hearting *Cabbage Harbinger*, small and quite firm; clusters of *Dandelion*, *Chicory*, purple-tinted and lily-white *Seakale*; two mounds of *20th Century Mushrooms*, and bundles of the *Sutton Rhubarb*. (Silver Banksian Medal.)

W. RAUFAEL, Esq. (gr. Mr. W. H. Honess), Hopfield, Dorking, set up in boxes on a carpet of moss, excellent samples of *La Petite Noir Cabbage Lettuce*; these had been cultivated in cloches.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

(ANNUAL MEETING.)

MARCH 13.—The annual meeting of the above society was held on the above date at the Horticultural Hall. Mr. Charles H. Curtis presided, and about 20 members were present.

The Chairman, in moving the adoption of the report and balance-sheet, referred briefly to the excellent work of the society during the year, and strongly commended it to the notice of young gardeners. This was carried with acclamation.

EXTRACTS FROM THE REPORT.

"The membership has steadily increased. Seventy new members were elected during the year. Among the deceased members were Mr. W. Bunce, who joined the society in 1868, and who had the sum of £72 19s. 7d. to his credit in the society's funds; and Mr. Alexander Clark, who joined in 1885, and left £44 14s. 11d. to his nominee. The total amount paid out to nominees of deceased members was £147 10s. 4d. It is of interest to record that a sum of 30 guineas was paid out to a member who had been lapsed for 30 years. Another lapsed member received the amount 12s. 7d. due to him.

"The total amount of sick pay to benefit members during the year was £561 0s. 6d., as against £571 15s. the previous year.

CONVALESCENT FUND.

"Very few applications were made for assistance from this source. The subscriptions, including five guineas from N. N. Sherwood, Esq., V.M.H., amounted to £10 0s. 6d. and the payments to £8.

BENEVOLENT FUND.

"Subscriptions to the Benevolent Fund amounted to £233 10s. 1d., and the payments therefrom to £90 16s., the latter amount including the sums regularly paid to several members over 70 years of age, as well as a few grants made to members or members' widows, in great distress. A payment of £2 was granted to a necessitous member to assist him to pay a doctor's bill, and £3 was granted to a member's widow who was left in very straitened circumstances. In all cases the committee exercises its utmost discretion in making grants from this fund.

MANAGEMENT FUND.

"The strictest economy, consistent with the proper working of the society, has been observed in this department. The total management charges amounted to £222 9s. 7d., as against £195 15s. 10d. in 1909 and £192 19s. 10d. in 1908. The slight increase of annual expenditure is due to the actuaries' fee of £21 and £5 3s. for clerical assistance to the secretary.

WIDOWS AND ORPHANS.

"Reference was made in the last annual report to the suggestion brought forward at a recent annual general meeting for the establishment of a fund to provide for funeral expenses in case of any member who might have the misfortune to lose his wife by death. Actuarial advice was obtained upon this matter, with the result that as there were so many points of far-reaching importance involved, it would not be wise to lay any propositions before the members at the present time. The matter is, therefore, indefinitely in abeyance.

"The committee would again direct attention to the benefits of the Royal Gardeners' Orphan Fund, and begs support wherever possible for the orphans of deceased members of the U.H.B.P.S. Much good can be done by co-operative voting. A subscription of 5s. per annum entitles a subscriber to one vote at each election, and if a large number were to subscribe, the election of children of deceased members to the benefits of the fund would be practically assured.

STATE INSURANCE.

"A keen watch has been kept on all the statements and reports in the Press in regard to the tentative proposals of State insurance against sickness, and the committee has been in communication with the Chancellor of the Exchequer twice on this matter. A report and balance-sheet for 1909 was also forwarded to the Chancellor, with

a request that the committee be kept informed of any developments.

BENEFITS OF MEMBERSHIP.

The many benefits attaching to membership of the society are well known to the members themselves, although not all of them, as already pointed out, are taken full advantage of. But if the society is soon to hold that large place in the horticultural world it is meant to fill, then there must be greater effort on the part of private members. In return for a payment of 9d. per week, a member receives 18s. per week for six months if continuously ill for that period, and 9s. per week for a further six months if still ill (12s. and 6s. respectively if the subscription is 6d. per week). In cases of chronic sickness, 6s. and 4s. per week respectively are granted, and should a member be unable to follow his employment after attaining the age of 70 years, he receives a sum of not less than 5s. per week. After reaching 60 years of age, a member may withdraw a sum equal to double the amount of the interest on his deposit account in any one year, and thus, in times of stress, be able, in many cases, to pay his contributions to the society from the amount standing to his personal account in the books of the society.

"The financial stability of the society is beyond question, as it has now £38,800 invested."

The retiring members of the committee, Messrs. Burge, Stanbridge, Walker, and Bedford, were re-elected. On the proposal of the Chairman, seconded by Mr. J. Wheeler, Mr. W. Collins was complimented on completing 25 years' service as secretary to the society. He was re-elected unanimously.

Messrs. Gunner and Puzey were elected as auditors, and Mr. W. P. Thomson, who was, unfortunately, absent through illness, as treasurer.

At a meeting of the committee held immediately following the annual meeting, Messrs. C. H. Curtis and T. Winter were again elected as chairman and vice-chairman of committee respectively.

PROPOSED NATIONAL DAFFODIL.

MARCH 14.—The adjourned meeting held to consider the advisability of forming a National Daffodil Society, took place on this date, in one of the upper rooms of the Royal Horticultural Society's Hall, Westminster. There was a larger attendance than on the previous occasion, and the company was representative of trade and amateur growers. The Rev. George Engleheart again presided, and he referred to the circumstances which prompted the movement. He said that there was a feeling that all was not done that was possible to further the interests of Daffodils. At the last meeting, the feeling prevailed that, if existing organisations would provide what was wanted, there would be no need to form a society. The Narcissus Committee of the Royal Horticultural Society was a responsible body, and, through it, they had approached the Council of the Royal Horticultural Society.

Mr. Cranfield stated that he had been in communication with the chairman, Mr. Bowles, and members of the Daffodil Committee to ascertain their views, and he was invited to attend the meeting of the Daffodil Committee of the R.H.S. that morning. The Daffodil Committee passed the following resolution: "That the Council be asked if they are willing to grant the Narcissus Committee power to hold a two-days show in mid-April, to issue (through the Council) a *Year Book*; to issue a schedule of prizes (the Committee to find the cash prizes); and for the Committee to sub-divide itself into sub-committees for special purposes." The Council replied to this as follows:—"The Council, having considered the resolution sent up to them by the Narcissus Committee this day, are willing (1) to hold a two-days Daffodil show in April; (2) to issue a *Year Book* if the Committee supply sufficient and suitable material for the same; (3) to issue a schedule for the show, after receiving recommendations from the Committee thereupon; and (4) the Council consider all Committees competent to sub-divide themselves into sub-committees for special and topical purposes." Mr. Cranfield therefore proposed "that, in view of the resolution passed by the R.H.S. Council, on the recommendation of the Daffodil Committee, the

proposal to form a National Daffodil Society be postponed until it is ascertained how far the Daffodil Committee is prepared to go." A brief discussion ensued, and the proposition being put to the meeting, was carried.

SCOTTISH HORTICULTURAL.

MARCH 7.—The monthly meeting of this association was held in the Goid Hall, 5, St. Andrew Square, Edinburgh, on this date. The president, Mr. Massie, was in the Chair, and there was an attendance of 150 members.

A lecture on "Sweet Peas" (published in the last issue, p. 159), illustrated by coloured drawings, was delivered by Mr. Wm. Cuthbertson, J.P., of Messrs. Dobbie & Co., Edinburgh.

The exhibits included 23 varieties of Wall-flower from Messrs. DOBBIE & Co., Edinburgh; Hybrid Primulas (*P. obconica* × *stellata*), *Galanthus Elwesii*, *Sisyrinchium grandiflorum*, and *Helleborus niger major*, *H. orientalis*, *H. abchasicus*, *H. abchasicus grandiflora*, and *H. o. caucasicus*, from Mr. C. COMFORT, Broomfield, Davidson's Mains; flowers of *Rhododendron Nobleum* hybrids from Mr. A. JOHNSTONE, Hay Lodge, Edinburgh; *Richardia africana* from Miss BURTON, Polton; *Dendrobium nobleum* from Mr. R. WHANNELL, The Drum, Midlothian;



THE LATE JAMES GEORGE.

spring flowers from Mrs. ALGIE, Togher House, Co. Mayo; and Brussels Sprout "Solidity" from Mr. J. STAWARD, St. Fort, Newport.

Eleven new members were elected.

The meeting on April 4 will be devoted to the young members, who are invited to contribute short papers or notes on horticulture or allied subjects.

LAW NOTE.

LAVENDER A VEGETABLE.

At the recent Cheshire Assizes, a hawker, who had been sentenced to three years' penal servitude at Oldham for shopbreaking in 1906, was charged with being found on February 4 under such circumstances as to satisfy the Court that he was waiting the opportunity to commit an offence punishable on indictment.

Mr. Dowson, for the defence, submitted that there was no offence, as no pedlar's certificate was required for the sale of Lavender, because the Pedlar's Act exempted vegetables, fish, fruit, and victuals. Mr. Marshall, for the prosecution, argued that Lavender was not a vegetable as the word was usually understood.

Justice Lord Coleridge held that Lavender was exempted from the Pedlars' Act, and directed the jury to return a verdict of not guilty.

Obituary.

MR. J. GEORGE.—The death of this well-known horticultural sundriesman occurred on the 11th inst. in his 85th year. He enjoyed a wide circle of friends amongst gardeners, and visitors to the London flower shows will miss his presence. He was born at Faringdon, Berkshire, in 1826, where his father conducted a nursery and market-gardening business, making specialties of Dahlias and Pansies. He left home to become apprenticed in the gardens at Faringdon House, which were then in the charge of Mr. George Milne, and he made such progress that before he was 21 years of age he was engaged as a gardener at Warnford House, Sevenhampton, Wiltshire. Here he remained until 1850. During his tenure at Warnford, the place changed hands, Sir Charles Wetherall becoming proprietor in succession to Lady Warnford. His next situation was at Lee, near Blackheath, in Kent, where he remained for two years. Later he took over the management of the gardens of Miss Nicholson, of Stamford Hill, London. Here he remained for 14 years. When his employer took up her residence at Putney Heath, Mr. George was retained as gardener, and he served 30 years in the service of the Nicholsons. During most of his time he sold gardeners' sundries. He next opened a business as a horticultural sundriesman at Putney. With the aid of a chemist he brought out a nicotine fumigator, and a substance known as tobacco tissue. These were somewhat costly to prepare, so he used paper for soaking the nicotine properties, and this tobacco paper had an extensive sale, being largely employed in gardens until the introduction of the vaporising fluids now in general use. Besides insecticides, Mr. George engaged in the sale of manures, peat, and other sundries, in which he built up an extensive business. Mushroom spawn was one of his specialties, and he was one of the first to introduce wood wool for packing purposes. Mr. George, early in life, turned his attention to the raising of Pelargoniums, and many of the introductions of Messrs. Cannell, Paul, Lees and Smith, of Hornsey, were raised by him. At the Pelargonium Society's meeting in 1872, held in conjunction with one of the shows of the Horticultural Society, he excelled all competitors with seedlings, being first in the classes for 18 and 12 Zonal varieties, and for 18 and 12 hybrid Zonal varieties, besides winning four First-class Certificates. He also crossed the Ivy-leaved varieties, and from one of his double-flowered seedlings was derived the well-known variety *Souvenir de Charles Turner*, a sort still largely cultivated. The *Abutilon* is another plant which engaged Mr. George's attention, and in 1833 his collection of these flowers was said to be unsurpassed. He obtained numerous certificates for seedling *Abutilons*, sending out many varieties. Mr. George was one of the oldest members of the National Chrysanthemum Society, and exhibited at this Society's exhibitions for nearly 50 years. To Mr. George gardeners owe the introduction of dwarf *Tropeolums*, which at one time were extensively employed in "ribbon" borders. His wife pre-deceased him last year, and his second son, Henry Hammond George, died on January 25 last. We understand that the business will be continued by the two surviving sons.

DAVID MURRAY.—A famous Scottish gardener has passed away in the death of Mr. David Murray, late gardener to the Marquis of Ailsa, at Culzean Castle, Perthshire, for more than about 40 years. Mr. Murray commenced his gardening career at the age of 14 in Abercainey Gardens, Crieff. He was at Abercainey for a short time only, leaving there to become apprenticed in Blair Drummond Gardens. Like most other young Scottish gardeners of his time, he was ambitious to serve in the famous gardens of the Duke of Buccleuch, at Dalkeith, which were then at the height of their fame under the management of the late Mr. William Thomson. He entered Dalkeith and remained for six years, being engaged in the several departments of the establishment. At about this time Mr. Thomson started his nursery at Clovenfords, and he offered Murray the post of Pineapple grower, the culture of these fruits being a feature of the establishment. He accepted the post, and after serving for three years at Clovenfords Mr. Murray was offered the post of gardener at Culzean Castle,

where he remained, as already stated, for about 40 years. Mr. Murray was only 24 years old when he took over the management of the gardens at Culzean, and he retired about a year ago. He carried out many improvements in those extensive and beautiful gardens. Mr. Murray was a good all-round gardener, but he excelled particularly in vegetable and fruit growing. He was especially successful in cultivating Onions, and was the raiser of the well-known Ailsa Craig variety. The Onions which he showed at the Edinburgh Exhibitions about 20 years ago were always the object of special comment, and it is said that whilst other exhibitors arranged their bulbs on the orthodox plates, Mr. Murray showed his on a riddle, which was seldom found too large a receptacle to accommodate his great specimens. Besides Ailsa Craig Onion, Mr. Murray raised the well-known Culzean Curled Kale. Grapes grown at Culzean generally secured leading honours at the more important Scottish and other shows, and hardy fruits were equally well grown in these gardens. Mr. Murray's abilities as a gardener were recognised by the Royal Caledonian Horticultural Society, and this body awarded him the Neill prize in 1902. The funeral took place at Kirkoswald.

ROBERT MACKENZIE CROSS.—The death is announced of this veteran plant collector at the age of 76 years. Mr. Cross was born at Dumblarton in 1836 and, after serving in various gardens he came to London in 1860. Soon afterwards Mr. J. Smith, then Curator of Kew Gardens, procured an appointment for him to go to Ecuador to obtain the red-barked Cinchona (Quinine), and to establish it in the Neigherries, India, a mission in which he was highly successful. He continued his services in collecting other species of Cinchona. In 1875, he went to Panama for *Castilleja elastica*, and later to the Amazon River, where he collected seeds and plants of *Hevea brasiliensis*, both species being needed for the Rubber industry. Mr. Cross also introduced several interesting plants to British gardens, one of the best-known being the pretty scarlet *Masdevallia racemosa* (syn. *M. Crossii*). His importation of this species was not very successful, but later the plant was introduced in better condition, and it is now well represented in gardens. Mr. Cross was a most indefatigable and observant traveller, and his excellent constitution enabled him to pass safely through many unhealthy districts. He retired to Edinburgh, with the thanks of the Indian Government, and a few years ago went to reside at Torrance of Campsie.

TIMOTHY MCCARTHY.—The American papers record the death on February 10 last of Timothy McCarthy, for 35 years Superintendent of Swan Point Cemetery, Providence, U.S.A. Mr. McCarthy was a native of Ireland; he emigrated to America at an early age, and secured employment in Forest Hills Cemetery, where he advanced in authority and responsibility, until he was given the management of the cemetery at Swan Point.

J. H. HART.—We have received news of the death of Mr. J. H. Hart, F.L.S., who for 21 years was head of the Botanical Department at Trinidad, and who retired from that position in June, 1903.

GARDENING APPOINTMENTS.

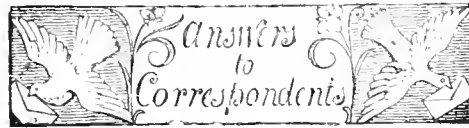
Mr. CHARLES JAMESON, for 11 years and 3 months Gardener to J. W. SHAND HARVEY, Esq., Castlebridge, as Gardener to J. A. BROWN, Esq., Moredun, Paisley. (Thanks for 2s. 6d. sent for R.G.O.F. box.—EDS.)

Mr. CHARLES J. KEMPTON, for the past 23 years Gardener to A. MORE O'FERRALL, Esq., Ballyna, Moyvalley, Co. Kildare, as Gardener to the Right Honble. The Lord CLARINA, Elm Park, Clarina, Limerick.

Mr. H. RADE, for the past 8½ years Gardener to Mrs. GERARD NORMAN, Bishopstrow House, Warminster, Wiltshire, as Gardener to R. BRUNNER, Esq., Belmont Hall, Northwich, Cheshire.

CATALOGUES RECEIVED.

F. P. DIXON & SONS, LTD., Hull—Farm Seeds.
Wm. WATSON & SONS, LTD., Clontarf Nurseries, Dublin—Border, Alpine, and Rock-Garden Flowers.
J. C. SORBY, Clutha Place, Edgington—Mass-Extractor and Tennis-Court Market.
A. A. COOPER, Tinsdale, Sligo, Ireland—Flower-Seed, Alpine and Herbaceous Plants, Shrubs, &c.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

HELVINE SLEIROLA: Staffs. This plant is a native of Sardinia, and has been introduced to gardens during recent years. The name does not occur in the gardening books.

INSECTS IN A FERNERY: Cliveden. The insects are common weevils. See reply to W. L., p. 160.

MANURES FOR BULBS: P. D. W., Cornwall. Whilst every plant requires nitrogen, potash, phosphoric acid, and lime, yet different species have special wants at different stages of their development. All bulbous, succulent, and quickly-growing plants require in their early growth an abundant supply of available nitrogen and phosphoric acid. It is known that the roots, bulbs, and tubers, whether of Turnips, Onions, Lilies, Tulips, Narcissus, or Potato, are produced in the lighter, loamy soils which are charged with dung, and where there is comparatively little obstruction to the development of fibrous roots. It is in these classes of soil that the special benefits of the phosphoric acid in superphosphate or bonemeal have been most observable. Spent hops may be used in addition to the dung for the Potato crop, applied at the same time as the dung in order that the humus may become well incorporated with the soil before planting the bulbous crop. A green crop of mustard for ploughing in might be useful for the production of humus, and especially if the land is infested with wireworm. Spent hops are not of great value for hot-beds.

NAMES OF PLANTS: N. B. 1. *Eranthemum Portulaca*; 2. *Pennis serrulata*; 3. *Adiantum pedatum*; 4. *Zebria pendula tricolor*; 5. *Hamelia arborea*; 6. *Cotoneaster microphylla*.—*J. P., Kildare.* 1. *Toxophloeia spectabilis*; 2, specimen not found; 3. *Lavandula dentata*; 4. *Coleonema album*; 5. *Phillyrea decora*; 6. *Cornus capitatus*.—*Heather P. H.* *Erica carnea*.—*O. H.* 1. *Oncidium caudatum*; 2. *Epidendrum fragrans*; 3. *Brassia caudata*; 4. *Celia triptera*.—*Foreman.* 1. *Pteris arguta*; 2. *longifolia*; 3. *Adiantum hispidulum*; 4. *Lomaria gibba*; 5. *Blechnum corcovadense*; 6. *Adiantum formosum*.—*E. W. S.* A good form of *Imantophallum (Clivia) mutata*.—*J. J.* *Hel leborus fetidissimus*.—*Sarum.* *Ornithogalum nutans*.

R.H.S. FELLOWSHIP: W. C. Apply to the Secretary, Royal Horticultural Hall, Vincent Square, Westminster, for a form of application.

RICHARDIA WITH DOUBLE SPATHE: H. S. D. Double-spathed *Richardias* are not uncommon, but your specimen is interesting because of its second spathe.

SUMMER BEDDING ARRANGEMENT: A. R. There should be no great difficulty in making a satisfactory display in your flower garden with the choice of material you have at your disposal. For No. 1 design the following arrangement may be adopted with a prospect of getting a good effect. The centre or oblong bed may be planted with a mass of scarlet *Pelargonium* with a border of a variety having white margins in the leaves; the two round beds may have blue *Viola*; two outside (oblong) beds, *Calceolaria amplexicaulis* edged with *Dactylis glomerata*. These beds are too narrow for "dot" plants to be used with success. The club shaped bed (No. 2) could be planted with a groundwork of pink Ivy leaved *Pelargonium* dotted over thinly with a medium sized variety of white *Antirrhinum*.

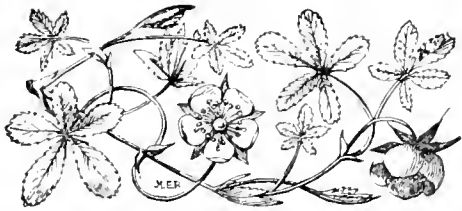
TESTING SOIL FOR LIME: E. H. W. and R. P. In rough testing for lime, the soil is moistened with a little water, and some muriatic acid (spirits of salts) or strong vinegar added. If a perceptible effervescence takes place the gar-

dener may assume that a sufficient quantity of lime exists in the soil. If he wishes to know the amount of lime more accurately, 6 ounces of water and ½ ounce of muriatic acid must be poured upon 1 ounce of soil, the mixture left for one hour in a warm place, and a solution of ammonia (spirits of hartshorn) added, stirring the mass actively all the time until there is a pungent odour. The liquid must then be filtered through two or three folds of white blotting paper. The lime is contained in the clear fluid, and may be thrown down as a white mud by adding solution of carbonate of potash or oxalate of ammonia; the precipitate should then be collected on a paper filter, carefully washed, dried, and weighed. It is very simple to see if the amount of precipitate of lime is small, medium, or abundant. A deficient amount would be about a quarter per cent., while an abundant supply would range from 2 to 6 per cent. of lime.

THE ERECTION OF COMMERCIAL GREENHOUSES: P. S. By erecting your greenhouses early in autumn you would have time to work up a fairly good stock of plants of the kinds mentioned in your letter, such as Carnations, Chrysanthemums, and Roses, for marketing in the following year. Should you erect the proposed houses during the next two months, you will be enabled to work up a stock of saleable plants for marketing during the autumn and winter, and spring following. The dimensions of the houses—spans—that you require may range from 12 feet to 20 feet in width, and may be any length from 20 to 200 feet, with front upright sashes 3 feet wide and from 18 to 24 inch high for providing front ventilation. Ventilating sashes of the same dimensions should be provided on either side of the ridge, to which they should be secured at intervals of five panes (8 feet), the ventilators being all worked by Wolland's continuous gearing. The rafters, fixed at 18 inches apart, will admit of 21-ounce glass 18 inches wide, and from 16 to 18 inches long, according to the length of rafters used. Span-roofed houses 12 feet wide should have a stage 4 feet 9 inches wide fixed on either side of the longitudinal centre on a level with the wall plates to stand the plant on, thus allowing a central pathway 2½ feet wide. Wider houses will admit of a central stage as well as side and end stages being fixed the entire length of individual houses. Your proposed houses should be provided with from four to six rows of 4 inch hot-water pipings—four rows in the narrow houses and six rows in the wide ones. Houses of the above-mentioned dimensions will answer your purpose.

TOMATO, A FRUIT OR VEGETABLE: Correspondent. The portion of a Tomato plant used for consumption is a fruit. The reason for Tomatoes being usually termed vegetables may be found in the fact that they are generally consumed as vegetables rather than as fruits. This fact is not so singular as you appear to suppose, for several other kinds of fruit are spoken of as vegetables and considered as vegetables for the purpose of exhibition, such, for example, as Beans, Peas, Vegetable Marrows, Cucumbers, and others which will occur to you. It is scarcely necessary to go into the further question of the botanical names given to these several fruits. With respect to your second question, there is nothing to prevent you from showing Tomatoes in a collection of six kinds of fruit, provided there are no regulations as to the kinds of fruit to be exhibited. Whether it is good policy to include them is another question. A dish of Tomatoes might not gain so many points as a dish of Peaches, for example, or a good bunch of Grapes. In selecting kinds, whether of fruit or vegetable for exhibition, it is necessary to consider not only whether you are entitled or not to exhibit the particular kind, but also whether its comparative value is sufficiently high to assist you in your efforts to excel others competing in the same class.

Communications Received.—H. C. G. E., M. F., W. C.—W. G. W., E. C. W., J. M., Ireland. H. J. W., T. F. U., E. H. J., W. A., W. F., R. G., W. E. B., Trinidad. J. W., Berks.—W. F. G., W. G. W., H. L., J. L., A. S.—W. F. B., C. M., France.—C. T. D., T. H. W., W. J. V., R. A. M., R. G., Vancouver Island. A. R., C. H., G. W. T., S. W. T., J. J., A. B. E., D. R. W., W. H. W., D. A. K., Holland.—A. G., C. F. C., K. B., D. M., A. P. W., C. T., T. W., W. W., Hampstead.—J. B. H., P. P., B. B., Italy.—G. G. M.—E. P. P., Thanks for 2s. for R.G.O.F. box.



THE
Gardeners' Chronicle

No. 1,265.—SATURDAY, March 25, 1911.

CONTENTS.

Apples, late-keeping ...	190	Obituary—	
Aquilegia flabellata ...	189	Bernard, Noel ...	192
Arboriculture ...	184	Chilcott, Jonathan ...	192
Books, notices of—		Gadd, Henry ...	192
A Flora of Western		Hart, J. H. ...	184
Middle California ...	179	Lambert, Mrs. ...	192
Publications received	186	Plateau, Professor	
Ball garden, the—		Felix ...	192
Notes on Lilies ...	189	Palms in California ...	186
Billfinches ...	190	Pigeons, wood, plague of	185
Cladothamnus camp-		Pines as gardeners ...	190
panulatus ...	188	Plumbago rosea ...	188
Crystal Palace, scheme		Potatoes, a bacterial di-	
for purchasing the ...	190	sease of, in Ireland ...	186
Cultural memoranda—		Potatoes, disease-resisting	191
Lachenalias ...	181	Potatoes, varieties of	
Deutzia, a new hybrid ...	186	scab in ...	186
Festival of Empire ex-		Rosary, the—	
hibition ...	185	Cultural notes for April	187
Garden pictures at the		Scotland, notes from ...	188
Modern Gallery ...	186	Societies—	
Gerberas, hybrid ...	186	Boskoop Jubilee show	186
Hutchinsia alpina ...	189	Horticultural Club ...	191
Indian garden, an ...	188	Linnean	191
"Innes" Horticultural		Manchester and N. of	
Institution, the ...	173	England Orchid ...	191
International Horticul-		National Dahlia ...	191
tural Exhibition, 1912	185	North of England	
Iris, notes on ...	180	Horticultural ...	191
Ivy, skin irritation		Royal Horticultural	185
from ...	190	(Scientific Committee)	190
King of Portugal's visit		Royal Institution ...	185
to the R.H.S. show ...	185	Trees and shrubs—	
Nursery notes—		Forsythias ...	189
The Dale Nurseries,		Week's work, the—	
Canada ...	177	Apiary, the ...	183
Orchid notes and glean-		Flower garden, the ...	182
ings—		Fruits under glass ...	183
Brasso-Cattleya Vil-		Hardy fruit garden ...	183
moriniana ...	180	Kitchen garden, the	183
Cymbidium Gottia-		Orchid houses, the ...	182
num ...	180	Plants under glass ...	183

ILLUSTRATIONS.

Belvoir Castle, view in the gardens at, in spring time (Supplementary Illustration)	
Belvoir Castle, entrance to the kitchen garden at ...	185
Bernard, Noel, the late ...	192
Cymbidium Gottianum ...	180
Dale Nurseries, Canada, the ...	177, 178
Exhibit by Messrs. James Carter & Co. at R.H.S. meeting ...	187
Gadd, the late Henry, portrait of ...	192

**THE DALE NURSERIES,
BRAMPTON, CANADA.**

THE first impression which Canada produces on the visitor is fairly conformable with that which he had in mind before he set foot in the Dominion: a few great cities linked by the iron bonds of the railway and, lying between them, vast spaces dotted with great farms. The cities in particular impress the visitor. Huge, full of life, strenuous, with vastly high and sometimes fine buildings and uniformly ill-paved roads. Not all the cities are alike, however, as are our own great centres of industry. The Canadian cities have each a well-marked feature. Quebec, with its superb situation and long history, tells at every turn stories of romantic struggle between now-reconciled rivals. Its picturesque but well-nigh deserted riverside above the port speaks not only of Wolfe's wonderful adventure, but also of the decay of a great enterprise—that of lumbering—which, owing to the reckless felling of timber in the neighbourhood, is lost to that part of the province. Montreal has an elegance—apart from its business quarter—which is unique, and Toronto a

strenuousness and reckless disregard of a beautiful situation overlooking the lake that is reminiscent of the great cities of the States. Ottawa, the seat of the Federal Government, gives the impression of having outgrown a charming infancy and of becoming, with its clanging trams and aggressive night-lit electric advertisements, too much a commercial centre and too little a fit situation for leisured statesmanship. But all these cities have in common, a genial welcome for the stranger.

It was at Ottawa, at Government House, that we first learned how widespread is the love of nature among Canadians. Her Excellency Lady Grey not only showed us how interested she herself is in horticulture, but directed our attention to the fact that Canada is developing its horticulture side by side with

ward, for he recognises that the men and women of Canada possess the same love of nature that characterises ourselves. Nowhere is this indicated more strikingly than in the great establishment of the Dale Nurseries, which is situated at Brampton, in the heart of the country, not far from Toronto, and, of course, near the railway. Chancing to hear of the fame of the Dale Nurseries, we broke our journey from Guelph to Toronto and made our way thither. The town or village—memory refuses to say which—is pleasing. The houses lie separate from one another, each house surrounded by its unenclosed garden, with no jealous fences to denote the several limits of the gardens. A short walk brings us in sight of an extensive range of glasshouses. Line after line the houses extend, well built and in perfect order; and, indeed, they may

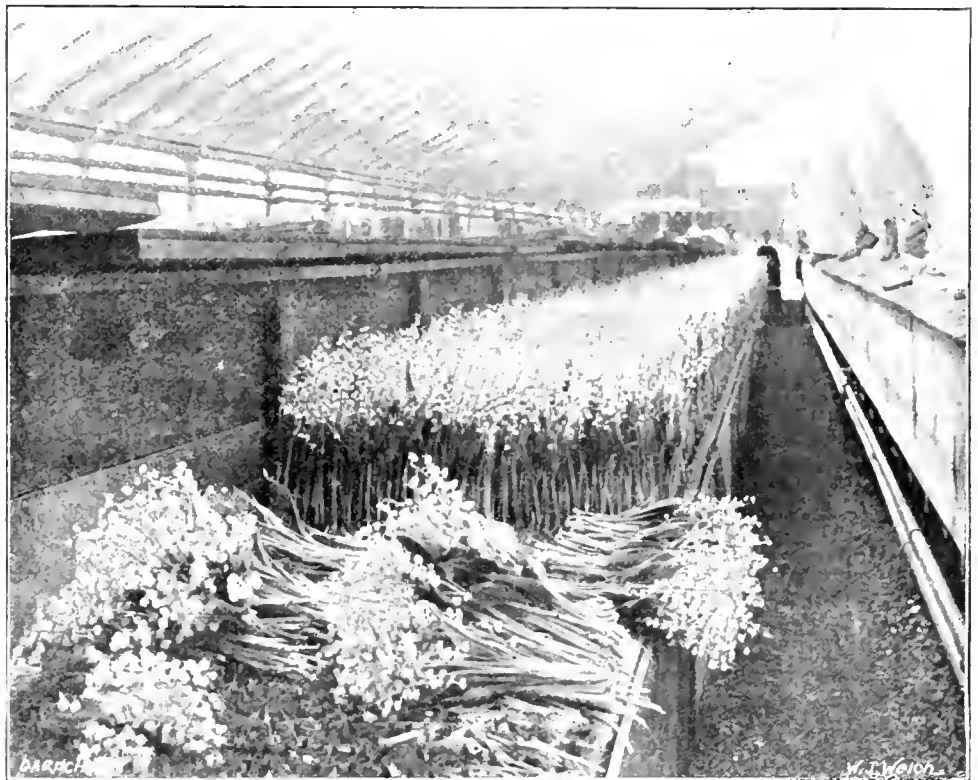


FIG. 78.—FORCING LILY OF THE VALLEY AT THE DALE NURSERIES, CANADA.

the major industries of farming and fruit-growing.

As for the spaces which lie between the towns—flat, illimitable—they seem at first to have nothing to show but enormous farms, with Maples skirting the railroad and scattered Cratægus or burned stumps thereof marking a clearing. It is in this respect, however, that the visitor, if he has the leisure, may learn to correct his first impressions and to come to realise that the Canada of to-day does not consist of a rough sketch or outline of an established country, bent only on the pursuit of the essential, basic industries, but that it is, though still the land of vast opportunity, already occupied with the no less essential amenities of life. Outlying from the great cities, the traveller may find beautiful country houses, with finely-planned and tended gardens. Seeing them, his thoughts return swiftly home-

well be extensive, for from them go out the Roses and Carnations which supply the whole Dominion, or at all events reach to the uttermost parts of it. Consignments of these and other flowers are sent regularly as far as Newfoundland on the one side and Vancouver on the other. In times of glut the flowers of the Dale Nurseries invade New York itself, though for tariff and other reasons that market is not—as we gathered—favoured at other times. The distribution of cut-flowers over such great distances has compelled the adoption of the most-careful methods for preparing the flowers for transport. The method found most successful is to bring the Carnations, Roses, &c., into a cool room and to keep them for one to two days in a temperature of about 52° F., or as much below 60° F. as can be managed conveniently.

Of the varieties of Roses grown, the

Bride (white-cream), Bridesmaid (pink), and Richmond (good red) are the chief. The blooms are graded in three series, according to length of stem. The Carnations which command the best sale are Mrs. Thomas W. Lawson (dark pink), White Lawson, White Enchantress, and Harlowarden (crimson). As is so often the case, the producer is compelled to share his profits liberally with the retailer, and we learned that the price obtained at the Dale Nurseries for Roses at the time of our visit was 2½ cents., whereas the price in the shop at Toronto was 50 cents. Nevertheless, the general air of prosperity of the establishment is evidence that the business of flower-growing, when conducted on such sound lines as are there displayed, is by no means unprofitable, and also justifies our previous statement that the love of flowers is as widespread among Canadian members of the Empire as it is among those who live in the old country. This is demonstrated further by the remarkable development which the Dale Nurseries have undergone during the past few years. Some 12 years ago, when Mr. Harry Dale, the founder of the nurseries, died, they were entrusted to two executors, Mr. J. W. Duggan and Mr. W. Algie. From a comparatively small state the nurseries have developed, till now they claim to be the largest for cut-flowers in the American continent and indeed in the whole world. The 3½ acres of glass have grown to 20 acres, and further additions are in progress.

Mr. Algie, whom we had the pleasure of meeting at Brampton, attributes, modestly, the major part of this success to Mr. Duggan. Both gentlemen are of British descent, Mr. Duggan being an Irish Canadian, born and bred, however, in the Dominion, and Mr. Algie proudly and humorously boasting descent from a Scotch Covenanter, who was hanged by Claverhouse, and whose faithfulness to his creed is commemorated in the Martyrs' Monument at Paisley.

Mr. Algie is the typical Canadian—alert, strenuous, and cultivated, displaying his ancestry, however, in a passion for the poems of Burns, a delight in rendering them in their native Doric, and a belief in the value of a good education.

Though Carnations and Roses loom largest in the Dale Nurseries, other plants are grown on an extensive scale, and a considerable trade is done in the distribution of plants (*Ampelopsis Veitchii*, which

is hardy in that part of Canada) and cuttings—for instance of Carnations, which are sent out in thin paper "pots"—five per pot—as far afield as the Rockies. Adiantum is grown largely and also Lily of the Valley. Orchids, which are comparatively a new venture, are now being cultivated on a large scale. They are accommodated in four houses, each 115 feet by 25 feet, and four more houses are about to be built. The cultivation in this depart-

giving the choicer blooms. The plants are at their best during Christmas time, and in Christmas week no fewer than 66,000 blooms are disposed of. The plants are discarded annually about July. The culture is in benches, the same soil often being used for several years, though a top-dressing of a few inches of mixed soil and manure is usually added. Phosphatic manures are not applied, but the soil receives a dressing of lime when the plants



FIG. 80.—INTERIOR OF ROSE HOUSE AT THE DALE NURSERIES, CANADA.

ment is under the charge of Mr. W. J. Jones, who was till recently Orchid grower to Messrs. Hooley Bros., Southampton, England. The Orchid cultivation was started eight years ago by a Dutchman, who was originally engaged to grow Lily of the Valley on a commercial scale. The Orchids grown at the Dale Nurseries include *Cattleya Mendelii*, *Laelia purpurata* and *L. majus*. At the time of our visit, a large collection of South American (Columbian) Orchids had just been received, including 1,500 plants of *Cattleya Schröderæ*, *C. gigas*, and *C. Skinneri*, 1,000 *Lycastes*, and 2,000 *Cattleya Trianae*.

With respect to methods of cultivation: in the case of Carnations, cuttings are taken in spring, and half are grown under glass and half out-of-doors, the former

are about a foot high. The Carnations are trained to strained wires in three tiers, and the rows are supported by three tiers of strings attached at right-angles to the wires. Even at the late period of the year at which our visit was made, the Carnation houses presented a splendid sight and the plants appeared to be absolutely free from rust, which disease we have seen rampant in other places in Canada.

The Roses are also grown planted out in cement benches. The benches are each about 1 foot deep. At the bottom of the bench, clay is put to 10 inches from the top, and then at intervals and running longitudinally tile drains are placed. The bench is filled in with 3 inches of cinder over the drains and then 5 inches of soil. The houses are steam-heated, the

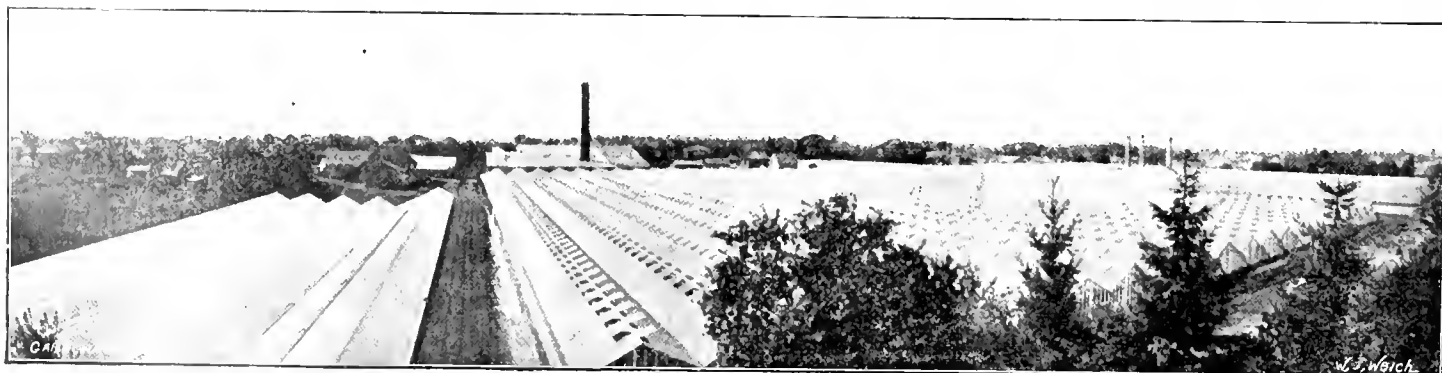


FIG. 79.—THE PLANT HOUSES AT THE DALE NURSERIES, CANADA.

pipes running along the top. The Roses, which are grown on the Manetti stock, are cut back moderately from May onward to provide successional blooms, and serve for about six years. The plants do not get a complete rest, but the soil is allowed to become somewhat dry at the "resting period." The head of the indoor department was emphatic on the necessity for the adoption of special methods for Canadian conditions, and complained, though not unkindly, of the conservative instincts of British gardeners. The criticism is perhaps not altogether unfounded, but we gathered the impression that it applied rather to detail than to general practice. That our view would appear to be correct follows also from the fact that we had, during our visit to Canada and the States, a fair number of opportunities of inspecting some of the best gardens, and were satisfied that the British gardener, when translated to America, is able to hold his own with credit and distinction against all others. Nevertheless, it is well to be reminded by friendly critics of our defects, and a general impression which we received was that the Briton is less resourceful than the "American." We are inclined to trace this less to national defect than to our methods of education, which are apt to be too bookish and too much divorced from practical realities. In any case, our visit to the Dale Nurseries was not less pleasant than instructive, and we found therein a rare combination of shrewd business capacity and high skill in cultivation.

THE JOHN INNES HORTICULTURAL INSTITUTION.

REPORT ON THE WORK OF THE INSTITUTION IN 1910.

FIVE acres of land were acquired in March, and have been laid out in plots. Sheltering fences have been planted.

Three span-roof glass-houses, with a corridor, have been built by Messrs. Mackenzie & Moncur, all the woodwork being teak. The eastern house is the largest, having side and centre staging. The next house is fitted along one side with breeding cages, enclosed in brass gauze, and with a glazed compartment for fumigation. The western house is a stove, with a plunging pit for propagations.

Each house has an adjustable work-table, on which plants of various heights can be conveniently examined.

A laboratory, potting-shed, boiler-house, mess-room, and offices have been built. The laboratory consists of two chief rooms, the one for chemical, the other for general biological work. Between the two are lavatories and a small private room containing piers for a balance. In the roof a photographic room has been enclosed.

Besides the newly-erected glass-houses, three of the houses in the Director's garden will be available for the work of the Institution. Of these, one has been altered somewhat so as to serve for a small orchard-house.

The glass-houses are in working order, but the fittings for the laboratory are not quite finished.

Mr. E. J. Allard, of the Cambridge Botanic Garden, has been appointed superintendent.

Regulations for exhibitors have been prepared, and candidates will shortly be invited to apply.

The work done in this, the first year of the Institution's existence, has necessarily been pre-

liminary in character. Besides the Director, the following have taken part in the work of the Institution, or used the facilities provided:—Mr. W. O. Backhouse, who has been appointed to a studentship, Miss D. M. Cayley, Miss F. M. Durham, Miss B. Gray, Mr. R. P. Gregory, Miss D. Marryat, Mr. G. P. Mudge, Miss C. Pellew, who holds a minor studentship, and Mr. C. W. Richardson.

A studentship was also offered to Miss M. Wheldale, Fellow of Newnham College, Cambridge, who is engaged in research in the chemistry of colour in plants, but she decided that, before undertaking work at the Institution, it would be well for her to go through a special course of training in certain practical methods.

Of the subjects studied, the following may be mentioned:—

Further investigations in the heredity of culinary Peas, especially in regard to the peculiar phenomena first noticed by M. P. de Vilmorin in the "Acacia" varieties.

Mr. C. W. Richardson has made extensive experiments in breeding Strawberries, a subject full of both scientific and economic possibilities, and he has brought to the Institution a large collection of types, with a series of cross-breeds previously made by him.

A small collection of Begonias has been made with a view to hybridisation, and investigation of various problems in this genus. Of these, the inheritance of double flowers, and the extraordinary developments in *Begonia phyllomanica* have been especially the subject of experiment.

The genus *Campanula* has also been chosen as a subject of special study, and various experiments have been made with its species.

The experiments on *Mirabilis*, hitherto conducted by Miss Marryat, at Cambridge, have been transferred to the Institution. (This work was described in *Rep. Evol. Ctee. Roy. Soc.*, V.)

Some sample cultivations of Sugar Beets have been made, and if the subject is found a promising one, it is proposed to make a continued series of experiments with these plants. The relation of annual to biennial varieties is a subject of much scientific interest, and also of great economical importance, inasmuch as serious loss is suffered in certain cases by running to seed of root and other crops. There is no reason, *a priori*, why, by the application of proper genetic analysis, this loss may not be prevented. Certain other possibilities of amelioration of the types are also being considered.

A collection of seeds of varieties of Cabbages possessing peculiarities of habit has been presented by Messrs. Sutton & Sons. These will be used in an investigation of the properties of biennials, the work being cognate with that contemplated in regard to Beets.

The glass-houses are being largely used this winter for the families of *Primula sinensis*, which have for several years formed the subject of Mr. R. P. Gregory's researches. The nature of the work will be best understood by reference to Mr. Gregory's paper (now in the press), which will appear in Part II. of the *Journal of Genetics*.

The *Primulas* will be succeeded by a collection of *Capsicums*, which, it is anticipated, will provide subjects for a variety of inquiries.

A crop of *Petunias*, upon which Mr. Mudge has been engaged, was accommodated during the summer.

A small representative collection of fruit trees has been bought and planted. These will be used in breeding and other experiments to be conducted by Mr. Backhouse, and in certain experiments which Miss Cayley is instituting in regard to fungoid pests, especially fruit-rot.

The Institution is indebted to Messrs. Laxton Bros., of Bedford, for a number of cross-bred plants and fruit trees raised by them, which have already reached maturity.

Various material of interest which had resulted from work previously done by Mr. Backhouse, at Cambridge, has been installed at the Institution.

Besides the subjects named above, preliminary trials have been made with plants of several Orders.

One cause of anxiety should be mentioned. Of the experimental Peas, a considerable number, after making good growth, succumbed to a disease of obscure nature, and almost all Sweet Peas (which had been sown as a trial of the capabilities of the soil) died in the same way. Various suggestions as to the nature of this

disease were made, but none seemed to apply. From inquiry, it seems that the affection is common in the district. Hopes are entertained that a dressing of lime which has been applied may do good. If this difficulty cannot be obviated in the future, one of the most fruitful subjects of work may have to be given up.

Leave of the Charity Commission has been obtained for the installation of experiments relating to animals, in so far as they are ancillary to the horticultural investigations. The families of canaries, which have formed the subject of Miss Durham's researches, are already in an out-building of the Director's house. Certain strains of poultry are about to be transferred from Cambridge. The main object of both these sets of investigations is to throw light on the problem of the nature of sex, a fundamental requirement in all genetic research. With the same object, material for experiments on Bees is shortly to be obtained.

It is clear that if the work already in progress and in contemplation is to be adequately carried out, an extension of the acreage must be made before long. Probably this can best be done by renting land adjoining the Institution.

The Institution is much indebted to the following persons and institutions for material presented:—The Royal Gardens, Kew; the Royal Botanic Garden, Edinburgh; the Royal Botanic Garden, Glasnevin; the University Botanic Garden, Cambridge; the Physic Garden, Chelsea; the Arnold Arboretum, Brookline, Mass.; Messrs. Vilmorin-Andrieux et Cie., Paris; Messrs. Laxton Bros., Bedford; Messrs. Sutton & Sons, Reading; Messrs. Banyard & Son, Maidstone; Messrs. Veitch & Sons, Chelsea; Messrs. Desfossé Thullier Fils et Cie., Orleans; Mr. A. A. Pettigrew, Bedford; Mr. A. Bliss, Tunbridge Wells. *W. Bateson, Director.*

NOTICES OF BOOKS.

CALIFORNIAN FLORA.*

So many garden plants come from California, that works dealing critically with the flora of that country are always welcome. The issue of the present edition has been considerably hastened by reason of the destruction of the supply of the first edition in the San Francisco disaster of 1906. It is a descriptive account of the native and naturalised flowering plants growing in the region about San Francisco Bay, east to the Sacramento and San Joaquin rivers, north to the south line of the counties of Mendocino, Lake and Colusa, and south to the Pajaro River and Pacheco Pass.

Most diverse views are held by botanists regarding some of the Californian genera of plants. Take, for instance, *Eschscholtzia*. Dr. Fedde has recently monographed this genus in Engler's *Pflanzen Fauna*, and has retained 123 species as distinct. But Dr. Jepson, for his region, retains only three. But under *E. californica*, (Cham.), the California Poppy, he states: "this species is highly variable, especially so in trivial details of leaf segmentation and of shape of calyptra, and in habit, and so runs into a vast concourse of forms. A large number of these forms have been collected, but perhaps not one-tenth, or even less of those in existence. Yet the number of specimens distributed to herbaria has been sufficient to form the basis for nearly 100 proposed new species published by Eastern and European systematists within a very few years." Dr. Jepson has nine species of *Calochortus* in his flora. He divides these into three sections in his clavis: (a) the Mariposa Lilies; (b) the Star Tulips; and (c) the Globe Tulips. In *Brodiaea* he has 11 species—these again are divided into three sections: (a) *Hookeria*; (b) *Dichelostemma*; (c) *Triteleia*. The most distinctive and sharply defined feature of the region of this flora is the Redwood belt. Associated with the Redwood are the Tan Oak, Madrona and Douglas Fir. Outside the Redwood belt is a beach strip characterised by such shore plants as *Abronia latifolia*

* *A Flora of Western Middle California*, by Willis Linn Jepson, Ph.D. (Cunningham, Curtis and Welch, San Francisco.) Svo. Second edition, 1911.

and *umbellata*, *Lathyrus littoralis*, *Mesembryanthemum aquilaterale*, &c. The coast ranges of the region are characterised by barren slopes or hills, by slopes openly wooded with Oaks, or by chaparral, the latter being the most marked feature. The term chaparral refers to the extensive and dense colonies of shrubs which clothe mountain slopes and ridges, and includes such typical species as *Ceanothus cuneatus*, *Arctostaphylos manzanita* and *tomentosa*, *Pickeringia montana*, &c. Some of the species most abundant in individuals and, consequently, in wide areas, the dominating species of the vernal flora, are as follow:—*Avena fatua*, *Danthonia californica*, *Phacelia distans*, *Brodiaea capitata*, and varieties of *Mimulus Langsdorffi*.

In relation to local species, the region immediately north and south of the bay has some interest in plant geography. *Campanula exigua* is found only on the summits of Mt. Diablo, Mt. Tamalpais and Mt. Hamilton; *Calochortus pulchellus* is local about Mt. Diablo, and *Streptanthus hispidus* in the inner south-west range. In this connection may be mentioned the genus *Ceanothus*, represented by 14 species in the Bay Region, of which eight are nearly, or quite, restricted to the Central Coast Ranges.

The extensive plains of the Great Valley, the Sacramento and San Joaquin are level and treeless, save for Oak groves on restricted areas mainly along streams, or for a fringe of trees bordering the rivers. Alkaline areas of the plains, whether very limited spots or extensive plains, have their own peculiar species. The most abundant and widely-distributed being *Distichlis spicata*, *Atriplex bracteosa*, *Sida hederacea*, and *Cressa cretica*. The fall flora of the valley plains is represented by great colonies of a comparatively few species. The most important are *Erenocarpus setigerus*, *Grindelia camporum*, and more especially the so-called tarweeds such as *Hemizonia luzulaefolia virgata* and *Keeloggii*. The first edition of this work was published in 1901. In the second edition, as in the previous work, there is a key to the species under each of the genera, and a description of each species. And the only real fault we have to find is that the type in which this key is printed is rather too small. As has already been pointed out, Dr. Jepson, in certain cases, seems to take an aggregate rather than a segregate view of the species with which he deals, but he has long been known in this country as a most careful and critical worker, and we can confidently recommend this little book as a trustworthy guide to the plants of Western Middle California. *E. G. Baker.*

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM GOTTIANUM.

THIS choice hybrid *Cymbidium* was raised from *C. chameum* and *C. insigne Sanderi*. The plant was exhibited at the meeting of the Royal Horticultural Society on March 14 by the raisers, Messrs. Sander & Sons, when it was given an Award of Merit by the Orchid Committee. The flower has special claims to beauty in its handsome white segments with a faint green tint on each of the sepals. The handsome lip is blotched with ruby-purple, and there are markings of the same colour on the side lobes.

BRASSO-CATTLEYA VILMORINIANA.

WITH respect to the note on p. 146, I may say that Messrs. Pauwels et Cie. are quite wrong in claiming the priority for this hybrid, for my firm showed at the meeting at Brussels on March 20, 1910, the same hybrid under the name of *Brasso-Cattleya Elegance*. Since my last presentation, I asked the President of the Brussels Society to rectify this name and consider my exhibited name as *Brasso-Cattleya Vilmoriniana* var. *Elegance*. *Ch. Maron, Brunoy.*

NOTES ON IRISES.

SPECIES AND VARIETIES OF IRISES.

No botanical question is more difficult to answer than this: What is a species, and what is merely a variety? The examination of any large collection of living plants or of herbarium specimens shows that when analysed in detail scarcely any two plants are absolutely identical, and the botanist's difficulty lies in discriminating between essential and non-essential differences and similarities. Moreover, for the botanist, as opposed to the gardener, the difficulty is rendered the more insuperable by the fact that its solution is probably not to be found in herbaria at all, but must be sought in the evidence of seedlings. In these days, when gardening is so popular, it is astonishing that few can be found to engage in the fascinating pursuit of raising supposed species from seed, and of noting the variations in the resulting plants. It is curious, too, that this is not a method of inquiry that seems to appeal to the professional botanist. At any rate, it is rare

this, it was surprising to find several variations among self-sown seedlings of a plant of this Iris, which came originally from the River Wey in this immediate neighbourhood. The parent plant bore flowers of a deep yellow, with a distinct patch of dark veining on the falls, but, among the seedlings, there was a paler yellow form, with no trace of these markings. Moreover, the precise shape and dimensions of the standards were different in nearly every case.

Take, again, another familiar species, *I. reticulata*. In the wild state, apparently, the deep, blue-violet form, which is known to botanists as the type, is much rarer than red-purple forms, to which the name of *I. Krelagei* has been given. Moreover, among plants raised from self-fertilised seed of the so-called type, the type itself is probably the rarest form to be obtained. What is more remarkable still is that, though this evidence would seem to point to the fact that we have here two varieties of the same Iris, the capsules of the two forms are quite distinct in shape. That of the blue form, the so-called type, is long

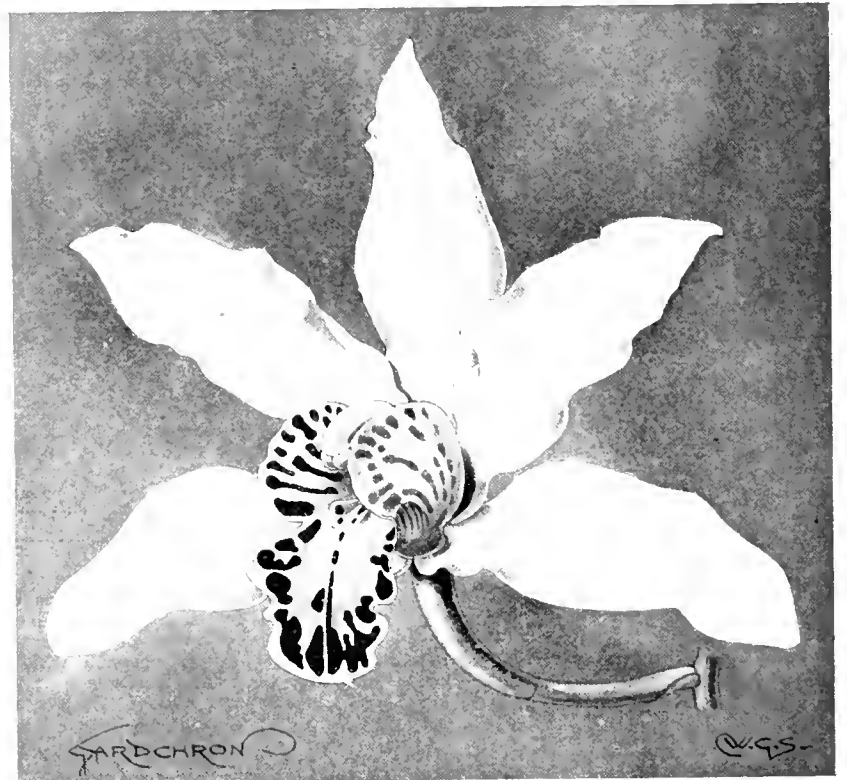


FIG. 51.—CYMBIDIUM GOTTIANUM: FLOWERS WHITE, LIP BLOTCHED WITH RUBY-PURPLE COLOUR.

(Received R.H.S. Award of Merit on March 14.)

to find any that put it into practice, or any provision for it at large botanical institutions.

It may be that monocotyledons—and Irises in particular—are more liable to vary than other plants, and the object of this note is to give instances from this genus, in the hope that it may elicit information from those who have closely studied other genera.

Let us take first an Iris with which everyone is familiar, namely, *I. Pseudacorns*, the yellow water Iris that is common in England and all over Europe. Several varieties of this Iris have received specific names, such as *I. Bastardii* and *I. acoriformis* (*Bor. Fl. cent. France*, Ed. III., p. 635, 1857), *I. curtropetala* (*Redouté Lil.*, t. 340, 1812), and *I. acoroides* (*Spach Hist. Vég.*, XIII., p. 44, 1846). These species were based on variations in colour, in the length and shape of the standards, and on the presence or absence of a darkly-veined patch on the blade of the falls. It is true, of course, that they have ceased to be looked upon as species, but they are still kept up as something more than mere garden varieties in the latest work on the European flora. In face of

and narrow, and that of *Krelagei* short and broad. When compared with the capsules of a number of other Iris species, these two are seen at once to resemble each other; but, on the other hand, it would be easy to separate a mixed collection of capsules of these two forms into two distinct groups.

Another instance is supplied by the case of *I. graminea* and its broad-leaved form, on which the specific name of *I. sylvatica* was bestowed by Balbis (*Room. and Schult. Syst.*, I., 476). The form of *I. graminea* most commonly found in nature and consequently in herbaria, and also in gardens, has narrow, grassy leaves, scarcely more than $\frac{1}{4}$ inch to $\frac{1}{2}$ inch broad, and not much more than 15 to 18 inches long. When, however, seedlings of this Iris are raised and grown from the first in good soil, there is a remarkable change. In the majority of cases, the leaves are much longer and wider, and frequently attain to 3 feet in length, and over an inch in width, so that the plants are scarcely recognisable.

A slightly different question of classification was settled by the raising of *I. Albertii* from

seed. This was originally classed among the *Pseudevansia* group, in which were placed those Irises in which the beard appeared to rise from a more or less distinctly-raised ridge or crest. The seedlings showed that this supposed ridge is not characteristic of the species, and is, indeed, often entirely absent. Further evidence of the worthlessness of this character was supplied by the examination of numbers of seedlings of *I. Chamæiris*, and other dwarf Irises, which commonly usurp the name of the true *I. pumila*—a plant which is, apparently, exceedingly rare in our gardens. Many of these seedlings showed signs of a crest beyond the end of the beard, but the amount varied even on the three falls of the same flower. The first specimen found by Regel, in Turkestan, probably had distinct traces of crest, but, in other respects, *I. Albertii* is nothing but an ordinary bearded Iris, and should appear among the *Pogoniris*, in the company, perhaps, of *I. obtusifolia* and *I. Talischii*, which it resembles in some respects, especially in the case of a yellow-flowered form which has appeared among the seedlings.

The instances given above have tended rather to help than to perplex the puzzled inquirer. Other results, however, also obtained from seedlings, have only increased the difficulty of the subject. Perhaps the most astonishing result was the discovery that the white-flowered form of *I. tectorum* comes invariably true from seed, although no character except colour can be found to separate it from the blue-purple type. Moreover, the pollen of the white form has no effect on the blue when the two are crossed, at any rate, in the first generation, for nothing but blue-flowered forms have resulted from this cross. The Mendelian theory suggests the raising of a second generation, but, unfortunately, first crosses among Irises are often sterile, unless the parents are closely allied. Thus *obliensis* × *Korolkowii* and *Cengialtii* Loppio × *tectorum* have both proved infertile, and the whole experiment points to the fact that the so-called white *I. tectorum* is, perhaps, something more than a mere colour variety.

Another puzzle lies in the various forms of *I. setosa* and *I. Hookeri*, the Asiatic and American forms of what appears to be the same Iris. In these, the standards are reduced to minute bristles, or, at any rate, to very small dimensions. The exact form of the standards does not appear to be constant, nor do either of the two more usual formations appear to be correlated to any other character. At least four or five distinct forms of this puzzling species come sufficiently true from seed for groups of them to be at once distinguishable, though the exact differences are very difficult to define.

The same difficulty occurs in the case of the various forms of *I. ensata*, of which name the synonyms are legion. The leaves of a batch of a dozen or twenty plants of one form all grow with a curious twist, which is noticeably absent from those of a neighbouring group. Yet dried, herbarium specimens would appear essentially alike.

Another unsolved problem is that of the group of American Irises to which the names of *I. longipetala*, *Herbert*, *I. missouriensis*, *Nuttall*, and *I. tolmeiana*, *Herbert*, have been given. An examination of the type specimens of these three species seems to suggest that the two latter are identical, and that they represent the Alpine or dry upland form, while *I. longipetala* is the more luxuriant Pacific Coast variety. The latter has broader, longer leaves, and a sturdier and fuller inflorescence. Moreover, the new leaves come up in the autumn, and attain some height during the winter. All these characters are reproduced in seedlings, as is also the case with the more slender form to which the other two names were given. Here the leaves do not shoot until the spring, and never attain the height or luxuriance of those of *I. longipetala*. The flowers, however, and the essential organs of the two forms are identical, except, perhaps, in size. (No ac-

count is here taken of what is, perhaps, an unnamed species, often found in gardens under the name of *I. missouriensis* or *I. tolmeiana*. This has in the spathe only two flowers, in which the ovaries are nearly sessile, while the pedicels of both the forms of *I. longipetala* are produced to some length, and the number of flowers in the spathe nearly always exceeds two.)

On the whole, these instances tend to show that plants are very like human beings, among whom family likenesses are transmitted from generation to generation. Yet no one will deny that family likeness is much more marked in some families than in others, though no reason has ever yet been given for this phenomenon. Individual differences are always found, even when the family resemblance is most strong, and this consideration would seem to point to the extension rather than to the narrowing of the limits of each species. *W. R. Dykes, Charterhouse, Godalming.*

DISEASE-RESISTING POTATOS.

It is well known that determined efforts are at present being made in order to secure, if possible, a strain of Potatos immune from disease. The labours of Mr. Arthur Sutton and the Rev. J. Nikman Paton in this field of botanical science are noteworthy and deserve the highest commendation. It is to be observed that the efforts of these workers have been concentrated upon certain species of *Solanum*, and two kinds, viz., *Solanum Commersonii* and *S. tuberosum* seem to be in particular request as parental subjects. For 12 years I have been engaged in a somewhat similar work, the aim being to secure an immune strain of Potatos, but I have refrained from using these species of *Solanum*, and have confined my attention to an immune variety of the domestic Potato. Incidentally, with respect to Dr. Salaman's work in Potato-breeding, recently summarised in these pages, it may be remarked that my experience with respect to correlation between sterility of anthers and pale heliotrope flowers does not conform with this. I have met with one or two varieties with flowers of this description which have perfectly normal anthers, but, while I have bred from these sorts, I find I have retained no records of their progeny.

Some years ago I spent a considerable time in looking for a suitable variety of *S. tuberosum* that could be used with advantage as a parent in breeding for immunity from the disease of late blight (*Phytophthora infestans*). I was not inclined, as I have said, to accept any of the species of *Solanum* for this purpose, for at that time I was very doubtful as to their edible qualities and preferred a cultivated variety possessing the attribute of immunity, coupled, if possible, with that of quality. Ten years ago I secured a Potato in the North of Scotland which had been in the hands of a well-known family there since 1745, and was said never to have been attacked by disease. This statement I have confirmed, for, although it has been grown by me continuously, I have never noticed in it the slightest trace of disease. This old Potato was submitted to some pretty severe tests, and one season, during which blight was unusually severe, the diseased haulm and tubers of affected Potatos were allowed to rot on the ground where they had grown. When sufficiently decayed, they were all dug into the ground, which, therefore, must have been full of the hybernating mycelium of the fungus. This piece of ground so treated was planted up in spring with several well-known commercial varieties of Potatos, and a good row of the old, supposed disease resister. All save the latter were badly affected, so much so that the tubers were worthless. This old variety was grown for three seasons more upon the same ground, and still proved invulnerable. It is of splendid edible quality, but the colour of its tubers, combined with its poor cropping powers, render it useless for ordinary commercial pur-

poses. Its great value lies in its power to resist disease, and I am now engaged in the endeavour to effect the transmission of this virtue to well-known standard varieties. I had, however, nearly discarded this old worthy as an unworkable proposition, because of its sterility. Last year, however, it yielded pollen. During a period of 10 years it was sterile to all pollen from other Potatos, and also, this season, it proved sterile to its own. I have been able to secure crosses between it and some excellent subjects, having used successfully "The Factor" and "The Admiral" as seed-parents. I have secured an abundance of fertile seed, and shall therefore be in a position presently to determine whether any of the crosses combine disease-resistance with other essential qualities. I had not intended to publish my results till I was in a position to describe the qualities of my first generation hybrids, but in discussing the incidence of disease in Potatos in the *Journal of Genetics*, Dr. Salaman remarks, that up till now the fact that there has been no really immune variety to work with has prevented any headway being made in this direction. This is a statement that, obviously, I am not prepared to accept, until the variety, which I have tested for 10 years is proved to be liable to an attack of disease. I will defer a description of my immune variety until I have completed my investigations as to its origin, but this is certain, that during 10 years' observation in England and Scotland, and in many different districts in the latter country, under severe conditions, it has so far proved immune. The question now is, will this character be transmitted to the seedlings of which it is one of the parents? *George M. Taylor, Mid-Lothian.*

CULTURAL MEMORANDA.

LACHENALIAS.

LACHENALIAS cannot be classed among the most brilliant of flowers, but they possess a beauty of form and delicacy of colouring which make them attractive, especially at this time of the year, and the blooms last in a good condition for at least a month. The plants are easy of culture. To have them in bloom early in the year, the first batch of bulbs should be potted early in July and others at intervals of a fortnight till the middle of August. A suitable compost is formed of two parts loam and one of leaf-soil or well-rotted manure, with a light dusting of soot and some coarse sand added. Five-inch pots are the most suitable receptacles; they should be well drained, and filled three-parts with soil. Place six or eight bulbs in each pot half-an-inch below the surface, pressing the soil firm with the fingers. Water the soil carefully, and stand the pots in a frame that must be shaded from sunshine, but expose the plants to the light when the growths appear through the soil. Continue to afford water with care until the pots are filled with roots, when they should be given copious supplies of moisture, and soot water or a little fertilizer twice a week. Before there is any danger from frost, place the plants on a shelf close to the glass in a greenhouse where a temperature of 40° is maintained at night time. Lachenalias will not submit to excessive forcing; they require an abundance of fresh air during mild weather, but are susceptible to cold draughts. The plants need attention after flowering: as the foliage turns yellow, lessen the supply of water gradually. When the foliage is dead, place the pots on their sides in a dry place, and leave them till the time comes for shaking the soil from the bulbs and repotting them. Lachenalia *Nelsonii* is much the best sort for early flowering; the golden-yellow flowers have light green markings and the inflorescences attain to a height of from 12 to 15 inches; *L. pendula* has purple, red and yellow flowers and grows to a height of 9 inches; whilst *L. tricolor* produces bright green, red and yellow flowers. *J. R., Enfield.*

The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of Haddington, K.T., Tynninghaue, East Lothian.

SHRUBS.—The protective coverings may now be removed from tender shrubs, the shrubs themselves examined and the dead growths cut out. Those trained to walls will need to be re-fastened. Any which have flowered recently, such as *Lonicera Standishii* and *Jasminum nudiflorum* should be pruned and secured to the walls; if extra long flowering shoots are desired, the plants should be pruned every second year only.

NARCISSUS.—The forced bulbs of *Narcissus*, after they have flowered, are as valuable for planting in grassy spots as the cheaper bulbs offered every autumn. They are useful also for planting rather widely apart amongst herbaceous plants in the mixed borders, where they serve to produce a bright effect at this season of the year without interfering with the subsequent display from the summer-flowering plants. Nevertheless, certain varieties are rather fastidious as to soil; such, for instance, as *telamoniensis plenus*, *maximus Sulphur Queen*, *Princeps*, and *Golden Spur* in our own case. Other varieties succeed more easily, and such fine sorts as *Mme. Plomp*, *Victoria*, and *Sir Watkin* have infinitely finer qualities than many of the older varieties which many gardeners are content to plant. Forced *Narcissi* are generally planted out at about this time; some plant them whole, but others divide the bulbs and arrange them singly or in twos or threes. The implement used for planting is a spade, with which a notch is made in the ground, and, by a forward pressure, sufficient space is secured to permit one or more bulbs with their roots to be placed in the soil. The spade is then withdrawn and the soil pressed close back with the foot. Forced *Crocuses* and *Tulips* may be planted at the same time.

CLIPPED SHRUBS.—If there is sufficient labour to allow the examples of topiary to be trimmed, this work should now be done. At the very least, the variegated plants should be trimmed, and any specimens which have got a little out of shape restored with rather closer pruning than usual. Hedges of variegated *Yews* should be clipped mainly for the reason that the young growths which will soon follow the clipping keep a very bright colour throughout the season, whereas if they are cut in the autumn they remain partly green for several months. *Cupressus sempervirens*, at one time a common-enough object, is now rarely seen in gardens, yet it has no equal as a pyramid. It may be trimmed almost as regular as a *Yew*, but the cutting should be rather less severe.

CALCEOLARIA.—The less tender sorts of *Calceolaria* succeed perfectly when planted out direct from the frame in which they have been rooted into their permanent positions in the flower garden. If they are planted amongst *Tulips* or other spring-beding plants, they need no further attention, as these latter plants provide a certain amount of protection for the *Calceolarias*. Tall-growing *Lobelias* are also hardy enough to be planted out at any convenient time after the present date. *Pelargoniums* and most other bedding plants may now be safely removed from the glass structures and pits to unheated frames, or even temporary frames, where the lights can be covered for a time both by night and day until the plants are gradually inured to exposure to the weather. Cold winds are as harmful as spring frosts, and the plants need protection from them.

GRASSES.—A few ornamental grasses may well be allowed a place in the pleasure garden besides the ubiquitous *Pampas Grass* and *Arundo Donax*. Such species as are raised from seed should be sown now, either where they are to remain, or in lines, if they are intended for transplanting later. *Setaria macrochaeta* rises to a height of 3 or 4 feet and is very effective. Dwarf-growing grasses may be represented by *Eragrostis elegans*, *Briza maxima* and *Lagurus ovatus*. The

variegated *Maize* must be raised under glass, placing each seed in a 3-inch pot and repotting the plants until they are large enough to plant out. Of perennial grasses, the commonest are the variegated forms of *Dactylis glomerata*; I have also used sparingly *Festuca glauca* and *Isolepis gracilis*. *Stipa pennata* is useful, whilst *Digraphis arundinacea*, with striped leaves, is one of the very best kinds. Established plants of the latter species need to have the flowering stems removed twice during summer. The best results are obtained from very small offsets taken at the present time; these will not give any trouble through flowering.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

EXACUM MACRANTHUM.—Any plants of *E. macranthum* which have been wintered in small pots, either as cuttings or seedlings, may now be given a shift into pots not more than one size larger than those which already contain them. A light, fibrous loam is better than peat for this species. After the plants have been potted, place them upon a shelf and water them sparingly. It may be possible to obtain a few cuttings from the larger plants, but these should be selected from the lateral growths near the base of the stem, rejecting the strong, sappy shoots. The cuttings may be rooted in thumb pots placed in a moderate heat under a bell glass, the bell-glass being used to prevent flagging.

CODIÆUM (CROTON).—Such *Crotons* as are needed for decorative purposes outside the stove need to be well prepared to withstand the cooler temperatures to which they will be subjected. The present time is suitable for examining the stock of these plants, in order to afford a top-dressing to some, and to move into larger pots others which require increased rooting medium. In cases where top-dressing alone is carried out, attention must be directed to the drainage, which should be put into perfect condition. Remove any sour, inert soil. The new compost applied in the top-dressing must be pressed very firmly. In repotting *Crotons*, it is usually best to employ pots only one size larger than those already containing the plants. The potting must be done firmly, because it is desirable to promote sturdy, short-jointed growth. In the case of large specimens, a reduction of the root ball and a corresponding pruning of the branches may be desirable. Where such treatment is carried out, pots of the same size will again suffice for the plants. *Crotons* require a stove temperature and full exposure to sunshine. Frequent syringings with clear water, preferably water which does not contain lime, have a good effect upon the plants and serve to keep them free from thrips and red spider. Bug, scale and mealy bug are troublesome pests, and the plants should be carefully examined before they are repotted, using a well-approved insecticide and hot water for the purpose of destroying any of these pests that are present. Cuttings may now be inserted for maintaining a supply of small decorative plants, selecting healthy, well-proportioned shoots bearing plenty of foliage, so that the leaves will be close down upon the soil if the cuttings are inserted into a thumb-pot. My practice is to take the cutting without any previous operation, such as ringing, to induce the base to callus, although ringing may be found useful if bottom heat is deficient. The old-fashioned handlight is a good protection for these cuttings, and if any of the latter are extra long two handlights can be placed one above the other. Provided there is sufficient bottom heat, the cuttings will fill their pots with roots in five or six weeks. In selecting the varieties for cultivation as decorative plants, it will be found that those with reddish-coloured leaves are the most enduring.

ALOCASIA.—As prominent stove plants *Alocasias* are very ornamental subjects. A metallic effect in dwelling houses during summer. *Alocasias* do not start into growth so readily as *Caladiums*, and to attempt to start them too early is detrimental. If propagation is necessary, the tubers should be started in quite small pots, one tuber in a pot, but if larger masses are required several strong tubers should be placed together, but not so closely as to cause overcrowding. For large specimens, pans

are more suitable than pots, as the plants do not require a great depth of soil. The compost should be made up of good peat-charcoal broken to the size of a nut and *Sphagnum* moss; the moss may also be used as a surface dressing. *Alocasias* thrive well when raised above the pot or pan, as is done in the potting of many *Orchids*. In regard to soil, an exception should be made in the case of *Alocasia macrorhiza variegata*, which thrives best in turfy loam, the aim being to develop at its best the white variegation which characterises this variety.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbunt, Gloucestershire.

THUNIA.—The *Thunias* are now starting into growth after having been dormant in a cool, airy house during the winter. When the young shoots are about 2 inches long they push forth roots freely from the base, and before this stage is reached the plants should be repotted. Annual repotting is necessary, and all old material should be shaken from the roots and the latter, being dead, must be cut away except for a short length, which is necessary to hold the bulbs firm in the compost. The plants are best made up into specimens, placing five bulbs in a 7-inch pot. Their requirements in respect to drainage and rooting compost are similar to *Calanthes*. Each plant should be secured to a neat stake, and the compost pressed moderately firm about it, finishing off about half-an-inch below the rim of the pot. Following this operation, water must be carefully afforded for a time, but frequent overhead syringing on fine days will encourage growths. *Thunias* enjoy a sunny position in the warmest house, and when in full growth abundance of water at the roots and frequent syringing of the foliage are needed. These plants may be propagated by taking off portions of the old pseudo-bulbs, cutting them into lengths, and inserting them as ordinary cuttings in pots of chopped moss, leaf-mould, and sand, or they may be laid on a bed of *Sphagnum*-moss. Place these cuttings in a warm propagating case, and when new growths are produced, pot them up singly and give every encouragement to them to grow.

PHAIUS.—This genus is one of the oldest representatives of the *Orchid* family in cultivation, and comprises useful plants, especially the spring-flowering species and hybrids, many of them thriving in structures devoted to the culture of ordinary stove plants quite as well as in the *Orchid* house. They are mostly of an ornamental habit, and good specimens bear fine foliage and large, erect racemes of flower. After the plants have ceased to flower, and the new growths are sufficiently advanced, any necessary repotting should receive attention. *Phaius* should be grown in fairly large, well-drained pots, in a substantial compost similar to that recommended for *Calanthes* in last week's *Calendar*. Keep the bottom of the plant beneath the level of the rim of the pot, and press the rooting material firm about the roots. During the growing season (summer) they delight in plenty of heat and moisture, and the roots need to be kept well supplied with water. They should be shaded from direct sunshine. After the season's growth is completed, the plants may be kept nearly dry in a cooler house, where a temperature of about 55° is maintained throughout the winter months. The foliage of *Phaius* is very subject to attacks from green fly, thrips, red spider, and scale. The plants, therefore, should be arranged so that the syringe can be freely used around them, both over and under the leaves in order to keep the plants clean.

PERISTERIA ELATA.—This plant needs similar treatment to *Phaius*, and specimens breaking into growth may need repotting.

TEMPERATURES.—Allow the heat of the houses to rise a few degrees above the figures given in *January*. With the lengthening days and increasing solar heat, the day temperatures will, in the warmer divisions, rise 10° to 15° on clear days. During such period the fires must be kept in check as much as the weather will allow, but a certain degree of warmth should always be kept in the hot-water pipes, so that the house may be properly ventilated by admitting fresh air.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Astor Clinton Gardens, Buckinghamshire.

COMPLETION OF PLANTING.—The planting of all kinds of fruit trees should be completed as quickly as possible. The ground is still in good working order, but as the main planting season is now past, the operation should be carried out with the greatest care, giving every encouragement to the trees, so that they may quickly establish themselves in their new quarters. Expose the roots as little as possible during planting operations, carefully cut away the bruised ends, and spread out the remaining roots as near to the surface of the ground as possible, or as may be considered safe. After planting, mulch the surface of the soil over the roots with a suitable dressing. Secure each tree to a strong stake, so that rough winds will not loosen its hold of the soil.

RASPBERRIES AND CURRANTS.—These or other bush fruits having an abundance of fibrous roots near the surface of the soil should be given a good mulching of half-decayed manure. On well-drained soils, the application of liquid manure at this time of the year to Raspberry plantations will prove of great benefit to the plants.

THE FRUIT BLOSSOM.—Continue to protect Peaches, Apricots, and Nectarines at night-time and during the day when cold winds or unfavourable weather prevail. Attend to the thinning of Apricots as soon as possible after the fruits have formed. Blossoms of Peaches and Nectarines on the underside of the branches nearest to the wall may be rubbed off, for not only are such misplaced blossoms useless, but their removal will aid in strengthening the remaining blossoms, which are generally far more numerous on these trees than necessary for an ordinary crop of fruit.

GRAFTING.—The choicer kinds of Pears and Plums may also require some temporary covering at night to protect the blossoms from frost. Continue the grafting of Pears, Apples, and Plums. Head back young or newly-planted trees, and, if the prevailing weather is dry, the latter will be benefited by receiving a good watering, especially if the soil is of a light nature or shallow.

BLACKBERRIES.—Wilson, Junr., The Mahdi, and the Loganberry are valuable either as dessert fruits or for the making of preserves. The culture of Blackberries is similar to that of Raspberries. Though the flavour of cultivated Blackberries is peculiar, it is one that is very generally liked. To be enjoyed in perfection, the fruit should be eaten when perfectly ripe and fresh, for the flavour deteriorates even in a few hours. Planted in rows of 6 or 8 feet apart, the growths may be trained in any desired direction, and being free and vigorous they quickly fill the available spaces. Each season, after the fruit has been gathered, remove all the old fruiting wood, and vigorously thin out the young growths, retaining those only that are required for fruit-bearing during the following season.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

THE ORCHARD HOUSE.—As stated in an earlier Calendar, the orchard house should be maintained under conditions as natural as possible, and, whenever the weather permits, a free circulation of air should be allowed, admitting fresh air through both the top and bottom ventilators. Excepting when it is very cold, a little fresh air should be admitted through the top ventilators all night. When the various trees are in flower, syringing must be discontinued, and the flowers pollinated artificially. As soon as it is ascertained that the fruits have set, use the syringe again and damp the bare surfaces in the house twice daily. The thinning of the fruits should not be commenced too soon. If a very heavy crop of Peaches and Nectarines has set, some of the fruits may be removed, discarding first any badly-placed and deformed specimens. Apples, Pears, and Plums should be left for a while before thinning, as during their early stages many will drop. As soon as the growths lengthen, they should be pinched back, removing the shoots gradually, and those from the interior of the trees first. Water must still be given with care, avoiding an excess of moisture at the

roots. When the fruits commence to swell, the plants will be benefited by weak farmyard manure water, and by an occasional sprinkling of artificial manure on the surface of the soil. Keep a sharp look-out for aphid and thrips, and, should either of these pests be detected, fumigate the house with XL-All insecticide. Cherries especially are likely to become infested with aphid, and unless the insects are checked they will quickly spread over the young growths. As the shoots mature, use the syringe freely to prevent attacks of red spider.

CUCUMBERS.—The earliest Cucumbers should be growing away quite freely, and at this stage they will require attention at regular intervals, in respect to stopping and tying. Regulate the growths as evenly as possible, and stop them at two nodes beyond the fruit. Do not let the plants get overcrowded, but remove any growths which appear superfluous, and do not neglect to cut the fruits as soon as they attain a sufficient size, placing them in sufficient water to cover the stalks, until they are required for use. The plants being very active, the roots will need an abundance of water, and care must be exercised that they are not allowed to suffer for lack of this. An occasional application of diluted manure water will be beneficial, and, as cropping advances, applications of this stimulant may be made more frequently. When the roots can be seen above the compost a very slight top-dressing will be necessary. Cucumbers do not require a great amount of ventilation, but when the temperature in the house rises with sun heat to 80° or 90°, as is often the case in the middle of the day, just a little top ventilation will be beneficial. Very often Cucumbers are cultivated in the same house as Melons, the consequence being that more ventilation has to be allowed than the Cucumbers really need. Especially is this the case when the Melon fruits are ripening, but the effect of this excessive ventilation results in the Cucumbers being bitter, a defect which may also be brought about by dryness at the roots. Syringe the plants frequently with tepid water, and remove any leaves that show the least sign of red spider.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

PARSLEY.—If seeds were sown in boxes in order to produce an early supply, the young plants should now be ready to put out in a sheltered situation. This crop succeeds best on rich soil in a somewhat shady situation. Plant in rows 15 inches apart, allowing 6 inches between the plants in the row. If not already done, a sowing should be made now to afford supplies through the summer and autumn; but for next winter's use a sowing should be made on a west border about the middle of July.

LETTUCE.—Seeds may now be sown on a warm border for raising plants for use at about the end of June. If sown in rows 1 foot apart, the young seedlings may be carefully thinned when large enough to handle, and planted to form a succession to those left in the rows undisturbed. Ideal, Iceberg, and Mammoth White Cos are varieties now being sown at Frogmore for this purpose. If Lettuce seeds were sown in February under glass, the young plants will now be ready for planting on a warm border. Keep a careful watch for slugs, which may be destroyed by applications of hot lime at daybreak.

BEET.—A small sowing of Beet may be made now on a sheltered border. If quick-growing Turnip-rooted varieties are sown, the crop should be ready for use by the end of June. The soil for this early sowing should be light and rich, and the seeds should be sown in drills 15 inches apart and 1 inch deep. When the young plants appear, a careful watch should be kept for slugs, which may be kept in check by frequent, light dustings of lime early in the morning. Beetroot in store should be examined frequently and all young growth removed, placing the roots in a cool position in order to keep them in good condition for as long as possible.

ASPARAGUS.—Seeds may be sown in drills 18 inches apart and 2 inches deep to produce plants for making new beds in two years' time. If the seeds are sown in pairs 6 inches apart, the young plants will require very little thinning,

and may be allowed to grow in the same position for two years.

CAULIFLOWER.—Plants wintered in cold pits should now be gradually hardened off in readiness for planting out during the first week in April. If the weather is favourable, the lights should be removed from the pits as early in the morning as possible, and replaced again at night, maintaining sufficient ventilation to keep the plants from becoming drawn. From the present time onward, Cauliflower plants in pots will require very careful watering, or the plants may bolt before they are large enough to be of any value. If the ground for this crop was trenched and manured early in winter, the surface may now be forked over and allowed to remain until the plants are ready to put out in the first week of April. Before the plants are put out, they should be given a good watering, and the same care will be necessary after planting takes place. When growth commences, liberal supplies of weak liquid manure should be given. If the weather is favourable we set these plants out in the first week of April, and expect to commence cutting in the first week of June.

THE APIARY.

By C. CHOUSS.

FEEDING.—Feeding will be necessary this spring in most apiaries. Last year was generally a poor honey season, and where autumn feeding was not resorted to, or only imperfectly done, the bees may be short of food. In the south of England bees may be fed on syrup after the middle of March, but in northern districts it will be wiser to defer feeding until the end of the present month. Feeding with Beet sugar is said to have favoured the Isle of Wight disease; it will be wise, therefore, to use no other than pure granulated white cane sugar. After a careful examination of the hive, if food is found to be scarce, or likely to be so before the end of May, prepare some syrup, taking great care not to let it burn in making. Use 5 lbs. of sugar, 3½ pints of water, and half an ounce each of vinegar and salt. It is not necessary for the syrup to boil, so that there need be no risk of it burning. If it is brought to a temperature of 120° F., it will suffice, but it must be well stirred, so that all the sugar is dissolved. Where a large quantity of syrup is required, the extractor will be found of great service. Pour in the necessary amount of boiling water, adding the sugar and other ingredients; work the machine, and when the water is raised by the rotary motion, commence to drip in the sugar a little at a time. Treated in this manner, it will soon dissolve. Fill bottles holding 2 lbs. or 5 lbs. with syrup to the brim, and cover the mouths of the bottles with two layers of cheese cloth, or one layer of stout calico, secured by string. If the bottles are not filled, air rising above the syrup, when the bottles are overturned, will cause the syrup to run out. Cover the frames with a strip of wood about ¾ inch to 1 inch thick and 4 inches wide, and cutting out one or two holes just less in diameter than the width of the mouth of the bottles used. It will be a great advantage if two bottles, or even three, of syrup are put on at the same time, to save opening the hives too often, thus economising the heat of the hive. When renewing syrup, a piece of glass or slate may be used to keep in the bees, and this can be slipped aside when the bottles are replaced. Take care not to spill the syrup in the vicinity of the hives, for this is often the cause of bees robbing the food from other hives; because of this, always close the entrances of the hives so that not more than one bee may pass out at the same time.

POLLEN.—Now that there is a supply of pollen available, breeding will increase, but as the supply of pollen will not yet be large, it is well to supplement this food by placing pea flour or oatmeal among some shavings in an old propolis straw skep in a sunny corner. The smell of the propolis is a great attraction to the bees.

QUILTS.—At this time of the year there can scarcely be too much quilting above the brood chamber. Take some well-fitting quilts made of a non-conducting material, and between each layer place a sheet of good brown paper. Conserve as much of the heat in the hives as possible, by seeing that the quilts fit the corners exactly. A section rack fitted with a chaff or cork-dust cushion is the best economiser of heat.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MARCH 28—
Roy. Hort. Soc. Coms. meet (Lecture at 3 p.m. by Mr. R. C. Reginald Nevill, on "Al-ines in Their Native Homes").

WEDNESDAY, MARCH 29—
Irish Gard. Assoc. and Benev. Soc. meet.

THURSDAY, MARCH 30—Torquay Spring Fl. Sh.

SATURDAY, MARCH 25—
British Gard. Assoc. Meet. at Birmingham. Address by Mr. James Udale on "Examinations in Horticulture."

AVERAGE MEAN TEMPERATURE for the coming week deduced from observations during the last Fifty Years at Greenwich—44° F.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, March 22 (6 P.M.): Max. 59°; Min. 39°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 23 (10 A.M.): Bar. 30; Temp. 49°; Weather—Dull.

PROVINCES.—Wednesday, March 22: Max 51° Cambridge, S.E.; Min. 40° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Herbaceous and Other Plants, Hardy Bulbs, &c., at 12; Roses, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Hardy Bulbs and Roots, Perennials, &c., at 12; Trade Sale of Miscellaneous Bulbs and Plants, at 12; Roses, at 1.30; Japanese Lilliums, at 3; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Imported and Established Orchids in Variety, Orchids in Flower and Bud, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

A West Indian Botanist.

The death of Mr. J. H. Hart, which was announced in our last issue, took place at Port of Spain, Trinidad, on February 20. Mr. Hart was born in Suffolk in 1817, and proceeded, in 1875, to the West Indies to take charge of the gardens and grounds of King's House, Jamaica. Six years later he was appointed, under Mr. (now Sir) Daniel Morris, Superintendent of the Cinchona plantations in succession to Mr. W. Nock, who was transferred to Ceylon, and he acted as Director of the Jamaica Botanical Department until the arrival of Mr. W. Fawcett, the new Director, in December, 1886. In 1887 Mr. Hart became Superintendent of the Royal Botanic Gardens at Trinidad. He rendered valuable service in re-organizing the Botanical Department, in instituting an efficient meteorological service, and in starting and editing the *Bulletin* of the Department, which was continued uninterruptedly from 1887 to 1908, when it was merged in the *Bulletin* of the Agricultural Department. He wrote an interesting account of a visit to Nicaragua in 1885, and in 1892 published *A Treatise on the Cultivation and Curing of Cacao*. A second edition of this work was issued in 1900. It is understood that just prior to his death Mr. Hart was engaged in correcting the last proofs of a more compre-

hensive handbook work on Cacao cultivation, which may be issued shortly. He brought out in 1908 a *Herbarium List* of the plants represented in the Herbarium of the Botanical Department at Trinidad. This includes an enumeration of the plants collected by Lockhart, Purdie, Cruger, Finlay, and Prestoe, together with the more recent collection made by Mr. Hart himself, by Mr. F. V. Sherring, Mr. William Broadway, and others. It is hoped that this valuable herbarium will be carefully preserved by the Government until such time as it is possible to bring out a complete Flora of Trinidad and Tobago.

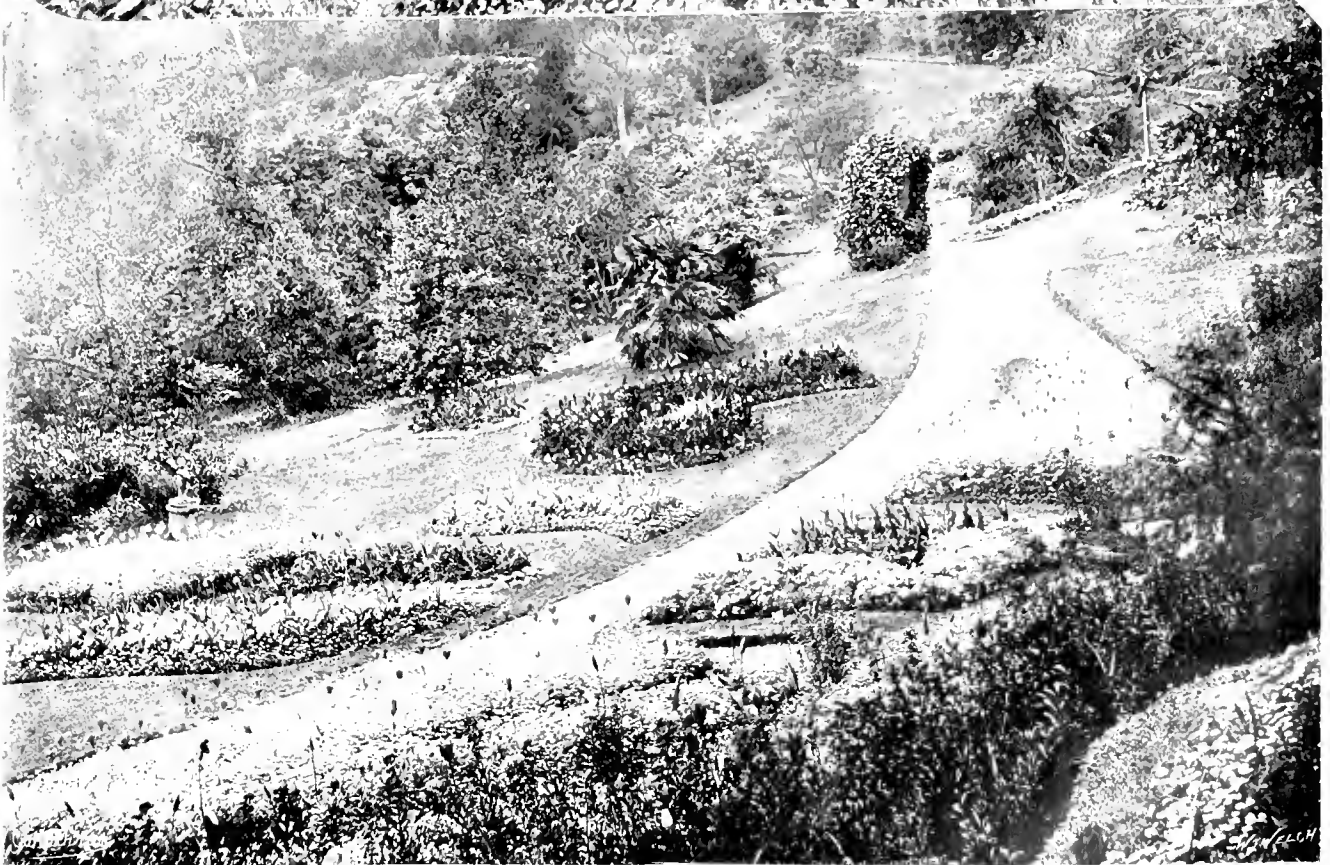
In December, 1909, Mr. Hart edited a volume of *The Ferns and Fern Allies of the British West Indies and Guiana*, by Mr. G. S. Jenman, F.L.S. This had been previously published in parts as *addenda* to the *Bulletin* of the Botanical Department. Unfortunately, owing to some of the parts being out of print, only a few copies of the complete volume are available.

Mr. Hart possessed a wide and intimate knowledge of the economic conditions of the British West Indian Colonies, and took an active part in the proceedings of the Inter-Colonial Agricultural Conferences organized by the Imperial Department of Agriculture. He was specially interested in Cacao and rubber, on which subjects he was a recognised authority. Mr. Hart visited various portions of Central America to make observations on Cacao plantations, and last year, after his retirement, he was engaged to prepare a report on rubber cultivation in Mexico. In Trinidad he will be remembered as having established the St. Clair Experiment Station, and as an active and zealous member of the Agricultural Society. As stated in the *Mirror* of Port of Spain, Mr. Hart "had made many friends, by whom his loss will be severely felt. He spent the best years of his life in Trinidad and did good service there, and the record he leaves behind him is one of which anybody might be proud." The funeral, on February 21, was attended by the Colonial Secretary as representing the Government, by Colonel T. H. Collens, representing the Board of Agriculture, by the Director and members of the staff of the Department of Agriculture, by a detachment of the Light Infantry Volunteers, of which Mr. Hart was a retired captain, and other public bodies.

The German Dendrologische Gesellschaft has done much to promote the introduction and cultivation of hardy trees and shrubs into Germany, and the results have been most satisfactory. Trials made in numerous localities have afforded valuable information on the cultivation of numbers of species and varieties which were previously regarded as unsuitable for the climate of Germany. On various occasions we have printed extracts from the Society's publications; some of these have related to purely

ornamental subjects and others to timber trees and shrubs of economic value. The general result of the Society's work has been a large addition to the number of species which were cultivated, say, a quarter of a century ago. Dr. Edmond Goeze, an old Kew man of the early 'sixties and subsequently successively curator of the Botanic Gardens of Coimbra, Portugal, and Greifswald, North Germany, has devoted much time to the description of the most famous collections in North Germany. His later contributions to the subject have mostly appeared in the *Oesterreichische Garten-Zeitung*, and the descriptive part has already been noticed in these columns. We have now been favoured with a reprint of Dr. Goeze's list of hardy trees and shrubs cultivated in European Gardens from the earliest times. It is not claimed for this work that it is complete, but it comprises some 2,000 species and numerous varieties, and should prove very useful for present reference and as a foundation for a future history comprising greater detail. The arrangement is systematic, under the countries of origin; the system followed being that of Bentham and Hooker's *Genera Plantarum*. Beginning with Europe and ending with America, the author gives the authorities for the names; the date of introduction into cultivation, name of introducer, or establishment where cultivated, so far as ascertained, or simply the earliest record of being in cultivation. Considering the immense amount of time that must have been given to the compilation, it seems a pity that the sources of information are not included, especially as there is a waste of space that would have been ample for the usual abbreviated references. Such an addition would have been of the greatest assistance to those who wish to pursue their inquiries further. The earliest records date from the middle of the sixteenth century, but it should be mentioned that, whilst the Gooseberry and Red Currant are included, there is no mention of such plants as the Grape Vine and Fig. A few historical particulars are given at the end of each list, which might be profitably extended. The Chinese and Japanese plants are treated in greater detail than those of any other country, the list being preceded, in this instance, by a more detailed historical sketch of the progress of botanical discovery in China and Japan.

SUPPLEMENTARY ILLUSTRATION.—Belvoir Castle, the beautiful country seat of the DUKE OF RUTLAND has long been renowned for its spring flower-bedding, the gardens at this season appearing as though painted in gorgeous masses of colours. The two views given in our picture show how extensively this system of planting is practised there, and how skilfully the subjects are arranged by the gardener, Mr. DIVERS. Spring gardening has scarcely any limits; it may not only be employed in the formal garden, but also to beautify the grounds, including the wilder parts, as well as to embellish stream and lake. The variety of subjects that can be employed afford great possibilities to produce varied and charming effects.



Photographs by H. N. Rose

SPRING FLOWER-GARDENING AT BELVOIR CASTLE.

and at a season when out-door flowers are doubly welcome. They burst on the scene when everything in the garden appears to be awaking afresh into life, and continue in bloom until the tender subjects are ready to take their place. Perhaps the more informal planting of the subjects, such as is seen in the winding breadth of flowers in the upper picture, afford the best and most natural effects. But where set beds have to be arranged more or less formally, in order to harmonise with their surroundings, batches of bulbs or other subjects in distinct colours, carpeted

nolias, Rhododendrons, species of Pyrus and Prunus, Almonds, Hammels of sorts, Forsythia, Ribes, and other species.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will take place on Tuesday, the 28th inst. In the afternoon a lecture on "Alpines in their Native Haunts" will be delivered by Mr. R. C. REGINALD NEVILL.

THE KING OF PORTUGAL AND THE R.H.S. SHOW.—The KING OF PORTUGAL was amongst the

inducement to the nursery trade to accept the invitation extended to them to decorate the numerous beds. In addition to the permanent exhibits, there will be two exhibitions of cut Roses in structures specially arranged for the purpose. Particulars can be obtained from Mr. F. G. W. HEMSLOW, M.A., Empire House, 175, Piccadilly, W.

ROYAL WARRANTS TO NURSERY AND SEED FIRMS. Messrs. CLIBRANS, Altrincham, have been appointed, by Royal Warrant, Nurserymen to the KING.

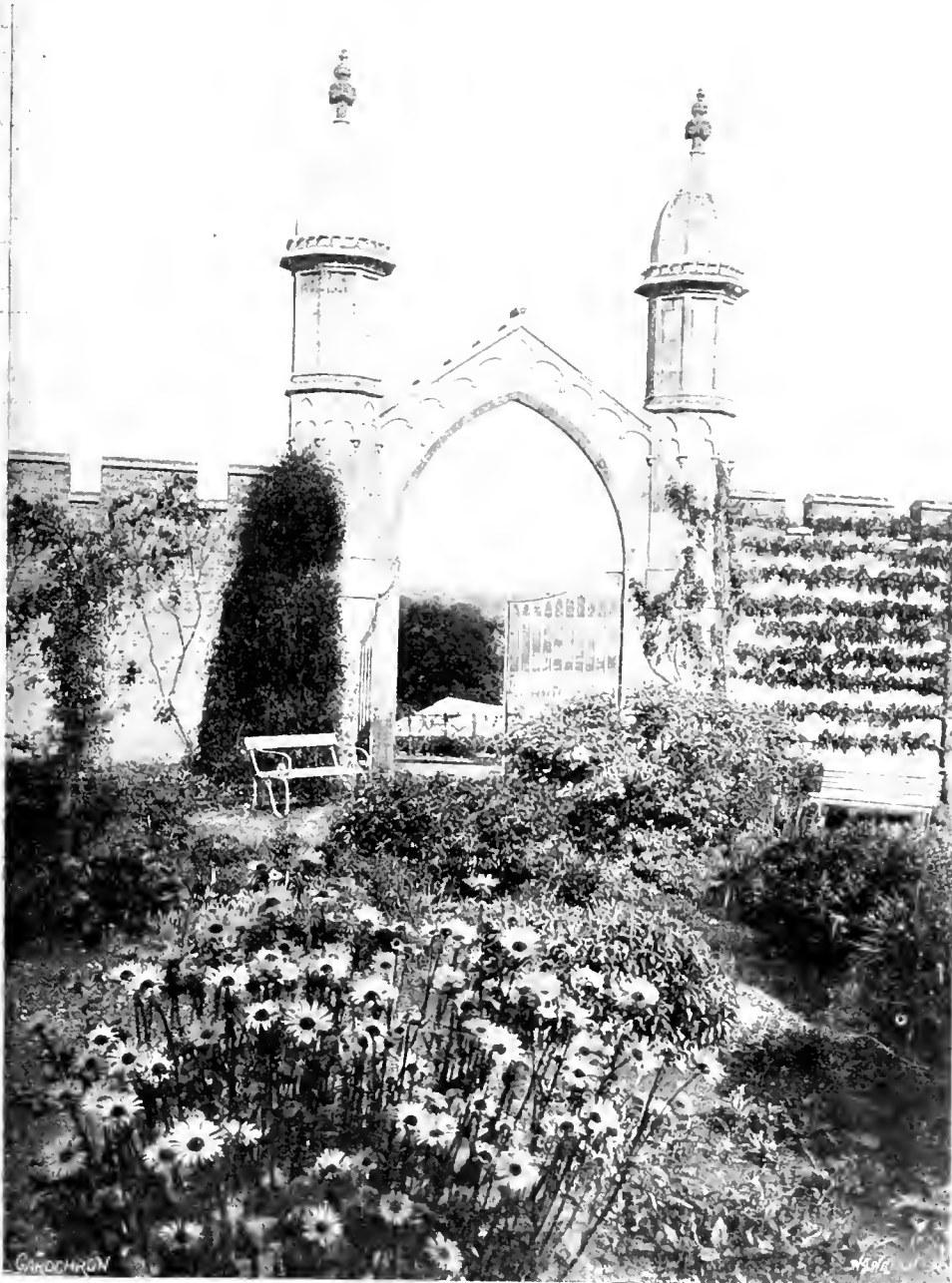
ROYAL INSTITUTION.—The annual meeting of the members will take place on Monday, May 1, and the general monthly meeting on Monday, May 8. On May 5, Professor MARTIN O. FORSTER, D.Sc., will deliver a lecture on "New Organic Compounds of Nitrogen," and on May 12 Professor WILLIAM STIRLING, M.D., will give a discourse on "Biology and the Cinematograph."

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.—For the purpose of assisting the promotion of this exhibition, the Executive Committee invited prominent horticulturists in the various counties to act as provincial secretaries. The first duty of these secretaries was to get together a committee and chairman for each county, and the committees were to do what was possible to encourage local cultivators to participate in the exhibition. They were also to obtain subscriptions and guarantees, and in various ways to popularise the exhibition in the counties. At the invitation of the Executive Committee, a number of the secretaries, including representatives from Wales and Ireland, attended a meeting on the 14th inst., at the Hotel Windsor, Westminster, for the purpose of conferring as to the best means of carrying out their work, and for the purpose of receiving from the chairman of the Executive Committee, Mr. J. GURNEY FOWLER, information upon the progress which has been made since the last meeting. Mr. FOWLER first delivered an address, in which he showed that everything was being done to push forward the work of organisation as rapidly as possible, and he described the ways in which the provincial committees could best support the efforts of the Executive Committee. Following the chairman's address, there were speeches from many of the provincial representatives, some of whom sought information. On the whole, the reports were of a reassuring character, for whilst some had encountered considerable difficulties in their initial proceedings, others had succeeded in gaining the support of all whom they had approached. On behalf of the Executive Committee, Mr. FOWLER promised that certain suggestions advanced by the delegates should be adopted. In the evening of the same day, the party joined the members of the Horticultural Club at dinner.

SHOOTING OF WOOD PIGEONS.—In view of the complaints which have been received by the Board of Agriculture and Fisheries as to the depredations recently committed by wood pigeons, the Board desire to suggest to landowners, farmers, and gamekeepers that they should make a combined effort during the coming week to reduce the numbers of the pigeons in their neighbourhood. It is probable that many of these birds are migrants, and have not yet settled in any district, so that if the steps suggested by the Board are taken many of the pigeons now attacking crops may be prevented from becoming settlers, even if a large number of birds are not shot. A special attempt should be made to shoot pigeons late in the evening, so as to drive them from the woods or other cover in which they roost.

visitors of the R.H.S. Show on Wednesday last. He took great interest in the Hybrid Gerberas exhibited by Mr. H. N. ELLISON, and selected a few of the bloom to take away with him.

FESTIVAL OF EMPIRE EXHIBITION.—Nurserymen and seedsmen are invited to make exhibits in the grounds of the Crystal Palace with a view to decorating the gardens during the Festival of Empire Exhibition, which will be opened in May next and continue until October. It is thought that the presentation of imperial awards in the form of cups and medals will form a sufficient



[Photograph by H. N. King.]

FIG. 82.—BELVOIR CASTLE ENTRANCE TO THE KITCHEN GARDEN.
(See also Supplementary Illustration)

with such plants as Arabis, Myosotis, Saxifrages, Violas, or Daisies, form pleasing pictures. Gaudy Tulips and erect-growing Hyacinths, when relieved with Wallflowers, Polyanthus, double-flowered Arabis—which grows quite tall in company with the bulbs—or Forget-me-Nots in blue and other shades, produce imposing colour scenes of great beauty. In the outlying parts of the grounds, spring flowers associate well in the grass, even beneath trees, whilst nothing is more beautiful than a bank or mound studded with a variety of these lovely subjects. They find a fitting company in spring-flowering shrubs, including Mag-

BOSKOOP POMOLOGICAL SOCIETY'S JUBILEE SHOW.—The exhibition to be held at Boskoop from April 5-16 has the patronage of Prince HENRY of the Netherlands. The Secretary of Agriculture, Industry and Commerce for Holland, and the Commissioner of the Queen for South Holland have been appointed vice-presidents; the Under-Secretary of Agriculture and the Mayor of Boskoop will act as honorary president and president of the committee of honour respectively. The exhibits will be judged by an international jury composed of 60 horticulturists, with Mr. J. C. DE MARES OYENS, Chairman.

GARDEN PICTURES AT THE MODERN GALLERY.—At the Modern Gallery, New Bond Street, an interesting exhibition is being made by two lady artists, Lady CONSTANCE EMMOTT and Mrs. RUSSELL WALKER. Lady EMMOTT contributes 56 pictures in oil and watercolour of West Highland and other subjects, which show both conscientious work and a close appreciation of Nature. Three of her larger pictures are: "After Storm, in the Sound of Mull" (58), "The Dhu Loch Avenue, Inveraray" (39), and "An Hour of Peace" (40). Of the smaller ones "An Easterly Haze" (50) and "Aros Castle, Mull," (17), impart a feeling of calm restfulness. Mrs. WALKER'S pictures, in water-colour, are mostly of gardens. The colour schemes are good and the subjects pleasantly suggestive. Although most of the gardens are in England and Scotland, one or two recall the beauties of Italy; in "The Castle Garden, Inveraray" (51), one's mind is transported to the Villa Carlotta on Lake Como, while "Farnborough Hall Garden, Warwickshire" (56), is quite classic, with the tall Cypress trees like sentinels behind the terrace steps. "Rhododendrons" (7) is very strong in colour and one of the best. "Dalcenna, Argyll, N.B." (2), "The Sun's Good-night" (14), "A Peep of the Solent" (50), "Under Chichester Spire" (23), and "All in a Garden Fair" (57) are very pleasing and artistic in feeling. Of the smaller pictures may be mentioned "The Old Blue Pump" (63), "A Corner of the Garden" (67), and "Evening in Chichester Fields" (33).

A BACTERIAL DISEASE OF POTATOS IN IRELAND.—Several different bacterial diseases of the Potato plant have been identified in recent years. The best known of these maladies are caused by *Bacillus solanacearum* and *Bacillus phytophthorus* respectively. The former disease producing bacillus was discovered by G. F. SMITH in the United States, and the latter has been fully described by APPEL, in Germany, where the symptoms to which it gives rise are known as "Black-leg." The first species of bacterium causes the leaves to wilt and shrivel, produces brown streaks on the haulms and, subsequently, affects the tubers, while the other induces a black rot in the stems and tubers of affected plants. A bacterial disease of Potatos, described by PETHERIDGE and MURPHY in the February number of the *Proceedings of the Royal Irish Academy*, occurs somewhat extensively in Ireland, and appears to be caused by a species which is not identical with either of the pathogenic forms previously discovered. The characters of this disease in Ireland are similar to those of the "Black-leg" disease in Germany, and, in fact, the authors suggest that it should be called "Black Stalk rot." The foliage of affected plants becomes discoloured and dries up, the veins of the stem become brown, the underground part of the haulm decays, and, subsequently, the tubers rot. The organism, when studied in pure cultures, is found to differ in some respects from *Bacillus phytophthorus*, and the name *Bacillus melanogenes* is suggested for it. "Black Stalk-rot" in Ireland makes its appearance early in the season, coming considerably before Late blight

(caused by *Phytophthora infestans*) is conspicuous. Experiments clearly show that the planting of affected "seed" is mainly responsible for the spread of this disease, which not only causes loss in the growing crop, but also during storage. It is possible that the disease may also be contracted from the soil. The authors suggest that preventive measures should aim at the destruction of diseased plants, the exclusion of affected tubers from the pits, and the procuring of Potatos from fields where the disease is absent.

VARIETIES OF SCAB IN POTATOS.—Potato growers should provide themselves with the Leaflets (Nos. 94, 105, 137, and 232), published by the Board of Agriculture and Fisheries, which describe the various forms of scab by which Potato tubers are affected. Leaflet 137, which is the most recent of the series, enumerates five kinds of scab, due each to a different agent. In addition to Black Scab (Wart disease), to which we have had occasion to refer frequently of late, the other "scabs" are:—Corky scab, due to the infection of tubers by *Spongospora scabies*; Oospora scab caused by the fungus, *Oospora scabies*; scab due to mechanical injury, and that caused by Millepedes. The scab due to *Oospora scabies* is very widespread, and takes the form of rough patches, which may be scattered or may cover the surface of the tuber almost completely. Though affected tubers are not otherwise damaged, they are rendered so unsightly that their market value is greatly reduced. This form of scab may be distinguished from the others by the presence of a delicate greyish bloom on the diseased portions of the tubers. "Seed" sterilisation and planting on ground which has not borne a scabby crop are the precautions which should be adopted to prevent this disease. For the sterilisation of the tubers, immersion for two hours in formaline (one pint of commercial formaline to 36 gallons of water) has been proved to be efficacious. After immersion the tubers are spread out to dry, and may then be cut and planted in the usual manner. It is to be noted that, according to Leaflet No. 137, various other crops, viz., Beet, Swedes, Carrots, and Cabbages, are susceptible to attack by *Oospora scabies*, and therefore such crops should not follow one of diseased (scabby) Potatos. In affected gardens and allotments where Potatos are grown year after year, it is suggested—following Massee—that the trenches in which Potatos are to be planted should be sprinkled with powdered sulphur. Lime appears to favour the development of this form of scab; whereas nitrate of potash (2 cwt. per acre) is said to produce beneficial results. The scab caused by millepedes, chiefly by the "false wire worm," *Julus pulchellus*—the Potato's worst enemy—is the result of these insects feeding on the flesh of the tubers. In response to the irritation thus set up, the Potato produces masses of cork which take the form of raised, scabby borders round the shallow cavities made by the millepedes. No effort should be spared to rid the soil of this pest, which is introduced not infrequently in leaf-mould or other decaying vegetable matter. (See Leaflet No. 94.)

PALMS IN CALIFORNIA.—American gardeners of the Southern States and on the Pacific coast are fortunate in the enjoyment of a climate in which large numbers of species of Palms flourish in the open. In the course of an interesting article on the Palms of California (*The American Florist*, February 25, 1911), Mr. W. H. TAPLIN enumerates various of the species which grow well in the open in those regions. *Washingtonia filifera*, the Californian Fan Palm, is grown largely, and is often planted in avenues in the way that the Royal Palm, *Orodoxa regia*, is used in Brazil and

Cuba. Of the species of Phoenix, *P. canariensis* is grown most commonly, and proves to be comparatively hardy, a rapid grower, and, needless to say, very ornamental. *P. dactylifera*, the Date Palm, has been naturalised in Arizona, and the Government is seeking to establish colonies of this Palm with a view to its economic use. Other Phoenixes grown out-of-doors include *P. reclinata* and *P. rupicola*. With reference to the members of this genus, Mr. TAPLIN makes the interesting remarks that they are very variable, that many seedlings differ considerably in form from their parents, and that there are many garden hybrids. The Coconut Palm, *Cocos nucifera* occurs frequently in the warmer parts of the Southern States, and is found in a semi-wild condition on some of the Florida keys. *C. plumosa* flourishes in Los Angeles as does also *Livistona (Corypha) australis*. *L. chinensis*, which is quite hardy in Cornwall, does not grow so well in California as the hardier *L. australis*. No doubt in the most sheltered regions of the North American continent many other species could be grown; but, as Mr. TAPLIN remarks, the Californian landscape gardener has already for ordinary purposes an adequate number of these most graceful of trees.

A NEW HYBRID DEUTZIA.—*Deutzia discolor elegantissima*, raised by Mr. LEMOINE (Nancy), and described and illustrated in the *Revue de l'Horticulture Belge*, is an attractive hybrid raised from *D. scabia* × *D. discolor purpurea*. The long, flower-bearing branches are erect and slender, bearing inflorescences in axillary corymbs. Each cluster consists of 15 to 18 flowers. The flowers are white with a rosy flush, have yellow anthers, and are upwards of ½ inch in size. Flowering lasts a long time, and the later flowers are of a bright rose-carmine colour.

GERBERA HYBRIDA.—Mr. H. N. ELLISON exhibited remarkably fine flowers of *Gerbera* at the R.H.S. meeting on the 14th inst. Seed of *Gerbera* requires careful handling to get a good growth. After filling the pot or pan with a compost of loam, leaf-mould and sand, the surface must be made smooth and firm. The seeds may then be scattered over it, and, with a fine-pointed stick or large needle, the actual seeds should be pressed into the soil, leaving the pappus still on the surface. If the pappus is covered with soil, germination seldom takes place. When the seedlings are large enough, pot them off singly keeping them in partial shade at first, and watering them but sparingly.

PUBLICATIONS RECEIVED.—*College of Agriculture, Agricultural Experiment Station, Berkeley, California.* Bulletins: The Late Blight of Celery, by Stanley S. Rogers; The Cream Supply, by Herbert A. Hopper. (Berkeley: The University Press.)—*Antirrhinums*, by Fred W. Harvey. (London: Agricultural and Horticultural Association.) Price 1d.—*Royal Gardeners' Orphan Fund.* Rules and Regulations. 23rd Annual Report and List of Subscribers, 1911. (London: Milton House, Surrey Street, Strand.)—*Shady Gardens*, by T. W. Sanders, F.L.S. (London: Agricultural and Horticultural Association.) Price 1d.—*Contributions to the Flora of Queensland*, by F. Manson Bailey, F.L.S., Colonial Botanist, extracted from *The Queensland Agricultural Journal*. (Brisbane: Anthony James Cumming.)—*United States Department of Agriculture.* Bulletins: Bureau of Plant Industry. Crown-Gall of Plants: Its Cause and Remedy, by Erwin F. Smith, Nellie A. Brown, and C. O. Townsend.—*Meteorological Notes and Remarks upon the Weather During the Year 1910, with its General Effects Upon Vegetation*, by James Whitton. (Glasgow: Robert Anderson.)—*The Avocado in Southern California*, by F. W. Popenoe. Pomona: *Journal of Economic Botany*, Vol. I., No. 1.—*Carnations and Pinks*, by T. H. Cook, Jas. Douglas, and J. F. McLeod, with eight coloured plates; Present-Day Gardening Series. (T. C. and E. C. Jack.) Price 1s 6d.

THE ROSARY.

CULTURAL NOTES FOR APRIL.

There is one point in pruning Roses which needs more attention than it receives. Unless we cut back close to the eye, dead wood is certain to result above it, and as this does not callus over the stem boring sawfly has a better chance of access. This pest becomes more prevalent year by year; perhaps because Roses are more generally cultivated, but also because this dead wood is so often left to encourage and harbour the larvae.

Standards of weeping varieties, such as the Wichuraianas and some of the Ayrshires, will be well if trained out wider than is ordinarily done, thus allowing more room for the wood and securing a better effect. Many con-

established Roses, and make firm by treading any newly planted, doing this when the ground is in a suitable condition.

Towards the end of the month there will be several suckers pushing from the stems of standards, and they should be removed at once. Standards budded last season may have a few young growths left upon the short length of shoulder beyond the buds. The idea of leaving these is to encourage more sap to rise to the support of the young Rose. They should be removed gradually as the Rose bud pushes into growth. It is different with budded dwarfs, where the sap must necessarily come to the bud, having no other outlet.

In warm positions and open walls, early growth may be affected by morning frosts. In that case syringe with cold water, so that the thawing may not be so rapid when the sun reaches them.

ventilation owing to sudden changes from bright sunshine to dull, cool weather. Much may be accomplished by a frequent use of the two specifics Mo. Effic and Cyllin soft soap advised in my last notes. Roses like sunlight, but it is apt to distress young growth through clear glass, and it may be necessary to provide some shading. By all means let this be very slight. Perhaps the best and least unsightly is Summer Cloud, put on very thinly thus early in the season. This can be applied easier when hot. Other washes may be used so long as only the burning power of the sun is checked.

Much good is done by occasionally turning the plants half way round, at the same time moving the surface soil slightly. This handling of the plants gives a better idea of their water requirements, and allows light to reach them from a different point.

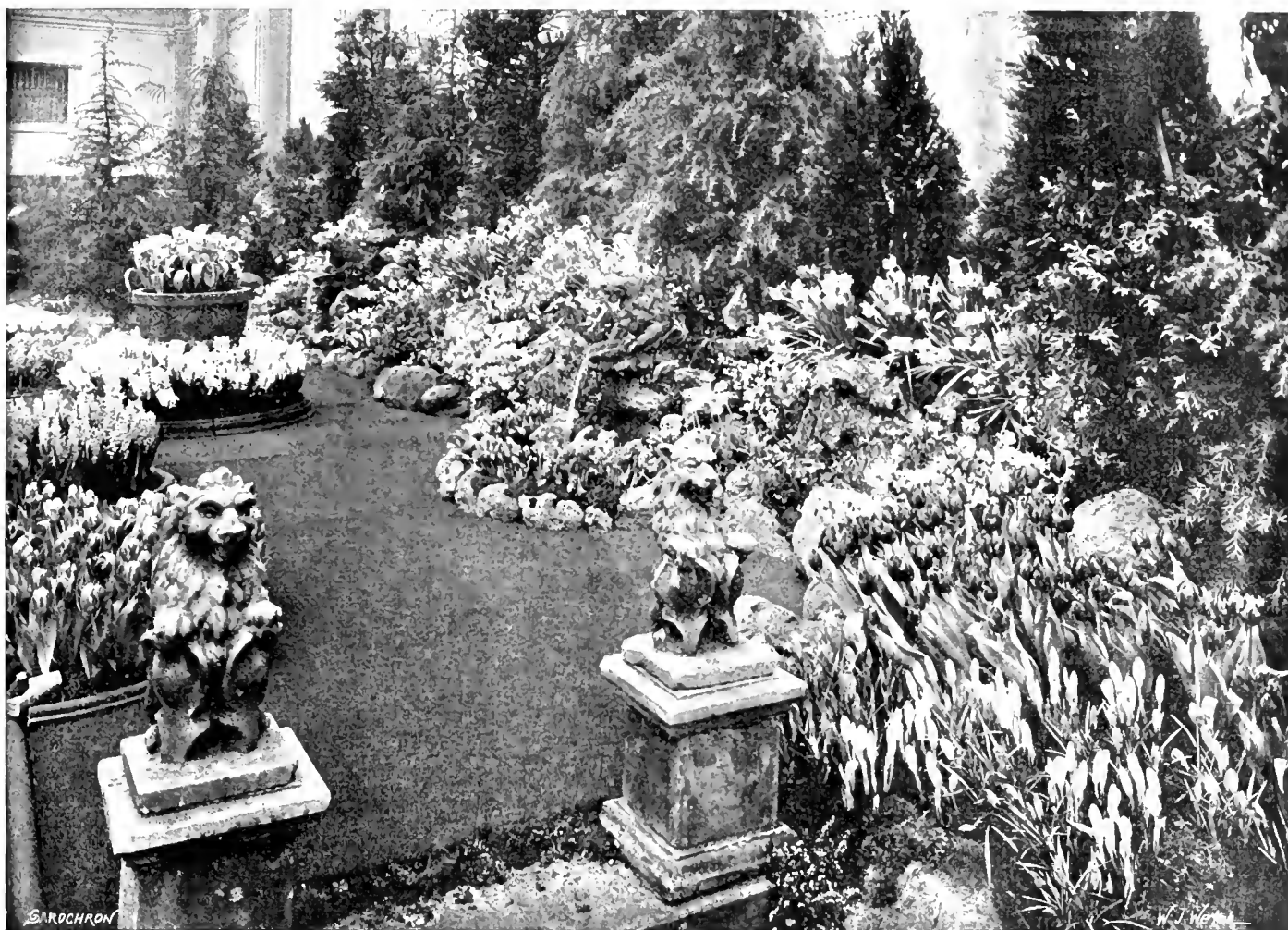


FIG. 83.—MESSRS. JAMES CARTER AND CO.'S EXHIBIT AT THE R.H.S. MEETING ON THE 14TH INST.

(See p. 171 ante)

trivances can be rigged up for this, and will answer the purpose, so long as they are sufficiently strong to bear the strain when the plants are heavy with growth and blossom. All standards should be made quite secure now. Swaying is one of the most harmful things that can happen to them. Here again, varied supports can be used, but they must be strong, and perhaps the most permanent are lengths of gas or water piping, which are lasting, strong, and not nearly so cumbersome as wooden stakes.

A capital and immediate effect may be produced by planting out climbers from pots. These will not need cutting down to the base, as will plants from the open, while the wood is more valuable because of its better maturity and freedom from effects of frost. Blank places upon arches and pergolas may be filled up in this way. Finish moving the surface soil among

No time should be lost in planting dwarf stocks for budding during July and August. Plant with the roots as near the surface as possible.

ROSES UNDER GLASS.

Pot plants in full growth will need feeding. Almost any liquid manure is suitable, and Roses appreciate a change of food. Another method of feeding is to slightly stir over the surface soil and sprinkle some artificial manure on it. Standen's, Clay's, and bonemeal are very useful, and more steady in their action than guano and superphosphates. When sprinkling these manures around pot plants water well, and slightly cover with a little fresh compost. A very thin layer will de-colour the mixture and prevent any unpleasant appearance.

March is the most troublesome month as regards mildew, because of the difficulty in

Keep the young growths of climbers away from the glass as much as possible, or the tender points with flower buds will often be destroyed. I must again point out the great advantage of slight fumigations followed by syringing in the morning.

A few stocks in pots might be growing among the Roses now. These will soon be very useful to bud a few choice varieties on, the buds coming from the first growth below the flowers. This will avoid any waste from slight pruning when cutting flowers or trimming back after they have faded on the plant. A little of this "summer" pruning might well be practised upon pot plants, and it would serve to keep them in better shape.

Now, and during next month, we can get cuttings of semi-ripened growth. The cuttings may be obtained from below a flower, or

any of the blind or flowerless growths may be cut off with a slight heel. Only remove the lower leaf or leaves, and insert the cuttings in a compost of half sand and loam. If kept quite close they will root in the same temperature, but a little bottom heat is better. It is not absolutely necessary to have a heel, but cut off the shoot close below an eye, not removing any of these as recommended when making stocks for working other varieties upon.

Practice.

PLANT NOTES.

CLADOTHAMNUS CAMPANULATUS (GREENE).

A SHORT note on *Cladothamnus pyrolæflorus*, as figured in the *Botanical Magazine*, appeared in *Gardeners' Chronicle*, December 31, 1910, p. 487.

I have discovered another species, *Cladothamnus campanulatus* on the mountains near Vancouver. Not much appears to be known of the cultural requirements of these plants, therefore the following details may prove useful:—

C. campanulatus grows wild on the high mountains of British Columbia and the adjacent State of Washington, U.S.A., and is not found much below 4,000 feet.

At that elevation the snow does not disappear until July, and as it reappears again at the end of September, the season of growth is very limited. The plant forms a shrub 4 to 6 feet high, growing in company with *Rhododendron albiflorum* in a rich humus under the shade of Fir trees, where these are not too dense. The curiously-tinted flowers are produced one on the end of each young growth, providing a succession of blooms. The style is long, declined, and incurved at the end, like a capital J.

The chief value of the plant for garden purposes lies in the unusual colour of the flowers—which are a deep terra-cotta shade, and the pleasing freshness of the foliage. The seed vessels are attractive in winter. The plant apparently enjoys a considerable amount of moisture at the roots. *B. Glendenning.*

PLUMBAGO ROSEA.

PLUMBAGO CAPENSIS is a well-known plant in gardens, but the beautiful *P. rosea* is not often met with, notwithstanding that it is easily cultivated and lends itself to either table or room decoration. Sprays of flowers arranged in small glasses with white Roman Hyacinths or Narcissus and Fern form a charming combination and remain fresh for a considerable time. The flowers are also very useful for mingling in tall vases with *Eulalia japonica*. As a pot plant for room decoration it is especially valuable as the foliage is of a dark green colour, and the flowers are retained on the plant for a long time. After the flowers are cut, the plants should be allowed a period of rest by reducing the amount of water afforded and giving them a slightly lower temperature. If the soil has become sour, the plant should be turned out of its pot, the ball of earth reduced, repotted and placed in a warm house. As the first shoots to be developed are invariably flower-spikes, these should be kept pinched off till others appear at the base of the plant. The lower shoots are suitable for cuttings which strike freely in spring and summer. As soon as they are rooted, the cuttings should be potted and placed in a warm temperature to forward the growth. Keep the plants potted as required; the later struck plants, if kept in small pots, make good specimens for decorative purposes. As September approaches the plants should be allowed a cooler temperature—55° to 60° at night-time being sufficient. This lower temperature will help to mature the wood and hasten the development of the flower-spikes. *Plumbagos*, when established in pots, should be given weak liquid manure and soot water. *A. B. Waddell, Englefeld Gardens, Reading.*

AN INDIAN GARDEN.

THE annual report by the Superintendent of the Gardens of His Highness the Maharana of Udaipur, Mewar, contains much interesting information. It shows, moreover, what strange and new problems beset the British gardener when he goes abroad to take charge of gardens in such a country as India, and how successfully he attacks them. He goes to a land where fruits like the Grape and Peach and Plum ripen during the rainy season; where the most pestilent weeds are *Euphorbias* and *Opuntias* which we cultivate in our conservatories; where the camel is the greatest enemy to the tree planter, and the white ant may throw up such masses of clay in a single night as to so completely bury the Roses of the Rose garden that only a twig here and there is to be seen. Nor are these the most serious difficulties with which the horticultural pioneer has to contend. The native does not greatly believe in such operations as pruning, and appears to think that the reply "Forgotten, sir," is a final and convincing answer to the question why he has not done such and such a thing. Then over the Indian garden there may fall, as there fell at Udaipur last year, the black shadow of the plague, and, despite the resolute efforts of His Highness the Maharana and of the Residency Surgeon, take its toll of victims. Garden water-carts are turned from their routine uses to distribute disinfectants through the city. "It was really a sad time; every road one went one could see the bodies being carried away," thus the report paraphrasing unconsciously the scene depicted by Shelley in the garden of the Sensitive Plant.

"The weary sound and the heavy breath,

And the silent motions of passing death."

And the report continues, "It was quite three months before the garden hands returned to work with many blanks among their number." The Superintendent, Mr. T. H. Storey, formerly of Edinburgh, had remained, having in the meantime shifted his garden office, in which dead rats—the plague bearers—had been found, to a place in the open under the shade of a large Mango tree. After the grim interlude, the garden hands returned to aid in the carrying out of trials in Poppy-growing for opium, and to their routine of work and of forgetting.

Luxuriant growth and sudden cataclysms seem to be the rule at Udaipur. Sweet Peas, *Achimenes*, *Eucharis*, *Agapanthus*, *Caladiums*, and *Liliums* all do well till a sudden storm of hail makes such havoc that "the garden flower-pot makers are kept hard at work for a long time renewing the thousands of pots that were smashed by the hail."

The crops of Carrots, Parsnips, Beet, Lettuce, Radish, and Turnips were good; Cauliflowers were a success and popular. Leeks, though they grew successfully, were not to the native taste; vegetables which come late are reduced to ashes by the scorching winds of March, and what the winds spare is attacked by mildew and devoured by maggots.

Beyond the gardens is the jungle, and when the excitements of gardening pall there are wild boars—which root up almost everything, but which will have nothing to do with the *Euphorbias*, and tigers, to give sport to the adventurous.

Despite the wild boars and tigers and the spiny *Euphorbias*, the jungles of Khas Odi, which surround Udaipur, are dear to the superintendent's heart, and "their autumn tints are simply lovely." That the superintendent is a Scot is evident from internal evidence contained in the report; thus, "Khas Odi is considered to be one of the most beautiful places about Udaipur with its Scottish hills and lakes, and the only thing wanted is the Heather and Whins to finish them off and to give them a home-like appearance." We may well believe that, though Mr. Storey, like the true Scot he is, welcomes the life not devoid of adventure in this

Indian garden, reflects, at times, that "East or West, Home's best." Nevertheless, through times of plague and through the torturing change of climate he, like thousands of fellow Britons in that land, stands to his post. It is well that he and they should know that by those of us who understand their life and work, though the fates compel us to stay at home, their steadfastness is held in honour.

NOTES FROM SCOTLAND.

ABERDEEN SWEET PEA SHOW.

IT is proposed to hold a Sweet Pea show in Aberdeen during August. Mr. James Esslemont has been appointed chairman of the committee, and the secretarial duties will be undertaken by Mr. M. H. Sinclair. There are many cultivators of Sweet Peas in the Aberdeen district, which is an excellent centre for such a show. There will be sections for professional and amateur growers, as well as decorative classes open only to lady exhibitors.

FORESTRY INSTRUCTION.

AT a recent meeting of the Governors of the Edinburgh and East of Scotland College of Agriculture it was reported that the Forestry Committee had, with the collaboration of Dr. A. W. Borthwick, prepared a syllabus for a course of instruction in forestry. The course, which is intended for practical foresters, will last for a month, and will probably be held in June.

CHILDREN'S BULB SHOWS.

COMPETITIVE exhibitions of bulbs, at which prizes are offered, for school children, are held in several of the leading cities and towns in Scotland. Dundee has for a considerable time carried on such exhibitions, Lady Carlaw Martin taking a special interest in them. At Dunfermline the show has the support of the Carnegie Dunfermline Trust. In some cases the bulbs are given free, and in others they are sold at a very cheap rate to the children. The compost is generally supplied from the public parks free of charge.

HARDY PLANTS AT GLASGOW BOTANIC GARDENS.

WITHIN the last three or four years, the collection of border and Alpine plants at the Glasgow Botanic Gardens has been much enlarged. Difficulty has been experienced in the cultivation of many genera and species, owing to the damp climate and the deleterious fumes from chemical and other works. Many of the plants have to be housed in frames all the year round.

A WORKHOUSE GARDEN IN LEWIS.

THE Governor of the Lewis Combination Poorhouse at Stornoway, in the island of Lewis, is Mr. Drummond, who was originally a gardener by occupation. He still takes great interest in horticulture, and sees to the cultivation of the garden attached to the poorhouse. All the vegetable supplies of the house are cultivated on the spot, and a considerable revenue is derived from the sale of horticultural produce to the vessels which call at the harbour or are stornbound there.

PRESENTATION TO MR. JOHN DAVIDSON.

A NUMBER of past and present students of the Botanical Department of Aberdeen University assembled in the botanical classroom recently to present to Mr. John Davidson, assistant in the department for the past 13 years, a handsome writing case and purse of sovereigns, in token of their appreciation of his services, and as a mark of their esteem, on the occasion of his intended departure for Vancouver. Mr. C. O. Farquharson, M.A., presided, and the presentation was made in suitable terms by Mr. Peter Leslie. Dr. James W. H. Trail, Professor of Botany in

the University, said that long after Mr. Davidson had gone the department would continue to show the work he had done. Especially could that be said regarding their botanical museum, which contained many specimens that retained practically their natural colour by the effective treatment to which they had been subjected by Mr. Davidson's special method—specimens treated in such a way as not to have their equal in any museum in the world.

LORD PENTLAND ON GARDENS AND PARKS.

IN the course of an address delivered in Edinburgh on March 16, in connection with the Town Planning Exhibition, Lord Pentland, Secretary for Scotland, contrasted the relative positions of Edinburgh and Glasgow with regard to open spaces, and said that the total area of public parks, gardens, &c., in Edinburgh, extended to 1,447 acres, including the Royal Botanic Gardens, and the King's Park at Holyrood, for a population of 317,459; while Glasgow has only 1,279 acres, with a population of 775,594.

THE BULB GARDEN.

NOTES ON LILIES.

MENTION of the beautiful *Lilium Szovitzianum* by Rev. D. Williamson (see p. 145) induces me to say a word or two concerning its cultivation. In common with several other members of the Martagon family, it is often seen to very little advantage the first season after planting, and I have known it to be condemned hastily for this reason. In order to grow *L. Szovitzianum* it does not require any elaborate preparation, the main essentials being a good deep loam, which is at the same time effectually drained. Into this loam the elongated, tong-like roots from the base of the bulb will penetrate deeply, and it is only when the bulb is thoroughly established in this way that this Lily is seen at its best. The first season after planting the display is generally a meagre one, but, providing the conditions are favourable, a marked improvement takes place each year. Other members of the Martagon group behave in a similar manner, notably, *L. Martagon* itself and its varieties, and *L. chalcedonicum*, known generally as the Scarlet Martagon. These Lilies are seen at their best in a good deep, loamy soil. Strange to say, a prominent Japanese representative of the Martagon family, namely *L. Hansonii*, can always be depended upon to flower well the first season, provided it escapes the late spring frosts, which sometimes injure the young shoots.

Concerning the late blooming of *L. speciosum* referred to by Mr. Williamson, the blossoms are even in the southern half of England often affected by the damp cold nights. After the Japanese bulbs have been grown for one season in this country they flower decidedly earlier than freshly-imported bulbs, whilst those grown in Holland (from whence at one time we used to obtain all our supplies) are earlier still in blooming.

With regard to *L. Kramerii* and *L. rubellum*, the experience of your correspondent coincides with my own. For some years we have been told that to succeed with these tantalising Lilies they should be raised from seeds, but though one or two promising instances have been recorded, I have yet to see a thoroughly established and flourishing group of either of them. A Lily whose affinities and origin have always puzzled me is *L. Brownii*, referred to in the article in question as coming from Chinese and Japanese regions, but though a large number has passed through my hands I have never found amongst them the true *L. Brownii*, that is the species grown for a very long period by the Dutch, and sent annually to this country. One often hears of *L. Brownii* from Japan, but that is quite a distinct Lily, probably either *L.*

odorum or *L. japonicum colchesteri*, for both have been applied to it.

With regard to Lilies that need to be thoroughly established before they are seen at their best, it may be pointed out that this is to a great extent influenced by the amount of roots pushed out from the base of the stem. In some of the members of the Martagon section, such as *L. chalcedonicum*, *L. Martagon*, and *L. Szovitzianum*, stem roots are produced very sparingly, whereas in most of those composing the Eulirion, Archelirion, and Isolirion groups these roots are very numerous, and a good display of flowers can be reasonably anticipated the first year. Among the better-known Lilies, examples of those that produce these stem roots in such quantities that for the first season the flowers are developed almost independently of those from the base of the bulb, are to be found in *L. auratum*, *L. speciosum*, *L. longiflorum*, and *L. croceum*. It naturally follows that those species in which this character is most pronounced are better suited for pot culture than those which need to become thoroughly established before they are seen at their best. The market cultivators who grow some of the most popular Lilies by thousands, all recognise the important part that these stem roots play towards the development of the blossoms. W.

TREES AND SHRUBS.

THE FORSYTHIAS.

JUST as winter is merging into spring the Forsythias stand out among the most attractive of our hardy shrubs, their bright yellow blossoms being then borne in the greatest profusion.

From its beauty and adaptability to different methods of treatment, the first place must, I think, be assigned to the Chinese species *Forsythia suspensa*. This may be described as a deciduous shrub of a rambling nature, which, with support, will rise to a considerable height. As a wall plant it is delightful, for if the main branches are secured to the wall and immediately after flowering the long flexible shoots are pruned back to within two or three eyes of the base, it will break freely into growth. The shoots then pushed out should be allowed to dispose themselves at will, and the result will be most pleasing and informal, while in the following year these new growths will be wreathed with flowers. As soon as the flowers are past the plant should be treated as before. Not only is it charming on a wall, but as a quick-growing subject for clothing a trellis or for any similar purpose it is excellent. Planted in a shrubbery border and partially supported by its associates, it is, especially if these are of an evergreen nature, seen to great advantage. Of late years *Forsythia suspensa* has been frequently treated as an open shrub, and in this way it has proved to be highly satisfactory. The method employed is to take young vigorous plants and put them in some good soil. In early spring they are cut back to within 2 or 3 feet of the ground, the result being the production of numerous strong upright shoots, that will the next year give a wealth of blossoms. The after treatment consists of an annual pruning and a liberal top-dressing of manure. *Forsythia suspensa* grown in this fashion forms a yearly feature at Kew, its beauty being enhanced by carpeting the ground beneath with some of the low-growing, blue-flowered bulbs that bloom at the same time. When forced into bloom this *Forsythia* is also valuable for the embellishment of the greenhouse or conservatory. As *F. suspensa* varies a good deal in habit, shape of the leaves, and other particulars, according to the conditions under which it is grown, different names have been applied to slight forms or modifications of it. As *F. Fortunei* and *F. Sieboldii* it is often to be met with in gardens and nurseries. *F. viridissima* forms a far more compact bush than the *F. suspensa*, and the bark of the young branches is green, and not brown, as in

F. suspensa. As a rule *F. viridissima* does not flower so freely as *F. suspensa*, while the blossoms are also a little later in expanding. Another distinguishing feature is the fact that in *F. viridissima* the lanceolate leaves are always entire, whereas in *F. suspensa* they are often lobed. Of *F. viridissima*, there is a variety with variegated leaves, but its ornamental qualities are not of a high order. *F. europaea*, the newest of the Forsythias, attracted a great deal of attention when first introduced from Albania a few years ago. The presence of a member of the genus in that part of the world was in a general way quite unsuspected, and doubts were at first cast upon the matter. It, however, proved to be quite distinct from either of the species above mentioned, but as a garden plant greatly inferior to them. It is a weak growing bush, whose leaves are unusually thick in texture, while the flowers are but sparingly produced. *F. intermedia* is the name given to a valuable hybrid between *F. suspensa* and *F. viridissima*. It was raised and distributed about 20 years ago by Herr Zabel, of Münden, Hanover, who was also the raiser of the delightful *Spiraea arguta*, one of the most beautiful of all the shrubby members of the genus. In habit and other particulars *F. intermedia* is about midway between its parents. Being more shrub-like than *F. suspensa* it is preferred for certain positions. W.

THE ALPINE GARDEN.

AQUILEGIA FLABELLATA.

THIS delightful *Aquilegia*, although it grows only a few inches high, bears flowers which are remarkably large for the size of the plant. Generally they are white, not too cold and clear, but tinged with a soft, creamy shade, which is charming, or they may be shaded a very light blue with a whitish centre. It is difficult to decide which is the prettier of the two shades. The leaves are light green. With regard to the cultivation of the plant, it will flourish in exposed positions, and also in partial or entire shade. It prefers a half-shady position better than any other, and has also a preference for the rockery over the border, but does not mind much where it is placed, being perfectly hardy. The best way to raise a stock of plants is by sowing seeds, in spring, under glass, or in May or June in the open, in shallow drills in a bed of fine soil. Germination will be a little irregular, and some of the seedlings may not appear until the second season. S. Arnott.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

HUTCHINSIA ALPINA.—May I be permitted to fully endorse all that Mr. S. Arnott says about this plant, until he speaks of it as "this North American flower." Even if it has been recorded from "North America," it is a pity to describe such a well-known Alpine plant as "North American" when it grows from one end of the European Alps to the other, and is also common in the Pyrenees, Spain, Jura, Apennines, and Carpathians. There is a great tendency in catalogues and elsewhere to state that some common European plant hails from a remote region of the earth, other than that of which it is characteristic; and it is to be regretted simply on the score of the dissemination of misleading knowledge. One otherwise excellent catalogue of hardy plants was greatly marred in this way. It is quite unnecessary to describe a common European Alpine plant as Japanese or Siberian, or a rock-plant as Algerian which may be far more characteristic of the flora of Southern or Central Europe. Occasionally even British plants have been treated in this way. H. S. Thompson.

THE CRYSTAL PALACE.—Will you permit me, through your columns, to draw attention to the following proposition submitted with good effect to the County, City and Borough Councils of London:—"That the Crystal Palace and ground (when acquired) should constitute London's gift to the Empire; to be maintained at the expense and by the joint controls of the Parliaments in the King's Dominions." The Paddington and Stepney Borough Councils have already concurred in this suggestion. In no case has an adverse view been expressed. Sir Homewood Crawford, City Solicitor, writing from the Guildhall, states that he welcomes this suggestion. Lord Rosebery has stated that he is by no means adverse to the idea. The Duke of Argyll endorses the proposition, and says he hopes that the Crystal Palace may be preserved for its beauty, and because there is no place so good for the people's entertainment. View after view might be given of prominent public men in sympathy with the suggestion. The Prime Ministers of the Overseas Dominions, with but one neutral exception, are in general sympathy with the Crystal Palace as an "Exhibition Empire Centre." *W. A. Bayst, Gascogne, Snakes Lane, Woodford Green, March 16, 1911.*

PITMEN AS GARDENERS.—Having heard of the famous Leeks grown at the little mining town of Cramlington, and having a few hours to spare during a recent visit to Newcastle, I paid a visit to the growers. Never before have I seen such produce. Every garden had its Leek bed, and the spirit of competition was everywhere in the air. It was really an out-season at the time of my visit, but even in January I was able to measure Leeks with a circumference of 10 inches, and three weighed 9½ lbs. I also found myself amongst an army of enthusiastic growers of gigantic stove plants. In house after house belonging to the colliers I saw these unexpected treasures, and, except for the home-built houses, one would have thought he was at Cheltenham amongst Mr. Cypher's famous plants. In one miner's stove I found the following, all in 18 inch pots:—*Bougainvilleas, Stephanotis, Cypripediums, Clerodendrons, Dipladenias, Allamandias, Cologynes, Fuchsias, Ixoras, Eucharis, Anthuriums, Lapagerias, Pelargoniums, Adiantums, Rondoletias, and Hoyas.* Surely nowhere in England could one find another amateur collection such as this. In every greenhouse I found young Leeks and a number of old ones being carefully seeded in pots. Having seen the wonderful strain, I very naturally wanted to procure some of the seed, but, to my surprise, I found it impossible to buy it, as each man seems to have evolved a Leek to suit his method of cultivation, and the strain is as jealously guarded as any trade secret. The best Leeks are always saved for seed, and it is by this means that the strains have reached their excellence. Anyone visiting the North would do well to look up Mr. Robinson and Mr. Cleverly, the two hardy colliers at Shank House Pit, Cramlington. They are a type of gardener and exhibitor whose enthusiasm lies in the friendly competition and not in the prizes. Perhaps an unlimited free coal supply has something to do with the selection of stove plants in the place of greenhouse plants. "*Pem*"

A FEATHERED FRIEND.—May I call attention to the example set by the County Council of Gloucestershire in giving protection to the eggs of the lapwing, and the bird itself, throughout the year, an example which should be followed by other counties, as this harmless and beautiful bird, at one time a common object in all our fields, is now decreasing throughout the country. The lapwing (also known as the peewit and green plover) is the only wild bird in the United Kingdom of which man eats both the eggs and the flesh, and a large trade is done in the exportation of these "table commodities" for consumption in the United States. The bird is

invaluable to the farmer, no other species being so useful in keeping down such pests as snails, wireworms, beetles, aphides, and the larva of various insects which infest Grass, Turnips, Wheat, &c. Everyone is agreed as to its utility, and its only enemies are the selfish gourmands who are responsible for its destruction. *Joseph Collinson, Animals' Friend Society, London.*

BULLFINCHES AND BLACK CURRANT BUDS (see p. 171).—I was much troubled with Bullfinches destroying the buds of Black Currant bushes in these gardens two years ago. Fortunately our plants are not troubled with the mite, so that the birds were not attracted by the extra large buds. Whilst gardening in Sussex I never remember these birds attacking the Black Currant, although mite was very prevalent in the buds, but Gooseberries, Red Currants, Plums, Cherries, and in some seasons Apples, were more or less crippled by them unless preventive measures were adopted. Here they seem to prefer the buds of Black Currants, although they sometimes attack those of the Gooseberry, Damson, Red Currant, and Apple. So far I have seen no traces of them on Cherry trees. *Alec. McKinnon, Clifton Park Gardens, Kilsco, N.B.*

—Black Currant bushes free from mite have been annually attacked in these gardens by Bullfinches, but at a later date than that mentioned by *T. H. B.* The birds appear to prefer the buds when they have expanded sufficiently to show the embryo flowers, and the growth at this stage affords the birds some cover. The lower and inside branches are completely stripped of the buds, so that the soil under the trees is quite green, and this first drew my attention to the damage. *H. J.*

SKIN IRRITATION FROM IVY (see pp 170, 157, 139).—I have suffered for the past 11 years from the same kind of poisoning as described by your correspondent on p. 139. It affects me in the spring, and the only way I can escape infection is by going away from the garden from the first week in April until the second week in June. An expert examined the shrubs and plants here, but he was unable to find anything amongst them likely to cause my trouble. Many people have warned me against Primulas, especially *P. obconica*, but these do not affect me, nor can it be *Rhus Toxicodendron*, as we have no trees of the poison Ivy. I should be glad if your correspondent would send me a small branch of the Ivy which caused the trouble, as there are many kinds of Ivy on our buildings and in the grounds. His symptoms are exactly the same as mine, and I was some years as long as 10 weeks at a time in a agony and confined to my bed. *Thos Usaf.*

LATE-KEEPING APPLES.—Mr. Diver's statement (see p. 157) that Apples must not be stored in heaps, leads me to give my experience. The simplest method for amateurs is to store all late-keeping Apples in drain pipes of 12 inches diameter or larger "second." The pipes may be placed on end on any hard floor with a covering on the top to exclude light and rats. An odd corner of any outhouse will do, where the air is not artificially dried. The pressure is next to nothing, the temperature varies little, and there is no shrivelling, which is so frequently found in a fruit room. I do not find decay spreads from contact, nor is there as much as when fruit is exposed to light. The fruits were placed in during October, and they were turned over from one pipe to another at Christmas, wiping any sorts that sweat badly; they were taken out of the pipes in February, or later, as required. I had five or six bushels of Cox's Orange Pippin which came into use in January, and have lasted until quite recently; I doubt if I found 50 rotten fruits in all. I find no difference in the keeping qualities of early or late-picked Apples, which is an important matter. Market gardeners should test this method for two seasons in larger bins, divided with corrugated iron or bricks, not wood, which would get saturated with moisture and develop fungus. I have not tested the keeping of late Pears, and cannot say whether the more delicate flavour they possess would be affected in these conditions. *A. B. Earle, The Old Hall, Puddington, Neston, Cheshire.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MARCH 14.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Sir Everard im Thurn, Sir John T. D. Llewellyn, Dr. O. Stapf, Dr. J. A. Voelcker, Messrs. C. T. Drury, J. Douglas, A. Worsley, E. M. Holmes, J. T. Bennett-Poe, W. Cuthbertson, J. Fraser, G. Gordon and F. J. Chittenden (hon. sec.).

Primula sinensis (stellata), abnormalities in.—Mr. A. WORSLEY showed flowers of the stellata form of *P. sinensis*, having two to five antipetalous outgrowths at the throat, the flowers being otherwise normal. The outgrowths were similar in structure to the petals, but only about half the size and reversed, i.e., having the dark red surface opposed to the dark red surface of the petals and the paler surface turned towards the centre of the flower (and similar in colour to the outer surface of the corolla).

Green Primrose.—Mr. J. FITZ, of The Frythe Gardens, Welwyn, showed a well-grown plant of the long-known Primrose with virescent petals. In the present instance the petals showed rather more of the leaf-like character than usual, the venation being very distinct. The plant was found growing wild near Welwyn two years ago.

Rhododendron grande.—Sir JOHN LLEWELLYN showed flowers from a seedling *Rhododendron grande* gathered in the open. The plant, with others, had been raised from seed received from the late Sir George King, from Calcutta, but had never before flowered, the flower-buds having always previously been destroyed by frost. All the other plants raised at the same time came into flower six weeks later. The instance is interesting as a persistent and apparently congenital variation from the normal time of flowering, independent of climatic conditions. Similar instances occur in other species of *Rhododendron*, particularly *R. arboreum*.

Disease of Celery.—Mr. CHITTENDEN commented upon the widespread character of, and great loss occasioned by, the disease of Celery due to the fungus *Septoria petroselinii* var. *apii* during the past year. He drew attention to the fact that a considerable amount of Celery "seed" on the market, including samples grown in England and on the Continent, showed the perithecia containing ripe spores of the fungus. KLEBAHN has recently shown that the spores from affected "seed" are capable of reproducing the disease, and as so much of the seed seems likely to contain spores, the desirability of paying special attention to Celery during the coming season is indicated. If the foliage shows the least sign of the disease by the development of small brown spots, the plants should be sprayed with potassium sulphide or with Bordeaux mixture at once, the spraying being repeated if necessary.

Certificates to plants of scientific interest.—Mr. WORSLEY brought forward a resolution upon the question of granting certificates to plants shown before the Committee. The fact that the Botanical Certificate had (erroneously) come to be looked upon as an award to be made to a plant of no decorative or commercial value was commented upon. The actual intention of the Botanical Certificate was to encourage the introduction and cultivation of plants of intrinsic interest or of potential value, and it is, as stated in the *Book of Arrangements*, intended to be awarded to "Plants newly discovered or raised, and of botanical interest irrespective of decorative value." After further discussion, a sub-committee was re-appointed to select plants at each meeting for the full Committee's consideration, the sub-committee consisting of Messrs. J. T. Bennett-Poe, J. Douglas, C. T. Drury, and A. Worsley. The further discussion of the question was adjourned until the next meeting.

LINNEAN SOCIETY.

MARCH 16.—Mr. R. S. Adamson, M.A., gave a lantern demonstration of his communication entitled "An Ecological Study of a Cambridgeshire Woodland," of which the following is an abstract:—

The woodland investigated, Gamlingay Wood, is in the extreme west of Cambridgeshire, situated on boulder clay. This boulder clay gives

rise to two soils, one a heavy, fine grained calcareous clay, and the other a non calcareous loam.

These soils are markedly different, especially in water-contents; the calcareous clay has a large water-content all through the summer, while the loam never gets so wet in winter and dries up very much in summer. Correlated with the differences in the soils, the two types of vegetation are quite different.

Oak (*Quercus pedunculata*) is dominant all over. On the clay beneath the standard trees is a dense shrub-layer consisting mainly of Hazel and Ash, with numerous other species in less quantity. This layer is periodically coppiced and allowed to regenerate naturally; on the loam, shrubs, as a distinct layer, are absent.

The ground floras of the two soils are also quite different. Each can be divided into several societies depending on the interaction of several factors, of which soil-moisture and light-intensity are the most prominent.

The chief plants of the clay flora are:—*Spiraea Ulmaria*, *Deschampsia cespitosa*, *Mercurialis perennis*, and *Primula elatior*; and of the loam: *Pteris aquilina* and *Holcus mollis*.

That part of the wood on the clay is an (Ash)-Oak-Hazel wood, and that on the loam a dry Oak wood.

MANCHESTER AND NORTH OF ENGLAND ORCHID

MARCH 2.—There was an excellent display of Orchids at the meeting held on this date, the finest exhibit being shown by Z. A. WARD, Esq., Northenden. This exhibit included 12 splendid specimens of *Dendrobium Wardianum*, the plants being finely flowered. *Cypripedium* × *Beryl Ward's* variety and *Odontoglossum crispum-Harryana* var. *Emperor* each received First-class Certificates. (Gold Medal.)

J. McCARTNEY, Esq., Bolton (gr. Mr. Holmes), was awarded a Silver Medal for a collection of *Cattleyas*, *Laelio-Cattleyas*, and other Orchids.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Medal for a group in which were several choice hybrid *Odontoglossums* and *Odontiodas*. *Cattleya Trianae* var. *Ralph Sander* received an Award of Merit.

Messrs. CHARLESWORTH & Co., Haywards Heath, staged a bright group, in which we noticed many *Cattleyas*. (Silver Medal.)

Messrs. CYPHER & SONS, Cheltenham, were awarded a Silver Medal for a group consisting of good *Cypripediums*, *Dendrobiums*, and forms of *Lælia anceps alba*.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), received an Award of Merit for *Lælio-Cattleya* × *Bella* var. *alba*.

Mr. J. BIRCHENALL, Alderley Edge, exhibited *Miltonia Endresii* and *Stanhopea Wardii* var. *aurum*, a Botanical Certificate being awarded to the former, and an Award of Merit to the latter plant.

Mr. E. V. Low, Vale Bridge, Haywards Heath, exhibited three handsome forms of *Cattleya Trianae*.

Other exhibitors were Messrs. A. J. KEELING & SONS, Bradford; Mr. W. SHACKLETON, Bradford; and Mr. HINDLEY, Bradford.

HORTICULTURAL CLUB.

LECTURE ON FUNGI.

MARCH 14.—The members of the Horticultural Club had their usual monthly dinner on the above date at the Hotel Windsor, being joined on this occasion by a considerable number of the provincial secretaries of the Royal International Horticultural Exhibition, 1912, who were entertained in that connection. After the dinner, at which Mr. J. Gurney Fowler presided on behalf of both bodies, Mr. A. D. Cotton, of the Kew Herbarium, gave an interesting lecture on Fungi, illustrated by a large number of lantern slides.

At the outset, the lecturer referred to the system of classification of the lower plants. Of the latter, the fungi are divided into a large number of families, of which the Mushrooms or Agarics were best known. These are distinguished by their spores being borne on the surfaces of the thin plates which lined the cap.

He referred next to the parasitic fungi, which derive their sustenance from living matter upon which they prey, whilst others are content with dead matter (saprophytes), though in some cases a fungi proves capable of acting in both rôles.

Of tree-killing parasitic fungi, some only obtain access to the living portion of a tree through a wound in the bark, which suggests the advisability of covering with a good coat of tar such wounds as are caused by chopping and pruning. Others, however, attack the roots, and these are much more insidious, being apt to infect neighbouring trees.

Mr. Cotton then turned from the easily visible fungi to the minute fungi which constitute the "moulds" and are responsible for many of the diseases of plants. Minute as these fungi are they are often extremely beautiful when highly magnified. Many of them produce two kinds of spores, the one, capable of spreading disease during the summer; the other, consisting of resting-spores which lie dormant through the winter, and only start into activity when the growing season recurs. Slides were shown illustrative of both types of spore, and it was pointed out that, by destroying the resting-spores in the winter, cultivators can reduce the spreading of the fungus.

However, as the lecturer pointed out, fungi are by no means all parasitic. They are the organised agents of decay, and perform much indispensable work in destroying the remains of plants and animals and in returning to the earth their constituents.

NATIONAL DAHLIA.

(CONFERENCE MEETING.)

MARCH 17.—A conference on Dahlias was held under the auspices of the National Dahlia Society at Carr's Restaurant, Strand, on this date, when papers were read by Mr. Joseph Cheal and Mr. George Gordon, V.M.H. Mr. Edward Mawley, V.M.H., occupied the chair. Mr. Cheal's paper was on "The Single Dahlia, its Cultivation and Use," of which we publish the following extracts:—

SINGLE DAHLIAS.

The propagation and preparation of the plants is precisely the same as with other Dahlias. Well selected seed should produce a large percentage of really good flowers, but where space is limited and definite colours and heights are required, it is not well to rely upon seedlings, but to employ plants that have been propagated from known varieties.

Single Dahlias may be planted in borders, either in lines or groups of colour, with tall varieties at the back and grading down to quite dwarf plants in front. They are also effective if planted in clumps on grass, and they greatly help to enliven shrubbery borders if a few are planted between the shrubs. Between shrubs, however, the soil is usually impoverished, and it is needful to prepare the holes with fresh soil and manure.

With the object of ascertaining which were really the most effective and up-to-date varieties for display in the garden, a trial was conducted at the Lowfield Nurseries in 1910, for the National Dahlia Society. The Committee after carefully examining the whole of the varieties selected the following for recommendation as the best for profuse flowering, habit of plant, and quality of flowers combined:

- | | |
|--------------------|------------------|
| Cardinal | Owen Thomas |
| Snowdrop | Amy |
| Peggy | Mrs. W. Wood |
| Leslie Seale | Vesuvius |
| Columbine | Rosebank Scarlet |
| Lady Bountiful | Miss Morland |
| Rosy Gem | Fuji Sun |
| Mrs. Joynson Hicks | Winona |
| Butterfly | Ensign |
| Miss Roberts | Morning Glow |
| Kitty | |

Any ordinary soil will do for the Single Dahlia; it should be dug or trenched in autumn, and enriched with a moderate quantity only of manure, and the surface left rough.

The plants should be staked directly after planting. It is better to use three or four small stakes, which will be hidden by the plant than one larger stake.

There is no need to disbud the shoots, but it is important to examine the plants every few days and cut off the fading flowers. If seeds are allowed to form flowering will cease, but if trimmed as advised, the plants will continue to flower profusely until killed by frost.

Black fly will frequently attack the plants during the first few weeks after planting out. To

prevent this the shoots should be syringed with quassia extract, and this insecticide may require to be applied two or three times.

For cut blooms select flowers that are not fully expanded, and before the bees have entered them. Where it is desired to have a stem longer than the flower stalk, remove any leaves that are present, as when these are left on the stem they cause the flowers to drop soon.

The best time to cut the blooms is early in the morning, and the flowers should at once be placed in water, and, if possible, allowed to remain for some time in a cool, shady place.

NORTH OF ENGLAND HORTICULTURAL.

MARCH 22.—The North of England Horticultural Society held the first of the series of monthly meetings on the above date in the Emmanuel Hall, Leeds. The available space in the hall was well filled with a large variety of flowering and other plants, chiefly from trade-firms from different parts of England. A few private growers also staged exhibits.

A large Gold Medal was awarded for a group of well-grown *Hippeastrum* seedlings of three years and upwards, staged by Messrs. R. P. KER & SONS, Liverpool.

Messrs. CUTBUSH & SON, Highgate, London, staged a large stand of hardy plants and Carnations. The Carnations included King George and Lady Miller, which represent a new type of Malmaison. Florence McLeod and Scarlet Glow, both scented perpetual Carnations, were good. (Gold Medal.)

Messrs. W. APTINDALE & SON, Sheffield, received a large Silver-gilt Medal for a splendid exhibit of *Primula obconica grandiflora* in many shades of colour.

Messrs. R. H. BATH, LTD., Wisbech, presented an exhibit consisting chiefly of Narcissus, Tulips, Chionodoxas, Scillas, &c., N. Mme. de Graaff being exceptionally good. (Large Silver Medal.)

Messrs. MANSELL & HATCHER, Rawdon, Yorkshire, were awarded a Gold Medal. Messrs. CHARLESWORTH & Co., Haywards Heath, received a large Silver-gilt Medal; Messrs. CYPHER & SONS, Cheltenham, a Silver-gilt Medal; J. H. CRAVEN, Esq., a Silver-gilt Medal; Messrs. H. A. INNES, Darlington, a large Silver Medal; and Messrs. A. J. KEELING & SON, Bradford, a Silver Medal; in each case for Orchids.

Messrs. YOUNG & Co., Cheltenham, were awarded a Silver Medal for Carnations.

AWARDS TO NOVELTIES.

The awards for new or rare plants made by the Society are termed Northern Diplomas first, second, or third class, in order of merit. Several plants were submitted to the Orchid, Plant, and Floral Committees for inspection. The following awards were made:—

FIRST-CLASS DIPLOMA.

Sophro-Cattleya Wellesleyae, shown by Messrs. J. CYPHER & SONS, Cheltenham.

Brasero-Cattleya Queen Alexandra superba, shown by Messrs. CHARLESWORTH & Co., Sussex. *Odontoglossum Manselle* (O. Vuylstekæ × O. Harryana), from Messrs. MANSELL & HATCHER.

SECOND CLASS DIPLOMA.

Dendrobium plumptonense, from Messrs. MANSELL & HATCHER.

Lycaste Mary Gratrix, from Messrs. MANSELL & HATCHER.

Odontoglossum eximium var. *Lady Wilkinson*, from Major ROGERSON, Harpenden (gr. Mr. Price).

Odontoglossum Phoebe "Glenburn variety," from W. MATHIESON, Esq., Horsforth (gr. Mr. Gilchrist).

Cypripedium Bridgeri, from Messrs. CYPHER & SONS, Cheltenham.

Odontoda Keighlyense var. *gloriosa*, from J. H. CRAVEN, Esq. (gr. Mr. F. Corney).

Narcissus poetaz *Aspasia*, from Messrs. BATH, LTD., Wisbech.

Azalea amona var. from Messrs. R. P. KER & SONS.

Dr. Russell, of Rothamsted, gave an address in the lecture room of the Leeds University at 6.30 p.m. on soil sterilisation. The meeting was largely attended. A verbatim report of the proceedings will be published in the monthly magazine of the Society.

Obituary.

JONATHAN CHILCOTT.—Mr. J. Chilcott, gardener at Ampton Hall, Bury St. Edmunds, died on March 19, after a long illness caused by cancer. He held the position of gardener at Ampton up to the time of his death, having served in that capacity for the past 30 years. Mr. Chilcott served his apprenticeship in the famous Calford Gardens under the late Mr. Peter Grieve, and after acting as journeyman in various other gardens, he returned to Calford as foreman. He left Calford on his appointment at Ampton to the late John Paley, Esq., and has remained in the service of the same family ever since. He leaves a widow, one daughter and one son. The son is gardener at Chipchase Castle, Wark-on-Tyne, Northumberland.

HENRY GADD.—Mr. Henry Gadd, for 40 years gardener at Wollaton Hall, Nottingham, died on March 11, in his 89th year. He was born at Dorking, and at an early age was employed in the gardens at Deepdene. Later, he was engaged in the gardens at Hampton Court, Hereford, and afterwards entered Lord Bradford's service. Eventually, he was appointed gardener to Lord Middleton at Wollaton Hall, Notting-



THE LATE HENRY GADD.

ham, and held this position until his retirement 10 years ago. Mr. Gadd was a skilful all-round gardener, but he specially excelled in plant growing, and won one of the first medals offered in the provinces by the R.H.S. for plants, at the show in Nottingham Park. He was a man of happy, unassuming good nature, and he was energetic in furthering the interests of gardening, especially amongst the younger gardeners who served under him. The funeral took place at Wollaton Cemetery. He leaves one son and one daughter.

MRS. LAMBERT.—We regret to announce the death, on the 10th inst., of Mrs. Lambert, wife of Mr. John Lambert, Powis Castle Gardens, Welshpool, after a long and painful illness.

PROFESSOR FELIX PLATEAU.—In the death of Professor Plateau, Belgium has lost one of her most distinguished men of science. Though primarily an entomologist, Professor Plateau devoted a considerable portion of his time to subjects which stand on the border-line between botany and zoology. Of these researches, those dealing with the mode of attraction of insects to flowers are the best known, and have been referred to more than once in these pages. Pro-

fessor Plateau died at Ghent on March 4 soon after his retirement from the chair of Zoology in the University of that city.

NÖEL BERNARD.—We record with regret the death of Mr. Noël Bernard, professor in the Faculty of Science of Poitiers. Mr. Bernard, who died at the early age of 36, was well known to horticulturists in this country on account of his interesting investigations into the conditions of germination of the seeds of Orchids. As the result of his patient researches he succeeded in isolating and in cultivating the fungi which live in symbiosis with the roots of Orchids, and in the absence of which various Orchid seedlings fail to develop to mature plants. His promising investigations have been from time to time referred to in these pages, and the news of Mr. Bernard's early death will be received with sorrow by all who appreciate the efforts of trained men of science to assist the horticulturist.

ANSWERS TO CORRESPONDENTS.

AMERICAN BLIGHT ON APPLE TREES: *Old Reader.* If the buds are still perfectly dormant wash the shoots with caustic alkali wash. This is composed of 10 lbs. of carbonate of potash and 100 gallons of water, to which 2 or 3 lbs. of soft soap is added to make the wash stick more readily to the trees. This dressing will also destroy other harmful insects that may be present. For destroying American blight during summer and when it is on young wood, washing should be commenced directly the first traces appear. Soft soap and quassia wash may be used, but paraffin emulsion is more effective. If American blight is present on the roots use bi-sulphide of carbon, injecting it into the soil in four places about 2 feet away from the trunk. One fluid ounce of bi-sulphide of carbon is sufficient for a good sized tree. Kamit hoed in about the roots is also recommended.

BOOK: *P. B.* *The Petersburg Standard Ready Reckoner* of prices and sizes for buyers and sellers of timber, price 1s.; William Rider & Son, Ltd., 164, Aldersgate Street, London, E.C.

CAMELLIA LEAF SPOT: *W. G. W.* The markings and spots are caused by *Pestalozzia Guepinii*, a well-known Camellia disease. Spray the plants with a rose-red solution of permanganate of potash. Remove and burn diseased leaves, and keep the air of the greenhouse fairly dry.

CATERPILLARS ON APPLE TREES: *J. L. W.* Small pigs running in the grass beneath trees in an orchard would probably destroy some of the chrysalids of caterpillars, but the simplest plan to check these pests is to spray the trees, when in leaf, with some arsenical or other suitable insecticide.

COBLETUM (CROTON): *H. G.* The plants have no trace of disease, and the trouble must be looked for in some cultural error. Is the house in which they are grown dull and damp?

DAVIDIA INVOLUCRATA: *H. P. L.* No disease is present. The tips of the shoots have not matured properly, and the tips have been killed by the weather. The two past summers have been unfavourable for the ripening of wood of trees.

FIGS WITH BROWN MARKINGS: *J. M.* The Figs are not affected with disease. The disfiguration is due to condensation of moisture caused by extremes of temperature.

LAYERING RHODODENDRONS: *W. E.* Proceed with the layering of the plants at once; the work can also be undertaken in the autumn.

LILY OF THE VALLEY DISEASED: *E. J. B. & Sons.* The roots and crowns are injured by the fungi called *Rhizoctonia*, which was probably present in the soil in which they were temporarily placed. Soaking the soil with 1 liquid ounce of carbolic acid (phenol) to 1 gallon of water will destroy the fungus.

LYCASTE SKINNERI: *M. P.* The brown spots are caused by damp patches of the leaves being chilled at night when the temperature was lower than usual. No disease is present.

MUSHROOMS DISEASED: *A. Williams* and *W. C.* The Mushrooms are attacked by *Hypomyces perniciosis*, which has probably been introduced with the manure. The safest course is to remove the infected soil, and drench the

walls and other parts of the house with sulphate of copper at a strength of 1 lb. to 15 gallons of water.

NAMES OF FRUITS: *C. Ware.* 1, Adams's Pearmain; 2, Lord Lennox; 3, Gascoyne's Scarlet Seedling; 4, Ribston Pippin; 5, a well-kept fruit of Stirling Castle; 6, King of the Pippins.—*J. H.* White Paradise.

NAMES OF PLANTS: *Whitburn.* Rhododendron Nobleanum.—*T. Rogers.* Camellia japonica; we are unable to name garden or florists' varieties.—*J. W.* The Orchid which you describe as having been received from Sarawak appears to be *Dendrobium pogoniatum*, described by Reichenbach in the *Gardeners' Chronicle* in the issue for August 14, 1886, p. 199. Reichenbach named the species from specimens sent by Mr. James O'Brien.—*W. T. S.* 1, *Iris stylosa*; 2, *Billbergia nutans*.—*F. F. H.* 1, *Eria ferruginea*; 2, *Bifrenaria vitellina*; 3, *Odontoglossum Rossii*.—*C. C. S.* 1, *Forsythia viridissima*; 2, *Eupatorium petiolare*.

PEACH SHOOTS DISEASED: *B. C. W.* and *G. H.* The fungus *Botrytis* has attacked imperfectly matured shoots. Spray the trees with sulphide of potassium (liver of sulphur) at a strength of 1 ounce in 3 gallons of water.

RASPBERRIES UNHEALTHY: *G. L. S.* The galls, known as Crown galls, are caused by bacteria. Plants bearing these galls produce only inferior fruit, and may be destroyed. Mix lime with the soil.



THE LATE NOËL BERNARD.

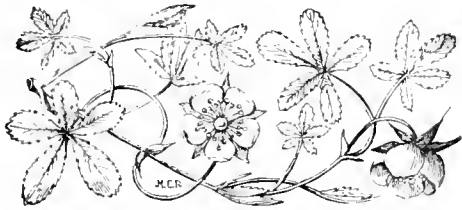
RICHARDIA AND GOOSEBERRY: *R. E. F.* Spray the *Richardia* (Arum) with a rose-red solution of permanganate of potash. The outgrowths on the Gooseberry branches are clusters of adventitious buds, such as sometimes follow hard pruning.

RUSCUS ANDROGYNUS: *C. T. Paris.* This plant is often known as *Semele androgyna* in gardens.

SAXIFRAGAS APICULATA AND BURSERIANA. In our report of Mr. Clarence Elliott's exhibit at the R.H.S. meeting (see p. 172), the colours of these Saxifragas were transposed; the blooms of *S. Burseriana* are white, those of *S. apiculata* yellow.

VINES BLEEDING: *W. W.* You delayed pruning the vines too late in the year (December 30); next season prune them soon after the leaves have fallen. When pruned late, a callus is imperfectly formed over the cut surface, and when the roots start absorbing water in the spring, the callus is insufficient to prevent the sap being forced out of the tissue. Bleeding is most common in Vines which failed to mature in the previous season.

Communications Received.—R. G. (thanks for 1s. 6d. received for R.G.O.F. box).—T. W.—T. B. A. Lanes.—T. C. Surrey.—R. L. H.—W. W. P.—R. A. M.—C. F. C.—K. B.—D. R. W.—T. S.—J. B. H.—H. T. G., Canada.—W. A.—H. W.—E. M.—D. M.—F. J. C.—W. F.—E. B., Reading.—W. A. B., Italy.—G. L. G., Ontario.—C. T. H. W.—A. P.—E. K. T., Rhode Island.—H. S., South Africa.—E. C. B., Ireland.—S. R. C.—F. J.—J. J.—E. S., Germany.—G. G. van T., Holland.



THE

Gardeners' Chronicle

No. 1,266.—SATURDAY, April 1, 1911.

CONTENTS.

Allotments	203	Orchid notes and gleanings—	
Alpine garden, the—		Cymbidium insigne ..	194
Primula Reidii	195	Odontoglossum ..	
Ballantine, Mr. Henry ..	202	"Jeanette"	194
Banks, Sir Joseph	201	Presentation to a horticultural instructor ..	197
Begonias, winter-flowering ..	202	Rhododendrons at Leonardslee	194
Books, notices of—		Roses, Standard Weeping, supports for ..	203
The Rose Annual	202	Roses, the pruning of ..	193
Columella and graft hybrids ..	203	Sargent, Professor, Irish honour for	202
Dendromecon rigidum ..	196	Societies—	
Florists' flowers—		National Gladiolus ..	206
Pansies	197	Royal Horticultural ..	203
Freesia "Conquest"	196	Shropshire Horticultural ..	206
Fruit register—		South Africa, notes from St. James's Park, the proposed alterations in ..	200
The origin of the Loganberry	195	Strawberries, hints on forcing	195
Gardeners and the census	201	Tulipa Kaufmanniana ..	203
Helianthus, red-flowered ..	201	Vines, forcing	203
Honours for English horticulturists	202	Week's work, the—	
Law note	207	Flower garden, the ..	199
L.C.C. park employes, the	201, 202	French garden, the ..	198
Legacy to a gardener ..	201	Fruits under glass ..	197
Memorial to King Edward	200	Hardy fruit garden ..	199
Monte Baldo	197	Kitchen garden, the ..	198
Novelty? what is a ..	203	Orchid houses, the ..	198
Obituary—		Plants under glass ..	199
Fry, Cyril J.	208	Public parks and gardens	199
Hockney, Charles ..	208		
Smith, John	208		
Zacharias, Prof. Edward	208		

ILLUSTRATIONS.

Buddleia officinalis (Supplementary Illustration)	
Freesia "Conquest"	196
Hydrangea hortensis Mme. E. Moullière ..	204
Odontoglossum "Jeanette"	194
Primula Reidii at the Edinburgh Botanic Gardens ..	195
St. James's Park, views in ..	200, 201

THE PRUNING OF ROSES.

THE TEAS.

TEA Roses are admittedly the aristocrats of the Rose garden: and they deserve the title not only because of the purity of their descent, but also on account of their gracious form, delicacy of colouring, and in many cases refinement of perfume. They also flower more continuously than any other Rose, except the Chinas, which equal them in this respect.

Shirley Hibberd thought them to have been "designed by Nature to furnish the highest test of skill and devotion in Rose-culture, and a standing proof to all would-be rosarians that the cultivation of Roses does not merely consist in first buying the plants and then sticking them in the ground," and he declined to admit the enthusiasm of an amateur until he could thoroughly appreciate the beauties of the Teas and show himself capable of growing them to perfection. The continuity of blossom in the Tea Rose is attained through the eagerness of the buds, which start into growth down the stem before the flowers at the top have fallen. In consequence of this, when we come to prune we find, as a rule, two things before us: first, that our plant is much branched, carrying a lot of rather weak and spindly wood,

and, secondly, a quantity of unripe growths, which are soft and sappy and oftener than not somewhat injured by frost. Perhaps it is on this account that many amateurs, who have attained a fair degree of skill in pruning Hybrid Perpetuals and Hybrid Teas, feel less confidence as to how they should proceed when confronted with a well-grown Tea Rose. They have also probably had the misfortune to have read or heard that Teas will do well with only moderate pruning and that some of the best blooms will often proceed from thin and spindly growths. Now both statements are in a measure true. Teas will break and flower well when little pruning has been done if the branches left have been uninjured by frost, and there is not quite so much danger in allowing old wood to remain on Teas as there is in the case of the Hybrid Teas. Indeed, so readily are they excited that the buds of the old wood, if the latter is untouched by frost, will generally start into growth should necessity arise, and therefore if in any year the stem has been injured, or its retention seems undesirable, it is fairly safe to cut back even into the old wood. It is also true that we often find a good flower from a rather spindly stem, but I think it must always be a stem of the current year's growth: the spindly stem of last year will give nothing worth having, and as for the unripe and sappy wood, it is no good at all. The first thing to do is to remove both. Modern Tea Roses vary somewhat in their habit of growth, and may be roughly divided into six classes—(1) Those of spreading and very branching habit, of which Marie van Houtte is a typical example; (2) Roses like the Cochetts, which tend to produce strong young shoots from the base, upright at first, and afterwards bending over; (3) Roses with much China blood in them, such as Princess de Sagan; (4) Others which are very near the Hybrid Teas, e.g., Mrs. Myles Kennedy and Harry Kirk; (5) The Dijon Teas; and (6) Climbing or Pillar Roses such as Papillon.

(1) The Marie van Houtte group is probably the largest, including as it does most of the best decorative and bedding Teas such as Paula, as well as many that are largely used for exhibition. This group gives us the greatest choice of method. After removing the weak spray and sappy growths, and also any wood that has been injured by frost, we have first to consider what we have left, and then what effect we want to obtain. After a hard winter it may be that our first operation has already reduced the Rose to ground level, and the second question will not arise. Even so it will matter little, for, provided the plants were properly earthed up with nice dry soil (not with manure) in the autumn, the injury will seldom have gone further, and they will soon shoot vigorously again. Our Teas are fortunately a hardier race than they were in Shirley Hibberd's day. If the only object is exhibition blooms, hard pruning should be the rule. Bedding Roses are treated in much the same way, but need not be pruned quite so hard, greater attention being paid to leaving

outward pointing buds, whereas, for exhibition Roses, the object is to prune to a sound bud with little regard to its direction. The main difference between the two will be made later on, when it comes to disbudding. But, putting aside exhibition and bedding Roses, there is a good deal to be thought of. If the removal of weak and sappy wood has left a fairly well balanced bush, and there is plenty of room, we may confine the pruning to a little judicious thinning and shortening, but if, as often happens, only one side of the tree is left intact then care must be directed to pruning to buds pointing in a direction likely to redress the balance of the plant. Again, the tree may form one of a group which requires similar treatment, and, if so, it is well to go over the whole group, cutting out the weak and sappy wood. After doing this, we stop and take a good look at the trees as a whole before deciding how to proceed.

(2) The chief modification of treatment for Roses of the Maman Cochet group consists in the need for critical examination of the strong shoots pushed up from the base during the previous summer. Those that are well ripened and uninjured by frost are excellent, but the production of these strong basal shoots goes on well into the autumn, especially in such a year as the last, and any that are soft and unripe are valueless. There is some difference of opinion as to the pruning these Roses should receive, some amateurs of experience advising very light pruning. Though it is not absolutely necessary, my own practice is to remove as much as possible of the wood which is more than a year old, and to prune fairly hard, seldom leaving more than about 6 inches of stem above the ground.

(3) The Tea Roses which nearly approach the Chinas are best treated like the latter. Such are Princess de Sagan, Souvenir de Catherine Guillot, Souvenir de J. B. Guillot, Souvenir de Wm. Robinson, Betty Berkeley, and some half-a-dozen others.

(4) Harry Kirk, Mrs. Myles Kennedy, and Roses near the Hybrid Teas in character are, I consider, best pruned fairly closely, say, to three or four eyes of the previous year's growth.

(5) The Dijon Teas, e.g., Mme. Berard and Gloire de Dijon, are a class by themselves. They make fine massive bushes or big heads as standards, also good wall Roses, and may do well pegged down. Some shoots may be left 6 or 7 feet long, others cut to 2 or 3 feet. Mme. Jules Gravereaux may be treated in this way, and the pegging down method is convenient for treating this Rose. By this means, the flowers intended for exhibition are more easily protected than is possible when this Rose is grown in any other way. That beautiful Rose, Billard et Barré belongs to this section, but requires protection, and I have found the most successful way of growing this Rose is under the overhanging of a thatched summer-house.

(6) The pruning of the free-growing climbing Teas like Papillon and Noella

Nabonmand may be confined to spurring in the weak side shoots and thinning out old wood and shoots that are not required. They are a small group, but by no means the least decorative in the garden.

CHINA ROSES.

For pruning purposes the China Roses should be dealt with rather in the way our friends the officers of the Royal Navy treat their facial adornment. It is a case of "all or none." By cutting these Roses down to the ground we get a fine growth, a fair summer flowering, and a grand display in autumn. However, it is worth while treating a certain number of them with practically no pruning beyond the removal of dead wood and cutting off the old flower stems. The unpruned Chinas will begin to flower in May or the beginning of June, will give a mass of flowers in the early summer, and will also go

The two sections require no special difference in pruning, the point to remember being that they make their flowers on short laterals produced from the growths of the previous year. It is, therefore, useless to prune them hard, as this would produce fine, vigorous growth, but not flowers, till the following year. It is only in the first year after planting that this is to be done and the flowers sacrificed. Afterwards, the object is to preserve as much of the good wood of the previous summer as possible, removing older wood, except where it is required for one of two purposes. The first is when the old wood is wanted to carry good young shoots proceeding from it. Where this is the case, all that part of the old stem beyond the point of origin of the younger shoot may be cut away. The second case is when a proportion of the older wood is required on wall or fence to fill a gap. Here, so much as is necessary may be kept, but

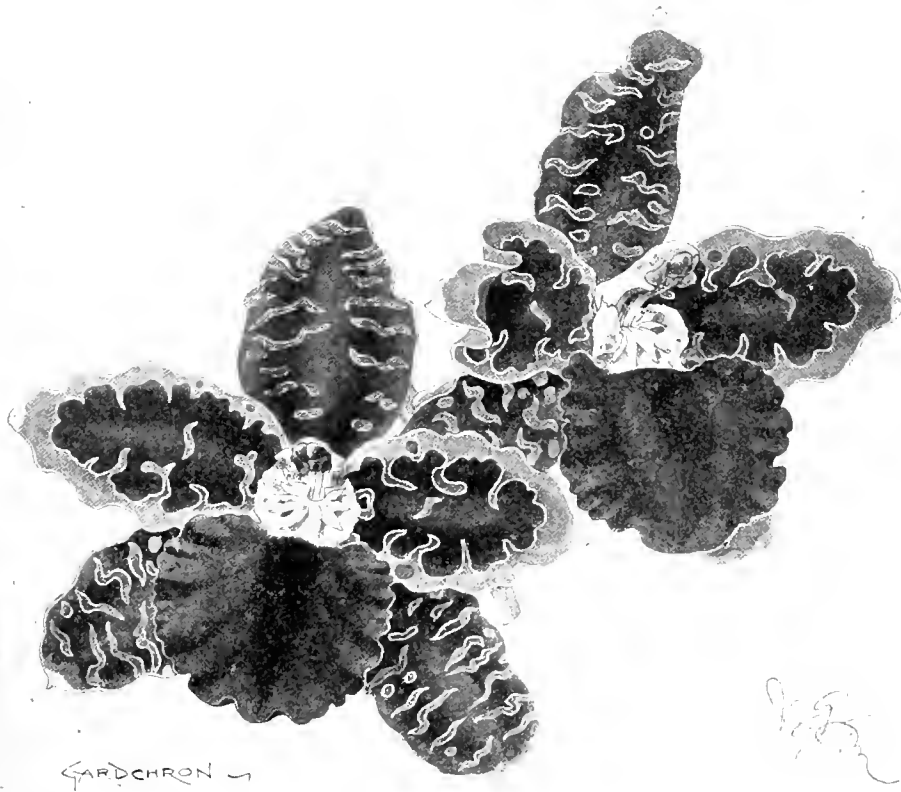


FIG. 86.—ODONTOGLOSSUM "JEANETTE."

on flowering late. Many of the taller Chinas, especially the old Blush monthly Rose and Lauriette Messimy, if allowed to grow, will make fine, big bushes, and all gardens should have a few of these varieties. This behaviour must not, however, be expected from those Chinas with a large proportion of *R. semperflorens* blood in them, such as Fabvier. On the other hand these small-growing Chinas, when pruned hard, make some of the very best of bedding Roses.

NOISETTE ROSES.

The Noisettes are a race of climbing or semi-climbing habit, and may be divided into two groups: (1) the strong growers, like Climbing Aimee Vibert and Marechal Niel, and (2) those of moderate growth, such as William Allen Richardson, L'Edal and Mme. Alfred Carriere. Even the moderate growers, however, when trained to wall, fence or pillars, may be built up to a considerable size.

the laterals, which carried the flowers of the previous summer, are cut back to one or two eyes.

A few of the Noisettes are tender. L'Amour, Marechal Niel and Fortune's Yellow are all really best when grown under glass—at least anywhere north of London. With the exception of Fortune's Yellow, which only flowers once, they are all good autumnals. The foliage of Climbing Aimee Vibert is almost the finest of any Rose we have, dark green, glossy and lasting; it looks well all the year, while Mme. Alfred Carriere has fairly large and beautiful flowers, most delicately perfumed, and is one of the best all round white Roses in the garden. Both these Roses are hardy, and seldom give much difficulty, but in most of the others a careful search should be made at pruning time for bad wood. Unsound wood, whether affected by frost or fungus is no good to anyone, and must be removed and burnt forthwith. *White Rose.*

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM INSIGNE (ROLFE). (SYN. SANDERI).

CYMBIDIUM INSIGNE was discovered by M. Bronckart, a French merchant, on the high plateau of Southern Annam, at about 5,000 feet elevation, and, as its habitat is quite different from that of any other known *Cymbidium*, it may be of interest to record some particulars of the district. The plant is met with on grass slopes that are sparsely shaded by *Pinus Merkusii*, and almost entirely covered by high grass, which makes it a difficult matter to detect the plants when out of bloom. Its favoured haunts are deep-lying moors, where water is constantly flowing, and where the grass is not burned off each year. This *Cymbidium* should, therefore, be treated more like an aquatic than a terrestrial plant. The roots are intermingled with a thick layer of Fern roots, the pseudo-bulbs being almost entirely covered with *Sphagnum*-moss. The long spikes, bearing 15 to 20 noble rose-coloured flowers, make their appearance in the dry months from December to February. The rest of the year is more or less rainy. The following table of temperatures, taken from the diary of the French official in charge of the hill tribes, gives the records for the year 1910:—

	Minimum. Fabr. degrees.	Maximum. Fabr. degrees.
January ...	41-56	68-77
February ...	50-58	66-81
March ...	43-58	72-79
April ...	50-59	68-81
May ...	52-61	70-81
June ...	56-61	66-79
July ...	52-61	66-81
August ...	54-61	72-79
September ...	58-61	67-76
October ...	56-61	68-77
November ...	45-59	67-76
December ...	41-58	61-76

C. Roebeler, Orchid Collector, Saigon.

ODONTOGLOSSUM "JEANETTE."

Our illustration (fig. 86) represents *Odontoglossum "Jeanette,"* a hybrid from *O. Rossii rubescens* and *O. amabile heatonense*, raised by Messrs. Charlesworth & Co., Haywards Heath, who were awarded a First-class Certificate for the plant at the Royal Horticultural Society's meeting on March 14 last. It will be noticed that one of the parents was Messrs. Charlesworth's fine form of *O. amabile* (*O. crispum* blotched variety × *O. caspo-Harryman*), and it is interesting to trace in *O. "Jeanette"* the features of all the species concerned in its production. The flower is of firm texture, a character inherited from *O. Harryman*; the sepals and petals have a rose-coloured ground, the markings being claret-purple. A remarkable feature is the broadly-expanded, deep, carmine-rose labellum, with its clear-yellow base and crest. The plant has passed into the collection of J. Garney Fowler, Esq., chairman of the R.H.S. Orchid Committee.

RHODODENDRONS AT LEONARDSLEE.

THE early-flowering Rhododendrons have been especially fine this season at Leonardslee, and *R. peacock* in particular has produced a gorgeous display of blossoms. This species flowers at a season when few other subjects are in bloom, and it may be planted in beds or borders as well as in shrubberies. The plant grows freely, and soon forms a well shaped bush. At Leonardslee we have more than 100 specimens, some planted in groups, others as isolated plants. The colour of the blooms is lilac-purple approaching mauve. Plants may be increased either from seeds or layers.

Large trees of *R. Nobleanum* have been in flower since Christmas, affording a grand spectacle. The trusses are useful as cut blooms, the

flower-buds expanding when the shoots are placed in water. *R. dahuricum* is a rather slender-growing plant, with small leaves and flowers which are produced throughout nearly the whole of the winter. The blossoms are fragrant. *R. barbatum* is another early-flowering species, producing compact trusses of brilliant, scarlet flowers. A group of the plants affords a striking spectacle when in bloom. *R. ciliatum* is one of the freest flowering of the genus. It is particularly effective as an edging to other shrubs. Specimens 6 inches high flower quite well, and a good plant forms a compact bush about 2 feet high. The blooms are a pale blush-pink colour. Seedlings will flower in their third year, and the plants being valuable for forcing into bloom, a stock should be raised annually, either from seeds or layers. *R. arboreum* in its numerous varieties furnishes a wide selection of attractive flowering shrubs at this season. The variety Mrs. Henry Shilson has blooms of a beautiful shade of pink, such as is seen in Rose La France. The well-formed trusses are of a very large size, and are set off by handsome foliage.

All the species of *Rhododendron* enumerated should receive annually a top-dressing of leaf soil and cow-dung with plenty of grit added. During hot, dry weather a good watering overhead is of assistance to the plants, as they are all shallow rooting subjects. See that the seed-vessels are removed, for they exhaust the energies of the shoots, and for the same reason it is well to remove some of the flower-buds when the trusses are extra numerous. *W. A. Cook, Leonardslce Gardens, Horsham, Sussex.*

FRUIT REGISTER.

THE ORIGIN OF THE LOGANBERRY.

In 1880, Judge J. H. Logan, of Santa Cruz, California, planted every variety of Blackberry and Raspberry he could obtain. Among these were planted the Texas Early Blackberry (*Rubus villosus*) and the Californian Dewberry (*Rubus ursinus*, a sub-variety of *R. canadensis*, a two-sexed variety). These were planted side by side with the intention of trying to secure a hybrid. Next to these was a Red Antwerp Raspberry (*Rubus idæus*). In 1881 the plants bore fruit, and the seed of the *Rubus ursinus* was taken and sown in August, 1881. About 300 seedlings grew. They were very similar to one another, but in foliage and came they were unlike any that Judge Logan had before seen.

In the spring of 1883 he noticed one seedling unlike the others, and having a striking resemblance to the Raspberry; this was the "Loganberry." In May of that year the berries began to ripen.

Loganberry was a cross between *Ursinus* seed and Raspberry pollen; the other plants of the same planting were *Ursinus* seed, crossed with pollen of Texas Early. This gave rise to two notable plants, the "Mammoth," the berries of which reach 2½ inches long, and the "Logan Blackberry," a marvellous bearer in its native land, yielding up to 100 lbs. from one bush. These two Blackberries, in their early years, looked alike, but later on they developed characters that separated them into two distinct sub-varieties. These Blackberries are earlier than other sorts, which was one of the ideals aimed at by the raiser. The seeds of the Loganberry produce seedlings, but the fruit is generally red and small, and, except in rare cases, is worthless; perhaps one in a thousand may be found equal to the parent. Unlike *Ursinus*, the flowers of Loganberry are uniformly perfect, requiring no pollen from any other plant in order to set fruit. Like other American Blackberries the Loganberry is propagated by tips rooting in the ground. The best way to treat the fruit of the Loganberry is to place it, when mature, in sugar for 24 hours, and then eat it.

Judge Logan finds that the Loganberry thrives better in Oregon and Washington States than in California, where it originated. He also finds that the two Blackberries, "Mammoth" and "Logan Blackberry," yield heavier crops of fruit, and require less frequent replanting than the Loganberry in California.

The above is an abstract of a longer article in the *Pacific Rural Press* for September 25, 1909 (published in San Francisco), written by Judge Logan, and kindly sent to me by him. *Cecil H. Hooper, Wye, Kent.*

THE ALPINE GARDEN.

PRIMULA REIDII.

WHEN in flower this species always attracts notice. It has been known to cultivation for many years, but is still a rare plant in gardens. Being a high alpine of the Western Himalaya, at an elevation of from 12,000 feet to 13,000 feet, the difficulty found in cultivating the plant in our changeable climatic conditions is not surprising. Grown in a cold frame it may be managed quite easily, and requires little more attention than is given to the ordinary run of alpine *Primulas*. At Edinburgh we find it is best to keep the plants a little on the dry side during the winter, but to give copious supplies of water while the plant is in growth in summer. If planted in the rock garden, the precaution of placing a piece of glass over the place where it is growing may help to lengthen the life of the plant. Although it is hardly a biennial, it is best treated as such in cultivation. A few flowers should be pollinated and seedlings raised every year to take the place of the plants that have flowered. As shown in the illustration (fig. 37), the foliage and calyces

material. This should be composed of a medium loam, mixed with an equal portion of decayed stable manure, or with some good chemical manure, using three or four times the quantity usually incorporated with potting soil. This top-dressing will be sufficient for the plants until they flower.

The best position for the shelves is about 2 feet from the glass, and away from any draughty ventilators. Shelves placed high on the back wall of lean-to vineries are subject to draughts, and the plants do not do well there, becoming too often subject to red spider. A shelf hanging from the rafters over the gangway, or one in the front of the house, affords a much better place for the plants.

An old fashioned method, and one to be commended, is to stand the plants on a mixture of loam and manure about 1 inch thick, laid upon the shelves. This feeds the roots that find their way through the bottoms of the pots. Shelves to be used in this way should have a ledger placed on each edge to keep the compost from washing away.

To bring them forward quickly the plants may be placed in considerable heat, but the flavour of the fruit will suffer if a very high temperature



FIG. 37.—*PRIMULA REIDII* IN THE ROYAL BOTANICAL GARDENS, EDINBURGH.

are hairy and the spikes and peduncles are covered with a dense mealy covering. The species was named by Mr. Duthie after Mr. Reid, and an interesting account of its discovery in 1864 may be found in the *Gardeners' Chronicle*, vol. XXV. (1886), p. 277. *R. L. Harrow, Royal Botanic Garden, Edinburgh.*

HINTS ON FORCING STRAWBERRIES.

THE plants intended for forcing should not be suddenly introduced into a high temperature. In all probability, they were stored in a cold frame during the early winter months, and when carried into the houses they should be placed for a few weeks in a temperature of 50°. From this they may be moved into a moderate forcing house, or to a vinery that has already been started.

Upon moving the plants into these warmer quarters, it is an excellent plan to give them a good top-dressing. Scrape over the surface soil of each pot with a pointed stick, and remove enough of it to make room for ½ inch of new

is maintained. The plants may be removed to a cooler house, such as a Peach house well started, just before they come into bloom, or when the fruit is well set. Of course no compost should be placed under the pots until they are established in their fruiting position.

If the weather is sunny, and the ventilators can be widely opened, bees will probably enter the house in sufficient numbers to fertilize the flowers. Failing this, it is a good plan to effect the operation by other means. They may be gone over with a camel's hair brush, lightly touching each bloom, or a rabbit's tail on the end of a long stick will prove an effective tool, and will save much climbing of steps.

The Strawberry is a somewhat gross feeder, and has to do a lot of work in a little time; consequently it should be fed liberally. Manure water, either animal or artificial, should be given two or three times a week, and may be varied with a dose of soot water. Nothing is gained by using these stimulants at too great a strength, and "little and often" should be the order of procedure. For obvious reasons, stable and farm-yard manures should not be used too fresh when the fruit approaches full development.

Thinning the fruit is an important question that must be decided by the requirements of the individual cultivator. If very fine fruit is desired, cut away all the smaller and later fruits after from 6 to 10 have proved themselves to be well set, but a larger number of fair-sized fruits can be produced if the plants are well managed.

On sunny days the plants will take a large quantity of water, and it is well to look them over again towards evening, so that none remains in a parched state all night.

Strawberries under glass are particularly liable to suffer from green fly and red spider. If it is not convenient to fumigate the house, the green fly can be sprayed with any proven insecticide in weak solution. Spraying the plants from below with pure water, so as to well moisten the under surface of the leaves, will keep red spider in check, but this should be discontinued when the fruit begins to colour.

Any early variety of Strawberry may be forced, but the one that produces good fruit with the greatest ease, according to my own experience, is the Royal Sovereign. The good old variety, Keen's Seedling, is also very reliable for forcing, and Vicountesse Hericart de Thuy is much appreciated by those who like a fruit with a rich, brisk flavour. *T. H. World.*

PLANT NOTES.

DENDROMECON RIGIDUM.

I HAVE rarely seen this beautiful plant out of flower, and, during the months of June and July, its blossom is a glorious sight. Though not quite hardy in Great Britain, except in Cornwall and Ireland, it forms an ideal plant for training against the back wall of a cool greenhouse or corridor. It is well worth growing if only for producing a supply of cut flowers, though the blooms must not be allowed to flag before their stalks are placed in water. The rarity of this plant in gardens is no doubt due to the difficulty experienced in its propagation, of which I will relate my experience. I have cultivated it for the past six years, and last season I reared 80 plants out of a possible 400, but five years ago I flowered 12 plants out of 36, though in this case the plants were grown under better weather conditions. Like other members of the Poppy family, this *Dendromecon* dislikes disturbance at the roots. The best method of propagation is by cuttings of well ripened shoots cut into lengths with three internodes, one joint only being inserted below the soil. The shoot should be solid and quite firm; failing this, young but well-ripened tips of the growths form the next best cuttings. They should be inserted singly in 2½ inch pots filled with a mixture of fibrous loam, leaf-mould and sand. The cutting pots should be plunged in cocoanut fibre, in a close propagating case, or under a bell glass, in a temperature of about 60°, taking care that they are not watered overhead. When sufficiently rooted, the cuttings should be potted in 4½-inch pots and kept growing until they are of a convenient size for planting out. Once established, the plant is a very quick grower. The soil should be mixed with some good, rough, fibrous loam, leaf-mould and old mortar rubbish; the last is very important. A specimen under my care planted in this mixture made shoots 8 to 10 feet in length during a single season, and, at the time of writing, the specimen reaches a height of 14 feet and is 9 feet in width, with probably 1,000 flowering shoots. In order to find out the nature of the roots, I dug out a trench 30 inches away from the main stem of this plant, but I had to excavate the soil close to the main stem before I exposed any of them. They grew straight down, well below the foundations of the wall. I filled the hole with fresh loam and mortar rubbish, and from that time, a year ago, the plant has been afforded little if any water at the roots. *W. S.*

SOUTH AFRICA.

GARDENING EMPLOYMENT IN THE SOUTH AFRICAN COLONIES.

ADVERTISEMENTS appear from time to time in the *Gardeners' Chronicle* offering situations in gardens, with wages as low as £4 per month. My object in writing this letter is to warn gardeners from accepting such offers.

A sum of £4 per month and all found may appear a tempting offer, but many of the natives

able dwelling for a gardener costing from £5 to £7 10s. per month.

In Natal, and in many parts of Cape Colony, a reduction of about one-third may be made in the figures given above. Unless authentic information is to hand regarding the situation offered, it is advisable to have nothing to do with such places. These notes are not intended to deter gardeners from coming to South Africa, as many come out here and do much better than they could ever hope to do at home, but are written to warn the inexperienced from having anything to do with those offering wages, with



FIG. 88.—FREESIA "CONQUEST": COLOUR OF FLOWERS MAGENTA AND WHITE.

here earn more than that sum. Gardening situations in this country are few and far between, most of the work being done by natives or Indians, therefore, when a young gardener lands here almost penniless, after the long and costly journey—which is the condition in which most of them land—he is almost forced to stay in the situation he has accepted, be it never so uncongenial.

In most parts of the Transvaal and the Orange River Colony, the cost of board and lodgings ranges from £6 to £8 per month, and other things are correspondingly dear. No one should accept a situation in either of these Colonies for less than from £12 to £15 per month. A married man should not have less than £17 10s. to £20 per month, as house-rent is very high, a suit-

restrictions, which anyone knowing the country would not accept. *H. Sharp, Curator of Public Parks, Krugersdorp, Transvaal.*

A COLOURED FREESIA.

MR. C. VAN TUBERGEN, Haarlem, sends us flowers of a variety of *Freesia* which he calls "Conquest" (see fig. 88), and which he describes as the best he has raised up to the present. The plants grow tall and strong, are wonderfully free-flowering, and the flowers have a white tube with magenta-coloured segments of lip. The colour is more pronounced than in any *Freesia* we have seen. This variety has been obtained by inter-crossing the best of what are known as the "Tubergeni" *Freesias*. *C.*

MONTE BALDO.

MONTE BALDO is, of course, the Mecca of the botanist. Countless as the stars appear to be the species and beautiful varieties named "bal-densis" and one burns to explore so prolific a hill. Monte Baldo is a long ridge of limestone, running due north and south, like a wall or rampart, holding in the Lake of Garda on the east. The ridge is mainly grassy, till limestone screes and ridges are reached near the top, and does not exceed 7,000 or 8,000 feet at its highest point. From its northern extremity you look up into the Dolomites and the great snows of Adamello and all the white wilderness of the Alps; from its southern end, you gaze straight down upon Verona, and out over all the vastness of the Lombard Plain. From the neighbourhood, Monte Baldo is too like a long ridge turned up by a giant spade to be very impressive; you gather its full splendour only when you look up to its colossal mass from the walls of Verona, far away down in the plain.

Monte Baldo is not easy of access. However, when at last you have reached it, the inn at Ferrara di Baldo is delightful, though the needs of life are there most salutarily reduced to meat, wine, bread, and cherries; four clean, white walls, a roof, a bed, and a tiled floor. Thence you go straight up the enormous side of Baldo and along its ridge. The climb is arduous and dull. I sighted *Pæonia peregrina* (?) in seed, and *Cyclamen europæum* was scattered everywhere among the open screes of limestone in a lavish loveliness not to be imagined. Otherwise, on August 5 there were no flowers of value that one could expect so low down. On one rock, and on one rock only (Baldo is all limestone) I came on a bush about a foot high of *Daphne alpina*. This was thick with orange-coloured berries, and seedlings, too, were sprouting thickly from all the massy ledges of the boulder. And it seems so sad a waste that this squinky-flowered little white *Daphne*, least beautiful of its European kin, should be the only one of the family, apparently, to produce seed abundantly and germinate with readiness.

Until one reaches the grassy ridge, there is nothing more to note, though *Primula spectabilis* and other beauties would clearly glorify all the sward in spring. Up above, at the top, *Linum austriacum* lingers in bloom, and *Campylopus barbata uniflora*. But, if one goes collecting in August on such medium-sized mountains, it must always be in search of particular species, not of any general display. I pursued the ridge along the grass, until, as the mountain rose, little cliffs began to fall away on its southern face. On to these I immediately diverged, to be rewarded by *Primula Auricula albo-marginata*, *P. spectabilis*, *Saxifraga caesia*, and *Ranunculus anemonoides Kernerianus*. There was also a form of *Saxifraga aizoon*, so grey and so microscopically small that again and again its tufts from afar inspired me with a wild wonder as to whether they were not *Saxifraga tombeanensis* or *S. diapensioides*. It is certainly a most exquisite diminutive, if only it does not wax fat in the garden, as I fear it may.

I climbed the cliff and came out on the top of the ridge again, which here was a flat and very stony sward. This was almost entirely composed of *Primula spectabilis*, *Gentiana Clusii*, *Ranunculus anemonoides Kernerianus* and *Geranium argenteum*. Only the *Geranium*, of course, was in flower; it made a wonderful sight. For now it is abundant all along the ridge, making huge old tufts in open silt-pans here and there, but sheeting all the long, vast, lawn-slopes with a frosting of silver, dense and flat, on which lie scattered those immense flowers of tenderest rose feathered with darker lines. Variation in colour, though, seemed extraordinarily rare. I ransacked the place for an albino; but found no such thing. We had to console ourselves by imagining that here and there a flower was a trifle pinker than the rest, and its lines a little heavier.

The *Ranunculus* was over: the one fading

flower we found awoke great qualms. It was little and pale and dull; but *R. anemonoides* and its form *Kernerianus* are among the gorgeous of their race; with huge, many-petalled flowers like a Star Anemone, of creamy, pearly pinks, the variety *Kernerianus* is notable in that the whole plant—short flower-stem, lovely, glaucous, rue-like little leaves, and big flower like a rosy *Anemone blanda*, all lie firmly appressed to the ground quite flat, or very nearly. It lives a good deal higher up than the type *S. anemonoides*, which I have never collected, but which is said to occur only in wet, stony places among the Pine woods at about 2,000 feet. Not only does Baldo give a home to this rare and treasured *R. Kernerianus*, but it also gladdened my heart by yielding me abundantly (though not in very fine or bushy form) my dearly-beloved *R. alpestris*, the lack of which had so far been the one petal wanting in the perfect Rose of my summer's tour.

After this we lost our way, and clouds came down and thunder roared, and the world vanished. We found ourselves at last in a stony hollow, begirt with precipices, round which the thunders rolled and reverberated awfully. Here, there was *Rhodothamnus*, but little else. And so we toiled up to the Refuge, arriving only just in time, for in another moment the heavens were loosed. This is why my reminiscences of Baldo are truncated, and will have to be completed another year. For, after being pent up in the Refuge for hours, among a crowd of Italian artists, we, desperately, seeing no chance of a "lift," bolted away through the storm over an arête, where the wind and hail were like razors. And it was our last, worst bitterness as we went to see *Phyteuma comosum*, which we had badly wanted and never sighted all day, now flopping at us in dark derision from all the cliffs that impended from arête over the slope below.

Reginald Farrer.

FLORISTS' FLOWERS.

PANSIES.

THE older florists recommended that immediately cuttings of Pansies had formed roots, the top of the shoot should be pinched out. This caused the plants to break into growth at the bottom, and when spring came, instead of consisting of a single shoot, they bore three at least. Many of the plants sent out by modern nurserymen have not been so treated, and, therefore, they require very careful handling. Buyers should insist on as much soil as will hang to the roots being always sent with the plants. No plant suffers more than a Pansy if all the soil is shaken from its roots, and it has to be sent a journey in that condition. Beds should have been prepared for planting some time ago, and old, well-decayed manure and leaf-soil should have been liberally applied. Plant moderately deep and firmly—there is nothing to equal pressure by the fingers applied to the soil surrounding the plant to make it firm. All blooms and buds must be removed and kept removed until the plants get established. They ought to be well watered, and specially valuable varieties should be shaded from strong sunshine for a few days. This can be done by placing inverted pots over them for an hour or two at the hottest part of the day. When plants have been propagated at home, and have only to be moved from the frame to the garden, failure seldom occurs, but in most establishments where Pansies are grown a few new varieties are bought in every year to keep the collection up-to-date. P. S.

PRESENTATION TO A HORTICULTURAL INSTRUCTOR.—MR. C. R. LAWRENCE, who is leaving Hampshire, where he has been engaged as horticultural instructor for the past 4½ years, has received eight presentations from horticultural societies and other bodies interested in gardening in the county. The members of the Basingstoke and District Gardeners' and the Winchester Gardeners' Societies have made presentations, also various schools in the county where he has instructed the pupils in gardening. Mr. LAWRENCE is leaving to take up a similar appointment in Northamptonshire.



FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VISCOUNT GIBBS, Aldenham House, Hertfordshire.

VINES.—In the mid-season vineries, disbud-ding of the growths will now need very frequent attention. The disbud-ding should be done whilst the growths are still in a young state, leaving the strongest growth and selecting it as near to the rod as possible in order to prevent undue elongation of the spurs. With the lengthening days and increased sunshine, both damping and ventilation will need to be commenced earlier in the day, and require more frequent attention during the whole day. Admit air freely to the house whenever the weather conditions will allow, but, if the weather is dull, close the ventilators very early in the afternoon. On bright days they may be allowed to remain open for an hour or so longer. Vines which are growing freely and already showing the bunches should be stopped at two nodes beyond the flowers; but if the space between the rods does not admit of this elongation of laterals, then stop the growths at one node beyond the fruit. This stopping should be commenced as early as possible, and carried out at intervals in order not to cause a severe check. Some of the unpromising bunches may also be removed at once, if the number of bunches appears more than a good crop. As the shoots incline towards the glass, attention must be directed to drawing them to the trellis, an operation which requires delicate handling, lest any of them are broken at the base. Unless there is a danger of the shoots being scalded through pressing against the glass or suffering during frosty nights, I prefer to let them remain until the bunches are set and the growth becomes harder. An atmospheric temperature at night of 60° to 65° should be maintained, and the house should be damped down last thing at night whenever it appears necessary, which will depend upon the construction of the house. Where the paths are of soil or of iron gratings are used, it is not so important to give this damping as in other cases where the paths are of stone, especially if these are placed over the main or water pipes, but, as a rule, night dampings are very beneficial. When the flowering period arrives, the house must be kept drier just as was recommended in respect to the earlier houses, or the pollen will not be sufficiently dry for easy dispersal. To this end, therefore, a freer circulation of air may be permitted, and the ventilators may be allowed to remain open a little later in the day, gradually closing them so as to maintain a dry, warm atmosphere with a little heat circulating in the water pipes. Attend to the final thinning of early Grapes, and the regulation of the growths, stopping the lateral shoots at one leaf unless they are required for furnishing bare places. In all forcing houses the valves of the water-pipes should be oiled once a week, and the air taps should be opened at the same time. If this latter operation is neglected disappointment may be experienced through deficient circulation of the heat. If any of the vineries have the least suspicion of mealy bug, this pest should be sought for on bright mornings, using a brush and a little methylated spirit to destroy any that are discovered.

PEACHES.—Late Peach houses, in which the trees are coming into flower, should be ventilated freely, and kept as cool as possible. No trouble is usually experienced in late houses with the setting of the fruits; all that is necessary is to give the trellis a sharp rap about midday, when the trees are in flower, in order to assist in the dispersal of the pollen. If the borders are dry a good soaking of clear water should be applied. If the house was not fumigated before the fruits set, this should be done now, even though aphid has not been detected, for it will act as a preventive to the pest. When late Peach trees are disbudded, some of the superfluous fruits may be removed at the same time, as there will be small risk of those that remain not developing. Still, it is well to be cautious, and to do the thinning gradually. Fruits that are

swelling on earlier trees may be thinned when they are about the size of horse-beans, removing the smaller ones, those that are growing on the side of the shoots near to the wall, and on branches where they are too numerous. Attend to the tying and regulating of the growths, taking care to retain plenty of strong, straight shoots that will furnish fruits next season. Peach trees at this stage require some stimulant, and liquid manure, with sprinklings of some suitable fertiliser, may be given on alternate occasions. With regard to this feeding, a little and often is better than heavy doses. The grower must be guided by the condition of the border with regard to watering, and if moisture at the roots is necessary, the border should be watered on a warm day, as the doors can then be left open. When the fruits are stoning, and just before that stage, fresh air should, as the temperature rises through sunheat, be admitted gradually, for hard forcing must not be practised until the trees have passed this critical stage. As the foliage increases in size and vigour, the syringe may be used more freely. As soon as it can be determined that the fruits have formed their stones, the crop should be thinned to the necessary numbers, allowing, wherever expedient, one fruit only on each shoot. If ripe fruits are required early, forcing may be hastened, but under ordinary circumstances a night temperature of 60° is sufficient. If the borders have not been mulched already, a layer of manure should be placed over them at once.

THE KITCHEN GARDEN.

By JOHN DENN, Kitchen Garden Foreman, Royal Gardens, Windsor.

FRENCH BEANS.—These may be sown now in quantity either in 7 inch pots or boxes to produce supplies about the end of May. A temperature of 60° will be quite sufficient for them. Plants now bearing should be watered freely with liquid manure from the farmyard. Syringe the plants twice daily, and close the house early in the afternoon. Seeds may be sown in small pots and placed in heat until they germinate, when they may be gradually hardened off for planting in pits without fire heat about April 20. Take advantage of the sun heat to allow the temperature to rise to 75° by day, and cover the pit at night more in a greater or less degree according to the temperature out of doors.

PEAS.—Young plants now in cultivation in pits or houses for planting out of doors should be hardened off and planted without delay. Sticks should be placed round the plants at once, and protection given from cold winds. Peas in pots should be ventilated freely, and watered with weak liquid manure occasionally. Close the house early in the afternoon, and do not use fire heat more than is necessary.

CARROTS.—The main crop of Carrots may be sown as early in the month as the state of the soil will permit, selecting land which was manured for a previous crop. If trenched early in winter, it will now require to be deeply stirred with a digging fork and allowed to remain for a few days, until dry enough to be broken up with a wooden rake. After the ground has been made level, drills may be drawn 18 inches apart and 1 inch deep. When the seeds have been sown, a dressing of soot should be raked into the surface of the bed as the final raking takes place. This dressing will help to keep the Carrot fly in check, but when the plants are well above the ground, frequent light dustings of soot should be applied throughout the season, choosing dull, damp days for the purpose. To provide a succession of young Carrots throughout the summer, frequent small sowings should be made, choosing a variety such as Early Gen. If extra fine roots are desired, holes may be made with a crowbar and filled with fine, rich soil made moderately firm; a few seeds should then be sown in each hole and lightly covered with fine soil. When the plants are large enough to handle they must be thinned leaving the strongest plant in each hole.

MUSHROOMS. Preparation should be made for obtaining a supply of Mushrooms in June and July. A shed facing to the North is a suitable place for the beds. The manure should be collected and carefully prepared in a dry, open shed, turning it frequently to avoid sourness. When

sufficient material has been prepared, it should be removed to the north shed and placed on the floor, where it should be trodden tightly together. When the bed is made up, it should be at least 18 in. deep, in order to retain the heat as long as possible after spawning, which should take place when the temperature of the bed is about 60°. When the heat begins to decline, the surface of the bed may be covered with fresh loam to the depth of 2 inches, after which a covering of straw should be applied to prevent evaporation. The temperature of the house now containing beds in bearing should be kept as near 60° as possible; the walls and floor should be syringed daily to ensure a moist atmosphere.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLLOP, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CATTLEYA, LÆLIA, &C.—Cattleyas, Lælias, the beautiful hybrids of the former genus, and the bigeneric Lælio-Cattleyas and Brasso-Cattleyas comprise an important section of the favourite Orchids in cultivation; they are unequalled for the gorgeous character of their flowers. Those sorts that display their flowers during autumn and winter are just now commencing their growth, and fresh rooting material should now be given to any plants in need of it; although the roots above the surface may not appear to be moving much, those below are active, and of this advantage should be taken to get the plants established in the new material. The sorts that flower late in winter can seldom be repotted too soon after blooming, as flowering pseudo-bulbs usually produce new roots directly the flowers are past. These give the plants a hold at once, and materially strengthen the new growths that are pushing forth.

REPOTTING.—However carefully the operation of repotting is carried out, the plants are sure to receive a check of greater or less severity, and this fact must be kept in mind afterwards. Healthy specimens which are root-bound with the rooting material in good condition may be shifted into larger receptacles with as little root disturbance as possible, but plants that have their rooting material in a decaying state should have all the old compost shaken from the roots, and any of the latter that are dead cut away. In deciding on the size of receptacle, the habit of the plant must be studied; vigorous growing and rooting kinds must be afforded much more root space than those that are small in habit and less robust in growth. For the strong-rooting kinds, *Osmunda* fibre may be used alone as a rooting medium, but for most of these epiphytes, a mixture of one half *Osmunda* fibre, one-quarter *Polypodium* fibre, and one-quarter *Sphagnum* moss, broken up and well mixed together with a good sprinkling of crushed crocks and charcoal, constitutes the best potting compost. Use these materials over a perfect drainage, pressing the compost firmly about the roots, and keeping the base of the plant above, rather than below, the rim of the receptacle.

BACK PSEUDO-BULBS.—Any of the back pseudo-bulbs which are old and leafless should be removed during the process of repotting, as they are not only a drain upon the plant, but if allowed to remain they necessitate the use of larger receptacles than would be needed otherwise. Any back bulbs removed from plants of rare and valuable kinds may be labelled, and put aside in a moist and shady corner where they can be syringed frequently. If the "eyes" are sound they will eventually start into growth, when they may be potted up in small pots and inured gradually to the treatment of established plants.

WATERING THE ROOTS.—One of the chief reasons why Cattleyas and Lælias fail to do well in some establishments is that they are so frequently over watered at the roots. If the material is kept in anything approaching a sodden condition even during the growing season, the roots are certain to die prematurely. Not only is this so with the old roots but also with the new ones; in fact, there are no Orchids that require to be treated with greater care in the matter of affording water to the roots. In determining the amount of moisture necessary for the roots of these plants at any season, it is necessary to be guided by the light conditions under which the plants are grown, whether they are well exposed or partially shaded, and whether the plants are placed near to the roof glass or some

appreciable distance away. Like other plants, these Orchids will utilise more moisture when under the influence of a good light than when growing in shade. The amount of air admitted to the plants and the atmospheric moisture in the house have also a decided influence upon the amount of moisture which may be safely afforded to the roots.

THE FRENCH GARDEN.

By PAUL AQUATIUS.

HOT-BEDS.—The crops of Carrots and Cauliflowers occupy the whole of the space in the frames. Ventilation is afforded at daytime, and the ventilators are left open at night in calm weather. The mats can now be removed from the frames, but they should be kept at hand in case of need. As the plants get hardier, water is afforded, lightly at first, early in the morning. The Turnips are well through the ground; the seedlings should be thinned out at a very early stage, leaving one plant only where the three seeds were inserted. Whilst the cotyledons are still tender, flies from the manure often cause damage; a spraying of ashes, or even road dust, will be found sufficient to stop them. Ventilation is given when the Turnips appear, and is regulated according to the weather. The Cabbage Lettuces in the cloches should be marketed at an early date, so that more space may be given to the Cos Lettuces. These are now filling the cloches, and care should be taken to shade them on sunny days. When, after a hot day, the temperature gets very low, the mats should be placed over the cloches at night.

UNHEATED FRAMES.—The Radishes are ready for pulling and the Lettuces "Little Gott" are forming fine heads. Plants of the white-seeded type are more promising than the "Little Black Gott" variety, because of their coarser and hardier growth. If the variety Passion has been planted, fresh air should be given both day and night to have the plants hardened when the frames and lights are removed in 10 or 12 days from now.

MELONS.—The first batch of Melons is ready for planting out in a trench 12 inches deep and 2 feet 3 inches wide. This trench is filled with long, strawy manure. The bed should be higher in the centre, so as to prevent the moisture from collecting about the plants. Place the frames straight and level over the bed, and fill them with the soil from the second trench, affording some finely sifted loam where the plants will be set. The lights must be kept closed and covered with mats to prevent the escape of the moisture from the manure. When the soil is sufficiently warmed, two Melon plants should be planted to each light. The frames are lined immediately with fresh manure to secure as much heat as possible and prevent draughts.

NURSERY BEDS.—The last sowing of Melons should now be made. This batch produces fine, healthy plants, which fruit in September, when the prices have a tendency to rise. Plants which were potted a fortnight ago require a little ventilation in the middle of the day. A spraying daily will keep the plants in a good condition without the need of much moisture at the roots. Where there is a good local market, one-third of the frames may be planted with Telegraph Cucumbers. Though they cannot compete with the smooth Cucumbers grown in greenhouses, they, however, find a quicker sale in busy centres than Melons. They are sown in trays, and the seedlings are potted as soon as the cotyledons develop. The main batch of red Celery for planting in the open ground should be sown on an old manure bed; Aylesbury Red is a favourite variety. The best Tomato plants are being transplanted a second time, in frames filled with 6 inches of good loam. The plants are set very deeply, as roots will form from the buried stems.

TURNIPS IN THE OPEN.—Where Turnips are grown in frames, a succession may be obtained by sowing seeds broadcast in the open. The germination of the seeds must be prompt to be effective, and it is preferable to re-sow when growth is delayed by unfavourable weather. The seeds are covered with a 1-inch layer of decayed manure. The best varieties are Croissy Long, Marteau and New Model.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tynninghaime, East Lothian.

LAWNS.—Grass-cutting will henceforth absorb a large amount of labour. It is one of those operations which gardeners are sometimes tempted to postpone until the last moment; but it is doubtful if frequent cutting is not a means of forwarding the work as well as of keeping the lawns in the best condition; because if the cutting is frequent, it is, as a rule, done quickly, but if it is infrequent then the time necessary for each operation is increased. In order to accelerate the work, let the lawn mowers be overhauled, see that the knives are sharp, and that the spindles and bushes are not greatly worn.

CHINESE ASTERS.—The varieties of *Callistephus sinensis*, generally termed Chinese Asters, are less tender than many imagine; indeed, in warmer localities they may be raised in the open garden with better prospects of success than if they are grown under glass. Even in this neighbourhood, the protection of a cold frame is sufficient, and on some occasions I have sown seed out-of-doors. We prepare shallow beds of a light compost with frames over them, and sow the seeds in these beds. Usually the lights are covered with mats until germination has taken place. This keeps the soil moist, and does away with the necessity of watering. When the seedlings are large enough to transplant in May, they are transferred to the beds in which they flower. The best Asters for effect are the Giant and ordinary single sorts, "Ostrich Plume" and "Dobbie's Quilled," which I find very useful for filling blanks, transplanting them for this purpose when in flower.

VIOLETS.—The formation of young plantations of Violets from rooted off-sets should be carried out at the earliest opportunity. The single varieties cannot be grown to perfection for a greater period than two years without transplantation, and it is desirable to renew one-half of the stock annually. Double Violets succeed for a much longer period without this attention. Our plants are grown at the base of walls facing to the south and west, and they are necessarily cultivated always on the same ground, but this is enriched from time to time with a thick dressing of cow manure mixed with the soil and by surface dressings. The larger leaved varieties, such as Princess of Wales, need 15 to 18 inches space between the plants, but the requirements of such varieties as The Czar will be met if 12 inches is allowed. Our practice is to draw the roots of the runners through a thick mixture of water and soil, puddling them as it were, and planting them immediately afterwards by means of a dibber, the ground being then firmly compressed by trampling. Occasional waterings are given until the plants commence to make growth. In dry weather the plants are subject to red spider, and this pest must be sought for and destroyed.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

ANTHURIUM.—Plants of *A. Scherzerianum* and *A. Andreanum* are now developing their spathes, or will soon do so. They must not be disturbed at the roots this season, but the top-dressing may be removed if it is thought necessary, replacing the old material by a little fresh Sphagnum-moss. Anthuriums which are grown for their ornamental foliage may be treated somewhat differently; they may be either top-dressed or repotted as their needs require. The compost should consist of rough fibrous peat, charcoal and Sphagnum-moss, and in potting, the plants may be kept well above the level of the pots, which require very liberal drainage.

PANDANUS.—The best suckers of *Pandanus Veitchii* are those obtained from the base of the older plants, almost as low as the roots, although they have a somewhat grass-like growth. Such a growth, if taken off carefully, will make a better proportioned plant than can be obtained from any strong sucker, and, moreover, the smallest suckers almost invariably colour their leaves well. The same remarks apply to *P. Baptistii*: in neither case should propagation be done from the stronger suckers.

ANANASSA SATIVA VARIEGATA.—Well-furnished plants of the variegated Pineapple are obtained better from crowns than from suckers. It often happens that a fruit furnishes a double crown, and these growths are most useful for propagation. When young plants are well rooted, they should be suspended near to the glass, where they develop the highest colour.

MIGNONETTE IN POTS.—Seeds of approved varieties of Mignonette may be sown, in order to provide a succession to those plants which have been cultivated during the winter and are now already in flower, or nearly so. What are known as the giant varieties, namely, those which produce large, dense heads of flower, are recommended for present sowing. Perhaps the best is a really good strain of the variety *Marchet*. Pots known as 48's may vary from 4½ inches to 5 inches in diameter from the different makers, but the difference is unimportant. See that they are perfectly clean, and place crocks in them to provide good drainage. Then employ a compost consisting of turfy loam and finely-granulated mortar rubble. Mignonette delights in the presence of lime, and the mortar rubble may be used instead of sand. Place immediately over the drainage a light layer of dry fowls' dung, and over this ram the soil firmly. Make the surface perfectly level, sow the seeds, and just cover them with finely-sifted soil, pressing this soil somewhat lightly. The seeds will germinate quickly enough in an average greenhouse, and the result will be better than if more warmth were employed. Thin out the seedlings to three, or at most four, in each pot, or to one only if standards are wanted. Mignonette plants now growing and flowering freely need occasional applications of weak guano water. In no case must they be allowed to suffer from lack of moisture at the roots.

VISCARIA CARDINALIS.—This species is a valuable annual for pot cultivation. By sowing seeds at the present time, a profusion of bloom may be obtained by the first week in July. Adopt the same treatment as recommended for Mignonette, but leave about double the number of plants in each pot. The pale blue variety with a dark eye, being very distinct, is well worth growing. There is also a rose-coloured form which may be recommended.

FUCHSIA.—Old plants of Fuchsias will now be showing signs of fresh growth, and may be pruned and repotted. It is desirable to reduce the balls of roots at the time of spring potting in order to avoid the use of pots of larger size at the commencement of the season. When this attention has been given them, the plants may be placed in a moist greenhouse atmosphere, and after a few weeks, any shoots which appear to be growing away from the rest, should be pinched.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

FRUIT TREES ON WALLS.—Wall trees should receive unremitting attention by way of protecting the opening blossoms against frost; not only Peaches, Nectarines, and Apricots, but also Plums, Pears, and Cherries. A few days' neglect at this period may destroy the chances of the crop for the season. The condition of the weather, and the situation of the trees must be taken into consideration in determining the best kind of protection. If the blossoms are kept dry, they will withstand a considerable degree of cold without harm, for it is often by hail, rain, and snow, more than frost, that the blossom is injured. Should the weather prove dry, a careful examination of the borders in close proximity to the wall should be made. These are often deficient in moisture, even at this season of the year, the brickwork of the wall absorbing a goodly portion of the moisture from the surrounding soil, and more often than not most of the surface roots of the trees are to be found in this direction, hence the importance of the application of moisture to counteract the tendency towards drought. A proper system of watering the trees should be persevered in, until the fruit begins to ripen. During mild weather a daily syringing of the trees should be carried out in the early part of the day, according to the state of the weather, allowing sufficient time for the moisture to disappear before nightfall.

PYRAMID PEAR TREES.—These, when well managed, produce fruit of the finest quality, and are ornamental in the fruit garden. Sometimes the branches have a tendency to grow in a direction opposite to that desired; such branches may be bent or tied into position, and this is preferable to the removal of the branch, which is often the course adopted by a careless worker, as presenting the easiest way out of a difficulty.

GENERAL WORK. The winter coverings should by this time have been removed from Fig trees; the trees should be pruned and the remaining branches nailed or tied in. The pruning of Apples, Pears, and Plums growing in the open garden should have been finished some time ago, as many kinds will soon be in bloom. If any work of this kind has been delayed, it should be dealt with at once, rather than to allow the trees to go unpruned. Grafting may yet be done, but should be completed as early as possible. Remove the suckers from Filbert and Nut trees, and keep the surface of the ground around them constantly loosened with the hoe. Raspberry canes should be secured to the wires or stakes, and the autumn-bearing varieties pruned to within a few inches of the ground. Loosen the surface soil between the Strawberries, and place some long litter between the rows and about the plants, to keep the soil moist and the fruit clean. This mulching is better done now than at a later period, when the plants are nearing their blossoming stage, or setting their fruit. A careful examination of all Gooseberry bushes should be made to prevent the caterpillar from getting a start on the leaves. Shoots growing from the centre of the bushes having curled leaves will be found, on examination, to be infested with green fly; many of these may be removed altogether, after which the trees should be cleansed with clear water, using the hand syringe or garden engine with sufficient force to dislodge the pest. Where extra-sized fruit is desired, the berries should be thinned early, and assistance given to the trees by artificial feeding.

PUBLIC PARKS AND GARDENS.

By A. J. ALLSOP, Superintendent of Public Parks, Leeds.

BOWLING GREENS.—The playing of bowls in public parks is increasing in popularity, and the extension of the game brings fresh work and responsibility for the superintendent. It is a difficult matter to maintain a public bowling green in a first-class condition, much more difficult, indeed, than in the case of private greens, because the rules and conditions governing the latter can be more strictly enforced. In many cases where there are public greens, local clubs exist, and the members of these arrange handicaps with other players. There is a diversity of opinion as to the advisability of permitting these clubs the use of the greens, and there is little doubt but that the greens would be more generally patronised by the public, for which they are intended, were such clubs not in existence. The following questions arise repeatedly, and require very careful consideration before such clubs are allowed:—(1) Do clubs monopolise the greens at the expense of non-members? (2) Does the playing of handicaps affect the takings during the time they are in progress? (3) Do members not in the handicaps refrain from playing during the time? (4) Do non-members stand out during the handicaps?

With regard to the treatment of the green, it is important that they should be well attended to during the next few weeks. The grass should be rolled well on all occasions when the turf is not too wet. Small dressings of artificial manure should be applied during showery weather, but care should be taken, in applying fertilisers, that the coarser grasses are not encouraged to grow at the expense of the finer and closer-growing varieties. Much time and expense may be saved in applying artificial manure by first obtaining an analysis of the soil, to see what constituents are lacking, and making a mixture accordingly. The following are suitable mixtures for an average soil:—(1) sulphate of ammonia one part, super-phosphate eight parts, and sulphate of potash two parts; mix them thoroughly and apply at the rate of from 1 ounce to 2 ounces to each square yard of turf; (2) soot one part, super-phosphate two parts, and wood ashes five parts; well mix them together, applying at the rate of ¼ lb. to the square yard.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR APRIL.

SATURDAY, APRIL 1—Tusley Florist Soc. Spring Sh. Soc. Française d'Hort. de Londres meet.

TUESDAY, APRIL 4—Cornwall Daffodil and Spring Fl. Sh. at Truro (2 days). Scotch Hort. Assoc. meet. National Amateur Gardeners' Assoc. Meet. at Winchester House, Old Broad Street, E.C., at 7 p.m. (Lecture on "Sweet Peas" by Mr. Horace J. Wright.)

WEDNESDAY, APRIL 5—Roy. Hort. Soc. General Examination, 6 to 9.30 p.m. Roy. Caledonian Hort. Soc. Spring Sh. (2 days). Liverpool Spring Fl. Sh. (2 days).

THURSDAY, APRIL 6—Euskoop Pomological Soc. Jubilee Show (6.21). Linnean Soc. meet.

FRIDAY, APRIL 7—Kingsbridge Daffodil Soc. Sh.

MONDAY, APRIL 10—United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, APRIL 11—Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Rev. Geo. Henslow, on "The Origin and Structure of Aquatic Flowering Plants.")

THURSDAY, APRIL 13—Soc. Nationale d'Hort. de France (Paris) Exh.

MONDAY, APRIL 17—Bank Holiday.

WEDNESDAY, APRIL 19—Devon Daffodil and Spring Fl. Sh. at Plymouth (2 days). Roy. Meteorological Soc. meet. Roy. Hort. Soc. of Ireland Spring Sh. (2 days).

THURSDAY, APRIL 20—Ipswich and East of England Spring Fl. Sh.

TUESDAY, APRIL 25—Roy. Hort. Soc. Coms. meet. Daffodil Competition at R.H.S. Hall. Nat. Auricula and Primula Soc. Sh. (Lecture at 3 p.m. by Rev. Joseph Jacob, on "The Tulip—its Problems and History.")

WEDNESDAY, APRIL 26—R.H.S. Exam. of School Teachers in Cottage and Allotment Gardening. British Gard. Assoc. Exam. in Horticulture. Irish Gard. Assoc. and Benev. Soc. meet. Hereford Daffodil Sh.

THURSDAY, APRIL 27—Midland Daffodil Soc. Sh. at Birmingham Bot. Gdns. (2 days). Soc. Nationale d'Hort. de France (Paris) General Meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—46 F°.

ACTUAL TEMPERATURES.—

LONDON.—Wednesday, March 29 (6 P.M.): Max. 50°; Min. 41°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 30 (10 A.M.): Bar. 29.7; Temp. 45°; Weather—Dull.

PROVINCES.—Wednesday, March 29: Max 51 Ireland, S.E.; Min 40 Scotland E.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—Hedges and Border Plants, Hardy Bulbs and Roots, at 12, Essex, Fruit Trees, &c., at 1.30; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—Lilies and other Hardy Bulbs, Perennials, and Border Plants, at 12, Essex, at 1.30. Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

THURSDAY AND FRIDAY—Very Rare Orchid from the "West Bank House" Collection, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

FRIDAY—Victoria Nurseries, North Weald, Essex (Freehold), with Residence, Greenhouse, &c.; area about 8 acres. At the Mart, London, E.C., by Protheroe & Morris, at 2.

The Memorial to King Edward.

The sum subscribed for the memorial to King Edward in London amounts to nearly £58,000, and the executive committee acting for the subscribers has now published, through its sub-committee, proposals as to the form

symbol of the veneration in which the name of King Edward is held by the people of the Metropolis. But when we turn from the form of the memorial to consider the suggestion made by the sub-committee with respect to site amazement struggles with indignation. It is difficult



(Photograph by W. J. Vasey.

FIG. 89.—THE SUSPENSION BRIDGE, ST. JAMES'S PARK.

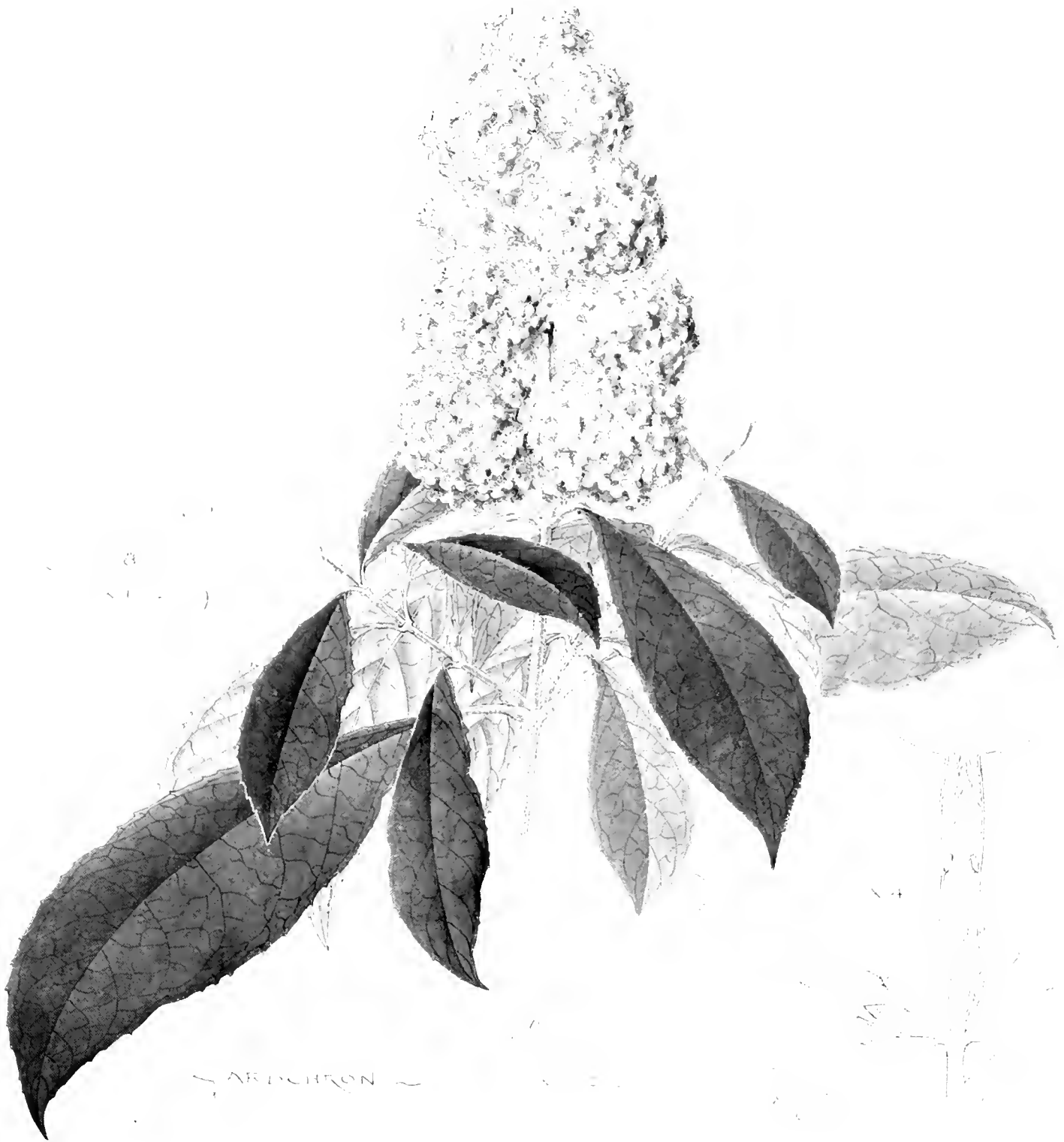
which the memorial should take. With respect to the suggestions of the sub-committee as to the form of the memorial, we have no comment to make. A statue to our late King, surrounded by symbolic figures and approached by a noble thoroughfare, may well be an adequate

to believe that a sub-committee composed of such representative men as the First Commissioner of Works, the Secretary of the Works Office, the Presidents of the Royal Academy and of the Royal Institute of British Architects, and the Lord Mayor can have proposed to place such a



(Photograph by W. J. Vasey.

FIG. 90.—A SHRUBBERY IN ST. JAMES'S PARK.



Buddleia officinalis, a new Chinese species.

Flowers, pale blue with orange-tinted eye.

grandiose memorial as this in St. James's Park. A critical examination of the qualifications of the members of the committee supplies, however, the clue to the enigma. The committee includes the names of men to whose judgment in most forms of art we should bow obediently; it does not appear to include anyone who has an expert knowledge of "landscape architecture." Yet the memorial must depend for its success, not only on its intrinsic merits, but also on its setting. It is true that an architect is to be associated with a sculptor in preparing the memorial, and were the memorial to be erected in the heart of a town this combination would be all that is requisite. But—and this is where a landscape gardener of repute would have saved the committee from suggesting such a scheme—it is proposed to place the memorial in one of our smallest parks. To do this—whatever else

present day the hand of the architect is heavy upon us. He is making the London which we knew a splendid city of the Continental type. Stone replaces brick and marble stone. We regard his works with temperate gratitude; but when it comes to a proposal such as this it is time to cry "hands off." We have, of course, no quarrel with architects as the contrivers of our houses, but did we possess a Tudor house we would not allow the best of them to persuade us that he could replace it by something better. Where the architect displays genius for laying out gardens we welcome his advent, but the gardens which have brought fame to our country were designed by landscape gardeners and not by architects. Evidently, therefore, it would have been well for the committee to seek advice of some "landscape architect" and thus to avoid the publication of a scheme

The species is not hardy in this country, although it would probably survive the winter in such favoured districts as Cornwall. Messrs. VETTON's specimens were not more than 1 foot in height, and they appeared excellent subjects for associating with other plants on a greenhouse stage or conservatory in winter.

R.H.S. GARDENS CLUB.—The annual meeting of the club will be held at Wisley on Saturday, May 13. Members who intend to be present should notify the hon. secretary, Mr. R. J. WALLIS, Newdigate, Dorking, without delay, in order that arrangements may be made for conveyances and refreshments.

LEGACY TO A GARDENER.—By the terms of the will of the late Mr. JOSEPH HENRY HOULDSWORTH, of Messrs. JOHN HOULDSWORTH & Co., Merchants, Glasgow, a sum of £500 is left to his gardener, Mr. HARVEY.

MUNICIPAL GARDENERS AND THEIR WAGES.—In our issue of February 25 it was reported that the Education Committee of the London County Council had not seen their way to agree to a suggestion made by the Parks Committee that they should increase their grant to the Parks Department to permit of the wages of three gardeners in charge of the Botanical Gardens, at Victoria Park, Battersea Park, and Homiman Gardens being raised by 2s. a week. The question came before the London County Council at its meeting on March 21, when the proposed increases were unanimously agreed to on the recommendation of the Parks Committee.

SIR JOSEPH BANKS.—The London County Council has fixed a tablet to No. 32, Soho Square, London, (the National Hospital for diseases of the heart), in order to notify the fact that SIR JOSEPH BANKS'S house was upon the same site. Our readers will remember that SIR JOSEPH BANKS was a devoted patron of horticulture and one of the earliest supporters of the Royal Horticultural Society. His name is commemorated in the "Banksian" Medal.

GARDENERS AND THE CENSUS.—The Board of Agriculture and Fisheries has issued a memorandum, prepared by the Registrar-General, with reference to the returns of the occupations of persons engaged in agriculture, which will be required for the purposes of the Census of the population of England and Wales, to be taken on Monday next, April 2. We make the following extract:—"Other persons belonging to the agricultural class, such as gardeners, woodmen, and others following specific occupations, will be separately grouped under headings not referred to in this memorandum. Gardeners, however, engaged with nurserymen and seedsmen should always state the fact, so that they may be readily distinguished from gardeners in private employment; and it is also desirable that persons working on market-gardens should clearly indicate that they are so employed. In cases where a person no longer pursues his calling, but has retired from active work, the previous occupation should always be given, coupled with the word 'retired.'"

RED-FLOWERED HELIANTHUS.—A new race of hybrid Sunflowers, having florets ranging in colour from light pink to deep purple, is offered by M. HERB, Naples, under the name of *Helianthus cucumerifolius purpureus*. According to the description in the catalogue, some of the florets are straight and flat, whilst in other flowers they are twisted and pointed. They have a yellow zone around a prominent disc, the other parts being of varying shades of purple, sometimes passing to a tender pink toward the tips.



FIG. 91.—A SCENE IN ST. JAMES'S PARK.

[Photograph by W. J. Vasey.]

it may portend—means to destroy the present beauty of St. James's Park. Already this park has been invaded to admit of the enlargement of the Mall. Were it to be selected as the site of the memorial, the park would be cut in halves, pierced through the heart of its beauty by a new road and bridge. St. James's Park is a place of quiet charm and peace; to impose upon it the broad burden of this memorial would be to banish peace—of which the statue to King Edward must be a symbol—for ever from its precincts. St. James's Park is of restricted area, but its smallness is dissembled by the cunning hand of a bygone master in the art of landscape gardening. To cut it in halves is to destroy the whole. Surely the least contentious aphorism of art is that something beautiful must not be destroyed to create something which may be beautiful. Yet this is the proposal. In London at the

which for the reasons we have given is, with respect to site, in the last degree inartistic. The sure hands of Time and the landscape gardener have made St. James's Park beloved by those who delight in peace and quiet breathing, and no other hands must be laid upon it to mar what time and men, in less pretentious days, have made.

OUR SUPPLEMENTARY ILLUSTRATION.—*Buddleia officinalis* is one of Mr. E. H. WILSON'S introductions from China whilst plant collecting for Professor SARGENT, of the Arnold Arboretum, U.S.A. He found the species in the Yang-Tse Valley, where it attains the height of from 4 feet to 8 feet. WILSON describes the flowers as fragrant, and ranging in colour from mauve to purple; those on the plant shown by Messrs. JAS VETICH & SONS at the meeting of the Royal Horticultural Society on January 3 may be described as of a pale blue shade, the centre of each bloom having an orange-coloured rim.

HONOURS FOR ENGLISH HORTICULTURISTS.

—Sir ALBERT ROLLIT, president of the National Chrysanthemum Society, and Mr. HARMAN PAYNE have recently been appointed Membres d'Honneur of the Société Française des Chrysanthémistes. Mr. R. HOOPER PEARSON and Mr. HARMAN PAYNE have been appointed Membres d'Honneur of the Société Royale de Flore of Brussels.

IRISH HONOUR FOR PROFESSOR SARGENT.

At the annual meeting of the Royal Irish Academy, held on the 16th ult., Professor CHARLES SARGENT, of the Arnold Arboretum, U.S.A., was unanimously elected an honorary member. The list of honorary members in the science section is limited to 30, and the science of botany is now represented by Sir J. D. HOOKER, Messrs. J. G. BAKER, ADOLPH ENGLER, EDUARD STRASBURGER, and Professor SARGENT.

L.C.C. PARK EMPLOYEES.—In a report presented at a meeting of the London County Council on March 21, the Parks Committee of that body stated that in 1905 the Council decided that gardeners employed in the Parks Department, before becoming entitled to further increments of wages, in accordance with the approved scale, should be required to pass, in the first or second class, the examination in practical horticulture held by the Royal Horticultural Society. At the beginning of the present year, the Council further decided that under-gardeners who pass the examination should receive an allowance of 1s. a week in addition to the wages of their class. Vacancies for gardeners are also filled, as far as possible, by the promotion of such under-gardeners as have passed the examination. Of the men who have presented themselves for examination in the last three years, 239 have been successful, and the Committee reported that out of 58 employes in the Parks Department who sat for the examination in January last, 52 passed, of whom 14 were in the first class and 26 in the second. Mr. W. H. THOMAS, head keeper of Wimbledon Common, obtained the first place in the officers' section of the examination, and Mr. H. W. HOTTEN, gardener, the first place in the men's section. At the same meeting of the London County Council, the Parks Committee recommended that an opportunity for obtaining a similar allowance to that given to under-gardeners who passed the examination of the Royal Horticultural Society, should be granted to under-keepers. They accordingly proposed that under-keepers holding the certificate of the Society should be allowed to undergo a three-months' trial in practical gardening, and that, subject to their proving themselves well qualified, they should be transferred as vacancies arose in the gardening staff, which offered improved prospects of promotion. The recommendation was agreed to.

WINTER-FLOWERING BEGONIAS.—In the course of a series of interesting articles in *Moller's Deutsche Garten-Zeitung* on new and old varieties of Begonias, the rival claims of the old established Gloire de Lorraine and the newer giant derivative "Concurrence" are discussed. Whereas Mr. BERNDT and Mr. FR. WORTMANN—both nurserymen—stoutly maintain the supremacy of the former, Mr. OSKAR OTTO, who is also a nurseryman, is loud in the praises of Concurrence. According to Mr. OSKAR OTTO, the newer variety is superior to the old from many points of view. Thus he claims that it is of fresher flower colour, that it possesses a remarkable power of resistance to fungous disease, and that its chief flowering period—between Christmas and the New Year—gives it a greater saleability than the old Lorraine. Moreover, its large blooms and stout inflorescence-stalk render it an ideal subject for table decorations and for

small bouquets. To all these merits must be added that of reproducing itself from leaf or stem cuttings more readily than Gloire de Lorraine. With respect to recently introduced novelties, Mr. BERNDT speaks of several of the Ensign class which promise well. Of these may be mentioned Ensign itself, a beautiful plant of luxuriant growth, with light carmine-red double, long-lasting flowers, suggesting Camellias; Winter Perfection, with semi-double, purple-rose coloured flowers; Mrs. Heal, giant flowering, with single, velvety dark-red flowers; Winter Cheer, resembling Ensign; and newest and most beautiful of all, Elator, free-flowering with carmine-red flowers. Of Giant Lorraine (Concurrence) he adds that its upright flowers, thick stalks, and long period of flowering, make it a very marketable plant. Mr. BERNDT mentions others of the Lorraine class as being well worth cultivation, viz., multiflora precox (bright rose) and Agatha, which is similar to the last-named variety, but with darker and less firm flowers. Of the newer varieties mentioned by Mr. WORTMANN, Patrie is somewhat hardier than Gloire de Lorraine, but rather susceptible to insect attack. A variety introduced more recently, and named Hofwyl, possesses a remarkable hardiness. An illustration in the above-mentioned journal shows a specimen of Hofwyl as it appeared when taken out of its box after a winter's journey of 14 days' duration from Hofwyl (Switzerland) to Erfurt. Apparently it remains uninjured for a long time when kept during winter in an unheated room. Given this great degree of hardiness, which is confirmed by Mr. ADOLF KRAMER, it is evident that Hofwyl has a great future before it.

MR. HENRY BALLANTINE.—After a period of 47 years' service, Mr. BALLANTINE is retiring from his position as gardener at The Dell, Egham. Mr. BALLANTINE is as well known in the gardening world as his employer was, the late BARON SCHRÖDER, and "The Dell" is recognised as one of the "show" places in the country. Particulars of Mr. BALLANTINE'S career are given, with a portrait, in the issue for September 14, 1907, p. 201, on the occasion of his receiving the Victoria Medal of Horticulture. Particular reference is made there to the famous collection of Orchids which Mr. BALLANTINE cultivated with such skill. In order to mark the occasion of his retirement, his friends on March 18 made him a gift of an armchair and other presents. Mr. JOHN CLARK, an employe at The Dell, who has been associated with Mr. BALLANTINE for some 30 years, made the presentation.

PUBLICATIONS RECEIVED.—*Interesting Facts on Gardening*, No. 1. Soils Plant Life, Fertilisers (Frodsham: Heywood & Massie, Ltd.)—*The Open Book of Nature*, by the Rev. Charles A. Hall. (London: Adam and Charles Black) Price 3s. 6d. net.—*Post Office Guide for April, May and June, 1911*. (London: William Clowes & Sons) Price 6d.—*Practical Plant Physiology*, by Frederick Keeble, Sc.D. (London: G. Bell & Sons, Ltd.) Price 3s. 6d.—*Popular Garden Flowers*, by Walter P. Wright (London: Grant Richards, Ltd.) Price 6s.—*The Scientific Proceedings of the Royal Dublin Society*, March, 1911. Considerations and Experiments on the Supposed Infection of the Potato Crop with the Blight Fungus (*Phytophthora infestans*) by means of Mycelium derived directly from the Planted Tubers. By George H. Pethybridge, B.Sc., Ph.D. (Dublin: Royal Dublin Society.) Price 1s.—*The Queensland Agricultural Journal*, February, 1911. (Brisbane: Anthony James Cumming)—*Journal of the Royal Society of Arts*, March, 1911 (London: G. Bell & Sons.) Price 6d.—*The Pharmaceutical Journal*, March, 1911. (London: St. Clement's Press, Ltd.) Price 6d.—*British Lichens* (Part II.), by Annie Lorrain Smith, F.L.S. (London: Longmans & Co.)

NOTICES OF BOOKS.**THE ROSE ANNUAL, 1911.***

The Rose Annual for 1911 is a very readable volume of 150 pages. The President of the National Rose Society (the Rev. J. H. Pemberton) contributes an article on the Rose season of 1910, in the course of which he enumerates no fewer than 23 new Roses that have received marks of distinction from the Society. The article is illustrated by a snapshot of the long queue of visitors to the Society's Metropolitan show, waiting their turn to examine the new seedling Roses. The picture bears striking testimony to the interest taken by the public in this branch of the show, but one cannot help wondering how many of these 23 Roses will be in general cultivation 10 years hence. The President cannot remember a worse exhibition year than 1910, but he thinks it will be noted as the year of Rayon d'Or, "a real yellow perpetual."

Mr. Darlington has a detailed study of 25 climbing Roses, founded on the reports of many rosarians, who have had the plants under observation in their gardens; he has also an article on "Bedding Teas."

Two most interesting articles from the Colonies—one by Mr. P. B. Snashall, from Rhodesia, and the other by Mr. A. Moore, from Australia—show how widespread is the area covered by members of the Society. When we think of our English Teas it is tantalising to see a picture of a bush of "Peace," the yellow sport from G. Nabonnand, apparently some 10 feet high after four years' growth in Rhodesia, which has "never been really out of bloom since it first flowered four weeks after planting," while our envy of the Australians can hardly be less at hearing they can grow a Maman Cochet that holds its head up.

The Rev. F. Page-Roberts has a humorous article on "Rosarians and Anti-rosarians," from which it would appear he would hardly accept without question Mrs. Darlington's views as to the importance of sweet perfume expressed in her "Notes on Fragrance in Roses."

Rambling Roses are dealt with by Mr. George Gordon in an article containing the best picture in the book; also by Mr. G. L. Paul; and useful information on the date of their flowering is given by Dr. A. H. Williams.

"The Preparation of Rose Beds in Various Soils" forms the subject of discussion by a number of writers, under the general direction of Mr. E. J. Holland. Among much good advice, the notes by Mr. Vivian Rolt are specially clear, but the amateur gardener must select those directions which best suit his own garden. He will find all sorts of soils dealt with.

The effect of climatic influence is considered by Mr. Frank Cant; Mr. R. F. Felton strikes a rather different note in dealing with the value of Roses for decoration of the house, and Mr. George Paul tells us something about French Rose shows.

It is pleasant to see that the veteran rosarian, the Rev. Alan Cheales, still keeps up his connection with the Society, notwithstanding his removal to bleaker climes north of the Border. Mr. Mawley continues his useful Rose analysis of previous years; the most notable alterations seem to be the advance of the Lyon Rose and Mrs. Theodore Roosevelt.

The volume begins and ends with a short poem, that on the last page by an unknown author, communicated by Mr. L. S. Pawle, has a touch of real beauty. Taking it all round, the *Annual* is probably the best the Society has produced, and the fact that the Secretary has secured so much assistance from so many different quarters is of itself a testimony to the affectionate regard in which he is held by his colleagues.

* National Rose Society. Price 2s. 6d.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

TULIPA KAUFMANNIANA.—This species has been in bloom with us for the past month in a fully-exposed position. The large blooms, white within and flaked rose outside, are very attractive, and rough weather and frost do not seem to affect them. It is a fine Tulip, and worth the attention of planters. *North Staffs.*

WHAT IS A NOVELTY?—Those who had the privilege of listening to the remarks made by Mr. W. Bateson, F.R.S., at the close of Mr. Scott-Elliott's lecture in the Royal Horticultural Hall on March 14, must have been struck by the succinct way in which he described a novelty. "A novelty is either an addition to or a subtraction from an existing form." It must of course rest with the commercial man, be he seedsman, florist, or nurseryman, to decide if the addition or subtraction renders the form commercially valuable. *W. Cuthbertson.*

ALLOTMENTS.—Our association has decided to register under the Industrial and Provident Societies' Act for the purpose of acquiring and letting land as allotments and small holdings. For the present we wish to remain independent of any existing society, as we do not know of any society sufficiently democratic to which we could bind ourselves. The chief difficulty in the way is the expense; but if a dozen or more societies joined to prepare a model set of rules, they could register at a very slight cost, and, at the same time, they would keep their independence, and would not be compelled to pay any annual affiliation fee, thus the gain to each society would be considerable. We desire to get into communication with the secretaries of other societies wishing to register independently, and willing to share the expense and gain of preparing and printing model sets of rules. *E. G. Morrill, Secretary, Hillfields and District Allotment Association, Coventry.*

SUPPORTS FOR STANDARD WEEPING ROSES.—In the most recent instructions issued by the National Rose Society, they cannot get beyond the recommendation of "a strong central stake." This is wrong, and, no matter how strong the stake may be, the leverage of the head becomes in time so great that it breaks away. The proper method is to put three stakes, 13 inches from the stem, then to secure a ring of strong wire or cane to their tops, and distribute the shoots equally all round. By this means both perfect specimens and absolute stability are produced. Since the adoption of the Polyantha stock for this type of Rose (a Daisy Hill invention), weeping standards are being very largely planted, and it is necessary that the best method of staking should become known. There is really no limit to which this method may be carried. This last summer I saw a specimen where three concentric rings had been arranged; the result was a 9-foot bed of Roses suspended in the air. On the Polyantha stock they grow so freely that there would be no difficulty in running a shoot from each pair of weeping standards over an arch, either across a walk or up and down it, and so uniting the whole arrangement into one piece. *T. Smith, Daisy Hill, Newry.*

COLUMELLA AND GRAFT HYBRIDS.—When reading the note on p. 170 upon the production of graft hybrids by artificial means, a dimly-remembered passage in *Columella's Husbandry* came to my mind, and, on turning this up, it seems to confirm in a remarkable way the recent experiments of Prof. Winckler, and, incidentally, to show that perhaps the fantastic experiments quoted by the old Greek and Roman writers may not all be dismissed summarily as idle tales. This particular case is worth quoting in full, and I have taken the following from a translation published in London in 1745:—"Now, a cluster of Grapes may have berries of several kinds. There is also a kind of engraftment which produces such clusters of Grapes, wherein are found berries of different kinds and colours, and this is effected in such manner as this. Take four or five or more rods, if you have a mind, of different kinds, and, after you have carefully compacted them so as to be equal to one another,

then insert them very close into an earthen tube, or into a horn, so as they may stand out a little at both ends, and loosen and open those parts which shall stand out; then put them into a trench and cover them all over with well-dunged earth and water them till they put forth buds. When the rods shall have cohered with one another, and now, after the space of two or three years, have formed a unity, you shall then break the small tube and cut the vine with a saw almost about the middle of the stock, where they shall have appeared to have united themselves most with one another and grown closest together; and smooth the cut, and heap up small earth about it so that it may cover the wound 3 inches deep. When out of this stock it shall have put forth shoots, set apart two of the best and pull off the rest, so such Grapes shall be produced as we have proposed." This method, it will be seen, is identical with that devised by Winckler, namely, the production of buds from the newly-formed callus provided by two closely-adpressed growths; and there seems little reason to doubt that the hybrid Grapes may have resulted from the operation described above. *Edward A. Bunyard.*

FORCING VINES (see p. 170).—I fear that Mr. Jefferies has set himself a difficult task if he wishes to convince vine growers that it is unnecessary to lay and syringe the rods when starting them into growth. Experience has taught us that the syringe or other method of wetting the rods is a great factor in softening the hard casing of the eyes, and helps early and quick development. If we were to adopt your correspondent's methods with our vines which we start in November, and Muscats especially, we should not be in the thick of our thinning as we are at the present time, and would, without doubt, come in a bad third with our fruit in the markets; the non use of the syringe would at least keep them back three weeks. I consider it is of the utmost importance to lay young vine rods horizontally, in order to get them to break evenly; if they are started in an upright position the result is soon perceptible; the tops grow strongly and the bottoms are weak. I quite agree with your correspondent that they will break, but very slowly. I have 17 large vineries under my supervision. *H. H. G. Brougham Terrace, Worthing, Sussex.*

—Were Mr. Edwin Beckett not such a well-known skilful cultivator, whose advice is apt to be taken as unquestionable by many of the rising generation of gardeners, I would not ask your permission to attempt to refute some of his arguments respecting syringing and lowering the tops of vines. It is now some 43 years, starting from Meredith's Vineyard in 1868, since I commenced to make my mark as a Grape grower, and most middle-aged gardeners know that I have been fairly successful in that line. Except by way of experiment, I have never in all that time syringed a vine unless for the purpose of applying an insecticide. Neither have I lowered vines for the sake of obtaining uniformity of the growths in starting. Before the vines start, the rods and buds are impervious to moisture, and the force to start them into growth must come from within. After they have started, a saturated atmosphere will, it is true, cause the leaves to expand more rapidly, but it is at the expense of texture, and in extreme cases warty leaves will follow when the roots commence to send up supplies. In a saturated atmosphere, too, stomata open widely in order to overcome the difficulties placed in the way of transpiration by such an atmosphere, and if ventilation has to be given under such conditions, excessive evaporation takes place and flagging is the result. As to lowering the rods, it is now well known that vines grow just the same at whatever angle they may be placed, and that they root perfectly well when placed upside down. If a rod is well ripened and the roots have been kept sufficiently moist, it will start from every uninjured bud, and the strength of the individual growths is determined during the previous year. There is no such thing as a "rush of sap to the top" at starting time, for no root fibrils are made till some of the leaves are more than half developed, so that only water can be taken up from the earth. The material for forming the shoot is already in the bud, and only needs a supply of water through the roots made in previous years and a suitable tempera-

ture to cause it to start into growth. *Wm. Taylor, Bath.*

—I quite agree with Mr. Jefferies in not syringing vines, as advised by Mr. E. Beckett. Spraying is generally carried out with the idea of assisting the buds to break, and it is often continued until the vines are in flower. But to what purpose I fail to see. The vines break stronger when not syringed, provided they receive proper treatment. The water may be used in a tepid condition, but it becomes cold in a very short time, and it sometimes remains on the foliage all night. Syringing tends to weaken the growths, and it certainly does not assist them to ripen, which should be every gardener's object. If clean vines are wanted, there must be healthy foliage to resist disease. If highly-flavoured fruit is desired, this can only be produced by well-ripened shoots. *J. Arnold, Hampton Gardens, Hereford.*

—For very early forcing, the practice followed by Mr. Beckett is absolutely necessary to compensate for the extra fire heat by bringing about humidity in the atmosphere; syringing is necessary at least three or four times a day. The lowering of the tops of the rods in early forcing is a good practice to encourage the vines to break evenly, for if the vines are tied in their permanent places the extra fire-heat required goes mainly to the top of the house, and this causes a rush of sap to the top, therefore the "breaks" are earlier and stronger than at the bottom of the rod. In small gardens where the vineries have to be used for other plants, it is often inconvenient to practise this method, because the vines would be in the way, whilst in medium or large vineries the method is not needed. The atmosphere of the house is kept sufficiently humid by the water supplied to the plants and the damping of the floor. The ventilating that these vineries receive prevents the vines breaking stronger at the top than in any other part of the vine. Mr. Beckett's system is necessary for vines started from November to January in a closed house, but not otherwise. *C. J. Ellis, Weston Nurseries, Weston-super-Mare.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 23.—The best shows of the year held in connection with the fortnightly meetings are those which take place in March and April, and the display on Tuesday last furnished a good instance of the extra pressure at this season. With a view to regulating the crowd of visitors, the exhibition tables were arranged in unbroken lines the whole length of the hall. As a result, the approach from the entrance was entirely spoiled, and the aspect of the hall changed for the worse. Immediately upon entering, visitors were compelled to turn to the right or left, and it was exceedingly difficult to get from one part of the hall to another, owing to the long avenues. The authorities are to be commended for trying the experiment, but it is evident that another scheme of arrangement will have to be devised, as the alteration did not meet with favour either from visitors or exhibitors. It might be better to place the tables across the narrow width of the hall, allowing a broad, central avenue, and providing an exit at the end under the clock.

The exhibits before the FLORAL COMMITTEE consisted largely of hardy plants and rock-garden displays, but there were also excellent groups of forced shrubs, Cyclamens, Carnations, Clematises, Roses and Rhododendrons. This Committee granted three Awards of Merit.

The ORCHID COMMITTEE conferred one First-class Certificate, and two Awards of Merit to novelties.

The NARCISSUS COMMITTEE made no award to a novelty, but there were several good exhibits of Daffodils and Tulips.

The FRUIT AND VEGETABLE COMMITTEE found very little to do, and made only one award: a Silver Banksian Medal.

The afternoon meeting in the Lecture Room was well attended, and Mr. Reginald Nevill delivered an address on "Alpines in Their Native Haunts."

Floral Committee.

Present: Messrs. W. Marshall, Henry B. May (Chairman); and Messrs. Chas. T. Druery, Jno.

Green, W. J. Bean, R. C. Notcutt, G. Reuthe, Chas. Dixon, F. Page Roberts, C. Blick, J. Jennings, W. Howe, R. Hooper Pearson, John Dickson, H. Kingsmill, Arthur Turner, H. J. Cutbush, Chas. E. Pearson, Chas. E. Shea, C. J. Lucas, C. R. Fielder, George Paul, W. J. James, E. H. Jenkins, George Gordon, Jas. Hudson, J. W. Barr, and W. B. Cranfield.

Messrs. JAMES VEITCH & SONS, LTD., Chelsea, staged three distinct exhibits. The table they usually occupy was filled with an assortment of greenhouse flowers, the exhibit presenting a mass of colour from end to end, and the various subjects being skilfully blended to produce a charming floral effect. There were Rhododendrons (*Azaleas*), *Freesia refracta alba*, *Boronia megastigma*, a splendid strain of *Primula obconica*, in a variety of shades, some handsome *Clivia* seedlings, and *Anthurium Rothschildianum*. But the most imposing effect was produced with *Cinerarias*, in lovely shades of colour, especially blue. Another exhibit was wholly of *Cyclamens*, all magnificently-flowered plants. The other group was composed of forced shrubs, shown splendidly in bloom, dwarf Polyantha Roses providing a pleasing centrepiece. A row of *Arundinaria auricoma* around the edge produced an excellent effect. (Gold Medal.)

Messrs. W. CUTBUSH & SON, Highgate, again made an imposing display with forced shrubs, Carnations, and hardy flowers, filling a large table with the various subjects. The flowering shrubs were intermingled with greenhouse plants and dwarf Roses, Magnolias, Wisterias, Rhododendrons (*Azaleas*), Lilacs, and similar plants were abundantly flowered. The Alpines were arranged on a rock garden, with a row of shrubs at the back. There were large patches of white, pink, and blue Hepaticas, those of a double blue variety being especially prominent; also *Primula nivalis*, *P. rosea*, *Anemone blanda*, *A. pulsatilla*, *Aubrietia Dr. Mules*, *Primula acaulis alba plena* (the double-flowered Primrose), *Iris bucharica*, *Cypripedium macranthum*, and many other kinds. The Carnations were shown in tall vases, the blooms overhanging in large sheaves, and set off by sprays of *Asparagus plumosus*. Beautiful varieties of Carnations were seen in Mrs. Fortescue (deep rose), *Carola* (clove colour), *White Enchantress*, *Rose Dore*, *Lady Elphinstone* (pink), *Defiance* (scarlet), and *Florence McLeod*, a perpetual-flowering variety, with reddish crimson, scented flowers. (Silver gilt Banksian Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, set up a large bank of Clematises amongst decorative Ferns. The Clematises were freely flowered, and included the varieties *Lord Wolseley* (deep mauve), *Miss Bateman* (white), *Nellie Moser* (mauve-pink), *Mrs. Quilter* (white), and *Lord Londesborough* (mauve). (Silver Banksian Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, staged greenhouse plants and Carnations. A prominent position was afforded the new *Hydrangea Mme. Moullière*, and there were other varieties of *Hydrangea*, *Acacias* of species, *Ceanothus Dampieri*, *Eriostemon linearifolium*, *Metrosideros floribunda*, and *Grevillea alpina* were all shown well in flower. (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond, again exhibited a showy group of forced shrubs, with numerous plants of Clematis in bloom, such as *Nellie Moser* (mauve-pink), *Mrs. G. Jackman* (white), *President* (blue), and *The Queen* (pale lavender). (Bronze Banksian Medal.)

Messrs. R. & G. CUTHBERT, Southgate, again exhibited forced shrubs, shown finely in bloom, and of such kinds as we have enumerated on previous occasions this season, when shown by the firm. (Silver Flora Medal.)

Mr. H. N. ELLISON, West Bromwich, again showed hybrid Gerberas, having superb blooms of these lovely flowers, even finer than at the last meeting. (Bronze Flora Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, again showed bunches of Zonal-leaved Pelargoniums, having nearly 50 distinct varieties. As shown, the best in their colours were:—Scarlet; Scarlet King (new), Jupiter, and Arabic; salmon; Ion Machion and Countess of Jersey; purple; Foghorn and Madrasbell; white; Snowdrop and Venus; and cerise; Helen Countess of Radnor. Messrs. CANNELL also showed a selection of succulent plants, all clean, healthy specimens.

ROSES AND CARNATIONS.

Messrs. GEORGE MOUNT & SONS, Canterbury, showed choice blooms of Roses *Lady Hillingdon*, *Richmond*, and *White Killarney*. (Silver Banksian Medal.)

Messrs. W. PAUL & SON, Waltham Cross, showed new Roses. *Sylvia* is a perpetual-blooming *Wichuraiana* variety, with sweetly-scented white blooms; *Lieutenant Chauré* is a fine, red Rose, the blooms being exquisitely fragrant; whilst *Souvenir de Gustave Prat* is a long, pale-yellow-bloomed variety.

Mr. G. PRINCE, Oxford, staged Roses of such beautiful sorts as *Mrs. Alfred Tate*, *Mrs. Sharnam Crawford*, *Lady Roberts*, *Mrs. W. J. Grant*, *Ards Pillar*, *Marechal Niel*, *Souvenir de Stella Gray*, and *Pharisaer*. (Silver Banksian Medal.)

Messrs. PAUL & SON, The Old Nurseries, Chesham, showed pot Roses of miniature-flowered sorts. *Jeanne d'Arc* (white, Polyantha), *Unser Petit* (blush-white, also a Polyantha variety), *Iceberg* (cream, pompon), *Sheilagh Wilson* (a charming, climbing H.T., of scarlet-carmine colour), and *Annechen Muller* were the conspicuous varieties.

Mrs. HARVEY, Farnham Common, Slough, exhibited cut branches of *Fortune's Yellow Rose*, bearing many buds and blooms. (Bronze Banksian Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, London, showed Alpines extensively arranged amongst rockwork in boxes. There were many pretty, coloured Primroses, a fine batch of *Fritillaria amena*, *Tulipa Kaufmanniana*, *Hepatica angulosa alba*, *Anchusa myosotiflora*, large pans of *Crocuses*, the lovely blue-flowered *Pulmonaria angustifolia azurea*, *Nocca stylosa*, and other choice and uncommon subjects. (Bronze Flora Medal.)

Mr. G. REUTHE, Keston, Kent, staged Alpines and shrubs, including varieties of *Rhododendron*. Amongst the Alpines we observed such choice and rare subjects as *Ranunculus Kernerianus*, *R. insignis* with clear, yellow flowers, *Androsace carnea*, *Tecophilaea cyanocrocus* with delightful, blue flowers, *Saxifraga Paulinae*, *S. Borisii*, *S. Petraschii*, *S. Kyrillii*, *Soldanella montana* delightfully in bloom, the flowers being dark violet, *Anemone pulsatilla* and the white variety, and *Iris Willmottiana*. (Silver Flora Medal.)

Messrs. T. S. WARE, LTD., Feltham, showed a rockery planted with *Primula rosea*, *P. nivalis* (very fine), *Stylophyllum diphyllosum*, *Androsace Lageri*, *Saxifraga (Megasea) Strachyi alba*, *Mertensia virginica*, *Goodyera pubescens*, *Schizocodon Soldanelloides*, *Viola gracilis*, and *Dielytra (Dientra) cucullaria*. (Bronze Flora Medal.)

Messrs. HEATH & SON, Cheltenham, showed a

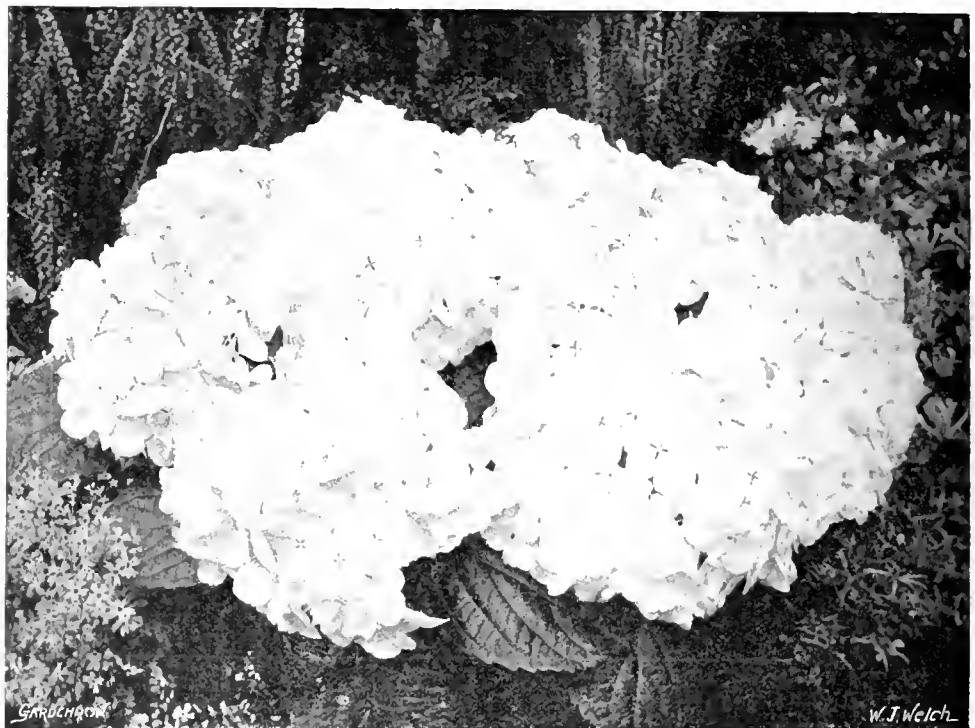


FIG. 92.—HYDRANGEA HORTENSIS "MME. E. MOULLIÈRE"; FLOWERS WHITE.

(Received R.H.S. Award of Merit on Tuesday last.)

Mr. F. BURNETT, Guernsey, again showed magnificent blooms of Carnations, as on previous occasions this year. (Silver-gilt Banksian Medal.)

Messrs. FELTON & SONS, Hanover Square, showed three new Carnations in *Empire Day* (pink), *Union Jack* (clove), and *British Queen* (pink).

Mr. C. ENGELMANN, Saffron Walden, showed Carnations of the perpetual-blooming sorts, having an assortment of the more popular varieties. (Bronze Flora Medal.) A similar display was made by Mr. MORTIMER, Rowledge, Farnham, Surrey. (Bronze Flora Medal.)

Messrs. YOUNG & CO., Hatherley, Cheltenham, staged vases and epergnes filled with Carnations in variety, all of the perpetual-blooming type.

Messrs. W. WELLS & CO., Merstham, showed blooms of the fine white *Carnation White House*.

HARDY PLANTS AND ALPINES.

Messrs. BAKERS, Wolverhampton, showed a pretty exhibit of Alpines, having numerous subjects finely in flower, especially *Primula rosea*, *P. Mrs. J. H. Wilson*, *Erinus alpinus albus*, *Sanguinaria canadensis*, *Viola gracilis*, and *Candaminea trifoliata*.

rockery as a corner exhibit, producing a good effect. We observed a fine white form of *Primula obconica*, *Corydalis Wilsonii*, *C. tomentosa*, *Primula hirsuta*, a magnificent form of *P. ciliata* named *purpurea magnifica*, with flowers a fine red-purple colour; *P. longiflora*, *Arabis Stuartii*, and *Saxifraga Strachyi alba*. (Bronze Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hants., showed hardy plants, including Alpines, for which a Silver Flora Medal was awarded.

Messrs. R. WALLACE & CO., Colchester, showed a rock-garden planted with Alpines, and with shrubs at the back. A batch of Tulips of species, *Anbrietias*, *Iris*s, *Saxifragas* in variety, such as *S. Petraschii*, *S. Pauline*, and *S. Boydi*; *Cytisus Ardoinii*, and *Erythronium Johnsonii* comprised the more important features. (Bronze Flora Medal.)

Messrs. G. & A. CLARK, LTD., Dover, set up in a charming style a rock-garden exhibit, the various subjects providing great patches of colour. The coloured Primroses and Polyanthuses were as beautiful as ever, this firm having an exceptionally fine strain of these flowers: *Anemone coronaria*, *Primula malacoides*, ver-

fine; *Viola gracilis*, *Primula rosea*, and *Myosotis Ruth Fisher*, with large, pale-blue flowers, were also shown well. (Bronze Flora Medal.)

Messrs. R. GILL & SON, Tremough, Cornwall, again showed hardy *Rhododendrons* and many finely-flowered plants of their new *Primula Winteri*. Of the *Rhododendrons*, *R. barbatum*, *R. Shilsonii* and *Duke of Cornwall* were the best scarlet kinds, whilst *R. crispum*, *R. roseum*, and the varieties *Mrs. R. Gill* and *Duchess of Cornwall* were amongst the best of the lighter-coloured sorts. (Bronze Flora Medal.)

Mr. CLARENCE ELLIOTT, Stevenage, set up a rockery formed of a blue-grey limestone apparently of great age, and planted with *Primula nivalis*, *P. rosea*, *P. Mrs. H. Wilson*, *Morisia hypogaea*, and other Alpines. The flowers contrasted well with the stones, and the effect was enhanced by very dwarf Conifers arranged on the upper parts of the exhibit.

Messrs. J. CHEAL & SONS, Crawley, exhibited a rockery planted with Alpines and shrubs. The more noticeable plants were species of *Primula*, amongst them *P. viscosa nivalis*, *P. pulverulenta*, *P. japonica*, *P. rosea*, and *P. Clusiana*. (Bronze Banksian Medal.)

Mr. H. HEMSLEY, Crawley, showed Alpines and hardy plants, having stone-work at either end of the exhibit planted with suitable subjects. We noticed a rosy-mauve coloured *Viola* labelled *V. Boseana*, *V. velutina* (purple), *Linaria triornithophora*, *Anomatheca cruenta* (with rosy-cerise flowers), and *Rhododendron racemosum*.

Messrs. GEO. JACKMAN & SON, Woking, showed Alpines in season, amongst them such attractive subjects as *Lithospermum prostratum* var. *Heavenly Blue*, *Draba Azoides*, the double-flowered *Caltha palustris*, *Tulipa Greigii*, and *Erodium pelargonifolium*.

The Misses HOPKINS, Shepperton-on-Thames, again exhibited their pretty coloured Primroses and Daisies, with other hardy flowers, in an attractive setting of stone-work.

The BURTON HARDY PLANT NURSERIES, near Christchurch, Hampshire, exhibited many species and varieties of *Primula*, *Saxifraga*, *Anemone*, *Aubrietia*, and other spring flowers.

Mr. JAMES BOX, Lindfield, Sussex, exhibited a rockery, planted with seasonable subjects.

Messrs. CARTER PAGE & Co., 52 and 53, London Wall, staged varieties of *Violas* and a few annuals.

AWARDS.

Carnation "Empire Day."—This variety belongs to the perpetual-flowering section, and may be recommended for its pleasing shade of rich pink. But it has many rivals: for instance, *May Day* and *R. F. Felton*, the difference being merely in the shades of pink. Shown by Mr. SMITH, Enfield. (Award of Merit.)

Hydrangea hortensis "Mme. E. Moullière" (see fig. 92).—In our report of the Brussels International Show (see *Gardeners' Chronicle*, May 7, 1910, p. 301), mention was made of certain varieties of *Hydrangea hortensis*, shown by Mons. E. MOULLIÈRE, Vendôme, France. Amongst these varieties was one named *Mme. E. Moullière*, which had white flowers 4 inches in diameter, and frimbriated petals. Some plants of this same variety of *Hydrangea* were shown on Tuesday last by Messrs. STUART LOW & Co., and were much admired. (Award of Merit.)

Rhododendron Mrs. Kingsmill.—This is a hybrid *Rhododendron*, raised from a cross by the late Mr. MANGLES, between *R. Aucklandii* and *R. campylocarpum*, and flowers were shown by Miss MANGLES, Seale, Surrey. The flowers are pure white, and both the flowers and leaves resemble in form *R. campylocarpum*, a yellow-flowered species. The flower-trusses are large and handsome, and the individual flowers are extremely decorative. The hybrid will be welcomed as a first-rate white *Rhododendron* for flowering in the open in March and April. (Award of Merit.)

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); and Miss E. Willmott, Messrs. Robert Sydenham, J. T. Bennett-Poe, W. F. M. Copeland, W. W. Fowler, G. H. Engleheart, Alex. Wilson, H. A. Denison, W. A. Milner, Chas. Dawson, Henry B. May, F. Barchard, C. T. Digby, Christopher Bourne, G. Reuthe, P. D. Williams, P. Rudolph Barr, F. Herbert Chapman, H. W. Leak, Joseph Jacobs, W. Poupard, John Pope, and Chas. H. Curtis.

With regard to the new arrangements, the Schedule and Show Sub-committee and the Publications Sub-committee will shortly be appointed. It was decided that Tulips which come before the Committee will be considered by those specially interested in this flower.

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, staged a fine collection of *Narcissi*, pleasantly arranged with a groundwork of *Isolepis gracilis* in small pots. This exhibit contained many splendid flowers of the standard kinds, together with equally good blooms of the newest varieties and hybrids. Particularly noticeable were *White Nectarine*, *Golden Sand* (a fine cross between *King Alfred* and *Glory of Noordwijk*), *Alsace* (a fine Poetary hybrid), *The Rising Sun*, *Mrs. H. J. Veitch*, *Jaune à Merveille* (with many fine flowers on a stem), and *Triandrus* hybrids, *Shock-headed Peter*, *Whirligig*, and *Valhalla* also attracted much attention, chiefly on account of their unconventional appearance. (Silver-gilt Banksian Medal.)

Messrs. BARR & SONS, Covent Garden, had their exhibit opposite the entrance. A few Palms and various Ferns in small pots added to its appearance. The most striking sorts were *Sunrise*, *Sunset* (a fine bunch-flowered hybrid), *Scraphine* (a handsome bicolor with very large flowers), *Firebrand*, *The Sisterhood*, *Sparkler* (of the Giant Incomparabilis type and with a bright orange-red crown), *Mohican* (somewhat like *Sunrise*), and *Early Flambeau*. This collection also contained good blooms of *King Alfred* and some fine unnamed seedlings. (Silver Flora Medal.)

Messrs. R. H. BATH, LTD., Wisbech, had a showy collection of bulbous flowers, chiefly of Tulips, growing in moss-fibre, to which had been added a good proportion of crushed oyster shells. For the most part the Tulips shown were of the ordinary commercial varieties, but they well illustrated the capabilities of this rooting medium to produce good results. *Purple Crown* (a rich-coloured Tulip with yellow edged leaves), *Le Réve* and *William Copeland* were all very attractively shown. (Silver Flora Medal.)

Mr. A. WILSON, Bridgewater, had the most interesting collection of *Narcissi* at the meeting. It was a comparatively small exhibit, but each vase contained a novelty. The flowers were finely grown and very fresh. There were very few named kinds, the collection being chiefly of new seedlings shown under numbers. One labelled No. 598 was of perfect form, having an orange-rimmed cup and primrose perianth. No. 57 was a smaller flower with a brighter cup and paler perianth. No. 327 was similar to the last, except that the cup was more rounded in form. Nos. 116 and 227 also commanded attention. Of the named kinds, we especially noted *Inglescombe* (a large, double, yellow flower), *Beryl* (orange chalice and yellow perianth), *Ruth* (deep orange and pale yellow), and *Averil*. (Silver Flora Medal.)

Sir JOCELYN GORE-BOOTH, Lissadell, Ireland, staged a well-arranged collection of Daffodils, in which the most meritorious were *Mrs. R. Sydenham* (white), *Seagull* (a robust *Bulbidgei*), *Whitewell*, *Oriflume* (creamy white with a fiery cup), *Lady Margaret Boscawen* (a bicolor Sir Watkin), *Ariadne* (Leedsii), *Incognita* (a beautiful flower), *Cresset* (an open cup of orange-red), *Sir Horace Plunkett* (a very large trumpet Daffodil), *Eileen* (a bright-eyed *Poeticus*), and *Ranee* (an *Incomparabilis* variety of fine texture). This group also contained several choice seedlings. (Silver-bronze Medal.)

Messrs. LILLEY, Guernsey, exhibited such fine *Narcissi* as *Stromboli*, *Duchess of Normandy*, *Campernelle Plenus*, and *St. Peter's*.

ROBERT SYDENHAM LIMITED, Birmingham, showed a collection of cut *Narcissi* flanked with pot plants of *Liliums*, *Astilbe*, and *Lily of the Valley*. Amongst their many Daffodils, we noted *White Lady*, *Evangeline*, *Golden Bell*, *Firebrand*, *Tomtit*, and *Persine Orange*.

Orchid Committee.

Present: J. Garney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, Garney Wilson, R. G. Thwaites, F. M. Ozilyie, F. Sander, T. Armstrong, Walter Cobb, J. Cypher, W. H. Hatcher, A. Dye, W. H. White, H. Ballantine, J. S. Moss, W. Edton, C. Cookson, Stuart Low, de B. Crawshay, and H. G. Alexander.

Messrs. CHARLESWORTH & Co., Hayward Heath, were awarded a Silver-gilt Flora Medal for a very fine group, in which showy new hybrid *Odontoglossum* were well represented. *Odontoglossum Jasper*, a grand hybrid of *O. crispum Victoria Regina*; *O. Ianthe* (*Halbocrispum ardentissimum*); a splendid new form of *O. ardentissimum* raised between *O. crispum Graefianum* and *O. Pescatorei* Charlesworth, and in which the inner parts of the flowers are of an intense purplish-red, were conspicuous. The *Brasso-Cattleyas* included the wholly pure-white *B. C. Queen Alexandra* and good forms of the coloured varieties, a new *Brasso-Laelio-Cattleya*, and the brilliantly coloured *Odontiodas*, *O. Bradshawae*, *O. Cooksonae*, and others. The centre was of white *Dendrobium Jamesianum*, *Milboma Warszewiczii*, varieties of *Phaius Norman*, *Zygocox Colax* Charlesworth, and various interesting species.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), was awarded a Silver Flora Medal for a very interesting group of hybrids raised at Gatton Park. From the back of the group appeared a number of beautiful sprays of the claret and pink-coloured *Odontoglossum Thompsonianum*, the variety *Lady Colman* being specially good. An interesting set of hybrids, with *Biacrium bicoloratum* and other hybrids, were also included, and among the species were the fine white *Caloglyphis Sanderae*, *Dendrobium Beckleri*, and the dark-colored, fringed-lipped, little *Bulbophyllum tremulum*.

Mrs. NORMAN COOKSON, Oakwood, Walm (gr. Mr. H. J. Chapman), was awarded a Silver Flora Medal for a pretty group, principally *Odontoglossum* and *Odontiodas* raised at Oakwood. Among the most remarkable things noted were two fine forms of *Odontoglossum crispum* raised from the same seed capsule, the one a large, pure white and the other a prettily-spotted variety; the handsome *O. Titania* (*crispum Leonard Perfect*), *Queen Alexandra*; some very pretty forms of *O. periclitum* and other hybrids, and a great variety of *Odontiodas*, varying in tint from light scarlet to deep red. A very handsome hybrid *Cypripedium* between *C. Chamberlainianum* and *C. Godefroyae leucochilum*, was also shown.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, secured a Silver Flora Medal for a very effective group, in which the pure-white *Dendrobium nobilis virginale* and other *Dendrobiums* were prominent. The *Odontoglossum* were well represented by good *O. crispum*, *O. ardentissimum*, *O. periclitum*, *O. Adriane*, and *O. Ossulstonii*. Other showy flowers noted were *Laelio-Cattleya Mrs. Temple* (L. C. Hy. Greenwood), *C. Mossiae*, a very large and pretty flower; a new hybrid between *Cattleya amethystoglossa* and *Laelia flava*, a good selection of *Brasso-Cattleyas* and *Sophro-Laelias*, varieties of *Lycaste Skinneri*, *Cribripetalum picturatum*, the showy *Dendrobium Chessingtonense*, various *Cattleyas*, *Sophro-Laelias*, *Cymbidium Woodhousianum*, and other hybrid *Cypripediums*.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for a fine group, in which interesting species and handsome hybrids were equally represented. The seedling *Odontoglossum crispum Prince George* was one of the showiest blotched forms; varieties of *O. eximium*, *Brasso-Cattleya Thomsoni*, and other pretty *Brasso-Cattleyas*, very fine forms of *Cattleya Luddemanniana* and *C. Schroderae*, including one handsome new coloured form of the latter, *Houlletia Sanderi*, a peculiar and distinct form of *Cypripedium caudatum*, the violet-coloured *Zygopetalum discolor atro-violaceum*, *Batemannia Colleyi*, *Bletia catenulata*, and other uncommon species.

Messrs. STUART LOW & Co., Bush Hill Park, staged an effective group, for which a Silver Banksian Medal was awarded. The *Dendrobiums* were represented by many well-flowered specimens. *Cattleya Schroderae* (including a fine white form) and other *Cattleyas*, a good selection of *Cypripediums*, some showy *Odontiodas*, including varieties of *Bradshawae*, *Thwaitesii* and *Zephyr*, a number of good *Cypripediums*, *Angraecum Leonis*, and *Odontoglossum blandum*.

SAMUEL LARKIN, Esq., The Ridgways, Hereford (gr. Mr. Hale), was awarded a Silver Banksian Medal for a well-arranged group, comprising a selection of fine forms of *Cattleya Trianae*, including the pure white variety, two good examples of *Vanda tricolor*, *V. Amesiana*, two *Cymbidium Lowianum* (one of them an exceptionally

fine form), the white *Saccolabium Harrisonianum*, some good rose-coloured *Phalenopsis Schilleriana*, *Oncidium Kramerianum*, and a selection of *Cypripediums*.

Messrs. HASSALL & Co., Southgate, secured a Silver Banksian Medal for a group at the back of which were *Cymbidium eburneo-Lowianum* concolor and other *Cymbidium*s, surrounded by a selection of the orange-coloured *Laelio-Cattleya* G. S. Ball, the ends being of bright yellow. *Oncidium concolor*, *Odontoglossum Rolfeae* and a few other hybrid *Odontoglossum*s, *Cypripedium Dominianum*, and other *Cypripedium*s were also included.

Mr. E. V. Low, Vale Bridge, Haywards Heath, secured a Silver Banksian Medal for a small group of good things. The *Dendrobium*s were fine, especially *D. Luna*, *D. pallens*, and the deep-yellow *D. Chessingtonense* var. *J. M. Black*. Several very handsome *Cattleya* Trianae, *C. Parthenia* Prince of Wales, *C. Schroderae* were also noted, and among the *Cypripedium*s fine specimens of *C. aureum* Surprise and *virginale*.

LEOPOLD DE ROTHSCHILD, Esq., Gammersbury House, Acton (gr. Mr. J. Hudson), sent a fine specimen of *Dendrobium Wardianum candidum* with 52 large, white flowers.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent *Odontoglossum Leonidas* (triumphans Lionel Crawshay × *Hallio-crispum*), a large, pale-yellow flower marked with chestnut brown.

WILLIAM BOLTON, Esq., Warrington, sent a specimen of a *Dendrobium* imported with *D. Ashworthiae* and *D. atro-violaceum*, cut flowers of both of which were sent for comparison; also the new *Odontioda Boltonii* (*O. Vuylstekeae* × *C. Noezliana*), with one large, cream-white flower, spotted and margined light-scarlet, and *Dendrobium Baucroftii*, with seven spikes.

H. S. LEON, Esq., Bletchley Park (gr. Mr. G. Cooper), showed *Cypripedium Deednamianum* Bletchley Park variety, of good colour.

Baron BRUNO SCHROEDER, Egham (gr. Mr. Shill), sent a fine spike of *Odontoglossum Wilckeanum Schroderianum* with 14 large and handsome flowers, even better than when it gained its First-class Certificate in 1908.

J. GURNEY FOWLER, Esq., Gobelands, South Woodford (gr. Mr. J. Davis), sent a fine, red *Odontioda*, said to be from a cross between *Odontoglossum Lambeanum* and *Cochlioda Noezliana*.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), sent *Sappho-Laelio-Cattleya* Olive Fairlawn variety (*S. L. Psyche* × *C. Enid*), a pretty rose-tinted flower with a reddish glow, the lip in its yellow veining resembling that of *Cattleya Rex*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontioda Vuylstekeae var. *Lady Colman* (*O. Pescatorei* var. × *C. Noezliana*), from Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier).—Probably the largest and most brilliant in colour of any of its section, the flowers being large, broad in all its parts, and of a vivid and rich scarlet.

AWARDS OF MERIT.

Odontioda ignea (*Cochlioda Noezliana* × *Odontoglossum Lindenii*), from MRS. HENRI GRAIRE, St. Fuscien, Amiens.—An extraordinary cross, resulting in a floriferous hybrid with a much-branched inflorescence of small flowers, partaking in shape of the yellow *O. Lindenii*, but of a dark-scarlet red colour.

Odontoglossum Swietenicolae (*Wilckeanum* × *Vuylstekeae*), from Sir TREVOR LAWRENCE, Bart., K.C.V.O., Bursford, Dorking (gr. Mr. W. H. Humphrey).—A distinct and showy hybrid, with large flowers, the inner two-thirds of the segments of a dark mahogany red, the margins and tips of the sepals and petals being cream colour, the front of the lip yellowish, with brown markings around the yellow crest.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. J. Cheal, A. Dean, E. Beckett, W. Humphrey, A. W. Metcalfe, A. R. Allan, G. Reynolds, H. Markham, J. Jaques, G. Wythes, J. Harrison, O. Thomas, and W. Poupert.

Lord WEARDALE, Weardale Manor, Brasted Chart, Kent (gr. Mr. G. W. Timmer), sent a dish

of very fine blanched Chicory, the heads being unusually large.

Mr. W. POUPART, Twickenham, again exhibited varieties of Rhubarb to show their relative earliness. Daw's Champion and Hawkes' Champagne, the latter of a very rich colour, were much in advance of Victoria, The Sutton, and Daw's Challenge.

Messrs. SUTTON & SONS, Reading, staged a collection of early Cabbages from a late July sowing. The varieties were Harbinger, April, and Flower of Spring. There were some 150 heads in all, Flower of Spring being the more numerous. The Cabbages were singularly clean and fresh, and superior to those seen in the greengrocers' shops at this season. (Silver Banksian Medal.)

NATIONAL GLADIOLUS.

MARCH 14.—The National Gladiolus Society has been organized for the advancement and improvement of the Gladiolus. The first meeting of the council was held on the above date by permission of the Royal Horticultural Society at Vincent Square. Knowing that it is ever the aim of your valuable journal to further the interests of horticulture, I hope that you will find space in your next issue for the following notices:—The subscription for members has been fixed at 10s. 6d. per annum, and 15s. for members residing abroad, and the benefits to be conferred are as follows:—

1. Free copy of the society's handbook.
2. Free admission tickets for subscribers and one friend to all the shows organised by the society.
3. Exemption from entry fees in all classes in such shows.
4. Expert advice on cultivation, &c., of Gladioli.
5. The right to submit any new varieties to the council for the purpose of obtaining a certificate.
6. The right to send corms or new seedlings to the society's trial ground, to be reported upon by the council.

The society intends to hold at least two shows annually; prizes and medals will be offered for competition both for amateurs and the trade.

At suitable times during the flowering season the council will meet to consider any new varieties that may be submitted by growers, and if in their opinion it is merited they will grant a certificate, and include the variety or varieties in their next handbook in the classified list, with the name of the grower and date of certificate.

It is the intention of the society to compile a handbook as soon as possible, giving valuable information, and a classified list of named varieties and their flowering season. It is felt that the Gladiolus, second only in beauty, form, and colouring to the Orchid, is not wide enough known, and the society hopes, through its members, to increase its cultivation till it is grown in every garden. The list of subscribers increases daily, but no doubt there are yet many who remain to be reached through the medium of the Press. All particulars may be obtained from the Secretary, Flagstaff, Lockheath, Southampton, to whom intending subscribers should address their inquiries. *K. Atkinson, Secretary.*

SHROPSHIRE HORTICULTURAL.

(ANNUAL MEETING.)

MARCH 24.—The annual meeting of the above society was held on this date in the Music Hall Buildings, Shrewsbury, under the chairmanship of Colonel E. C. Peel.

Mr. W. W. Naunton, the popular co-secretary, was unable to be present through illness, this being the first occasion he has been absent from an annual meeting for 36 years. The chairman said he was sure they all sympathised with Mr. Naunton, and hoped he would soon be amongst them again.

According to the report, the takings at the gates at the summer show amounted to £3,105 15s. 1d., as against the sum of £2,689 6s. in 1909, and the total receipts from all sources amounted to £5,756 15s. 3d. as against £5,245 18s. 7d. in the previous year. The figures for the last five years are as follow, viz.:—1906, £5,638 15s. 3d.; 1907, £5,922 12s. 8d.; 1908, £5,549 1s. 2d.; 1909, £5,245 18s. 7d.; 1910, £5,756 15s. 3d. Donations to various objects to

the amount of £880 15s. were made during the year, and after these payments a balance of £27 12s. 8d. remained in hand.

The spring show still continues to be a source of some considerable expense to the society, but looking at the character of that show and the exhibits made there, the committee deem it quite worthy of being maintained.

The summer show was a great success, and fully up to the standard aimed at by this society.

The society have again to express their indebtedness to the Corporation of Shrewsbury for the use of the Quarry, and to the railway companies for the excellent arrangements they made for the conveyance of the enormous number of visitors to and from the show. The officials of the Corporation are also entitled to the thanks of the society for the aid given in preparing for the show.

The chairman, in proposing that the report be adopted, said that there was a loss on the spring show amounting to £130. They had also expended £99 on improvements to the Severn Bank, so that there was really a profit on the year of £1,100. The spring show was not such a failure as it appeared from the balance-sheet, because between 3,000 and 4,000 subscribers' tickets were distributed, showing that the exhibition was appreciated. They had total receipts amounting to £5,756 15s. 3d., and for the past five years the takings have been considerably over £5,000. But he was very apprehensive that the takings would not be better this year, because of the Coronation celebrations. The motion was seconded by Professor White and carried.

On the proposition of the chairman, Lord Harlech was appointed president for the ensuing year, and Mr. A. Wynne Corrie was thanked for his services as president for the past year. The committee and other officials were also elected.

The Rev. Joseph Jacob, as a representative of the county of Shropshire of the International Horticultural Exhibition, 1912, appealed to the members to grant a sum towards the funds of the exhibition.—Mr. Adams proposed that the question of giving a grant towards the exhibition be referred to the finance committee; this was seconded by Mr. Mitchell and carried.

DEBATING SOCIETIES.

ELSTREE AND BOREHAM WOOD HORTICULTURAL.—At the meeting of this society, held on March 14, Mr. A. Ireland, of Messrs. Dobbie & Co., Marks Tey and Edinburgh, gave a lecture on "Sweet Peas." The lecturer's remarks were related to cultural details, and they were greatly appreciated. He dealt with both autumn and spring sown plants, the preparation of the ground, planting and treatment throughout, and then went on to review the newer varieties in their colours. On Wednesday, March 22, the annual exhibition of hyacinths took place, in competition for prizes offered by the society. Classes were provided for the school children and others. In addition, the president, the Hon. V. Gibbs, gardener Mr. E. Beckett, V.M.H., showed some exhibits of bulbous plants that won prizes at the R.H.S. bulb show.

READING GARDENERS'.—The fortnightly meeting of this association was held on March 20. Mr. Alderman Paritt presided over a large gathering of the members. The lecturer for the evening was Mr. W. P. Bound, a former member, his subject being "The Potting and Watering of Orchids." The lecturer dealt with *Cattleyas*, *Laelias* and their hybrids, *Dendrobium*s, *Odontoglossum*s, and *Calanthes*.

SCHEDULES RECEIVED.

We are asked by Mrs. Richard Lawson, Onsecliffe, York, to announce that a **Rose and Sweet Pea Show** will be held at Onsecliffe, York in July, in aid of a local nursing charity. Particulars of the show may be obtained from Mrs. Lawson.

Weston-super-Mare and District Chrysanthemum Society's 25th exhibition, to be held in the Knightstone Pavilion, on Wednesday and Thursday, November 8 and 9. Secretary, J. Lee, 7, Victoria Buildings, Weston-super-Mare.

Killarney Sweet Pea Society's first annual show, to be held on Friday, August 4. Hon. secretary, Miss Godfrey, Aghadoc Cottage, Killarney.

GARDENING APPOINTMENTS.

Mr. A. RAWSON, for the past 34 years Gardener at Springfield, Gateshead, as Gardener to C. S. HAGGIE, Esq., Beda Lodge, Rowlands Gill, Co. Durham.

W. H. GOSLING, as Gardener at Butcombe Court, Wrington, Somerset.

Mr. A. HICKS, for the past 14 years Foreman at Aqualate and Sundorne Castle Gardens, as Gardener to G. H. SHAKESPEY ACKLERS, Esq., Moreton Hall, Congleton, Cheshire.

LAW NOTE.

WHO IS A GARDENER?

THE appeal of the Duke of Bedford against the decision of Mr. Marsham at Bow Street Police Court (see Gardeners' Chronicle, August 13, 1910, page 130) with reference to his employes at Bedford Square and Ridgmount Street Gardens being considered male servants, was heard on March 23. There was also an appeal by the London County Council.

The Lord Chief Justice, in giving judgment, said that practically the same question arose in each of the appeals. The magistrate had come to the conclusion that in the one case the foreman was a gardener, and that the four other men were not. There could be no question but that Bedford Square and Ridgmount Square were gardens. The question whether men employed in gardens were gardeners or not might in particular cases be a difficult question; he did not think that this case would decide anything, except so far as the particular facts were concerned.

Mr. Danckwerts had contended that the foreman was not a gardener, because for a part of the time during which he was employed he was performing duties which were not a gardener's duties. As far as the foreman was concerned, he selected the bedding plants, and had the responsibility for properly planting them. He did not think it required much knowledge of such matters to understand that in order to do this a certain amount of skill was necessary, and the foreman, in this case, had been fairly successful. He was clearly of opinion that he was properly described as a gardener.

With regard to the four other men, he had felt some difficulty, and had it been for him to decide the question of fact, he should have had a difficulty in saying that they were not gardeners. Mr. Russell had asked them to say that the magistrate had misdirected himself on a question of law—namely, the meaning of "gardener." He thought that in the minds of people filling up the forms relating to the persons employed by them there still lingered a good deal of the distinction which formerly appeared in the directions given to them for filling them up. At that time the Commissioners felt that a distinction ought to be drawn between gardeners and men working in a garden, but only doing spade work. The distinction had disappeared from the directions, but, as he had said, the recollection of it lingered. To take an extreme case, a man might be employed all the year to sweep the grass, help with the mowing machine, &c. He would not become a gardener because during a time of pressure he helped in the planting. Mr. Marsham, the magistrate, had said there was no evidence that these men were gardeners, which meant that he found as a fact that they were not. What he meant was that the gardening skill was provided by the gardener-foreman Peck, and that these men were labourers under him.

He (the learned Judge) might have come to a different conclusion, but he was not prepared to say that the magistrate had misdirected himself; therefore, both appeals must be dismissed, with costs.

Mr. Justice Ridley and Mr. Justice Channell concurred.

THE WEATHER.

THE WEATHER IN WEST HERTS

Week ending March 29.

A cold week—There was one warm day, but during the rest of the week the temperature remained low, and on two days very low for the time of year. On the 27th the highest reading in the thermometer screen was only 38°, whereas on the following day the same thermometer registered 56°. On the coldest night the exposed thermometer showed only 9° of frost. The ground is at the present time 1° colder than is reasonable at 2 feet deep, and at about an average temperature at 1 foot deep. Rain, hail or snow fell on five days, but to the total depth of only half an inch. There has been on most days some slight percolation through both the soil gauges. The sun shone on an average for 4½ hours a day, or for a quarter of an hour a day longer than is reasonable. On two consecutive days the wind was high and very cold, but during the rest of the week light airs as a rule prevailed. For nearly a fortnight the direction of the wind, except for five hours, has been some point between north and east. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a reasonable quantity for that hour by as much as 10 per cent. E. M., Berkhamsted, March 29, 1911.

MARKETS.

COVENT GARDEN, March 29.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices. Columns include flower names (e.g., Anemone folgens, Arums, Azaleas), quantities (e.g., per doz. bunches), and prices in s.d. and s.d. s.d. formats.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage and their prices. Columns include foliage names (e.g., Abantium emea, Asparagus plumosus), quantities, and prices in s.d. and s.d. s.d. formats.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various plants in pots and their prices. Columns include plant names (e.g., Aralia Sieboldii, Ferns in pots), quantities, and prices in s.d. and s.d. s.d. formats.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices. Columns include fruit names (e.g., Apples, Lemons, Bananas), quantities, and prices in s.d. and s.d. s.d. formats.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices. Columns include vegetable names (e.g., Artichoke-Globe, Asparagus, Beans), quantities, and prices in s.d. and s.d. s.d. formats.

REMARKS.—Arrivals from the Cape this week per s.s. "Kensworth Castle" consisted of about 14,000 cases, including 6,000 cases of Grapes, 3,000 of Pears, and 5,000 of Kelsey Plums. The first arrival of Tasmanian Apples and Pears, per s.s. "Somerset," amounting to 6,000 Apples, and 4,000 Pears, is to hand. English Grapes are a very limited supply; bunches are meeting with a moderate demand at reasonable prices. Belgian Grapes are now most in favour owing to their superior appearance and quality. The supplies of Strawberries both from Worthing and "morning gathered" from Swanley are increasing daily and meeting with a fair demand at lower prices. About 900 cases of Seedless Oranges have been received this week. Tenerife Tomatoes arrived this week in a very indifferent condition. A few English Tomatoes are seen; they are realising from 1s. to 1s. 4d. per lb. Mushrooms are a good supply at advanced prices. There are plenty of Cucumbers, and they are meeting with a fair demand. Forced Vegetable Marrows are selling at from 6s. to 12s. per doz. The supplies of forced Beans have increased considerably, and, as a result, prices are much lower than recent quotations. Onions from Egypt are expected to arrive this week. Supplies of vegetables have been shorter this week. E. H. R., Covent Garden, March 29, 1911.

Potatoes			
	per cwt		per cwt
	s. d.		s. d.
Kents—	4 9-5 0	Lincolns—	4 6-5 0
Up-to-Date	4 9-5 0	Up-to-Date	4 6-5 0
Bedfords—	4 9-5 0	Maincrop	4 9-5 0
Up-to-Date	4 6	Blacklands	3 9-4 0
Lincolns—	4 6-5 0	Dunbars—	per bag
Long Edward V.H.	4 6-5 0	Up-to-Date	5 0-5 3
Northern Stars	4 3-4 6	Maincrop	5 6
Livergood	4 0-4 3		

REMARKS.—Trade is better and prices are firmer. Potatoes have risen 10s. to 15s. per ton this last week, and prices promise to be firm for at least the next two weeks. *Edward J. Newborn, Covent Garden and St. Pancras, March 29, 1911.*

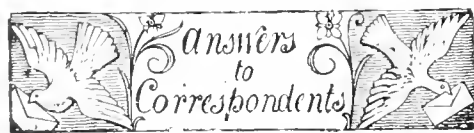
Obituary.

PROFESSOR EDWARD ZACHARIAS.—We learn with regret of the death on March 23 of Professor Edward Zacharias, Director of the Hamburg Botanic Garden and Professor of Botany in the University of Hamburg. The late professor was distinguished not only by the skill with which he directed the botanical garden under his charge, but also for his valuable contributions to botanical science, particularly in the domain of plant-histology.

CHARLES HOCKNEY.—Mr. Charles Hockney died at Great Ayton, Yorkshire, at the age of 84 years. For more than 20 years he was gardener to Isaac Wilson, Esq., M.P., Nunthorpe Hall, whose park and gardens he designed and laid out. Severing his connection with Mr. Wilson, he started a nursery at Stokesley, which he conducted with success until his retirement from active business about 15 years ago. Deceased was a successful exhibitor of show Dahlias.

CYRIL J. FRY. The death of Mr. Cyril J. Fry, who has acted as inspector of American Gooseberry milder for the past two years under the Isle of Ely County Council, occurred on the 23rd ult. Mr. Fry had been unwell for some time, but he paid his usual visits to Gooseberry plantations, his last being to Friday Bridge. On returning home, he was obliged to take to his bed, and on Monday, the 19th ult., he became unconscious and was removed to the hospital, where he succumbed to meningitis. Inspectors have often a thankless office, but Mr. Fry combined intelligence with tact, and he was generally liked. Deceased was only 27 years of age, and unmarried. *Stephen Castle.*

JOHN SMITH.—The death of Mr. John Smith, nurseryman, Loughborough, occurred on March 23, in his eightieth year. He was a prominent member of the Loughborough Chrysanthemum and Loughborough Gardeners' Societies, being one of the founders of the former association.



APPLE SCAB: *F. W.* The *Bulletin* to which you refer may be obtained free from the Board of Agriculture and Fisheries, Whitehall Place.

BEANS DISEASED: *D. K.* The damage is due to a fungus called *Brachysporium pisi*, which may have been introduced with the manure. The soil should be treated with lime.

CARNATION WITH SPOTTED FOLIAGE: *E. H. W.* The Carnation is attacked by the fungus *Septoria dianthi*. As a preventive of this disease, spraying with potassium sulphide, one ounce in three gallons of water will be found very useful. Good results will never be obtained until the stock is free from disease; pinch off the affected leaves and burn them.

CLEPY DISEASE: *J. E. Morgan.* Apply the gas-lime at the rate of five tons per acre. Do not use ordinary quick-lime, as it favours the disease.

LICKETS: *Radlett.* Place "Steiner's Vermin Paste" near their haunts. The poison should be rolled up in pieces about the size of a Pea. It may be obtained from the horticultural sundriesman.

"FLORA AND SYLVA": *B. G.* This publication has not been issued since the time you mention.

FRUIT TREES FOR SOUTH AFRICA: *Egmont.* Almost all our common garden fruits will suc-

ceed in South Africa, where the cultivation of Peaches, Plums, Apples, Pears, Grapes and similar fruits is carried on extensively, especially in Cape Colony and Natal. With regard to suitable varieties, it is well known that sorts which do well in one country are often comparative failures in another, and the reverse is true. Therefore, you might select a number of varieties and send them for trial.

PELARGONIUM DISEASED: *S. A. B.* The injury is caused by the fungus *Botrytis*. The soil is infected, and should be watered with a solution of nitrate of potash. Ventilate the house freely in which the plants are growing.

GLOXINIA: *T. H.* Mites are present on the leaves. Dip the plants in Tobacco-water.

HOLLIES DYING: *T. W.* Send a specimen of diseased bark for examination.

IXORA PRINCE OF ORANGE AND PANCRATIUM FRAGRANS TO FLOWER AT MIDDLE OF AUGUST: *W. Grant.* The *Ixora* has evidently been growing freely to have shoots a foot long. Do not check this growth on any account by cooler treatment. If it has not been tied into shape as a specimen, let this be done at once. Then at 16 weeks from the time of its being wanted in flower stop all the shoots, merely pinching out their tips. Maintain the temperature as before, and fresh shoots will soon appear. These will flower simultaneously. *Pancreatium fragrans* should be kept somewhat dry at the root, but still in moderate warmth, and the pot may even be turned on its side. Water occasionally—enough to keep the foliage fresh, but no more. About six weeks before the plant is wanted in flower water more freely, and increase the warmth. By this treatment the plant should soon show its flower-spikes, but something will depend upon the time of its flowering last season. Keep the foliage clean and free of insects.

MERTENSIA MARITIMA: *A. C. B.* Although stated in the *English Flower Garden* to be amenable to garden culture, this plant is a difficult subject to cultivate except near the sea coast. It requires an exposed sunny situation and very sandy soil. If the sand is sea-sand, so much the better. In preparing a place for it, place a foot of good loam in the bottom of a hole 2 feet deep, and to the loam add the sea-sand and plant the seedlings in the sand. It will be necessary to shade the plants until the roots have found their way well down through the sand into the soil. They will also require plenty of water. A little sea-salt mixed with the water occasionally would be beneficial.

NAMES OF PLANTS: *J. C. L.* The harder-wooded plant is *Sparmannia africana* (Tiliaceae), and the purple flower *Bletia hyacinthina* (Orchidaceae).—*A. W.* *Cornus Mas*.—*T. N.* 1, no specimen; 2, *Saxifraga Andrewsii*; 3, *S. geranioides*; 4, *Cerastium*, send when in flower; 5, *Saxifraga trifurcata* var. *ceratophylla*; 6, probably *Matricaria Telnhatchewii*.—*S. H. E.* 1, *Saxifraga apiculata*; 2, *S. taygetea*; 3, *S. Boydii* alba; 4, *S. Andrewsii*; 5, *S. cochlearis* var. *minor*; 6 and 7, forms of *S. cristata*; 8, *Sedum reflexum*; 9, *S. Anacampseros*; 10, *Dryas octopetala*; 11, *Polygonum vacinifolium*; 12, *P. adine*.—*F. Lake, Transvaal.* *Juniperus chinensis* var. *aurea*.—*A. E. S.* The Orchid is not *Balophyllum*, but *Arpophyllum spicatum*, a species introduced from Guatemala in 1839. The *Arpophyllums* succeed well in a house containing Mexican Orchids, and *A. spicatum* is a very ornamental species.—*P. V.* *Cypripedium Madroitanum* (villosum) & *Chamberlainianum* and *Odentoglossum luteo-purpureum*.—*R. A.* 1, *Cypripedium Schlimii*; 2, *Ada aurantiaca*; 3, *Coelia macrostachya*; 4, *Gongora quinquerivis*.—*A. B. C.* 1, *Cypripedium Dauthieri*, a form of *C. Harrisianum*; 2, *Cattleya Schröderae*.—*P. F.* 1, *Adiantum hispidulum*; 2, *A. pedatum*; 3, *Pteris longifolia*; 4, *P. tremula*; 5, *Adiantum formosum*; 6, *Blechnum Spicatum*.—*T. B. A.* *Primula denticulata* (Cashmeriana).

NOTICE TO TERMINATE EMPLOYMENT: *D. W. F.* It is usual for head gardeners to give or receive a month's notice to terminate a situation. We are quite unable to say whether this general rule may be applied to your case, as you have neglected to give us any particulars which would indicate your position in the gardens.

PALMS DISCOLOURED: *J. W. Newborn.* The Palms may have turned a yellow tint, owing to a variety of causes. We gather from your letter that they have been kept in a cool greenhouse, and as there are very few of the larger Palms which will stand cool conditions, the probability is that they need more warmth. A contributing cause may be that the roots are not healthy. Notwithstanding your statement that the plants have been fed with manure and soot, we think that they have not received sufficient nourishment. It must be borne in mind that Palms are gross-feeding plants, and they require to be fed liberally from the time they become pot-bound and show signs of soil exhaustion. They are, moreover, extremely impatient of any dryness at the roots. We recommend you to raise the temperature of the house in which they are grown by at least 10°, and to give each plant in a No. 1 size pot about a desert-spoonful of some manure, such as Clay's Fertiliser or Peruvian guano, each week. Both of the manures mentioned have a good effect upon Palms and cause them to develop that dark-green colour which is characteristic of a well-grown plant.

R.H.S. EXAMINATIONS: *E. J. S.* Apply to the Secretary, Royal Horticultural Society, Vincent Square, Westminster.

SLUG DESTROYER: *C. T.* There appear to us two ways in which you might introduce your new slug specific to the notice of the public: (1) you might manufacture it yourself and advertise its sale through the ordinary mediums, or (2) you might try to sell it through one or more of the horticultural sundriesmen. Slugs have always been a pest in gardens, and they remain so, notwithstanding various preparations which have been devised to destroy them. If your preparation is better than any known remedy it would be sure to meet with a ready welcome from gardeners generally. But we notice in this connection that you describe it in your letter as "equal to the best preparations on the market." If this is all that you can claim for it, it would seem to us an unnecessary production.

SOUVENIR DE LA MALMAISON CARNATIONS: *Northumbrian.* The injury has been caused by mites. Spray the plants with some insecticide.

THE GRAPE FRUIT: *Citron.* The so-called Grape Fruit is a variety of the "Shaddock" (*Citrus decumana*), and although of easy culture in this country, it rarely produces fruit, or even flowers. The plant requires during its period of growth in spring and early summer a temperature of 60° to 65°, and it should be exposed to all the air and sunshine possible after growth has finished. During the winter the temperature may be 50°. Treat the plant liberally as regards pot room, using a compost of rich, turfy loam, with a good proportion of sand and a slight sprinkling of bone meal. A heavy, close soil is detrimental to this class of plant. If the roots appear in the least pot-bound and the plant is already in a pot sufficiently large, then feed it liberally with cow manure. An occasional watering of soapsuds from the household washing is beneficial to all members of the Citrus family. Although largely grown in Jamaica, this plant is not, as you suppose, a native of that island, but of Tropical Asia. You will not derive much help from working the Grape Fruit on a "free" stock, as the plant can be cultivated very easily on its own roots.

TO DESTROY ANTS: *T. B. A.* and *C. B.* You do not appear to have employed the *Balkinrain Ant Destroyer*, which is often recommended by correspondents for destroying these pests.

WEEDS IN A POND: *P. Robinson.* Empty the pond as you suggest. Remove the bulk of the weeds, and treat the bottom and sides with weed killer.

Communications Received.—*E. J. B. & Sons*—*E. P. S.*—*J. H.*—*J. M.*—*Stirling*—*W. E. T. I.*—*C. A.*—*T. W.*—*T. S.*—*H. T. G.*—*Canada*—*R. A. M.*—*H. W. W.*—*J. C.*—*F. B.*—*C. F. C.*—*D. R. W.*—*W. W. N.*—*W. B. H.*—*A. P.*—*A. R. H.*—*W. E. B.*—*Trinidad*—*A. & B.*—*S. A.*—*O. T.*—*J. H.*—*J. G.*—*W. E. B.*—*C. H. H.*—*W. A. C.*—*C. T. D.*—*R. C. F.*—*Societa Toscana*—*E. P.*—*Deutsche Rosen*—*Anstellung*—*E. R. C.*—*Melrose*—*Mass.*—*R. F.*—*A. B.*—*Italy*—*S. & Sons*—*G. R.*—*E. K. T.*—*T. & Son*—*J. L. B.*—*G. A. B.*—*H. G. M.*

THE

Gardeners' Chronicle

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CONTENTS.

Alpine garden, the—	Obituary—
Armeria cespitosa ... 211	Chambers, B. E. C. ... 222
Frame for wintering plants ... 212	Muir, J. H. ... 222
Moraine, the, in March ... 211	Webster, William ... 222
Bartlett, Mr. A. C. ... 217	Odontioda Vuylstekeæ var. Lady Colman ... 213
Belgian Horticultural Society, the oldest ... 218	Odontoglossum Swietenicolour ... 210
Benevolent Institution, Gardeners' Royal ... 217	Potatos, importation of, into Jersey ... 218
Books, notices of—	Powerscourt, Co. Wicklow ... 218
Botanical Magazine ... 217	Rhododendron shows ... 217
British Fern Gazette ... 217	Rosary, the—
Manual of Forestry ... 216	Rose Rayon d'Or ... 210
The Subantarctic Islands of New Zealand ... 209	Rose show at Berlin ... 217
British horticulturists in America ... 219	Scotland, notes from ... 210
Bulb garden, the—	Societies—
Daffodils ... 211	Bournemouth Horticultural ... 221
Cole, Mr. Silas, appointment of ... 217	Horticultural Club ... 217
Cross-pollination, natural ... 217	Manchester and North of England, Orchid Nursery and Seed Trade ... 221
Durham, Horticultural Instructor for ... 217	Royal Caledonian Horticultural ... 222
Festival of Empire Exhibition, horticulture at the forthcoming ... 217	Royal Horticultural (Scientific Committee) ... 221
Forestry, the development of ... 220	Stinging tree of Queensland, the ... 221
Grape vine, the ... 219	Trees and shrubs—
Helianthus, red-flowered ... 220	Acanthopanax ricinifolium ... 213
Hydrangea hortensis "Mme. E. Moullière" ... 220	Prunus Tschonoskii ... 213
Ireland, notes from ... 211	Stachyurus præcox ... 213
Law notes—	Vitis megalophylla ... 213
Failure of a nurseryman ... 224	Vegetables—
Gooseberry bushes, sale of ... 224	The forcing of Chicory Week's work, the—
Legacies to gardeners ... 217	Aspidy, the ... 215
Memorial to King Edward ... 217	Flower garden, the ... 215
	Fruits under glass ... 214
	Hardy fruit garden ... 215
	Kitchen garden, the ... 214
	Orchid houses, the ... 214
	Plants under glass ... 215

ILLUSTRATIONS.

Armeria cespitosa in the Edinburgh Botanic Gardens ... 211
British and American horticulturists ... 219
Frame for wintering Alpines, details of a ... 212
Japanese garden at Powerscourt, Co. Wicklow ... 218
Odontioda Vuylstekeæ var. Lady Colman ... 213
Odontoglossum Swietenicolour ... 210
Powerscourt, the residence of Viscount Powerscourt (Supplementary Illustration)

THE OUTLYING ISLANDS SOUTH OF NEW ZEALAND.*

IN view of the ever-increasing interest in Antarctic exploration further contributions to our knowledge of the natural history of the islands lying near the ice-bound continent are welcome. Here we are concerned more particularly with the vegetation, and in this connection it should be borne in mind that there is no existing southern counterpart of the northern Arctic flora, either in composition or geographical position. There is practically no northern latitudinal or climatal limit to flowering plants and Ferns; whereas, in the south the present limit is approximately the 16th parallel, and the constituents of the vegetation are of a temperature rather than an Arctic type. Further, it is insular, and the islands relatively very small and distant from each other, some very distant, if we include all the southern-most islands

supporting any semblance of a flora. The climate of these latitudes, too, though cold, boisterous, rainy and cloudy, is of an equable temperature. Speaking of the southern islands of New Zealand, Dr. Cockayne says: "Between the mean temperatures of summer and winter, or even between their extremes, there is little difference. A sky almost constantly cloudy; rain for a longer or shorter period almost daily; an atmosphere ever saturated with moisture; brief periods of sunshine; a general average low temperature with but slight frosts at sea level during winter; constant cold and violent winds, often with sleet or snow, even in summer—such is the climate of the islands under consideration." He further adds that he doubts whether the cold is ever severe, or of long duration, or that it falls below $-9^{\circ} \text{C.} = 16^{\circ} \text{Fahr.}$, even on the hills of the Aucklands, which rise to a height of about 2,000 feet. Similarly it is recorded of the climate of Kerguelen (centre about 59°S.) that the temperature seldom falls below 32° or rises above 60°Fahr.

The following groups of islands are dealt with in the volumes, of which the full title is given below; proceeding from north to south: the Bounty, Antipodes, Auckland, Campbell and Macquarie. These islands are situated between the parallels of 45° and 55° , corresponding to the position of England in the northern hemisphere and between the meridians of 159° and 179° , or nearly covering the antipodes of England; the centre being almost on the meridian of Shackleton's furthest south ($88^{\circ} 23' \text{S.}$).

Disregarding a few plants found in the South Orkneys and other islands in somewhat higher latitudes in the American region, the flora of the islands under consideration represents the highest southern phanerogamic vegetation. The botanical investigation of these outlying islands of the New Zealand region began in 1840, in which year Wilkes's United States Exploring Expedition, D'Urville's French Expedition, and Sir James Ross's Antarctic Expedition visited the Auckland and some other groups, in the order named. Of these expeditions the British made the most important botanical collections, and the results were published before those of the other expeditions. Sir Joseph Hooker and Dr. Lyall were attached to this expedition, in the capacities of surgeon and naturalist; and the magnificent and critical *Flora Antarctica* of the former, issued in 1841, is much more than a foundation of what is now known of these insular floras. Indeed, all subsequent contributions to the subject may be summed up as further details—yet details of importance in phytogeography. It is now upwards of 70 years ago that Sir Joseph Hooker and his colleague, Dr. Lyall, stepped ashore on the Auckland Islands; with what feelings may easily be imagined, as they were approaching a virgin flora. The Auckland Islands, it may be mentioned, constitute the largest of these southern groups, approximately equalling the Isle of Wight in area, with precipitous cliffs and rocky hills reaching a height of

2,000 feet. The lower part is nearly covered with forest; the upper consists of treeless pasture. November, the month of their arrival, was the beginning of the best season for collecting, and the botanists made a rich harvest, including the very showy endemic species of *Pleurophyllum*, *Celmisia*, *Stilbocarpa*, and *Chrysobactron Rossii*, associated with peculiar species of European genera, such as *Ranunculus*, *Cardamine*, *Geranium*, *Epilobium*, *Gentiana*, *Veronica*, and *Plantago*. The first volume of Hooker's *Flora Antarctica* is restricted to the Auckland and Campbell Islands, and is a monument of industry and research, the results of less than a month's collecting. Taking Mr. Cheeseman's figures, about 100 species of flowering plants, mostly new, are described, and more than half of them admirably figured. There is a strong temptation to dwell on this early history, the venerable author of which is still among us; but it must be left with the remark that Hooker's six volumes, the outcome of the voyage, and almost entirely devoted to the Australasian flora, constitute the most enviable and monumental individual contribution to geographical, descriptive, and pictorial botany in existence.

Passing abruptly to the contents of the volumes before us, though every chapter is highly interesting, some gleanings from the botanical parts† only can be given space here. Mr. T. F. Cheeseman and Dr. L. Cockayne are so well known as leaders in their respective branches of botany in New Zealand—the former in taxonomy and geography, the latter in physiology and ecology—that their names are a sufficient guarantee of sound work. Of the two authors, the latter only has visited the southern islands.

The later and further investigation of the islands has been greatly advanced by the facilities afforded to scientific men by the New Zealand Government. In consequence of numerous disastrous shipwrecks on the Auckland Islands, it was decided in 1887 that a steamer should regularly visit the islands at least twice a year to succour possible castaways and establish depôts of provision. Since the establishment of this means of communication it has been possible for naturalists and others to reach the islands, and we now get the sum of their labours up to date. Recent explorations have not added a new genus, nor largely augmented the number of species of flowering plants known to inhabit the islands; but they have yielded data relating to the composition of the vegetation and its proportional constituents of the utmost interest. Attractive as the study of the natural history of these islands may be, the climate is detestable, and there are no human beings permanently resident in any of them. The total number of species of vascular plants—flowering plants and Ferns—hitherto collected in the whole of the islands and

* *The Subantarctic Islands of New Zealand*: Reports on the Geo-physics, Geology, Zoology, and Botany of the islands lying to the south of New Zealand, based mainly on observations and collections made during an expedition in the government steamer "Himemoa" (Captain Bollens), in November, 1907. Edited by Chas. Chilton. Published by the Philosophical Institute of Canterbury. In two volumes, 4to., pp. 848, with numerous illustrations and a map. Wellington, N.Z. (London: Dulau & Co.)

† The botanical reports are: Article X. The Ecological Botany of the Subantarctic Islands of New Zealand, pp. 1-1-235, with 17 illustrations in the text, by L. Cockayne, Ph.D., and Article XIX. On the Systematic Botany of the Islands to the south of New Zealand, pp. 389-471, by T. F. Cheeseman.

tabulated by Mr. Cheeseman, is 191, of which 53, or 27.3 per cent., are endemic, and 133, or 68.5 per cent., are common to New Zealand; leaving only eight species of the Kerguelen-Faegian element which have not been found in New Zealand proper. These are: *Ranunculus biternatus*, *Cardamine glacialis* var. *subcarnosa*, *Colobanthus subulatus*, *Callitriche antarctica*, *Azorella Selago*, *Cotula plumosa*, *Rostkovia magellanica*, and *Aspidium molrioides*, nearly all of which are common to and confined to Kerguelen, the Crozets, South Georgia, the Falklands and Fuegia. Thirty-four families are represented: those most numerous being: Filices, 33; Graminaceæ, 30; Compositæ, 22; Orchidaceæ, 11; Cyperaceæ, 10; Juncaceæ, 9; Umbellifereæ and Ranunculaceæ, 6 each; and Onagraceæ, Crucifereæ, and Caryophyllaceæ, which have five each. A noteworthy fact is the relatively large numbers of Orchids, which are exceedingly rare in, or absent from, remote islands, including the Kerguelen and other groups, west to South Georgia. The 11 species of Orchids represent six genera, and they are all common to the mainland of New Zealand. The same may be said of the Ferns, which include 10 species of Hymenophyllum. The arboreal *Hemitelia Smithii* finds its southern limit in the Auckland Islands in S. lat. 56° 16'. W. B. H.

(To be continued.)

THE ROSARY.

THE VARIETY RAYON D'OR.

This variety has flowered here freely during the last three weeks on the original plants which we received last autumn from the raiser, M. Pernet Ducher. They were potted on arrival in 5 inch pots, and placed for about four to five weeks in a cool house. After that period they were removed to a house in which the temperature was 55° to 60°, and pruned rather severely. They soon produced shoots, and after these had been cut back once for propagating purposes, flowers appeared freely on the second lot of wood. The colour is cadmium yellow as the bloom begins to open, passing to sunflower yellow when fully expanded. The flowers are large, of fine globular form, opening freely; the buds are long and pointed, copper-yellow striped with claret red. The foliage is bronze-green, glossy, and does not seem to get attacked by mildew, although the plants stood next to a batch of Marquise de Sinety which was affected by that fungous disease. Rayon d'Or promises to be an excellent bedding variety. We have given our grafts a slow and cool treatment, and have had some splendid results; in fact, they have done better than some other varieties. I enclose a few flowers for your inspection. M. Kraus (Messrs. S. Bide & Sons' Nursery).

ODONTOGLOSSUM SWIETENICOLOR.

This beautiful hybrid *Odontoglossum* illustrated in fig. 93 was shown by Sir Trevor Lawrence, Bart., K.C.V.O. (at Mr. W. H. White), at the last meeting of the Royal Horticultural Society, and attracted considerable notice because of its striking colour, which resembled mahogany red, and suggested the name *Swietenicolor*. The marginal portions of the segments is a creamy white, passing to primrose-yellow. The spike was vigorous and bore many fine blooms of the size shown in our illustration. The cross is one from O. Wilckeanum and O. Vuylstekei.

NOTES FROM SCOTLAND.

PLANT GROWING BY ARTIFICIAL LIGHT.

REFERENCE was made in the *Gard. Chron.* (see October 29, 1910, p. 514) by Mr. G. F. Scott-Elliot, to some interesting experiments made by Miss Dudgeon at Lincluden, Dumfries, with electricity in the growth of plants. Recently the writer had the pleasure of paying a visit to Miss Dudgeon's experimental station, where an experiment on a more extended scale in the cultivation of Potatoes under the influence of the electric current is about to begin, the plot being next to one treated in the ordinary way. A small plant has been fitted up at the greenhouses at Lincluden, and an experiment has been going on with the culture of different plants under the influence of the violet rays. One house is devoted to plants under their influence, and another is used as a control house, the temperature in each case being exactly the same. The plants in the control house had the advantage of a month's

that period had amounted to upwards of £7,000. Last year no fewer than 75,000 players used the course. Baillie Macfarlane, who took over the park on behalf of the corporation in his capacity as ranger of the Braid Hills, referred to the great interest taken in the scheme by the Parks Committee, and in the course of the proceedings laudatory references were made to the work done by Mr. McHattie, the City gardener.

GARDEN CITIES AND SUBURBS.

THE movement in favour of garden cities and suburbs has received a considerable impetus from the holding of the Town Planning Exhibition in Edinburgh. The establishment of the Government torpedo factory near Greenock has been the means of bringing the question to the front in that district. The workmen from England are not taking kindly to the tenement system so much in vogue there, and arrangements are being made for building suitable cottages in a garden suburb



FIG. 93.—ODONTOGLOSSUM SWIETENICOLOR.

earlier growth, for the seeds were sown one month earlier than those in the other. Yet there is a marked difference in favour of those subjected to the violet rays, and Miss Dudgeon believes that this method of cultivation might be profitably employed for forcing vegetables for the earliest markets. Lettuces and Carrots were much in advance of those in the control house, which were sown a month earlier. Strawberries in pots also showed more rapid growth.

AN EDINBURGH GOLF COURSE.

AN interesting event took place the other day in the opening of the extension of the Braid Hills Golf Course, Edinburgh, this extension being 46 acres in extent, making a total acreage of about 130. The course has been provided by the Parks Committee of the Edinburgh Corporation. Councilor Inches gave many interesting particulars of the old course, and of the extent to which advantage was taken of its facilities. Among other particulars, he said that it had been frequented by over a million players in 12 years, and that the sum received from the players during

for the workmen. A meeting has also been held to establish a garden village near Renfrew, where there is a demand for cottages with gardens.

BLAIRGOWRIE FRUIT-CARRIAGE DISPUTE.

THE action of the Stormont Fruit Growers' Society, Ltd., Blairgowrie, against Messrs. E. & T. Pink, Jam Manufacturers, London, which was decided in favour of the plaintiffs by Mr. Justice Bray in the King's Bench Division, London, on March 29, has created much interest in Scottish fruit-growing circles. The claim was for £371, the price of Raspberries sold to Messrs. Pink, but the defendants set up a counterclaim for the difference between the carriage by express passenger train, by which it was agreed the fruit should be sent, and that by express fruit goods train, by which the Raspberries were forwarded. It was admitted that the fruit had not suffered any damage, but Messrs. Pink pleaded that they were entitled to a share of the difference of cost between the two classes of train. The result that the defendants had suffered no damage,

and were not entitled to their counter-claim, is one of some importance to fruit-growers, but it will doubtless lead to more definite contracts in the future.

GLASGOW FLOWER SHOW.

THE Glasgow and West of Scotland Horticultural Society has arranged to hold a three days' exhibition in the grounds of the Scottish National Exhibition, Kelvin Grove Park, the dates being fixed for September 6, 7, 8. The competition is open to exhibitors in any part of the United Kingdom, and there are upwards of 200 classes. The value of the prizes amounts to between £400 and £500. The secretary is Mr. Hugh Mackie, St. Vincent Street, Glasgow.

THE BULB GARDEN.

DAFFODILS.

KEATS, in one of his greatest poems, sings most expressively of "Daffodils, and the green world they live in;" and this is a description which at once awakens a sympathetic chord in my nature, for everywhere around this Manse they have a verdant environment of a finely harmonious kind. I think that, of all Daffodils, *Narcissus Scoticus* is most easily naturalised in grass. It has been flowering annually in the same position here ever since I can remember, and never fails to produce an imposing array of exquisitely-coloured flowers. But I have found, from recent experience, that some of the grandest Daffodils can be thus naturalised, and, among them, I would especially mention *Emperor* and *Empress*, *Golden Spur*, *Horsfieldii* (raised by a hand-loom weaver in Lancashire), *Maximus*, *Moschatus* of Haworth, P. R. Barr, *Grandis*, *Henry Irving*, and *Golden Spur*. *Mme. de Graaff* also flowers beautifully and effectively in such natural and picturesque situations—for a year or two at least. I have also tried *Triandrus albus*, *Colleen Bawn*, *Cassandra*, and *Albicans*, with only one season's success. Why, I do not know, unless that the excessive humidity of the Scottish climate is destructive of their roots. It is consoling to remember that the exquisite Poet's *Narcissi* (of which one of the latest and loveliest forms bears the name of Matthew Arnold), and many of the very finest Bicolors, such as *Grandis* and *Empress*, are much more enduring. My own Daffodil namesake, which has been characterized as "a glorified *Emperor*," seems to have risen in value; while Peter Barr, king of the white trumpet Daffodils, though still expensive, is less so than formerly.

Among the grandest Daffodils of recent introduction are *Bedouin*, a "giant *Incomparabilis*," which has already acquired great distinction; *Buttercup*, a most interesting and charming hybrid, obtained by crossing *Emperor* with *N. Jonquilla*; *Challenger*, a grand flower, pertaining to the fascinating "Barri" section, which began many years ago with *Barri Conspicuous*; and *Czarina*, a *Leedsii* *Narcissus*, of enormous size, surpassing in diameter the great *Sir Watkin*. Other *Narcissi* of recent origin are *Furnace*, with a perianth of pale canary shade, while the exquisitely frilled and fluted cup is brilliant red; *Lord Kitchener*, with pure-white perianth and soft-primrose crown; and *Michael*, a magnificent trumpet Daffodil, which resembles *King Alfred*.

Others of great attractiveness are *Michael Angelo*, *Prospero*, *Seraphine*, *Sir Galahad*, *Socrates* (a superbly-endowed "Poeticus"), *Sir Lancelot*, *Snow Crest*, and *Tennyson* (one of the loveliest, as it surely ought to be, of the Poetic *Narcissi*).

The prices of most of these are at present prohibitive; but so rapid is the production of new and, for the most part, highly-attractive varieties, that in a few years, they will be accessible to the humblest cultivator. *David B. Williamson*.

IRELAND.

NOTES FROM LAMBAY ISLAND.

NORTH-EASTERLY gales have been disastrous to vegetation. The grass on the lawn, which, during the winter, was beautifully green, has turned quite brown in the most-exposed parts. Owing to the mildness of the winter, the grass commenced to grow freely, and mowing was necessary early in February. Some herbaceous subjects which were recently planted have been much damaged by the winds, the worst sufferers being Bamboos, which had to be moved at this season, as they were in the way of the builder.

Tarragon roots planted in November at once started into growth, and have made shoots from 6 to 12 inches in length, but these tender growths have completely perished. Geums thrive here, and established plants have produced stray flowers throughout the winter. *Narcissi* commenced flowering at a very early date, also plants of the Munsted strain of *Polyanthus*. Wallflowers were flowering freely during Febru-

not at present in a high state of fertility. Strawberry plants growing in a walled-in garden, on a much heavier soil than that named above, are pushing up new leaves, and the crowns appear firm and plump, and capable of producing strong trusses of flowers. Raspberry canes and Gooseberry bushes are rather weakly, but Black Currants are vigorous. Cherry trees on the walls have made clean growth, and are covered with fruit buds. Some varieties of Apples in bush form are satisfactory, whilst others are badly affected by canker. *Colin Rose, Lambay Island, Rush, Co. Dublin.*

THE ALPINE GARDEN.

ARMERIA CÆSPITOSA.

THIS species is an excellent plant for the rock garden, and is at the same time of the easiest cultivation.

It is a densely tufted plant, bearing rosettes of short leaves forming dense cushions, which provide a good background of dark green for the



[Photograph by R. L. Harrow.]

FIG. 94.—*ARMERIA CÆSPITOSA* IN THE ALPINE GARDEN, ROYAL BOTANICAL GARDENS, EDINBURGH.

ary, and *Princess of Wales* and *Marie Louise Violets*, these latter in the open. *Lilium candidum*, growing under the shelter of a wall facing south, have growths 1 foot high. *Kniphofias* planted in November in the shelter of Austrian Pines are commencing to throw up new foliage.

In the kitchen garden, the latest Brussels Sprouts are over; the plants commenced to push up their flowering stems by the end of February. Broccoli *Christmas White* and *Early White* have been excellent during the winter. We are now using *Sutton's Snow-white*. This is "the Broccoli" for early spring, the appearance being everything desired, and the flavour exceptionally good when cooked.

Hot-beds require frequent additions of fresh manure to line the frames, as the strong winds quickly reduce the temperature. Trenching is heavy work, owing to the rock and stone encountered during the process. The soil here consists of a dark vegetable loam, but, owing to shallow digging, and the fact that Potatoes and Cabbages have been the chief crops, the land is

heads of flowers which rise just above the foliage. The flowers are a pleasing shade of rose, and they last for a considerable time.

Perhaps the best position in which to grow this species is on a slightly sloping wall in the crevices of the rocks, where they may be looked at from about the eye level. Seed is produced freely, and plants raised from seed will flower the second year. They may be planted thickly to form a good clump, which will be most attractive about the beginning of May. *Armeria caespitosa* is a native of the mountains of Central Spain and of Portugal; it requires a sunny position in this country. *R. L. Harrow, Royal Botanic Garden, Edinburgh.*

SOME NOTES FROM THE MORaine IN MARCH.

WHEN the panes of glass have finally gone from *Eritrichium* and the difficult *Audrosaces*, one may fairly begin to take stock again of one's possessions in the Moraine. In the first place, *Eritrichium* itself is in a condition of unruffled

prosperity. The plant was a seedling found last year in a dead tuft, and put out in the moraine at the early age of four leaves. By the end of the summer, a neat but tiny rosette had formed, which bore, in such a Spartan spirit, with the incessant deluges throughout October, that in November I decided to assist such determination with a pane of glass. And now there are three hearts of verdure emerging from the plant.

The moraine, in my rain-favoured country, does not need (nor, indeed, would it bear) the cemented sides and bottom lately advocated by a writer in the *Chronicle*. Far from that, its 18 inches of shingle rest on 6 inches of clinker drainage, imposed on the ground soil, which here is, itself, moraine gravel of a vanished glacier. Yet in the hottest summer this tract is cool and encouraging half-an-inch below the apparent aridness of the surface; and the ground is never waterlogged, even after the week-long downpour that autumn often brings us. The growth that many difficult species here find themselves equal to making is a perpetual astonishment; only the smallest pieces were planted, a year ago; the whole surface is now thickly starred with tufts and patches. I am especially surprised and interested to see how brilliantly the difficult Primulas are prospering in this apparently unsuitable and unfamiliar medium. Not to mention the many forms of Auricula, and the Saxatile species, I find that even the hybrids of *P. minima* delight in this treatment. Amongst others, *P. intermedia* and *P. Kellereri* are now established and handsome clumps. Of the Androsaces, of course, varieties of the easy sarmentosa section are quite at home; *Mathildæ*, *villosa*, *pinnuloides*, and *Laggeri* do well, the purely saxatile species have so far failed, as has also *A. glacialis*.

No Campanula has hitherto failed to thrive in moraine treatment, though *morettiana* has been held too precious to be risked—at least, while one has cliff chinks capable of making this plant seem perfectly repatriated, cheek by jowl with *Phyteuina comosum*. The Androsaces, *imbricata*, *helvetica*, *pubescens*, *cylindrica*, *hirtella*, and *pyrenaica*, and such species as *alpina*, *barbata*, and *mirabilis* could hardly be tried here; but *Campanula cænsia* and *C. Allioni* pervade the moraine; *Aucherii*, *bellidifolia*, *collina*, *Saxifraga stenocodon* are coming up well; *Zoysii* is spreading far and wide, amid the even further and wider spreadings of *Viola nummularifolia*; for *rupestris* and *Elatines* I prefer the cliff. All the *Wahlenbergias* and *Edraianthus* are prosperous.

Only by experiment with the most unlikely subjects can one gauge the capacities of the moraine; and a species which does not do well in the moraine in one county may succeed in another. My own experience hitherto has been full of surprises. I have found that, while all the tinier and more difficult *Dianthus*—*Microlepis*, *Freynii*, *Lereschei*, &c.—all form large mats in the moraine (no less than *D. alpinus*, *D. sylvestris*, *D. glacialis*)—*D. neglectus* declines to grow there at all. Nor, though this year's new growth may bring a revelation, have I found that any of the Alpine *Gentians* get ahead so fast and far as I should have expected, in such strong places. With regard to the Saxifrages, it must be borne in mind that all the Aizoons grow much more luxuriant in ordinary open ground; it is not for their sake that one grows them in the moraine, but for the effect which their neat, starred tufts give upon the grey ground of chips. The *Kabschias* and *Englerias*, however, thrive beautifully, and I think, wherever they are found difficult of culture, will repay translation into moraine. Many, even of these, are, of course, frankly amphibious, and prosper as well in more ordinary conditions; such are all the *Burserianas*, for instance, *cænsia*, *squarrosa*, &c., but they are especially beautiful in moraine, which is also, I fancy, specially helpful to the following rarer sorts, now here in bud or bloom:—*pungens*, *Haagi*, *thensalica*, *dabinatica*, *Bercoloni*, *Desoulavigi*, *Paulinæ*, *Petraschii*, *Borisii*, *Kyhillii* (but, of course, all hybrids are amphi-

bioas); *aretioides*, and *media* have not hitherto thriven, and I have not yet dared to risk my singletons of their countless and very expensive hybrids; while, so far as my experience goes, *diapensioides* and *Vandellii* are convinced full-soilers, and refuse to tolerate a diet of stone chips. The *Porphyriums*, of course, all prosper here, and, in cool corners, the *Manies*; the big *Euaizoons* are not wanted in moraine, and should never be put there, even if they liked it, which they do not. Though in this direction I have hopes of *S. florulenta*, merely as an experiment, for *florulenta*, if only you avoid bruising its leaves, seems to thrive almost anywhere in a horizontal position.

For *Gentian* and *Saxifrage*, then, in this northern climate, moraine is rarely, if ever, an imperious necessity. But, to me at least, moraine offers my easiest and best, if not my only chance of seeing in permanent and prodigal prosperity the Alpine Pinks and *Potentillas*, the fluffy *Androsaces*, many of the difficult *Primulas* (though for these, of course, the cliff is really Paradise), *Erysimum*, *Globularia*, Alpine Poppies and Buttercups, *Flamel* flower (in masses), *Veronica caulescens*, *Delphinium nudicaule*, *Narcissus Bulbocodium* and varieties, *Iris gracilifolia*, *Myosotis rupicola*, and especially all the otherwise impossible high Alpine *Campanulas*, *Thlaspi*, and *Violas*, for which the moraine is really a prime necessity, whereas many of the other species answer to ordinary careful culture—though, on the rockwork, to my thinking, they never have quite so spontaneous a beauty, nor such an air of being established and at home, as

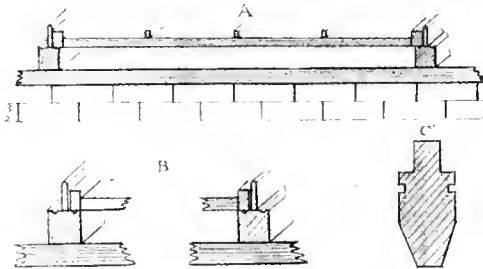


FIG. 95.—FRAME FOR ALPINE PLANTS.

A, front elevation of frame; B, sectional ends of rafters showing drip grooves; C, section of sash bar with drip groove.

when their lovely colours are seen shining with doubled vividness against the lovely soft ground of grey chips from which they spring.

In conclusion, I am often asked by people whom the shifting surface of the moraine perturbs, whether, in planting, they ought to wedge in their specimen firmly with stones. For my part, I say "No" to this; elsewhere plant as firmly as you please; in the moraine, merely insert, shake in, tread down, and then trust the fibres to forage for themselves. And, with regard to watering, perhaps the southerner will say I never "have a drought"; I differ, and can only answer that Sahara is not more thirsty than my garden in April, May, and June. And the moraine, though grateful for a few cans of water, is always well able, like a camel, to go on without, on its own resources. No part of the garden calls for so little artificial help; even on my sternly-drained moraines one can of water once a month goes further and lasts longer than a hundred daily sluced over bed or border. *Reginald Farrer.*

A FRAME FOR WINTERING ALPINE PLANTS.

BEING desirous of forming a collection of Alpine plants in pans and pots, so as to readily decorate a cold glasshouse as they reach their flowering stage, the first consideration was to provide a range of frames suitable for their accommodation during the remaining portion of the year, and especially in winter.

The primary object of a frame in this connection is to keep off overhead moisture and the

dirt which accompanies it—from about November to March—but on no account should the plants be "coddled," indeed a current of air should pass over them at all times. In the absence of this air current, such plants as *Androsaces* promptly "damp off" or become attacked by mildew.

It occurred to me that, instead of the usual frame light which runs on the sides of the frame and flush with the front and back "plate" (or sill), and thus necessitating the insertion of a block to give ventilation and yet to keep out rain, an arrangement could be made that would ensure the permanent ventilation. I decided to fix the runners which carry the lights on the top of the front and back plate (or sill) instead of letting them in till they were flush.

It will thus be seen that if the runners are say 3 inches deep, an air space of that width and the length of the frame is thus secured, both back and front. By making the lights 6 inches longer than the frames, so that they overhang 3 inches at both top and bottom, no rain can blow in, while a "throat" or groove along the front of each light $\frac{1}{2}$ inch from the lowest edge and on the under side ensures a ready dripping of the water, and there is no inclination to suck back.

Another point worth consideration is the prevention of drip arising from rain or melting snow getting in between the edge of the light and the ridge which separates it from the next (or if a single frame only between the light and the side of the frame). A simple way to prevent this is to cut a groove $\frac{3}{16}$ inch deep and $\frac{1}{4}$ inch wide on the rafter upon which the light runs, so as to intercept any such moisture on its way into the frame, and conduct it to the bottom of the rafter, where it harmlessly drips off.

It is advisable to have a similar "drip groove" on each side of the sash bars to conduct condensation quickly down the bar instead of its dripping on the plants at the first rough place it encounters. These frames have acted splendidly this winter, and are, I think, a considerable advance on the ordinary arrangement.

Should the frames be required for propagating purposes, it is a simple matter to cut two slips of wood the width and length of the air space and insert between the rafters, thus closing up the opening entirely, and if they are lightly screwed into position they can be easily removed when occasion arises. *Reginald A. Malby.*

VEGETABLES.

FORCING OF CHICORY.

I OBTAINED seeds of a Continental variety of Chicory, under the name of "Brussels Endive," from Messrs. Vilmorin & Co., of Paris. It is quite distinct and much superior to ordinary Chicory, and is eaten either as a cooked vegetable or as a salad.

The seeds should be sown in rows from the middle of May to the middle of June, according to locality, in ground that has been manured for a preceding crop. The rows should be made at 12 inches apart and about 1 inch deep. The seeds should be sown rather thinly, and when the young plants appear they should at once be thinned to about 5 inches apart. The plants should be kept free from weeds; hoeing the ground frequently is of the greatest benefit. In October forcing may be commenced, lifting the roots carefully, taking care to leave no part in the ground. Cut off the leaves to within 1 inch of the crown, and shorten the main root to a length of 9 inches. The plant is not quite hardy, but it withstands 8° or 10° of frost. The lifting process should be finished by the middle of December; if, however, cold weather prevails before this time some protection should be afforded the crowns.

Plant in trenches, made 3 feet wide and 6 inches deep, placing the soil that is removed on either side of the trench. The top of the

crown should be placed level with the bottom of the trench and the crowns 1 inch apart. The space between the rows should be 6 inches, and each 3-foot trench will allow of five rows being planted. After planting, cover the crowns with a 7 or 8-inch layer of soil, taking care to have no lumps or stones in it. When this is completed, prepare a trench on either side of the bed, 1 foot wide, 1 foot deep, and 4 or 5 inches from the roots. The necessary warmth for forcing is furnished by horse manure mixed with about one-third its bulk of leaves. The manure and leaves, to a depth of about 2 or 3 feet, should be filled in the trenches. In order to keep off rain or snow, it is necessary to form a roof over the manure with hurdles thatched with straw or other material.

The Chicory should, in ordinary circumstances, be ready for use in about 20 to 30 days from the time the hot-bed is formed. We force from 50 to 60 heads of "Brussels Endive" each week, keeping up a succession by covering a fresh bed every week with manure and leaves. When the heads are ready for cutting, they are compact and about 6 to 8 inches long. They should be

TREES AND SHRUBS.

STACHYRUS PRÆCOX.

STACHYRUS PRÆCOX blooms during late February and March, and is distinct from any other shrub that blossoms at that period. A bush might recently have been seen in flower in the enclosure near King William's Temple, at Kew Gardens, where the red bark and yellow inflorescences formed attractive features. The plant is a native of Japan, and forms a bush 3 to 12 feet high, bearing more or less ovate leaves, each from 4 to 6 inches long, and 2 to 2½ inches wide. The drooping racemes are produced in autumn, remain dormant throughout the winter, and commence to grow again with the lengthening days, the earlier flowers expanding about the last week of February. The inflorescences are from 2 to 3 inches long, the small, bell-shaped, pale-yellow flowers being freely produced. The plant thrives in light, loamy soil, and is partial to a little peat. In the Midlands and north it is probable that wall culture would be desirable; but for southern gardens this shrub may be grown in the open border.

may withstand the cold of an ordinary winter, severe frost causes injury. The tree thrives in loamy soil.

PYRUS TSCHONOSKII.

SEVERAL species of *Pyrus*, such as *P. floribunda*, *P. Runo*, and *P. spectabilis*, are well known in gardens, but others, equally as beautiful, are somewhat neglected. The species under notice is of Japanese origin, and is said to be the only representative of the Pear section of the genus found in that country, for, although the "Sand Pear" (*P. sinensis*), the parent of the cultivated Pear, is commonly believed to be a native of China and Japan, it may have been originally introduced to Japan from China. *P. Tschonoskii* has a rather interesting history, for, many years ago, Maximowicz is said to have received a single fruit and a portion of a leaf from one of his collectors, who collected it on the slopes of Fuji-san. Nothing more was seen of it until, from 15 to 18 years ago, when Professor Sargent and the late Mr. James Veitch found it in the woods near Nikko, a description of the tree appearing in *The Forest Flora of Japan*. It is a very rare tree in that country, however, for these gentlemen found but few specimens.

Pyrus Tschonoskii forms a tall, somewhat narrow tree, with ovate, acuminate leaves, 3 to 4 inches long, deep green above and downy beneath. The flowers are white, flushed with red. They are followed by small, hard fruits, which are either borne singly or two or three together, and are rarely more than half an inch in diameter. In colour, they are yellowish, with a bright red patch on the side next to the sun.

VITIS MEGALOPHYLLA.

AMONGST the numerous ornamental-leaved vines which Messrs. James Veitch & Sons have introduced through their collectors from China within the last 10 or 12 years, this is certainly one of the most distinct, differing as it does not only from other species introduced from the same country, but from any other kind which was previously in cultivation. Of vigorous habit, the plant makes a rapid growth when once established, and may be expected to attain a height of at least 20 feet. Good, loamy soil is essential for, when planted on poor land, the true character of this vine is not developed. The young stems have a glaucous colour, a shade which is repeated on the under-sides of the leaves. Under favourable conditions, the bipinnate leaves grow to a great size, being sometimes from 2 to 3 feet in length, and almost the same in width, whilst examples a foot and a half long are common. The leaflets are 3 or 4 inches long, ovate, and deep green on their upper surfaces. There are many positions in which this vine might be profitably planted, for it is amenable to wall culture, grows well on a pergola, forms a handsome column when planted against a tall pole, and is suitable for placing against the branches on the outskirts of a small tree. *W. Dallimore, Kew.*

ODONTIODA VUYLSTEKÆ VAR. LADY COLMAN.

THIS choice variety of the well known cross from *Cochlidia Noezliana* and *O. Pescatorei* (see fig. 96) is one of the most brilliantly coloured *Odontiodas* yet raised. The flowers are of a rich scarlet colour, the lines on the segments and their margins being of a darker tint. The crest is yellow and the upper side of the column deep red. The individual flowers are amongst the largest yet seen in *Odontioda*. The plant was shown by Sir Jeremiah Colman, Bart., V.M.H., Gatton Park (gr. Mr. Collier), at the meeting of the Royal Horticultural Society on March 28, when the Orchid Committee awarded it a First-class Certificate.



FIG. 96.—ODONTIODA VUYLSTEKÆ VAR. LADY COLMAN.

(Received R.H.S. First-class Certificate on the 28th ult.)

snapped off from the root with a sharp movement of the hand and not cut with a knife. All the heads were planted and the soil placed ready for forcing by the end of December. There are enough beds left to furnish a supply up to the end of April.

When used as a salad the leaves should be separated, and served in a dressing made of about 1 teaspoonful of mustard mixed with water, pepper, and salt to taste, and stirred in about 2 tablespoonfuls of salad oil with a little vinegar.

For use as a cooked vegetable, blanch the shoots in a pan of boiling water to which salt has been added, and allow the heads to boil from 3 to 5 minutes. Then place them under a cold water tap to cool, and squeeze all the water possible from them with the hand, taking care to retain the shape of the vegetable. Next take a pan, grease it with butter, and place in the Chicory; well season with pepper and salt, cover with some good stock, and allow it to simmer gently for about 1½ hours. When cooked, drain the heads on a cloth, place them in a dish, and cover with demie glace. *G. W. Turner, Weardale Manor Gardens, Brasted Chart.*

ACANTHOPANAX RICINIFOLIUM.

THIS Japanese tree is sometimes met with in British gardens, being grown for its ornamental foliage. It is, however, difficult to reconcile the specimens seen here with the enormous plants in Japan, where it is said to grow to a height of 80 feet, with a trunk 4 to 5 feet in diameter. According to *Forestry in Japan*, it is known under the native name of Hari-giri, and grows in the humid soil of the mountainous districts of the northern part of Houshu, and in all parts of Hokkaido. The wood is described as hard, lustrous, and white, and is said to be used for articles of decoration and the making of implements. As an ornamental plant, it has a distinguished appearance, by reason of its rounded leaves, which are divided into long, acuminate lobes on the margins. They are from 6 to 9 inches across, and possess the habit, peculiar to many Araliads, of congregating together in large clusters about the apices of the branches. The bark, when young, is armed with stout prickles of a deep yellow or brownish colour. The young plants appear to be tender, for, though they

The Week's Work.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS,
Aldenham House, Hertfordshire.

POT VINES.—The Grapes on pot vines should now be swelling freely. During the stoning period give the roots a liberal dose of some stimulant after every other watering. Attend with care to such matters as ventilating and damping and, until the berries commence to colour on the bunches nearest the hot-water pipes, close the house early in the afternoon. As the ripening of the Grapes advances, ventilate more freely, and close the house later. During warm nights the top ventilators may remain open a trifle, for the fresh air so admitted will assist in ripening the growth, and the fruits will be better flavoured.

STRAWBERRIES.—Continue to introduce into heat successive batches of plants as desired, allowing them, on bright, warm days, an abundance of fresh air. After the fruits are gathered, those plants that are of no further use should be thrown away, but selected plants that have been forced early, will, if planted out, provide a second crop of fruits in the autumn. Plants that are intended for this purpose should be given careful treatment, especially in the matter of watering and should be hardened gradually, so that they may grow without a check when planted out of doors.

CHERRIES.—Pot plants of Cherries that are carrying crops of swelling fruits will need strict attention with regard to watering. Twice or thrice each week supplies of diluted farmyard manure may be given in place of clear water, and a top-dressing of fine soil, well pressed on to the surface of the older material, will prove beneficial. This top-dressing may be composed of fine loam and fine rubble in equal parts, with the addition of a liberal quantity of an approved chemical fertiliser. Cherries growing in borders must also be supplied liberally with water until the fruits commence to colour. If not already done, give the borders a dusting of artificial manure and lightly fork this in, then apply a good mulch with decayed farmyard manure. Cherries at this stage will bear an increased temperature, especially during the day, but the heat must not be kept high at night by employing much fire-heat. Syringing should be practised at every opportunity, or the trees will soon become infested with red spider or aphid; should either of these be observed, syringe the plants with a solution of soft soap and water, or some other insecticide. Growths required for extension on trellises should be carefully tied in, and others stopped whilst still quite soft. Later trees now in flower require abundance of ventilation night and day.

YOUNG VINES.—Those plants which were raised from eyes this season and grown on in turves as a rooting medium will soon be ready for placing in their permanent quarters. They now require copious supplies of water at the root, and occasional soakings with manure water. Choose a calm, warm day for transferring them from their present position. Assuming that a properly-constructed border has been prepared for their accommodation, planting will not take very long. Before removing the plants, mark out the exact positions with a cane. Do not plant them too deeply, but let the roots rest almost on the surface of the border, covering them with a sprinkling of fine soil. If the weather is bright, a light shading may be required for a few days, therefore place a sheet of paper over each plant. Syringe the plants lightly and frequently, and carefully ventilate the house. The border may be given a mulching, but this should not be placed quite close to the stem of the young plant. Train the shoots straight as they develop. Young vines grown on in pots will need careful attention as to watering, and any required for decorative purposes must be staked nicely. Stout Bamboos, with transverse pieces to increase the support, are useful for this purpose. During the time the plants are growing, they are best secured to a trellis or some similar support. Regulate and

well clothe the space with foliage; afterwards carefully attend to the stopping of the laterals, as with permanent canes, the same applying, of course, to the thinning of the bunches, though this, if not too rigidly carried out, will add to their decorative value. Collars made of loam and placed round the rim of the pot will greatly increase the amount of space for watering. Plants which were raised from eyes this season and are now in 6-inch or 7-inch pots will require syringing frequently and plenty of ventilation.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens,
Windsor.

HERBS.—Sweet Basil and Marjoram should now be sown and placed in a temperature of 65°, to produce plants for summer supplies. When large enough to handle, the young seedlings should be pricked off in boxes and placed near the glass, where air can be admitted to keep them from damping. When large enough, the plants may be placed on a warm border and protected from cold wind. Chervil should be sown fortnightly throughout the spring and summer, and in hot summer weather a north border should be chosen for this plant. The best way to keep up a supply of Mint is to plant young, green shoots as soon as they are large enough to handle. Plant them in light, rich soil with an ordinary dibber, allowing 12 inches between the cuttings each way. Fresh plantations of Thyme should be made as soon as possible. Thyme is best when raised from seed, and the seedlings should be planted 18 inches apart. Sage is easily increased by cuttings about the middle of April.

SPINACH.—Frequent sowings of Spinach should be made to maintain the supply, selecting a north border for the later sowings. "Victoria" is the best variety for present sowing, and the plants should be allowed 18 inches between the rows. New Zealand Spinach makes an excellent substitute for ordinary Spinach in very hot seasons. The seeds should be sown in drills, 3 feet apart, at about the end of April, or plants may be raised by sowing seeds in pots for planting out in May, but they must be protected from frost. At the present time the winter Spinach should be divested of all decaying foliage, and the soil between the rows broken up with the point of a fork.

SEAKALE.—Now is the time to make plantations of Seakale for next winter's supply. If cuttings of the roots were placed in the ground during the winter, they will now be sufficiently advanced to plant in their permanent quarters. This should be done as soon as growth commences, in order to avoid injury to the plants. Select rich soil for this crop, and allow a space of 2 feet between the rows and 15 inches from plant to plant. The crowns should be slightly covered, and the holes filled with crumbling soil. When the plants are a few inches high, they should be examined carefully and the shoots thinned, leaving the strongest single growth on each plant. By this means good, strong crowns should be available for forcing in November. Seakale delights in moisture during the growing season, and should never be allowed to suffer from want of water at the root. Crowns still unforced may be placed closely together behind a north wall, and covered with 9 inches of fine leaf soil, but protection from heavy rains should be afforded, or the Kale may be stained and unfit for use.

CELERY.—Young plants of Celery in boxes should be pricked out as soon as they are large enough to handle. A bed may be made up to within a few inches of the glass, and the seedlings planted 6 inches apart in the frame, so that they may be got up for planting with a good ball of soil to each plant. Give abundance of water at the root. Another sowing should be made at the present time in a cold frame, and the lights may be removed as soon as the plants are well above the ground. Standard Bearer is one of the best varieties for sowing now to stand the winter.

BRUSSELS SPROUTS.—Another sowing may be made in the open border to furnish Sprouts for next spring's supply. We are still gathering Sprouts from a sowing made about this date last

year. Dwarf Gem is the favourite variety at Frogmore. Young plants raised from seed sown in February should now be ready for pricking-out where some shelter can be given until they commence to grow. The same remark applies to Cauliflowers, Cabbage, and all early-sown seeds.

LETTUCE.—Seedlings raised early in the year may be planted in a sheltered situation, and should be ready for use early in June. Make frequent small sowings from now onward during the summer. Iceberg, Ideal, and Mammoth White Cos are good varieties for summer supplies. Use the Dutch hoe frequently on the soil amongst young Lettuce plants as soon as they become established.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

TRICHOPILIA SUAVIS.—This species is one of the largest in the genus. The beautiful flowers, which have a perfume like that of Hawthorn, are produced freely throughout the spring and early summer. Trichopilias thrive best in a cool, intermediate temperature, with a genial, moist atmosphere, and a moderate supply of water to the roots during the growing season; but in winter they need very little root moisture. The plants may be cultivated in pots, but when growing in hanging baskets, the flowers are seen to better advantage. In potting, they should be well elevated above the rims, as, thus potted, the flowers, which are produced below the leaves, are afforded more space for their display. It is very important to use sweet and extra porous rooting material, and to keep the drainage in perfect condition, as the plants rapidly decline in health under adverse conditions. Repotting should be done when the new growths are producing roots, and the compost used may consist of Osmunda fibre two parts, Polypodium fibre or Oak leaves one part, and Sphagnum-moss one part, with a free addition of crushed charcoal and coarse silver sand. Pot the plants moderately firm, and cover the surface with clean-picked Sphagnum-moss.

ADA AURANTIACA.—Plants of this grand old species are now passing out of flower. If any are in need of fresh rooting material, they should receive attention at once, as new roots will soon be pushing forth from the last-made growths. A compost consisting of two-fifths each of fibrous loam and Osmunda fibre, and one-fifth Sphagnum-moss, with plenty of silver sand, crushed crocks, and charcoal, form a suitable rooting medium. Use these materials in a rough state, and see that the pots are perfectly drained, so that the large quantities of water needed during the growing season will pass away freely and not render the material sour. This Orchid is usually classed with the cool-growing kinds, and it can be successfully grown at the warmest end of a cool house, but the plants prefer a little higher temperature, and especially during the winter months. The plants should be shaded from strong sunlight, and kept free from insect pests.

ODONTOGLOSSUM EDWARDII.—The spikes of this species are now expanding their flowers. We have in this plant a parent of several handsome crosses, such as Odonioda Devossiana, Odonoglossum Thompsonianum, Clytie, Grogania, and others, all producing long, handsome spikes of attractive flowers that are displayed during the spring and early summer months. The hybrids are freer-flowering than O. Edwardii, but plants should not be allowed to carry full spikes before they are strong enough to do so without suffering injury. The roots of these plants are larger and more fleshy than those of most Odonoglossums, therefore rather larger pots should be employed, and the rooting material provided should be used in as rough a state as possible. When the plants of O. Edwardii have passed the flowering stage they may be repotted if necessary, while any that are not blooming this season may receive immediate attention. A similar potting compost to that recommended for Miltonias (see p. 135) will be suitable for these Odonoglossums, but with a free addition of coarse, broken charcoal and crocks to render the whole porous. All the above plants are innates of the cool division, and are comparatively easy to grow, provided they receive liberal treatment during the growing season.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

CELOSIA PLUMOSA.—Seeds of the crimson, and also of the yellow varieties of *C. plumosa* should now be raised in warmth, to provide a succession to the sowing already made. The present sowing will constitute the main supply, as the plants may be expected to develop to the fullest size and flower in late summer in the conservatory. The earliest *Celosias* must not be given cool treatment at present. Coxcombs require much the same kind of culture as *Celosias*, but each plant should show promise of developing a first-class "comb" before the last potting is given it. These and other annuals for pot culture have a distinct advantage in the fact that when they have flowered they can be cast aside to make room for other plants. In gardens where there is a great demand for decorative plants for rooms, this is a consideration.

CARNATIONS.—Those who do not possess facilities for carrying out extra-early propagation will find that cuttings of the perpetual-flowering Carnations may be rooted very easily at the present time in a moderate temperature. Short, sturdy cuttings should be inserted round the sides of the cutting pots. The compost at this early stage should contain a considerable quantity of sand, and care should be taken not to afford the cuttings much moisture until they have produced roots.

CHRYSANTHEMUMS.—At the time of writing we are busy potting the Chrysanthemums into 5-inch pots. Those which were potted earlier are varieties which flower in November, and the earlier flowering varieties are potted next. The soil should be rather on the dry side than otherwise, in order that it can be pressed firmly without suffering deterioration. After potting, the plants are kept in cold vineries for a time, but very soon the entire stock will be transferred to cold frames, as the vines will need to be started into growth. There must be no coddling in the cultivation of Chrysanthemums, for the dwarfier and more stocky the plants, the better they will flower. The last batch to be potted will be those plants which flower in September. These are grown both in single pots and grouped in large tubs to form masses of two dozen or more plants of one kind. The latter are pinched to form dwarf bushy plants.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

OUTDOOR VINES.—A naturally well-drained soil, or an artificially made border, both of which have a leaning towards dryness and warmth, are the main factors in the successful growing of outdoor Grapes. Excessive growth should be discouraged, hence the soil in which the vines are growing should not be made too rich. A sloping or raised border against a south wall is much to be preferred to any other place or position. Grapes grown during an average season in the South or West of England under these conditions are often equal in point of flavour to Grapes grown under glass in less favoured countries. In the 13th and 14th centuries every large castle and monastery in England had its vineyard, and it is a regrettable fact that outdoor Grapes have in this country almost passed out of cultivation. The vine will thrive in almost any kind of soil that has a porous or dry subsoil, but the deeper and richer it is, the greater vigour will the vines develop. In dry, chalky or gravelly soils, though the quantity of fruit and size of berry are less, the flavour is greater. The vine grown against a south wall or a similarly sheltered position will frequently ripen its fruit without any artificial aid, but if, during the summer season, the trees show signs of suffering from drought, the border should receive a thorough soaking of water; one such watering will usually be sufficient. Artificial feeding may be resorted to if considered necessary, but this is a very doubtful point in the cultivation of the Grape out-of-doors in this country. As a rule the spur system of pruning is the best, training the growths cordon fashion, at about 2½ or 3 feet apart, entirely removing these and training in young wood from time to time as may become necessary. Vines growing in the open air break more regularly than those

grown under glass, so that shoots are usually plentiful; at pruning time these may be cut back to one or two eyes, and one only of the resulting growths will be required, disbudding may therefore be carried out somewhat severely. One bunch of fruit to each spur is enough for the vine to ripen, more than enough if the variety produces bunches and berries above the average size. As soon as the bunches are "set" and not before, the superabundant foliage, which protected the bunches when in flower from cold winds or scorching sun, may be removed by stopping the shoots at two or three leaves beyond the bunch. After this has been done, the growths should be tied, or nailed, into their respective positions. Only a very moderate thinning of the berries is necessary, unless these are inclined to grow large. Pruning is best done in autumn or early in winter. The present time of the year is favourable for planting. Not more than about 3 feet of the original vine rod should be retained at the time of planting, but a gradual extension of the stem will take place during successive seasons.

SELECTED VARIETIES.—The following varieties are some of the most suitable for outdoor wall culture: Early Ascot Frontignan, Early Saumur Frontignan, Early White Malvasia, Millers' Burgundy, Pitnaston White Cluster, Royal Muscadine (known under the name of Chasselas and Chasselas de Fontainebleau), and Raisin Framboisier (Strawberry Grape), an American Grape with a high perfume, bunches and berries rather small, colour dark purple. The berries of the Strawberry Grape require but little, if any, thinning, and the vine must be planted in the warmest position available.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HADDINGTON, K.T., Tyndham, East Lothian.

DAHLIAS FROM TUBERS.—For garden decoration old tubers are superior to spring-rooted plants, as the latter are longer in coming into flower and are usually less floriferous. A plan which I have adopted with the old tubers for many years past is to treat them like Potatos. The tubers which have lain dormant throughout the winter are now showing buds, and in some cases several appear on the root stock. In such cases the root stock may be divided into suitable sizes, and reserving growths with each detached tuber or tubers. These may be planted forthwith where they are to flower, covering the buds with 4 inches to 6 inches of soil. The value of Dahlias for massing is considerable, but this value is not infrequently lost through using a number of varieties where one is enough.

KNIPHOFIA (TRITOMA). Any plants of *Kniphofias* which are three years old from seed should be sufficiently advanced to flower. Such plants may be lifted carefully, and replanted in the mixed border or in beds by themselves. For general purposes the old species, *K. Uvaria*, is still most valuable. At the present season any blanks amongst these plants may be made good, but if the larger clumps are to be divided for this purpose, the operation must be carried out with very great care in order to preserve the roots as much as possible. *Kniphofias* like a very rich soil, but unfortunately much manure has the effect of producing growth which is very sensitive to cold, and this fact has to be borne in mind. In any case, a mulch of well-trotted manure should be applied over the roots of plants which are transplanted, and if the transplantation is followed by dry weather, it will be necessary to soak the ground with water occasionally until the plants make fresh growth.

TUBEROUS BEGONIAS.—There are two methods of treating these showy plants, either of which may be adopted with equal success. For late-flowering, the tubers may now be started into growth for planting at the end of the present month. At this advanced period, the tubers become active, even in a few days after being placed in a warm structure and supplied with moisture. Place some rough leaf-mould under and around the tubers in order that the roots may be preserved at the transplantation later on. At the time of transplanting, a covering of soil, about 3 inches deep, will be sufficient. Growth will not appear above the surface until the frosts have ceased, and the only drawback to this method is that the blooming season

is late for general purposes. The other system is to grow the plants under glass, and transplant them early in June. The extra labour involved by the latter system is considerable, as each plant must be allowed considerable space. A box, for instance, that will hold 100 *Begonias*, will be none too large for 20 *Begonias*. An efficient mode of preparation consists of laying the tubers on a Vine or Peach border, and keeping them moist. Planting them in boxes after they have commenced to grow in a compost consisting of leaf-mould two parts, and loam one part; which is so porous. No extra provision for drainage is required. The tubers are arranged on a layer of this compost, and need only be just covered with it, watering them freely. A week later a further 2 inches of soil of the same material should be added to allow for the tubers being set sufficiently deep at planting time. I am preparing *Begonias* for a series of 16 beds in the manner I have described.

BIENNIAL PLANTS. In northern districts Wallflowers, Canterbury Bells, and Sweet Williams should be sown on a well-worked piece of ground at the present time, rather than in May. *Campaula pyramidalis* may be sown at the same time, and Carnations if it is desired. I think Carnation seedlings raised in this way pass through our trying winters better than do those raised under glass. Pinks and many species of *Dianthus* are also amenable to outdoor culture from the sowing of the seeds until the flowering stage, but transplantation is necessary in each case.

THE APIARY.

By CHLORIS.

QUEENLESS COLONIES.—It is not uncommon at this season of the year to find colonies that are queenless. Sometimes this is caused by the beekeeper manipulating the hives too early in the season and irritating the workers so that they kill the queen. Some beekeepers believe that the queen takes a cleansing flight in common with the other occupants of the hive, and when hives are close together she enters the wrong one, and is killed by the reigning queen, or she may be killed by one of the many birds which prey on bees and other insects. The loss of queens, through them entering the wrong hive, may be minimised by painting the fronts of the hives in different colours, and placing them at not less than 6 feet apart. When the queen is absent the worker bees seem very restless during the first three or four days, and rush about on the alighting board. They do not work so well as other colonies, those that are foraging do not bring in pollen, and before entering the hive loiter on the alighting board, whereas under normal conditions the bees seem to have no time to waste in front of the entrance. The number of bees dwindles, and when the apiarist attempts to overhaul such a colony he finds it a very difficult matter because the bees are irritable.

HOW TO DEAL WITH QUEENLESS STOCKS.

If the beekeeper has a nucleus or weak colony, the queenless stock should be removed 2 or 3 feet each day on which the bees leave the hive in large numbers until the hives are side by side. On a fine day give both stocks a puff of smoke to make the bees gorge themselves with food. When a few minutes have elapsed open the hives, and after drawing the combs, occupied by the bees, apart, dust with flour from a flour dredger or spray them with peppermint and water. This is done to give the bees a scent in common, so that they will not fight when united. Place the frames containing bees from the two hives in position alternately, but place them widely apart so that both lots of bees may remain quite separate for at least 24 hours. Remove the queenless hive, and combs containing honey which cannot be utilised may be used for feeding purposes where other stocks are short of food. Bruise the cappings by cutting them in all directions with a knife. When the work is completed use plenty of quilts, for the hive can scarcely be made too cosy.

ROBBING.—At this season of the year weak colonies form an easy prey for stronger stocks to rob, and bees will be very prone to this during the present season as they will be very short of food. As a prevention of robbing close the entrances, so that only one bee may pass at a time.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. It desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Editors and Publisher.—Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the Literary department, and all plant to be named, should be directed to the EDITORS. The two departments, Publishing and Editorial, are distinct, and much needless delay and confusion arise when letters are misdirected.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, APRIL 10—
United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, APRIL 11—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Rev. Geo. Henslow, on "The Origin and Structure of Aquatic Flowering Plants.")

THURSDAY, APRIL 13—
Soc. Nationale d'Hort. de France (Paris) Exh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich—46° F.

ACTUAL TEMPERATURES.—

LONDON.—Wednesday, April 5 (6 P.M.): Max. 34°; Min. 29°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, April 6 (10 A.M.): Bar. 30.2; Temp. 37°. Weather—Bright.

PROVINCES.—Wednesday, April 5: Max. 43° Ireland S.E.; Min. 30° England, Midlands.

SALES FOR THE ENSUING WEEK.

MONDAY—
Herbaceous and Border Plants, Hardy Bulbs, &c., at 12; Roses, Fruit Trees, &c., at 1.39; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

WEDNESDAY—
Hardy Bulbs, Perennials, &c., at 1.30; Palms and Plants, at 5. Trade Sale of Miscellaneous Bulbs and Roots, at 12. Japanese Lihuns, at 2; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Forest Management.

The publication of the fourth edition, revised and slightly enlarged, of Sir W. Schlich's *Forest Management*, is not only a sign of the great interest taken in the art of forestry at the present time, but is also a clear proof of the value of this important work. It deals with the application of mathematics to forestry problems; a subject which is daily studied by skilled Continental foresters. Some parts of the book are hard reading, and on this account the merits of the work have been scarcely appreciated at their proper value. The proprietor of any considerable woodland area has a large amount of capital at stake; and it is his business to require from his forester accurate details of the amount of the growing stock of timber, the rate at which it is piling on incre-

ment, and the consequent interest which is accruing. If the proprietor is careless about such matters he suffers grievously in pocket.

The first part of the book, comprising 107 pages, deals with the accurate modes of determining the dimensions, volume, age, and increment of single trees and of whole woods; and with the compilation of yield tables. Yield tables are of great importance, as they constitute the statistics by the aid of which the financial results of forestry may be forecasted. In France, Germany and Denmark, yield tables have been made for the different species of trees cultivated in those countries. We are without such data in England, and the first concern of the new Forestry Board, which we hope will soon be created with the aid of the Development Funds, will be to provide us with yield tables of all the species that are profitably cultivated in this country. Sir W. Schlich considers that the German tables for Scots Pine are applicable to the Southern and Midland Counties of England; but we are not at all certain that they are applicable to Scotland, Wales and Ireland. We have no tables for Larch, Douglas Fir, Sitka Spruce, Thuya, Ash and Chestnut, the species that are silviculturally a success in this country.

Yield tables are frequently misunderstood by such English foresters who lack adequate training. They argue that a particular species gives so varying a yield of timber on different classes of soil that no trustworthy tables can be constructed. These tables, in reality, show the laws of growth of each species; and these laws can be determined with certainty. It is true that Scots Pine may be grown on a hundred kinds of soil, and will yield, say, at 100 years old, a volume of timber varying between 3,000 and 9,000 cubic feet. It cannot be predicted with certainty the yield on an untried piece of ground, but it is possible to solve certain problems. Suppose, for example, that on a certain estate there is a Scots Pine plantation 40 years old, which, by careful measurement, is shown to contain 3,320 cubic feet of timber. Yield tables will enable us to state positively that, if the plantation is normally stocked, it will yield 5,070 cubic feet at 70 years old, and 5,460 cubic feet at 80 years old. This is valuable information, as it enables us to fix the proper age for felling, and to make a financial forecast of a trustworthy kind. Many other practical uses of yield tables might be adduced.

The second part of the work, entitled "Forest Valuation," extends over 40 pages, and gives the ordinary actuarial modes of investigating problems, in which compound interest is involved. The financial returns of forestry, coming in at long intervals after planting, cannot be calculated with certainty. No one knows what will be the selling price of Larch, Spruce, Ash, Pine or other timber 20 years hence. But we do know the relative values of timber of different species fairly well. With proper yield tables and hypothetical prices of timber, we can predict the relative merits of different species, and different modes of treatment,

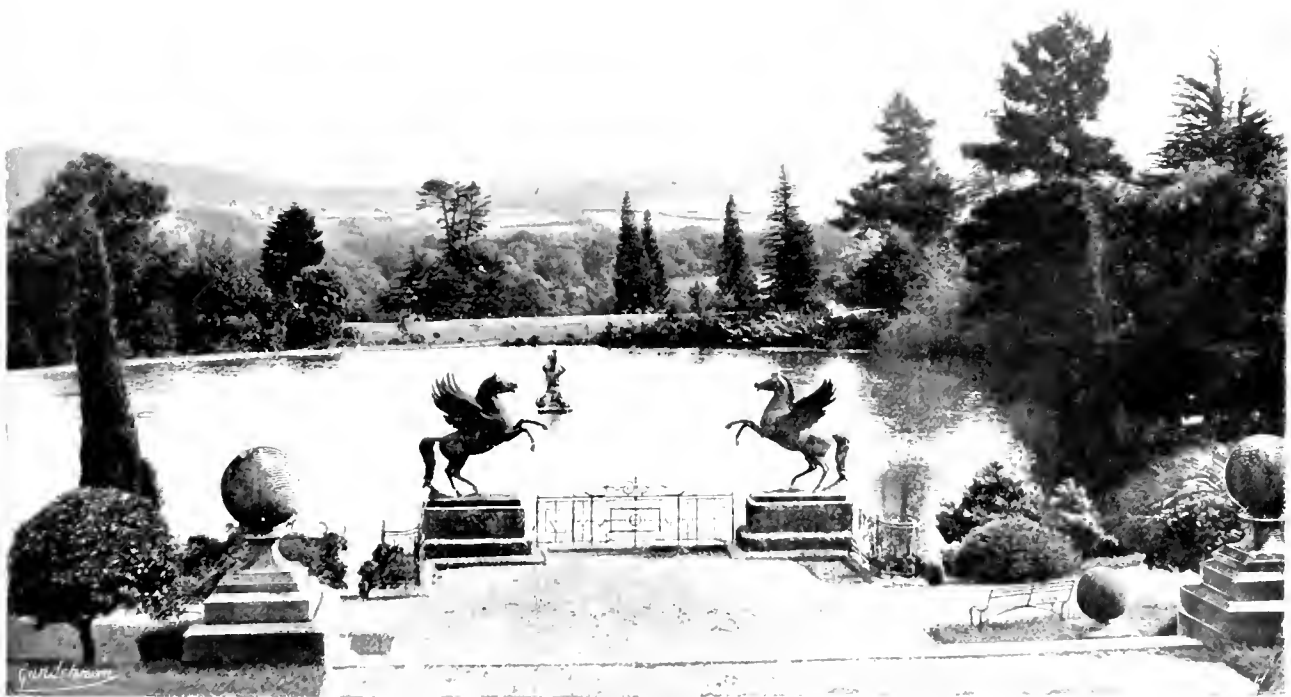
on different soils and in different situations; and can judge whether it is more profitable to plant, for example, Larch or Chestnut on a certain plot; whether a wood should be felled in 1950 or in 1960; and we can forecast with great accuracy the financial effects of early thinnings.

With regard to schemes of afforestation, no one can foretell whether they will be profitable or not, as no one can predict the price of timber of any species in 40 to 100 years' time. But it is possible to ascertain with certainty the cost of planting, the annual cost of maintenance, and the yield of the species planted at any given date. And we can then postulate that, if timber sells at so many shillings per cubic foot in 1951 or 1991, the financial results of the afforestation will be so-and-so. These calculations can be made by the aid of Sir W. Schlich's lucid explanation of the principles underlying them.

In the third part of the book the subject of forest management is fully treated—that is, the way in which forests should be managed in order to produce the best financial result, or the greatest volume of timber, or the most suitable class of produce for a specific purpose—objects which are totally different from one another. Understanding these principles, we are prepared for the fourth part of the book, which deals with the actual preparation of working plans. A working plan is a schedule which sets forth the manner in which a forest or wooded estate should be managed for a term of years. The book concludes with a series of useful appendices, including tables for the measurement of trees, yield tables with diagrams, specimen working plans, and a short but sufficient index.

We congratulate Sir W. Schlich on the issue of this volume, the third in the series of his *Manual of Forestry*, and we are pleased to note that its usefulness has been increased by the various concrete examples which are introduced. These make plain the numerous formulæ, which, at first, may prove difficult to the non-mathematical reader. But, as we have explained, the volume is concerned with the application of mathematics to forestry problems and, naturally, cannot be understood without a fair knowledge of elementary mathematics. Just as no commercial company can hope to succeed without skilled accountants and systematic book-keeping, so, no forestry undertaking can escape failure in the long run, unless the forester in charge both understands the principles of forest mensuration, and is capable of preparing working plans, which will exhibit, with other details of interest, the financial aspect of his woods and plantations. We are speaking of forests which are established and worked on an economic basis. Forests, of course, can be cultivated for ornament and for pleasure, with a different system of management. These latter are the joy of wealthy landowners, and are often a source of great pleasure to the community from their irregular beauty; but we must distinguish clearly between the forest as a hobby and the forest as a source of wealth to the individual and the State.

*Schlich's *Manual of Forestry*, vol. III., *Forest Management*, by Sir W. Schlich, B.C.L., 4th Edition, pp. 403, with 59 illustrations. (Bradbury, Agnew & Co.) 1911.



POWERSCOURT CASTLE, CO. WICKLOW, THE RESIDENCE OF VISCOUNT POWERSCOURT.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of the Royal Horticultural Society will take place on Tuesday, the 11th inst. At the afternoon meeting of Fellows the Rev. Prof. G. HENSLOW, V.M.H., will deliver a lecture on "The Origin and Structure of Aquatic Flowering Plants."

HORTICULTURAL CLUB.—The next house dinner of the club will take place on Tuesday, the 11th inst., at 6 p.m., at the Hotel Windsor, Victoria Street, S.W. Mr. WILFRED MARK WEBB, F.L.S., hon. secretary of the Selborne Society, will give a lecture on "The Brent Valley Bird Sanctuary"; the lecture will be illustrated by lantern slides.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are informed that the QUEEN has sent £10 10s., and QUEEN ALEXANDRA £25, in aid of the funds of the Gardeners' Royal Benevolent Institution, of which their Majesties are patronesses.

HORTICULTURAL INSTRUCTOR FOR DURHAM.—This post has just been filled by the appointment of Mr. J. SMITH, until recently horticultural instructor for East Suffolk. There were 97 candidates, and six were selected to go before the committee. These were again reduced to two, namely, Mr. J. SMITH and Mr. F. G. COUSINS, of the Royal Gardens, Kew.

HORTICULTURE AT THE FESTIVAL OF EMPIRE.—The exhibition known as the Festival of Empire and All-British Exhibition to be held during the coming summer at the Crystal Palace, Sydenham, will include a series of horticultural displays. Efforts are being made to plant flower beds extending at intervals over almost the entire site of the exhibition. Exhibits will be made by nursery firms, and Rose growers are expected to make a specially fine display. On four days a battle of flowers will be held on a large scale. The blooms forwarded in connection with the *Daily Mail* Sweet Pea Competition will be staged in the building.

THE ST. JAMES'S PARK MEMORIAL SCHEME.—The Executive Committee of the fund for providing a memorial to King Edward has, we are glad to say, abandoned the scheme for placing the memorial in St. James's Park. The motion embodying this decision was proposed—at a meeting held at the Mansion House on April 4—by the Lord Mayor, seconded by Lord DESBOROUGH, and ran as follows:—"That, finding it impossible to carry out the present scheme, it be recommended to the General Committee that the proposal be abandoned, and that the Executive Committee be empowered to suggest another site."

MR. A. C. BARTLETT has been engaged to take charge of Sir CHARLES and Lady McLAREN'S gardens at Bodnant Hall, Denbighshire. Bodnant possesses a large collection of rare trees and shrubs, and we believe that it is intended to make the Coniferae as complete as possible. Mr. BARTLETT, who for 11 years managed the Pencarrow Gardens and famous Pin-tum for the late Mrs. MARY FORD, left Cornwall on the death of that lady and the consequent break up of the establishment. Since leaving Pencarrow he has been engaged in re-modelling the gardens at Bookham Grove, Surrey, now owned by Mr. and Mrs. VICTOR HAYWARD. Mr. BARTLETT is an old Kewite, and before going to Kew he was for several years foreman at Dropmore, where he commenced his study of Conifers. The general reader will associate Mr. BARTLETT with his articles on the cultivation of plants under glass (1909) and the management of the flower garden (1907) in the "Week's Work."

RHODODENDRON SHOWS.—Messrs. JOHN WATERER & SONS, LTD., draw our attention to the fact that they intend holding a special exhibition of Rhododendrons, Conifers, evergreens, and other shrubs at the Royal Horticultural Hall, Vincent Square, S.W., from May 30 to June 2 inclusive. Fellows of the Royal Horticultural Society will have the usual privilege of free admission to the exhibition, but there will be a charge for admission for the general public. Messrs. WATERER have arranged to include in the exhibition bulbs and other flowering plants by Messrs. BARR & SONS. Messrs. JOHN WATERER & SONS will hold a show of Rhododendrons, as usual, in the gardens of the Royal Botanical Society, Regent's Park, and this show will be opened on June 6.

LEGACIES TO GARDENERS.—By the will of the late Lord AIREDALE, he has bequeathed the sum of £250 to his gardener, Mr. WM. GRIX. A year's wages is also left to each member of the household staff who has completed two years' service, either indoors or out-of-doors, provided they are not otherwise mentioned in the will. Several of the garden staff, it is expected, will participate in this bequest. Mr. WM. GRIX has spent over 25 years in the service of Lord AIREDALE at Gledhow Hall, near Leeds. He was at one time a successful exhibitor at the Leeds Paxton Society's Chrysanthemum Shows, and he has rendered frequent service as a judge at the northern flower shows.

"THE BOTANICAL MAGAZINE."—The issue for April contains illustrations and descriptions of the following plants:—

CLEMATIS ARISTATA VAR. DENNISE. tab. 8367.—This is the same plant that was described by Mr. W. WATSON under the name of *Clematis Sanderi* in *Gardeners' Chronicle*, 1907, vol. xli., p. 310, and it is interesting to note that Mr. WATSON then stated "in a very broad sense it is *C. aristata*." Examples were received by Mr. W. R. GUILFOYLE, Director of the Melbourne Botanic Gardens, from Mrs. J. DENNIS, who had met with it on the Healesville Ranges in Evelyn, Australia. It was from this source that Messrs. SANDERS' plant, described by Mr. WATSON, was obtained. *Clematis aristata* shows great divergency, and botanists have treated as distinct species certain forms that are now referred to as typical *C. aristata*. The variety under notice differs from the type in its longer, coarsely dentate-seriate leaflets, and in this respect approaches to forms of *C. coriacea*. A specimen planted in a greenhouse at Kew produced blossoms in May; the salmon-red coloured filaments are of very striking appearance, and the blooms, moreover, are fragrant.

PSEUDERANHEMUM MALACCENSE. tab. 8368.—This handsome Acanthaceous plant has been confounded by some authorities with *Eranthemum graciliflorum*. The plant grows freely in a stove, and forms a bush of about 3 feet high. The flowers are a pale shade of violet with red markings on the mid lobe of the lower lip. Like most of its congeners, it gives the best results when propagated annually from cuttings, and supplied with a rich soil and plenty of moisture at the roots.

ELÆAGNUS ARGENTEA. tab. 8369.—Most of the species of *Elæagnus* are natives of South-eastern Asia, but *E. argentea* occurs as a solitary species in North America. There is a characteristic silvery-grey colour on the whole of the plant, which has given rise to the name of Silver Berry, by which it is known in the United States and Canada. The flowers are axillary and of a yellow colour, which contrasts well with the grey metallic lustre of the foliage. A plant has long been in cultivation at Kew, where it is quite

hardy and produces suckers freely, these affording a ready means of propagation.

FELICIA PETIOLATA. tab. 8370.—This species is described and illustrated in *Gard. Chron.*, 1907, vol. xlii., p. 81, fig. 34. The flowers resemble small rose-coloured Asters, and have a yellow disc. The species is not hardy, and its chief value from a garden point of view would appear to be as a drapery over the rockery in a plant house.

DENDROBIUM MURICATUM VAR. MUNIFICUM. tab. 8371.—This variety is described as differing from the type principally in the shape of the lip. The inflorescence is very showy, and consists of a spike of about 20 flowers, marked and blotched with brownish-red on a greenish-yellow ground. The lip is heavily marked with reddish-purple, and the apex is yellow. The specimen from which the illustration in the *Botanical Magazine* was prepared was cultivated at Glasnevin Botanic Garden, from a plant sent to Mr. MOONE by Dr. SCHLECHTER in 1906, and which was said to have been received from New Caledonia. The plant has been grown in a pan at Glasnevin, suspended close to the glass roof in an intermediate Orchid house.

"THE BRITISH FERN GAZETTE."—The March number of this gazette is well up to the standard reached by previous numbers and provides entertaining articles by the Editor, Mr. CHARLES DRUERY, Mr. C. B. GREEN, Dr. F. W. STANSFIELD (on an Apospous Polystichum), and other well-known Fern experts. The plate which prefaces this number depicts some 15 of the more striking varieties of *Polypodium vulgare*.

MR. SILAS COLE.—We have received information that Mr. SILAS COLE, gardener to Earl SPENCER, Althorp Park, has been appointed by Lord NORTHCLIFFE to succeed the late Mr. CHARLES FOSTER as superintendent of the *Times* Experimental Station at Sutton Green, Guildford. It will be remembered that it was Mr. COLE who first introduced the Spencer or waved type of Sweet Pea to public notice, and the first variety of this type originated at Althorp and was named after Countess SPENCER. An account of the Sweet Pea culture and other features of Althorp Gardens, with illustrations, was published in the *Gardeners' Chronicle* for August 21, 1909.

ROSE SHOW AT BERLIN.—We have received from the German Rose Society particulars of a Rose show to be held at Berlin-Britz from June 30 to July 2 next. The exhibition will be open to foreign exhibitors, and pot Roses are chiefly in request, as these will be made a leading feature of the show. On Sunday, July 2, a great Rose festival will take place, and there will be vocal and instrumental concerts.

NATURAL CROSS-POLLINATION.—The extent to which cross-pollination occurs naturally in plants forms the subject of vol. iii. No. 6 of the *Memoirs of the Department of Agriculture in India*. Among many interesting facts recorded in this volume, one of the most interesting has reference to Wheat. As is well known, the flower of the Wheat opens in this country for a very short time only and during the early morning hours. Hence cross-pollination is extremely rare. As, however, the climate under which Wheat is grown becomes drier, cross-pollination becomes more common. Less rare in the drier parts of Europe and North America than in Britain, it is by no means uncommon in India for cross-pollination to occur naturally. The important conclusion follows that, with respect to Wheat breeding, special precautions must be taken in India if this source of error is to be eliminated.

IMPORTATION OF POTATOS INTO JERSEY.—

The Board of Agriculture and Fisheries desire to inform Potato growers and merchants in Scotland that the States of the Island of Jersey have adopted an Act authorising the importation of Potatos from certain districts in Scotland from the 25th ult. to May 31 inclusive, on the following conditions:—(1) The Potatos imported must form the sole cargo on the vessel, and must come direct from the district where they were grown to be sent to Jersey direct from the port of landing. (2) Each cargo must be accompanied by a declaration by the shipper, attested by a notary or commissioner of oaths, giving the place of origin of the Potatos, and certifying that they have not been grown in land or soil affected by wart disease of Potatos. (3) Each cargo must also be accompanied by a certificate of the Board of Agriculture and Fisheries to the effect that the district in which the Potatos were grown is free from disease. Intending exporters of Potatos to Jersey should, when applying to the Board for a certificate, forward the declaration from the grower of the Potatos referred to above. The declaration should state the parish in which the Potatos were grown.

THE OLDEST BELGIAN HORTICULTURAL SOCIETY.—It will interest some of our readers to know that the Société Royale de Flore claims to be the oldest floricultural society in Europe—if not in the world. The headquarters of the society are at the Botanic Gardens, Brussels, and the King of the BELGIANS is patron. The society is known to have existed anterior to the year 1650, but beyond that there are no authentic records. Originally the Société Royale de Flore was known as the Confrérie de Ste. Dorothee, and in 1660 an altar was erected to that saint by the subscriptions of the members. A year later rules were drawn up and a copy is still extant. In 1664 the confraternity was officially recognised by the Archbishop of MECHLIN, and Pope ALEXANDER VII. granted special privileges to the society. Many distinguished persons have been enrolled on the register of membership, notably the ELECTOR EMMANUEL of BAVARIA, various Archbishops of MECHLIN, MARIE ELIZABETH of AUSTRIA, the Dukes of URSEL, Prince CHARLES of LORRAINE, ALBERT and MARIE of AUSTRIA, FRANCIS II., WILLIAM Prince of ORANGE, LEOPOLD I., LEOPOLD II., and their Queens, &c. The name of the Confrérie de Ste. Dorothee was changed to the Société Royale de Flore prior to the year 1822. It was from that date that the society entered upon its present phase of existence. Among its honorary members, England is represented by Sir TREVOR LAWRENCE, Bart., Col. PRAIN, W. WATSON (Kew), GEORGE SCHNEIDER, HARRY J. VEITCH, R. HOOPER PEARSON, and HARMAN PAYNE.

PUBLICATIONS RECEIVED.—*The Studio Year-Book of Decorative Art.* (London: "The Studio" Ltd.) Price 5s. net.—*Plant-Life on Land*, by F. O. Bower, Sc.D., F.R.S. (Cambridge: University Press.) Price 1s. net.—*The Carnation Year-Book, 1911.* (London: The Perpetual-flowering Carnation Society.) Price 1s 2d.—*Australian Plants*, by W. R. Guilfoyle. (London: Whitcombe & Tombs, Ltd.) Price 1's. net.—*Flore du Bas-et du Moyen-Congo, Studies of Systematical and Geographic Botany*, by Em de Wildeman (Brussels: Spineux et Cie.)—*The Herb Garden*, by Frances A. Bardswell. (London: Adam and Charles Black.) Price 7s 6d net.—*El Jardín Botanico de Buenos Aires*, by Carlos Thays. (Buenos Aires: Jacobo Leuser.)—*University of California Publications, Agricultural Experiment Station Berkeley, California. Imperial Valley Settlers' Crop Manual*, by J. Eliot Coit and Walter E. Packard. (Berkeley: The University Press.)

POWERSCOURT.

(See Supplementary Illustration.)

POWERSCOURT is one of the foremost gardening establishments in Ireland, and this reputation is well upheld by the present Viscount Powerscourt assisted by the head gardener, Mr. W. Owen.

Since Ireland is generally well supplied with water, water effects enter largely into the natural as well as the artificial landscapes.

The Dargle Glen, by way of which Powerscourt can be reached from Bray, is a series of torrents over precipitous rocks through a deep ravine overhung here by fine Firs, there by gnarled Oaks and a wealth of native Ferns. These, with the huge projecting rocks, form a series of magnificent pictures.

Another water scene to be remembered, about four miles away, on the estate, is the waterfall in the deer park. Here a wall of nearly perpendicular rock projects a vast sheet of water from a height of 230 feet—a grand view, particularly when in flood. The artificial waters within the

plant of *R. Falconeri*, Bamboos in variety, the Powerscourt variety of *Phormium tenax*, fine plants of *Azalea indica alba*, *Kalmia latifolia*, a good specimen of *Fitzroya patagonica* (25 feet high), a Menzies Spruce at one corner towering to 95 feet, *Pinus Montezumae*, and *P. Hartwegii* (fine specimens), *Abies cephalonica*, Japanese Maples, *Pittosporum Mayi*, *Ozothamnus rosmarinifolius*, *Corypha australis*, *Cordylines*, Pampas grass, various dwarf conifers in the rocky parts, and a strikingly coloured shrub known as *Aristotelia Macqui variegata*, the dark purple berry of which is said to be used for colouring wine in some countries.

In addition to the *Primula japonica* already mentioned as carpeting the margins of the stream, *P. cashmeriana*, *P. pulverulenta*, *P. obconica*, and others are equally at home with masses of *Montbretias* of sorts, *Epilobiums*, *Eryngium pandanifolium*, and the brightly-coloured *Veronica Simon Delaux*, whilst the *Camellias* and *Dicksonias* also invite attention as we survey this garden from an eminence at the lake end. At our feet is the somewhat tender but pretty



FIG. 97.—VIEW IN THE "JAPANESE" GARDEN AT POWERSCOURT, CO. WICKLOW.

grounds, too, are extensive and most effective, particularly so the fine lake of 2 acres below the grand terraces, nestling in a wealth of verdure furnished by rare conifers. Beyond is a panoramic view of wooded and pasture land, which carries the vision to the towering Sugar Loaf mountain (see Supplement) in the distance.

A pretty Lily pond, with ornamental fountain, nearer the mansion, too, is found in a charming setting, surrounded by species of plants seldom seen in England except in such favoured counties as Cornwall. One of these, *Desfontainia spinosa*, a large spreading bush, was badly damaged by snow a few winters ago.

Further effects are obtained by the overflow water from the big lake, the fountain in which throws its water to a height of 80 feet. The streams lead through a rock-garden, into a recently-made Japanese garden (see fig. 97), and their banks abound with a choice collection of Ferns and water plants, among which *Primula japonica* is specially prominent.

This Japanese garden abounds in good things, Himalayan *Rhododendrons*, including a good

Hypericum empetrifolium, and near by a good plant of the rarely-seen *Juniperus excelsa*. Next to this was a rare gem, *Abies polita*, and at a little distance, *A. grandis* (90 feet), *A. Nordmanniana*, and *A. Morinda*, about the same height.

The Killarney Fern and other filmy Ferns are at home in a grotto immediately below a delightful retreat artfully secluded, above which *Cytisuses*, *Potentillas*, *Cotoneasters*, Spanish Gorse, &c., make fine carpets.

Towards the lake from this point there luxuriates *Drimys Winteri*, 12 feet high and as much through; a Caucasian Walnut; *Colletia spinosa*, 12 feet; *Fagus betuloides*, 30 feet; *Arbutus Andrachne*, 18 feet; and *Arbutus Menziesii*, 30 feet.

Fine trees of *Azara microphylla* abound; the yellow-berried Yew, huge *Fuchsia* bushes, masses of *Gunnera scabra* and Pampas clumps are in immediate proximity to the water; *Gunnera manicata* and the large-growing *Senecios*, too, are prominent in the water portion of the Japanese garden. It is difficult to describe the semi-circular, grass terraces which intervene between

the mansion and the lake, and form, as it were, the arena to a huge amphitheatre. The figure fountain in the lake is central for the four flights of broad stone steps leading from the ornamental landing, as shown in the illustration, to the upper terrace and the centre of the house.

Clipped Portugal Laurels skirt the paths, and beds of set design are arranged on either side. Successive Lords of Powerscourt, from the early forties, have spent much thought, energy, and money upon these gigantic terraces, and it is refreshing to read how the efforts of a former gardener, a Mr. Robertson, who planned the first terrace, were appreciated by a past Lord Powerscourt.

A new Rose garden flanks the mansion to the north-east, and a long pergola displays to perfection the various climbing Roses; a high wall to the park side, forming a good background, is covered with Roses; and beds are filled with an up-to-date collection, the Hybrid Tea section proving the most satisfactory. Of Dorothy Dennison, a sport from Dorothy Perkins, Mr. Owen thinks well for the decoration of pergolas. There is a fine plant of *Baccharis patagonica* in this garden.

On the pleasure ground side of one of the garden-walls I observed luxuriant specimens of

the writer considers it would be profitable commercially. Tall plants of *Abies lasiocarpa*, *Pinus montezumae*, *P. sitchensis*, *P. macrocarpa* (over 60 feet), *Abies nobilis*, and *A. Nordmanniana* are abundant, with *Sequoias* and *Araucarias* and other more-or-less ordinary sorts in great quantities skirting a drive which leads to the waterfall already mentioned.

Pinus Balfouriana (the squirrel-tailed); *P. Coulteri*, the latter carrying cones; *Abies firma*, a fine plant, seldom seen; *Podocarpus elongata*, a good, healthy plant 15 feet in height; a perfect plant of *Cupressus nootkatensis*, 50 feet; *Cupressus funebris*, a very fine specimen, 25 feet; *Librocedrus chilensis*, also fine; an extra good plant of *Juniperus recurva* and another of *Juniperus virginiana glauca*; *Cunninghamia sinensis*, 50 feet high; a large, spreading bush of *Taxus adpressa*; and a fine plant of *Athrotaxis Doniana* are specially noticeable. The splendid trees of *Encalyptus* deserve notice, as does *Abies amabilis* which was planted by the present Lord Powerscourt in 1894, and has attained the height of 35 feet. *Abies pungens glauca*; *Prumnopitys elegans*; and the rather rare *Thuja orientalis pendula*, 14 feet high; *Griselinia littoralis*, a plant 18 feet high and

BRITISH VISITORS IN AMERICA.

THE illustration at fig. 98 shows some members of the party of horticultural traders from Britain now on a visit to America. The photograph, kindly sent us by the *American Florist*, was taken on March 24 in the Washington Park, Chicago. The party arrived in New York on March 17 and proceeded to Philadelphia, returning to New York on March 18 for the annual banquet of the New York Florists' Club. They returned to Philadelphia, and afterwards visited Baltimore and Washington, proceeding thence to Richmond, Indiana, where they were entertained by Mr. E. G. Hill. They next proceeded to Chicago, arriving in the latter city on March 24, when the various parks were visited, also Swift's packing plant at the stockyards, and the nursery establishment of the Poehlmann Bros. Company. On their arrival in Chicago the visitors were escorted to the Hotel Sherman by representatives of the Chicago Florists' Club, who entertained them at luncheon at the South Shore Country Club and at dinner in the evening at the Union Restaurant. They remained in Chicago three days, leaving on March 26 for the Niagara Falls.

The British visitors shown in the illustration are Mr. J. Brown, of Messrs. W. & J. Brown, Stamford; Mr. W. A. Cull, Lower Edmonton; Mr. C. Engelmann, Saffron Walden; Mr. J. S. Gunn, of Messrs. Gunn & Sons, Birmingham; Mr. K. M. Graves, of St. George's Nursery, Harlington; Mr. G. Prickett, of Messrs. Prickett & Sons, London; Mr. C. Pratley, Edmonton; and Mr. S. South, of Messrs. Samuel South & Sons, Tottenham. Messrs. J. S. Brunton, E. Barker, and J. Simpson were slightly indisposed on the day of arrival, and therefore do not appear in the group.

The American trade representatives are Vice-President Kohlbrand, of the Chicago Florists' Club; Mr. J. C. Vaughan, Seedsman and Nurseryman, Chicago and New York; Mr. E. A. Kanst, of the South Side Park System; Mr. M. H. West, superintendent of Lincoln Park; Mr. Michael Barker, Editor and Manager of the *American Florist*; Mr. Alex. Henderson, of Messrs. A. Henderson & Co.; Mr. John P. Degman and Mr. Winterson, of Winterson's Seed Store.

THE GRAPE VINE.

SUITABLE MANURES.

IN studying methods of manuring fruit trees of any kind, it must be admitted that the general principles which govern garden crops as a whole apply with equal force to the growth of fruit; that is, the essential constituents of manures must be the same in either case. A fruit tree will not make normal growth in a soil destitute of nitrogen. That nitrogen encourages leaf growth is a recognised fact, and since trees grow by means of both leaf and root, the presence of nitrogenous food is required in the soil in order to promote the growth and extend the life of the tree. It is evident, too, that potash is essential for the growth of fruits, not only because it constitutes a large proportion of the ash or mineral matter of the wood and leaves, and in some cases quite 50 per cent. of the ash of fruits, but because it forms the base of the well-known fruit-acids. Potash also acts as a carrier of nitric acid from the plant roots to the various organs of plant development, especially those relating to maturity and ripeness. Further, in order that a fruit tree may be properly nourished, as well as to ensure proper ripening, phosphoric acid is essential, more especially as this ingredient is required to balance and bring to a proper texture the growth induced by a free supply of nitrogenous food.

We learn from important investigations by Professor Wagner with vines, fruit trees, and berry-bearing shrubs that a great deal depends



FIG 98.—BRITISH AND AMERICAN HORTICULTURISTS.

Diplacus glutinosus, *Edwardsia* (*Sophora*) *microphylla*; *Phygelius capensis*, occupying a great spread and fully 12 feet high, as seen here, an excellent wall plant. *Muehlenbeckia complexa*, also covering a big space; *Pittosporum Tobira*; *P. erubescens*, the silvery reverse of its leaf being attractive (this plant has a spread of 15 feet and is 12 feet high); *Eurybia argophylla*, with silvery reverse to its foliage, is also interesting. *Choisya ternata* needs no wall here; *Pomegranate* and *Vitis* of sorts, *Cestrum Newallii*, and many other highly-interesting subjects on this wall would make too long a list for our present notes.

Fifty acres of pleasure grounds in such a favourable climate, looked after by generations of enthusiastic plant-lovers, are bound to contain a host of rarities and developed specimens; and one is really overwhelmed by them on all sides. Groups of famous Scots Fir and of gigantic Beech trees occupy knolls here and there with excellent effect, fine specimen trees occupying the intervening glades. *Cryptomeria elegans*, as seen here, has a new character and beauty, whilst *C. japonica* is a fine forest tree, and, as grown in southern Ireland and parts of Wales,

20 feet or more across; *Osmanthus ilicifolius albo-variegata*, 10 feet high, a splendid bush with dome-shaped head; *Acer striatum*, 18 feet; *Euonymus fimbriatus*, the spring foliage of which is beautifully tinted; *Quercus pectinata*; *Liquidambar*, *Colletia bictoniensis*; *Photinia serrulata*; and *Desfontainea spinosa*, about 10 feet high.

Bryophyllum calycinum grows freely in the open. Under trial, too, are *Poinciana regia*, and the plant known as "Divi Divi," *Casalpinia coriaria*.

Of the Oak grove, with clean, straight trees, 90 feet high; the pair of Firs, *Abies Douglasii*, and *Pinus insignis*, planted by the late Lord Powerscourt, each over 100 feet high; of the *Thuyas* successfully grown with *Abies Douglasii* as forest subjects; of a magnificent line of *Sequoia gigantea*; and of the *Ailanthus glandulosa*, towering skyward, only the bare mention can be made.

The extensive glass ranges, with specially fine Peach trees, vineries, greenhouses, and forcing departments, are all creditably appointed; and Figs are a special feature. *Visitor*.

upon these plants producing leaves rapidly and abundantly in their early growth, upon the blossoms appearing at the right time, and upon the fructification ensuring vigorously; inasmuch as the more completely all these processes take place, the more certain are the prospects of satisfactory fruit production, both as to quantity and quality. In order to attain the highest success, the Grape vine, like other fruit-bearing trees, must be given, especially during its early stages of development, as much easily available and readily soluble phosphoric acid as it can possibly assimilate.

It is also a matter of common observation that in the production of Grapes, as well as of all stone fruits, lime is an important constituent. The function of this element seems to be to strengthen the stems and woody portion of the tree, to shorten the period of growth, and to hasten the time of ripening. Fruit trees and vines growing on soils rich in lime show a stocky, vigorous, and steady growth, and the fruit ripens and colours well, whilst those growing on soils which contain but little lime, particularly clayey soils, have an extended period of growth, the result of which is that the tree runs to wood, the leafage is extensive and very green, the shoots long-jointed and soft, the buds produce wood and not fruit, and the fruitfulness is sacrificed to continued growth.

The following table is of interest as showing the need of a full and available supply of plant food during the early stages in the life of the Grape vine, and also the changes in its chemical composition that take place during its growth. The samples of fruit, leaves, and stems were collected at different periods of growth. The first set was taken on May 17, when the bunches of fruit were formed and the berries very small, whilst the second collection was made on September 30, when the bunches of fruit were ripe and the berries of a rich purple colour.

SELECTED CONSTITUENTS IN THE GRAPE VINE AT TWO DIFFERENT PERIODS OF GROWTH.

	Date of Collection.	In the Fruit. Percent.	In the Leaves. Percent.	In the Stems. Percent.
Dry substance ...	May 17	14.27	21.85	13.20
" " " "	Sept. 30	16.20	37.00	43.80
Ash " " "	May 17	1.29	1.58	1.12
" " " "	Sept. 30	0.38	4.58	1.83
Nitrogen " " "	May 17	0.49	0.74	0.21
" " " "	Sept. 30	0.09	0.50	0.20
Potash " " "	May 17	0.47	0.33	0.37
" " " "	Sept. 30	0.16	0.27	0.18
Phosphoric Acid " " "	May 17	0.14	0.22	0.06
" " " "	Sept. 30	0.03	0.04	0.07
Sugar " " "	May 17	trace	0.50	trace
" " " "	Sept. 30	9.15	1.80	0.40

The above data show that the dry substance, which constitutes the fabric of the vine, increased enormously during the 136 days of growth; in the fruit from 14 to 16 per cent.; in the leaves from 21 to 37 per cent., and in the stems from 13 to 43 per cent. The ash also increased, especially in the leaves. While the nitrogen, potash, and phosphoric acid each show in the various organs a decrease as ripeness and maturity advance. Sugar increased in the fruit from a mere trace to 9 per cent., in the leaves from $\frac{1}{2}$ per cent. to 13.4 per cent., and in the stems from a trace to 4.10ths of a per cent. The Grape vine cannot be considered as a gross feeding plant, but it certainly demands a well-balanced manure. In practical work it is found that, provided the mineral constituents and especially potash and phosphoric acid are not deficient in the soil, the produce of Grapes and the development of sugar are greatly increased by the amount of nitrogen available to the vines, whether from previous accumulations of old turfy loam or from more direct nitrogenous manuring. Generally speaking, in Grape growing it is phosphoric acid which is most deficient, and the dung which is used is proportionally richer either in nitrogen and potash than in phosphoric acid, so that if the gardener supplements the dung by dressings of steamed bone flour or basic slag in the winter

he will keep the soil in excellent condition. When a compound manure is required, a mixture of four parts of steamed bone flour, two parts of fish meal, two parts of kainit or sulphate of potash, one part of superphosphate, and one part of sulphate of ammonia may be applied at the rate of 4 ounces per square yard. *J. J. Willis, Harpenden.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

HYDRANGEA HORTENSIS "MME. E. MOUL-LIÈRE."—It is strange that at the meeting of the Royal Horticultural Society, on the 28th ult., the fact should have been overlooked that this *Hydrangea* was given an Award of Merit on May 3 of last year (see *Gardeners' Chronicle* for May 7, 1910). At the same time, a second variety—Ornement, one of M. Lemoine's seedlings—obtained similar recognition. There are plenty of instances in which a plant has been given an Award of Merit, and afterwards a First-class Certificate; but it is not usual for the same subject to be given two similar awards within a year. On March 22, 1910, *Calathea crocata* received an Award of Merit, though, under the name *Maranta crocata*; the same species was given a First-class Certificate nearly 30 years ago. *W.*

RED-FLOWERED HELIANTHUS.—It may interest your readers to know that seed of the so-called Red Sunflower (see p. 201) may be obtained from Messrs. Thompson & Morgan, Ipswich, under the name of *Echinacea purpurea*. Some four years ago, when living in Norfolk, I procured seed, from which I raised plants which flowered well; the flowers were of varying shades, from reddish-purple to purplish pink; they had long, drooping florets, and a prominent dark brown or black disc. It is, I think, a great step in the direction of securing a good red Sunflower. *F. English, Ellisfield Manor, Basingstoke.*

THE DEVELOPMENT OF BRITISH FORESTRY.—The matters at issue between Mr. Forbes and myself are not, as he suggests, questions of my opinion, but chiefly concern matters of fact and principles. It is difficult to answer briefly Mr. Forbes' communication (March 18), as he introduces fresh matter setting forth uncontented propositions, attributes to me statements and views opposed to those expressed in my review (of February 18) or held by me, and sometimes evades the question at issue. For the sake of brevity it is necessary to request readers interested in the matter to compare my review with Mr. Forbes's reply. Let us start with the facts. Mr. Forbes makes two definite statements, namely, that within 50 or even 100 miles of the western coast the individual trees or whole woods on western slopes invariably show stunted and distorted growth, and that ground above the 1,000 feet limit is usually covered by a layer of wet spongy peat. Do these statements require context to interpret them? Any reader can test these matters for himself, say in Wales and Herefordshire, as regards the former, and on mountains as regards the latter. Mr. Forbes's sole reply to my criticisms seems to be the statement that "Dr. Groom appears to have doubts as to the existence of" western peat-covered slopes. Again Mr. Forbes makes the definite general statement that probably afforestation cannot improve a poor soil, except to a slight or inappreciable extent. Is this the case? The statement is contrary to overwhelming evidence provided by foresters and plant-geographers. Mr. Forbes's reply to my criticism is, first, to make an assumption contrary to established evidence that improvement of the soil on poor mineral soils, such as dunes and so forth, will require centuries, and secondly, to urge as rebutting evidence a single special example, that of peat, which

everyone will admit is most difficult to deal with. As regards the exact period during which growth in length and thickness of tree-stems takes place, Mr. Forbes originally made the assumption (on p. 91) that June, July, and August are the months concerned, and he assumes the same in his reply to me, save that he makes the perfectly fair insertion of a qualifying word "critical." What are the facts? It is common knowledge that in the majority of broad-leaved forest trees in this country growth in height (in length) takes place mainly in spring and early summer, and every reader can test this for himself by observing the date on which the terminal resting-buds are formed. (There are, of course, obvious exceptions, such as the Oak, with its laomas shoots, and Willows). In regard to Conifers, we have Christison's careful measurements of a few species, of which I will select two, simply because they are the most commonly grown in this country, namely the Douglas Fir and the Cluster Pine. Christison's positive measurements of growth in length and thickness commenced usually at April 16, and extended on to the conclusion of growth in August and September. In describing his results, I will divide Mr. Forbes's three months into two halves, and for the sake of brevity allude to the spring and summer months from April 16 to July 15-16 collectively as "early summer," and the remaining period as "late summer." In both trees, in one year of observation, 75 per cent. of the height growth was completed in "early summer." In the next year, only the Cluster Pine was measured, and in "early summer" 97 per cent. of the height-growth was completed, and growth in height ceased before the end of July; in this case the height-growth up to the middle of June alone was nearly 15½ times as great as in the "late summer." In the same paper Christison recorded his mean results of all the species measured, in percentages of growth in height and girth during the growing season. His results were as follow: annual height-growth, percentage in April and May, 11.5; in June and July, 77.5; in August and September, 11. The respective percentages of annual growth in girth for the same two-monthly periods were 32, 35, and 33. Thus in each kind of growth the percentage for April and May is approximately equal to that for August and September. In another valuable paper Christison showed that the percentages of the annual increase in girth in the six succeeding months from April to September were respectively: in Conifers, 8, 22, 26, 24, 18, and 2; in deciduous dicotyledons, 6, 11, 18, 41, 22, and 2. To take a special example, in *Pinus austriaca* 70 per cent. of the girth-growth was completed before July. The numbers in this and other cases in favour of the "early summer" would be greatly increased if the growth during the first 15 days of July was added. In *Pinus excelsa*, 67 per cent. of the girth-growth was completed during "early summer." Similar results have been obtained by different methods on the Continent by a whole series of careful observers, including von Mohl, T. and R. Hartig, Mer, Gulbe, Reuss, and Russow. The exact season of growth in thickness, however, varies with the species, with the site, and with the part of the tree examined. But there is no doubt that Mr. Forbes is wrong in taking June, July, and August as the critical growth season; May, for instance, in some cases produces more timber than July, and often more than August does. What does Mr. Forbes reply to my criticism. He states that I assume that elongation of twigs and thickening of stems takes place *only* during spring and early summer. A glance at my review will show that I made no such an assumption. The next matters treated by Mr. Forbes concern: first, the supposititious decreased rate of timber production in Great Britain, due to certain climatic causes; secondly, the significance of rainfall in summer to tree-growth; thirdly, the analysis of effects of soil and climate in discussing tree-growth. In regard to the first and third, it is unnecessary to add to my remarks, as Mr. Forbes does not meet the points. In regard to the second, the fact may be stated that lofty trees and forests grow in regions where the rainfall in summer is exceedingly scanty, though considerable in winter, namely in Mediterranean countries, Cape Colony, Australia, and California. Taking Mr. Forbes's own months, June to August: in the only stations of which I have records available on Mediterranean stations, the aggregate mean rainfall

for the three months are (given in inches) $\frac{3}{8}$, $1\frac{1}{2}$, $3\frac{1}{2}$, $4\frac{1}{2}$, 1 and $\frac{1}{2}$. I called attention to certain statements in Mr. Forbes's book, and in his reply Mr. Forbes justifies not a single one of the statements I criticised. *Percy Groom.*

THE STINGING TREE OF QUEENSLAND.

The account on p. 154 of the terrible nature of this virulent subject brings back memories of my Kew days. It was during the time I had charge of old "Number 18," which was known as the "Hospital" house, that the one and only Kew example of *Laportea crenulata*, which was growing in a 10-inch pot, was brought to me with many adjurations for treatment. I thought the warnings rather superfluous, for had not Mr. Jackson only recently, in the course of his lectures on Economic Botany, held our attention with many awe-inspiring instances of its dangerous nature? Such a plant as *Laportea crenulata*, even though only a comparatively small specimen, required to be treated with the utmost respect, and I approached it in a fitting manner. Not so, however, my confrère; he unhesitatingly expressed his disbelief in the stories we had heard and read. He felt convinced that, at its worst, the *Laportea* was only a little more irritating than the common Stinging Nettle, and so reciting the "Tender handed Stroke a Nettle" nursery rhyme, insisted upon testing the matter for himself. Although, in proceeding to grasp a partially-decayed leaf, the back of his hand merely lightly brushed the edge of another leaf, the effect was startling. Maddened by the pain, he rushed hither and thither in a vain endeavour to escape from his torment. His hand and arm immediately swelled, and seemed as if on fire. In a momentary lapse of reason he plunged the hand and arm into a tank of cold water, and, as may be expected, this served to make the matter worse. After a time the pain subsided, but for many days he dared not immerse the hand into water, and he required assistance in dressing and undressing. Luckily for him, the leaf he so light-heartedly experimented with was a yellow and sickly one, at the base of the plant; had it been one in full vigour he might well have had to pay a heavy price for his temerity. After the worst of the pain was over he told us that, curiously enough, the whole of the right side of his body was affected, whilst the left side remained in its normal condition. It says much for his determined nature that I do not think the authorities knew of his experience, and that he continued his work; such a man was bound to rise, as indeed he has. He may not care for me to advertise the recklessness of his youth, but I enclose his name. *B.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MARCH 28.—*Present* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Dr. Voelcker, Canon Fowler, and Messrs. Hooper Pearson, Chapman, Worsley, Hales, Holmes, Bennett-Poë, Odell, Fraser, Arkwright, Hill, Elwes, Rolfe, and Chittenden (hon. sec.).

Jasminum primulinum discoid.—Mr. ODELL showed flowering shoots of *Jasminum primulinum* with brown patches here and there upon the stems, and withered foliage above them. The cause of these brown patches was *B. tryti-cinerea*, a fungus which, while usually saprophytic, is capable of attacking living tissues and causing death, especially when the growths are sappy.

Crocus sport.—Mr. BOWLES showed a deep-purple sport of *Crocus* "President," from Mr. Jacob's garden at Whitechurch. One corm had produced three flowers, the two lateral ones bearing typical "President," with colour and striping characteristic of that variety, the middle one being the sport in question.

Pyronia × "*John Neden*."—Messrs. VEITCH sent a fruit of this interesting cross, which Mr. WORSLEY took for further examination.

Rhododendron Fargesii.—A flowering shoot of this new Chinese *Rhododendron* came from Mr. P. D. WILLIAMS, of Llanarth, Cornwall.

Fungus parasitic on insects.—The Secretary, on behalf of Mr. W. A. VOSS, showed a number of specimens of white fly (*Aleyrodes* sp.) and scab

insects attacked by parasitic fungi, sent by Dr. Berger, of the U.S.A. Experiment Station, Florida. In Florida, considerable success has been attained in dealing with insect attacks by spraying trees with water containing spores of fungi parasitic upon the insects. The fungi exhibited were *Aschersonia flavocitrina* on Citrus white fly, *A. aleurodes* on white fly, *Aegerita Webberii* on white fly, *Sphaerostilbe cocophila* on Orange scale, and on San José scale; *Verticillium heterocladium* on white fly and scale, *Myriangium duryi* on San José scale, and *Ophionectria coccicola* on San José scale.

Botanical Certificate.—The discussion upon Mr. WORSLEY'S motion that a new Certificate was desirable was continued, but the Committee were of opinion that the existing Botanical Certificate and the Certificate of Appreciation covered all the purposes, at present, for which such awards were required. A resolution was therefore sent to the Council suggesting the desirability of restricting the recommendation of the award of the Botanical Certificate to the Scientific Committee.

THE NURSERY AND SEED TRADE ASSOCIATION, LTD.

MARCH 28.—We are informed that the annual general meeting of this association was held on the above date, at the registered office, 32, Gresham Street, London, E.C. There were present:—Mr. G. Bunyard (Messrs. G. Bunyard & Co., Ltd.) in the Chair, Mr. H. Simpson (Messrs. Cooper, Tabor & Co., Ltd.), Mr. H. W. W. Nutting (Messrs. Nutting & Sons, Ltd.), Mr. John Harrison (Messrs. Harrison & Sons), Mr. Stuart H. Low (Messrs. Stuart Low & Co.), Mr. Arthur W. Paul (Messrs. Wm. Paul & Son, Ltd., Waltham Cross), Mr. W. J. Jefferies (Messrs. Jefferies & Sons), Mr. G. H. Barr (Messrs. Barr & Sons), Mr. B. B. Maller (Messrs. B. Maller & Sons), Mr. Charles E. Pearson (Messrs. J. R. Pearson & Sons), and Mr. J. B. Slade (Messrs. Protheroe & Morris).

The report and balance sheet submitted to the meeting showed the association to be in a good financial position, with a substantial balance at the bank—that during the last year 1,021 status enquiries had been answered, and £6,000 15s. 6d. had been recovered for the members.

Questions of legislation affecting the trade were discussed, and a sub-committee was appointed to deal with the Shops Bill and the proposed Seed Bill. The solicitors of the association were also instructed to take Counsel's opinion on the subject of railway rebates for the benefit of members.

The retiring members of the committee were re-elected, and at the subsequent committee meeting the following officers were re-elected:—Mr. N. N. Sherwood (Messrs. Hurst & Son) president; Mr. H. W. W. Nutting, treasurer; and Mr. H. Simpson and Mr. G. H. Barr, trustees.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 16.—*Committee present:* Mr. E. Ashworth (Chairman); Messrs. Thorp, Ward, Arthur, Keeling, Holmes, Stevens, Cypher, and Weathers (hon. sec.).

Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), was awarded a Silver-gilt Medal for a group of *Odontoglossums*, all the plants being meritorious in point of variety and cultivation. A First-class Certificate was conferred on *Odontoglossum Phoebe* "Ward's variety."

R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), also staged a good group, consisting principally of *Odontoglossums*. (Silver Medal.)

J. J. HOLDEN, Esq., Southport (gr. Mr. Johnson), exhibited *Cattleya speciosissima* var. *Stanleyi*, which is a well-known albino form, with a delicately-coloured lip.

W. THOMPSON, Esq., Stone (gr. Mr. Stevens), received an Award of Merit for *Cypripedium* "Our Queen," the parentage of which was not recorded. It is a well-shaped flower, showing in the dorsal sepal the influence of a good form of *C. × Leeannum*.

Mrs. S. GRAIRNS, Whalley Range (gr. Mr. Brown), was awarded a First-class Certificate for *Odontoglossum illustrissima* var. *Amelie*—a charming plant.

O. O. WRIGLEY, Esq., Bury (gr. Mr. Rogers), staged a good group, in which was a fine plant of

Cymbidium eburneo-Lowii, with several large flower-spikes. A dozen plants of *Cypripedium callosum* var. *Sauderae*, staged in a mass, produced a very striking effect.

J. H. CRAVEN, Esq., Keighley (gr. Mr. Corney), received an Award of Merit for *Odontioda* × *Keighleyense* var. *Brilliant*.

W. R. LEE, Esq., Heywood (gr. Mr. Woodhouse), staged a good collection of Orchids, including a superbly-cultivated plant of *Odontoglossum* × *Rolfeae*, for which a Cultural Commendation was awarded. A First-class Certificate was awarded to *Dendrobium* × *plumptonense*, a hybrid between *D. × Cybele* var. *nobilior* and *D. nobile* var. *nobiliss*.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Medal for a group consisting of *Odontoglossums*, a few *Odontiodas*, *Cattleyas*, and *Cypripediums*.

Messrs. W. BULL & SON, Chelsea, staged a small group of interesting *Odontoglossums*, including several pretty hybrids. (Silver Medal.)

J. MCCARTNEY, Esq., Bolton (gr. Mr. Holmes), was awarded a Silver Medal for a group consisting of good forms of *Cattleya Triana*, *C. Schroderae*, and *Cattleya* hybrids.

Messrs. J. CYPHER & SONS, Cheltenham, staged a small miscellaneous collection. (Bronze Medal.)

BOURNEMOUTH HORTICULTURAL.

APRIL 4, 5.—The spring show of this society was held on these dates in the Winter Gardens, the opening ceremony being performed by the Mayor of Bournemouth, supported by Sir Daniel Morris, chairman of the committee. The attendance was very large, and the show was a great success generally, but although it was spoken of as the best yet held, and it was certainly a very fine exhibition, yet we missed several of last year's exhibitors, and particularly in the hardy plant classes.

The schedule was a comprehensive one. The first division was open to all England, and comprised classes for groups of plants, table decorations, cut flowers and pot plants. The second division was a local one, nurserymen and florists being excluded, and there was also a children's section, open to children attending elementary schools, for pot flowers, vases of spring flowers and sprays.

THE PARK NURSERIES, LTD., won the 1st prize in the open section for a group of miscellaneous plants; 2nd, Messrs. G. WATTS & SONS.

The best 12 pots of *Narcissi*, in not fewer than eight varieties, were shown by SIR RANDOLF BAKER, Bart. (gr. Mr. A. E. Usher); 2nd, Mrs. ORMOND (gr. Mr. Charles Pearce).

Mr. T. K. INGRAM excelled in the class for six pots of *Polyanthus Narcissi*; 2nd, Messrs. G. WATTS & SONS, who were placed 1st for 12 pots of *Hyacinths*, distinct. For 12 pots of *Tulips*, distinct, the 1st prize was awarded to the PARK NURSERIES, LTD.; 2nd, Messrs. G. WATTS & SONS. SIR ROBERT BAKER was placed 1st for 18 varieties of *Narcissi*, five blooms of each variety; for five blooms of *Parvi-coronati Narcissi*; and for four varieties of *Carnations*. This exhibitor was placed 2nd to Mr. R. T. S. NORTHWAY in the class for five blooms of *Magni-coronati Narcissi*, and 3rd for five blooms of *Medio-coronati Narcissi*, Mr. NORTHWAY being 1st.

There were only three exhibits of Alpine plants this year—all of them being miniature rock gardens staged by local firms. Mr. MATRICE PRICHARD showed a rock-garden designed with taste, and containing a number of interesting plants, among the more noteworthy being *Androsace pyrenaica*, *A. brigantiaea*, *Draba imbricata*, somewhat resembling a delicate flower of *D. aizoides*; *Saxifraga Frederica Augusta*, *S. Bursleriana Paulinae*, evidently a pale-yellow hybrid; *denticulata*, *Primula marginata*, rather pale; *P. Cashmeriana Riverslea*; *Pulmonaria rubra*, a very distinct species of this somewhat perplexing genus, and *Douglasia levigata*, a rare North American plant, exactly like a large *D. Vitaliana*, but with pink flowers, the colour of *Saxifraga oppositifolia*. (Gold Medal.)

Mr. REGINALD PRICHARD, Alpine Nursery, West Moors, Wimborne, was awarded a Silver Medal for an attractive exhibit. There were fine examples of the magenta-flowered *Primula calycina*, the pure white *P. nivalis*, *P. rosea grandiflora*, and *P. farinosa alba*, though scarcely white enough. We also observed one of the finest specimens of *Gentiana verna* ever seen in

this country, where it rarely seems to thrive; the yellow *Epimedium pinnatum*, *Androsace pyrenaica*, and *Lamium maculatum aureum*, a remarkable variety of this common plant.

THE BURTON HARDY PLANT NURSERY, near Christchurch, showed some excellent plants which certainly deserved some award. Conspicuous amongst a mass of Primulas and Anemones were fine plants of *Daphne Blagayana*, *Ourisia macrophylla*, *Soldanella montana*, *Androsace villosa*, *A. Lageri*, *Saxifraga scardica*, *S. Vandellii*, *Primula villosa* Mrs. J. H. Wilson, with its rich, violet-coloured blooms *P. Auricula Alexandra*, and *P. leucophylla* from the Carpathians. This *Primula* has the habit of *P. elatior*, but with larger and whiter flowers.

SPECIAL AWARDS.

Gold Medals were awarded to Messrs. CHARLESWORTH & Co., Haywards Heath, for a collection of Orchids; Messrs. JAS. VEITCH & SONS, LTD., for a miscellaneous collection of plants; Messrs. STUART LOW & Co., Enfield, for Carnations; Mr. ROBERT CHAMBERLAIN, Bournemouth, for floral designs; and Mr. MAURICE PRICHARD, Christchurch, for Alpine plants.

Silver Medals were awarded to Messrs. MANSELL & HATCHER, Leeds, for Orchids; Messrs. SUTTON & SONS, Reading, for a collection of plants; Mr. G. H. ROLLS, J.P., for Orchids; and Mr. REGINALD PRICHARD, West Moors, for Alpine plants.

ROYAL CALEDONIAN HORTICULTURAL.

APRIL 5, 6.—The spring show of this society was held in the Waverley Market, Edinburgh, on these dates. The show was about equal to the average, and the quality of the exhibits was good, though the effect of the recent sunless weather was apparent in the case of some of the displays. The exhibits contributed by nurserymen and seedsmen made an excellent show, and gave to the Waverley Market Hall such a glow of colour as quite surpassed that of last year.

For the group of miscellaneous plants arranged on the floor in a space 15 feet by 10 feet there was only one exhibit. This was contributed by Sir ROBT. USHER, Norton Rathis (gr. Mr. Geo. McKinna), who was awarded the 1st prize. For the best group of Orchids arranged in a space not exceeding 12 feet by 6 feet, for which there was also only one entry, the 1st prize, consisting of the "Sander" Cup and £3 3s., was won by Mr. BROOMAN WHITE, of Arddarroch (gr. Mr. J. Smith). The cup has to be won three times before it becomes the property of the exhibitor.

For four stove or greenhouse plants in flower, the 1st prize of £2 2s., presented by Messrs. Mackenzie & Moncur, Ltd., Edinburgh, was won by Mr. Provost BALLANTYNE, Peebles (gr. Mr. A. Smith); the Earl of HOME, Douglas Castle (gr. Mr. A. McMillan), being awarded the 2nd prize.

In the other plant classes the principal prize-winners were:—Messrs. G. McKINNA (Norton), A. McMILLAN (Douglas Castle), Jas. Thom (gr. to Mrs. HURCHISON, Cardonnie), W. G. Pirie (gr. to C. W. Cowan, Esq., Dalhousie Castle), Gilbert D. Kerr (gr. to the Hon. Mrs. BAILLIE HAMILTON, Langton), J. McIntyre (gr. to Sir JOHN MURRAY, Challenger Lodge, Edinburgh), P. R. HILLS (gr. to Sir Geo. BULLOUGH, Rhum), W. I. Galloway (gr. to Mrs. DEWAR, Drylaw House), and J. Cosson (gr. to Miss WATT, Spott House, Dumbar).

The Gold Medal of the Royal Dutch Bull Growers' Society offered for three pans of Hyacinths was awarded to the Duke of PORTLAND, Welbeck Abbey, Nottinghamshire (gr. Mr. Jas. Gibson).

In the classes for cut flowers, the chief honours fell to Messrs. A. BRYDON (Innerleithen), P. R. HILLS, J. GIBSON (Welbeck Abbey Gardens), D. Kidd (gr. to Lord ELPHINSTONE, Carberry Towers), and A. McMILLAN.

In the class for a decorated dinner table, measuring 10 feet by 5 feet, Mr. John Hood (gr. to T. G. BISHOP, Esq., Dalmore) was awarded the 1st prize; 2nd, Lord ELPHINSTONE.

The 1st prize for a collection of six distinct kinds of vegetables was won by the Duke of PORTLAND, the 2nd prize by the Earl of LAUDERDALE, Thirlstane Castle, Lauder (gr. Mr. Robert Stuart), and the 3rd prize by the AMERICAN AMBASSADOR, Wrest Park, Bedfordshire (gr. Mr. George McKinley). In the remaining classes for vegetables, the principal prizes were won by the Duke of PORTLAND and the AMERICAN AMBASSADOR.

PRIZES FOR YOUNG GARDENERS.

Four plans were submitted by under-gardeners for the laying out of about 16 acres of ground, and the prizes were awarded as follow:—1st (£5), Mr. CHARLES WILKEN, Erskine House Gardens, Bishopton, Renfrew; 2nd (£2), Mr. J. W. FORSYTH, Fairburn House Gardens, Muir of Ord; and 3rd (£1), Mr. E. W. FULLER, Keveningham Hall Gardens, Saxmundham, Suffolk.

NON-COMPETITIVE EXHIBITS.

Messrs. DICKSONS & Co., Edinburgh, showed a large group, consisting chiefly of plants of Pink Pearl Rhododendron, interspersed with standard weeping Roses, and edged with other plants. The same firm showed two circular groups of seedling Hippeastrums (*Amaryllis*), of which they have a very fine strain. (Gold Medal.)

Messrs. CUNNINGHAM FRASER & Co., Edinburgh, showed a large group of hybrid Rhododendrons and other plants, and a group of choice Alpine plants, amongst which were groups of *Primula malacoides*, *P. frondosa*, and *Bryanthus erectus*. (Silver-gilt Medal.)

Messrs. R. P. LAIRD & SONS, LTD., Edinburgh, contributed an artistic group, the leading feature being a representation of a moss-grown ruin in virgin cork. The plants shown included Rhododendrons, Japanese Maples, and Azaleas.

Messrs. BARR & SONS, King Street, Covent Garden, London, had a choice collection of Narcissi, and also a collection of Alpines. (Silver-gilt Medal.)

Among the other firms who showed collections of Daffodils were Messrs. HOGG & ROBERTSON, Dublin, who also showed a fine lot of St. Brigid Anemones (Gold Medal); Mr. J. A. COOPER, Lissadell (Silver-gilt Medal); and Messrs. DOBBIE & Co., Edinburgh, who also showed Hyacinths and Tulips (Silver Medal).

Messrs. W. CUTBUSH & SON, London, had a fine lot of hardy plants, including Rhododendron in-trication, and *Orobanchium cyanus*. (Silver-gilt Medal.)

Mr. H. N. ELLISON, West Bromwich, showed choice Ferns, hybrid Gerberas and Freesias (Silver-gilt Medal); Mr. D. KING, Murrayfield, Edinburgh, staged Narcissi, Tulips, Ferns, Palms, and other plants as grown for market (Silver-gilt Medal); and Messrs. TODD & Co., Edinburgh, exhibited bouquets and baskets, entirely of Carnations, among which were such varieties as Empire Day, British Queen, Rex, and Regina (Gold Medal).

Carnation growers were represented by Messrs. Young & Co., Hatherley, who had some fine novelties, such as Duchess of Devonshire, Hon. Lady Audley Neeld, J. W. Riley, Gwladys, and Rose Doré (Silver Medal), and Messrs. J. & A. GLASS, Edinburgh, who showed Crimson Glow in good form (Silver-gilt Medal).

Dr. McWATT, Duns, had a splendid collection of Primulas (Silver-gilt Medal), and Messrs. JOHN FORBES, HAWICK, LTD., had a collection of Primulas, Carnations, Violas, and choice Alpine plants (Silver Medal).

Messrs. STORRIE & STORRIE, Glencatse, showed Primulas, hybrid Cinerarias, &c.; and other exhibitors included Messrs. BAKERS, Wolverhampton (Alpines); Mr. D. McLEOD, Charltoncum-Hardy (Orchids); and Mr. J. E. SAULIER, Newbury (Orchids).

Messrs. RANSOMES, SONS, & JEFFERIES, LTD., Ipswich, and Messrs. ALEX. SHANKS & SON, Arbroath, showed their motor and other lawn mowers, verge cutters, and other garden implements.

FIRST CLASS CERTIFICATE.

A First-class certificate was awarded to Rhododendron Mrs. David Callander, a cross between R. Dalhousianum (seedling form) and R. Nuttallii. Shown by Mrs. CURRIE, Trinity Cottage, Edinburgh (gr. Mr. Duncan Macdonald).

Obituary.

BENJAMIN ELLIS COATES CHAMBERS.—We regret to record the death at Hyères on March 23 of Mr. B. E. C. Chambers. He had been wintering abroad, and was about to return to his home, Grayswood Hill, Haslemere, when he contracted a chill, which resulted in an attack of double pneumonia. After a strenuous life in connection with mining in the West Riding of Yorkshire, Mr. Chambers eventually retired to the south of Surrey, where, in the grounds of the estate he had purchased, he gave his attention to the cultivation of plants of all kinds, noting with special interest the possibilities and limitations of the climate. The beautiful garden of Grayswood Hill lies on the south-westerly slope of a hill on the Sussex border, with Hindhead and its kindly shelter on the north, and the blue weald of Sussex extending southward as far as the eye can reach. By the careful treatment of a light and sandy soil, he was wonderfully successful in establishing many tender and difficult subjects, and one of the most extensive collections of flowering shrubs from all parts of the world bears witness to the ceaseless care and interest he bestowed upon them. Some, indeed, of the specimen trees were the finest in the Kingdom. It is on record that on one occasion, when M. de Vilmorin was making a tour of the grounds under the guidance of Mr. Chambers, he came upon a splendidly-grown Japanese Birch. Yielding to an almost involuntary impulse, he raised his hat, and said, "If I could ever worship a tree, it would be that one." From time to time there were gatherings of working gardeners held at Grayswood Hill. On these occasions, the kindly courtesy and unflagging interest of Mr. Chambers were displayed to their utmost on behalf of his guests. His death is deeply mourned by a wide circle of friends and neighbours.

WILLIAM WEBSTER.—The American papers record the death of this noted landscape gardener at Rochester, U.S.A., on March 7, at the great age of 94 years. The late Mr. Webster was an Englishman, and, like many other English gardeners, made a name for himself in the country of his adoption, to which he emigrated in 1833. He was responsible for the laying out of important gardens, including those of the University of Rochester, at Cornell University, at Ithaca, Kodak Park, Maplewood Park, and other places in and around Rochester, New York.

J. H. MUIR.—This well-known gardener died recently at his home, Longbridge Farm, Barking, Essex, after a short illness. He was for many years gardener to Miss Talbot at Margam Park Abbey, Glamorganshire, and both before and since his retirement Mr. Muir contributed notes on gardening to daily and weekly papers, including *The Western Mail*, published at Cardiff.

CATALOGUES RECEIVED.

H. J. JONES, Ryecroft, Hither Green, Lewisham—Plants and Seeds.
J. A. COOPER, Lissadell, Sligo, Ireland—Alpine and Herbaceous Plants, Shrubs, &c.
CHARLESWORTH & Co., Haywards Heath, Sussex—Orchids.
WM. ARTINDALE & SON, Nethergreen, Ramnor, Sheffield—Hardy Plants.
CARTWRIGHT & GOODWIN, Kidderminster—Daffodils and Narcissi.
JAMES VEITCH & SONS, Chelsea—Dahlia.
S. MORTIMER, Rowledge, Farnham, Surrey—Carnations and Dahlias.
CHARLES TURNER, Royal Nurseries, Slough—Soft-wooded Plants; Carnations, Picotees; Climbing Plants, &c.
H. CANNELL & SONS, Swanley, Kent—General Catalogue of Plants.

MISCELLANEOUS.

N. M. TOOMER, 4, Northbrook Street, Newbury—Garden, Farm and Estate Implements and Sundries.
CHINN & HANNAFORD, 52, Hatton Garden, London—Klipall Plant Support.

FOREIGN.

F. W. KELSEY NURSERY CO., 150, Broadway, New York—Trees, Shrubs, and Hardy Plants.
B. HAMMOND TRACY, Wenham, Massachusetts, U.S.A.—Gladioli.
FRANÇOIS GERBAUX, Nancy, France—Plants.

MARKETS.

COVENT GARDEN, April 5.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing prices for various cut flowers such as Anemone fulgens, Arums, Azaleas, Camellias, Carnations, Gardenias, Lilacs, and Myosotis.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing prices for various cut foliage items such as Adiantum, Asparagus plumosus, Berberis, Croton, and Ferns.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing prices for various plants in pots such as Aralia, Boronia, Cocos, and Erica.

Fruit: Average Wholesale Prices.

Table listing prices for various fruits including Apples (Nova Scotian, California), Lemons, Oranges, and various berries.

Vegetables: Average Wholesale Prices.

Table listing prices for various vegetables such as Artichokes, Asparagus, Carrots, Cabbages, and Mushrooms.

REMARKS.—The second shipment of Australian Apples, per s.s. "Orontes," consisting of 14,000 cases, arrived last week: the finest samples realised high prices, there being a shortage of highly coloured dessert varieties. We are informed on reliable authority that the shipments of Australian Apples for the ensuing season will amount to 1,000,000 cases, equal to as many bushels. A few samples of Calabash Pears also arrived by the same steamer. English Grapes are practically finished, only a few bunches of Gros Colmar being available. Arrivals from the Cape this week, per s.s. "Norman," consisted of about 8,000 cases, and were mainly of Grapes (some very fine samples of black Grapes—Barbross), also Pears, Plums and Quinces. Hothouse Strawberries have shown a slight depreciation in prices owing to increased supplies. Mushrooms are fairly well supplied and are meeting with a good demand at 9/1 to 10/1, per lb. Vegetables from both English and Continental sources continue to sell freely. Trade all round shows signs of improvement. E. H. R., Covent Garden, April 5, 1911.

Potatoes.

Table listing prices for various potato varieties such as Kents, Bedfords, and Lincolns.

REMARKS.—Trade is steady but Potatoes are very scarce and their prices have risen 20s. to 30s. per ton during the past 10 days. Stocks in London are very small. E. J. Neelton, Covent Garden and St. Pancras, April 6, 1911.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending April 1, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—Over the kingdom generally the greater part of the period was dry, although there was a good deal of cloud, especially in the eastern and central districts of Britain. A heavy and prolonged fall of rain commenced in the extreme south-east of England late on Saturday.

The temperature was below the average, except in Scotland N. and England N.W., but the divergence was not large. The highest of the maximum, which was mostly recorded late in the week, ranged from 63° in England S.W. to 51° in England N.E. The lowest of the minimum occurred at most stations on the 26th ult. In Scotland E. and Ireland N. readings as low as 22° were recorded, and in England E. the thermometer touched 12°, whilst elsewhere the values ranged from 24° in Scotland W. to 32° in England N.E., and to 33° in the English Channel. The lowest grass readings were 16° at Markeze Castle, 18° at Armagh, 19° at Balmoral, Aspatria and Langhammarch Wells, and 21° at Southport.

The rainfall was less than the average generally, but considerably more in England S.E. and slightly more in the English Channel. The fall at the end of the week in the south-east of England measured about 0.75 inch in several places. At some stations in the north-west of England, the west and north of Scotland, and at Blacksoil the week was rainless.

The bright sunshine was deficient generally, the difference from the normal being large in most districts. In Scotland N. and England N.W., however, there was a trifling excess. At some stations in East Anglia the total sunshine for the week amounted to less than six hours.

THE WEATHER IN WEST HERTS.

Week ending April 5.

The deepest fall of snow since January, 1910.—On two days the temperature was about average, but during the rest of the week the weather was very cold during the daytime, and on the last day the highest reading in the thermometer screen was only 35°—making this the coldest day in April that I have yet recorded here. On the other hand the nights were, as a rule, rather warm for the time of year, and on the coldest night the exposed thermometer registered only 9° of frost. The ground is now 1° colder at 2 feet deep, and 4° colder at 1 foot deep, than is seasonable. Rain, hail, or snow fell on all but two days, and to the total depth of nearly one inch. On April 1 rain began falling at 11.30 p.m., and continued without intermission until 6.30 p.m. on the following day, or 19 hours, but for three hours the fall was very light, so that the aggregate measurement only amounted to three-quarters of an inch. Throughout the whole of the 19 hours the direction of the wind was north. During the early morning hours of the 3rd inst. the ground was completely covered with snow, and at 7 a.m. on that day was 2 inches deep on my tennis lawn. This is the heaviest fall of snow of either the past winter or, as yet, this spring. On the first three days of the week there was no measurable precipitation through the soil gauges, but since then about three gallons of rainwater has come through both of them. The sun shone on an average for only one hour, nine minutes a day, which is only about a quarter of the average daily duration at this period of the year. Four days were altogether sunless. The wind has been as a rule light, and the direction principally from some point between north and east. The mean amount of moisture in the air at 3 o'clock in the afternoon exceeded a seasonable quantity for that hour by as much as 14 per cent.

MARCH.

Sea: nable warmth and rainfall, but very dull and humid. Taken as a whole, this was a March of about seasonable temperature, the days being about 1° colder and the nights about 1° warmer than the March average. On the warmest day the temperature in the thermometer screen rose to 61°, which is the average extreme maximum temperature for the month. On the two coldest nights the exposed thermometer registered 12° of frost, which is the highest extreme minimum temperature in March for eight years. Rain, hail, snow or sleet fell on as many as 21 days, but the total depth was only about average. My tennis lawn was for a short time covered with snow on one day to the depth of one inch. The sun shone on an average for 2 1/2 hours a day, which is an hour a day short of the average duration for the month. On as many as nine days no sunshine at all was recorded. The winds were as a rule light, and in no hour did the mean velocity exceed 10 miles—direction W.N.W. for 32 hours, or for 16 days, the direction of the wind was some point between north and east, which is 160 hours longer for these winds than is usual in March. The atmosphere continued very damp for the time of year. In fact, the mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 5 per cent. Only once before during the last 23 years has the air in March been as humid.

OUR UNDERGROUND WATER SUPPLY.

With March came to an end the winter half of the present drainage year. The total rainfall for those six months exceeded the average quantity by 1 1/2 inch, which is equivalent to an excess of 40,720 gallons on each acre in this district. At the same time last year there was an excess of 13,370 gallons per acre. E. M., Berkhamsted, April 5, 1911.

LAW NOTES.

DISPUTE ABOUT GOOSEBERRY BUSHES.

At the Brentford County Court, before his Honour Judge Howland Roberts, Messrs. Walter Mann & Sons, of Whitton, sued Mr. J. W. H. Best, of Suckley, Worcester, for damages for rejection of Gooseberry bushes sold and delivered. The claim was for damages for the non-acceptance of a consignment of Gooseberry bushes. Samples were sent to the defendant, who ordered the trees. After keeping them some days, he declared that they were not according to sample, and returned them. The plaintiffs claimed £15 1s. 11d. There was a counterclaim by the defendants for £13 10s. as damage for failing to deliver trees according to sample.

Mr. W. J. Lobjoit, J.P., and Mr. William Pompart, of Twickenham, called as experts, spoke to having examined the bulk with the sample. The bushes were fair average ones, and on the average better than the samples.

His Honour pointed out that the experts for the plaintiff saw the trees in December, and the samples afterwards. He thought he could not reject their evidence in favour of those who saw both together, and he considered that he must refer the case to a referee. With regard to the damages claimed on both sides he felt a difficulty. The plaintiff had replanted the trees, and they seemed to be growing well, and as to defendant's loss, that was speculative.

His Honour then found, subject to the reference for the plaintiff for the cost of carriage and replanting, and for the defendant for £1 6s. 7d. and 15s. for haulage. He also directed a reference to an expert.

FAILURE OF A NURSERYMAN.

THE Official Receiver for the Edmonton district has issued particulars under the failure of Mr. Charles Crutchfield, of Flanstead End, Cheshunt, Herts, Nurseryman, from which it appears that the debtor has filed a statement of affairs showing gross liabilities amounting to £8,534 8s., of which £3,553 10s. is due to unsecured creditors; to fully secured creditors £67; to partly secured creditors £1,865 12s. 3d., the value of the security being estimated at £2,500, making the total liabilities expected to rank against the estate for dividend £5,917 2s. 3d. The assets were estimated to produce £474 1s. 9d., from which £50 5s. 9d. had to be deducted for the claims of preferential creditors payable in full, leaving the net assets at £423 16s., and showing a deficiency of £5,493 6s. 3d.

The debtor alleged his failure to have been caused through "Failure of Tomato crop about 1901, which forced me to borrow from money-lenders, heavy interest to them, disease of my Roses in 1909, bad trade in Tulips in 1910, and the death of King Edward VII."

The debtor commenced business at Stockwell Nursery, Cheshunt, in September, 1893.

DEBATING SOCIETIES.

SOUTHAMPTON & DISTRICT GARDENERS'.

The monthly meeting of the above society was held on Friday, March 31, in the Highfield Church Institute. Mr. B. A. Andrews was in the chair, and there was a good attendance. Mr. O. Nicklen, of Ashton Lodge Gardens, Basset, read a paper on "The Cultivation of the Rose for Exhibition and Decorative Purposes." Eight new members were elected. The next meeting will be held on April 28.

BRISTOL AND DISTRICT GARDENERS'.—The fortnightly meeting of this association was held on March 30, at St. John's Parish Rooms, Mr. Hayball presided over a good attendance. A paper on "Orchids" was given by Mr. Cane, gardener to Dr. Eager, Northwoods. Mr. Cane said that an adequate supply of moisture is the most important factor in Orchid cultivation; for most kinds of Orchids he recommended a compost consisting of equal parts Osmunda fibre and Sphagnum moss, with the addition of loam for Cypripediums.

CHESTER PAXTON.—At the closing meeting of the present season, held at the Grosvenor Museum on Saturday, April 1, Mr. H. E. Ward contributed a paper entitled "The Development of the Sweet Pea, with a few ideas upon cross-fertilisation and hybridisation." Mr. J. Weaver presided. After tracing the history of the Sweet Pea from its introduction from Sicily into this country, in 1700, Mr. Ward related his experiences in cross fertilising and the raising of new varieties.

BATH GARDENERS'.—At the meeting of this society held on March 27, Mr. F. Cane, Bristol, read a paper on "Cyclamen." Mr. Cane said, he did not know of any plant or class of plants that gave such large returns for such little labour as the Cyclamen, which flowered throughout the whole of the winter when other flowers were scarce.

SCHEDULES RECEIVED.

Green and District Floral and Horticultural Society.—The 6th annual exhibition of this society will be held in the Assembly Room and Marquee, The Green, on Saturday, August 12. Secretary, Mr. A. Futer, The Gardens, Dunningwell, Millom.

The summer show of the **Durham, Northumberland, and Newcastle-upon-Tyne Botanical and Horticultural Society** will be held in the Recreation Ground, North Road, Newcastle-upon-Tyne, on July 19, 20, 21. Liberal prizes are offered in the class for a group of miscellaneous plants, the 1st prize being £20, the 2nd £15, and the 3rd £10. In the cut bloom classes the highest award, a sum of £6, is offered as the 1st prize for 18 bunches of hardy border flowers; Roses, Sweet Peas, and Carnations also form important classes. There are six classes for Grapes in the open division for fruit, and two classes for collections. In the vegetable section the principal prizes are offered by nursery firms. The secretary is Mr. J. Wilfrid Pace, Emerson Chambers, Blackett Street, Newcastle.

The show of the southern section of the **National Carnation and Picotee Society** will be held this year, as usual, in the Royal Horticultural Hall, Vincent Square, Westminster, the date being fixed for July 25. The prizes are open to members of the society only. The first and major portion of the schedule comprises four divisions, in the first three sections cups will be awarded to the exhibitors securing the highest aggregate number of points, whilst in the other a silver medal will be awarded. The Martin Smith Memorial Challenge Cup is offered in the amateurs' classes, and will be given for the best exhibit of 12 distinct varieties of selfs, fancies, and yellow-ground Picotees. The Cartwright Challenge Cup, valued at 20 guineas, is offered for the best exhibit in the open classes for nine blooms of specified colours. Further particulars may be obtained from the secretary, Mr. T. E. Henwood, 16, Hamilton Road, Reading.

The **National Auricula and Primula Society's** (Southern Section) show will be held on Tuesday, April 25, in the Royal Horticultural Hall, Westminster, in conjunction with the fortnightly show of the Royal Horticultural Society. The prizes are open to members of the society and Fellows of the R.H.S. The secretary is Mr. T. Henwood, 16, Hamilton Road, Reading.

Swanage Horticultural and Industrial Society's seventh annual show, to be held on Monday, August 7. The Swanage Coronation Cup, valued at 20 guineas, is offered for the best exhibit of nine distinct varieties of vegetables and six varieties of fruit, competition being restricted to growers in the county of Dorsetshire. Hon. secretary, Mr. Alfred Sadler, Northbrook Villa, Northbrook Road, Swanage.

Sutton Rose Society's thirtieth annual exhibition, to be held in the grounds of Manor Park House, Carshalton Road, Sutton, on July 1. Seven challenge cups are offered in competition, also six pieces of plate and medals.

TRADE NOTICES.

Mr. F. W. ASHTON, until lately in the employ of Messrs. Stuart Low & Co., Enfield, has commenced business on his own account as a horticultural commission agent, specialising in Orchids and Carnations. Mr. Ashton's address is 116, Hewitt Road, Harringay.

PARK VIEW NURSERY COMPANY, LTD.

The above-named company has been registered with a capital of £2,000 in £1 shares. The company, a private one, will carry on the business of a nursery firm with offices at Mascot, Leinster Road, Cranley Gardens, London.

MORLE & CO., LTD.

A company (private) has been formed, under the title of Morle & Co., Ltd., with a capital of £2,000 in £1 shares. The objects of the company are: to take over the business of nurserymen, market-gardeners, &c., carried on at 156, Finchley Road, Hampstead.

MESSRS. TOM B. DOBBS & CO.

Deeds of arrangement have been filed by Alfred Dobbs and Tom Bickford Dobbs, trading as Tom B. Dobbs & Co., both of Queen Square and Nurseries at Goldthorn Hill and Dunstall, Wolverhampton, dated January 17, and filed January 23. Unsecured liabilities amount to £2,510; and estimated net assets, £764; secured creditors, £115. Trustee, Mr. T. E. Lowe, Litchfield Street, Wolverhampton.

GARDENING APPOINTMENTS.

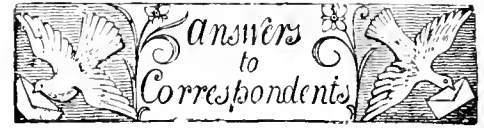
(Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.)

Mr. J. SCOTNEY, for 2 years and 3 months Gardener to Baroness VON SCHROEDER, and previously Gardener for 8 years to Lord HENRY GROSVENOR, as Gardener to Lord GERALD GROSVENOR, Ash Grange, Whitechurch, Shropshire.

Mr. G. GILL, late Gardener at The Hayes, Kenley, Surrey, and previously 7 years at Cheam Park, Sutton, Surrey, as Gardener and Bailiff to Lt.-Col. C. J. STRONG, Thorpe Hall, Peterborough, Northamptonshire.

Mr. J. W. BENNETT, for more than 3 years Foreman at The Manor House Gardens, North Rode, Conington, as Gardener to H. TURNER, Esq., The Brooklands, Macclesfield, Cheshire. (Thanks for 1s. 6d. for the R.G.O.F. Box.—E.H.S.)

Mr. G. LONGHURST, for the past 12 years Gardener to the late Lady STEWART, of Chilworth Manor, Surrey, as Gardener to Captain STEWART, Misterton Hall, Lutterworth.



The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

COCKROACHES: *S. Wimbledon.* The common method of destroying these pests in plant-houses is to place some poisonous preparation about the places they frequent; the various forms of phosphorus paste, or Chase's beetle poison may be employed. In a note on cockroaches in plant-houses, in the issue for January, 15, 1910, p. 45, Mr. C. P. Raffill recommends trapping them with sweet oil. A little oil is placed in the bottom of a jam jar, and stood on the plant stages; at Kew Gardens as many as 76 cockroaches have been caught during the night in a single jar. The oil needs to be renewed every three or four days, as it soon becomes rancid in warm houses.

EMPLOYMENT IN PUBLIC PARKS IN THE COLONIES AND ABROAD: *Anxious.*—The Horticultural Directories give a list of the principal parks in the colonies and U.S.A. Write to the respective superintendents.

EMPLOYMENT IN THE LONDON PARKS: *Foreman.* In the case of the Parks and Open Spaces under the control of the London County Council, application should be made to the Chief Officer, 11, Regent Street, London. An application form for employment in the Crown Parks (Hyde, Regent's, &c.) may be obtained from the respective superintendents.

HYACINTH BULBS DISEASED: *Fungus.* The plants are attacked by "Yellow Stripe," a bacterial disease. The soil should be treated with gas lime.

LILY OF THE VALLEY: *E. B. & Sons.* The cause of the rotting cannot be determined. The tap roots appear to have been eaten by some insect.

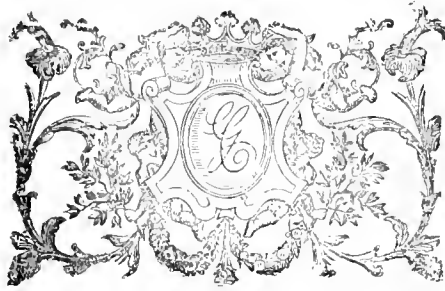
MUSHROOMS: *G. C.* The Mushrooms are infested with the larvæ of a species of dipterous fly, which from April on through the warm summer months attacks Mushrooms. It is desirable to sprinkle the bed with either salt, salt-petre, or ammonia, but the two latter remedies must be used very carefully. A lighted lamp set in water with a little kerosene floating on the surface will attract the flies to the light, and the insects will fall in the water and be drowned.

NAMES OF PLANTS: *Thos. Wickenden.* 1, *Thuja dolabrata variegata*; 2, *Juniperus chinensis*; 3, *Cephalotaxus pedunculata* (female); 4, *Cupressus* sp., probably a form of *C. macrocarpa*; 5, *Cephalotaxus pedunculata* (male); 6, *Cupressus sempervirens*.—*J. H.* 1, *Primula vulgaris* (garden variety); 2, *Helleborus foetidus*.—*J. R.* *Veronica Hulkana*.—*W. E. T. Ingmerson.* 1, *Puschkinia scilloides*; 2, *Saxifraga sancta* × *Burseriana*; 3, *Symphytum bulbosum*.—*W. P. H.* *Anomatheca cruenta*.—*H. C. P.* *Stamitium latifolia*.—*R. R.* 1, *Odontoglossum Lindleyanum*; 2, *Cypripedium concolor*; 3, *Oncidium cheiroporum*; 4, *Oncidium sessile*.—*W. H. S.* 1, *Dendrobium infundibulum*; 2, *D. primulum*.—*P. Mc. J.* *Lycaste Skinneri*.—*Hamesh.* 1, *Epidendrum Stamfordianum*; 2, *Sclaginella Wildenovii*; 3, *S. casia*; 4, *Aspidium capense*; 5, *Cyrtomium falcatum*.—*R. P.* *Cytisus filipes*.

PEACH FLOWERS AND CARNATIONS: *J. MocD.* The Peach flowers have been killed by the fungus *Botrytis*, which is probably present on dead branches that should have been cut away. The Carnation leaves have been injured in the first instance by punctures of insects, and these have been followed by a fungus.

ROSES GROWN ON BENCHES: *C. A.* The Canadian benches are 1 foot deep and a 2-inch layer of clay is placed under the roots of the Roses. You may judge of the height of the houses from fig. 80, page 178.

Communications Received.—A. E.—J. H. R.—H. & Sons—G. H. Leicester—W. A. C.—W. B. & Sons—C. G.—C. T. D.—E. C. B.—T. S.—R. A. M.—H. W. W.—J. C.—A. P.—C. F. C.—W. E. B.—S. A.—J. H.—W. H. W.—J. G.—F. B.—E. P.—Hants—O. T.—F. K., Berlin—R. I. L.—C. R., Dublin—P. J. C.—C. D. M.—W. F. W.—D. W.—W. E. B.—W. P. G., Canada—C. H. H.—W. S.—Messina—C. B.—A. V. G.—R. F.—P. C., Leeds—S. C.—E. A. E.—E. K. T.—W. I.—G. W. K.—G. L.



THE

Gardeners' Chronicle

No. 1,268.—SATURDAY, April 15, 1911.

CONTENTS.

Bomaria patacoensis...	227	Roses, garden, the clas-	225
Bongardia Rauwolfii ...	235	sification of ...	225
Books, notices of—		Saxifrages, two hybrid	228
Carnations and Pinks	228	Scotland, notes from ...	233
The Subantarctic		Season, the ...	229
Islands of New		Snow in April ...	235
Zealand ...	226	Societies—	
The Orchid World ...	232	Boskoop Pomological	239
Cardiff public parks ...	234	Cornwall Daffodil and	
Experiment station, a		Spring Flower ...	238
new ...	233	Liverpool Horticultu-	
Flowers in season ...	233	ral ...	238
Freeseas, a bouquet of	233	National Rose ...	232
Griffith, William, a lec-		Nurserymen, Market	
ture on ...	232	Gardeners', and	
Indian flower show, an	233	General Hailstorm	
Law notes ...	233	Insurance, Ltd. ...	239
Lyons horticultural		Royal Horticultural ...	236
show ...	233	Scottish Horticultural	238
Market fruit garden—		Trees and Shrubs—	
"March many wea-		Acer pennsylvanicum	233
thers" ...	228	Viburnum tomentosum	233
Market gardening—		Veltheimia viridifolia ...	235
Iceland Poppies as cut		Veronica macrocarpa ...	235
blooms ...	228	Vines, forcing ...	235
Medinilla magnifica ...	227	Week's work, the—	
Obituary—		Flower garden, the ...	231
Baker, R. N. G. ...	240	French garden, the ...	231
Gumbleton, W. E. ...	240	Fruits under glass ...	230
McKenzie, Donald ...	240	Hardy fruit garden, the	230
Pember, E. H. ...	240	Kitchen garden, the	230
Smet-Duvivier, Louis		Orchid houses, the ...	231
de ...	240	Plants under glass ...	230
Sullivan, Miss ...	240	Wisley in spring ...	234
Wells, Thomas ...	240		

ILLUSTRATIONS.

Bomar' a patacoensis	227
Cardiff public parks (Supplementary Illustration)	236
Medinilla magnifica	236
Roath Park, Cardiff, view in	234
Saxifraga x Obrieti	229
Saxifraga x Sundermannii	228
Waterloo Park, London, under snow	235

THE CLASSIFICATION OF GARDEN ROSES.

THE beautiful clear yellow of Mons. Pernet Ducher's new Rose "Rayon d'Or," enriched as it is with touches of rosy-red, compelled the attention of rosarians last summer at the National Rose Society's exhibition in Regent's Park. It is to be hoped that it will give us the real yellow, dwarf Rose of hardy constitution for which rosarians have so long been waiting, and some feel perhaps that the enthusiasm of the foreign catalogue writer who has burst into the somewhat startling apostrophe of "bright as varnish!" (*sic*) is not without some vague justification. The flower has, moreover, a really delightful fragrance, a point not to be passed over in a new Rose. It is true the shape reminds one somewhat ominously of its parentage from Soleil d'Or, but we will forgive it much for its lovely colour, and for the present are prepared to "wait and see."

The President of the N.R.S. has told us that he thinks 1910 will be recalled by rosarians as the year of Rayon d'Or. Its advent has led to a demand that the National Rose Society should revise its classification of Roses and begin by accepting the name of "Pernetiana," put forward

by the raiser, as descriptive of the new Roses of Soleil d'Or parentage which have, in recent years, been sent us from Lyons.

These are two demands deserving separate consideration. If the Society were to undertake the revision of the classification of garden Roses, it might or might not decide that the Lyons group is sufficiently distinct to be considered a "race," and worthy of a separate designation, while it would equally be open to the Society, and consistent with its present practice, to decide the latter question without even opening the general subject of classification.

The revision of the classification of garden Roses is without doubt a large question, and one of very considerable difficulty. In a most interesting and suggestive article on "Species and Varieties of Irises," recently contributed to these columns (see p. 180), Mr. W. R. Dykes has noted the difficulty that exists in trying to answer the questions, What is a species and what is a mere variety? Perhaps there is no general answer to either question. It is all a matter of degree of variation, and the degree varies with the genus under consideration. But be this as it may, the difficulties in relation to the Iris are insignificant compared with those to be encountered in attempting a classification of garden Roses.

In the first place the number of species of Roses commonly grown in gardens is small compared with the number of species of the genus *Rosa*, while the number of hybrids is enormous. Some say that the known garden varieties amount to 15,000, and instead of dealing merely with species and varieties we should be concerned chiefly with sub-species, races (a lower division of sub-species) and varieties mostly of garden origin. Moreover, if it is to be of any real value the revised classification must be simple. If it cannot be understood of the people, or at least of the 4,500 members of the Society, it is better left alone. When Goethe was staying at Carlsbad the Linnæan system, i.e., the classification of the vegetable kingdom by the great Swedish botanist, was at the height of its fame. He found the visitors who had assembled to undergo "the cure" diligently engaged in examining flowering plants in order to name or "determine" them, as it was called by the system; it was a "pleasant and stimulating pastime," and the visitors played at the game just as nowadays they might devote themselves to jig-saw puzzles or acrostics. The "system" was most delightfully simple, you counted the stamens, made a few observations on the pistil and other parts of the flower, turned to the table, and your flower was determined. The simplicity was the strength of the system, and it fascinated alike the layman and the botanist. It is, of course, too much to expect that another Linnæus should arise in the Rose world, but the story shows how necessary is simplicity in classification.

Down to the present the divisions adopted by the N.R.S. have been simply those which its needs required. Thus we find that, in the *Catalogue* garden Roses are divided into 19 classes, the Roses for

the most part being placed in the class to which they were assigned by the raiser. But in some cases greater diversity became necessary, for instance, in the book on pruning we find that the Society has treated of some 33 categories of Roses. It is by no means certain that this system is not the better one to follow.

On the second question whether the Roses from Lyons are sufficiently distinctive to form a race to themselves, it seems best to suspend judgment. The ground for adopting this course put forward by the President at the general meeting of the National Rose Society was the desire to give honour where honour is due, and acknowledge by so doing our debt to one who has so greatly enriched our gardens. It was in itself honourable on the part of the President to make the suggestion, and it is impossible to withhold sympathy with the motive that influenced him. At the same time something more is required to define a new race than we have at present.

That new types of Roses do arise we have three great instances in the origin, first, of the Noisette; next, in the first quarter of last century of the Hybrid Perpetual, and, thirdly, of the Hybrid Tea, which has come in our own time. In connection with the Hybrid Teas it is rather interesting to recall that the President himself addressed a paper to the Rose Conference at Holland House in 1903 entitled "What is a Hybrid Tea?" and, if one may judge from a recent correspondence in the *Garden*, he feels still unable to define that class with certainty.

That the lapse of time has in fact established the Hybrid Tea in popular opinion as a distinct race of garden Roses is perhaps somewhat against my argument, but all I am now seeking is to deprecate haste in a question that is still new, and as it seems to me not yet ripe for final decision.

Gardeners do not as a rule take much notice of mere botanical distinctions, and to justify recognition as a separate race the varieties constituting the group should be distinct from other varieties either in the uses to which they can be applied in the garden or in the treatment they require or in some distinct habit of growth; or they should possess such distinct characters for exhibition purposes as to require separate classes at shows. At present the group in question consists of about a dozen varieties. There are the Lyons Rose, Rayon d'Or itself, Arthur R. Goodwin, Viscountess Enfield, and two or three others raised by M. Pernet Ducher; also, Messrs. Wm. Paul & Son's Juliet, Mons. Graveraux Les Rosati, and a few varieties, mostly of French origin, less well known in this country.

So far as at present appears, these Roses differ in their flowers, foliage, and habit of growth, at least as much among themselves as they do from their near allies, the Hybrid Teas and Briars, and the designation of Hybrid Briar, now applied by the N.R.S. to the Roses approaching more nearly the latter section, seems both simpler and more descriptive than the introduction of a new word. *White Rose*.

THE OUTLYING ISLANDS SOUTH OF NEW ZEALAND.*

(Concluded from p. 210.)

THE endemic plants are: *Ranunculus*, three species; *Stellaria decipiens*, *Colobanthus muscoides*, *Geum albiflorum*, *Epilobium confertifolium*, *Azorella reniformis*, *Ligusticum*, three species; *Stilbocarpa polaris*, *Coprosma ciliata*, *Olearia Lyallii*, *Pleurophyllum*, three species; *Celmisia*, two species, *Cotula lanata*, *Abrotanella*, two species; *Senecio antipodus*, *Gentiana*, four species; *Myosotis*

In connection with the origin and affinities of this southern insular flora, Mr. Cheeseman introduces a tabulated enumeration of the vascular plants of the other investigated southern islands, namely: Kerguelen, Heard, Crozets, Marion, and South Georgia. And he discusses the insular flora generally with the flora of New Zealand, and that of Fuegia. Following Schimper, he derives the present flora of Kerguelen and the other islands from Fuegia, and explains the presence, or existence of, the endemic *Pringlea*, *Lyallia*, &c., as survivals of a pre-glacial period; and *Pleurophyl-*

Zealand flora, which consists very largely of species of genera of world-wide distribution. Upwards of 500 of the endemic species belong to about 25 genera of almost universal dispersion. Prominent among them being: *Ranunculus*, *Epilobium*, *Senecio*, *Gentiana*, *Myosotis*, *Veronica*, *Juncus*, *Luzula*, *Scirpus*, *Carex*, *Agrostis*, and *Poa*; some of these genera are partly represented by species of wide distribution. The endemic generic element of the New Zealand flora is not large as compared with other insular and continental areas, and it is not highly specialized. A complete tabulation of the



FIG. 99.—MEDINILLA MAGNIFICA IN SPRINGBURN PARK, GLASGOW. (See p. 227.)

capitata, *Veronica*, two species; *Plantago aucklandica*, *Astelia subulata*, *Deschampsia*, two species; *Poa*, eight species; *Atropis antipoda* and *Festuca contracta*. Assuming that *Aradia Lyallii* T. Kirk, is really a congener of *Stilbocarpa polaris*, *Pleurophyllum* is the only endemic genus.

* *The Subantarctic Islands of New Zealand: Reports on the Geophysics, Geology, Zoology, and Botany of the islands lying to the south of New Zealand, based mainly on observations and collections made during an expedition in the government steamer "Himemoa" (Captain Bollen), in November, 1907.* Edited by Chas. Chilton. Published by the Philosophical Institute of Canterbury. In two volumes, 4to., pp. 818, with numerous illustrations and a map. Wellington, N.Z. (London: Dulau & Co.)

At p. 209, col. 1, 5th line from bottom, for "temperature" read "temperature"; 7th line, for "16th" read "60th."

lum and *Stilbocarpa* in the New Zealand Islands are also regarded as survivals of the pre-glacial period. The Fuegian plants, he thinks, may owe their presence to pelagic birds, and the presence of the Fuegian element in the southern islands of New Zealand he ascribes to the same agency.

Both of these suppositions seem rather far-fetched. We hold that the Fuegian and New Zealand floras are remnants of a former circumpolar temperate flora, which does not necessitate a former actual land connection with Kerguelen and other islands. Too much, we consider, has been made of the endemic element in the New

distribution of the genera of plants represented in the New Zealand region, supplemented by a critical analysis of their affinities would, we venture to urge, strengthen the view of a southern circumpolar temperate flora as nearly homogeneous in its composition as its northern counterpart, and partly extending northwards in the east to the mountains of the Malayan Archipelago, and in the west to the Andes. It would carry us beyond the limits of an article to review all the facts for and against this theory, but the following amphigeic genera constitute important elements in both the Fuegian and New Zealand floras, or support by

their general distribution the position we have taken up. These are: *Drimys*, *Colobanthus*, *Aristolelia*, *Discaria*, *Donatia*, *Weinmannia*, *Haloragis*, *Fuehsia*, *Gunnera*, *Azorella*, *Coprosma*, *Nertera*, *Calceolaria*, *Nothofagus*, *Libocedrus*, *Podocarpus*, *Dacrydium*, *Libertia*, *Callixene*, *Cordyline*, *Astelia* and *Uncinia*. Some of the foregoing genera have their greatest specific development in the east, some in the west. Returning to species, Mr. Cheeseman's table shows that out of a total of 194 species of flowering plants and Ferns in the southern islands, 41 (21.1 per cent.) are common to South America.

Stewartia. Owing to the prevalent winds, the trunks lie for more than half their length either prone on the ground or but slightly raised above it, and attain a length of 30 or 40 feet. The "tussock" grasses and sedges: *Poa litorosa*, *P. ramosissima*, *P. foliosa*, *Danthonia antarctica*, *Carex trifida* and *C. appressa* are prominent features in the meadow and swamp formations. They form trunks 1 to 4 feet high, similar to our British species *Carex paniceolata*, bearing huge, dense crowns of long, slender, recurved leaves of the large rosette type. Among herbaceous plants the showy endemic

Aucklands, is of the most scanty kind, no woody species being represented; yet the conspicuous *Stilbocarpa polaris* and *Pleurophyllum Hookeri* flourish luxuriantly in certain sheltered localities. We might go on extracting particulars of this southern insular flora, but everyone specially interested in the subject will go to the fountain-head, where photography and personal observations familiarize us with the aspects and composition of the vegetation of a region so few of us can possibly visit. *H. B. H.*

MEDINILLA MAGNIFICA.

THE species of *Medinilla* are all handsome stove plants. *M. magnifica* is a vigorous-growing species that needs plenty of room, and is not suitable for a small house. It is best adapted for a roomy, well-lighted structure such as the Lily house at Kew. The pot may even be partly stood in water in summer-time, as the *Medinillas* enjoy an abundance of moisture during their growing season. Moreover, the plants are greatly benefited by copious supplies of liquid manure. The fine specimen shown in fig. 99 bore no fewer than 320 of its beautiful racemes of coral-pink flowers, and was 6 feet high and 8 feet in diameter. It was cultivated in one of the plant houses at Springburn Park, Glasgow. Mr. Jas. Whitton, who kindly sent us the photograph, states that the plant was a most popular feature in the park last season. *M. magnifica* is easily propagated from cuttings.

BOMARIA PATAOCENSIS.

THE accompanying illustration (see fig. 100), prepared from a photograph taken in the Cambridge Botanic Garden, may serve to draw attention to one of the best greenhouse climbers, and quite the finest species of *Bomaria*. It is not new, having been introduced by Messrs. Shuttleworth, from Bogota, before 1832, in which year it was illustrated in the *Gardeners' Chronicle* of February 11, p. 187. About that time several *Bomarias* were introduced, but none of them appears to have become popular. This species, however, is most striking, and nothing can be finer than its large, umbellate inflorescences of *Geranium*-like coloured flowers. From 60 to 90 flowers may be produced in each inflorescence, the diameter of which is about 3 inches. The perianth is 2½ inches long, and about 1 inch in diameter at the mouth. The inflorescence illustrated was produced at the end of a shoot about 30 feet long, and three others have been recently produced, each terminating a separate shoot. For planting in a corridor or large greenhouse, nothing could be more suitable. Pot culture should not be attempted: the shoots must be strong for flowering, and vigour is best obtained by planting-out in a good border. This fine plant was first described by Herbert, in his *Amaryllidacea*, under the name here adopted; it was then described by Bentham under the name *B. conferta*, and afterwards by the late Dr. Masters, under the same name, in *Gard. Chron.* of September 10, 1831, p. 350. It is also figured in the *Botanical Magazine*, 1833, tab. 6692, under the name given by Herbert, which has the right of priority. The stems are purple-tinted and pubescent; the leaves are oblong-lanceolate, 5 to 6 inches long and pubescent beneath; the flowers are from 20 to 60 in an umbel, the pedicels are pubescent, 1½ to 2 inches long; the outer perianth segments are oblong-lanceolate, the inner cuneate-unguiculate, with a yellow keel, and a few spots; but neither the yellow keel nor the spots can be seen without opening the flower. *Bomaria pataocensis* is a native of the Andes of Ecuador and New Grenada. *R. Irwin Lynch.*



FIG. 100.—BOMARIA PATAOCENSIS: COLOUR OF FLOWERS CARMINE.

Dr. Cockayne's report has, in one respect, at least, a greater attraction than the systematic part, inasmuch as it is partly pictorial, representing the leading physiognomic plants. After dealing generally with the ecologic factors, foremost among which is climate, the author proceeds to a classified review of the facts, and illustrates the prevalent types. The Aucklands and the Snares are the only groups in which there is an arborescent vegetation, and the principal element consists of the *Rata*, *Metrosideros lucida*, followed by *Olearia Lyallii* and *Senecio*

genus *Pleurophyllum* and various species of *Celmisia* are prominent, but the "vegetable sheep" genera, *Raoulia* and *Haastia*, are unrepresented in the islands. They are replaced, however, by such "cushion-plants" as: *Colobanthus muscoides* (*Caryophyllaceae*), *Azorella Selago* (*Umbelliferae*), *Phyllachne clavigera* (*Stylidiaceae*), *Gaimardia ciliata* (*Centrolepidaceae*), and *Oreobolus pectinatus* (*Cyperaceae*).

The vegetation of the Macquarie Islands, the southernmost group, lying in 54° 30', as compared with that of the

NOTICES OF BOOKS.

CARNATIONS AND PINKS.*

THE names of the authors of this little book offer a good guarantee that this study of Carnations and Pinks will be as useful as its fore-runners in the Present-day Gardening Series. The authors are to be congratulated on having given clear and succinct directions for the culture of Carnations, while at the same time doing their best to dissipate the delusion that the plant can only be a rich man's hobby. Although border Carnations may make the glory of a cottage plot, yet the florist's Carnation has become so specialised and elaborated an abnormality as to fall an easy prey to disease or faulty culture. Therefore, help to arrive at the right treatment must always be of great value to the countless lovers of this gorgeous flower. Such aid is briefly but adequately given in this book, which contains also historical notes of *Dianthus Caryophyllus* and its descendants, as well as of *D. plumarius* and the garden Pinks. Whilst all the cultural notes are valuable, the warnings given on the perils of uncleanliness and excessive or erroneous watering are particularly useful. If nervous souls are deterred from growing Carnations by such a multiplicity of cautions, they may console themselves by remembering that the Carnation is capable of fully requiting all the care bestowed upon it. Cautions can never daunt the genuine enthusiast, and the lives of many luckless Carnations may be saved if the care they need is plainly set before the cultivator.

All varieties of Carnations and Pinks are prescribed for in this book, and selections are given of the best varieties of border Carnations, Marguerite Carnations, Souvenir de la Malmaison, and perpetual-flowering Carnations. In regard to the coloured illustrations, some of them show the effect of rubbing against the next page, and it would be well to tissue them in future volumes. It seems almost a pity that a chapter on rock garden Pinks was included. *Dianthus* is a great race, demanding full treatment or none at all, and this chapter is of necessity perfunctory and inadequate; e.g., there is no mention of *D. neglectus*, *D. sylvestris*, and *D. callizonus*. And no Carnation grower really wants to bother about rock Pinks, neither do rock-gardeners want to have anything to do with full-blown Carnations.

But as regards the treatment of Carnations, this book, with its clear prescriptions against diseases, its excellent calendar of operations, and its notes on hybridisation, will certainly be of use to all amateur cultivators. With the caution, however, that only the best parents be used, the grower should be left to choose his own crosses, and the amateur cultivator of oddities would like to hear more of the almost-forgotten Painted Lady section, and where they may still be obtained. Also, at this time of day, one does not need to be told in a book on Carnations that resistance to the ambitious schemes of Napoleon "culminated in his total defeat at Waterloo." *Reginald Farrer.*

MARKET GARDENING.

ICELAND POPPIES AS CUT BLOOMS.

WE are about planting Iceland Poppies for a supply of cut flowers. The ground has just been cleared of Pyrethrums, and it will receive a good ploughing and harrowing. After these operations are finished and the rubbish removed, manure will be forked in the ground. The plants are very small, notwithstanding that the seed was sown early last year. They will be put out in rows placed at 18 inches apart, the plants 9 inches asunder. *Stephen Castle, Walpole St. Andrews, Wisbech.*

* *Carnations and Pinks*, by T. H. Cook, J. Douglas, and J. F. McLeod. Present-day Gardening Series, edited by R. Hooper Pearson. (T. C. and E. C. Jack.) Price 1s. 6d.

TWO HYBRID SAXIFRAGES.

HYBRID Saxifrages have provided some useful garden plants in recent years. Two of the species which have been largely employed as parents are *Saxifraga Burseriana* and *S. marginata*, both attractive and well-known rockery plants. One or the other has been used in various combinations, of which the following are a few examples. *S. marginata* × *Ferdinandii* Coburgii yielded two distinct forms, which have been called *S. Borisii* and *S. Kyrillii*. *S. Burseriana* ? × *S. sancta* ♂ produced the yellow-flowered *S. Elizabethæ*; and, with *S. sancta* as the seed parent, the same cross yielded *S. Godseffiana*, or, as it is sometimes called, "L. S. Godseff." *S. Salomonii* is the result of crossing *S. Burseriana* with *S. Rocheliana*; while *S. Burseriana* × *Ferdinandii* Coburgii produced *S. Paulinæ*, a close rival to *S. Boydii*, a hybrid from *S. Burseriana* and *S. aretioides*. Then there is the recently-exhibited hybrid *S. Bursiculata*, from a cross between *S. Burseriana* and *S. apiculata* (see fig. 71 in *Gardeners' Chronicle*, March 11, p. 158).

S. Burseriana and *S. marginata* were crossed by F. Sundermann (Bavaria), and he distributed plants under the name of *S. Obristii*, in 1907. As,

to a point, as in *S. Burseriana*. They are channelled or concave on the upper surface, and covered with a chalky deposit on the margins and apex. The stems grow 2 inches high; they are green, with the obtuse bracts covered with glandular white hairs. Each stem bears from one to two white flowers, three-quarters of an inch in diameter; the obtuse sepals are about half the length of the petals; they are tinged with red-brown, and are also glandular. These have crisped margins, as in some forms of *S. Burseriana*. The plant is much easier to cultivate than either of its parents, and the illustration in fig. 101 gives a good idea of its freedom in flowering. *W. Irving.*

THE MARKET FRUIT GARDEN.

"MARCH MANY WEATHERS."

THE past month has been true to its proverbial characteristics. It has given us samples of all kinds of weather, warm and sunny spells, bitterly-cold blizzard-like gales, frequent falls of rain, a few frosts, and at least one considerable fall of snow. Rain, small in amount, except on one occasion, was measured at my station on 13



[Photograph by W. Irving.]

FIG. 101.—SAXIFRAGA SUNDERMANNII: FLOWERS WHITE.

however, two forms have proved so distinct from each other, it appears desirable to retain the name *S. Obristii* for the form which more nearly resembles the pollen parent (*S. marginata*), and name the other, which is closer to *S. Burseriana*, *S. Sundermannii*, in honour of the raiser.

S. × OBRISTII (see fig. 102).—A note on this hybrid appeared in *Gard. Chron.*, May 2, 1908, p. 277. It is a robust plant, with rosettes, in full development, three-quarters of an inch in diameter. The leaves are strap-shaped and acute, and have four or five chalk pits on their margins. The stems are glandular, from 3 inches to 4 inches high, and tinged with red-brown. They bear from two to four large, ivory-white flowers, which are almost 1 inch in diameter. The broad petals are rounded, and overlap each other, as in *S. marginata*, which parent *S. × Obristii* resembles much in the flower, while the foliage is quite intermediate in character.

S. × SUNDERMANNII (see fig. 101).—This is a smaller plant than the former, and of a tufted, free-growing habit. The larger rosettes of leaves, when fully developed, are five-eighths of an inch in diameter. The leaves are a quarter of an inch long, broadest at the base, and taper

out of the first 15 days of the month, while two later falls and melted snow brought the total rainfall above the average for March. There were a few periods when the land was just dry enough for horse and hand hoeing; but subsequent rain soon reduced the stirred soil to a muddy condition, and thus made me regret that the operations had been performed. The forking-over of fruit plantations was finished for the most part in February, while it was possible to clear up arrears of that work in the first half of March, before the rainfall had become heavy. Apart from this work very little attention to orchard soil has been practicable, and the growth of weeds renders fruit-farmers anxious for dry weather to enable them to have the hoeing done to advantage.

CHECKED VEGETATION.

In the first half of March the prevailing mildness of the weather caused a premature development of fruit buds, and there was reason to dread a March blooming among Plums and Pears, whilst Gooseberries, Currants, and Apples also seemed likely to be undesirably forward. The relapse to wintry conditions, however, gave a salutary check to vegetation, and nothing is now more forward than it was at the corresponding

date of last spring. My record for last season on March 31, notes Almonds as in full blossom, early Pears as showing clusters of blossom-buds out of their sheaths, a few Plum flower-buds as half open, outside Peaches and Nectarines as showing blossom, a few early-blooming Apples as presenting clusters of flower-buds, Gooseberry leaf as half out, Red Currant leaf as only slightly more backward, and Cherry blossom-buds on the point of bursting. These notes stand as applicable to the present season, except with respect to Apples, which are slightly less advanced. The bursting of Black Currant leaf buds was not recorded last year, but in many preceding seasons it had taken place by March 1, whereas, this year, it was not common until a fortnight later.

THE PROMISE OF FRUIT.

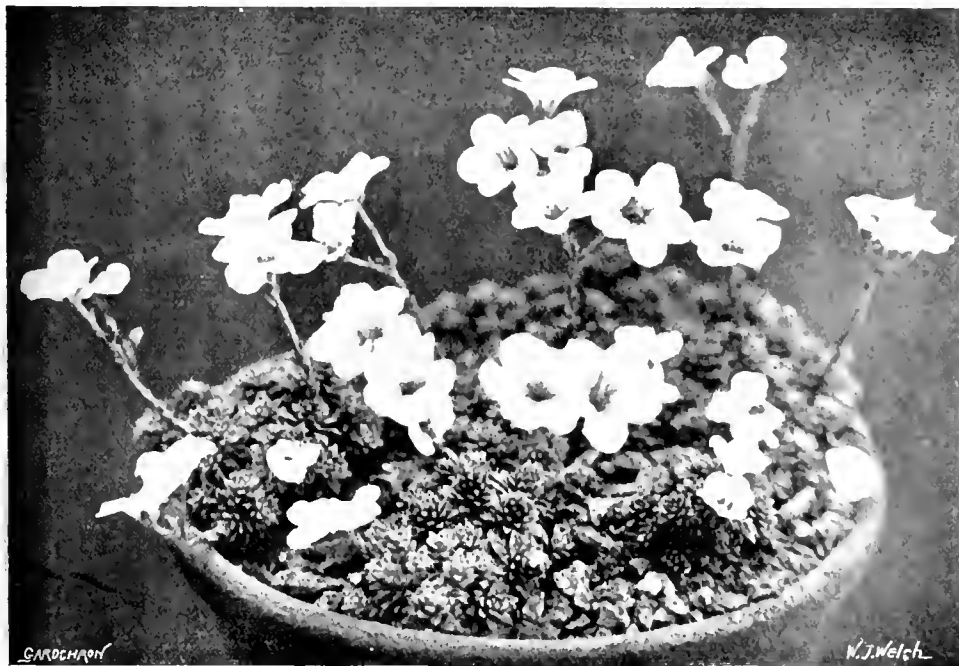
I have never observed more promising signs for a better all-round show for fruit than are to be seen at present. Plums and Apples are as abundantly furnished with fruit-buds as they were poorly supplied last season, while Gooseberries and Red Currants promise at least as well, which is saying a good deal, and Black Currants much better. Most varieties of Pears

to admit that the statement that birds attack fruit-buds only to obtain insects or grubs is utter nonsense. Monarch is the variety most in favour with bud eaters, and the trees of that kind bordering upon hedges have been almost entirely ruined by bud destruction in successive seasons. In one orchard, near a hedge kept lofty as a wind-break, there are about 40 trees in two rows, which are big enough to bear a bushel of Plums each, but which will not yield a bushel between them, almost every fruit-bud having been picked off by bullfinches and chaffinches, helped, possibly, by sparrows or other birds. Moreover, nearly every shoot of last season's growth has been almost, or quite, denuded of leaf-buds, so that it has had to be cut back entirely or to within a bud or two of its base, in order to get rid of what would be permanently bald branches. The mischief done was not noticed soon enough to spray for its prevention, and probably if these outside trees alone had been sprayed those further into the field, if not sprayed also, would have been attacked instead, and it is a serious undertaking to spray large orchards of Plums twice or even once in the winter. This work will have to be

applied about 10 days earlier. But it might be supposed that such a blizzard as we have had recently would kill any aphides exposed to it. Aphis attack, however, comes in such a mysterious way that I shall not be surprised if a full infestation is found in the course of a few days.

A SEASON'S PLAN OF SPRAYING.

My plan of spraying for the season may now be described. The first operation was that of drenching Plum, Apple, and Pear trees with lime-sulphur wash shortly before the bursting of the buds. The objects were to cleanse the trees of moss, to kill any queen aphides that might be exposed, and to do something towards checking the development of such fungous diseases as scab and brown rot, though it is doubtful whether any fungicide is effective whilst trees are dormant. The destruction of the eggs of aphides or Apple suckers by any winter wash is also doubtful. The next operation may be that of spraying with quassia extract and soft soap immediately after an attack of the aphis is noticed. Last year there was no serious aphis attack upon Apples, but with me Plums have never been exempt. The operation that follows in the third place, if an aphis attack is found early, is that of spraying with the wash just named, with 2 lb. of lead arsenate to 50 gallons of the wash added, to kill the Apple sucker, and to poison the food of leaf-eating and other caterpillars which prey upon blossom-buds. This is practically certain to be necessary, and the time of performing the operation will be when the clusters of blossom-buds have fully emerged from their sheaths, but have not expanded. Apple suckers are then to be found among the flower-buds, and a liberal and forcible spraying will reach nearly all of them. The fourth operation will be spraying, just after the petals of blossoms have fallen, with 3 lb. of Woburn Bordeaux paste and 2 lb. of lead arsenate to 50 gallons of water to check scab and brown rot on Apples, and to poison the food of caterpillars of all kinds, including the codlin moth larvæ if there are any present. If any Apple suckers are still in evidence at that time quassia extract and soft soap will be added. In consequence of the Bordeaux paste being used in this wash, only a mist spray will be administered. Pears will be treated with the Bordeaux paste only, to check scab. The fifth and, it is to be hoped, the last spraying will be done three or four weeks later than the fourth with Bordeaux paste alone on Apples and Pears to check scab, the quantity, except on Cox's Orange Pippin, being increased to 4 lb. to 50 gallons of water—the largest proportion, in my opinion, that it is safe to use. This ends the regular course, and a quite sufficiently onerous one it is. But a late attack of aphides on Apples or Currants, or an infestation of the saw-fly caterpillars on Gooseberries may require a supplementary operation or two. Experimental trials on a small scale will also be carried out with dilute lime and sulphur wash on Apples, if not also on Plums, with lead arsenate added, to see if this combination can be substituted advantageously for one of the mixtures named above. *A Southern Grower.*



[Photograph by W. Irving.]

FIG. 102.—SAXIFRAGA × OBRISTII: FLOWERS WHITE.

(See p. 228.)

blossomed profusely with me last spring, though they were almost entirely fruitless. It is not surprising, therefore, to see fewer fruit-buds upon them; but varieties which did not blossom freely in 1910 are now very promising. Cherries could hardly present a better show for fruit than they offer at the present time. It is too early to judge as to the prospects of Strawberries and Raspberries. During the winter there have been many complaints of the bad appearance presented by Strawberry plants; but they seem to have been based upon the exceptionally early rotting of old leaves, caused by the excessively wet weather of the autumn and December. It is hardly necessary to say that promise is one thing, and performance another. Frost or north-east winds in the blossoming times may seriously injure the best prospects for fruit.

BIRDS AND BUDS.

It would have been interesting to show to out-and-out apologists for bud-eating birds certain unpruned Plum trees on the borders of two plantations, close to hedges in which birds congregate. Although there are none so blind as those who will not see, I think the apologists would have been constrained

done on outside trees in future, if not to whole plantations, at least so far as Monarch is concerned. Other varieties have been attacked so far as their fruit-buds are concerned, but not their leaf buds. Early in February, some large Greengage trees were sprayed with artificially boiled lime and sulphur, as birds had started on the fruit-buds. They are still quite blue from the wash, in spite of all the rain that has occurred recently, and the fruit-buds have been saved.

WINTER SPRAYING.

By "winter spraying" is meant spraying whilst the trees are dormant. This work, with lime and sulphur, was finished on March 25, by which time the fruit-buds of Plums, sprayed earlier, were too forward to be subjected to a caustic wash. The earliest-blossoming Apples also were too far advanced for spraying to be advisable at this late date.

SEARCHING FOR APHIS.

Just before writing I have examined with a lens several trees of each of my varieties of Plums in an orchard of mature trees without finding a single live aphis. Two dead ones were found, possibly killed by the lime-sulphur wash

THE SEASON.—At the time of writing (March 31) the fruit buds on Apple trees are a very cheering sight, and, so far as I can determine, all varieties are promising for good crops. Pear trees of all ages are satisfactory, and the Plum trees are already in beautiful bloom. Of bush fruits, Gooseberries are most promising, the bushes having made strong breaks from the old wood. We are gathering our first flowers of Golden Spur Narcissus. There have been keen north winds with heavy snow showers, but these have not delayed hoeing operations amongst the Daffodils, and the winds have quickly killed the weeds. We are looking forward to a good season for cut blooms. *Stephen Castle, Wisbech.*

The Week's Work.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens
Buckinghamshire.

APRICOTS.—In this district generally Apricots promise to yield a light crop, but in these gardens they are almost a failure, the trees having produced but few blossoms, which were undersized and weak. The unfavourable weather during the third week in March, coupled with the hail and snowstorms on the 25th of the same month, did much damage, notwithstanding the trees were well protected. Apricot trees being very liable to the attacks of a small caterpillar, which feeds on the young foliage and small fruits, a careful search should now be made in order to destroy any caterpillars that can be found. Disbudding should be proceeded with carefully, first removing only the misplaced growths, such as those growing on the back or undersides of the branches, retaining all suitably-placed shoots which are likely to develop into useful branches. Shoots growing from the spurs may be left for a time, and later they may be pinched back; the remaining growths will then form fruiting spurs for the following season. Summer pinching or cutting of the growths is preferable to winter pruning, as the trees are most impatient of severe knife-pruning which is apt to cause canker. Many growers remove all superfluous growths directly the fruit is gathered, and this method has undoubted merits. The wounds heal quickly whilst the trees are in leaf, and the remaining growths are greatly benefited by the admission of light and air. Young trees are apt to make an excessive amount of growth, and this causes unfruitfulness; more especially is this the case with trees planted in newly-made borders. The remedy is to be found in carefully lifting the trees each year and replanting them. A frequent cause of annoyance to the fruit-grower is the sudden failure of an entire branch upon an Apricot tree during the summer season, without any apparent reason. The branch may appear to be in the best of health, and, without any warning, the leaves begin to droop, and the entire branch is paralyzed. This trouble is experienced with trees in all kinds of soils and conditions. Trees that are growing in deep, well-drained borders appear to be less frequently attacked. Canker not infrequently makes its appearance in the tree at about the same time, and some growers are of opinion that it is the indirect cause of the disease. The Apricot delights in plenty of sun and warmth, and it should be the aim of the cultivator to provide these conditions, remembering that violent extremes of heat and cold at the roots are harmful. A soil composed of sandy loam, in which the roots can ramify freely, is essential.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens,
Windsor.

ASPARAGUS.—The present is a good time to make new plantations of Asparagus. If the ground has been trenched during the winter, and a liberal supply of manure incorporated with it, little further preparation will be necessary beyond pricking over the surface of the bed, and making the soil as fine as possible. Allow a distance of 18 inches between the plants each way, and cover the crowns with a 3-inch layer of fine soil, which may be procured from the space left for the alley between the beds. There should be no delay in planting after the young plants are received from the nursery, for disappointment is almost sure to follow if the roots are allowed to become dry through exposure.

POTATOS.—Maincrop varieties should be planted as early in April as the state of the soil will permit. Thirty inches may be allowed between the rows and 15 inches between the sets in the row. Nothing will be gained by planting Maincrop varieties closer than these measurements. The ground for this crop should be stirred thoroughly to the full depth of the digging fork, whether it has been dug previously

or not. If the tubers have been laid out singly they will have made short-jointed shoots, which should be carefully protected from injury whilst planting. There are many good varieties to choose from: Duchess of Cornwall, The Factor, and White City are extensively grown at Frogmore for late supplies. White City will keep in a good condition for a longer period than any Potato known to me. Potatos in pits should be ventilated freely, and liberal supplies of water given whilst they are in full growth. Earth-up successional crops and admit a little air at night-time to prevent the plants becoming drawn.

BROCCOLI, SAVOYS AND BORECOLE.—A sowing of Broccoli should be made to furnish plants for next winter's supply. Choose an open situation for the seed bed and where the ground is not too rich, so that the plants may be grown as hardy and as short-jointed as possible. The most convenient method is to sow in drills, drawn at 1 foot apart and 1 inch deep. If birds are troublesome, the bed should be netted as soon as the seeds are sown. For early supplies, Veitch's Self Protecting and Early Market are to be recommended. To follow these we plant Early Feltham, Snowdrop, Main Crop, April Queen, Model, Victory, and Carter's Universal. Savoys may be sown a week later than Broccoli, and treated in the same way. The latest sowing of Savoy should be made about the first week in May. Omega is a good variety to withstand the winter, and may be had in a good condition up to the last week in April, when Spring Cabbage should be ready for cutting. Borecole may also be sown now for planting out in June. Drumhead Hearting and Dwarf Late Curled are good, hardy varieties.

CAULIFLOWERS.—Seeds of Autumn Giant and Halloween Giant Cauliflowers should be sown for late supplies. Walcheren and Early London should also be sown to provide plants for a succession to those sown in pits a month ago.

GLOBE ARTICHOKE.—The present is a good time to make new plantations of Globe Artichokes. If the ground has been trenched and manured, suckers or portions of the old plants may be set. This is preferable to raising plants from seeds. A space of 5 feet should be allowed between the rows and 4 feet between the plants in the row. A mulching of farmyard manure may be applied with advantage as soon as the plantation is completed.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS,
Aldenham House, Hertfordshire.

MELONS IN FRAMES AND PITS.—Excellent Melons may be grown in frames, and preparations should be made now for planting, so that the fruits will be a good size when the weather is hot and the fruits are likely to develop a good flavour. A frame facing due south should be chosen, as the plants will need the maximum amount of sunshine, and, if the frame or pit is provided with hot-water pipes, so much the better. Cleanliness is an important item with this crop, and the old soil should be removed, the frame thoroughly washed, the walls coated with hot lime-wash, and, if considered necessary, the frame should be fumigated. The lights also should be well washed, both inside and out, and any defects in the glazing made good. A hotbed of long, strawy manure and leaves in equal proportions should be mixed together and placed in the frame some few days before it is decided to plant, so that the materials have time to settle and the rank gases to escape. Tread the manure and leaves firmly, and take precautions to prevent the materials of the hotbed coming in contact with the hot-water pipes, so that the heat from the latter may warm the air without hindrance. In forming the bed, keep the materials well up to the top of the frame, and allow a foot or so extra in depth for shrinking. A thermometer, or even a stick, thrust well into the middle of the bed will serve as a guide as to the degree of heat. The soil should be placed on the bed in the form of mounds a day or so before planting, so that it will become warmed to the temperature of the frame. Good loam well pulled to pieces, with a sprinkling of wood ashes, bonemeal, and road or river

sand, will form a suitable compost. In the centre of each light place a mound of soil sufficient to accommodate two plants, one to be trained towards the head and the other to the foot of the frame. Plant carefully and firmly, and then afford tepid water to the roots. Whenever possible, fresh air should be admitted, but always open the frames on the leeward side. On bright days syringe the plants overhead gently, and close the frame early in the afternoons of bright days. Peg the growths to the soil and stop them frequently to induce the formation of lateral shoots, as these latter shoots produce the fruits.

APRICOTS.—The Apricot is not commonly cultivated under glass, although in some establishments a few trees are grown in cool cases, the fruits being prized highly for dessert purposes. Whilst the trees are in flower, an abundance of fresh air should be admitted whenever the weather permits, closing the ventilators at night and when the weather is cold. As the days get warmer, air should be liberally afforded the trees and the foliage kept well syringed, fumigating the house if it is necessary. Attend to the thinning of the fruits at intervals, also the stopping and tying of the growths. Copious supplies of water will, if the border is properly drained, be needed when the fruits are swelling, whilst occasional applications of liquid manure water will be beneficial. Cover the borders with a layer of well-decayed farmyard manure as a mulch.

GENERAL REMARKS.—Late Strawberries will need protection from cold weather, such as we are experiencing at the time of writing. Air must be admitted with caution to houses containing tender-growing shoots, but ventilation may, nevertheless, be necessary, as the temperatures fluctuate greatly when there is intermittent sunshine. Rather allow the night temperatures to fall a few degrees lower than usual than employ excessive fire-heat.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD,
Esq., Gunnersbury House, Acton, Middlesex.

PROVISION OF SHADE.—It is now time to fix the appliances for shading the plant houses. Not that I wish to place too much emphasis on the need for shading, because I feel that an excessive amount of shading is often employed. It is not always the case that when plants show distress during bright sunshine in spring the best remedy is to employ more shade. The distress is often brought about either by having too much atmospheric moisture during dull, sunless weather or by maintaining too high a temperature. The best material for shading stove and intermediate houses is what is known in the trade as No. 3. This material is sufficient for diffusing or breaking up the sun's rays, yet it permits sufficient light to penetrate into the houses. Where it is possible, a space should be allowed between the glass and the shading material by employing a light frame work for supporting the blinds. In commencing the use of shade, it is necessary to guard against employing it too early in the morning and too late in the afternoon. The stove plants should now be so arranged that the species which do not require shade may be grouped together. Codæums (Crotons) develop the leaf colouring much better when exposed to full sunshine. Allamandas, Yuccas, Dipladenias, and Gardenias all revel in full sunshine unless it is during the very few extra hot days in July and August, when a very slight shade may sometimes be employed with advantage during the middle hours of the day. It is well to rearrange the plants occasionally, avoiding at all costs any overcrowding of the specimens. Permanent shade, either in white or green, should not be employed where it is possible to fix roller blinds. If permanent shade has to be used, then see first that the glass on the exterior is quite clean before applying the dressing, and take care not to apply more than is necessary, remembering that it will become denser after a few days owing to the accumulations of dust.

TEMPERATURES.—With the increased sunshine and longer days, the temperature of the stove may be increased a few degrees more or less, according to the state of the weather. Do not attempt to maintain high temperatures during windy weather either by day or night,

as the extra fire heat is detrimental to the plants, and it also favours the spread of pests, such as thrips and red spider. A temperature of 66° at the time of banking up the fires at night is quite sufficient; there will probably be a fall of 4° or so by morning. During the day the temperature may rise to 80° in bright weather, but only when there is sunshine. Much good is done by closing the house early in the afternoon, and syringing the plants freely immediately the house is closed. In ventilating the stove be careful not to admit air in such a manner as to cause cold draughts; in windy weather the top ventilators should be employed rather than those at the side. The temperatures in the temperate house may be 10° lower than those I have stated, whilst in the case of the greenhouses very little firing will now be necessary, except when there are indications of frost. If the temperature of the greenhouse in the morning has fallen to 40°, it is better than having it 45° with extra firing. In the show house or conservatory a slight amount of warmth is still desirable, as it prevents damping and helps to keep the atmosphere in circulation. In cases where blinds have already been fixed to the house, it is just as well to let them down at nightfall, especially when it is windy or it is colder than usual as the use of blinds will assist the fires in maintaining warmth.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

SWEET PEAS.—From this date until the end of the month, according to the locality, Sweet Pea plants raised in pots or boxes, should be planted where they are to flower. There are various opinions as to the best method of arrangement, whether in lines, clumps or singly. An admirable method, for purely decorative purposes, is to fix young "cut-over" Spruce trees securely in the ground, and tall enough for the haulm, which will be supported by the side shoots and twigs. Some of our Sweet Peas are always arranged close to the sides of paths, and this season they will be arranged in a line on the side of a grass path. In carrying out the operation of planting, one row of pea sticks is first of all placed in position; the Pea plants are then planted, and some Spruce or other twiggy spray put round each plant; the insertion of another row of sticks completes the operation. If the Pea plants are in boxes the soil should be allowed to become quite dry before planting is commenced, when the roots can be separated without loss. Sweet Peas require firm planting, and thorough waterings afterwards, unless the weather is showery. The question of manure must be decided upon its merits by each cultivator. It may be harmful at this stage in certain soils, but in very poor soils manure may be needed to start the plants into vigorous growth. For this purpose very slight applications of pigeons' manure, soot, leaf-mould, or superphosphate may be beneficial.

CHRYSANTHEMUMS.—Plants of early-flowering Chrysanthemums which have been properly hardened may now be planted. They grow strongest in a rich soil, but over-luxuriant growth is not desirable; therefore, choose a moderately rich soil, and plant in firm ground. Those of the "Masse" type, in particular, should not be encouraged to make too vigorous shoots. The old yellow pompon variety known as Precocité flowers from July to the end of the season, and is one of the hardiest sorts. Other good yellow varieties for the flower garden are Maggie, Horace Martin, and Polly. Goacher's Crimson is an excellent decorative variety of this shade. These early-flowering Chrysanthemums are valuable for planting in mixed flower borders in autumn, when the summer-flowering subjects are over. For this purpose, a stock should be grown in the reserve garden, and the plants transferred to the border when they are in flower.

FRITILLARIA.—The Crown Imperial (*Fritillaria imperialis*) is now in bloom. From the time the stems, some of them an intense brown colour, appear above the ground till the seed-vessels mature, they are objects of beauty.

SPECIMEN PLANTS.—Fuchsias, *Plumbago capensis*, and similar plants that were repotted three weeks ago should now be removed to a cooler atmosphere, such as that afforded by a late Peach-house. *Humea elegans*, fibrous-rooted *Begonias*, suffruticose *Veronicas*, and any other

species that have not been recently repotted should be given some stimulant occasionally, either as liquid manure or as surface dressings of some fertiliser. Large plants of perpetual-flowering Carnations intended for planting out should be placed by themselves in a cool situation, such as an open shed, but they must be well sheltered from cold winds. If the roots are once allowed to become dry the leaves will turn yellow.

PLANTING.—Seedling Hollyhocks raised from late autumn or January sowings are now sufficiently advanced for planting out-of-doors. The foliage should be dusted with flowers of sulphur. Make the ground very firm about the plants, as this will serve as a check to over-luxuriant growth and favour flowering. *Gilia coronopifolia* is also ready to be transferred out-of-doors from the pits in which the plants have been wintered. This plant appreciates a well-worked, fertile soil, and is worthy a conspicuous position in the garden. At Tynninghame the plants grow to a height of about 5 feet.

ROMNEYI COULTERI.—The weak growths of *Romneyi Coulteri* should be cut down close to the ground to induce the production of strong shoots that will flower in the autumn. Shorten the strong growths that have been damaged at the tips.

BEDDING PLANTS.—Owing to the very cold weather, it has been necessary to postpone the transference of the plants from the houses to frames. Now, however, it will be possible to clear the houses to a great extent. *Pelargoniums*, as a rule, do very well under the walls of glass-houses, protecting them both day and night with mats for a week or more, till they are acclimatised. *Heliotropes* should be placed in frames, and *Verbenas* also, as these are rather tender. *Lobelias*, whether raised from seeds or cuttings, may need the tips of the shoots shortened, a pair of sheep-shears being a capital implement for carrying out this and similar operations. *Lobelias* need much moisture, and must be watered regularly. There is still time to propagate very tender plants, such as *Freesias*, for carpet bedding. The cuttings root in a few days in a warm propagating bed, and as they cannot be planted with safety in the flower garden until June there is plenty of time for them to form good bushy specimens.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

ODONTOGLOSSUM CITROSUMMUM.—The flowers of this species of *Odontoglossum* are quite distinct from those of any other kind, and the way they are developed is also unique. The inflorescences grow downward, and issue from the centre of the growths, instead of from the sides of mature or semi-mature pseudo-bulbs. The plant should be suspended from the roof rafters—a position in which the pendent flower scapes show to the best advantage. Now that the plants are growing, and the flower-spikes are appearing, rather more water should be afforded the roots. The best time to afford fresh rooting material is directly the flowers are over, and as the plant is not a very strong-rooting subject, the receptacles need only be just large enough to accommodate the plants, and allow for the development of two seasons' growth. Teakwood baskets are preferable to pots or pans, as the roots attach themselves freely to the wood. Place plenty of materials for drainage purposes, but only allow a thin layer of compost, which may consist of two-thirds *Osmunda* fibre, and one-third clean, chopped *Sphagnum*-moss. The rooting materials should be pressed moderately firmly about the roots. After potting, place the plants in a moist house, giving water sufficient only to keep the moss fresh until new roots begin to develop freely, but afterwards a liberal supply of moisture is needed at the roots. An abundance of moisture, both at the roots and in the atmosphere, is also required by the plants in the autumn, when the pseudo-bulbs are swelling; but after these are matured fully, waterings at long intervals will suffice to keep the growth plump and the roots healthy. *O. citrosommum* enjoys more heat than most *Odontoglossums*, and thrives well in the same house as *Cattleyas*, but a cool, intermediate temperature is the best. Direct sunshine is not advisable, but the less the plants are shaded, provided the foliage is unin-

jured by scorching, the better. It is surprising the quantity of sunlight the plants will withstand without evil effects, provided the atmosphere is kept moist and ventilated freely. After the roots are disturbed, the plants usually shrivel badly, therefore every care is necessary after potting operations not to expose the plants to too much light until they are re-established.

PLATYCLINIS GLUMACEA.—Plants of this species have ceased to flower, and should, if necessary, be repotted, using a compost consisting of one-half *Osmunda* fibre, one-quarter Oak leaves, and one-quarter *Sphagnum*-moss, adding sufficient sand and broken crocks to render the whole porous. Use well-drained pans of a moderate depth, and of a sufficient size to allow of the plants making two further seasons' growth without further disturbance. Surface the plant with clean, chopped *Sphagnum*-moss, and afford water carefully after the potting operation. Subsequently, an abundance of moisture will be needed, and the foliage should be syringed freely until growth is completed. A position near to the glass in a warm house should be chosen for this plant during its growing season, afterwards removing it to an intermediate temperature for the resting period.

THE FRENCH GARDEN.

By PAUL AQUATIUS.

HOT-BEDS.—The cold weather has caused much extra work in the French garden. The lights have had to be covered at night time as carefully as in early January. The shading of the cloches has also taken much valuable time during the day. During cold weather it is an advantage to have the beds on the dry side, as the plants are most affected by a fall in temperature when wet at the roots. Watering will, however, be done three times weekly, should the weather become more genial. It is often the practice of the grower to remove the lights of the end frames during a warm and steady April rain, as it is beneficial to the growth of Carrots and Cauliflowers. Turnips will require an abundance of moisture at the roots, and ventilation must be given day and night whenever possible. The earliest Cos Lettuces are now forming hearts, and some will be ready for cutting in five or six days. Only the more forward ones are removed at first, but when the crop is of average size, the plants are all cleared, so that the frames may be placed over the row planted on the south side.

UNHEATED FRAMES.—It has been a difficult task this season to have Lettuces ready for Easter. The earliest plants are, however, ready, and they are splendid specimens. The frames and lights may now be removed from the variety "Passion." The plants will soon become hardened, and they may be sheltered during windy weather by placing mats around the beds. Afford the plants a good watering, as this will stimulate growth. The earliest plants should be ready for cutting by the 25th or 28th of the present month.

MELONS.—The young Melon plants must be carefully watched and increased room given them whenever necessary. The plants are stopped after the second leaf has formed, and the cotyledons are removed. When choosing plants for planting-out, select strong and healthy ones, and with laterals not exceeding 2 inches in length. As the unheated frames are at liberty, the hot-beds for the Melons will be prepared with all haste.

CROPS IN THE OPEN.—All the spring crops will now require waterings. The Cabbages are forming their hearts fast, and will be marketed by the end of April. Cauliflowers are planted to form a succession among the Passion Lettuces; six rows are planted in beds 11 feet wide. The first Turnips are coming through the ground. They are often attacked by the Turnip fly in dry and warm weather, but light waterings daily will check this pest to a great extent. Should the first leaf appear of a pale green colour, and with a narrow surface, it is an indication that germination has been too slow, and a fresh batch of seeds should be sown. The summer crops should now be decided upon, before it is too late to raise the plants. The selection must vary according to the locality and market, but Cauliflower, Celery, Tomatos, and Witloof Chicory are generally remunerative.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent at early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, APRIL 17—Bank Holiday.

WEDNESDAY, APRIL 19—
Devon Daffodil and Spring Fl. Sh. at Plymouth (2 days). Roy. Meteorological Soc. meet. Roy. Hort. Soc. of Ireland Spring Sh. (2 days).

THURSDAY, APRIL 20—
Ipswich and East of England Spring Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—48.1°.

ACTUAL TEMPERATURES:—

LONDON.—Tuesday, April 11 (6 P.M.): Max. 50°; Min. 41°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Wednesday, April 12 (10 A.M.): Bar. 30.2; Temp. 45°; Weather—Fair.

PROVINCES.—Tuesday, April 11: Max. 50° Ireland S.E.; Min. 42° England N.E.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Border and Herbaceous Plants, Hardy Bulbs, &c., at 12; Roses at 1.30; Palms and Plants at 5; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—Hardy Bulbs, Herbaceous and other Plants at 12; Roses at 1.30; Imported and Established Orchids at 12.45; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

The unacclaimed genius is solaced and the ordinary man is pleased by the reflection that posterity is the final court of appeal for the trial of the claims of distinguished ability. The genius is solaced by the hope that before that tribunal the verdict of contemporary opinion will be reversed, and his name range with those of the immortals. The ordinary mortal is pleased, because he is a member of the jury which tries the cases that time hales before it. But what if the solace is fallacious and the satisfaction misplaced! What if the judgments of posterity are as crude and fallible as those of the present generation; and, like the latter, average judgments only, just in general but unjust in particular instances.

The treatment meted out to a distinguished botanist, William Griffith, suggests these uneasy reflections; for if neglect can follow so swiftly on the heels of high and deserving service in his case, it may surely follow in another. However this may be, there can be no doubt that, in bringing before the rising generation of botanists the claims of William Griffith to a place of honour among British men of science, Professor Lang has performed a peculiarly valuable service. Professor Lang's lecture on William Griffith was one of the happily-inspired

series on British botanists, now being delivered before the University of London, and it served not only to vindicate Griffith's memory, but also to teach, by example, the need for a large perspective in the study of science. If a man like Griffith, distinguished by scientific and imperial services, may become, half a century or so after his death, little more than an unknown name, it can only mean that among the excursions which modern botanists might undertake with profit are occasional and independent digressions into the history of their science.

That the moral we draw from Professor Lang's admirable discourse is not forced but obvious, the following brief account of Griffith's life and achievement amply proves.

William Griffith, the son of a London merchant, was born at West Ham in 1810. Apprenticed to a surgeon in the West End of London, he found time to attend Lindley's botanical lectures, and to assist his teacher in the preparation of illustrations for the *Introduction to Botany*. After a distinguished academic career, Griffith proceeded to India at the age of 22, in order to take up the post of assistant surgeon in the Madras establishment of the East India Company. He was destined never to return.

Some months after his arrival at Madras, Griffith was transferred to Mergui, and collected extensively, not only flowering plants and cryptogams, but also insects, birds, and animals in Tenasserim. Two years later, in 1835, he was recalled to Calcutta, and was sent with Dr. Wallich and Mr. McClelland to inspect the localities in Assam in which Tea grew wild. A critical comparison of the Assam flora, with that of the tea-growing region of China, led Griffith to the important conclusion, which he published in an official report, that Tea might be cultivated with success in Assam, and also in certain regions of India. From Assam, Griffith proceeded to Burmah. The latter country was in a very disturbed state, and news which, happily, proved false soon arrived to the effect that he had been assassinated. But whilst the story of his death was receiving credence by the Government, Griffith, accompanied by only one servant, was exploring and collecting through the country to Rangoon. In the following year, after sundry smaller expeditions, he joined the army of the Indus, and accompanied it on the whole of its march. He remained for a year in Afghanistan, exploring and collecting in that country, penetrating as far as the Hindoo Koosh. Returning to Calcutta in 1841, Griffith proceeded in the capacity of civil assistant-surgeon to Malacca. After a year in this region, the botanical interest of which he fully appreciated, Griffith was recalled to take charge in the absence of Dr. Wallich of the Calcutta Botanic Gardens. Here he remained for two years, organising and lecturing. Then, full of projects of further scientific work, Griffith went back to Malacca, and had scarcely settled to work again when he was seized with a fatal illness, and died at the age of 35, on February 9, 1845.

Thus, within the narrow space of 12½ years, Griffith's work was done: official duties, explorations difficult and perilous, collecting and all the labours incident thereto. He estimated his collection of plants at more than 12,000 species. Nor was Griffith a "dry-plant" man. He collected specimens, not only with a view to herbarium use, but also for the purpose of morphological investigation, and indeed found time to examine microscopically the structure of many of the more remarkable of the plants which he had himself collected—Santalum, Loranthus, Viscum, Balanophora, Avicennia, Cycas and others.

His general collections, moreover, were directed toward wide ends, namely, to secure material for the composition of an Indian flora on a geographical basis. On his explorations, each day's march was mapped, and the plants and associations of plants carefully noted and recorded. Into the details of the contributions to morphological botany we need not enter. We have said enough to show that William Griffith won for himself, by his strenuous labours and successful explorations, a distinguished place among British botanists. If, as appears to be the case, it is true that many modern botanists are unaware of his services to the science they follow, this is no slight on Griffith; but a sign of the narrowness of the well-trodden track along which in disciplined uninitiative experts are apt to follow one another. Let us hope that Professor Lang's lecture may serve to correct their errors in perspective and to encourage them to explore a little for themselves.

NATIONAL ROSE SOCIETY.—A special general meeting of the National Rose Society will take place at the Westminster Palace Hotel, on Tuesday, 25th inst., at 3 p.m., to consider the report of the Council on the proposed revision of the rules and bye-laws of the Society. A conference will be held at 5 p.m. The President, the Rev. J. H. PARRINGTON, will deliver an address on "Roses for the Garden"; this address will be followed by a discussion. The syllabus of the President's address includes:—(I.) Pillar Roses, their propagation, pruning, and training; screens for pillar Roses, and specimen plants. (II.) Roses for general purposes; (III.) Roses for house decoration; (IV.) Roses for massing; (V.) Roses for the autumn; and (VI.) Rose pests. At 7 p.m. the members will meet at dinner at the same hotel, and friends, including ladies, are invited. The President will occupy the chair. Application for seats must be made to the Hon. Secretary on or before Thursday, the 20th inst. The charge for the dinner (to be paid at the table) will be 5s., exclusive of wine.

"THE ORCHID WORLD."—The April number of this journal contains an account of the West Point collection of Orchids, with a portrait of the owner, SAMUEL GRATRIX, Esq., and illustrations of some of the rare Cyprididiums in the collection. Notes on new hybrid Odontoglossums, by Mr. DE BARRI CRAWSHAY, with illustrations; and some interesting pictures of an ice-bound Cattleya house containing a beautiful show of Cattleyas in the gardens of CLEMENT MOORE, Esq., Hackensack, N.J., U.S.A., are also features of this issue.



Photographs by H. N. Key.

VIEWS IN CATHAYS AND ROATH PARKS, CARDIFF.

THE UPPER PICTURE SHOWS THE NEW CITY HALL AND THE GORSEDD CIRCLE IN THE CATHAYS PARK.
BELOW IS THE STUDENTS' GARDEN IN THE ROATH PARK.

FLOWERS IN SEASON.—From Messrs. WM. BULL & SONS we have received flowers representing a strain of Cinerarias, remarkable for large size and brilliant and varied colours.

A NEW EXPERIMENT STATION.—We are informed that an experiment station has recently been organised at Burbage, Leicestershire, by Mr. C. C. HURST, for the purpose of applying Mendelian methods of research to the practical breeding problems of agriculture, horticulture, and forestry. The Burbage Nurseries will be utilised for the experiments as far as possible. These nurseries (originally established by Mr. HURST's great-great-grandfather in the 18th century), now extend over more than 100 acres, and at present consist of some 20 acres of fruit trees, 5 acres of orchards, 20 acres of farm and garden seeds, 10 acres of Roses, 10 acres of ornamental trees and shrubs, 5 acres of Rhododendrons, one acre of herbaceous plants, and 10 acres of old pasture land (ready for breaking up), together with numerous greenhouses and buildings. Experiments are already in hand with the following plants: Mangels, Swedes, Drumhead Cabbages, Peas, Apples, Plums, Gooseberries, Strawberries, Blackberries, Roses, Rhododendrons, Azaleas, Sweet Peas, Orchids, Pelargoniums, Antirrhinums, Primulas, Peaches, Vines, Tomatos, Aucubas, Berberis, Yews, Hollies, Cupressus, Birches, Pines, Firs, Thorns, Ash, and Oaks. Arrangements are being made to carry out extensive "variety" trials this season with Roses, Rhododendrons, Apples, Raspberries, Mangels, Swedes, Potatos, Peas, Sweet Peas, and Antirrhinums. These trials will be open to the inspection of anyone interested, by appointment made with the director. Experiments will also be made with Dutch rabbits, tortoiseshell cats, utility poultry, and homing pigeons, and it is intended to take up experimental breeding with other live stock. At present, the station staff is constituted as follows:—Director, Mr. C. C. HURST, F.L.S.; Recorder, Mr. J. B. PERKINS; Secretary, Mr. W. HARRING; Agriculturist, Mr. S. EVANS; Horticulturist, Mr. G. GEARY; Florist, Mr. G. DAKIN; and poultry expert, Mr. J. WARD. Every facility will be offered to students and workers in genetics to carry out experiments at the station.

AN INDIAN FLOWER SHOW.—For 72 consecutive years the Madras Agri-horticultural Society has held a flower, fruit, and vegetable show. Some particulars of this year's exhibition have been forwarded to us by the superintendent, Mr. H. E. HOUGHTON. The account of the show opens with a grumble about the weather, and the deficiency of rain, and it is interesting to read "that the Roses seemed to have revelled in the cold nights experienced of late," but many would-be exhibitors of other plants were unable to show owing to the non-germination of their seeds through drought. Vegetables included such well-known kinds as Tomatos, Peas, Cabbages, and Cauliflowers, but Brinjals, which were the speciality in the 1st prize collection, will be better known to our readers as Egg plants (*Solanum melongena*). The Ferns and foliage plants were very good, as were the Caladiums, Dracaenas, Coleuses, and Alocasias; Camas, as might be expected, were especially brilliant, and the report makes special mention of the exhibits of Pinks and Begonias. The fruits included Raspberries, Strawberries, Peaches, Sweet Oranges, Grapes, Sapodillas, Limes, Lemons, and Citrons. There were also prizes for Sugar-cane, each sample to contain not fewer than six canes; Cane Jaggery, to be exhibited by the grower, who was compelled to produce a certificate from the village Karnam stating that the exhibitor was an actual Cane grower; and exhibits of plants and products of special economic

value, such as rubbers, Tobacco, tanning materials, drugs, Flax, silk and tussa, and dyes. All these exhibits were required to be named in the vernacular and in English, and exhibitors were asked to state where the products were grown and the uses to which they might be profitably applied.

A BOUQUET OF FREESIAS.—We have received a box of beautiful and fragrant Freesias from Dr. RAGIONIERI, of Castello, near Florence, which exhibits such a number of pretty shades as we have never previously seen in these flowers. Dr. RAGIONIERI states that a strain has already been put into commerce by Mr. BRUGGEMANN, of Villefranche-sur-Mer, under the name of *Freesia hybrida* Ragionieri. This strain was produced by fertilising *F. refracta* and *F. Leichtlinii*, and also hybrids and varieties of these two species with the pollen of *F. Armstrongii*. The flowers now sent us belong to a new strain produced by crossing the best varieties of *Freesia xanthospila* with the pollen of *F. Armstrongii*. The result is the delightful bouquet already mentioned, and we feel sure that such a strain will meet with popular favour. The colours include various shades of blue and purple, mauve, yellow, and orange; one of the lilac-coloured forms appears to be getting near to being a blue Freesia. It is obvious from Dr. RAGIONIERI's specimens that, in the future, Freesias will exhibit as many and as beautiful colours as we are accustomed to see in the hybrid *Streptocarpus* flowers exhibited from year to year at the Temple shows.

LYONS HORTICULTURAL SHOW.—A general horticultural show, organised by the City authorities in conjunction with the local horticultural societies, will be held at Lyons on June 3 to 11 next. The committee is composed of some well-known local nurserymen, amongst whom are the names of MM. R. GERARD, VIVIAND-MOREL, CROBIEER, GUILLOT, JAQUIER, PERNET-DECHER, PH. RIVOIRE, SCHWARZ, and VORAZ. Entries should be made by May 24, addressed to the Mayor of Lyons, at the Town Hall, on the printed form accompanying the regulations. The show will be divided into nine sections, viz.: (1) horticultural education; (2) market-garden culture; (3) arboriculture and pomology; (4) stovehouse floriculture; (5) temperate and cold-house floriculture; (6) open-air floriculture; (7) Roses; (8) floral art; (9) exhibits from amateurs and single-handed gardeners. Medals will be awarded in gold and silver-gilt. The jury will be appointed by the City of Lyons upon the recommendation of the Organising Committee. Particulars may be obtained from the secretary, M. VIVIAND-MOREL.

PUBLICATIONS RECEIVED.—*The Twenty-Eighth Annual Report of the Metropolitan Public Gardens, 1910.* (London: Hutchings & Crowsley, Ltd.) Price 6d.—*The Evolution of Plants*, by Dukinfield Henry Scott. (London: Williams & Norgate.) Price 1s. net.

SCOTLAND.

HORTICULTURAL INSTRUCTION IN THE WEST OF SCOTLAND.

COMPARATIVELY little is heard regarding the work performed by the horticultural staff of the Glasgow and West of Scotland College of Agriculture, and it must not, therefore, be understood that the institution is not fulfilling its object with respect to that department of its operations. The field of work the college comprises includes the western part of Perthshire, Argyllshire, and the western counties south of these, the district, therefore, is large and widely spread, with difficult means of communication. Notwithstanding this, much valuable work is being done, and the horticultural staff receives

every encouragement from the head of the college, Professor Patrick Wright. The department is under the supervision of the instructor, Mr. Hosking, who has charge of the experimental gardens on the College Experimental Farm, near Kilmarnock. Here a number of plots are occupied with fruit and other trees, shrubs, herbaceous and other flowers and grasses. As a good deal of Mr. Hosking's time is occupied in travelling and lecturing, the two members of his staff mainly devote their energies to the gardens. The teachers' classes are well attended, and are proving of the utmost value to the teachers and their pupils. All the ordinary gardening work is taught, and a great impetus is thus given to horticultural instruction by the teachers. Frequent courses of lectures are also given in various centres. Mr. Hosking has done excellent work in promoting school gardens and advising those who have charge of them; there are now about 90 school gardens in the college's area of operations. In connection with the school gardening, a very useful branch is that of the supply of seeds and fertilisers, these being purchased in quantity by the college and supplied to the schools. Collections of suitable seeds are arranged to suit gardens of different sizes. X.

TREES AND SHRUBS.

VIBURNUM TOMENTOSUM VAR. MARIESII.

AS in the case of the common Guelder Rose (*Viburnum opulus*), *V. tomentosum* is better known by its sterile-flowered varieties, of which *V. plicatum* is an example, than by the type, or by varieties which have both fertile and sterile blossoms. The elegant appearance and free-flowering qualities of *V. tomentosum* var. *Mariesii* entitle it to a foremost place amongst shrubs that flower in early summer. The plant grows naturally into a shapely bush, with ovate leaves, 3 to 5 inches long, and 1½ to 2 inches wide. The flowers are white, and they are borne in flattened heads, 3 to 4 inches across, profusely enough to cover the bush without hiding the foliage. Fertile flowers are produced greatly in excess of sterile ones, but the latter are sufficiently in evidence to make a well-flowered plant a very conspicuous object. This *Viburnum* is equally well adapted for planting as groups in shrubberies, as specimen beds in conspicuous positions, or as isolated plants. The best results are obtained from planting the bushes in a good loamy soil, whilst a surfacing of well-rotted manure applied in May every alternate year helps to keep the ground moist and feed the surface roots.

ACER PENNSYLVANICUM.

THIS Maple is known in the United States under the names of Striped Maple and Moose Wood, the former appellation applying to its striped bark, the latter because of the young shoots being the favourite food of moose and deer. Although this Maple is stated to have been introduced into Great Britain as far back as 1755, few fine examples are found in gardens. This is to be regretted, for the tree is very distinct, not alone by reason of its brownish bark, which is prettily marked with broad, longitudinal stripes of silver, but also on account of its handsome leaves, which are rounded at the base, and divided into three lobes at the apex. The species has a wide distribution, for it is found as far northwards as the valley of the Saguenay River in Quebec, whilst its southern limit is near the end of the Appalachian Mountains in northern Georgia. Never growing to any great size, the plant is usually met with as a tree 30 to 40 feet high, the trunk being rarely more than 1 foot in diameter. A few years ago a variety was introduced to cultivation under the name of *erythrocladum*; this variety has the major portion of the bark coloured a bright red, with the silvery stripes of the type. W. Dallimore, *Kew*.

CARDIFF PUBLIC PARKS.

(See Supplementary Illustration.)

SOME five miles to the north of the city of Cardiff there stretches, east and west, a line of hills—the outcrop of the carboniferous limestone—which forms the southern rim of the South Wales coal basin. Through two gaps in this line the Taff and Rumney rivers find their way, and about half-way between these points and close to the tunnel over the Rhymney railway a little brook has its rise. Descending through the steeply-sloping pastures to the village of Llanishan, it is soon joined by two tributaries, and, swelled to the size of a considerable stream, it passes through the flatter meadows and wet Alder copses to Cardiff and the sea. There was a time when nothing but the beds of Monkshood (*Aconitum Napellus*), *Epipactis palustris*, King-cups, and other moisture-loving native plants adorned its banks. But the growth of Cardiff, which to-day has a port with the largest export tonnage in the world, has occasioned a transformation. In the year 1837, when Cardiff was still without any municipal

few Forsythias and Azaleas have been judiciously introduced amongst the Alders, Oaks, Guelder Roses, and other native plants, but these latter and the luxuriant Aconite have been left undisturbed, and the convenient, shaded seats and rustic bridge do not obtrude upon the natural beauty of the scene. In the wild garden there is a series of fish-ponds, continually fed by the fresh stream water, in which young trout reared in a hatchery in the park, are kept during the summer months. About 18,000 fish are raised annually; from these a lake (of which further mention will be made) is stocked, the remainder being disposed of to defray expenses. Just where the stream enters the wild garden there is a weir, and in the autumn months the trout may be seen repeatedly hurling themselves at the wall of falling water, in their futile efforts to leap the fall; they finally find their way into a decoy, where they are stripped of the spawn required for the year's hatch. Otters, that at one time doubtless frequented the stream, still visit the park grounds at night, with disastrous results to the trout, several specimens of this fish being found on the banks after each visit, as

divided centrally by a high embankment, which holds back the waters of the stream so as to form a lake of some 32 acres surface. Five well-wooded islands occur at the northern end; and, in the bays of these white and yellow Water Lilies are planted, while one is entirely occupied with *Villarsia nymphaeoides*, which covers the surface, with its golden blooms and circular leaves, amongst which the dabchicks love to dive and play. The margins of the lake are in places planted with the scented Flag (*Acorus Calamus*)—a fragrance recalling that of cinnamon. A strip of grass or rushes divides the broad walk which surrounds the lake from the water, and outside this plantations of Silver Birch and Austrian Pines, happily mingled, double Gorse, Laurels, and various shrubs form an effectual screen in front of the necessary but not beautiful iron fence which encloses the park. The view from the top of the embankment, which forms an extremely popular promenade, is extremely beautiful. The expanse of water in the foreground, the clustered woods of the islands, and the wild garden in the near distance, and behind all the beautiful outline of the afore-mentioned hills—a ridge that hides the incongruous colliery tips and pit-mouths, which mar so much of the scenery of South Wales. At the east end of the embankment a cement bathing platform has been constructed, and bathing boxes have recently been erected which permit of bathing at all hours of the day, a facility which is much appreciated.

(To be continued.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

WISLEY IN SPRING.—One of the latest improvements at Wisley Gardens is a new rockery, which is being built by Messrs. Pulham & Sons. This is being carried out in a bold manner on a site which lends itself admirably for this purpose, and promises, when completed, to be one of the finest rock-gardens in the country. Huge boulders of natural stone are being employed, and the scheme provides for winding streams and a bog garden. The lower parts of the grounds are well sheltered, and Bamboos flourish there luxuriantly, especially large masses of *Bambusa palmata*. On the occasion of a recent visit, *Camellias* were flowering there, also *Ericas* in great variety; *E. lusitanica* was represented by a colony of fine plants, and appeared quite acclimatised. A fine patch of *Daphne Blagayana* near by was also in flower. *Gaultheria Shallon* forms specimens at Wisley 4 feet in height, whilst *Shortia galicifolia* was flowering splendidly. Several fine plants of *Andromeda japonica* were a wonderful sight. The ground around is covered with a carpet of natural moss, brightened in places with a variety of spring bulbous plants and *Polyanthuses* and *Primroses*. Amongst shrubs I observed fine specimens of *Ilalesia tetraptera*, *Stephanandra Tanakae*, *Parrotia persica*, *Eucornia ulmoides*, *Eleagnus* in variety, and *Chimonanthus fragrans*. A large area is being planted with collections of *Spiraeas*, *Deutzias*, *Magnolias*, and other kinds in the best varieties procurable. This should prove later one of the most interesting features of the garden. The trial grounds are extensive, and there are spacious orchards planted with hardy fruits of almost every variety grown in gardens. The water gardens, too, are important features at Wisley, and provide in the summer months a splendid display of flowers. Rock plants are found in large numbers, the greater majority of them being planted in a long, sloping rocky bank near to the glasshouses. My brief visit afforded me great pleasure. *Edwin Beckett, Aldenham House Gardens, Elstree.*



FIG. 103.—FORMAL BEDDING ON EMBANKMENT SLOPE IN THE ROATH PARK, CARDIFF.

the other, when food is plentiful, is most extravagant, deigning only to take one bite from each fish; doubtless, like his human fellow-anglers, he enjoys the sport, and finds it difficult to restrain the passion to kill. Although he does not pay the 5s. rod licence that the Corporation charge for a year's fishing in the lake. Another enemy of the local anglers' association is the greater crested grebe, an occasional visitor in hard weather. The otters' depredations have been so serious that they have to be destroyed, and two specimens have been shot. But the enthusiasm of local ornithologists has so far prevailed over the bad feeling against the grebe, and prevented its destruction. Many other waterfowl join the pinioned birds on the lake in winter, and become very tame, allowing the observer to approach much nearer than he could with careful stalking in their native haunts; tufted duck and pochard are frequent visitors; widgeon and the wary coot are seen in fewer numbers; whilst golden-eyed, pintail, and shoveller ducks are recorded, together with the snew.

The next and main portion of the park is parks, or open spaces, the then Marquis of Bute, the Viscount Tredegar, and one or two others, presented the town with something over 100 acres of land in the neighbourhood we have described, and the Corporation, with the help of their able superintendent of parks and open spaces, Mr. W. W. Pettigrew, have created the beautiful Roath Park, of which the city is justly proud. At the northern extremity of the park, and furthest away from Cardiff, there is an isolated garden containing a pool called "Ffynon Llanidris," to the waters of which tradition ascribes miraculous healing properties. This garden is not usually open to the public, but it contains some fine Bamboos, *Rhododendrons*, and many of the larger Heaths. Although somewhat exposed, the Bamboos flourish vigorously, the large-leaved *B. palmata* attaining a height of 6 or 7 feet, whilst a graceful clump of the bright leaved *Phyllostachys aurea* overhangs the pool. A few fields intervene between this portion and the next division of the park known as the wild garden, which, with its wandering stream, its stretches of grass, gay in spring with Daffodils, is a delightful rendezvous. A

the next and main portion of the park is

BONGARDIA RAUWOLFII.—Close up against a south wall, this interesting plant has flowered all through the month of March, sending up a succession of loose panicles, bearing the primrose-yellow flowers singly on long peduncles. Like the members of the genus *Leontice*, this plant forms a large, tuberous root, like a *Cyclamen* corn. From the apex the radical leaves, 9 inches long, are produced. These are pinnate, with sessile, oval-oblong leaflets, three to five cleft at the apex, each with a dark, purple-brown blotch at the base. In well-grown plants the inflorescence reaches a height of over a foot, while the individual flowers are from $\frac{3}{4}$ to 1 inch in diameter. Disliking excessive moisture, *Bongardia Rauwolfii* should be planted close to the foot of a sunny wall, in well-drained, sandy soil, with the top of the tuberous root just covered with soil. In such a position it will not require protection, except in very severe weather. Even then a covering of ashes is quite sufficient to keep it from injury by frost. A native of Syria and Persia, this plant has been known in gardens for over 150 years, but it is seldom seen in good condition, which is probably owing to being planted in unsuitable situations. As, however, it blooms so early in the year, when flowers outside are scarce and every one is welcome, it is well worthy a sheltered and sunny corner. If planted in the more open border, a hand-light should be used for protection in winter or wet weather. *W. L.*

VELTHEIMIA VIRIDIFOLIA.—I was glad to see Mr. Lynch's note on this bulbous plant (see p. 161), which may be so easily grown in an ordinary greenhouse temperature; I have even seen it succeed out-of-doors under a warm wall. It is a useful plant for decoration as it lasts a long time in good condition; several pots are very effective when massed around a Palm or used in jardinières with *Lily of the Valley*. The plant need not be potted more than once in about three years, but if the roots are top-dressed and afforded a little manure-water these attentions will cause the plant to exhibit perfect health. *W. A. Cook.*

VERONICA MACROCARPA.—This is one of the best of the New Zealand Veronics. It forms an erect bush from 4 to 8 feet high, and it has a very free-flowering habit. The flowers are white and somewhat similar to *Veronica salicifolia*. The flower-spikes are from 9 inches to 1 foot long, but of a more robust and rigid habit than those of *V. salicifolia*. Although the plant was introduced into this country some years ago, it seems to be but little known in British gardens. No doubt this may be accounted for by its somewhat tender nature. My plants, however, have come through the past two winters without any protection, and have been flowering freely for the past three months. As a winter-flowering shrub it may certainly be recommended as most valuable for gardens in the milder parts of the British Isles, where the New Zealand Veronics can be grown. It is said to be not uncommon in the North and South Islands of New Zealand. *A. T. B., Ludgvan Rectory, Cornwall.*

FORCING VINES.—All vines do not break into growth alike or with the same ease, and in this connection the pitch of the roof under which they are trained has a considerable influence. The grower who has found his vines to break strongly at the top and indifferently below learns the benefit of lowering the rods in checking the flow to the top. All the same, the system is much less practised now than formerly. That may be because the temperature of the vinery is more gradually raised nowadays, growers allowing the vines to feel the influence of a slight increase of warmth for a few days at the start, so that the rise of the sap is gentle, and all dormant buds alike feel its influence equally. In the same way very moderate syringings, or, better still, sprayings of tepid water help to soften the coats of the buds and assist their development. It is of little moment whether that moistening or softening be done direct through syringings or through humidity created by damping the floors and hot-water pipes. The note by *H. H.*, of Worthing, is such as must have a material effect on the minds of many readers, whilst an advocate of the opposite practice, Mr. W. Taylor, is one of the most successful Grape exhibitors of the day. *D.*

—When I stated (see p. 170) that vines break into growth equally as well without as

with syringing, and also that it was not necessary to tie the rods down to ensure an even break in the buds, I fully anticipated much adverse criticism; therefore I was pleased to find that I was supported by such a first-class Grape grower as Mr. Wm. Taylor, of Bath. Mr. Taylor explained both the cause and effect so ably and lucidly, that it would be superfluous on my part to try to enlarge on the subject. May I ask *H. H.*, whether he has tested my method of starting vineries? For if he has not, it is mere assumption on his part to say which is or is not the correct treatment. I strongly urge him to experiment with the two systems next season and let the readers of the *Gardeners' Chronicle* know the results, for I am convinced that his method causes useless labour. With regard to the tops of the rods breaking strongly and the bottoms weakly, this is easily regulated by stopping the strong shoot when it is a suitable length, for no Grape grower of experience would allow a shoot to form seven or eight leaves beyond the bunch when there is room only for the full expansion of the two or more necessary to fill the space required, the number being regulated by the width the vines are apart. *H. H.* states that it is necessary to lay the rods in a horizontal position to get them to break evenly; what check to the flow of sap occurs when they are tied thus? I think it is

It reminds me of a conversation I had a few years since with an extreme advocate of temperance and non-smoking. I had hoped to prove to him that a man who was moderate in drinking and smoking was as healthy in body and mind as the man who was an abstainer and non-smoker. I therefore cited the case of a dear old friend of mine who had just passed away, having reached the great age of nearly 100 years. He had been both a moderate drinker and smoker all his life, and generally enjoyed first-rate health. "Ah!" said my disputant, "that is all very well, but probably had he abstained from alcohol and tobacco he might have lived to well over 100." So might it have been with Mr. Taylor; successful though he has been, he might have been much more so if he had syringed his vines with clear, tepid water instead of insecticide. I do not see why vines should not be benefited by syringing any more than other subjects which are cultivated under glass. Is it not a fact that to induce forced subjects to break freely, it is absolutely necessary to have a combination of warmth and moisture? Mr. Taylor says there is no such thing as a rush of sap to the top of the vine at starting time. With young vines especially, in nine cases out of ten, the top buds break and grow away much more freely than those near the base, and I have



FIG. 101.—SCENE IN WATERLOW PARK, LONDON, ON APRIL 5 LAST.

more imaginary than real, and it is very different to bending the rods in a bow, though even this, as previously stated, is unnecessary. Mr. C. J. Ellis considers that syringing the vines three and four times a day is absolutely necessary where very early forcing is carried out, but I am convinced that he will soon see how futile syringing the vine is, if he experiments with half of the vines in any vinery he starts early. Mr. Ellis's remarks suggest that gardeners who use their vineries when started for other plants, ventilate them according to the needs of the pot subjects. I can assure him that though our vineries are filled with other plants, they are aired as vineries and not as plant-houses. Another reason why I advise the non-syringing of the vines when starting them is because it washes off the winter dressing applied as an insecticide. *A. Jefferies, Moor Hall Gardens, Harlow, Essex.*

—When I wrote my Calendar of February 25, I little expected my advice would cause so much controversy. However, I enjoy an argument, and never object to fair criticism. I was indeed interested to read the remarks of Mr. Wm. Taylor, who has proved himself on many occasions at the exhibitions a most successful cultivator of Grapes, but still his success does not prove that my methods are incorrect.

also proved on many occasions that by bringing the rod into an almost level plane it does very much to ensure a more even break the whole length of the rod. Mr. J. Arnold states that vines break stronger when not syringed. This is news to me. But whilst I have such practical men as *H. H.*, of Worthing, supporting my case, I feel that even Mr. Jefferies must admit that there is some reason for the advice I offered. *E. Beckett.*

SNOW IN APRIL.

The illustration in fig. 104 represents Waterlow Park, Highgate, London, as it appeared on the 5th inst. Snow fell in the London district in such quantities as to completely cover the ground and the beds of flowering bulbs already in bloom. Such severe weather as prevailed last week is not often experienced in the southern counties in April, but an illustration published in *Gardeners' Chronicle*, July 18, 1908, depicted the rock garden at Kew covered thickly with snow on April 24. On that occasion the snow soon melted, and the cold was not nearly so severe as last week.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 11.—The usual fortnightly meeting was held on Tuesday last in the Society's hall, Westminster.

The exhibits were almost entirely of flowers, of which Alpines and hardy plants constituted the greater numbers. But there were also many fine displays of Orchids, including several groups of more than usual merit. The ORCHID COMMITTEE granted two First-class Certificates and one Award of Merit to novelties.

The FLORAL COMMITTEE granted two First-class Certificates and four Awards of Merit.

There were several fine displays of Narcissi, but the NARCISSUS COMMITTEE made no Award to a novelty.

The only exhibit of importance before the FRUIT AND VEGETABLE COMMITTEE was a collection of vegetables staged by Messrs. SUTTON & SONS. This Committee made no Award to a novelty.

At the 5 o'clock meeting in the Lecture Room, a lecture entitled "The Origin and Structure of Aquatic Flowering Plants," was delivered by Rev. Geo. Henslow.

Floral Committee.

Present: Messrs. W. Marshall and H. B. May (Chairmen); and Messrs. John Green, W. J. James, Chas. T. Drury, T. W. Turner, Herbert J. Cutbush, A. Kingsmill, J. F. McLeod, John Dickson, C. J. Lucas, Chas. E. Pearson, Chas. E. Shea, R. C. R. Nevill, E. H. Jenkins, J. T. Bennett-Poe, F. Page Roberts, Chas. Dixon, C. Blick, John Jennings, Jas. Douglas, R. C. Notcutt, George Paul, W. B. Cranfield, E. A. Bowles, R. W. Wallace, Jas. Hudson, and Wm. Howe.

Messrs. W. CUTBUSH & SON, Highgate, showed a large group of Carnations, greenhouse flowering plants, and Alpines as one large exhibit. Lilacs, Rhododendron Pink Pearl, Azaleas, and Ericas in variety were remarkably good. Amongst the Alpines was a splendid specimen of *Hebe virginalis* and two fine plants of the yellow-flowered *Saxifraga* × *Falloonside*. One end of the table was draped with sprays of *Epigaea repens* finely in flower. (Silver-gilt Flora Medal.)

Messrs. STUART LOW & CO., Bush Hill Park, Enfield, showed *Metrosideros floribunda*, several species of *Acacia*, *Boronia megastigma*, *Hydrangeas*, hybrid *Gerberas*, *Roses*, and *Carnations*. Their new dwarf *Rose Eileen Low* is a very pretty variety, the small plants producing large trusses of bright rose-coloured flowers. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Upper Edmonton, showed a large bank of *Clematis*, another of dwarf *Roses*, and numerous plants of their new *Nephrolepis Marshallii compacta*. (Silver Banksian Medal.)

A fine display of *Roses* was made by Mr. GEO. PRINCE, Oxford, the blooms being excellent specimens of the most popular forcing varieties. (Silver-gilt Banksian Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, filled a large table with greenhouse plants in bloom, their specimens of *Rhododendron* (*Azalea*) *indicum* being magnificently bloomed. In another part of the Hall this Fern showed a splendid group of forced shrubs and *Roses*. (Silver-gilt Flora Medal.)

Mr. H. BURNETT, Guernsey, staged a beautiful exhibit of *Carnations*, having magnificent specimens of most of the choicer varieties. (Silver-gilt Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, staged a showy group of forced shrubs, making a large bank of flowers, principally *Rhododendron* (*Azalea*) *sinese*, the variety *Anthony Koster* being especially effective. There were also many plants of *Clematis*, *Lilac*, *Spiraea*, *Weigela*, and flowering *Crab*. (Silver Banksian Medal.)

Messrs. JOHN WATERER & SONS, LTD., Bagshot, Surrey, showed varieties of *Rhododendrons* in pots. *George Hardy*, with pink blooms, opening white, is an exceptionally fine sort. (Bronze Flora Medal.)

Messrs. W. PAUL & SON, Waltham Cross, showed a selection of some of the newer *Roses* as pot plants, including *Juliet* (orange and rose-pink), *Margaret* (shell-pink), and *Albatross* (white). (Bronze Flora Medal.)

Mr. CHAS. TURNER, Slough, showed several plants of *Rhododendron* *Countess of Sefton*. (Bronze Banksian Medal.)

Messrs. GEORGE MOUNT & SONS, Canterbury, exhibited fine *Roses* of the varieties *Lady Hillingdon*, *Joseph Lowe*, *Richmond*, *White Killarney*, and *Liberty*. (Silver Banksian Medal.)

Mr. VINCENT SLADE, Taunton, Somersetshire, showed varieties of *Zonal-leaved Pelargoniums*, *Berlin* (scarlet), *Lucania* (cerise shaded with orange), *Helen Countess of Radnor* (rosy cerise), and *Lord Strathcona* (scarlet) having the largest flowers.

Messrs. JAMES CARTER & CO., Raynes Park, again arranged a spring garden scene, with borders of hardy flowers and a setting of shrubs as a background. The finest feature was an old oval lead tank planted with splendidly-flowered *Narcissi* of the *King Alfred* variety. There were also lead vases planted with the same flowers, and at the base of these, beds of white *Hyacinths*. A grass lawn gave a touch of reality to the scene. (Silver Flora Medal.)

A large exhibit of *Zonal-leaved Pelargoniums* was staged by Messrs. H. CANNELL & SONS, Swanley, there being no fewer than 50 distinct varieties. (Silver Banksian Medal.)

Messrs. JOHN PEED & SONS, West Norwood, exhibited a large number of *Caladiums*, the majority as small plants. The variety *Sir Oswald Mosley* has bright rose-coloured leaves edged with green.

Mr. H. N. ELLISON, West Bromwich, again showed hybrid *Gerberas* and greenhouse *Ferns*.

Messrs. R. & G. CUTBERT, Southgate, again made a showy display with forced shrubs. (Silver Flora Medal.)

Varieties of *Oranges* in bloom were shown extensively by Messrs. T. RIVERS & SON, Sawbridgeworth.

HARDY PLANTS.

Messrs. HEATH & SON, Cheltenham, set up a massive rock-garden exhibit, in which we noticed *Parrya Menziesii*, *Oenothera alba rosea*, *Arabis Blandfordensis* *rosea* with a mass of pale pink blossoms; *Ambrieta* "Lavender," and *Townsendia Wilcoxiana*, a dwarf flowering *Composite*. (Bronze Banksian Medal.)

Mr. CLARENCE ELLIOTT, Six Hills Nursery, Stevenage, exhibited a rockery; *Androsace sempervivoides*, *Morisia hypogaea*, and species of *Primula* were shown well with other Alpines.

Messrs. BARR & SONS, King Street, Covent Garden, showed large numbers of *Alpine* and *hardy flowers*, varieties of *Ambrieta*, *Viola gracilis*, and *Anemone fulgens* figuring prominently. (Bronze Banksian Medal.)

Mr. JAMES BOX, Lindfield, Sussex, put up a rock-garden exhibit, made bright with an assortment of spring flowers. (Bronze Banksian Medal.)

Messrs. T. S. WARE, LTD., Feltham, showed Alpines, for which a Bronze Flora Medal was awarded.

Mr. G. RETHE, Keston, Kent, showed a large exhibit of Alpines, also several shrubs of uncommon species. The Alpines included a very large collection of *Saxifrages*, amongst them *S. Pauline*, *S. Petraschii*, *S. scardica vera*, *S. Kyrilli*, *S. coriophylla*, *S. Borisii*, *S. Tombeana*, and *S. Macnabiana*. (Bronze Flora Medal.)

Messrs. G. & A. CLARK, LTD., Dover, again showed some superbly-coloured *Primroses*, also *Anemone coronaria*, *Primula malacoides*, and other Alpines in a setting of rock work. (Bronze Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hants., showed some seasonable garden flowers, including double *Primroses*, *Draba imbricata* (a fine specimen), *Gentiana acaulis*, and *Primula nivalis*. (Silver Banksian Medal.)

Messrs. BAKERS, LTD., Wolverhampton, had a splendid batch of *Primula rosea* and well-flowered plants of *Ranunculus amplexicaule* in a general collection of Alpines.

Mr. H. C. PULHAM, Staunsted, staged a small rock-garden exhibit.

The TULLY NURSERY CO., Kildare, Ireland, showed Alpines on a rockery, having an attractive exhibit. (Silver Banksian Medal.)

The GUILDFORD HARDY PLANT NURSERY showed Alpines and shrubby *Veronicas*, *Viola gracilis* flowering in small pots was very pleasing.

The Misses HOPKINS, Mere Gardens, Shepperton, staged a rockery planted with Alpines in variety. (Bronze Banksian Medal.)

Mr. H. HEMSLEY, Crawley, was also the ex-

hibitor of a rock-garden, the stone-work being well arranged and planted with just sufficient shrubs to make it appear natural. (Bronze Banksian Medal.)

Messrs. BLACKMORE & LANGDON, Twerton Hill Nursery, Bath, showed a good strain of *Polyanthuses*, those of a crimson shade being magnificent flowers. (Bronze Banksian Medal.)

Messrs. CARTER PAGE & CO., 52, London Wall, showed varieties of bedding *Violas*, also the lovely blue-flowered *Nemophila insignis*.

The Misses LELACHEUR & SHERRIS, Henfield, contributed *Polyanthuses* and *Forget-me-nots*.

Mr. JAMES DOUGLAS, Edenside, Great Bookham, Surrey, showed splendid plants of *Auriculas*, both show and *Alpine* varieties, conspicuous amongst them being *May Day*, *Prince Charming*, *Phyllis Douglas*, *Geo. Rudd*, and *Admiration*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Nephrolepis Marshallii compacta.—A sport from the well-known *Marshallii* variety of *N. exaltata*. The frond is divided and sub-divided more finely than in any other variety, and has been likened to a layer of moss. The leaves are a light shade of green. Shown by Messrs. H. B. MAY & SONS.

Oncoba spinosa Routledgei.—Mr. CHAS. SHEA, the exhibitor, received the seeds of this plant from Africa. After comparison in the Herbarium at Kew, the plant was determined to be a variety of *Oncoba spinosa*, but with larger flowers than the type. It is a shrub, with spiny shoots, and bears leaves not unlike those of *Hibiscus syriacus*. The flowers are white with a bunch of yellow stamens, and greatly resemble those of *Romneya Coulteri*. They are produced from the old wood, and are deliciously fragrant.

AWARDS OF MERIT.

Rose Marcella, H. T..—A large, flesh-coloured bloom, with golden colour at the base of the petals. The bud is long and pointed. The shoots and foliage are both exceptionally vigorous. (Shown by Messrs. W. PAUL & SON.)

Pelargonium Marim Kowalesky.—An orange-coloured variety of a lighter and brighter shade of orange than *Orange King*. The plant is a strong grower, and is recommended for bedding purposes. (Shown by Messrs. H. CANNELL & SONS.)

Auricula Mrs Gardiner.—The flowers are a charming shade of pale blue.

Auricula Mrs. Harry Veitch.—This variety has flowers of a distinct shade of rose, and the truss is exceptionally large. These *Auriculas* were shown by Mr. JAS. DOUGLAS, Great Bookham.

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); Messrs. R. Sydenham, J. T. Bennett-Poë, A. Wilson, E. M. Crosfield, F. Barchard, H. A. Denison, J. D. Pearson, A. R. Goodwin, J. Jacob, Christopher Bourne, G. H. Engleheart, W. B. Cranfield, W. A. Watts, C. Dawson, W. Poupard, P. R. Barr, C. H. Curtis (hon. sec.), and Miss Fanny W. Curry.

Messrs. BARR & SONS, King Street, Covent Garden, made the most comprehensive display of *Narcissi* and, at the same time, one of the most effective. *King Alfred* was included in this, as in most of the other groups. A number of large-trumpet varieties were included as unnamed seedlings, but these scarcely increased the value of the group. The brilliant-cupped varieties of *Barrii* and incomparables were conspicuous, *Sunrise* and *Firebrand* being especially good. *Johnstoni* *Queen of Spain*, the sweetly-scented *Poetaz Klondyke*, and *Jaune à Merville*, and doubles were also included. (Silver-gilt Flora Medal.)

Miss CURREY, Lismore, Ireland, staged one of the best and largest groups of *Narcissi*, which, though not so representative as Messrs. BARR'S, excelled in the richness of the newer varieties. *Yellow-trumpet Daffodils* were well represented by *King Alfred*, *Michael*, and *Van Waverin's Giant*; bicolours by the *Duke of Bedford*, and the more refined white trumpets by *Lady of the Snows*, *Atalanta* and *Mme. de Graaff*. No flower was shown in finer condition than that of *Geraldine*, one of Mr. Engleheart's seedlings, of which the brilliant cup in the fine-textured, cream perianth showed to perfection. *Crosus*, with flat, expanded, orange-

coloured crown, well named as the richest of its group, and appropriately represented by only two blooms, was well shown, as also Charm, an incomparabilis to which the cimabar-red cup gives distinction. The Leedsii group was represented by fine flowers of Ariadne and White Queen. (Silver-gilt Flora Medal.)

Mr. A. WILSON, Bridgewater, again staged an unrivalled collection of seedlings, but it is tantalising that the majority are still unnamed, and a reference to Mr. Wilson's private numbers would be futile. Of those named, Cæsus, Cœur de Lion, and Conqueror were especially fine, but the best blooms were unnamed. The group was not a large one, but its quality and the number of fine novelties secured for it a Silver-gilt Flora Medal.

Messrs. CARTWRIGHT & GOODWIN, Kidderminster, staged a pretty group, more relieved by foliage than the others. The white trumpet variety Ailsa and the cream-tinted Empire were conspicuously good. Barcarole was the best of the Poeticus section, and Red Sundew one of the most distinct varieties with scarlet cup and yellow segments. Homespun was a little disappointing in texture as shown. Waterwitch and White Rose are two excellent varieties of the Leedsii type. (Silver Flora Medal.)

The LISSADELL BULB FARM, Sligo, staged an interesting group, but many of the flowers were a little rubbed. Poeticus varieties were well shown in Acme and Homer, whilst Incognita (Barrii), with apricot-orange-tinted expanded cup, was good. A number of unnamed seedlings were included in the group. (Silver Flora Medal.)

Mr. CHAPMAN, Rye, made an effective display of Narcissi, some of the finest varieties being Weardale Perfection, Sonata, White Slave, Chancer, and Biarritz. The flowers were well staged. (Silver Banksian Medal.)

Messrs. R. H. BATH, LTD., Wisbech, showed the only collection of Tulips. The rosy-lilac-coloured John Capeland, although not very pleasing in colour, had excellent stems for cutting. The May-flowering varieties White Swan and the earlier Le Rève were also good. A few Daffodils were also shown by Messrs. BATH, of which Mme. de Graaff and Aspasia were good. (Silver Banksian Medal.)

Messrs. HARTLAND & CO., Cork, put up an attractive group, but in general the flowers would have shown to better advantage with more foliage. Long-trumpet Daffodils dominated the group, Wm. Bayler Hartland, John Ridd, Uncle Robert, Mrs. Robert Sydenham and Milkmaid being, perhaps, the best. Sweepstake, an incomparabilis variety with a scarlet-edged cup, and Corona hibernica were both good. The variety Jenny Woodhouse, although not new, is very rarely seen. It scarcely exceeds 6 inches in height, and would be valuable for planting on a rockery. (Silver Banksian Medal.)

ROBERT SYDENHAM LIMITED, Birmingham, arranged a group of Daffodils conspicuous for the bright-cupped varieties of Barrii and incomparabilis. The best were Orange Gem, Bullfinch, Cardinal, Cresset and Incognita. (Silver Banksian Medal.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); Sir Jeremiah Colman, Bart., and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, F. J. Hanbury, F. Sander, F. M. Ogilvie, R. G. Thwaites, T. Armstrong, A. A. McBean, Stuart Low, W. Cobb, J. Cypher, J. E. Shill, W. P. Bound, W. H. Hatcher, A. Dye, H. G. Alexander, W. H. White, J. S. Moss, Gurney Wilson, W. Bolton, de B. Crawshaw, C. Cookson, F. Peeters, and J. Charlesworth.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver-gilt Flora Medal for an extensive group, in which the hybrid Odontoglossums raised by them formed an effective feature. Of these *O. Fire King* (Hallio-crispum × crispum Graireannu), of a glowing reddish colour tipped with white; *O. Troilus* (elegans × amabile), an elegant hybrid; and forms of *O. gandavense* with the body colour dark violet, the variety named Emperor being specially fine, were particularly noticeable. A fine collection of *Cattleya Schroderae*, Golden Glow having a large white flower with orange centre; a selection of good *Cypripediums*, *Vanda Parishii* *Marriottiana*, the now rare deep rose variety; *Cymbidium Devonianum* and other *Cymbidium*s; a selection of scarlet *Odontodas*, *Chysis bractescens*, with pure white

wax-like flowers, *C. Langleyense*, tipped with rose; and some pretty *Dendrobiums* were other features of this exhibit.

Messrs. CHARLESWORTH & CO., Haywards Heath, were awarded a Silver-gilt Flora Medal for a splendid group, in which their handsome new hybrid *Odontoglossums* and *Odontodas* were conspicuous. Some of the *Odontoglossums* had the greater part of the flower of an intense claret colour, and the *Odontodas* were of varying shades of scarlet. Other specially-fine Orchids noted were *Bulbophyllum virescens*, *Phalenopsis Stuartiana*, a selection of *Brasso-Cattleyas* with flowers ranging from pure white to pink, *Brassia brachiata*, *Oncidium sarcodes*, the pretty white *Capanemia uliginosa*, a selection of *Cypripediums*, *Cymbidiums*, and *Cattleya Schroderae*.

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatton Park (gr. Mr. Collier), was awarded a Silver Flora Medal for an interesting group, in which the noble *Odontoglossum Queen of Gatton* (triumphans × percultum) was conspicuous; this is a model flower of fine size and rich colouring. We also noticed *O. Lady Roxburgh* (cirrhosum × percultum), and *Odontodia Gattouensis*, a pretty flower of scarlet on a yellow ground, and showing plainly *O. Kegeliani*, one of its parents. The back of the group was composed of *Phaius Norman* and others noted were the white *Cattleya Mendelii* *Quorn House* variety, *Maxillaria præstans*, a fine *Dendrobium Brymerianum*, and a striking ever-green *Eulophia* from Uganda allied to *E. Saundersiana*.

Messrs. MANSELL & HATCHER, Rawdon, Yorkshire, were awarded a Silver Flora Medal for an effective group. Amongst *Odontoglossums* were *O. Pescatorei virginale*, a wholly clear-white form; the violet blotched *O. Doris*, *O. Solon*, a fine plant of *O. Wilkeanum* with white ground, several plants of *O. ardentissimum*, all of fine quality; and *O. Rolfæ*. Other choice plants were *Eriopsis rufidibulbon*, a pretty little *Megaclinium* from Uganda, a handsome white-petalled *Laelio-Cattleya Wellsiana*, and various *Brasso-Cattleyas*.

Messrs. STUART LOW & CO., Bush Hill Park, staged an effective group, for which a Silver Flora Medal was awarded. *Brasso-Cattleya Mrs. J. Leemann* and other *Brasso-Cattleyas*, a selection of *Dendrobiums* and *Odontoglossums*; *Laelio-Cattleya Highburyensis*, *Lælia Latona*, the scarlet *Renanthera Insechotiana*, a number of the bright-yellow *Oncidium cæcile*, *Epidendrum Stanfordianum*, and other interesting species were included in this display.

Messrs. W. B. HARTLAND & SONS, Cork, were awarded a Silver Flora Medal for an excellent group of good *Odontoglossums*, including several choice hybrids, a very fine lot of *Cattleya Schroderae*, a selection of *Cypripedium Curtisii* with pretty white and green leaves, and *Odontodia Keighleyensis*.

Sir GEORGE L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), showed the superb *Cattleya Schroderae* "The Baron" in splendid condition, the plant having four of the large white flowers with labellums showing a metallic lustre on the deep-orange disc of the lip, in front of which is a pale-rose band.

Mr. E. V. Low, Vale Bridge, Haywards Heath, was awarded a Silver Flora Medal for a group of choice Orchids. *Cattleya Schroderae* was very fine, various *Brasso-Cattleyas* were well grown and flowered, a cross between *Laelio-Cattleya Bletchleyensis* and *Lælia flava*, had pretty yellow flowers; *Dendrobiums* included several plants of the pure-white form of *D. nobile* and the fine yellow *D. Chessingtonense* var. *J. M. Black*. We also noticed a grand spike of *Cymbidium insigne* and *Cypripedium Euryles* Vale Bridge variety, one of the finest forms yet shown.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), was awarded a Silver Banksian Medal for a remarkable group of hybrid *Odontoglossums* raised at Rosefield, including several new kinds. The flowers were generally of the dark-coloured strain, and were highly interesting, as showing the parentage of each in a marked degree. With them were some fine specimens of *Odontodas* and a most beautiful white form of *Odontoglossum crispum* of fine size and shape named Princess Mary.

SAMUEL LARKIN, Esq., The Ridgeways, Haslemere (gr. Mr. Hale), was awarded a Silver Banksian Medal for a neat group, in which *Phalenopsis*, including the rare *P. Aphrodite Killesideana* and some brightly-coloured *P. z. hillieriana*, were well represented. At the back of the group was a fine example of *Vanda tri-*

color bearing two flower-spikes, a selection of *Dendrobiums*, plants of *Cattleya Trianae*, *Lycaste tricolor*, and *Saccolabium Harrisonianum*.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, were awarded a Silver Banksian Medal for an extensive group of showy Orchids. In the centre of the display were pretty hybrids between *Lælia flava* and *Cattleya amethystoglossa*, and in front a showy hybrid between *Laelio-Cattleya Henry Greenwood* and *Cattleya Ludde-manniana*, nearest to the latter. The exhibit also embraced a selection of good *Odontoglossums*, *Odontodas*, *Dendrobiums*, and *Cypripediums*.

Messrs. J. & A. A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal for an effective group, consisting chiefly of *Odontoglossums* grown splendidly. The typical forms of *O. crispum* were specially attractive, one plant bore a spike with 52 flowers.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed *Odontoglossum crispum* Prince Albert, a large white flower evenly spotted over the greater portion of the segments with purple.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. Black), showed *Odontoglossum Groganæ*, *O. Thompsonianum*, *O. ardentissimum album*, and *Odontodas*.

WILLIAM THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevens), exhibited a magnificently grown example of his rich red *Odontodia Charlesworthii superba*.

MONSIEUR A. A. PEETERS, Brussels, showed *Miltonia Bleuana* var. *Laeken*, with a large white flower with effective crimson mask on the lip.

MONSIEUR MERTENS, Ghent, showed forms of *Miltonia vexillaria*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Miltonia Bleuana Pectorata (*Roezlii* × *vexillaria Leopoldii*), from M. DEB. FIRMIN LAMBEAU, Brussels (gr. Mr. E. Demunter).—This remarkable variety is totally distinct from any of its race previously shown. The white sepals and petals have the inner parts coloured a deep rose-purple of a similar tint to that seen in some forms of *M. Roezlii*. The lip is white, with a crimson mask, in front of which is a rosy band.

Odontoglossum O-sulstonii The Strawberry variety (*crispum-Harrisonum* × *Pescatorei Charlesworthii*), from MESSRS. CHARLESWORTH & CO., Haywards Heath.—A stately and richly-coloured hybrid, with the inner two-thirds of the sepals and petals heavily blotched with claret-purple, the tips and margins and the front of the lip being white.

AWARD OF MERIT.

Odontodia Rosefieldensis (*C. Noctilana* × *O. triumphans*), from DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables).—In its fine form and bright colour, this is one of the best *Odontodas*. The sepals and petals are an attractive shade of carmine red, the lip being effectively blotched with red on a light ground.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. J. Cheal, C. G. A. Nix, W. Bates, A. Dean, W. Pope, E. Beckett, A. R. Allan, W. Humphreys, G. Reynolds, J. Jaques, J. Harrison, G. Wythes, O. Thomas, J. Vert, and H. S. Rivers.

THE HON. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett), showed a dish of fine fruits of Strawberry Royal Sovereign.

The only other exhibit was a singularly fine and representative collection of vegetables set up by Messrs. SCITON & SONS, Reading. The exhibit was staged in the best exhibition style, and comprised some 40 dishes. Specially prominent were baskets of Sutton's Snow White and Eastertide Broccoli; Harbinger, April, and Flower of Spring Cabbages; well blanched Batavian Endive and Chicory, and purple-tipped Seakale; also excellent Rhubarb of The Sutton variety. There were, in addition, Mustard and Cress in boxes, French Breakfast and Early Forcing Radishes, Empress of India and Early Giant Peas, Tender and True and Princess of Wales French Beans, Sutton's Market Cucumbers, and 20th Century Mushrooms. (Silver-gilt Knightian Medal.)

SCOTTISH HORTICULTURAL.

APRIL 4.—The monthly meeting of this association was held in the Guild Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massee, the president, was in the Chair, and there was an attendance of 109 members.

At the beginning of the session the council, at the suggestion of the president, decided to try the experiment of devoting one evening to the younger members, who were invited to contribute short papers or notes on horticultural or allied subjects. Five papers were read. These were:—

1. The Fungus of the Strawberry, by Mr. Ernest Milne, Royal Botanic Garden, Edinburgh; 2. Fruit Culture in Pots, by Mr. Wm. Smith, Gosford Gardens, Longdiddy; 3. The Making and Planting of a Rockery, by Mr. James Reid, Carberry Tower Gardens, Musselburgh; 4. Fern Raising and Growing, by Mr. Malcolm Phillips, Granton Road Nursery, Edinburgh; 5. The Young Gardener's Outlook, by Mr. C. B. Roy, Royal Botanic Garden, Edinburgh.

The judges—Messrs. Whytock, Todd, Hay, and Berry—will give their decisions at the May meeting.

The exhibits at this meeting included a collection of seedling Hippeastrums (*Amaryllis*) from Messrs. DICKSON & CO., Edinburgh; *Narcissus Pectaz* (*N. Poeticus* × *N. Tazetta*) from Messrs. BOBBIE & CO., Edinburgh; and hybrid Indian Rhododendrons from Mrs. CURRIE, Trinity Cottage, Edinburgh (gr. Mr. Duncan Macdonald).

A Certificate of Merit was awarded to a seedling *Hippeastrum* exhibited by Messrs. DICKSON & CO., and to each of the following hybrid Rhododendrons exhibited by Mrs. CURRIE:—*Rhododendron* Mrs. James Currie (*R. Dalhousianum* seedling form × *R. Falconeri*) and *R. Mrs. David Callander* (*R. Dalhousianum* seedling form × *R. Nuttallii*).

The president reported that the council were revising the constitution of the association, and that the council had amongst themselves subscribed a sum of nearly £200 to start a fund for the foundation of the suggested Horticultural Institution.

Three new members were elected.

The paper to be read at the meeting on May 2 will be on "Some Factors in the Production and Storage of Seeds," by Mr. Robt. L. Scarlett, Musselburgh.

CORNWALL DAFFODIL AND SPRING FLOWER.

APRIL 4.—The fifteenth exhibition of this society, which has the patronage of Her Majesty Queen Mary and Her Majesty Queen Alexandra, was held on this date in the great Market Hall at Truro. All the secretarial arrangements were, as usual, admirably carried out by the Hon. John Boscawen, who has been hon. secretary of the society since it was formed. The entries were as numerous as those of recent years, and the exhibits reached a high standard of merit, although the season is a very backward one. The exhibits of Daffodils were quite up to their usual standard of excellence in the south-west, and some beautiful new seedlings were exhibited.

In the class for a collection of 50 varieties of Daffodils, in commerce or not in commerce, the 1st prize was awarded to Mr. J. C. WILLIAMS, who staged a splendid stand of seedlings raised by himself. As in former years, however, the flowers were not named, but only numbered, which somewhat diminished the interest taken in them. A selection of the choicer flowers included those numbered 317, with white petals and spreading orange-scarlet cup; 299, with primrose petals and spreading yellow cup, edged with orange-scarlet; 81, having white petals and yellow, saucer-shaped cup, edged with orange; 11, an immense bicolor *incomparabilis*; 261, a bright golden trumpet Daffodil; and 260, with massive petals and large, flat, citron-coloured cup, edged with orange. 2nd, Mr. P. D. WILLIAMS, whose exhibit was very little inferior to the winner, and contained some beautiful flowers, the varieties *Medusa* and *Robespierre* being conspicuous.

In nine of the classes the price of the bulbs was limited to 10s. In these classes the varieties winning the 1st and 2nd prizes for single blooms were as follow:—Finest bloom of a magni-coronati *Narcissus*: 1st, King Alfred; 2nd, Rev. D. R. Williamson. Finest bloom of a medio-coronati variety: 1st, Lady Margaret Boscawen; 2nd, Homespun. Finest bloom of a parvi-coronati

variety: 1st, Armored; 2nd, Blood Orange. Finest bloom of poeticus variety: 1st, Horace; 2nd, Homer. In the classes where the prices of bulbs was unlimited, the results were as follow:—Magni-coronati: 1st, King's Norton; 2nd, Van Waveren's Giant. Medio-coronati: 1st, White Queen; 2nd, Bernardino. Parvi-coronati: 1st, Inognita; 2nd, Blood orange. Poeticus: 1st, Dante; 2nd, Homer.

The classes for three blooms of English-raised seedling Daffodils not in commerce proved interesting, the result being as follows:—Magni-coronati: The 1st prize was won by Mr. J. C. WILLIAMS, with three beautiful flowers. In the medio-coronati section the 1st prize was awarded to Mr. P. D. WILLIAMS for his No. 92, a clear yellow; Elizabeth, primrose petals and deep-yellow cup; and Robespierre, pale-yellow petals and orange-scarlet cup. In the parvi-coronati, Mr. P. D. WILLIAMS again took the 1st prize, with *Medusa*, a beautiful flower, two on a stalk, with white petals and orange-scarlet eye; Liberty, white petals and flat, yellow cup; and No. 717, with white petals and spreading orange-scarlet cup. Mr. WILLIAMS also won the 1st prize in the poeticus section with good flowers.

Nurserymen showed some very fine Daffodils. Messrs. CARTWRIGHT & GOODWIN had a large stand, in which Orangeman, Firebrand, Eye-bright, Red Coat, Scarlet Eye, Southern Star, Isis, Lucifer, Salamander, and Mohican were very bright. Golden Mist and Master of Balliol are two large, golden-trumpet Daffodils, whilst Argosy, Leading Lady, Lord Kitchener, Alice Knights, Mme. de Graaff, and Florence were also shown well. A First-class Certificate was given to Lemon Star, a beautiful flower included in this stand.

Messrs. BARR & SONS, Covent Garden, showed *Mermud*, *Diana*, *White Queen*, *Seraphine*, *Gwendoline*, *King Alfred*, *Furnace*, *Buttercup*, *Firebrand*, *Fiery Cross*, *Vesuvius*, *Homespun*, *Bernardino*, and *Sunrise*.

The exhibits of flowering shrubs were, as usual, a revelation to those not resident in the south-west, and a splendid show was made, although some of the subjects usually present were absent, owing to the late season. The 1st prize for 20 varieties of hard-wooded, flowering shrubs and climbers was won by Mr. T. B. BOLITHO, who staged *Boronia megastigma*, *Camellia reticulata*, *Skimmia Fortunei*, *Embothrium coccineum*, *Perrettia ciliaris*, *Boronia heterophylla*, *Euryops virginicus*, *Prunus pendula*, *Magnolia conspicua*, *M. stellata*, *Chorizandra cordatum splendens*, *C. Lowii*, *Ceanothus punicus*, *Erica lusitanica*, *Jasminum primulinum*, *Lapageria rosea*, *Cydonia Simonii*, *Cerasus Watereri*, *Polygala Dalmaisiana*, and *Andromeda japonica*. Rev. A. BOSCAWEN, and Mr. R. FOX were awarded equal 2nd prizes, with exhibits very little inferior to those shown by Mr. BOLITHO.

In the class for six flowering shrubs and climbers, the 1st prize was won by Lady MARGARET BOSCAWEN, who showed *Pyrus Maulei*, *Clematis indivisa lobata*, *Senecio Pectasites*, *Grevillea rosmarinifolia*, *Ceanothus rigidus*, and *Jasminum primulinum*.

In the class for three vases of Acacias grown out-of-doors, the 1st prize was awarded to Mr. C. HEXT, with *A. ovata*, *A. longifolia*, and *A. dealbata*, while the 1st prize for three vases of Acacias grown under glass was taken by Mr. J. N. H. WATSON, with *A. Drummondii*, *A. albicans*, and *A. longifolia magnifica*.

The show of hardy spring flowers was very good. In the class for 12 varieties, the 1st prize was won by Mr. T. B. BOLITHO, with *Fritillaria imperialis*, *Tulipa saxatilis*, *T. praestans*, *Caltha platypetala*, *Iris orchinoides*, *I. bucharica*, *Myosotidion nobile*, *Muscari botryoides album*, *Erythronium Johnsonii*, *Anemone blanda*, *Sanguinaria canadensis*, and *Fritillaria meleagris*.

The 1st prize for six varieties of hardy spring flowers was also won by Mr. T. B. BOLITHO.

Exhibits of Rhododendrons were very fine, as they always are in Cornwall. The 1st prize for the best group of Rhododendron blooms was won by Mr. D. H. SHILSON, on whose stand were *R. arboreum giganteum*, *R. arboreum album*, *R. arboreum roseum crispum*, *R. Shilsonii*, *Gill's Triumph*, *R. barbatum carneum*, *R. argenteum* or *grande*, *Duchess of Cornwall*, *R. Harrisii*, *R. Thompsonii*, *R. barbatum*, *Beauty of Tremough*, and *R. iverianum*. Other prizewinners in the Rhododendron classes were Mr. J. C. WILLIAMS, Mr. C. HEXT, Mr. R. FOX, and Lady MARGARET BOSCAWEN.

Exhibits of rock-gardens were interesting, and the 1st prize was won by Miss WATERER, who staged *Iris tingitana* (very fine), *Corydalis cheilanthifolia*, *Viola gracilis*, *Parochetus communis*, *Lithospermum prostratum*, *Muscari conicum*, *Saxifraga Rhaei*, and many other rock plants.

Four classes were allotted to Violets, these flowers being very fine, and better than they have been for some years past. The classes for Anemones, Polyanthus and Primoses were well filled, and the winning stands were distinctly meritorious.

The nurserymen's exhibits materially enhanced the attractions of the show. The DEVON ROSERY, Torquay, staged a large number of pot Roses, also Lilacs, Azaleas, Clematises, Cytisuses, *Lachenalias*, *Boronia heterophylla*, *Cytisus racemosus*, *Erica Veitchii*, *Acacia cordata*, *A. Drummondii*, and *Primula kewensis*.

Messrs. R. VEITCH & SON, Exeter, had a fine stand, including hybrid Gerberas, *Hakea ilicifolia*, *Beschorneria yuccoides*, *Brachysema Drummondii*, *Correa speciosa*, *Hibbertia dentata*, *Viburnum Carlesii*, and other choice shrubs.

Mr. G. REUTHE, Keston, Kent, had a large colony of *Primula rosea*, *Dryas lanata*, *Arabis Billardieri*, *Potentilla villosa*, *Anemone baldensis*, *Androsace helvetica*, *A. Mathilde*, *Eritrichium nanum*, and *Rhododendron intricatum*.

Messrs. H. B. MAY & SONS, Edminton, showed a collection of Ferns and pot plants of Clematis.

AWARDS.

The following awards were made:—Award of Merit to Mr. R. GILL, for the new Himalayan *Primula Winteri*; to Messrs. VEITCH & SONS for hybrid Gerberas; to Mr. R. FOX, for Rhododendrons *Lady Alice Fitzwilliam* and *R. Keysii*; to Mr. C. HEXT, for Rhododendron *Trebianum*; to Mr. J. C. WILLIAMS, for a seedling Rhododendron; to Rev. A. BOSCAWEN, for *Erica melanthera*; to Mr. P. D. WILLIAMS, for *Shere Khan*. Cultural Commendations were awarded to Rev. A. BOSCAWEN, for *Acacia diffusa*; to Mr. E. MAJOR, for Rhododendron *Lindleyi*; and to Mr. G. REUTHE for Rhododendron *intricatum*. Miss JOSEPHINE GUNDRY showed water-colour paintings depicting garden scenes and flowers.

LIVERPOOL HORTICULTURAL.

APRIL 5, 6.—The 23rd spring flower show of this Society was held in the Corn Exchange, under most adverse weather conditions. There were 6° or 7° of frost, with a keen east wind. The show, however, was larger than the one last year. Exhibits on either side of the secretary's office of forced plants, such as Rambler Roses, varieties of Clematis, Rhododendrons, Lilacs, hardy Azaleas, also stove and greenhouse plants, including *Imantophyllums* (*Chivias*) *Azalea indica*, and Orchids, were objects of great floral beauty. Daffodils, *Amaryllis*, Orchids, Cyclamen, Lily of the Valley and the smaller bulbous plants made a great show.

In the class for six pots of hardy herbaceous and bulbous plants, W. J. LOCKETT, Esq. (gr. Mr. E. R. Finch), was awarded the 1st prize.

The best exhibit of 12 Hyacinths, distinct, was shown by Miss ROBINSON (gr. Mr. J. Nisbet), and the same exhibitor secured the chief award for six varieties of Hyacinths.

Mr. E. R. FINCH had the best six pots of Hyacinths, three bulbs in each pot, whilst the best three pans of these flowers, 10 bulbs in each pan, were shown by A. EARLE, Esq. (gr. Mr. T. Hitchman).

Mr. J. NISBET led in the class for six pots of Daffodils, *Glory of Leiden* and *Mme. Plomp* being excellent examples.

The 1st prize for 12 pots of single Tulips was awarded to Mrs. W. P. SINCLAIR (gr. Mr. J. V. Thompson), who showed bright flowers of a medium size.

E. J. PROCTER, Esq. (gr. Mr. J. Williams) showed the best six pots of these flowers, and he excelled in the class for the same number of double varieties.

The best basket of Daffodils was shown by J. FINLAY, Esq. (gr. Mr. E. Wharton).

Drs. TISDALL and INGALL (gr. Mr. G. Osborne) were the only exhibitors of 12 vases of cut *Narcissus*, and were awarded the 1st prize.

For six hybrid Hippeastrums, C. W. CARVER, Esq. (gr. Mr. W. Hignett), won the 1st prize with excellent plants.

Mr. E. R. FINCH led in the class for three greenhouse Azaleas with moderate-sized, well-flowered specimens, whilst the best single specimen of Azalea was shown by F. DIXON-NUTTALL, Esq. (gr. Mr. W. J. Roberts).

The best greenhouse plant was shown by W. TOD, Esq. (gr. Mr. G. Eaton), who exhibited a fine specimen of *Clivia miniata*.

Mr. W. HIGNETT staged fine plants of *Dendrobium nobile* and *D. Ainsworthii* in the class for two Orchids, these being awarded the 1st prize; and Mr. HIGNETT also excelled for two cool-house Orchids.

Mr. T. HITCHMAN was placed 1st for three hardy plants, the exhibit including a fine example of *Rhododendron Pink Pearl*.

For three Ferns, J. STONE, Esq. (gr. Mr. D. McKelvie), led, whilst for a single Fern Mr. G. EATON won the 1st prize with a good plant of *Dicksonia antarctica*.

For three Azaleas, distinct, and for one plant of Azalea, Mr. T. HITCHMAN won the 1st prize in each case.

Three hardy *Rhododendrons* were shown best by Mr. G. EATON, whilst in the class for a single specimen Mr. E. R. FINCH excelled with the variety *Pink Pearl*.

In the class for six hardy forced plants, Mr. E. R. FINCH won the 1st prize with a collection of much merit, having four well-flowered Rambler Roses, *Clematis Henryi*, and White Lilac.

The best two Palms were shown by Mr. G. OSBORNE, and he also won the 1st prize for three Palms in 8-inch pots.

The most tastefully decorated dinner table was arranged by Mrs. T. A. VLASTO (gr. Mr. J. Armistead).

NON-COMPETITIVE EXHIBITS.

Non-competitive exhibits added considerably to the success of the show. Gold Medals were awarded to the TULLY NURSERY CO., Kildare, Ireland, for a charming rock-garden exhibit; Messrs. W. CUTBUSH & SON, Highgate, for carnations; Messrs. MANSELL & HATCHER, Rawdon, Leeds, for Orchids; and Messrs. R. P. KER & SONS, Liverpool, for *Amaryllis*. Silver Medals were awarded to Messrs. HOGG & ROBERTSON, Dublin, for a bold display of *Daffodils*, &c.; Messrs. YOUNG & HATHERLEY for Carnations; Messrs. BAKERS, LTD., Wolverhampton, for Alpines, &c.; Messrs. THOS. DAVIES & CO. for Azaleas, Spireas, and hardy bulbs; the LIVERPOOL ORCHID CO. for a collection of Orchids; Mr. W. ROWLANDS, for Tulips in pans and *Rhododendrons*, Azaleas, *Mignonette*, &c.; Messrs. BARR & SONS, King Street, Covent Garden, for *Daffodils* and Alpines; Mr. H. MIDDLEBURN, for *Hydrangeas*, Spireas, and bulbs; and Messrs. BEES LTD., Liverpool, for a rockery planted with Alpines.

BOSKOOP POMOLOGICAL.

APRIL 6.—The international exhibition arranged by the Boskoop Pomological Society, in celebration of the 50th anniversary of the society, was opened by Prince Henry of the Netherlands on the above date, and will remain open until April 20. The exhibition has been visited by Queen Wilhelmina, and it promises to be a great success, as, indeed, it is already from the spectacular point of view. Although the society is named the Boskoop Pomological, the exhibits consist mainly of shrubs and trees grown for forcing, as the production of shrubs for forcing is now the chief horticultural industry of the district, the Boskoop nurserymen having a large export trade in these plants. As might be expected, *Rhododendrons* and Azaleas form the bulk of the exhibits, but there are large displays of *Acers* and *Lilacs*. The main building comprises about 28,000 square feet, and the annexe 8,600 square feet, but there is such a large number of exhibits that twice the space available could easily be furnished with them.

The displays of *Rhododendron sinense* (*Azalea mollis*) shown by Mr. D. A. KOSTER and Messrs. KERSEBERG BROS. are a feature of the show. The latter firm contribute excellent plants, far above the average merit. The varieties that have gained the principal prizes are:—*Columbus*, a light yellowish flower, tinged with reddish-rose, and shaded towards the margin; *G. Kersbergen*, bright red, produced in a grand truss; and *Betty van Nes*, light yellow, shaded with brownish-red at the tips. The 2nd prizes have been awarded

to John Ruskin, rose coloured; Mr. J. H. van Nes, resembling the variety *Columbus*, but slightly darker, and of more straggling growth; and *Guillaume Caillet*. In another group, Messrs. KERSEBERG showed varieties of *Rhododendron sinense* as follow:—*Marat*, a fine, red variety, with a yellowish centre; *Robespierre*, red; *Wat Tyler*, rosy-red—a fine variety; *Babeuf*, a large, red-flowered variety; *Copernicus*, of a fine shade of red; *Burgomaster van Eek*, pale yellow; and *Jack Straw*, a rather large-flowered, salmon-rose coloured variety.

Mr. D. A. KOSTER also staged a superb collection of the same type of *Rhododendron*. Prizes were awarded to the varieties Mr. Koster, of a splendid, fiery, salmon-red colour; *K. de Vink*, of the *Columbus* type; whilst an unnamed seedling may be mentioned for its splendid coloration.

A prize has been awarded to the variety *Elizabeth*, raised from what are known as *Azalea occidentalis* and *A. mollis*, shown by the GOVERNMENT HORTICULTURAL WINTER SCHOOL. The flowers are white, with a rosy tinge, and blotched with yellow on the upper segments.

Superbly-flowered plants of *A. yodogawa* are staged by several firms, the light, mauve-coloured flowers showing off to great advantage. Of the older varieties, *Anthony Koster* and *J. C. van Tol* are remarkably fine. *Azalea rustica* is shown in large quantities and in fine condition.

Superb plants of *Pink Pearl* and *White Pearl* *Rhododendrons* excite universal admiration. *Pink Pearl* even regaining its old fascination that it had partially lost to the white one. Prizes have been awarded for these varieties to M. KOSTER & SONS, C. B. NES & SONS, OTTOLANDER & HOOFTMAN, and ENDTZ VAN NES & CO. For forcing purposes, *Pink Pearl* and *White Pearl* cannot well be beaten. Instead of 3rd and 4th prizes, additional 1st and 2nd prizes have been awarded. A finer display than this group could hardly be met with anywhere. Other fine varieties of *Rhododendron* noticed were:—*Kate Waterer*, *Strategist*, *Cynthia*, *Sir Ch. Butler*, and some of Messrs. Paul's hybrids.

In the annex, Mr. D. A. KOSTER shows some fine new varieties. Prizes have been awarded to *Rhododendron Mme. de Bruin*, amaranth-red; *Dr. Siebert*, which produces a very large truss of red flowers; *Princess Juliana*, a beautiful flower, which was exhibited at the last Temple Show in London; it has frilled petals, but appears to be lacking in size of truss at present; stronger plants may remedy this defect. Also amongst Mr. KOSTER'S varieties were *Dr. Edu. B. Koster*, having a rather large truss of rose-coloured flowers; three varieties resembling *Pelix de Sauvage*, viz., *Betty de Bruin*, *Agatha*, and *Mr. van der Tak*, and an unnamed variety, of light rose colour, with a yellowish tinge.

Messrs. M. KOSTER & SONS have, amongst other superb varieties of Azalea, *Beauty of Boskoop*, a yellowish variety, with orange-coloured blotch, and *Triumph*, yellow.

Messrs. C. B. VAN NES & SONS exhibit a grand lot of hybrids of *Rhododendron Aucklandii*. One looks very much like a salmon-red coloured *Pink Pearl*, with frilled petals. Another resembles a light mauve-coloured *White Pearl*. A third, a hybrid of *Carl Mette*, is clear white. These varieties should have a future, at least on the Continent.

The SCHOOL OF HORTICULTURE show the new, rich, violet-blue coloured *Clematis Prince Hendrick*; also Azaleas, including a variety of *A. ledifolia*, which is claimed to be hardy even in the Boskoop district.

Of the commoner sorts of *Rhododendron*, including *catawbiense* varieties, there are grand bush and standard specimens in the exhibition; whilst it may be said that every kind of plant cultivated at Boskoop is well represented, such as standard *Genistas*, *Cytisus purpurea*, Japanese *Cherries*, *Lilacs*, *Hydrangea paniculata grandiflora*, *Amygdalus persica*, *Deutzias*, Japanese *Acers*, *Pseudolarix Kämpferi*, and other species. The few groups that are shown for effect prove what fine results can be obtained from forced shrubs. What are known as *Azalea mollis* and *A. rustica*, interspersed with *Acers*, contribute very largely to the good effect.

The show, as I have said, is a remarkably good one, both in the number of exhibits and the excellent quality of the plants; but it has to be admitted that the displays of *Roses* are, on the whole, disappointing. J. F. W.

NURSERYMEN, MARKET GARDENERS, AND GENERAL HAILSTORM INSURANCE CORPORATION, LTD.

MARCH 31.—The sixteenth annual general meeting of the above company was held on this date, the chairman, Mr. Harry J. Veitch, presided. Mr. Veitch stated that the company had a sufficient reserve fund to enable the directors to allow a bonus of 15 per cent. off the future annual premiums. He pointed out the fact that through the incorporation of the company the premiums charged were now 8s. 6d. as against 16s. per cent. A dividend at the rate of 7½ per cent. and a bonus of 2½ per cent. was declared; £1,500 was added to the reserve fund, and £245 10s. 8d. carried forward. The company has £28,519 9s. 1d. invested funds.

LAW NOTES.

ALLEGED FRAUDULENT REPRESENTATION.

At the Aldershot County Court on April 5, before his Honour Judge Harrington, a claim was brought by Albert Kilmaston, of Chobham, Surrey, against Mrs. Emma Russell, of Ash, near Aldershot, for alleged fraudulent representation. Plaintiff stated that in July last he entered into an agreement with the defendant to take over Hatfield Nursery, Frimley, for three years, at an annual rental of £65. On going over the nursery he noticed water standing in the stoke-holes of the glasshouses, and called the attention of defendant's son to it. The son assured him that water never caused any trouble at the nursery, but on entering into possession he found it impossible to keep the water down. It filled the stoke-hole to a depth of 4 feet, and was no sooner pumped out than water commenced to issue through the ground at the bottom of the stoke-hole. A depth of 10 inches of water was sufficient to extinguish the fires. Plaintiff said he was a professional gardener of 20 years experience. He took the nursery to force Strawberries, Tomatoes, Cucumbers and Chrysanthemums, but, owing to his being unable to heat the glasshouses, he had no chance to grow anything. The consequence was that a sum of £100 with which he went into the business was completely lost. He complained to the defendant about the water, and begged her to release him from the agreement, but she refused to release him.

Two previous tenants of the nursery, named Ralph Bishop, of Lingfield, and William Richards, traveller to a seed firm, gave their experience. Each held the nursery for three years, and both stated that it was impossible to heat the glasshouses in winter. Richards stated that he lost £300. The other witness estimated his loss at £400. Both alleged that they called defendant's attention to the flooding from time to time.

Defendant said that her late husband took over the nursery in 1892, and worked it so successfully as to be able to purchase an eight-roomed dwelling house on the ground out of the business. She lived at the nursery for 12 years, and never had any difficulty in keeping in the fires. She denied that complaint was made by either Bishop or Richards. She complained that plaintiff had left the nursery without giving her notice or delivering up the key. Three tenants of neighbouring nurseries were called, and spoke of the stoke-holes of their glasshouses being flooded during the recent winter. They attributed the flooding to an exceptionally heavy rainfall, but in cross-examination they stated that the flooding was caused by surface water.

His Honour, in giving judgment, said that he was quite satisfied that defendant knew of the impossibility of heating the glasshouses owing to the floods, and he was satisfied that the flooding was not caused by surface water. Defendant had, therefore, brought herself within the meaning of legal fraud. Whether plaintiff would have been able to make the nursery pay in ordinary circumstances was very uncertain, and he accordingly did not propose to give any damages. The agreement, however, should be cancelled, and the plaintiff would have the costs of the action.

Obituary.

WILLIAM EDWARD GUMBLETON.—We regret to announce the death of this distinguished horticulturist at his residence, B Igrove, Queenstown, Co. Cork, on April 4, aged 71. Mr. Gumbleton was always interested in new and rare garden plants, particularly in those belonging to the composite. He was formerly a member of the Floral Committee of the Royal Horticultural Society, and was as well known in horticultural circles abroad as in Great Britain. Mr. Gumbleton was not only a great patron of horticulture, but also of sport and the fine arts. He was a frequent and valued contributor to these pages, and some of his later contributions were awaiting publication, including notes on certain new types of Dahlia.

THOMAS WELLS.—We regret to record the death, after a short illness, of Mr. Thomas Wells, who for the past 23 years held the position of head seedsman with the firm of Messrs. James Backhouse & Son, Ltd., York. Commencing at the early age of 11 years, he served the firm for 49 years. His familiar figure will be much missed by those accustomed to visit the York Nurseries. Deceased leaves a widow and eight children.

E. H. PEMBER, K.C.—This well known member of the Parliamentary Bar died at his home at Vicar's Hill, near Lynton, on the 5th inst. Mr. Pember was an enthusiastic cultivator of hardy trees and shrubs, especially of Oaks, of which he had got together a very representative selection. In his grounds were several notable trees, especially a fine specimen of *Parrotia persica*, which bore large crops of fruit, and some magnificent specimens of *Pinus insignis*, which, when the writer saw them a few years ago, were well over 60 feet high and about 22 years old, having made growths at the rate of nearly 3 feet a year since they were planted. Vicar's Hill, which is within sight of the Solent, is beautifully situated on the southern outskirts of the New Forest, the Boldre River running at the base. Close to the house is the old dwelling where Gilpin, the famous writer on trees, once lived. Mr. Pember, who enjoyed a long and successful career at the Bar, possessed a fund of recollections, much humour, and the art of the *raconteur*, which made him a most delightful and entertaining host and companion.

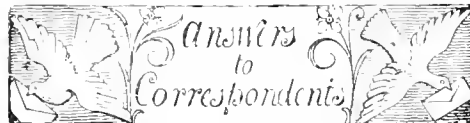
LOUIS DE SMET-DUVIVIER.—Many of our readers will learn with regret of the death of M. Louis de Smet-Duvivier, a Belgian nurseryman, whose fame extended far beyond the borders of his country. He was born on October 8, 1845, at Ledberg, near Ghent, and obtained his first instruction of a horticultural nature under the late M. J. N. Baumanns. In 1865 he entered the service of a distinguished amateur, M. de Groel, where he became head gardener. Leaving there in 1870, Louis de Smet-Duvivier was called upon to undertake the management of the late M. Ad. Spaë's nursery, where he remained for four years, and largely contributed to the prosperity of the business. In 1878 he established the firm which has since borne his name. In 1879 M. de Smet-Duvivier, in conjunction with M. Aug. Van Geert, Dr. Dubois, and M. Ed. Vervaeck, started, at Mont St. Amant, the Floral Horticultural Society, of which he acted as secretary for some years. In the following year he helped to found the *Chambre Syndicale des horticulteurs belges*. In 1889 he became a member of the Royal Agricultural and Botanical Society of Ghent, and in 1894 he was appointed a member of the Permanent Committee of the *Chambre Syndicale des horticulteurs belges*, and he was secretary for the monthly shows. M. Louis de Smet-Duvivier was the first man in the Ghent district to cultivate Stove Cordylines (*Dracenas*), and he introduced some good varieties into commerce. He also raised a number of valuable hybrids of *Anthurium Scherzerianum* and *A. Andreanum*. Other new plants he introduced included varieties of *Rhododendron indicum*, *Alocasias*, and *Codiaeums* (*Crotons*). Deceased was of a retiring disposition, possessed of exceptional knowledge, and he was always ready to help with good advice anyone who consulted him, finding his greatest pleasure in assisting young gardeners. He leaves several sons, who will carry on the traditions of the firm with the

advantage of having been trained under their father's superintendence. M. Louis de Smet-Duvivier was a Knight of the Order of Leopold; he was awarded the Agricultural Decoration of the Second Class for his distinguished service to horticulture.

DONALD MCKENZIE.—The death of Mr. Donald McKenzie took place at Sherwood Park Gardens, Tunbridge Wells, on the 6th inst., in his 66th year. Deceased has been head gardener there for 25 years, and latterly he has also fulfilled the duties of estate agent.

MISS SULLIVAN.—The death of Miss Charlotte A. Sullivan, in her 86th year, took place at Broom House, Fulham, on the 3rd inst., in the house in which she was born. Miss Sullivan was a liberal patroness of gardening, and her large and beautiful garden at Fulham was one of the few places of this kind still remaining in that neighbourhood. Amongst other interesting features, it contains a magnificent specimen of the purple-leaved Beech.

R. N. G. BAKER.—The death of Mr. R. N. G. Baker, of Exeter, removes one of the most successful rosarians of the extreme western counties. A member of the National Rose Society, he frequently exhibited at the Metropolitan Rose shows, whilst his blooms contributed to the West of England shows were always remarkable for their extraordinary brilliance of colour. Deceased took great delight in his garden, and his death is much regretted by all local horticulturists.



BLAN CANKER: W. D. Spray the plants with the Bordeaux Mixture at half the usual strength.

CARNATIONS: E. F. The fungus *Rhizoctonia* is causing the injury. Sift the soil at intervals of four days with nitrate of potash at a strength of one ounce in one gallon of water.—**H. D.** The plants are badly attacked by mites. No disease is present. Dip the shoots in Tobacco water.

ESCHOLTZIA STAMFORDII: T. A. H. This is a Chinese plant of a shrubby character at the base and producing dense spikes of flowers at the termination of the growths, usually in September. It belongs to the Labiate, and was introduced to this country from the Arnold Arboretum, U.S.A., a member of the staff of that institution, Mr. J. G. Jack, having collected the species in China in 1905. The plant having been in cultivation but a short time, no definite instructions as to culture are forthcoming, but if you treat it similarly to *Pteris atriplicifolia* and *Corydalis Mastacanthus*, you are likely to be successful. Select a sunny, sheltered situation, and good, porous loam. Pruning should be done in spring just before growth recommences, cutting the plant over. It has lived out-of-doors in the Arnold Arboretum for several years, and has produced flowers and seeds there. The climate is much more severe than ours, therefore the species will be likely to prove quite hardy in your district (Kent).

ERRATA.—Owing to an oversight Mr. Farrer's article in the last issue went to press without final revision. The names of the following plants were misspelled: *Dianthus Lutescens*, *D. glacialis*, *Saxifraga thessalica*, *dalmatica*, *Bertolonia Desoulavayi*, *Kyrtilla*, and *Iris graci-lipis*. "Manies" in the 2nd column, p. 212, should read "mosses."

"MOSS" IN WATER TANK: **G. W. P.** You are no doubt referring to algae and other water weeds, which are often troublesome in tanks in greenhouses. Empty the tank and cleanse the sides and bottom thoroughly. When the weeds begin to appear again, spray the surface of the water with the Bordeaux mixture at half the usual strength.

NAMES OF PLANTS: Correspondent. *Cupressus macrocarpa*—1. *E.* 1 and 2. *Arundinaria falcata*; 3. *Pelargonium Chlorinda*; 4. *Iris japonica* (syn. *I. hindubata*); 5. *Begonia nitida alba*; 6. *Asparagus deflexus*.—**E. B.** *Polygala*

myrtifolia grandiflora (Dalmatiana).—**J. H.** 1. *Primula denticulata*; 2. *Odontoglossum crispum* of a very indifferent form; 3. *Codiaeum angustifolium*; 4. *Adiantum Paotini*; 5. *Ficus repens*; 6. *Cyrtanthus angustifolius*, small form.

OURISIA MACROPHYLLA: R. H. B. *Ourisia macrophylla* is evidently a mistake for *O. macrophylla*, as the former name does not appear in Cheeseman's *Flora of New Zealand*, or any authoritative work. Your description exactly fits *O. macrophylla*: the flowers are pure white, although the throat is lined with yellow hairs. An illustration and note on this plant appeared in the *Gardeners' Chronicle*, July 18, 1909, p. 390. *O. macrophylla* was introduced into cultivation by Bees Ltd. in 1907. The plant has proved quite hardy, but is seen to better advantage when grown in pots in a cold frame. It grows about 1 foot high, and the inflorescence produces several whorls of flowers, beginning to bloom at the beginning of April, and lasting in good condition about six weeks. Seeds are produced freely. *O. Cockayneana* was introduced by Captain Dorrin Smith in 1908. It is smaller in all parts except the flowers, which are also pure white. This species is as easy to grow as *O. macrophylla* and quite as hardy. Both plants like somewhat rich, moist soil and half shade. A note on *O. Cockayneana* appeared in *Gard. Chron.*, May 14, 1910, p. 314.

PEACH LEAVES: Anxious. The trouble has been caused by a fungus, *Botrytis*. Spray the tree at intervals of four days with sulphide of potassium (liver of sulphur) at a strength of one ounce in three gallons of water.

PEACH SHOOT INFESTED WITH INSECTS: C. A. The "red substance" on the older branches of the trees are the eggs of the Bryobia mite. Paint the main branches with liver of sulphur so soon as the fruit has set. In winter spray the trees with paraffin emulsion.

PEACH SHOOTS DISEASED: F. A. D. The shoots are attacked by the fungus *Botrytis*. Spray the trees with sulphide of potassium (liver of sulphur) at a strength of 1 ounce in three gallons of water.

PELARGONIUMS DISEASED: S. A. B. Use the nitrate of potash advised for diseased *Pelargoniums* in the issue for April 1, p. 206, at a strength of one ounce in one gallon of water.

PLANT LABELS AT KEW: C. B. The labels are made of square or oblong pieces of sheet lead, the name being stamped in them by dies. White paint is rubbed over the surface, and enters the letters, that on the surface being removed.

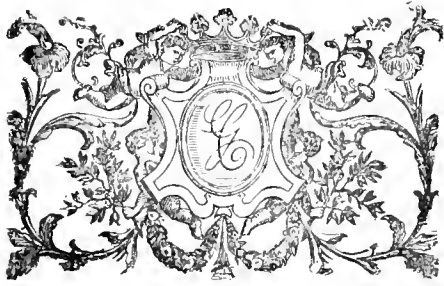
SPRAYING APPLE AND PEAR TREES: Old Subscriber. The winter wash should be followed by later sprayings. The foliage being eaten indicates the presence of some leaf-eating insect, such as caterpillars. To destroy these, spray with some poisonous compound, such as Paris Green. The black spots on the Pear leaves may be due to "scab." Spray the trees with the Bordeaux mixture at half-strength first when the blossoms are expanding; second when the petals are dropping, and finally when the Apples are about the size of Peas.

TUBEROSE: Lincoln. The *Tuberosa*, *Polyanthes tuberosa*, and the only other species, *P. maculata*, are both natives of Mexico. There are forms known as Double African and Double Italian.

TULIPS: C. S. & Co. The trouble is not due to centipedes, but to yellow stripe, a bacterial disease. At a later stage fungi also enters the bulbs. No cure is known for this disease.

TULIPS UNSATISFACTORY: G. H. The Tulip bulbs are destroyed by the fungus, *Botrytis*. The pest is in the soil, which should be dressed with lime. Asters are attacked by the same disease, and *Botrytis* has, no doubt, been responsible for the failure of your Aster plants. It will be necessary to place a fence or wire-netting around Tulips in a park where deer are kept.

Communications Received.—G. B.—I. S. E.—R. I. L.—E. R.—E. P. Hants—A. P. F. K. Germany—A. C. S.—W. J. C. T. J. Suffolk—J. H. R. F. W. A. C.—G. E.—J. G. S. A. J. W. S., Fulding—C. T. D.—E. C. B.—B. & Sons—G. F.—P. C. Leeds—E. W.—R. A. M.—Pemb.—H. W. E. K. T.—Ferns—A. H.—Dr. R.—Liketoknow—M. D.



THE

Gardeners' Chronicle

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CONTENTS.

Alpine garden, the—		Orchid notes and gleanings—	
Saxifraga aizoon baldensis ..	251	Orchids at the Ridge ways, Haslemere ..	243
Saxifraga Elizabethae ..	250	Pleiocarpa mutica ..	242
Veronica filifolia ..	250	Potato blight, recent investigations on ..	248
Books, notices of—		Potato prices ..	250
A Research on the Pines of Australia ..	243	Rose "Marcella" ..	251
Canarina Campanula ..	249	Scotland, notes from ..	245
Cardiff public parks ..	241	Societies—	
Colonial note ..	242	British Gardeners' Association ..	255
Cornwall, the weather in ..	252	Horticultural Club ..	254
Daffodils, a display of ..	249	National Anemula and Primula ..	249
Elm tree at Hampton Court, accident caused by an ..	250	North of England Hort. ..	255
Fernery, the—		Royal Meteorological Selborne ..	249
Spring treatment of hardy Ferns ..	242	Survivors' Institution ..	250
Fokiensia Hodginsii ..	253	Sullivan, Miss, the late ..	250
Forestry, the development of ..	253	Trees and shrubs—	
Gumbleton, the late Mr. ..	255	Arundinaria fastuosa ..	252
International horticultural exhibition ..	250	Asimina triloba ..	252
Iris, notes on ..	251	Phyllostachys Castillonis ..	252
League of Mercy flower show ..	250	Tulipa, some species of ..	241
Lithospermum prostratum ..	253	Vines, forcing ..	253
London's municipal nursery ..	250	Walworth, flower gardening in ..	250
McKenzie, Donald, the late ..	250	Week's work, the—	
Obituary—		Apiary, the ..	246
Fassotte, J. Antoine ..	256	Flower garden, the ..	246
Finlay, William ..	256	Fruits under glass ..	246
Melville, John ..	246	Hardy fruit garden, the ..	247
Roland, Walter ..	256	Kitchen garden, the ..	247
		Orchid houses, the ..	247
		Plants under glass ..	247

ILLUSTRATIONS.

Canarina Campanula ..	249
Cathays Park, Cardiff, view in ..	245
Fokiensia Hodginsii, seedling plant of ..	253
Nesting boxes used in the Brent Valley Bird Sanctuary ..	254
Pleiocarpa mutica ..	242
Rose "Marcella" ..	251
Victoria Park, Cardiff, views in the ..	244, 245

SOME SPECIES OF TULIPA.

THERE is usually a preference in gardens for the named varieties of Tulips which have been raised from seed in such great quantities of late years. As affording some justification for this preference, it must be admitted that the brilliant self colours and mixed hues in almost endless diversity are most effective in beds and borders, whilst a great advance has been made in the past decade in the Cottage and Darwin sections. Showy, however, as are many of these named varieties, the true species are at least as fascinating, and the flower-loving amateur who once interests himself in the culture of the latter is not likely to regret his enterprise: for the flowers of many species of Tulipa outvie the varieties in delicacy of tint, and in grace of form and fragrance. The following are handsome species, well worthy of extended cultivation, and they have flowered well with me for the past few years.

TULIPA CLUSIANA, generally known as the Lady Tulip, is a native of the Mediterranean region, whence it was introduced into this country nearly 500 years ago. It is a slender-growing species, with narrow, tapering leaves and delicately-formed flowers, which are white, flushed on the exterior with carmine-red, and rich violet at the base on the inner surface. The flowers are small, but they are very pretty when skilfully ar-

ranged in a glass vase. The species thrives best in a warm, dry spot in soil with which rock chippings are mixed, but in heavy, damp ground the plants sometimes decay. The species blooms in April, and produces a charming effect in the rock-garden. T. Clusiana is a great runner, and will spread far away from the spot where it is planted, so that it is well to sink flat stones around the bulbs to prevent their escape.

T. BATALINI is a beautiful dwarf species from Asia Minor, and is an excellent plant for a choice nook in the rock-garden. It has long, tapering leaves, and the flowers (the petals of which are pointed) are of a beautiful, soft, pale yellow, and are deliciously fragrant. Its blooms are each about 3 inches long, and the plants flower in April. T. Batalinii is one of the daintiest of Tulips.

T. CELSIANA, also known as T. australis, is a native of Persia. The flowers, which are yellow tinged with red on the outside, droop before expansion. The plants bloom in May and June, and frequent meadows in the chalky mountains at an elevation of nearly 7,000 feet. The species is, apparently, closely allied to T. sylvestris.

T. ELEGANS is a very handsome Tulip. The growth is strong, and the flower is of the richest crimson, while it is even larger than the showy T. Greigii. The petals of the flower narrow to a point. T. elegans is supposed to be a hybrid between T. acuminata and T. suaveolens; but, if so, it is decidedly superior to either parent. In the variety alba the petals are white, with a narrow margin of crimson.

T. IXIODES is held to be a form of T. Gesneriana. It is a lovely flower, growing about 2 feet in height. Its blossoms are of a soft, canary yellow, and in the interior is a deep black base, which is very effective, and makes the flower distinct from others of its class with yellow blooms.

T. GESNERIANA is the best known of the Tulip species, and is largely grown in gardens. It is very hardy, and does not require annual lifting, as do most of the species, but succeeds well if left in the ground year after year. Its form, major is a very fine flower, of large size, and a bed of this in full bloom is a gorgeous sight. The colour of the blossoms is a glowing crimson.

T. FLAVA is a noble Tulip, and one of the latest to flower. It often attains a height of close upon 5 feet, and has stout stems and leaves. The blossoms are each about 5 inches in length, with pointed, slightly reflexing petals, of a clear yellow colour. It is very strong and free in growth, and of the easiest possible culture. Towering above its fellows, with the sun shining on its bright flowers, it presents a lovely picture.

T. GREIGII, a native of Turkestan, is one of the most gorgeous of all Tulips. Its large, goblet-shaped flowers are brilliant scarlet, and there is no Tulip that can excel it in vivid colouring. Its broad, glaucous leaves are irregularly striped and spotted with purple, which gives it a distinct character. In my garden, it is grown in a bed by itself, and when 20 or more blossoms are expanded simultaneously the effect is superb.

T. KAUFMANNIANA holds a foremost position among the many rare and beautiful species of Tulip in cultivation in gardens. It is certainly one of the handsomest of the early-flowering species. Its broad petals reflex considerably, and the flowers often attain a diameter of 5 inches. The blossom is a creamy-white, often overlaid with carmine-red. The buds are tinted externally with crimson, and the interior of the

flower is bright yellow. The open flowers of T. Kaufmanniana have been likened to those of a Water Lily. It grows to a height of about a foot, and is an early bloomer, generally flowering in March, though this year several of the blossoms were open in February. It is a native of Central Asia, and was introduced in 1877. In its variety aurea the ground colour is golden-yellow.

T. KOLPAKOWSKIANA is a very handsome Turkestan species, flowering in April and May. It is one of the most variable in flower-colouring, hardly two bulbs producing blossoms of the same tint. The flowers are often yellow flushed with scarlet, some are pure scarlet, and the charming blending of hues in a large group is very attractive. The plant has lanceolate leaves, from 5 inches to 1 foot in length, and the flower-buds are pointed.

T. SAXATILIS, a native of Crete, is a charming Tulip, and one of the earliest to flower, often being in bloom in February. The blossoms are faint rose in colour, with a base of deep golden-yellow in the interior. The flower stems are about 3 inches in height, and the blooms are nearly 5 inches long. In my own case, every bulb flowered in the first year, but in the second season only two out of the dozen bloomed. On visiting a friend in whose garden there were fully a hundred of these Tulips, I found that only about a dozen were blooming. Being in a garden in the neighbourhood of Truro in the spring, I saw T. saxatilis flowering finely in a border, and asked whether the bulbs had been lifted, and was told that they had not been disturbed for five years, so last summer, when all the other species of Tulips in my garden were lifted, T. saxatilis was left untouched, in the hope that this treatment would induce it to bloom.

T. LINIOLIA is a very pretty Tulip, with narrow leaves, and flowers of an intensely dazzling scarlet; they are furnished with pointed petals. The flowers are very charming, and second to none in brilliance.

T. STRANGULATA MACULATA has soft, primrose-yellow flowers with a conspicuous black centre. There are two other forms of T. strangulata, namely, primulosa (a self primrose-yellow) and picta (primrose-yellow, shaded rose on the outside of the petals), but none but T. strangulata maculata is grown here.

T. TUBERGENIANA was found on the high mountains of Central Bokhara, about eight years ago. It is, without doubt, one of the finest Tulips yet introduced, and has flowered splendidly for the last two years. Its immense cup-shaped blossoms are of intense scarlet, and often measure as much as 6 inches across. At the base of the petals there is a black blotch. The flower-stem is erect and tall, and the glaucous leaves are of great size. It is very robust, perfectly hardy, and does well in English gardens.

T. OSTROWSKIANA, from Turkestan, is a graceful plant, attaining a height of 18 inches. The leaves are narrow, and the flowers, which are each about 5 inches in diameter, are of a brilliant scarlet.

All the species I have mentioned are grown in this garden, but one Tulip that is not a distinct species is included for effect. This is La Tulipe Noir, which is as nearly black as any flower can be. It is a very strong grower, attaining a height of considerably over 2 feet, and it often bears two flowers on a stem. The Sultan, listed as black, was formerly grown, but it was found not to be so dark as La Tulipe Noir, and was discarded. *Wyndham Fitzherbert, Kingswear, Devonshire.*

THE FERNERY.

SPRING TREATMENT OF HARDY FERNS.

THE rapidly increasing popularity of hardy Ferns, and particularly of the innumerable beautiful varieties of our native species, justifies a few notes as to the best method of dealing with these plants in the early spring, when new growth is commencing, and an overhaul is necessary. Some time before any growth is obvious, the roots of Ferns awake to activity, and close inspection will show in most species that the crowns or growing centres are swelling, and preparing to lift the plummy foliage already closely coiled within them. After the long winter's rest, Ferns, like other plants, are in a vigorous condition, which enables them to withstand disturbance, and to make a fresh start afterwards. The coming frondage, too, being still tightly packed and immature, is far less liable to damage than later on, when the leaves have expanded their delicate tissues, and, furthermore, are making an ever-increasing demand upon the roots as their surface increases. If we now examine the caudex or rootstock of a Fern

Ferns and their kin, and Shield Ferns, as these tend with age to grow well out of the soil, and are thus, more than others, exposed to the risks described. Ferns, on the other hand, of a more or less burrowing character, like the Polypodies, Bladder Ferns, Bracken in its beautiful varieties, and others, can take care of themselves, the soil itself constituting their protection, but even with these Nature provides an annual mulching of dead leaves, and this is, therefore, beneficial under culture. Obviously, from what is stated above, the present is the fittest time of all the year for starting collections, rearranging them, and particularly for propagating by division, since there are, as we have indicated, no delicate fronds as yet to damage, and root action is most vigorous to encourage re-establishment after shifting. If we examine old established plants of the crown-forming type, we shall usually find the originally single crown to have developed into a bush of several or even many, the result being when the fronds are developed a mass of intermingled foliage, in which the distinctive character and habit is more or less lost or distorted. The size of the fronds will also be dwarfed considerably.

duces lateral growth, in which case the foregoing remarks apply. This family, however, in many of its forms, and particularly its so-called proliferum varieties, is apt to develop small plants on the fronds themselves, usually near the base, and these can be severed with an inch or so of the frond, and will root if layered and kept close, or even if inserted at the edges of pots.

Hartstongues belong to the crown-forming section, but on less obvious lines, and good specimens are best left alone. In time, however, when separate growths are clearly shown, they can be prised off with their own roots like the crown-forming species proper. Creeping Ferns, like the Polypodies, can be multiplied by cutting up the rootstocks into pieces consisting of a bunch of roots and a growing tip or two, each of which will readily root, and in time form a specimen. Under glass, the same measures are adopted for propagating, and repotting should now be attended to, using only slightly larger pots, unless the plants have obviously been checked last season for want of room, or are of exceptionally vigorous growth, when a shift on a more liberal scale is recommended.

Pots too large for weakly plants are more likely to spell death than success. Spores of last season may now be sown with advantage. C. T. D.

PLEIOCARPA MUTICA.

THE genus *Pleiocarpa* is endemic to tropical Africa. So far, none of the species has got into general cultivation, though several may be seen occasionally in botanic gardens. *P. mutica* forms a desirable stove shrub, producing a profusion of its beautiful white flowers. The species was first discovered by Mr. G. Mann, in the Cameroons; it has also been found in Old Calabar, and plants from this latter district have been introduced to cultivation. The specimen shown in fig. 105 was grown in one of the plant-houses in the Glasgow Botanic Gardens, and Mr. Whitton, the superintendent, informs us that it was only removed out-of-doors for the purpose of obtaining the photograph. The plant loves heat and moisture, such as are afforded *Ixoras*. In its natural habitat it forms a shrub about 5 feet high, with somewhat tawny branches. The plant is of interest morphologically, in having five carpels, instead of two usually present in members of the Apocynaceæ.

COLONIAL NOTE.

HARDENBERGIA COMPTONIANA AND PODALYRIA CALYPTRATA IN NEW SOUTH WALES.

HARDENBERGIA COMPTONIANA, an exceedingly robust, floriferous, climbing plant, somewhat similar to our New South Wales *H. monophylla* Vent., is a native of Western Australia. The flowers are of a paler blue colour and smaller than those of *H. monophylla*, but they are more abundantly produced, and the racemes are larger.

PODALYRIA CALYPTRATA (syn. *P. biflora*) is indigenous to South Africa. The flowers are arranged in pairs, and are of a pale blue colour. The principal attraction of the plant is found in the silvery foliage, which is often confused with the leaves of *Leucadendron argenteum*, the "Silver Tree" of the Cape. Indeed, *Podalyria calyptrata*, *P. sericea*, and *P. argentea* are often substituted for the genuine "Silver Tree." The plant is propagated readily from cuttings, layers, or seeds. It is a comparatively new species in Australia, and, as it breaks readily into growth after clipping, it should prove a suitable subject for hedges. J. L. Boorman, Sydney, New South Wales.



FIG. 105.—PLEIOCARPA MUTICA FLOWERING IN THE GLASGOW BOTANIC GARDENS.

of the shuttlecock or crown-forming habit, we shall find a multitude of fresh roots pushing out from the bases of the immature fronds, and it is largely to these roots that the season's growth will be due, though the soil may be pervaded with a system of older roots acting as accessories. In the open, Nature protects these incipient feeders by means of the old, decaying, or even dead fronds of the previous season, according to their deciduous or evergreen character, and where Ferns thrive in woodlands or sheltered glens, a liberal mulching of dead leaves also assists in this connection. Hence it is not wise to make too drastic a clearance of the debris on the rockeries or beds occupied by outdoor Ferns, and if the fronds must be removed for the sake of tidiness, a good mulching of old leaves should replace them, so as to avoid exposure of the fresh roots and of the crowns themselves to the risk of the drying winds of March or April. Still, green fronds of the evergreen species should be left intact for the present.

This precaution is the more essential in Ferns of the upright growing type, the male

so that instead of one beautiful all-round specimen, with fronds 3 or even 4 feet high, and its tassels or other particular character developed to the full, we have a bunch of fronds of half the size and of much inferior type. On close examination we shall find that these additional crowns have been developed either by the formation of lateral offsets by budding, or by fission or splitting up of the original crown. Each of these, in either case, is really an independent plant with its own system of roots. The lateral offsets can be easily forced off the main stem by a blunt trowel, and come away all ready rooted, only needing planting elsewhere or potting as the case may be. In the split crown, the branches are usually attached together by a very solid neck and in this case time must be given for each crown to lift clear from its neighbour, when a cut into the connecting neck with a sharp knife will permit of the crowns being pulled apart and planted separately like the others. Most of the Shield Ferns are less apt than the others to multiply in this way, unless their original crown has been damaged, when the central check in-

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT THE RIDGWAYS,
HASLEMERE.

THE garden containing the range of Orchid houses belonging to Samuel Larkin, Esq. (gr. Mr. Hale), at Haslemere, is some 650 feet above the level of the sea. The collection is not a large one, but it includes an unusually large number of species, amongst which the *Phalenopsis* and *Vandas* are exceptionally noteworthy. On the occasion of a recent visit we noticed at the entrance to the first range a very fine show of flowers, including *Cattleya Trianae* in numerous varieties of great merit; and some of the dark-coloured forms from freshly-imported plants were even better than others distinguished by varietal names. *Vanda suavis* and *V. tricolor* were finely flowered, also *V. Amesiana*, the pure white *Saccolabium Harrisonianum*, some excellent examples of *Phalenopsis Schilleriana*, *Lycaste Skinneri*, together with a well-flowered specimen of the pink form of *L. tricolor*, and one of the rare *L. xytriophora*, together with flowering plants of various *Odontoglossums*, *Oncidium ampliatum*, and *O. Kramerianum*. *Dendrobiums* included forms of *D. noble*, the dwarf yellow *D. aggregatum*, *D. Wardianum*, and an exceptionally large, pure white form of this last-mentioned species, also *D. crassinode* and other Burmese species. The hybrids were chiefly forms of *D. Wiganiae* and *D. Cybele*. *Cypripediums* included *C. Euryades*, *C. Lathamianum*, *C. Lee-anum*, *C. Harrisonium superbum*, and some unnamed seedlings; there were also *Laelia peduncularis* and several *Cymbidium eburneum*, one large white form being much superior to the others. *Ada aurantiaca*, *Phaius grandifolius*, and many other species contributed to the show. Overhead was a shelf filled with *Cattleyas* and *Laelio-Cattleyas* in bud; they were placed in that position because it is found that, in dull weather, the buds mature and the flowers develop better when placed near the roof-glass.

The *Phalenopsis* house is a small, sunken structure, where a uniformly warm, moist atmosphere can be maintained always. It is filled with healthy plants, *P. Schilleriana*, some plants of which were in bloom, predominating. There were also some very fine plants of *P. Rimsteadiana*, with stout spikes, several grand specimens of *P. violacea* and *P. sumatrana*, *P. Ludde-manniana*, and various forms of *P. Aphrodite*. In bloom was a fine specimen of the rare variety *Kinlesideana*, with large, milk-white flowers, of fine shape, the upper sepals and petals having some rose markings, and the lateral sepals marked with small spots at the base, the lip tinged with rose, and with crimson lines on the side lobes. Considering the unsatisfactory experience many growers have with *Phalenopsis*, it was pleasant to see a small houseful in good condition.

The next range had in the first division a very rich collection of *Vandas*, the plants being in fine health and bearing leaves from the base. *Vanda tricolor* and its variety *suavis* were well represented; we also noticed a grand specimen of *V. Sanderiana* showing flower, *V. teres* and its hybrids, *V. Miss Joaquim* and *V. Marguerite Maron*, a good selection of *V. cœrulea*, and *V. Parishii*, also species of *Aerides*, *Angraecum* and *Saccolabium*, overhead being suspended various species of *Stanhopea*.

There were two very strong specimens of *Arachnanthe (Vanda) Lowii*, and one of these has recently produced its long sprays of singular and pretty flowers.

The next division contained species and hybrids of *Odontoglossum*, some being in flower, and a selection of *Masdevallias* and cool-house *Oncidiums* and *Sophrontis*. In the higher, span-roofed range is three divisions, the centre-stage is much elevated, and this stage was filled with a very extensive collection of *Cattleyas*

Laelias and *Laelio-Cattleyas*, including some good *Sophrano-Cattleyas* and *Brasso-Cattleyas*, some being in flower or bud. At one end was a selection of *Sobralias* in vigorous plants, promising well for flower in summer, and including the rare white *Sobralia Cliftonii*. Amongst the *Phaius*, *P. Sanderianus* and some other species were producing flower-spikes. On one of the side stages were representatives of species of *Cymbidium*, among them being some rare species which have not flowered. Beyond was an enormous, freshly-imported specimen of *Cattleya Mossiae*, some 4 to 5 feet across, and probably the largest mass ever imported. This should make a grand show when in bloom. Then followed a very large collection of *Dendrobiums*, a batch of *Oncidium incurvum album* in spike, and various other *Oncidiums*. A selection of good *Cypripediums*, with a fine *C. Curtisii*, *C. Haynaldianum*, the true old form of *C. barbatum grandiflorum*, and *C. Sedenii*. A collection of varieties of *Laela anceps*, both white and coloured forms, thrive well here in a light situation on a stage well up to the glass of the roof.

Considerable interest is given to Mr. Larkin's collection by the presence of a large number of pretty species not usually found in gardens, these include many *Bulbophyllums* and *Cirrhopetalums*, *Polystachyas*, *Eulophia Saundersii*, *Maxillarias Gorgoras*, *Ornithocephalus grandiflorus* with two spikes; various species of *Pholidota*, *Cœlogyne*, *Catasctum*, *Mormodes*, and *Pleurothallis*.

The evidence of seedling raising could be seen on a small scale on some of the pots in which the small green globes indicated that success in the early stage was already assured.

NOTICES OF BOOKS.

AUSTRALIAN CONIFERS.*

MESSRS. BAKER AND SMITH, to whom we are already indebted for a remarkable treatise on *Eucalypti*, have recently published an extensive work on the *Conifers of Australia*, which is issued at the expense of the Government of New South Wales. This sumptuous quarto volume comprises 458 pages of text, and is copiously illustrated with nearly 300 plates and figures. A novel feature is the reproduction of photographs taken by the natural-colour process, which illustrate the microscopic anatomy of the tissues. The figures are mainly of botanical details, but there are also interesting views of individual trees and forest scenes.

Australia, including Tasmania, is inhabited by 11 genera of *Conifers*—*Callitris*, *Actinostrobus*, *Diselma*, *Athrotaxis*, *Phyllocladus*, *Dacrydium*, *Pherosphaera*, *Microcahyrs*, *Podocarpus*, *Agathis*, and *Aracaria*. Only one of these—*Podocarpus*—is represented by species in the northern hemisphere. It is remarkable that no member of the great family of the *Abietineae* (*Pinus*, *Larix*, *Picea*, *Abies*, &c.) exists in the island continent.

The work under review is strongest and most complete in the investigation of the chemical properties of the oils, resins, gums, etc., yielded by the various species. The microscopical structure of the timbers is well illustrated; but little information is given of their economic use, and scarcely anything is said of the trees from the point of view of the forester.

The most important genus of *conifers* in Australia is *Callitris*, of which the authors enumerate 18 species, three being new. These are colloquially called *Cypresses*, and yield valuable timbers, which, owing to the presence of phenol, are not attacked by white ants, and are very useful on that account for house-building, posts, and railway sleepers. The authors have drawn attention to the important fact that the bark of these trees is rich in tannin, similar to that of *Tsuga canadensis*, in America. A remarkable discovery

* *A Research on the Pines of Australia*, by R. T. Baker, F.L.S., and H. G. Smith, F.C.S., pp. 468, figs. 298, with additional plates, and 3 maps. Sydney, 1911.

is the presence, especially in *Callitris*, but also in other Australian *conifers*, of manganese in the wood, bark, and leaves. This substance causes a darkening of the wood, which is more marked in some species than in others, and appears also to be variable in different individuals of the same species. In fact, this coloration appears to be similar in its nature to that of brown Oak in England. The authors consider that manganese may be essential to the growth of species of *Callitris*, but adduce no evidence to show that it is not an accidental feature, dependent upon the presence of this mineral in the soil, where particular trees happen to be growing.

The most important species of the genus is *Callitris glauca*, which is widely disseminated in all the states of Australia, occurring always at some distance from the coast. This tree attains 100 feet in height, and 2 to 3 feet in diameter. Most of the other species are smaller trees, more local in distribution.

Callitris oblonga.—This is a small tree, rarely attaining 25 feet high, but more usually a low shrub. It has recently produced cones in Sir John Ross of Bladensburg's beautiful garden at Rostrevor, Co. Down. The cones, nearly an inch in diameter, were produced in great abundance in a large cluster on the main axis of the plant.

Though it is not possible in this article to deal in detail with all the Australian *conifers*, the following notes may be of interest to cultivators in this country. The only species which may be expected to prove hardy are those which are natives of Tasmania.

Diselma Archeri has apparently not been tried in the open air in this country. It forms a small tree or large shrub, resembles its ally, *Fitzroya patagonica*, in appearance, and may be expected to be hardy in favoured spots in Ireland and south-western England.

Microcahyrs tetragona and *Pherosphaera Hookeriana* are small shrubs, which are occasionally to be seen under glass in botanic gardens. They might be tried in the open air, and, doubtless, would prove hardy in suitable localities.

The genus *Athrotaxis* includes three species, *A. selaginoides*, said to attain 100 feet in height, and *A. cupressoides* and *A. laxiflora*, reported to be 50 feet high in Tasmania. All are in cultivation in Great Britain and Ireland, where they have produced fruit. These species never seem to grow higher than 20 feet with us, but they are very striking and ornamental, and at Durris, in Kincardineshire, one of them has produced abundant seed, from which numerous seedlings have been raised, some of which are now planted out at Bayfordbury and in the Cambridge Botanic Garden. It is disappointing to find that Messrs. Baker and Smith have been unable to obtain specimens of *A. cupressoides* and *A. laxiflora*, and, in consequence, have thrown no light on the peculiar distribution of the three species in the small island of Tasmania.

Dacrydium Franklinii, the Huon Pine, is restricted to Tasmania, and no species of this genus occurs on the mainland of Australia. The other species occur in New Zealand, New Caledonia, the Malay Peninsula and Archipelago, Borneo, and Chile. *D. Franklinii* is reported to attain over 100 feet high in its native home, where it produces an excellent timber, with an aromatic odour, due to the presence of an essential oil. The wood becomes dull yellow on exposure, and is heavy, but is easy to work, straight-grained, and takes a good polish. It is used for cabinet work, and some specimens are of rare beauty, equalling that of bird's-eye Maple. This tree is occasionally cultivated in the open air, proving hardy as far north on the west coast as Castle Kennedy, near Stranraer, but the present writer has seen no specimens more than 20 feet in height.

Phyllocladus rhomboidalis attains 60 feet high in Tasmania at low levels, becoming a low shrub on the mountains. It is remarkable for its peculiar cladodes, and is very handsome. The

only specimen which we have seen out-of-doors in Britain is growing at Bicton, where it does not suffer even in severe winters; but it has never produced flowers or fruit.

This exhausts the list of the Tasmanian species, save for two species of *Callitris*, one very imperfectly known, and another, *C. tasmanica*, Baker and Smith, which was formerly named *Frenela rhomboidea*, R. Br. var. *tasmanica*, Bentham. It is a small tree, about 40 feet high, in its native home, but I do not know that it has ever been tried in this country.

Of the five species of *Podocarpus* which occur in Australia, one, *P. alpina*, occurs in Tasmania. This species has not been examined by Messrs. Baker and Smith. It is an Alpine shrub, occasionally 12 feet in height, and appears to be hardy in this country, at least, in the south and west.

Messrs. Baker and Smith treat at great length the two Australian species of *Araucaria*. *A. Cunninghamii* is a native of New South Wales, where it occasionally attains 200 feet in height. It yields an easily-worked, straight-grained timber, which is useful for indoor work, but soon decays on exposure. This beautiful tree is well

CARDIFF PUBLIC PARKS.

(Concluded from p. 234.)

THE southern slope of the embankment illustrated in figure 103 contains geometrical beds, which are bright from spring to autumn with bedding plants. *Violas*, a very bright form of *Aubrietia* (of a softer tint than *A. Hendersonii*), and double-flowered *Arabis* are largely used in the early months, and in summer the best varieties of *Pelargoniums* supply brilliant masses of colour. Paul Crampel and King Edward VII. were used last season for scarlets, relieved with the white foliage of "Flower of Spring" and the tricolor leaves of the variety "Mrs. Cox." The situation is admirably adapted for their display, as the slope throws them into view at some distance. Below is a bandstand and an open asphalted space. The stream leaving the lake thunders down a deep channel, with stone-built walls, surmounted by a fine bank of Gorse on the one hand, and mixed shrubs on the other. Here a tree of *Cytisus Adamii*—that remarkable graft hybrid—produces its own distinct flowers, and on the same tree the flowers

Tree (*Paulownia imperialis*) is also to be seen in this border.

From the cascade, a central path leads through the park towards the city, flanked on either side by many interesting and beautiful shrubs. Amongst these may be mentioned the European Date Plum (*Diospyros Lotus*), which bore a few fruits this year, *Viburnum plicatum* var. *tomentosum*, *Colletia cruciata*, and *Olearia stellulata*. Some, we think, would be surprised at the height and luxuriance of the specimens of the *Olearia*, which are from 8 to 10 feet high. We think the explanation is that there is in commerce a dwarf variety, which never attains a height of more than 3 or 4 feet; it has smaller leaves, and is of much smaller, compact growth, making an excellent shrub for the tops of the rockery. By this walk also is the Maiden Hair Tree (*Ginkgo biloba* syn. *Salsburia adiantifolia*), unique and ancient of lineage. It belongs to the *Coniferae*, and is, apparently, nowhere known in a wild state. In Japan, it is only found in the precincts of temples, where it has certainly been planted.

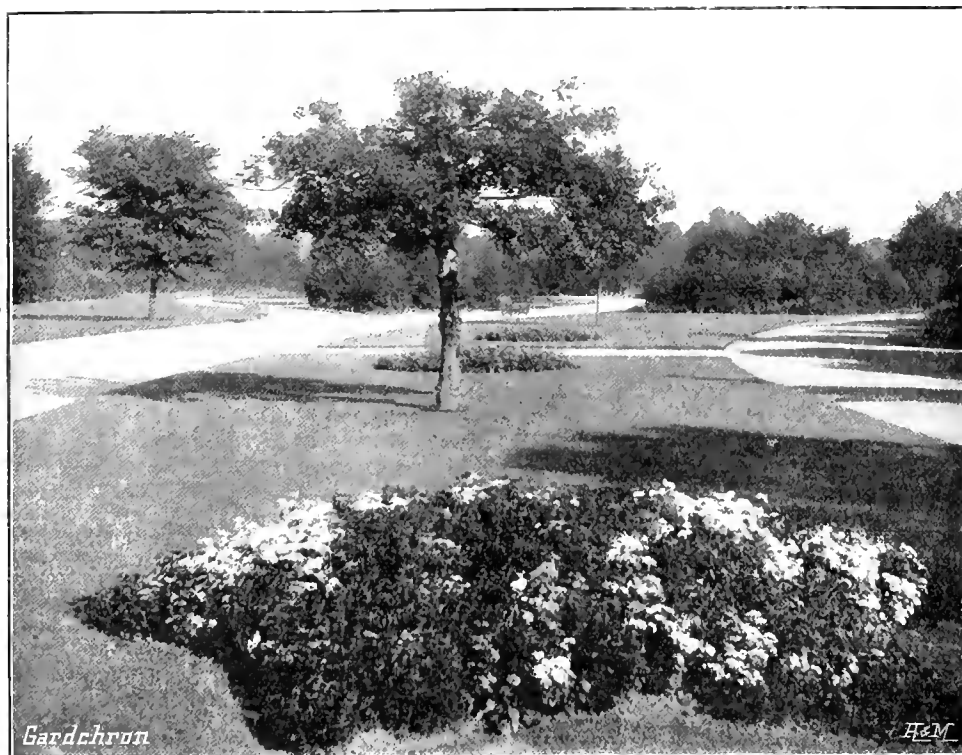
Another path, on the west, leads around a long, herbaceous border, which is kept bright in a wonderfully efficient manner. Amongst many effective plants, perhaps the great glory of this border is the frequently-occurring bold masses of the best varieties of *Kniphofia Uvaria*. The effect of these, looking down the border as the sinking sun catches them in the late afternoon, is truly magnificent.

Between the two paths is a grass space, in which a series of beds is cut out, containing a botanical collection of herbaceous and Alpine plants, arranged systematically in their Natural Orders. Although the primary object of these beds is use and interest, they are not without beauty when the plants are in full growth, and the position is so chosen that the perspective largely hides the regular, rectangular nature of the plots.

The remaining portion of this division of the park contains the fish hatchery—a low building, covered with *Vitis* and other climbers, and wall shrubs, a collection of specimen *Conifers*, and the rockery. This is constructed of rock of a warm, red colour, taken from an adjoining quarry of Silurian limestone. The presence of this quarry adds to the picturesqueness of the rockery, and appears to carry out the stratification suggested therein. Its top is clothed with copse, the resort of nightingales in summer, and it is a matter for regret that it was not included in the park. The rockery consists of a broad walk, bordered with rough, undulating, rocky banks, with occasional bold outcrops of stone. The water from the lake is led hither through a pipe, but seems to spring naturally from a cave, and trickles through a flat, grassy spot, in which some particularly fine *Orchis latifolia*, *Spiræas*, *Primula rosea*, and *Eryngium bromeliæfolium* are growing. The rockery is, of course, at its best in May, but a fair succession of bloom is kept up through the year, and it contains numerous fine Alpines. Many plants, such as *Arenaria balearica*, *Primula denticulata*, and *Anemone Pulsatilla*, which require some shade in the east of England, here flourish exceedingly in full sun, owing to the abundant rainfall. Very fine plants may also be seen of *Lithospermum prostratum*, *Primula sikkimensis*, and *Libertia formosa*, with its large, white flowers and evergreen leaves.

The remaining two portions of the park consist of 11 acres of pleasure garden, containing the veteran Oak (which is judged to be five or six hundred years old) that gives its name to the adjoining Fair Oak Road, and 23 acres of recreation ground.

As for the other open spaces in Cardiff, there is nothing that will at all compare either in beauty or interest with Roath. Each park has,



(Photograph by H. N. King.)

FIG. 106.—THE VICTORIA PARK, CARDIFF.

known in conservatories, but there does not appear to be a single specimen growing out-of-doors in England or Ireland, though a tree was long ago reported to have existed for some years in a dell at Bicton. No light has been thrown by Messrs. Baker and Smith on the supposed var. *glauca* of this species, which grows on rocky islands, and on the coast of Northern Queensland, and is possibly a distinct species.

A. Bidwillii, the Bunya Bunya, is a native of the coast district of Queensland, attaining 150 feet in height. Its timber is similar to that of *A. Cunninghamii*. A beautiful specimen of this tree is growing in the temperate house at Kew, but it cannot be expected ever to prove hardy in any part of the British Isles.

Messrs. Baker and Smith may be congratulated on the successful completion of this beautiful volume, which contains so much useful information about the conifers of Australia. A. H.

It is very confusing to find the word *Fines*, which we restrict now to the genus *Fines*, used in the title for conifers in general, and applied to trees like *Dacrydium*, which have Cypress-like foliage.

of the grafted species *Cytisus Laburnum* and *C. purpureus*. After a level reach, the stream passes behind a border of choice peat-loving shrubs, and falls in a cascade constructed of huge masses of red limestone. Tall, stately *Typhas* rise from the water above, and *Trollius* and moisture-loving plants are growing between the boulders below. The peat for this border is practically *in situ*, as found when the park was laid out. Such shrubs as *Pernettya mucronata*, *Gaultheria Shallon*, *Zenobia speciosa* (*Andromeda*), *Azaleas*, *Rhododendrons*, *Kalmias*, and *Heaths* flourish exceedingly, as does also *Clerodendron trichotomum*. Just opposite is the interesting *Conifer Taxodium distichum*, the deciduous *Cypress*. This interesting tree has a curious habit of producing conical protuberances on the roots and around the stem, and in the southern States of America these hollow excrescences are made use of as beehives. This habit has not been noticed in the specimens at Roath, probably because they are too young, as they do occur on some British specimens. Japan's *Sarrel*



Photograph by H. N. King.

FIG. 107.—A VIEW IN THE VICTORIA PARK, CARDIFF.

SCOTLAND.

A LATE AND DRY SPRING.

SELDOM have Scottish gardeners of the present generation experienced such a dry and cold spell of weather in April as that which prevailed in the first ten days of the present month. Cultivators of long experience state that they do not recollect seeing the soil so dry at this season before, and the deaths among newly-planted trees and shrubs may be enormous. Spring flowers have suffered a good deal from the dry, cold winds. Roses, which early in the year were growing too rapidly, have been injured severely. During the past few days the conditions have been more genial, but the absence of rain in the south of Scotland is most marked.

THE EDINBURGH SPRING SHOW.

THE receipts at the recent show of the Royal Caledonian Horticultural Society were within a few shillings of those of last year, and amounted to about £150 for the two days. This seems about the average, and shows that the spring exhibition is a considerable burden on the funds of the Society. Yet there is a general feeling that it would not do to abandon this show, which has been carried on, with few exceptions, at least for a number of years, and which has undoubtedly done a good deal to popularise early flowers in Scotland. Complaints are heard that the railway facilities are not so good as at the autumn show. At the time of the autumn exhibition, cheap excursion tickets are issued on certain days, these being in many cases only about a third of the cost of the ordinary return ticket. For the spring show, on the contrary, the railway concessions are only to the extent of charging fare and quarter from stations within sixty miles of Edinburgh. Scottish railway companies are not at present very ready to grant concessions in the way of fares, but in this case they would probably find it would pay them to do so, at any rate in the case of long-distance journeys. A strong effort on the part of the Royal Caledonian Horticultural Society might be productive of some good.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

CONSIDERABLE disappointment is felt at the decrease in the membership of the Scottish Horticultural Association as shown by the last report, the decrease being about 50. It cannot be said that there is any want to enterprise on the part of the association or its council which would account for this decrease. One point which has affected the number of nominal members has been the stricter purging of the roll of members, as those who have ceased to subscribe have not been retained so long on the list. Since Mr A. D. Richardson was appointed secretary and treasurer this matter has been given strict attention, with the result that the membership list may be taken, as a whole, only to be composed of the names of the real members. Probably the noticeable falling off in the growth of the large Chrysanthemum blooms has had something also to do with the decrease. One noteworthy point in the membership list consists in the fact that most of the members belong to or are working in the East of Scotland. This is only natural, as it is seldom that those residing in other parts of the Kingdom have an opportunity of attending the monthly meetings, and their sole returns for their subscription consist in the ticket of admission to the Chrysanthemum Show, which they may not be able to attend, and the annual issue of the *Transactions*. But 2s. 6d. is not a high price to pay for these, as well as the opportunity of at least occasional attendance at the monthly meetings, which are generally of great interest. Should the proposed institute assume a concrete form the advantages for outside members would be greater, and there is every reason why this vigorous association should be well supported by Scottish horticulturists. *Correspondent.*

however, a character of its own. Thus, Victoria Park, the next largest, situated at the other extremity of the city, proves of great interest to a large section of the public, for this park contains a collection of birds and animals, many of them brought home by sailors to the ports of South Wales—"where the world-end steamers wait." An eagle and an ostrich are conspicuous amongst the birds; jackals, beaver-rats, and South American coatis amongst the mammals. This park contains some fine specimens of Golden Hollies, and some huge clumps of *Arundinaria*

japonica (*Bambusa Metake*) may be seen at the sides of a pond.

Cathays Park, in which the new City Hall, the Law Courts, and college buildings are situated, possesses a unique feature in the Gorsedd Circle, which consists of a ring of upright stones, placed in certain time-honoured positions around the central, prostrate logan-stone, the throne of the arch-druid, on the occasion of the national Eisteddfod being held in the Welsh metropolis. These details were shown in one of the pictures contained in the supplement of last week's issue.



Photograph by H. N. King.

FIG. 108.—PORTION OF THE CATHAYS PARK, CARDIFF, AS SEEN FROM THE CITY HALL.



The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

ROSES.—Cuttings of Roses that were inserted six months ago are producing roots, and if the soil is poor, manure should be applied at once to ensure the production of vigorous growths. Pigeon or poultry manure is preferable to any other kind, but superphosphate should also be applied, as this favours the development of roots. A dry soil hinders growth, and, if watering is necessary, make shallow drills or furrows between every two rows, so that the water need not be applied all over the surface of the ground. In the case of free-growing varieties, thin out some of the shoots in order to strengthen those that are retained. It must also be determined later—in June—whether the young plants should be lifted and transplanted into the best soil available. There is no fear of harming the plants by transplanting them at that time, provided the work is done in dull weather, and a liberal application of water made immediately afterwards.

SHRUBBERY MARGINS.—It is usual in many gardens to dig the soil in the foreground of shrubberies, and to keep it tidy with a rake. Except in special circumstances, however, it is better not to do this, but rather to allow the lower shoots of the shrubs to overhang the grass. This necessitates mowing the latter with the scythe several times a year; but probably no more labour is required in the one case than in the other. If the shrubs are in close proximity to a path, the spaces between and in front of them may be enlivened with such flowers as Snowdrops, Erythroniums (Dog's-tooth Violets), Colchicums, Narcissi, Crocuses, both spring and autumn flowering Scillas, including *S. italica* and varieties of *S. nutans*, Ornithogalums, Foxgloves, *Lilium testaceum*, *Anchusa sempervirens*, and *Geranium pratense*. Seeds of grass may be sown now; but if birds are numerous, delay the sowing for a few weeks, and then use rather more seeds. Where fresh gravel is needed, it is much better to provide it before the paths become too worn. Weeds will be appearing, and where weed-killers are not employed, the paths must either be hand-picked of weeds or hoed. In Scotland, the gravel is not usually rolled to a hard surface, but raked neatly.

APERA ARUNDINACEA.—This pretty grass was omitted from a short list of names in a recent Calendar, but it should have been included. Plants may be raised from seeds easily, and a sowing should be made at once, although, being a perennial, flowers will not appear till another year. Old plants may be increased by division. Both foliage and "flowers" are a ruddy purple hue, exquisitely graceful, and of value not only in the flower-garden, but also for decoration indoors. The species is nearly, but not absolutely, hardy.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

DISBUDDING.—The disbudding of Peaches and Nectarines should be commenced early. First of all the foreright shoots and those growing towards the wall should be rubbed off, gradually proceeding with the operation until all necessary growths are removed, retaining those only that are essential for the proper development of the tree. Disbudding is a species of pruning, and, if carried out judiciously, it prevents the necessity for much autumn or winter pruning. If performing this operation, great discrimination is necessary, for, if done carelessly, or too hastily, permanent disfigurement of the trees will result. It is best to carry out disbudding at several operations, rather than to cause the trees a severe check by removing numerous shoots at one time. Every part of the tree should be examined, working, as a rule, from the higher branches of the tree, where the shoots are usually more vigorous, gradually downward to the lower branches, where the growths are weaker. A mistake is frequently made in leaving too many shoots, which prevent the sunlight and air from reaching every part of the tree. Sufficient growths should be retained to

provide for any requirement likely to arise, but no more than this. Endeavour to secure a young growth at the base of the bearing wood, to be laid in for fruiting during the following season, allowing the growth at the extremity of the fruiting wood of the current year to grow for a time for the purpose of drawing the sap in the direction of the fruit situated between this and the basal growth. The terminal shoot may be stopped when it has made 5 or 6 inches of growth, if not required for extension purposes. As to the leaving of other growths midway between those already mentioned, their retention will depend entirely upon the judgment of the operator as to whether they are required for the further extension of the tree, but the distance from shoot to shoot should not be less than 4 inches, otherwise the shoots will become overcrowded. In regulating the young growths, it is sometimes necessary to remove portions of the non-fruit bearing wood made in the previous year, in order to provide space for the training of the young growths. This should be done without hesitation, especially if the young growths are near the base of the branches towards the centre of the tree. Should these growths be extra vigorous, they may be stopped after having made 6 or 8 inches of growth, and the side growths which they produce afterwards may be trained. Vigorous growths of this kind are too frequently allowed to go unchecked, whereas, by judicious stopping, lateral shoots are produced that will prove valuable fruiting shoots, and, by indirect influence, lessen the need for root-pruning.

CHERRIES growing upon south or west walls are at about this time liable to the attacks of the black aphid, these often making their appearance when the young shoots are not more than an inch or so in length. These, if allowed to go unchecked for any length of time, will seriously cripple the growths for the season. At an early stage, therefore, remedial measures should be employed to destroy this pest by applying an approved insecticide. The old remedy of mixing together about one gallon of water, one ounce of soft soap, and a small wineglassful of paraffin will often serve the same purpose, but care should be taken to use only a moderate quantity of oil, and to keep the ingredients thoroughly well mixed during the application of the liquid.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

BANANAS.—The culture of Bananas may be undertaken if space can be afforded them in a large house where there is a good supply of artificial heat. At Aldenham we grew them a few years ago in a three quarter span house, and we planted out into brick pits made in the border. The plants produced excellent fruit, and some of the clusters weighed more than a hundredweight. During the growing season the plant requires a rich rooting medium, and copious supplies of water and manure in a liquid form. Generally speaking, Bananas require similar treatment to that of a stove plant, and frequent dampings and sprayings with water warm to the temperature of the house are beneficial. The surface of the soil may be mulched with well-rotted cow manure. Suckers should be potted up for forming fruiting plants for next season, or they may be allowed to remain on the parent plant. The best variety for growing is *Musa Cavendishii*, which has the further advantage of being dwarf in growth.

ORANGES AND CITRONS.—Though these fruits are not cultivated largely in this country, there are still some establishments where a house is set apart for them, and those treated with all the care usually given to indoor fruit trees produce fruits of exceedingly good flavour; but if the plants are grown under conditions resembling greenhouse treatment, the fruit is not ripened sufficiently fast to develop the best flavour. Apart from their fruit-production, the plants are of great decorative value, and the flowers are highly prized. If the pots can be plunged in a mild hot-bed composed of tree leaves, this will be found of much assistance in promoting a healthy leafage, especially if the trees have become in any way sickly. Watering must be done carefully, especially after potting and until it is ascertained that the roots are active; when the fruits are swelling, occasional applications of

manure water may be applied. Excepting when the trees are fully in flower they should be syringed at the least twice daily in bright weather, and though this should be sufficiently brisk to keep the foliage clean, it is at the same time an easy matter to apply it too roughly and cause injury to the young growth. Maintain a moist atmosphere by frequently damping the floors and other parts of the house. An intermediate temperature will suit them, and air should be admitted cautiously excepting when the weather is warm. The trees are liable to attacks of thrips, scale, and red spider, and it may be necessary to sponge the foliage with a solution of soft soap and water.

MONSTERA DELICIOSA.—This plant might be employed more frequently for covering a wall in a stove house in a moist and shaded position. If planted in a bed of rich soil it grows freely, and the large curiously-divided leaves are freely developed. The fruit possesses a rich and delicious flavour, and it furnishes a good dish for the dessert.

PASSIFLORA EDULIS.—When plants of this *Passiflora* are allowed to develop to their full extent, for instance, on the roofs of conservatories and other glass structures, they are particularly elegant and attractive, both when in flower and fruit. Plants that are growing freely need copious supplies of water and manure water. Afford a mulch to the surface of the border if the *Passiflora* is planted out.

THE APIARY.

By CHLORIS.

EXAMINATION OF HIVES.—As the end of April draws near it is necessary, on a suitable day, to make the most important examination during the year of the hive. If plenty of brood and eggs are seen, it is not necessary to search for the queen. The beekeeper should note the amount of brood and sealed food. A comb containing the latter may have the cappings bruised with a knife, and every three or four days another comb may be treated similarly. It is best to remove the bees to a perfectly clean hive, using clean, dry quilts. The expense of new quilts is not great, and the advantage of cleanliness cannot but prove advantageous to the health of the bees. The old hive should be scraped clean, and afterwards washed thoroughly with very hot soda-water to which a little carbolic acid has been added. If this system is adopted each colony has a fresh, clean hive every year.

FRAMES.—During the examination remove all unshapely combs and those that are clogged with pollen. If this is not done the bees will waste much valuable time in gnawing away the cells, and the pieces will make the floor of the hive foul. The frames used to replace these should be fitted with full sheets of foundation, and should be fully wired. Never put in more than one new comb at a time, placing it in the centre of the brood chamber, and adding the others at intervals of about nine days.

FEEDING.—At this time of the year bees need a considerable amount of food to raise brood, and therefore one or two holes should be made in the upturned lid of the feed bottle. When new combs are added the bottle should be placed above each as it is added. Afterwards the bottle should be placed above each comb on the outside of the brood nest containing no brood, and this will cause the queen to lay eggs in such combs, thus extending the brood.

TIME TO EXAMINE THE HIVES.—It is much easier to manipulate bees during bright, warm weather, for then plenty of honey is available, and the bees are busy. It is also better to make the examination during the middle of the day rather than during the evening or late afternoon. Do not use the smoker more than is absolutely necessary, and do not keep the hives open longer than is needful.

DISEASES.—The beekeeper should make himself thoroughly acquainted with the symptoms of the various diseases, so that he may be able to detect any if present during this spring examination. Should disease be discovered, deal with it promptly, not hesitating, if it be serious, to destroy the colony, and should the combs from such hives be melted for their wax, do not sell the latter to the makers of foundation, as there are plenty of purposes for which wax may be used without adding to the dangers of spreading disease.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westbourne, Gloucestershire.

ONCIDIUM.—The *Oncidium*s constitute one of the largest families of Orchids, and the genus is also an important one from a garden point of view, for there are no other inexpensive Orchids that surpass the beauty of their flowers. The majority may be cultivated without difficulty, but some require great care to maintain them in a robust condition, as the large, branching, many-flowered inflorescences are a great drain upon the energies of the plants. Indeed, some kinds are so free in flowering that the plants either die or become so enfeebled as to make it a useless task to try to revive them. For this reason it is advisable, in the case of special varieties, to remove the flower-spikes before they develop, in alternate years. But with ordinary varieties this is not necessary, as the plants are imported annually in such large numbers that fresh specimens can be purchased for a few shillings each. The spring and early-summer flowering *Oncidium*s, such as *O. Marshallianum*, *O. concolor*, *O. cucullatum*, *O. obliquatum*, and *O. microchilum*, are developing their flower-spikes in the cool intermediate house. All these plants will require a moderate supply of moisture at the roots. *O. varicosum* and other late summer and autumn flowering hybrids and species as *O. Forbesii*, *O. crispum*, *O. dasystyle*, *O. tigrinum*, *O. Mantinii*, and *O. Gardneri*, are starting into growth again after their long rest since last season's flowering. Young roots soon push forth from the base of the new growths, and when these are observed fresh rooting material should be afforded at once to any plants that require it. For dwarf-habited and compact-growing *Oncidium*s pans or baskets are the most suitable receptacles, and these should be well provided with drainage. A compost consisting of equal parts *Polypodium* and *Osmunda* fibres and moss chopped and well mixed together is suitable for potting purposes. The potting should be done moderately firmly, surfacing the plants with clean *Sphagnum*-moss. These *Oncidium*s are best grown close up to the roof glass in a cool, intermediate house where they receive plenty of fresh air. During the early stages of their growth water must be applied with care, as excess of moisture would cause the new growths to damp off, but when the young roots are ramifying freely in the new compost they must never be allowed to become dry. An abundance of moisture in the atmosphere is necessary during the growing season, when overhead syringing should be practised on fine days. A dry atmosphere favours the spread of thrips and red spider, both serious pests to the plants.

PLEIONE.—Plants of *Pleione* are growing and forming roots freely. An increased supply of water will be needed in the soil, and occasional doses of weak liquid cow manure may be given with advantage. *Pleiones* should be afforded a light position close to the roof glass in the intermediate house; on bright days the under sides of the leaves should be syringed freely to keep insect pests in check.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

TREATMENT OF SEEDLINGS.—As soon as the seedlings of vegetables can be distinctly seen above the ground, the hoe should be used freely between the rows, in order to loosen the soil, which has been beaten down with snow and rains. The stirring of the soil will not only destroy small weeds, but it will provide some protection from cold winds. Carrots should be thinned to 2 inches apart, for the first thinning, as soon as they are large enough to handle; a fortnight later they may be still further thinned by pulling out every second plant. This will leave the seedlings 4 inches apart, which is quite enough room for early Carrots. Carrots intended for the production of roots for showing should be allowed more than double that space. After each thinning, apply a slight dressing of soot, and stir the soil between the rows by means of a Dutch hoe. Parsnips may be treated in the same way, allowing 4 inches for the first thinning. Those sown in specially prepared holes should be carefully examined; two strong seedlings should be left near the middle of each hole, to be thinned to one plant later.

CABBAGE.—Young plants raised from seeds sown in early spring should now be ready for planting out. They will take the place of plantations made last September, and enable the cultivator to clear the ground as soon as the heads have been cut, instead of leaving the stumps to supply greens through the summer. Those plants growing freely should have soil drawn up to their stems in sufficient quantity to keep them from being shaken by rough wind, and a sprinkling of artificial manure may be applied with advantage when rain is apparent. To keep up a supply of young Cabbage throughout the season it is necessary to make frequent sowings of some approved variety. A sowing may be made now to afford supplies through August.

TURNIPS.—Turnips may be sown now to come into use before the weather becomes too hot. Snowball and Red Globe are good reliable sorts for this purpose, and will keep in good condition for some time after they become large enough for use. As the season advances a cool situation should be chosen for this crop, and frequent small sowings made, so that a supply of crisp, young roots is kept up.

PEAS.—Main-crop varieties of Peas should be sown at the present time to produce young pods about the middle of July. Matchless Marrow, Royal Salute, and Superlative are suitable sorts for this sowing. A distance of 5 feet should be allowed between the rows, and the drills for this sowing should be made several inches deep, and the seeds covered with half the soil taken from the drill, the remainder being used for earthing-up the plants when large enough. This is preferable to sowing Peas in shallow drills and earthing up the plants by forming ridges, which throw off the rainwater from the roots at a time when it is most needed. When the young Peas are large enough the sticks should be placed in position, and some protection from rough winds provided by placing evergreen branches on the colder side of the rows.

CARDOONS.—These may be sown now in small pots, and placed in a pit moderately heated. When the plants are large enough pot them on, and gradually harden them off for planting out in the latter part of May.

RADISHES.—Frequent sowings of Radishes should be made in situations where the plants are likely to grow quickly.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

EUPHORBIA JACQUINIÆFLORA.—The present is a suitable time for inserting cuttings of this useful, decorative greenhouse plant. Select short, stocky shoots from plants which have been grown in full exposure to the sunshine. The best shoots for the purpose usually develop just below the flowering raceme, and should be taken off with a portion of the old wood attached. Insert four cuttings close to the side in a 60-sized pot. If placed under a bell glass or cutting frame in a warm house, they will soon form roots. When a sufficient number of cuttings have been obtained, the old plants may be cut hard back. These old specimens will later send forth two or three flowering growths that will in all probability come into bloom earlier than the plants raised from cuttings. If room is available, this *Euphorbia* does best planted out, but it must be in a position where it receives all the sunshine available. A cool stove will be found suitable for the culture of *Euphorbia jacquiniæflora*.

EUPHORBIA (POINSETTIA) PULCHERRIMA.—In gardens where there is a demand for large specimens of *Euphorbia pulcherrima*, it will be advisable to raise a batch of plants as soon as possible. The old specimens retained for stock purposes have presumably up to now been kept in a cool atmosphere for the purpose of resting the plants, but now that they are showing signs of growth again a little more warmth should be afforded, and, as in the case of *Euphorbia jacquiniæflora*, exposed fully to the sunshine. I prefer in this case also to take the cuttings with a "heel" of the old wood attached. They will root readily without the use of pots if they are placed in cocoanut fibre over a bottom heat, mixing a little sand with the fibre. Guard against an excess of moisture, for the foliage is

tender and susceptible to damping. These *Poinsettias* may also be readily raised from "eyes," but I prefer cuttings. The variety *roseo-carminata* is very early in developing its bracts, and should be selected for an early display. The double-flowered variety *plenissima* requires a long season of growth, and therefore the cuttings should be inserted without delay. The double variety is worth growing, being useful late in the season for decorative purposes.

PLUMBAGO ROSEA AND P. COCCINEA.—These two *Plumbagos* are very showy subjects and bloom during the dull period of the year. Cuttings of both species should now be inserted, selecting short-jointed and comparatively hardy growths, as these furnish the best plants. The old specimens may be planted out later on if room can be found for them; they will furnish a profusion of blossoms and be welcome at a time when flowers are scarce. If it is decided to adopt this practice select some of the most promising specimens, prune the growths hard back, and re-pot them with a view to planting out later.

ERANTHEMUM PULCHELLUM.—Blue flowers are rather scarce in winter, and there is nothing more beautiful than finely-flowered specimens of this plant. Cuttings root easily and a stock of plants can soon be obtained by this means. Cuttings that are inserted at this season will form compact bushy plants that will flower in December. This batch may be placed in 6-inch pots, but for later batches pots of a smaller size should be used.

CENTROPOGON LUCYANUS.—If a few plants of *Centropogon Lucyanus* are placed in a little extra warmth they will soon send up shoots suitable for forming cuttings, and they may be inserted in thumb pots. When roots have formed place the plants in a light, but not over warm structure, so that they may develop strong sturdy shoots.

APHELANDRA.—Both autumn and winter flowering varieties of *Apelandras* should be pruned and if the roots are kept comparatively dry very little or no trouble will result from bleeding. Seedlings of *A. aurantiaca* Roeb. should be potted and otherwise attended to, as the plants will repay careful attention for there is no dwarf-flowering subject to equal this *Apelandra* in the stove during the winter season.

EUCHARIS GRANDIFLORA.—The present is a suitable time to overhaul the stock of *Eucharis grandiflora*. Any specimens that are showing their flower-spikes, or are about to do so, should not be meddled with, as such plants can be attended to later. Where the plants are crowded in the pots they are best turned out of the receptacles, so that the old soil may be shaken from the roots, and the bulbs graded into two or three sizes. Remove any decaying portions of the roots, also the loose scale leaves, and then repot the bulbs, placing six healthy specimens in the same pot, which should have a diameter of about 9 inches. A similar number of smaller bulbs may be placed in smaller pots. The potting compost may consist of good turfy loam, a small quantity of fibrous peat, and plenty of silver sand. Pot firmly, just covering the bulbs with the soil, and, as the foliage develops, place supports in the form of stakes around the pot. If it is possible to plunge the pots in a bottom heat this will be an advantage. The plants should be shaded for a few weeks, and overhead damping is a much better method of supplying moisture than saturating the roots with water. It is a common practice nowadays to plant *Eucharis* around the paths of glass-houses and just beneath the stagings. Where the plants can obtain a sufficient amount of light, this system answers very well, but they must be placed so that the foliage is not harmed by coming in contact with the hot-water pipes. In the case of some of the pot plants, it may be found that the ball of soil is sufficiently sweet and good to be retained, but all the same the plants may be benefited by a little new soil and a slight shift may therefore be afforded. With fresh soil below, around, and at the top, the bulbs will soon increase in size and vigour. In overhauling the plants keep a sharp lookout for insect pests, and, if necessary, sponge the foliage.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. (A minimum charge should be written on the envelope of the letter, and a copy of the article, if possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.)

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matter especially desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, APRIL 22—
British Gardeners' Assoc. (Birmingham Branch) meet.
TUESDAY, APRIL 25—
Roy. Hort. Soc. Coms. meet. Daffodil Competition at R.H.S. Hall. Nat. Auricula and Primula Soc. Sh. (Lecture at 3 p.m. by Rev. Joseph Jacob, on "The Tulip—its Problems and History.") National Rose Soc. Meeting, Conference and Dinner, at Westminster Palace Hotel.
WEDNESDAY, APRIL 26—
R.H.S. Exam. of School Teachers in Cottage and Allotment Gardening. British Gard. Assoc. Exam. in Horticulture. Irish Gard. Assoc. and Benev. Soc. m. et. Hereford Daffodil Sh.
THURSDAY, APRIL 27—
Midland Daffodil Soc. Sh. at Birmingham Bot. Gdns. (2 days). Soc. Nationale d'Hort. de France (Paris) General Meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty Years at Greenwich 48.8°.

ACTUAL TEMPERATURES.—
LONDON.—Wednesday, April 19 (6 P.M.): Max. 60°. Min. 48°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, April 20 (10 A.M.): Bar. 30.0; Temp. 55°. Weather—Sun-shine.

PROVINCES.—Wednesday, April 19: Max. 53° Cambridge; Min. 46° Ireland, S.W.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous and Border Plants, Hardy Bulbs, &c., at 12, Palm's, Plants and Ferns, at 4, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Unreserved Clearance Sale of 16 Greenhouses, Lights, Piping, Boilers, Bricks, Horse, Cart, &c., at Tinsbridge Wells Nurseries, to Messrs. T. Cripps & Son, by Protheroe & Morris, at 12.30.
Trade Sale of Miscellaneous Bulbs and Plants, Japanese Lilies, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.
FRIDAY—
500 Lots of Established Orchids in Variety, also Imported Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Although the late blight of Potatos, due to *Phytophthora infestans*, has been an endemic disease among Potatos in Europe for upwards of half a century, the mystery of the annual recurrence of this pestilent destroyer remains unsolved. In most cases of fungous disease, the parasite makes ample provision, in the form of winter spores, for its persistence from one growing season to the next, and also provides for its amazingly rapid multiplication and dissemination during the summer by forming successional crops of light and wind-borne summer spores. In the case of *Phytophthora*, however, no resting spores are known with certainty to occur, though Worthington Smith claimed long ago to have discovered them. All that is known and undisputed is that the mycelium of the fungus may be present in stored tubers, and that such tubers, though they may produce healthy plants, may fail to grow or may produce poor

and diseased plants. Whether the fungus spreads through the soil and attacks healthy tubers is not known with certainty.

Accurate knowledge failing us, we are compelled to fall back on hypothesis. One hypothesis, which Mr. Masee favours, suggests that, as occurs in certain other diseases of fungous origin—the smuts, for example—the mycelium of *Phytophthora* may lie dormant in a tuber and may never manifest itself in the plant produced from the diseased tuber. On the contrary, given climatic conditions favourable to the growth of the late blight fungus—a moderately high temperature and humidity—in short, "muggy" weather, the latent mycelium becomes active, grows through the tissues of the leaves, produces vast numbers of spores, which, disseminated by wind, infest neighbouring plants through the leaves, and thus start an epidemic. On this hypothesis, every diseased tuber produces a plant which becomes patently diseased or not, according to the climatic conditions which obtain during the latter part of the growing period.

Mr. Masee's investigations, although carried out on a small scale, appear to confirm this hypothesis. In these well-known experiments, diseased Potatos were cut in halves and used as sets. One series was planted in sterilised soil in a cool, well-ventilated house; the other, also planted in sterilised soil, was placed in a warm house (70° to 80° F.), and the pots covered with bell-jars. The upshot of the experiment was that the plants grown under warm, moist conditions developed the disease; those grown under cooler and drier conditions did not.

These results would seem to indicate conclusively that the fungus responsible for the disease spreads from the tuber to the aerial shoots, and that the development or non-development of the fungus to the point of making manifest the presence of the disease depends on meteorological conditions. More recent investigations carried on by Mr. Pethybridge, and published in the scientific proceedings of the Royal Dublin Society, throw doubt on the general validity of Mr. Masee's results, and appear to point away from his conclusion as to the existence of latent mycelium in the plants produced from infected tubers.

In the first place, and here Mr. Pethybridge can claim the support of other investigators, healthy plants were shown in some cases to be produced from diseased tubers. In the second place, a repetition with certain modifications of Mr. Masee's experiment led to results diametrically opposed to those obtained by the latter observer. Thus, Mr. Pethybridge sowed in all 24 sets derived, 12 from healthy tubers, and 12 from tubers affected with *Phytophthora*. They were grown half in sterilised and half in unsterilised soil, but as the soil appeared to be without influence on the result we need make no further reference to that factor. Of the 24 pots, six were placed in a warm house and 18 in a cool house; those in the warm house not being covered by bell-jars. A

noteworthy point is that in those cases in which diseased tubers produced plants at all, they sprouted and produced aerial shoots sooner than did the healthy tubers. This, if it is a phenomenon of general occurrence, is important, and will be referred to presently; in the meantime it may be ignored. Two of the three diseased tubers in the warm house produced plants and one failed to grow. Neither of the plants from diseased tubers nor any of the plants from healthy tubers—all grown in the warm house—developed *Phytophthora* disease.

Turning now to the plants (nine from healthy and nine from diseased tubers) grown in the cool house, the former produced healthy plants. Of the nine diseased tubers, three failed to grow. The rest produced plants somewhat less robust than those from the undiseased tubers, and one of them bore shoots of only 2 or 3 inches in height. This plant soon showed signs of *Phytophthora* disease, which was traced from below upward. Mr. Pethybridge, who concludes that the late blight fungus entered the shoots of this plant from the diseased tuber, removed it from the house as soon as it was observed to be diseased. In passing we may remark that it does not appear whether this plant—the first to show signs of *Phytophthora* disease—was grown in sterilised or unsterilised soil.

The next plant to fall a victim to disease was one grown from a healthy set, though again we fail to find a record of the kind of soil—sterilised or unsterilised—in which this second victim grew. The sufferer was removed, but without avail, for, soon afterwards, seven of the plants from uninfected tubers and four of those from diseased tubers developed the symptoms of late blight. Ultimately two plants alone remained unscathed, one derived from a healthy and one from an infected tuber. These plants, even when put under bell-jars in the warm house, remained immune from the disease, and it is to be hoped that Mr. Pethybridge saved any tubers which they may have formed.

The conclusion which seems to follow from the experiment is that, inasmuch as the disease, after declaring itself in the puny plant derived from a diseased tuber, spread first to a plant grown from an uninfected tuber, and, in its subsequent ravages, slew indiscriminately healthy tuber and diseased tuber plants, all except the initial infection came from the air, and was probably due to spores produced by the puny diseased plant before its symptoms were advanced enough to be recognised.

We do not propose to offer an opinion as to the merits of the rival hypotheses of Messrs. Masee and Pethybridge. It is evident that the results of these experiments will require confirmation before either hypothesis can be accepted unreservedly. The question at issue is of great practical importance, and we hope that before long it will receive a final answer, and that one step at all events will thus be made towards the solution of the mystery which surrounds the recurrent outbreaks of this pest.

Recent
Investigations on the
Late Blight
of Potatos.

CANARINA CAMPANULA (see fig. 109).—The Canary Bellflower is an old garden plant which appears just to fail to satisfy modern requirements. It is too tender to be grown in the open air, otherwise its height and the quality of its flowers would entitle it to a place amongst tall plants for the herbaceous border, and it is too tall and coarse in habit for the greenhouse, where, in this country at any rate, it must be cultivated. According to **AYTON** it was grown in a greenhouse in the Royal Garden, Hampton Court, in 1696. That was in the time when **LODGE** and **WISE** were in charge of Hampton Court Gardens, and all kinds of expensive alterations were in progress. There does not appear to be any record of a collection of greenhouse plants at Hampton Court at that time. Kew did not come into existence as a botanic garden until half a century later. *Canarina* is peculiar to the Canary

Horticultural Society, and, from these specimens, **MR. WORRINGTON SMITH** prepared the drawing reproduced in the figure.

NATIONAL AURICULA AND PRIMULA SOCIETY (SOUTHERN SECTION).—The annual exhibition will be held in the Royal Horticultural Society's Hall, Vincent Square, Westminster, on Tuesday, the 25th inst. Intending exhibitors are requested to notify the hon. secretary, **MR. T. E. HESWOOD**, 16, Hamilton Road, Reading.

THE SELBORNE SOCIETY.—The annual conversazione of this society will be held on May 5, in the Theatre and Halls of the Civil Service Commission, Burlington Gardens, W. There will be exhibits of rural industries, including the prehistoric occupation of flint knapping, which still survives in Suffolk, where the manufacture of

application to the secretary of the Selborne Society, at 42, Bloomsbury Square, London, W.C.

DISPLAY OF DAFFODILS. An exhibition of seedling and choice varieties of *Narcissi* was made by **MESSRS. BARR & SONS**, on April 12 and 13, at 10, Doyer Street, Piccadilly. All types of the Daffodil were represented, there being no fewer than 100 different varieties, and all the flowers were exceedingly beautiful. The large trumpet varieties and those of the giant *Incomparabilis* type were especially prominent, such fine sorts as *King Alfred*, with its large-filled yellow trumpet and equally large yellow perianth; *Great Warley*, with immense crown of clear yellow, set off by a beautiful white perianth; and *Conqueror*, having a large primrose-yellow trumpet and broad, white perianth being among the more noticeable. Other

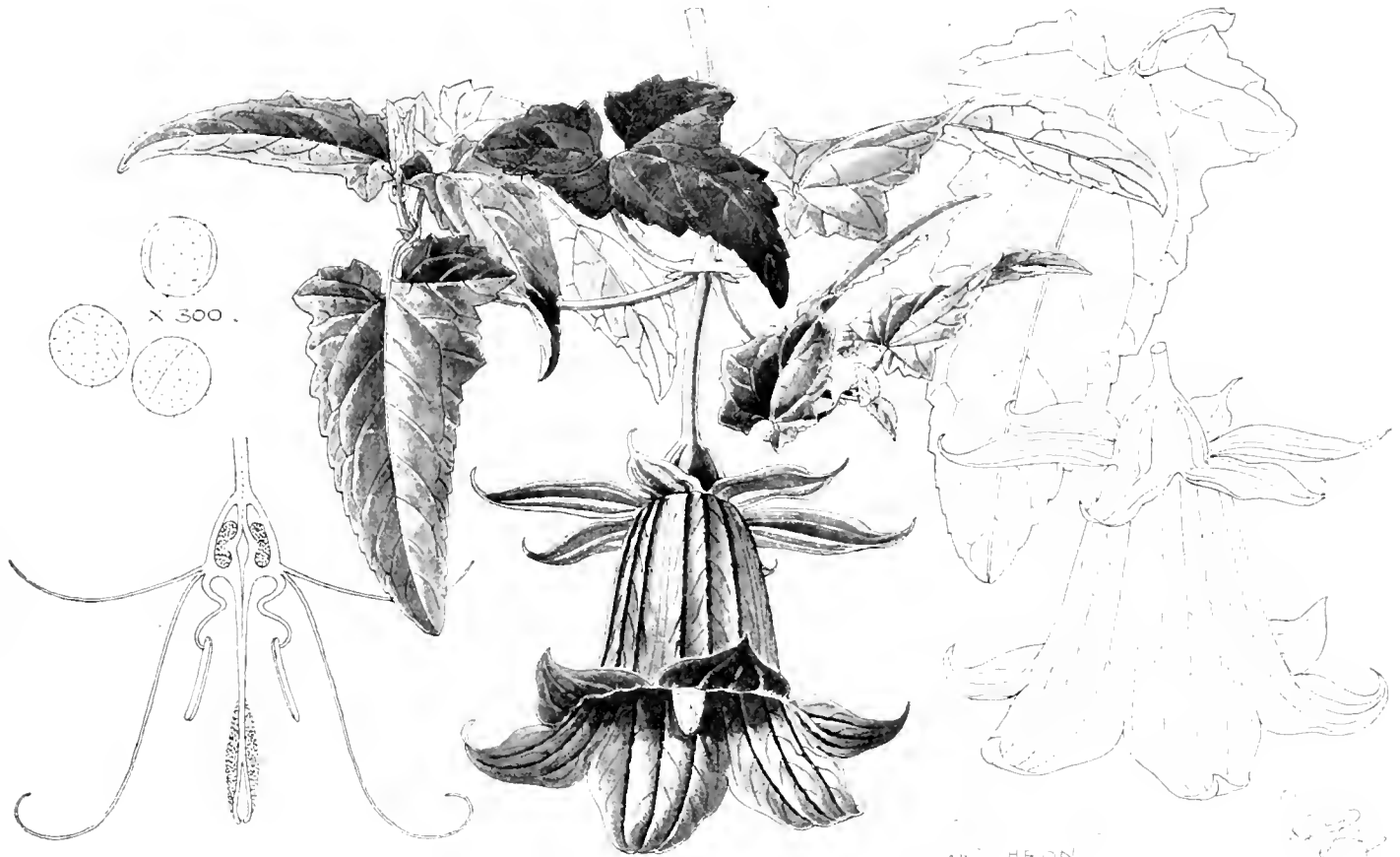


FIG. 109.—CANARINA CAMPANULA.

Islands and *C. Campanula* is the only species. It is related to such genera as *Mussaia*, *Michauxia*, *Codonopsis*, and, of course, *Campanula*. The root-stock is a large fleshy tuber, from which spring annual, loosely-branched herbaceous stems about 6 feet in height, the drooping, bell-shaped, red and yellow flowers growing singly in the forks of the branches early in the year, usually February. The stems die away after midsummer, when the plant may be rested under a greenhouse stage until new stems appear in midwinter. It is said that the natives of the Canary Islands eat the fleshy fruits, young stems, and tubers of this plant, though we are not aware that they have been tried as a vegetable food in this country. It is possible we have here a new vegetable after the character of *Seakale* or *Chicory*. The plant is propagated by division of the tuber or from seeds. On January 3 last, **MESSRS. JAS. VEITCH & SONS** showed specimens at a meeting of the Royal

gun flints and strike-a-lights for tinder boxes to export to tropical countries is still carried on. Chair-making with the pole lathe, lace-making, and straw-plaiting will probably be represented. The keeper from the Brent Valley Bird Sanctuary will be at work making nesting boxes. An unpublished MS. by **GILBERT WHITE** will be on view, and living harvest mice, which were added to the British fauna by the same naturalist. The President, **LORD AVEBURY**, will preside, and a lecture will be given on "The Eggs of Butterflies and Moths," illustrated by photographs, by **MR. F. NOAD CLARK**. Tickets can only be obtained through members of the society. The sixth of the course of central lectures will be given on April 24, by the Rev. **CHARLES A. HALL**, on "The Natural History of Arran." The meeting will be held at 6.30 p.m., in the Theatre of the Civil Service Commission, and a limited number of complimentary tickets can be obtained on

beautiful varieties noticed were *Golfy* of the *Incomparabilis* section, with a showy orange-coloured corona that shows well against the white perianth; *Furnace*, a somewhat similar flower, the crown being a richer tint, but smaller; *Volcano*, a double *Incomparabilis*, the inner petals being orange-scented and the outer ones golden; *Ledah*, the white trumpet and white perianth being very elegant in form; *Bodonin*, a giant in its class—the *Incomparabilis*—with blooms measuring 4 inches across; *Lord Kitchenier*, a giant *Leedsii*, with primrose coloured crown; *Hon. Mrs. J. L. Francklin*, also a giant *Leedsii*, but almost silvery-white; and amongst older sorts *Firebrand*, *Sunrise*, *Mermaid*, *Messina*, *Marsina*, *Buttercup*, *Queen of Spain*, *Fairy Queen*, and *Beatrice*. Amongst the seedlings was a large trumpet variety, the spreading yellow trumpet almost hiding the perianth from view.

SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held at the Institution, on the 24th inst., at 8 p.m., when the adjourned discussion on Mr. W. R. BALDWIN-WISEMAN'S paper on "The Conservation of Our National Water Resources" and on Mr. W. VAUX GRAHAM'S and Mr. H. F. BIDDER'S paper on "Judicial and Parliamentary Decisions with regard to Rights in Underground Water since 1907," will be resumed.

THE ROYAL INTERNATIONAL EXHIBITION.—In view of the numerous applications for space at the Royal International Exhibition, 1912, it is necessary for the sub-committee dealing with the matter to obtain some idea of the proportion which the total demand will bear to the area at their disposal. They will, therefore, be glad if exhibitors will intimate at the earliest date possible the nature of any exhibit, whether competitive or otherwise, which they propose to submit, together with a note of the area in square feet which it is likely to occupy. The Spacing Committee will do their best to satisfy the demands of intending exhibitors, but it will be understood that this request for information does not necessarily imply that the committee will be in a position to grant all the space that may be asked for. Under any circumstances the work of allotment must be a difficult matter, and the committee rely upon the kind assistance of exhibitors in the simplification of their task.

LEAGUE OF MERCY FLOWER SHOW.—Arrangements have been made to hold a Flower Show, Floral and Dramatic Fête upon Tagg's Island, Hampton Court, in aid of the funds of the League of Mercy, on Wednesday and Thursday, June 7 and 8. The exhibition will be opened by H.R.H. The Duchess of ALBANY. To augment the flower show, arrangements have been made to erect a spacious theatre, the managers of some of the London theatres having offered their assistance, and there will be numerous other attractions. The flower show committee includes Mr. F. Q. GALE, Mr. E. H. JENKINS, Mr. H. T. MASON, Mr. J. NAYLOR, Mr. W. H. PAGE, Mr. T. PAGE, Mr. W. A. SHERWOOD, Mr. A. SILVESTER, and Mr. T. STEVENSON. The schedule includes classes for Carnations, Sweet Peas, Roses, hardy flowers, and rock and water gardens. A cup, valued at £6, is offered for the best group of cut Carnations arranged in a space of 100 square feet. For six vases of Carnations, distinct, prizes of £3, £2, and £1 are offered. For a group of Sweet Peas arranged on a table, a cup, valued at £5, forms the 1st prize. Cups to the value of £20, £15, and £7 10s. are offered in a class open to nurserymen for exhibits of flowering and foliage plants or cut flowers arranged on a space of 200 square feet. The hon. secretaries are Messrs. JOHN BRADFORD and C. W. KENT, Fête Office, Tagg's Island.

LONDON'S MUNICIPAL NURSERY.—A report on the London County Council's municipal nursery at Avery Hill was presented to a meeting of that body on the 11th inst. The Parks Committee stated that the establishment of the nursery at Avery Hill had enabled them to raise trees, shrubs, and plants required for the parks and open spaces at a less cost than would be involved in the purchase of the plants, and a considerable decrease had been effected in the amount spent annually for this latter purpose. The committee were advised that, when the nursery was fully developed, the expenditure on the purchase of trees and shrubs would be nominal, and confined to exceptional requirements. It had been found necessary to enlarge the nursery on two previous occasions, and they were of opinion that, in order to cope with the increasing demand for plants, the nursery, which is now 3½ acres in extent, should

be further enlarged by the addition of 2 acres. Owing to the fact that the men engaged on the nursery were also employed in the general upkeep of the park, it was not possible to give the actual cost of maintaining the nursery; but, after making all due allowances, it was estimated that the cost of producing and distributing plants during the financial year 1909-10 amounted to £555, and that the cost of purchasing the 211,000 trees, shrubs, and plants issued from the nursery during that year would have been £2,020. The committee also pointed out that the public had access to the nursery, which was generally recognised as being one of the most interesting features of the park. When the whole nursery was in working order, the total annual expenditure on the nursery might then be increased to £750 a year. The committee accordingly recommended that the nursery at Avery Hill be at once enlarged by the addition of 2 acres of land at present forming part of the park, and this was agreed to by the County Council.

POTATO PRICES.—Those who have followed our weekly market reports will have noticed the great rise in the prices of Potatoes during the past week or two. The advance was comparatively sudden, and some sorts are as much as £2 per ton dearer than they were a few weeks ago. The best stocks, such as Duke of York and Dunbars, have reached the high price of £7 per ton, a sum which has been made only two or three times before during the past 25 years. Several factors have contributed to a scarcity of the tubers. The Potato crop last year in France was a very poor one, and the crops in Holland and Germany were below the average. In consequence many Potatoes have been exported to the Continent from Lincolnshire and Scotland, and France has been an especially good customer. One important factor in the situation is the new Potato crop from Jersey and St. Malo. The severe frosts of a fortnight ago severely damaged the plants, and caused growers to anticipate a late season, and should it continue the new tubers will be in earlier than was anticipated. The opinion amongst Covent Garden merchants as to the continuance of the present high prices is by no means unanimous; some are inclined to believe that they will rise still higher whilst others think that the maximum has been reached. The stocks of old tubers in London are heavier than has been the case for the past three weeks, and the holidays and fine weather have not favoured their sale. A few of the Lincolnshire growers, however, are holding back their stocks in the hopes that prices may advance still further. Potatoes are an important article of food amongst the poorer classes, and a sudden rise in value checks the sale, which in turn has a reaction on prices.

THE LATE DONALD MCKENZIE.—Mr. MCKENZIE, whose death was announced in the last issue, was born at Inverness in 1845. He was trained in the gardens at Blair Castle, the seat of the Duke of ATHOLL, and Dalkeith Palace, the seat of the Duke of Buccleuch. He next proceeded to Mauldslee Castle, Carlisle, the property of Lord NEWLANDS, and then to Springfield House, Wandsworth Road, London, the residence of the late Mr. FREDERICK GYE, the proprietor of Covent Garden Opera House. On the death of Mr. GYE, MCKENZIE was appointed estate manager to Mme. ADELINA PATTI at Craig-y-nos Castle, South Wales. He left Craig-y-nos upwards of a quarter of a century ago, and was appointed estate manager and gardener at Sherwood Park, a position he held until his death. Deceased leaves a widow, one son, and a daughter. The son, Mr. F. DONALD MCKENZIE, is chief clerk to the Borough Engineer at Folkestone.

THE LATE MISS SULLIVAN.—We understand that the late Miss SULLIVAN, whose death was announced in the last issue, has provided very liberally for all servants in her employ at the time of her decease. Mr. J. WILSON has had full charge of the Broom House Gardens for the long period of 30 years, and the appreciation in which he was held by his late employer is exemplified in the pension of £70 a year bequeathed to him. This pension is to be continued to his widow in the event of Mr. WILSON'S death. The garden foreman is left a pension of £50 a year, and further pensions are to be given to other members of the garden staff, whilst all the servants will be given a year's wages. A detailed account of the Broom House Gardens was published in the *Gardeners' Chronicle* for June 9, 1900, p. 366.

FLOWER GARDENING IN WALWORTH.—Although Walworth is the central division of the county of London, and is said to be the most densely populated, it boasts an annual flower show. When the first exhibition was held in 1901, seven gardens were entered for competition, but the number had grown last year to 250. The competitors are mostly of the working-class, and the show is held under the auspices of the Robert Browning Settlement. The Warden, Mr. F. HERBERT STEAD, is appealing for gifts, either in money or kind, for prizes.

INJURY BY FALLING ELM AT HAMPTON COURT.—On Wednesday last some members of a party from the Hague, Holland, were seriously injured by the sudden falling of an Elm tree, 70 feet high, in Hampton Court Gardens. A south-western gale was blowing at the time, and without any warning, save the cracking of the timber, the tree was uprooted and cast across the path, the branches pining several members of the party to the ground, and causing injuries which necessitated their detention in a local hospital.

THE ALPINE GARDEN.

VERONICA FILIFOLIA.

VERONICA FILIFOLIA is a graceful little plant, the narrow leaves being of a charming appearance, whilst the dainty little flowers are a delightful shade of blue.

Mr. Farrer, speaking of this plant, says, "It grows erect into a filmy fuzz of fine greenery, starred with china-blue blossoms," a happy description of this most graceful Speedwell.

The plant may be grown in any soil, yet it has a preference for a flat terrace on the cool side of the rock garden, where it will obtain a free supply of moisture in summer without having its roots in water-logged soil. Propagation may be effected by means of division, which is best performed when the plants are starting into growth in the spring.

SAXIFRAGA ELIZABETHÆ.

It was, I understand Carmen Sylva, Queen of Roumania, after whom Saxifrage Elizabethæ was named, and I can yet recollect the delight with which I first saw a small stock of plants in bloom in pots. I thought it the gem of yellow Saxifrages. The little pots were carpeted with deep green leaves, above which rose stems carrying three or four good sized blooms of a canary-yellow colour, while the healthy appearance of the plants betokened a constitution far superior to that of its yellow-flowered congeners. It has not quite the brightness of the exquisite *S. Boydii*, but it has a doubly vigorous constitution. It makes a fine mass of foliage, which in summer, autumn, winter, and spring presents the same picture of a beautiful, soft-looking mass of emerald velvet.

In spring appears the canary-yellow flowers,

the colour being thrown into greater relief by the deep green of the foliage. It should not be planted in a too rich soil, as poverty at the roots serves to heighten its beauties, for whilst it will flourish and spread rapidly in rich soil, it will expend all its energies on making leaves and spreading out into big mats at the expense of flowering.

A little annual top-dressing of poor soil, loam, grit, sand, and a mere sprinkling of peat or leaf soil is beneficial. The materials should be worked well in among the growths of the plant after the flowering is over, and, if it appear necessary, in autumn as well. The plant appears to enjoy exposure to sunshine, and flowers better in a sunny aspect than in a colder one. *S. Arnott.*

with a sharp dentation on either side; very heavily crusted with chalk, till on Monte Baldo the whole effect of the plant is of a silvery whiteness. At the present time it is putting forth little shoots in all directions, in a manner most characteristic and peculiar. These shoots are of a bright and glossy blood crimson, and blood-crimson, too, are the reverses of their leaves and young tufts. In contrast to the ash-grey cushion and the white hem of each leaf, these ramifications and linings of rich colour are as vivid as flowers. The roseate hue, however, like that of early dawn, fades with maturity, leaving only a dull smoulder of red towards the heart of the rosette. This dainty variety seems perfectly willing to be cultivated; it is certainly the most entrancing of the mima-

NOTES ON IRISES.

I. UNGUICULARIS.

THE worst feature of this Iris is its name, and it is indeed unfortunate that Desfontaine's name *I. stylosa* is thirteen years junior to Poiret's uncouth appellation, and cannot, therefore, properly be used. Moreover, the name *stylosa* is eminently suited to the plant, for it is one of the very few Irises in which the style rises undivided for some distance above the top of the perianth tube before branching into three.

However, *I. unguicularis* has many redeeming features, except, perhaps, in the eyes of those who garden in a cold, wet clay, and have not a warm, sunny corner against a house, where

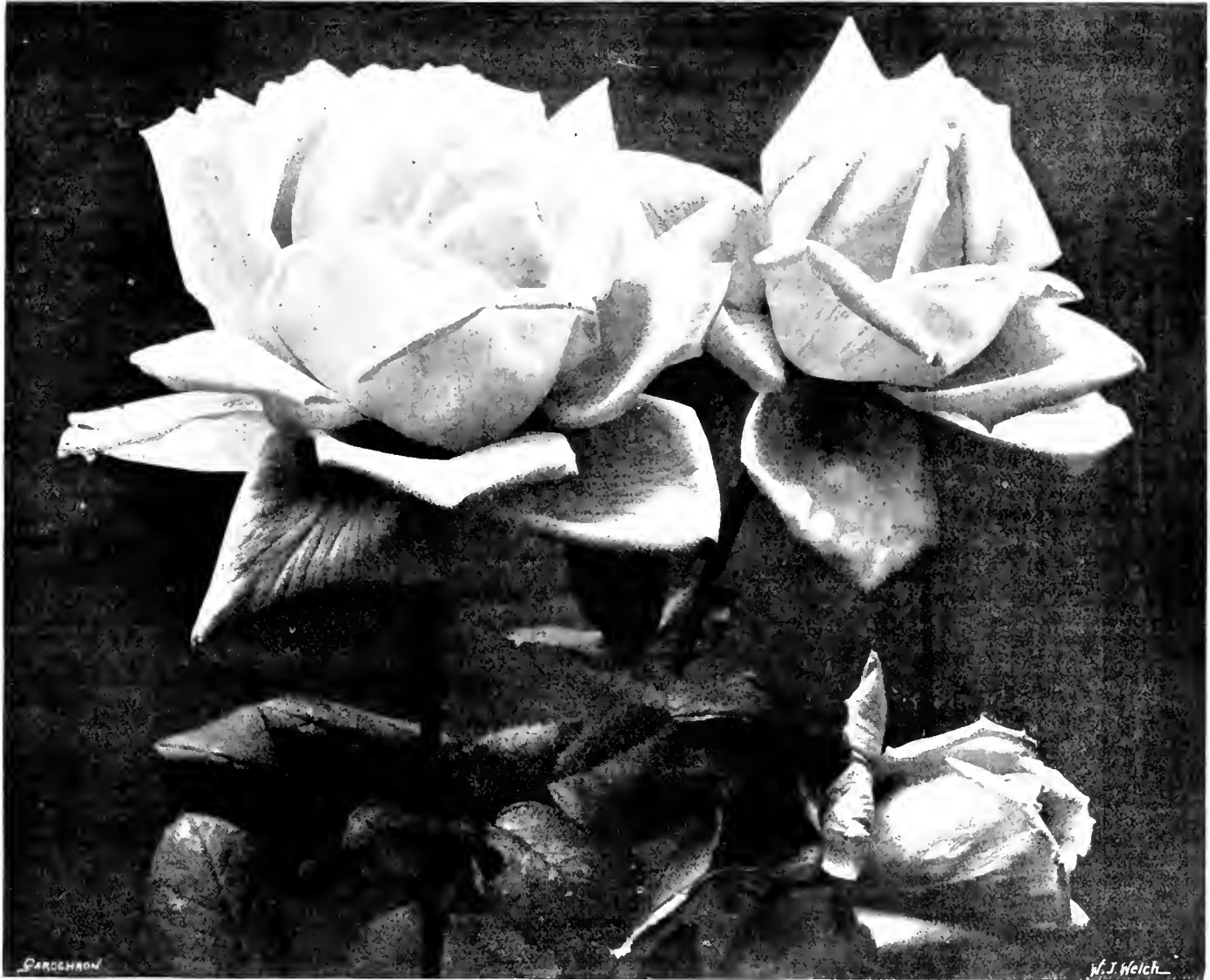


FIG. 110.—ROSE "MARCELLA," H.T.: COLOUR FLESH-PINK.

SAXIFRAGA AIZOON BALDENSIS.

In order to ascertain what synonyms it has, if any, I herewith describe, under the above worthy name, a most attractive miniature Aizoon, collected from that little range of hot cliffs on Monte Baldo which can so clearly be discerned from the walls of Verona. Growing in a place so torrid, the plant shrinks to the smallest compass I have yet seen among Aizoons; indeed, from half-a-dozen feet away, its grey and tiny tufts inspire the incessant hope that one is coming on *S. diapensioides*. Nor does this minuteness desert the plant in cultivation; it develops, indeed, but so modestly that its largest rosette is smaller than a three-penny-bit. The leaves are short, thick, and markedly dentate; neither recurved nor incurved; rounded at their tops,

ture Aizoons. Its flowers remain to be described; I have not yet seen them. *Reginald Farrer.*

ROSE "MARCELLA."

THIS new variety of Rose received an Award of Merit from the Floral Committee of the R.H.S., when shown by the raisers, Messrs. W. Paul & Son, at the meeting on April 11. The blooms are large, pointed in the bud, and the petals are of excellent form; they are blush-pink or flesh-coloured and golden at the bases. The stems and foliage are exceptionally vigorous, and the large blooms are borne on long, stiff shoots.

the addition of plenty of old mortar rubble to the clay would probably make the Iris quite happy. When it does well, it rewards us liberally for care in planting, for it is a joy to watch its buds unfold and open indoors in the warmth on a cold winter's day; and a large, well-established clump is quite capable of producing a hundred flowers at intervals between November and April.

One of the most curious features of this Iris is that, as a rule, scarcely any stem develops, and the flowers are only thrown up on a long perianth tube, 6 or more inches in length. The consequence of this formation is that the ovary is well protected from all but the severest frosts in its shelter at the base of the leaves; indeed, in old-established clumps numbers of decaying

capsules of seed may often be found deep down among the growths.

The species was first described as an Algerian plant, and many years later a Greek form was named *I. cretensis* by Janka. In his description he was so intent on pointing out the distinctions between *I. cretensis* and *I. humilis* M.B., which, indeed, are many and fairly obvious, that he quite forgot to tell us how to distinguish it from *I. unguicularis*. It has been said that the growths are more scarious, and that the segments taper more gradually, but neither of these characters seems to be reliable. The only difference is in size, and whether this is inherited or due to environment has not yet been proved. So far, I have not been able to get seed of the Greek forms, though, with less arctic weather than that which April has so far brought us, I am not without hope of doing so this year, for there is abundant promise of flowers still to come.

The form that usually goes by the name of *I. cretensis* has narrow leaves that grow in upright tufts, after the manner of the ordinary *I. unguicularis*. I have, however, a form from the island of Cephalonia, which produces flat, fan-like spreading growths, and this throws its flowers well above the leaves. Its colour is a dark-reddish lilac, and its flowers are never produced before April. Another form, which I believe comes from Asia Minor, and which I obtained under the name of *I. agrostifolia* (the name has apparently no authority) has extremely narrow, upright leaves, narrower, I think, than those of any other Iris. It is not very floriferous, but does not differ widely in flower from the Cephalonian form.

Sixteen years ago, Albov, in his *Prodromus Florae Cebalicæ*, p. 252, described as a new species *I. lazica*, which is said to differ from *I. unguicularis* by the much shorter tube and distinct leaves. Its name is derived from the locality in which it grows, namely Lazistan, the region along the south shore of the Black Sea beyond Trebizond, at the extreme eastern limit of the Turkish dominions. This plant has recently been introduced into cultivation by Mr. C. G. Van Tubergen, Junr., of Haarlem, who has very kindly sent me flowers. It was shown, I believe, for the first time at the Haarlem Jubilee Exhibition last spring. A plant growing here has very broad leaves, and the fan-like habit of the Cephalonian plants. No flowers have yet appeared, though I think that buds are pushing up. The flowers that I have received are of a dark-reddish lilac on the blade of the falls, the hafts of which are veined with same colour on a white ground. The central yellow line is present, as in all the forms of *I. unguicularis*; the style rises likewise in a column for some distance, and, moreover, the one feature which is peculiar to *I. unguicularis* is also present in this form, namely the beautiful appearance as of gold dust on the back of the style branches. This phenomenon is produced by a number of transparent, whitish, conical projections, each of which is topped by a similar sphere. The golden colour is produced by a mass of brilliantly coloured granules, which varies in position from the centre of the sphere to any part of the supporting cone. Both cones and spheres are very fragile, and appear to be filled with a colourless liquid. They present a beautiful sight under a microscope, and occur, as far I know, in no other species of Iris. *I. lazica* also agrees with the other forms of *I. unguicularis* in that the filament of the filament is adherent to, but not united with, the style column.

The most striking distinct feature in *I. lazica* is the length of the style column, which is about 5 inches in length, and is of uniform diameter in section and equal in length to the style tube, which is thus much shorter than in the case of either *I. unguicularis*. A very good illustration of the style column of *I. lazica* is given in the *Illustrations of the Hortus Botanicus*, p. 3773, representing a stem about 12 inches in height. No mention is made in the description of the filament, and it may be that it does not occur in plants from Algeria. Seedlings

of the ordinary garden form, which are now flowering here, vary considerably in the length of the tube, the shade of colour in the flower, in the shape of the segments, which in some cases taper gradually and in others have a definite constriction between the blade and the haft of the falls, and also in the extent of the indentations in the style crests, which has sometimes been put forward as a difference between *I. cretensis* and *I. unguicularis*. On the whole, then, it would seem best to refuse specific rank to *I. lazica*, and reduce it to a local variety of *I. unguicularis*. It is curious to notice that the broad-leaved forms occur at the western and eastern extremities of the area over which the plant is distributed. Is it due to the dry, poor soil of Greece that its forms are starved and stunted? *W. R. Dykes, Charterhouse, Godalming.*

TREES AND SHRUBS.

PHYLLOSTACHYS CASTILLONIS.

THIS handsome Phyllostachys is distinct from any other Bamboo with which I am acquainted, the stems and lateral branches being partico-coloured. They are marked in straight lines from node to node with a deep, rich-yellow colour, for about two-thirds their surface, and a bright green, one-third. These colours also occur in the same proportions through the smaller lateral branches. In the *Bamboo Garden*, Lord Redesdale speaks of variegation in the leaves; but, in our case, these are green throughout, and in this it coincides with what is written further on by the same author, when he states: "One of my plants shows a curious deviation from the type in the disposition of its colours." There was a specimen at Gunnersbury a few years ago with variegated leaves, but, owing to the plant being removed at an unseasonable period of the year, it died. A plant at Gunnersbury House gardens has thrived remarkably well in a position near to the lake side. The specimen is more than 14 feet in height, and has a spread of 10 feet. The stoutest stems measure, near to the ground, 2 inches in circumference. In my opinion, the species is one of the hardiest of all its class. In growth it is somewhat spreading, not drooping, or in any sense pendant, the stems being able to support the weight of foliage without bending. The name given to Phyllostachys Castillonis by the Japanese is "Kimmun-Chiku," "the golden-brilliant Bamboo."

ARUNDINARIA FASTUOSA.

MY experience of this Bamboo, after nearly 10 years planting, is that it is much superior as a garden plant to *Arundinaria Simonii*, and, of the two species, I think it is even more stiff and rigid in its stems. It is not disposed to spread so fast as *A. Simonii*, whilst, with us, it grows at least one-third taller, and the individual canes are much stouter. The foliage is distinctly larger and of a deeper shade of green, whilst it is not so unsightly at the time of shedding its leaves. At Gunnersbury, we have planted single specimens, our largest plant being 10 feet in height, the canes measuring as much as 3½ inches in circumference. It has proved one of the hardiest Bamboos of all in our collection; in fact, it is rarely harmed by frost. If I had to plant an avenue of Bamboos, I should choose *Arundinaria fastuosa* in preference to any other species. At Kew Gardens it is planted in groups, with a good effect. In the *Bo-Joo Garden* it is described under the name of *Bambusa fastuosa*. It appears to have been first received from Japan in 1822 by M. Latour-Marillac, of Temple-sur-Saône. Writing in 1896, Lord Redesdale did not appreciate it highly, but I consider that it is one of the best we have amongst the more upright and stiffer forms. *James Hudson, Gunnersbury House Gardens.*

ASIMINA TRILOBA.

THIS is probably the only shrubby member of the order Anonaceæ which is hardy in the British Isles, the greater number of the genera being natives of the tropics. *Asimina triloba* is a native of the southern United States, where, in favourable conditions, it forms a low, round-headed tree 50 to 40 feet high, with a trunk 9 to 12 inches in diameter. Very frequently, however, it has been noticed as a large bush, and it is as a moderate-sized shrub that it is found in the few gardens in Britain where it is grown. The ovate-lanceolate leaves vary greatly in size; they range from 4 to 6 inches long and 2 inches wide up to 12 inches long and 5 inches wide. The flowers appear in May and June. They are from 1½ to 2 inches across, and of a curious brownish-purple colour, not particularly conspicuous, but singular enough to arouse the interest of the cultivator. During its first few years the tree grows slowly, but after it has become established, growth is freer. The best results may be looked for from specimens in a deep, rich soil, containing peat, such as *Magnolias* luxuriate in. The position should be sheltered from north and east winds, but exposed to full sunshine. The common name of "Papaw" is applied to the tree in America. *W. Dallimore, Kew.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE WEATHER IN CORNWALL.—January and February were mild months in the south-west, and there seemed every probability of a very early season, but through the whole of March the wind, often rising to the force of a gale, remained persistently in the east, and there was almost a complete absence of sunshine. During the whole of March nothing made the slightest progress. At Kingswear at the end of February the buds on *Jasminum primulinum* appeared to be on the point of expansion, but not one opened during the month of March. On April 6 there was a severe frost in southern Cornwall, 8° being registered at Carew and Tregothnan. Great damage was done in the gardens. Every flower of *Rhododendron argenteum* was frosted and turned brown, whilst a seedling *Rhododendron* at Tregothnan, which was bearing flowers for the first time in 16 years, had its blossoms ruined before they developed their proper colour. In Mr. Howard Fox's garden at Falmouth, great bushes of *Datura sanguinea* and *D. flava*, 10 feet in height and more in diameter, had the young foliage badly injured, as were also the expanding leaves of *Gunnera manicata*. A plant of *Melanthus major*, more than 7 feet high, was also damaged severely, and in many gardens *Echiums* were affected. The weather of March caused what promised to be an early season, to be really an exceptionally late one, many plants, such as *Viburnum Carlesii*, which are usually in flower at this date, not having expanded a single blossom. On every side one hears that such unfavourable weather in spring has not been experienced in Cornwall for many years, and the gardens are a deplorable sight. In the neighbourhood of Plymouth even more severe weather has occurred, the thermometer at Elfordleigh showing 11° of frost on one occasion. When I left home the lowest temperature registered this winter was 2°, and I am anxious to see to what degree the thermometer has fallen during my absence. *Wyndham Fitzherbert.*

HORTICULTURAL INSTRUCTOR.—In your issue of the 8th inst., an account appears of the appointment of the Horticultural Instructor for Durham. You stated that there were 97 candidates and six were selected to go before the committee, and that these were again reduced to two, namely, Mr. J. Smith and Mr. F. G. Cousins, of the Royal Gardens, Kew. I may say that the two selected from the larger number were Mr. J. Smith and Mr. J. Harris, of the Propagating Department, City Parks and Gardens, Edinburgh, graduate for the past six sessions of the Edinburgh and East of Scotland College of Agriculture. *James Harris.*

FOKIEA HODGINSII.—The accompanying illustration is from a photograph taken in the Cambridge Botanic Garden, from a plant presented by Mr. Henry, to whom it was given by the raiser, Miss Wigburn, of Healdy Manor, Barnet, Herts. It shows the juvenile, or so-called primordial foliage, that was not represented in the valuable series of illustrations published by the *Gardeners' Chronicle* when the genus was established, in the issue for February 4, pp. 66, 67. The cotyledons are liguliform, $5\frac{1}{2}$ lines long by 1 line wide. Immediately above and at right angles to the cotyledons is a pair of narrow, sharp leaves, which may best be described as linear-lanceolate acute: they are $1\frac{1}{2}$ lines long. Next above is a whorl of four leaves, $5\frac{1}{2}$ lines long; following it are two whorls of four each, $3\frac{1}{2}$ lines long; then three whorls of three leaves, each four lines long. All these leaves are similar, and about half a line broad. From the seventh node they reduce into scales, which graduate into the somewhat variable juvenile foliage. The illustration shows the plant natural size. One of the first pair of true leaves is clearly evident between the two cotyledons in the photograph, but immediately below is one of the first splittings of the primary cortex, somewhat lateral in view, which may be suggestive of a leaf in the illustration. It is, of course, nearly longitudinal with the stem. The juvenile foliage to which I have referred is common to allied plants, and

no growth took place before June or after August, but rather that the proverbial shortcomings of May throughout the greater part of Britain were remedied, if remedied at all, by the more favourable weather of those months. Dr. Groom admits that growth in Oak and Willow takes place in late summer, but, as a matter of fact, many species are equally as late in their growth as these. Larch amongst conifers, and Ash, Sycamore, Elm, Spanish Chestnut, Poplar, Alder, Birch, &c., make the bulk of their growth after May, while in seasons in which spring frosts, insect attacks, &c., destroy the May growths of Oak, Birch, and other tender species, the entire growth of the season is often made in June or July. In an early season, with a May free from frost and cold winds, many trees may make more shoot growth in that month than any other, but in late seasons, and in backward districts, this is seldom the case. As regards rainfall, Dr. Groom's instances from the Mediterranean districts can scarcely be regarded as relevant to an examination of British climate and tree growth. Most of us know that the necessity for rainfall is not so great during the period of active growth, when a heavy snowfall during the winter remains on the ground until spring, and when the latter season is characterised by decided growing temperatures, but these conditions are not found in Britain. As to Dr. Groom's assertion that I fail to keep to the points in dispute, your readers can

After sawing them off close to the roots, I counted the rings clearly shown on each butt with a view of testing their age; my attention was drawn to the variation in the width of these rings. Roughly speaking, they seemed to run in threes and fours, viz., these numbers of rings were clearly larger in diameter than the next lot. I had sufficient data of the seasons by me as to the annual rainfall to decide that the larger rings were formed in the years where there was the most rain. I ought to add that it was the most clearly shown in the Austrian Pine, which, as is known, grows vigorously on soils of the character mentioned. *Yorkshire Gardener*.

LITHOSPERMUM PROSTRATUM.—I doubt if it is generally known how easily satisfied, as regards soil, is the Heavenly Blue variety of *Lithospermum prostratum* as compared with the type species. A year ago I planted three specimens of the common strain and one of the other, the soil being distinctly heavy, while the stones of the rockery are oolitic limestone. At the present time the three plants of the ordinary strain are dead, or practically so, whereas the Heavenly Blue variety is as healthy and vigorous as can be desired. It has already put forth a flower or two, and is covered with flower-buds. Strong healthy shoots are also springing from the base of the stem, and I can only say that the omens will sadly miscarry if this specimen does not prove as successful as one could wish. I hope that those who have failed with the odd form will give the new a trial. *W. Somerville*.

EARLY FLOWERING.—Since April 9 several bushes of Broom have been in flower in the Arlesford district in Essex, some of them having the appearance of having blossomed before the cold weather set in, when on April 5 the ground was covered with 5 inches of snow. To-day (April 17) I observed, on a warm sandy bank, a plant of Bird's foot (*Ornithopus perpusillus*) with two flowers open. It is remarkably early for this plant. *H. S. Thompson*.

FORCING VINES.—Were Mr. Beckett to see a small vine just now which I superintend for an amateur, he would say I had completely proved the case against myself. The young vines are making their second season's growth after planting. Last year they were treated as pot vines should be: that is, they were kept to one stem, and the laterals were pinched to one leaf, and the leader stopped at midsummer. Now the upper growths are more forward and stronger than the lower ones. "What could be more conclusive?" Mr. Beckett would probably say. But let us examine the matter a little more closely. They lie regularly at every eye, even, in some cases, within 2 inches of the ground. The rods are about 7 feet in length, and have an average of 18 laterals, and all of those which are sufficiently forward to examine are showing fruit, most of them two, and many three bunches. A week ago the lower growths were as forward as the upper ones, and in another fortnight I venture to say, with judicious manipulation, the balance will be restored. The reason for the difference now is principally owing to a difference of temperature between the two situations. It is a small, lean-to house, with water pipes only at the back, and the fire was lighted occasionally when frost was likely to occur, for the sake of bedding plants which are kept here. The vines are planted at the front of the house, where the temperature was frequently not much above the freezing point, while a thermometer near the back wall seldom showed a temperature lower than 40°. It is reasonable to suppose that the tops of the vines, reaching half-way across, would be in a much higher temperature than the lower parts. The sun also at this time of year makes the upper part of the house, excepting near the ventilators, much warmer than the lower part. The growth of the previous season, too, has to be taken into account. When the young vines started in March of last year, they had the disadvantage of less daylight and fewer roots than was the case in May and June, consequently it is not surprising that the best growths and the most perfect buds should be made in the later part of the season. I could not alter the relative strength of these growths by lowering the tops, unless I kept them lowered all through the season, when I might have tops and bottoms in a nearly equal temperature. As I have said, every eye looks

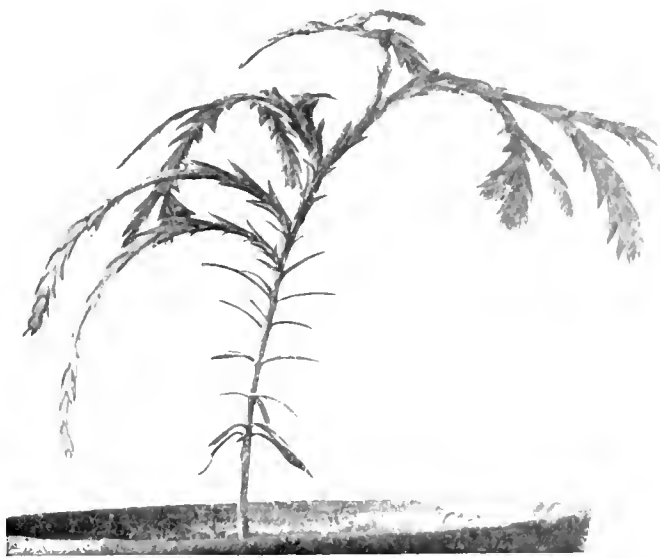


FIG. 111.—SEEDLING PLANT OF FOKIENIA HODGINSII.

sometimes entirely composes the individual, as in the case of *Cupressus* (*Chamaecyparis*) *pisifera squarrosa*. In this *Fokienia* there are three distinct forms of foliage, viz., the form I have termed infantile, here illustrated; the juvenile, also here illustrated, and illustrated at "a," fig. 33, and "K," fig. 34, in the issue for February 4, p. 67; and the adult form, illustrated at "c," fig. 33, and "L," fig. 34, on the same page, and in fig. 32 on p. 66. *R. Irwin Lynch*.

THE DEVELOPMENT OF BRITISH FORESTRY.—I regret that Dr. Groom should have gone to the trouble of unearthing Sir R. Christison's observations on tree growth, as, if he had read pp. 90 and 91, forming part of the chapter he professed to review, he would have found similar facts to those he quotes fully admitted by me. No one having observed tree growth would deny that the Pine genus, in common with many conifers, makes the bulk of its growth in late spring and early summer in certain districts and localities, but the statement I made regarding the growing and ripening season referred to forest trees in general, and not to one or two species or genera only. Any reader of average intelligence could scarcely fail to grasp my meaning with reference to the statement that June, July, and August were the months of greatest importance in the growth and maturing of wood of forest trees in the British Isles. It did not mean that

form their own opinions. Dr. Groom condemned *The Development of British Forestry* on the presumption that certain statements in two chapters were not in accordance with the first principles of vegetable physiology. When I pointed out that these presumptions were not based upon facts as established in British forestry, Dr. Groom quotes observations made on individuals of one or two species, vague references to forest growth outside the British area, and suggests that Wales and Herefordshire afford the most typical examples of mountain land in general. I am afraid that Dr. Groom is so absorbed in "first principles" that he fails to recognise the disturbing factors which are constantly creeping in to produce results other than those anticipated. *A. C. Forbes*.

—Without going into the details of the discussion now taking place in your columns on the subject of British forestry, it may be of some interest to record the following experience. Some years ago a severe gale uprooted a quantity of Austrian and Scots Pines along with some Spruce in the grounds attached to a well-known mansion then under my charge. They had been planted about 40 years, one of the men who helped to clear them away having assisted in planting the belt they grew in. The soil is a stiff loamy one overlaying magnesian limestone.

perfectly, and the difference now in the relative strength of the growths is owing to the difference of temperature now and the superiority of growth made during the most favourable part of last season. The practice of lowering the tops is based on the exploded idea that the angle of training makes a difference. We know that, in the case of the Peach, a strong branch can be checked by lowering it from a perpendicular position to one approaching the horizontal; but with the vine, and, possibly, the Blackberry, the angle of position has not the slightest effect, and any difference there may be is caused by differences in temperature, light, and root-action. The strong growths I have mentioned, including leaders, have already been stopped, and one or two rather gross leaders removed altogether; the weaker growths will show visible improvement now every day. Another case. In another establishment there is a young growth of Gros Maroc, which is very strong. It starts from the base of an old vine, and is nearly as thick as one's thumb, and 8 or 9 feet long. This also was stopped at midsummer, but, being amongst other vines, was, perhaps, scarcely so well ripened as those before mentioned; it broke at every eye, and is showing fruit freely, but the growths are irregular, the strongest being near the bottom, where there are hot-water pipes. All the growths of this rod, too, can be balanced by stopping at the right moment. As to syringing for the sake of moistening the buds which refuse



FIG. 112.—A SELBORNE SOCIETY'S NESTING BOX.

to be moistened even a millionth part of a millimetre under the surface, it is difficult to imagine what effect the moisture can have on these same buds. Mr. Beckett urged in a former article that the showers in spring assisted the trees to open their buds; but how can we tell how much credit to give to the showers and how much to the temperature? Indeed, I imagine the buds would expand without the showers, but not without the warmth. I attempted to show before that a saturated atmosphere must be an evil to fruit trees, and nobody has yet proved that it is a necessary evil. Why is it that those who do not practice it are successful? A sufficient amount of humidity is necessary, but there are limits to its usefulness. It may be said that the vines referred to are not forced; but I must say that, provided they have been properly grown and well ripened, there is an advantage in starting them early in the season, when the sun has less power, and you are not obliged to open the ventilators, consequently there is more uniformity in temperature and humidity. Wm. Taylor.

—In reply to Mr. Jefferies (see p. 235), I may say that for the past 33 years I have followed out my early teaching in vine cultivation obtained in the celebrated gardens at Bicton, Devonshire. My remarks were intended to refer to forced vines only, as vines in later houses break much easier. I have already had a practical lesson in leaving rods in an upright position,

and have no need for a further test; through stress of work the rods in a viney, the vines being five years old, were not lowered in the usual way. The result was they were finely furnished with side shoots half-way down, but the buds on the lower half failed to break well. Un-sightly gaps resulted, and these had to be furnished by training in shoots and tying them to the original cane. This experience was sufficient to convince me of the utility of lowering the rods, and I can substantiate Mr. Beckett's opinion that a level plane is the very best position to ensure an even break. In regard to the flow of the sap I have an object lesson at the present time, for not requiring a number of long shoots of Cannon Hall Muscat they were allowed to root; the result is that the top bud has started and is making vigorous growth, robbing all the lower ones, thus showing the effect of the sap on the top of the cane. I sometimes find a pruning of a lateral shoot, which has not been gathered up at pruning time, lying on the ground and taking root, and I notice that all the buds develop. As regards the syringing, washing off the winter dressing, we do not adopt the old paint system, but employ fluid specifics or emulsions which have the needful effect. H. H. Worthing.

—I have read with interest the correspondence on this subject. I think Mr. Beckett's article was rather misunderstood by some of your correspondents. Mr. Beckett does not mention syringing so as to cause a saturated atmosphere, but rather spraying to cause a "humid atmosphere," which all gardeners know too well is essential in fruit growing, especially under artificial conditions. Syringing vines so as to cause a drip to come in contact with the hot-water pipes and fill the viney with steam is as detrimental as excessive dryness, as it causes soft, weakly growths, that suffer a check when the ventilators are opened in the day time. As regards Mr. Taylor's statement, "There is no such thing as a 'rush of sap to the top' at starting time, for no root fibrils are made till some of the leaves are more than half developed, as only water can be taken up from the earth." Does not water being carried through the roots made in previous years cause a rush of sap to the top, say, in vines started from November to January, and especially with young vines in pots? Young vines in pots, started in November, if tied in their permanent positions, will always break at the top first; at any rate, I have always found it so. If left in that position the vines prove practically useless, as only two or three break later, they are too weak to bear satisfactory fruits. Isaiah Johnson, The Lodge Gardens, Halsworth.

SOCIETIES.

HORTICULTURAL CLUB.

THE BRENT VALLEY BIRD SANCTUARY.

APRIL 11.—On the above date the usual monthly dinner of this club was held at the Hotel Windsor, Mr. Harry J. Veitch occupying the chair. A very interesting lecture was given by Mr. Wilfred Mark Webb, Secretary of the Selborne Society, on the Bird Sanctuary which has been established in a wood between Ealing and Harrow for the protection of bird life amid the ever-increasing dangers which beset it in the environs of London. A large number of lantern slides, mainly executed from photographs taken by Mr. Webb and Mr. Poole (who was also present at the meeting), added much to the interest of Mr. Webb's remarks.

The bird sanctuary covers about 19 acres of land; it is enclosed and adequately protected by the presence of a keeper against the raids of bird-catchers and boys. Many of the slides illustrated nests *in situ*, sometimes with the clutches of unhatched eggs, and in other cases with the young birds. The various methods of building and choice of materials were thus exemplified, and the precautions taken by the birds to hide the nests from their natural foes. One series of slides was devoted to the cuckoo. Her larger, but otherwise similar, egg was first shown in the nest of the unwitting foster parent, the next photograph showing the young cuckoo monopolising the nest after having ousted its unfortunate companions. The growth of the young

cuckoo was followed, and its curiously repellent appearance and snake-like markings of black and white were shown. Owing to the provision of nesting-boxes and other attractions, the nightingale, which has been missed from the locality for some years, had re-established itself, said Mr. Webb, as an annual visitor, and in all a very respectable list of resident or migrant species attested to the value of the Sanctuary.

A number of the concluding slides was devoted to the various kinds of nesting-boxes and other contrivances to the same end, which had been designed and made on the spot as substitutes for those of German manufacture which had hitherto been imported in considerable numbers.

A particularly interesting discussion followed the delivery of the lecture, in which Messrs. Boyd-Watt, Poole, Pearson, Cranfield, Bilney, and Bunyard participated. In discussing the relative merits and demerits of various birds, it was agreed unanimously that gardeners and farmers had not one word to say in favour of the carrion crow and the house sparrow. Kestrels and owls, in many parts victims of misplaced hostility, were, on the contrary, stated to be beneficial, their prey consisting of moles, mice, and other vermin. The bullfinch, starling, and a few other birds were described as very injurious to fruit, and it was agreed generally that their numbers must be regulated.

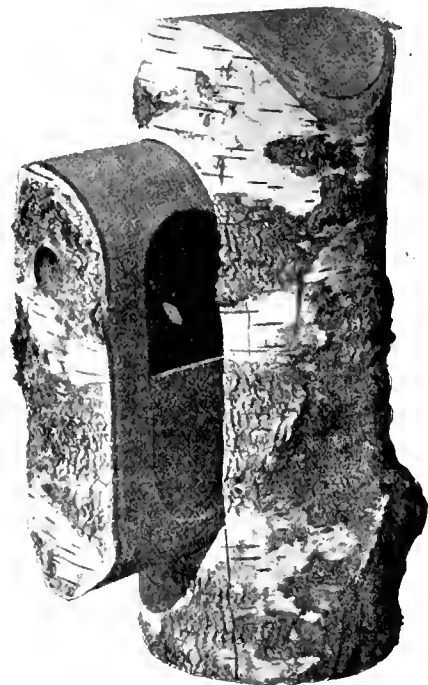


FIG. 113.—NESTING BOX.

The sliding portion is to admit of examining the eggs and cleaning out the contents after the hatching.

One result of the discussion was that it showed plainly, as Mr. Webb well pointed out, that "circumstances alter cases," that birds, like all other forms of life, are factors in the balance of nature, and that whether they are friends or foes depend upon many circumstances. In any case, the cultivator must remember that in shooting or otherwise destroying certain species of birds he may be preparing for his crops a plague of insect pests which the birds would have preyed upon. In many cases it is easier to net the fruit trees than to combat an extraordinary visitation of insect pests.

ROYAL METEOROLOGICAL.

APRIL 19.—The monthly meeting of this Society was held on the above date, at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. N. Dickson, president, occupied the chair.

Mr. W. Marriott read a paper on "Variations in the English Climate during the 30 years 1881-1910." The Royal Meteorological Society in 1874 commenced the organisation of a series of "Second Order Stations," at which observations of pressure, temperature, humidity, rainfall, and wind are made twice a day, viz., at 9 a.m. and 9 p.m. In addition to these, another class of

stations termed "Climatological," at which observations are made once a day, viz., at 9 a.m., was organised in 1880. The monthly results from all these stations have been published in the *Meteorological Record*. The author has taken the general monthly "means" of all these results as representing those for England and Wales, and these general "means" were exhibited to the meeting in the form of an interesting series of diagrams, in which the variations of the elements for each month were shown in red when above the average and in blue when below the average for the 30 years, 1881-1910. The warmest months were August, 1899, July, 1900, and July, 1901, while the coldest months were February, 1895, January, 1881, and December, 1890. During the last 14 years the temperature in October was above the average, with only one exception, viz., 1905. The years with the highest mean temperature were 1896, 1895, and 1899, and the years with the lowest temperature were 1892, 1888, and 1887. The month with the highest mean pressure was February, 1891, and that with the lowest pressure was March, 1909. On the average, April is the month with the least rainfall, and October has the heaviest rainfall, while June has the least number of days of rain. The wettest months during the 30 years were October, 1903, and October, 1891, and the driest months were February, 1891, and April, 1895. The years with the heaviest rainfall were 1903 and 1891, and the years with the least rainfall were 1887 and 1895. The wind diagrams showed that the prevailing winds were from the south-west and west, but that in April, May, and June north-easterly winds were more pronounced than in the other months of the year.

BRITISH GARDENERS' ASSOCIATION.

LONDON BRANCH.

APRIL 13.—The monthly meeting of the London branch of the B.G.A. took place at Carr's Restaurant, Strand, on this date. There was a good attendance, and an interesting debate ensued upon the policy of the association. The discussion was opened by Mr. Smith, of Kew Gardens.

The starting of a fund for the relief of unemployment was strongly advocated, and it was proposed that the annual subscription should be increased by 2s. 6d. to provide for this. Many minor points were raised, such as the question of a Saturday half-holiday, insanitary bothies, and examination for gardeners.

It was also thought desirable that a paid secretary should be appointed who could devote the whole of his time to the interests of the association. Mr. Hawes, in moving a vote of thanks to Mr. Smith, expressed the hope that some of the suggestions made by the speaker might be adopted in the near future.

BIRMINGHAM BRANCH.

MARCH 25.—A meeting of this branch of the B.G.A. was held on the above date, when Mr. J. Udale gave an address on "Examinations for Gardeners." On Saturday, April 22, a social evening will follow the business meeting.

NORTH OF ENGLAND HORTICULTURAL.

APRIL 19.—The second monthly meeting of this Society was held in the Emmanuel Hall, Leeds, on Wednesday last, and was attended by a large number of county people, including Cassandra Countess of Rosse, Lady Kathleen Pilkington, Lady Lowther, Lady Blackett, Lady Peel, the Hon. Mrs. Jackson, Mrs. Fielder, Mrs. W. Wheler, Miss Law or Wetherby, Major Dent, and Messrs. R. F. Roundall, Reginald Farrer, and Hastings Wheler. The attendance was very encouraging to the Council, and augurs well for the success of the Society's monthly exhibitions and meetings. Owing to several causes, such as the prevalence of cold weather and the fact that the meeting was held so soon after the Easter holidays, fewer firms staged exhibits than was the case at the first meeting. A card announced that Messrs. Sutton & Sons, Reading, and others were unable to make the exhibits they expected to contribute. Nevertheless, the hall presented a very pleasing appearance, and the secretary announced that he had already received several requests for space for the next meeting.

Messrs. MANSELL & HATCHER, Rawdon, again furnished half of the central stage with a meritorious exhibit of Orchids. The most noticeable plants were as follows:—*Laelio-Cattleya* G. S. Ball, of rich apricot hue, and *Odontioda Jessopii* (*Odontoglossum* Queen Alexandra × *Cochlioda Noezliana*): the flowers are carmine, coloured with a magenta tint. *Cypripedium Lawrenceanum* *Hycanum* "G. F. Ball's variety" was also good. Other plants included *C. bellatulum*, *C. niveum*, and *C. Veronique*, *Cattleya Schroderae* and *Chysis bracteescens* were represented by excellent specimens, whilst *Laelio-Cattleya* "Baden Powell" stood out prominently in this exhibit. There were also some fine specimens of *Odontoglossums*, including *O. triumphans*, *O. Andersonianum*, *O. crispum*, and *O. Rolfeae*. (Silver-gilt Medal.)

Messrs. CHARLESWORTH & Co., Haywards Heath, Sussex, presented a group of Orchids, including some good hybrids; the flowers appeared exceptionally brilliant. *Odontoglossum Aireworthi* was conspicuous, so also were *O. Jasper*, *O. Lambauium*, *O. Solon*, *O. Dora*, *O. ardentissimum*, *O. concinnum*, and *O. sarcodes*. There was an excellent specimen of *Cattleya Schroderae*. Other plants included *Oncidium concolor*, *Cattleya Empress Frederick*, and *Brasso-Cattleya Veitchii*. (Silver-gilt Medal.)

J. H. CRAVEN, Esq., Keighley (gr Mr. F. Corney), staged a beautiful collection of well-grown plants of *Odontoglossums*, *Cattleyas*, and *Laelio-Cattleyas*. (Silver Medal.)

Messrs. A. J. KEELING & SONS, Bradford, staged a group of Orchids, which included *Cypripedium hirsutissimum* and *C. Gomeri*, *Brasso-Cattleya Queen Alexandra*, *Cymbidium insigne*, and *Dendrobium*. (Bronze Medal.)

Mr. EDWARD LOW, Haywards Heath, presented Orchids, consisting of *Cattleya Ludemanniana*, *C. intermedia alba*, *Laelio-Cattleya highburyensis*, *Dendrobium chesingtonense*, *D. noble virginale*, *Cypripedium aureum* "Surprise" and others. (Bronze Medal.)

Mr. W. SHACKLETON, Bradford, showed a small group composed of *Cypripedium*.

A Silver Medal was also awarded to Messrs. G. K. BATCHELOR & SONS, Harrogate, for a splendid group of *Cinerarias*. The plants were of dwarf habit, and they carried immense heads of bloom. A collection of *Nephrolepis* was shown by the same firm. It included a new sport of merit named *N. Batchelori*, which was awarded a Northern Diploma of the First Class.

Mr. H. HEMSLEY, Crawley, erected a stand furnished with Alpine plants, among which were noticed *Gentiana acaulis alba*, *Artemisa caespitosa*, *Androsace carnea alba*, *Primula cibata coccinea*, *Potentilla Tonguei*, and *Primula Auricula plena*. Flowering shrubs were represented by *Olearia nitida*, *Gaultheria procumbens*, *Rhododendron racemosum*, &c., and evergreens by *Juniperus hibernica*, *Retinospora obtusa nana*, and *R. o. Crippsii*. (Silver Medal.)

Messrs. ALBIS & ROWNTREE, Leeds, exhibited plants consisting chiefly of *Narcissus Poetaz Elvira*, *Juniperus bermudiana* and *Nephrolepis*.

The ORCHID COMMITTEE made the following awards:—

NORTHERN DIPLOMA (FIRST CLASS).

Odontoglossum Jasper and *Cypripedium Lawrenceanum Hycanum* "G. F. Ball's variety," shown by Messrs. MANSELL & HATCHER.

Cattleya Mendelii Dainty, shown by J. H. CRAVEN, Esq.

NORTHERN DIPLOMA (SECOND CLASS).

Cypripedium niveum "Oakden variety," shown by Major ROGERSON.

Colax Charlesworthii and *Odontonia Lairesisii*, from Messrs. CHARLESWORTH & Co., Haywards Heath.

THE PLANT AND FLORAL COMMITTEE made awards as follow:—

NORTHERN DIPLOMA (FIRST CLASS).

Nephrolepis Batchelori, from Messrs. E. J. BATCHELOR & SONS.

NORTHERN DIPLOMA (THIRD CLASS).

Primula Auricula plena, from Mr. H. HEMSLEY, Crawley.

THE SCIENTIFIC COMMITTEE discussed several subjects. The suggested scheme for the education of gardeners was referred to the consideration of a special committee convened for the purpose.

During the afternoon Mr. H. Hemsley gave an address and demonstration on rock gardens in the University lecture hall. The lecturer showed lantern views depicting plants in their natural haunts, and also explained the laying of stones for forming a rockery and the planting of Alpines.

Obituary.

THE LATE MR. GUMBLETON.—The death of Mr. W. E. Gumbleton, briefly recorded in the last issue, is a severe loss to horticulture in general, and particularly to Irish horticulture. Mr. Gumbleton belonged to an old Irish family resident in the County of Cork, and on the death of his father he succeeded to the estate of Belgrove, which lies on the shores of an estuary, about four miles from Queenstown. He studied at Oxford, travelled with his mother, and lived for several periods on the Continent before definitely settling at Belgrove. Whilst abroad he studied languages, music and art, and he became a critical judge of these subjects. As he frequently visited the Continent and England, he availed himself of these opportunities to hunt up collections and to purchase additions for his own collections and library, by which means he got together a rich series of rare and choice articles, and made his botanical library the richest in Ireland. On coming to reside permanently at Belgrove, Mr. Gumbleton devoted his time to horticulture, and made Belgrove one of the most interesting gardens in Ireland. Favoured by a warm, moist climate, he was able to establish many plants which are not hardy in other parts of the country, and he rapidly got together a fine collection of shrubs. He early established a method in his gardening, which he maintained throughout his whole career. His method was to take certain groups or genera of plants, and to study them thoroughly from a gardening point of view, to which end he purchased or acquired by other means all the species and varieties possible of the particular genus he was studying, cultivated them, made observations on them, and then generally gave the public the benefit of his critical notes in the pages of the horticultural periodicals. He spared no pains or trouble to obtain complete materials from all available sources, studying catalogues from various countries and entering into correspondence with amateurs, and with heads of botanical establishments, not only in Great Britain, but in every country in Europe, in South Africa, in North and South America, in Australia, and in India. He also added to his library much of the literature dealing with these special groups. Unfortunately, he could not be induced to make a botanical study of them, or to keep dried materials, hence much of his work has been lost. Amongst the genera he favoured, and about which he published notes, were *Begonia*, *Salvia*, *Dahlia*, *Arctotis*, *Gnaphalium*, *Gyanium* (*Cortaderia*), *Nerine*, *Kniphofia*, *Campanula*, and *Olearia*. Species from several of these genera from the Belgrove Gardens, some of them unique specimens, have been figured in the *Botanical Magazine*, in the *Gardeners' Chronicle*, the *Garden*, and other periodicals. Mr. Gumbleton was a man of strong character, fearless in his criticisms, and very tenacious of any opinions he had formed, after due observations, about plants, and it is therefore not to be wondered at that he was not always a favourite. At the same time, he had a large circle of intimate and affectionate friends, who thoroughly understood him, and who appreciated his many high qualities. He constantly had friends staying with him at Belgrove with whom he would spend the day going systematically through the collections, giving, and getting, information, and in the evenings these notes were verified by reference to books. Such days were most interesting and instructive to his guests, and they will not readily pass from the memory of those who have had the privilege of enjoying them. The late W. E. Gumbleton was a J.P. for Co. Cork, a prominent member of the Masonic order, and local secretary for many charitable organisations. He was unmarried, and as his brother predeceased him, Belgrove estate will pass into the possession of another family. F. W. Moore.

The following letter, written by Mr. Gumbleton on the day before he died, to Mr. Watson,

Curator of the Royal Gardens, Kew, is probably the last he wrote. It is interesting because it shows how fully Mr. Gumbleton retained his interest and love for plants until the end:—

The three plants of the Mexican shrubby perennial *Mentzelia Conzatti*, at one dollar each, ordered about a month ago from Montariso Nursery, Santa Barbara, California, for self and two friends, arrived yesterday in good, fresh condition by parcel post. The sender sent me with them as a present a plant of another new Mexican Composite shrub, *Eupatorium Pazcuarensis*, unknown, he says, in Europe, save from seed sent by Purpus to his brother, the Curator of Darmstadt Botanical Gardens, who distributed it last year, and from whom you may have received it. He says that it may be hardy here, but, if not, that it is worth greenhouse room for its exquisite perfume. When acknowledging his present of *Encelia adenopoda*, quite a new white-flowered Mexican shrub, only discovered in 1907, and first described by Dr. Greenman, in 1909, I told him that you did not consider any *Encelia* known to you worth growing. He says you cannot know *E. californica*. On its native sea cliffs it covers them with gold for many months, which, if you could see, he thinks you would modify, if not alter, your opinion. As I am getting no better of my heart weakness, but rather worse, my doctor says there is nothing for it but a rest cure of another month in bed, aided by drugs which, without it, would do me little or no good, so I commence this month of isolation to-day, and hope it will do me some real and lasting good."

J. ANTOINE FASSOTTE.—On the 5th inst. M. Fassotte passed away, at the age of 70 years, at Boitsfort, near Brussels. For 25 years he was head gardener to Major Morel-Jamar, from whom he enjoyed a pension. M. Fassotte founded the Boitsfort Horticultural Union, of which the 25th anniversary is about to be celebrated. He has been president of the union since its inception. The honorary president is M. Jamar, the honorary vice-president M. Morel-Jamar, and the chairman M. Dessart. M. Fassotte was a gardener of superior attainments, a most practical man, and a capable writer. He was a native of Antwisnes.

WALTER ROWLAND.—The death of Mr. Walter Rowland, gardener at Parker's Well House, Exeter, occurred on April 15, from nicotine poisoning. A few weeks ago he suffered a bereavement in the death of his wife, and he had since been attended by a medical man for nervous breakdown and depression. His death was caused by drinking the contents of a bottle of nicotine and camphor fumigator. He was a skilful cultivator of indoor plants, and won many prizes for stove and greenhouse plants at the West of England flower shows.

WILLIAM FINLAY.—The death of Mr. William Finlay, of Primula Nursery, Pretoria Road, Romford, occurred on the 11th inst., after a brief illness. Mr. Finlay was 79 years of age. He commenced his gardening career in Scotland, and was gardener to the late Sir Charles Tennant, but it was at Wroxton Abbey that he achieved most of his successes, winning many prizes for Grapes. He also won two silver cups in 1876 and 1877 for Potatoes. Whilst at Wroxton he raised the celebrated Wroxton Onion and Wroxton Brussels Sprout, the Wroxton Onion meeting with success at the recent trials held by the National Vegetable Society. From Wroxton he went to Lees Court, Faversham, and whilst there he raised another variety of Onion, which he named Royal Jubilee, but the best stock of this variety was unfortunately lost. On leaving Lees Court he entered into business on his own account at Earlswood, Surrey. The land occupied by this nursery was required by the railway, and he removed to Romford, where the business will still be carried on by his only surviving son.

JOHN MELVILLE.—We regret to record the sudden death, on the 16th inst., of Mr. John Melville, Superintendent of Finsbury Public Park, London. Mr. Melville was in his 66th year, and he had filled the position of superintendent at Finsbury Park for the past 20 years. He received an excellent horticultural training in private establishments before taking up public gardening.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending April 15, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was fair to very fine over the kingdom generally, but a good deal of cloud prevailed in Scotland and the north-east of England. At most places there was slight rain at the beginning of the week, in the north and north-east of Scotland showers occurred at various other times.

The temperature was below the average in Ireland and nearly all parts of England, but in Scotland and England N.E. it was above it, as much as 3° in Scotland E. During the earlier days of the week the maxima were very low, but they subsequently became much higher in England, and on the 14th to 15th the thermometer touched 65° in England S.E. and 66° in England L., the Midland Counties and England S.W. In Ireland S. (at Killybegs on the 13th) there was a reading of 68°. The minima were mostly low for the time of year, and occurred as a rule about the middle of the week. In England S.W. (at Llangammarch Wells) a reading of 23° was recorded, while elsewhere the values ranged from 25° in England S.E. to 30° in England N.E., and to 37° in the English Channel. The lowest readings on the grass were 15° at Llangammarch Wells, 20° at Cambridge, Birmingham, Kew and Wisley, and 21° at several other stations.

The rainfall was less than the average in all districts. Except in a few Scottish localities the fall was extremely slight, several stations in Ireland, Wales and England reporting no measurable quantity.

The bright sunshine exceeded the average except in England N.E. and over Scotland. The percentage of the possible duration ranged from 63° in the English Channel, 59° in England S.W. and Ireland S., and 56° in Ireland N., to 31° in England N.E., and to 22° in Scotland N.

THE WEATHER IN WEST HERTS

Week ending April 12.

Two singularly cold days.—On the first day of the week, and on the last day of the previous week, the highest readings in the thermometer screen were only 37° and 35°, making these two days the coldest I have yet recorded here in April. Four nights were very cold, but not exceptionally so for the time of year, the exposed thermometer indicating respectively 13°, 12°, 10° and 14° of frost. The ground is, at the present time, also very cold, the temperature both at 1 and 2 feet deep being 3° colder than is seasonable. On two days there were very slight falls of either rain, hail or snow. For the last four days there has been no measurable percolation through either of the soil gauges. The sun shone on an average for 4½ hours a day, which is half an hour a day short of the usual duration at this period in April. The winds have been as a rule moderately high, and almost exclusively from some point between north and east. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by two per cent. *E. M., Berkhamsted, April 12, 1911.*

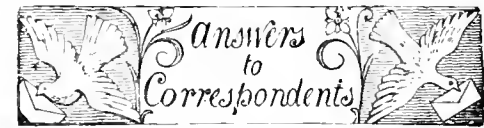
Week ending April 19.

A warm, dry, and sunny week.—During the past week there has not been a single cold day, but several nights were rather below the average in temperature. On the warmest day the highest reading in the thermometer screen was 65°, making this the warmest day as yet this year. The ground is now 1° warmer than is seasonable, both at 1 and 2 feet deep. No rain worth mentioning has now fallen for a fortnight, and during nearly the whole of that period there has been no measurable percolation through either of the soil gauges. The sun shone on an average for 6½ hours a day, or for 1½ hours a day longer than is usual in the middle of April. On one day the sun shone brightly for 10½ hours. The winds have been as a rule light, but moderately high breezes have prevailed during the last two days. On only the first two days of the week was the direction any point between north and east. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity for that hour by as much as 11 per cent. A wild cherry tree growing in my garden came first into flower on the 19th inst., which is exactly its average date for the previous 25 years, and one day later than last year. *E. M., Berkhamsted, April 19, 1911.*

ENQUIRIES AND REPLIES.

CHERRY BLACK TARTARIAN IN A NORTHUMBERLAND GARDEN.—Cherries generally do well with me, specially the variety Emperor Francis, but Black Tartarian blooms well, sets middling, and the fruits that ripen are very often found with a hole bored into them to the stone, with the result that juice escapes and the fruits are ruined. The tree is on a brick wall facing south. What insect destroys the fruit, what is the preventive, and does this Cherry require any special treatment? *X. Y. Z.*

—The larvae of several moths eat holes in Cherries. The caterpillar of the Mottled Umber moth (*Hybernia defoliaria*) gnaws round holes in Cherries down to the stones, and so do the caterpillars of the Winter moth. Probably the attack complained of is that of the larvae of one of these moths. In either case the only remedy is to poison their food. Arsenate of lead paste at the rate of 1 lb. to 25 gallons of water should be sprayed freely over the trees as soon as the blossoms have fallen, and again a fortnight or three weeks later if any caterpillars can be found on the tree. Both species feed on the foliage as well as on the fruit.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

CHRYSANTHEMUM RUST: *Enquirer.* Spray the plants at intervals with potassium sulphide (liver of sulphur). Dissolve 1 ounce of potassium sulphide in 1 quart of hot water, afterwards adding clear water, making 2½ gallons in all.

CREOSOTED TIMBER FOR A GLASSHOUSE: *F. A. E.* It would not be advisable to use creosoted timber for a glasshouse before it has had a month's exposure to the weather. When the house is finished, and before the plants are introduced, apply artificial heat for a couple of days, and open the doors.

CUCUMBER DISEASE: *F. P.* The plants are affected with "spot" disease, caused by *Cercospora melonis*. Spray the foliage with liver of sulphur at the rate of ½ ounce in 2 gallons of water.

MUSCAT VINEY: *H. W.* Provided the paraffin stove is one that does not smoke or give off an excessive smell of the oil, it might be used as you suggest. You must take care to see that it is not placed close under the vines or in such a position as to render the foliage liable to damage from the heat. Now that the weather has changed you may not need to employ the additional means of heating that appeared necessary 10 days ago.

NAMES OF PLANTS: *Ferney.* You send more than the proper number. A small donation to the R.G.O.F. box would be appropriate. 1, *Adiantum cuneatum*; 2, *A. decorum*; 3, *A. gracillimum*; 4, *A. Pacottii*; 5, *Polystichum aculeatum*; 6, *Davallia bullata*; 7, *Asplenium bulbiferum*; 8, *Polystichum angulare*; 9, *Pteris tremula*; 10, *Adiantum formosum*; 11, *Nephrodium molle*; 12, *Cyrtomium falcatum*; 13, *Pteris longifolia*; 14, *Woodwardia radicans*; 15, *Asparagus virgatus*; 16, *Nephrolepis exaltata*; 17, *N. rufescens* variety; 18, *Davallia canariensis*; 19, *Cyrtodeira fulgida*; 20, *Pellionia Daveauna*; 21, *Abutilon Savitzii*.—*A. H.* 1, *Rhododendron fragrantissimum*; 2, *Pteris longifolia*; 3, *Nephrolepis exaltata*; 4, *N. exaltata cristata*; 5, *Adiantum formosum*; 6, *Acalypha marginata*.—*Gwynned.* *Lopezia lineata*.

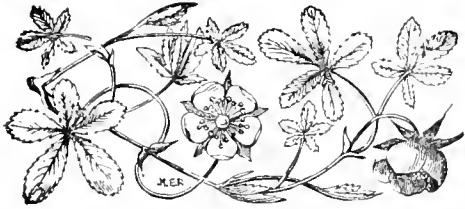
PEACH LEAVES: *Enquirer.* The foliage is attacked by silver-leaf disease. An illustrated article in *Gard. Chron.*, November 12, 1910, p. 356, affords a summary of the latest investigations of the disease, conducted by Mr. Spencer Pickering, at the Woburn Experimental Fruit Station.

ROSES CHAMPION AND SEMIRAMIS: *W. K., Plymouth.* Champion is a Provence variety with large, purple-coloured blooms. It was raised by M. Vihert. There are two varieties of Roses named Semiramis. One is a hybrid-perpetual raised by Touvais in 1864, having flesh-coloured flowers, whilst the other is a Damask Rose, with large, open clusters of pale pink flowers with yellow centres.

TULIPS FAILING TO FLOWER: *S. T. M.* The bulbs are attacked by the fungus causing "Lily disease," which prevents the flower from developing. It is not a case of bad cultivation; but the bulbs are poor in quality.

TWIN SQUASHES: *H. G. M., Rhodesia.* Twin fruits in Cucurbitaceae are by no means uncommon. Variation is seen in the amount of separation that obtains between the twin fruits; sometimes the peduncle is also double. Similar cases have been observed in Vegetable Marrow.

Communications Received.—*W. H. W., G. W. D., Hutton S. S., A. A. P. et Fils, Brussels, S. C., P. C., G. B. S. A., J. G., G. E. W., A. C., F. B., E. P., A. P., F. K., A. C. S., J. H., J. W. S., E. C. B., T. S., H. W. W., J. C., C. P. C., W. E. B., F. B., G. M. T., L. J. C., C. R., Kaimt—H. J. V., J. N., W. B. H., K. & Sons.*



THE

Gardeners' Chronicle

No. 1,270.—SATURDAY, April 29, 1911.

CONTENTS.

Alpine garden, the— Aubrieta Mrs. E. M. Crosfield 261	Peach and Nectarine trees, disbudding the shoots, and thinning the fruits of 259
Retaining moisture in seed pans 261	Propagation by leaves... 266
Aquilegia 266	Rosary, the— Cultural notes for May 258
Bees, epidemic amongst Belvoir Castle, spring flowers at 264	Saunderson, Mr. J., pre- sentation to 264
Books, notices of— Official organ of the American Phyto- pathological Society 260	Scotland, notes from ... 261
The Book of Roses ... 259	Seed sterilisation, for- malin for 265
Publications received 265	Snowdon, Mr. J. Daven- port, appointment of Societies—
Cambridgeshire, market gardening in 266	Devon Daffodil and Spring Flower 270
Caularina Campanula ... 266	Huntingdonshire Daf- fodil 270
Coronation, memorial trees for the 266	National Auricula and Primula 269
Croscoted timber in a greenhouse 266	National Rose 264, 271
Forestry in Scotland ... 265	Perpetual-flowering Carnation 264
Goodrich Court, Here- fordshire 257	Royal Counties Agri- cultural 264
Lilium leucanthum ... 265	Royal Horticultural... 267
Lithospermum prostra- tum 266	Tulipa, species of ... 261
Lycaste Locusta 260	Week's work, the— Apiary, the 263
Market gardening— Sweet Peas 261	Flower garden, the ... 263
Obituary— Hordehise, J. N. 271	French garden, the ... 263
Marliac, B. Latour ... 271	Fruits under glass ... 262
Tranter, John Richard 271	Hardy fruit garden, the 263
White, William 271	Kitchen garden, the ... 262
Orphan Fund, Royal Gardeners' 265	Orchid houses, the ... 262
	Plants under glass ... 262

ILLUSTRATIONS.

Goodrich Court, views in the gardens at 257, 258, 259
Gumbleton, the late Mr. W. E., portrait of 266
Lackey moth, the 271
Lilium leucanthum (Supplementary Illustration)
Lycaste Locusta, flower and floral details of ... 260
Marliac, B. Latour, the late, portrait of 271
Pea, Mummy or Crown 272

GOODRICH COURT.

THE Wye Valley is celebrated for its picturesque scenery and historical associations. There old abbeys and castles abound, many glorious even in their ruins. Among the former, Tintern Abbey, situated in one of the choicest spots in the whole valley, is peerless. Of the lovely river, perhaps the most romantic part in the lower reaches is that extending from Monmouth to Ross. Near Symond's Yat, the "Seven Sisters" rocks, towering almost perpendicularly hundreds of feet high, appear as so many gigantic sentinels in masonry, guarding the river. The rocks arise out of a wealth of vegetation, and are beautifully draped by the wild Clematis.

The botanist may find a wealth of native plants along the Wye banks, including *Saponaria officinalis*, *Lysimachia vulgaris*, *Cotyledon umbilicus*, *Campanula latifolia*, *Ranunculus aquatilis*, and the variety of the last-named species known as fluitans, a very strong grower.

The Mullein and Loosestrife are common, and also the hardwood bush, *Euonymus europæus* (Spindle tree), a subject which should be far more generally grown for the effect of its fruits.

If Goodrich is approached by river, one of the first objects to be observed is the fine old ruin of the castle, once the home of the Talbots, Earls of Shrewsbury. It was in the courtyard here that Wordsworth is said to have met the maiden who inspired the poem "We are Seven." Within a short distance of the castle, and on a yet more commanding eminence, some hundred feet above the river, stands Goodrich Court, a magnificent square pile, erected in 1828, and considerably enlarged and embellished during recent years by the present owner, H. C. Moffat, Esq.

Mr. Moffat not only appreciates good architecture, of which there is abundant evidence, but is also an enthusiast in arboriculture, and has probably selected, collected and grown more Cedars from seed than any other arboriculturist. *Cedrus Libani* is loved most, and many fine plants raised on the place adorn the park and grounds. Among Cedars, of which

from its lowest point two serpentine Yew hedges about 7 feet thick, 7 or 8 feet high, 16 yards apart, and extending northward for 150 yards, form a happy transition from the cultivated to the wilder woodland; between these hedges is a central grass walk flanked by borders of choice perennials.

Immediately behind the nearer hedge, and covering a very steep portion of ground, is an expanse covered with the St. John's Wort, which, even out of flower, is decidedly beautiful, and in flower is most gorgeous.

A broad pathway encircles the sloping lawn, with flights of stone steps at intervals. Judiciously placed in the grass near the various flights of steps are plants of Golden English Yew, clipped into hard, solid balls some 10 feet in diameter. From the lawn, too, the old castle ruins are in view, and more homely, perhaps, yet worthy of note, is a fine Larch plantation which has made prodigious growth in a



FIG. 114.—GOODRICH COURT, HEREFORDSHIRE, THE RESIDENCE OF H. C. MOFFAT, ESQ.

there are several fine specimens, there is one, *Cedrus atlantica glauca*, extraordinarily well grown and exceptionally coloured.

The park abounds in good landscape trees, and future generations will have cause to praise the present for the timely reinforcements in this direction. A young avenue of Lime trees especially will in the future prove a valuable feature.

The Court stands in a spacious square surrounded by massive Yew hedges. Three sides of the square overhang a steep and deep, tree-covered declivity, overlooking the curiously-winding river, with miles of cultivated, undulating country beyond, terminating in the Chase woods and a range of hills of varying heights, somewhat in the form of a crescent. Looking southward from the broad terrace, the ground from the base of the massive retaining wall falls away at a considerable angle, and

very few years. Behind, on the wide sweep of lawn, with the Blue Cedar already referred to, stand a perfect specimen of *Abies nobilis glauca*, 60 feet high, and an equally fine specimen of *Abies Pin-sapo*. Roses are given positions in one part of these grounds, where they are certainly displayed to best advantage, and among these the variety Irish Elegance has stamped itself on the writer's memory.

Topiary has been fittingly introduced in a few cases in the more formal gardens. Suitable figures surmount the solid Yew hedges with good effect, and particularly where they abut on a lovely, semi-Italian garden with Box-panelled beds, which occupies one end of the south terrace. This garden is backed by elegant masonry and statuary, and is approached from the principal entrance by a magnificent hand-wrought-iron gate, the centre of which stands 25 feet high.

The flower beds I have seen furnished in many ways. Recently, tuberous and fibrous-rooted Begonias have been largely employed for summer decoration. Heliotrope, too, is always a special feature here, both for the size and colour of its flowers. Fuchsias and *Lobelia cardinalis* were conspicuous last summer, but a catalogue of subjects is unnecessary; it suffices to say that satisfactory effects are always obtained.

A long walk on the park side of the pleasure grounds is availed by a perfect lot of Irish Yew, forming a long vista of charming scenery. To the back of one line of Yew is an English Yew hedge arranged in squares, the ground spaces being utilised for self beds of Lilliums, Fuchsias, Gladioli, and other flowers, each with an appropriate groundwork.

Fine bushes of *Buddleia*—especially *B. variabilis magnifica*—are a distinctive feature. *Piptanthus nepalensis*, too, is conspicuous, with shrubs rich in flowering shrubs, specimen Hollies, and *Rhus Cotinus* in its warmest glow.

The herbaceous border on the north terrace, the pillar gardening, which is a modern intro-

Ernest, Marguerite Marillat, and Triomphe de Vienne, the latter being a great favourite.

Of Apples, the following sorts are considered most desirable:—*Dessert*: Cox's Orange Pippin, followed in point of merit by Rival and Houblon, two of Mr. Chas. Ross's seedlings; James Grieve, Allington Pippin, Adam's Pearmain, Egremont Russet, and for its good appearance, Worcester Pearmain. *Kitchen sorts*: Warner's King, Peasgood's Nonesuch, Charles Ross, Loddington, Lord Derby, Norfolk Beauty, Newton Wonder, Emperor Alexander, and Hambling's Seedling. Many other sorts are grown, and the majority are given a trial, and find their own level. Colour develops to perfection, and a sight to be remembered was a huge tree of *Mère de Ménage* Apple in an old orchard loaded with large fruit of intense colour.

Cherries and Plums, too, with the whole gamut of small fruits are equally well grown. Gooseberries of the best Lancashire sorts are trained on wires, with three upright shoots, securing the best possible results on the smallest space. Mr. Spencer is so well pleased with the

In Figs Brown Turkey is the staple variety, but the White Ischia or Singleton is exceedingly free-bearing and richly flavoured.

Four plants, besides forcing-houses, well filled with successions of furnishing and decorative subjects, indicate large demand and equal supply—one house filled with Orchids, containing many seedlings of local origin proves the wonderful versatility of the gardener. In another large plant house, having a water tank under the centre stage, *Vanda suavis* and *V. tricolor*, fine plants clothed to the pot, are in that rare health that unfortunately is now seldom seen. Plant growing is inherited by Mr. Spencer from an earlier generation, and one is not surprised to see specimen plants of *Statice Halfordii* and *S. profusa*, with *Crassulas*, and other plants, which the present generation grows very sparingly. In conclusion, a word of hearty congratulation to Mr. Thomas Spencer on his successful management of the 400 acres of farm and garden for more years than he cares to admit, and to his son, Mr. W. J. Spencer, upon whom devolves the duty of foreman in the affairs of this great gardening establishment. *K. Bridge.*



FIG. 115.—GOODRICH COURT: PORTION OF SOUTH TERRACE GARDEN.

duction, and other features must necessarily be passed over in a short notice, but before leaving these lovely grounds I would suggest that an Ash tree of considerable dimensions, which obstructs the view of a charming bend in the river from the south terrace, should be removed.

Fruit, as may indeed be expected in the famous fruit county of Hereford, is one of the chief considerations at Goodrich, and in a new brick-walled garden of four acres—made and planted about 20 years ago—fruit is grown to perfection. Fruits of exhibition quality are obtained both on bushes and pyramids in the open, and on the colonnades and fan-trained trees on the walls.

One wall, about 150 yards long, devoted to Peas, chiefly corbons, is invariably, year by year, a store-house of good things, to witness which pilgrimages are made by enthusiasts from beyond the confines of the county. I have seen the following varieties in magnificent condition: Doyenné du Comice, Pitmaston Duchess, Durondeau, Conference, Famille d'Heyst, Charles

new Strawberry "George Munro" that he is preparing a good batch for forcing.

Cobs and Fillberts bear abundantly.

Peaches and Nectarines are not grown out doors, but under glass there are superb trees of the following varieties, which occupy three large heated houses and one long unheated case. *Perches*: Royal George, one of the most reliable, Stirling Castle, Crimson Galande (this variety is much esteemed here), and Bellegarde, with others. *Nectarines*: Lord Napier, Pitmaston Orange, Rivers' Orange, Early Rivers, and Pine Apple, the first named and Early Rivers having each a spread of 20 feet and perfectly formed.

The five spacious vineries are devoted to the usual varieties of Grapes for early and late supply. The Muscats were specially good, with Madresfield Court in one house, and Duchess of Buccleuch considerably above the average. Mr. Spencer recommends the extension system for the variety Duchess of Buccleuch.

THE ROSARY.

CULTURAL NOTES FOR MAY.

SHOULD the recent frosts have damaged the shoots after pruning, cut them back again to sound wood. Continue to hoe the ground whenever it is in a favourable condition for working. If the plants have not yet been manured, this work should be done without further delay. Animal manures are the best to use; a little of the surface soil being first removed and replaced on the top of the manure. Continue to feed Roses trained on walls and fences. If the borders are dry, apply copious waterings of weak liquid manure from the farmyard. Maggots will be appearing on the more forward growths, and these, as well as other grubs and caterpillars, should be removed by hand-picking. If this is persevered with for only a short time, the pests may be soon exterminated.

Press the soil firmly against cuttings of both stocks and Roses, and then hoe the ground between the rows. The soil is often quite dry during this time of the year, and moisture must be applied if considered necessary.

It is a good plan to syringe Roses against walls in the open with a specific, whether mildew is present or not, using the wash recommended in the notes for April.

Any shoots of wall Roses that may have been loosened by the wind should be made secure. Galvanized "eyes" let into the wall, with wires stretched between them are better for fastening the shoots than nails and shreds. The wires are permanent, have a neater appearance, do not spoil the wall, nor cramp the growths closely to it. On warm walls, a few blooms may be opening by the end of the month, and the plants will be benefited by a syringing if the weather is dry.

Prepare for the planting of the grafted Roses which are not intended to be grown in pots. A good display of flowers may be obtained during late summer and autumn from such free growers as G. Nabonmand, Peace, Mme. Antoine Mari, Le Progrès, Corallina, Lady Battersea, and others of a similar type. Make sure that the soil in the pots is moist before turning the plants out, and avoid breaking the ball of soil more than can be helped. It is wise to draw a slight trench with the hoe before planting the Roses, as this enables the plants to be placed deeply with little trouble, and it is very important to have the junction of graft and stock below the ground. Water the roots freely, and draw the soil to the stems again, pressing it firmly round the plants.

By the end of the present month maiden plants—those of last season's budding—will need support. Consider the height, strength, and general habit of each variety before placing the stakes in position. Unless extra good flowers of any special variety are required early, it is better to head back or pinch out the point of the shoot as soon as convenient, as this will result in a stronger plant and obviate the necessity of tying the shoots early. There is much to be said in favour of thinning-out the young growths early, for not only are they usually too numerous to mature properly, but also those in the centre of the plant crowd the others and prevent the light from reaching them.

ROSES UNDER GLASS.

GRAFTED Roses intended for pot cultivation will need repotting, using a little richer compost and well-drained pots. With brighter days, a little more shading may be applied. Food may be afforded, the amount being regulated by the condition of the growth. Most varieties of Roses under glass should now be at their best condition

especially if the shoots are partially ripened and the plants generally rested first. *Practica.*

THE BOOK OF ROSES.*

THIS is a useful and readable little book, though its title is somewhat ambitious. It is certainly difficult nowadays to write anything original on Rose growing, and our author is probably wise in keeping to the beaten track. Since the book is evidently intended to assist the novice in Rose growing, this conservative treatment is by no means a drawback. The author takes us through the usual routine of Rose culture, treating of soil, manures, planting, and propagation. In dealing with pruning he follows closely the directions of the National Rose Society. The direction to prune *R. Wichuraiana* and its hybrids in March is, however, unwise, and it should be corrected in the next edition of the pruning book. The *Roses* make their young shoots so early in the year that a good deal of unnecessary damage is done in deferring the pruning so late. The pruning of these *Roses* and the multifloras may begin in the

PEACHES AND NECTARINES.

DISBUDDING AND THINNING THE FRUIT.

THE time is now approaching when these important items of work in the successful growth of trees growing against walls out of doors should receive careful attention.

The question may reasonably be asked of the gardener, what is the object he has in view in disbudding his Peach and Nectarine trees? This is a pertinent question to ask, because amateurs and beginners have a real difficulty in fully grasping the idea as to what is meant by the operations, the reasons advanced in favour of the practices, and also how to carry them out. In the first place, it may be said that disbudding has to do entirely with the young shoots, namely, the growths made in the previous summer and autumn. It is these young shoots that produce the foliage which clothes the tree, and the fruit that forms the crop, and also the shoots which will produce the crop of fruit the following year. Nature is bountiful in its gift of growth during spring and summer, and, if every leaf-bud that breaks into growth and every blossom that sets its fruit were allowed to remain, the results would be disastrous. It is, therefore, not too much to claim for the art of disbudding that it is a work of the first importance in relation to the successful culture of these trees.

The first thing the cultivator should do is to critically survey his tree to see whether there are any gaps which require to be filled with fruit-bearing wood; a good grower will not be satisfied until every portion of the surface of his tree bears its proportion of fruit. Should there be gaps, provision must be made to leave buds on shoots in the most favourable position to fill them. It may not be possible to fill them in one year, but eventually every gap can be made good. Another important thing to find out is whether by inadequate disbudding in the previous year, there are too many of these young shoots left on the trees. It is a debated question how near together the young shoots of last year's growth should be placed all over the surface of a tree after the winter pruning and training have taken place. As some guide to the beginner, I may say that about 2 inches apart all over the tree is a fair distance to allow when the branches are of moderate strength, and 2½ inches for stronger ones; for those below the average strength less than 2 inches will suffice.

The grower having satisfied himself on this point, the next question to consider is the best time to carry out the operation. All gardeners do not agree on this point, some claiming that the wood buds should be partly rubbed off (disbudded) as soon as large enough to handle, say, the size of a Pea, whilst others prefer to wait for a fuller development of the bud, in order, they say, to permit of distinguishing between the growths, as to which are the stronger, rubbing off the weakest buds first (by means of the fingers and thumb), the second weakest next in about a week or ten days, leaving the final disbudding for another eight days, and then selecting the three strongest buds (or shoots) to remain in the position on the shoot, as near as possible where it is wished for them to grow into shoots for the production of fruit next year. Those points are the base of the shoot, the middle, and the top bud at the end of the shoot. The lower buds at the base of the shoots are often rather weak; the best out of the three lowest should be chosen. They should, if possible, be on the upper side of the shoot, not that they bear fruit any better on this side than on the lower one, but the symmetry, training and proper balance of the trees are better secured and maintained in this way.

I do not think that the practice of extending the disbudding of Peach and Nectarine trees over a long period of time, say, three weeks, in successional stages, is supported by any other evidence of good accruing to the trees from



FIG. 116.—GOODRICH COURT: PORTION OF GROUNDS OVERLOOKING THE OLD CASTLE AND RIVER.

of flowering, and the earliest plants will be finishing their chief crop of blooms by the end of this month. It is well to keep such plants a little cooler. *Wichuraiana* varieties, too, when in full flower, will not only be brighter, but last much longer in bloom if allowed a temperature not higher than from 60° to 65°, or even lower, if the temperature can be maintained uniformly and a little ventilation is afforded carefully.

Insect pests and mildew must be combatted, and care must be taken that borders containing climbing *Roses* do not get dry.

A few plants that have passed their best stage of flowering may be placed in another house, as this will allow more room for those that remain. Those that are removed may either be partially ripened off, which will be beneficial when they form their second crop of flowers, or steadily matured to provide the very earliest flowers under glass next season. Any that can be spared will also be found useful during late summer and autumn for planting out in the open ground. Quite old and apparently worn-out plants often do well when planted in fresh soil, more

autumn, or as soon as no more flowers are expected, and should be finished by the end of January at latest. The latter part of the book contains a series of short chapters on various classes of *Roses*. Old-fashioned *Roses*, wild *Roses*, and autumn blooming *Roses* are briefly but pleasantly dealt with, and the *Wichuraianas* somewhat more fully. A chapter on Standard *Roses* is chiefly devoted to the weeping forms from the same family which have lately become so popular. Other chapters deal with scent in *Roses*, *Roses* for towns, and exhibiting *Roses*, while about four pages are devoted to the enemies of the *Rose*. The author has evidently a considerable knowledge of the literature of the *Rose*, and has put his material together within the ambit of 100 pages in a manner which ought to prove extremely useful for the readers for whom it is intended. The volume is illustrated by 16 photographs of *Roses*, either as specimen flowers or as seen in the garden, the specimens being generally the more satisfactory.

* By Louis D'Orand, Handbooks of Practical Gardening Series. (London: John Lane.) Price 2s. 6d.

this practice than that given by long usage. There is no reason that I know of why disbudding should not be carried out at one operation, and that as soon as possible, after the buds are sufficiently developed for the grower to determine which are the best. Indeed, I think there is strong reason of adopting the latter method in preference to the former as the forces of the tree, instead of being dissipated in the swelling of buds which will afterwards be disbudded or rubbed off, will be utilized in greater volume and force for the nourishing and fuller development of the fewer buds which remain.

Having finished the disbudding, which becomes simply a mechanical operation when once the principles are properly understood, the grower must not suppose that all his care as regards the training of these young branches is at an end. It is not always possible to come to a conclusion at the time of disbudding as to whether there are too many buds left to grow into branches or not. This cannot be ascertained until the young shoots have reached that stage of growth, when it is necessary for them to be tied or nailed to the wall. It is then easy enough to see, and if it is found that a too generous provision has been made, the grower must not hesitate to cut out the weaker shoots at their base, until a proper balance of branches is obtained, and it is possible to expose every portion of the tree fully to the light, heat and air. It will be found that as the summer advances many laterals or side shoots will spring from these young shoots, and if not cut off in good time, they will grow to such an extent as to choke the air—and light—spaces between the branches. The way to deal with these is to cut them clean away, close to the stem from which they sprang, as soon as they appear. *Owen Thomas.*

(To be continued.)

NOTICES OF BOOKS.

PHYTOPATHOLOGY.*

PHYTOPATHOLOGY, the study of diseases of plants, occupies a prominent position in the many agricultural experiment stations in the United States. The Bureau of Plant Industry under the U.S. Department of Agriculture, the central organisation at Washington, alone employs a large and efficient staff of specialists, devoting the whole of their time to the study of the minute plant organisms which cause disease in plants, and also to the solution of the perplexing problems connected with the protection of plant life. Dr. Erwin F. Smith, who ranks among the most prominent members of the staff, is in charge of the laboratory of plant pathology. His laboratory, which I had the pleasure to visit, is and deserves to be, because of its magnificent equipment, the base for all the plant pathological work of the Bureau of Plant Industry. It receives an appropriation of from £3,000 to £4,500 per annum, of which nearly £3,000 is spent in salaries. Under Dr. Smith's direction there are, beside the central laboratory, others devoted to the investigation of the diseases of forest trees, grain fodder, vegetable and other crops, each with separate endowments.

Nearly every State possesses its own experimental station, and on the staff there are one or more plant pathologists whose activity is seen every year in the large number of bulletins and annual reports distributed gratuitously throughout the different States. To Europeans this large mass of printed matter issuing annually from the various centres not infrequently duplications and compilations of work—seems to savour of over publication. Nevertheless, the Americans take far more interest in the problems of plant-diseases than is evident in any other country except Germany.

In view of these facts, it is only surprising that, with so large a body of trained men interested in the study of disease, the birth of a society devoted to phytopathological interests has not taken place sooner. It was my privilege to be present at the inaugural meeting of the new Phytopathological Society held at Boston at the time of the meeting of the American Association, and to get an idea of the enthusiastic spirit of its members from all over the United States. One may well realise the advantages of such an organisation in a vast country like the States, and the future prospects of this society may be considered safe.

Hitherto, any matter concerning the study of plant diseases was brought before the section of Botany at the Association meetings, or was published in various periodicals, more or less unknown to Europeans. Hence the society is to be

culture, deals with the important question of floret sterility in Wheats. In England we are more familiar with this peculiar phenomenon in Oats and Barley. The author's observations deserve careful study. The conclusion reached may be summarised thus, that the most important agents causing floret sterility (at San Antonio, Texas, at least) are rusts. As the rust spores, however, are frequently carried by the small thrips, which were found in 1903 in at least two-thirds of all sterile flowers examined, the prevention of this trouble is primarily an entomological problem.

The present number contains seven contributions, beside a review of Stephen and Hall's new work on *Diseases of Economic Plants*, which book, good as it is, is marred by the unfortunate tendency of its authors to form the common names for nearly all described diseases

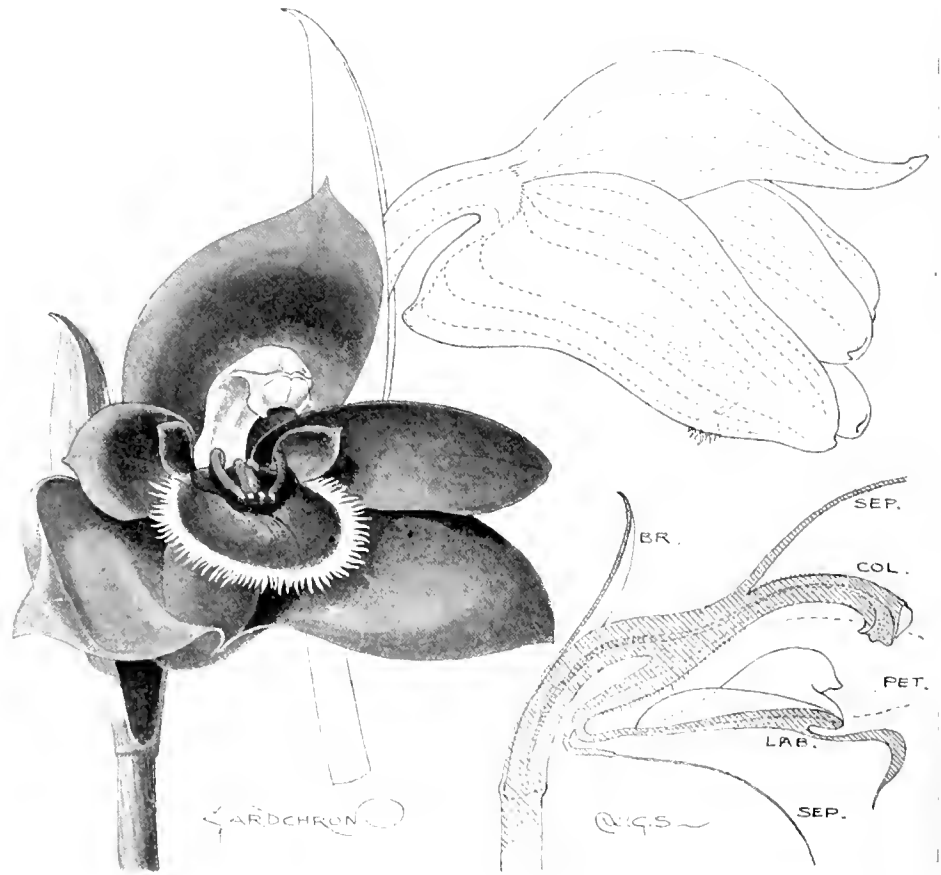


FIG. 117.—LYCASTE LOCUSTA: FLOWER GREENISH WITH WHITE FRINGE ON LABELLUM.

congratulated upon the publication of a journal devoted entirely to phytopathology.

Though primarily devoted to the dissemination of matter brought before the society by its own members, the editorial board, assisted by a number of associate editors from various parts of the States, and including a representative from Canada, will aim to make the journal more broadly representative, and there is no reason why this journal should not become valuable to investigators all the world over, who must welcome a good résumé of the work done by American investigators.

It is proposed to issue the journal bi-monthly for the present. It has long been my hope to see a publication of this kind appear in England, and it may yet be that that country will follow America's lead.

Dr. Erwin Smith ushers the new journal into the world by paying homage in an opening biographical sketch to Anton de Bary.

The same author contributes an article with some excellent photographs on the results of his study of crown gall of plants.

Mr. Johnson, of the U.S. Department of Agri-

from their generic names by terminating them in "ose," "rose," or "nose" (Vermiculariose! Cercosporose! Pseudomonose!). *H. T. Gussow, Ottawa.*

LYCASTE LOCUSTA.

This very remarkable species was discovered by Davis when collecting in Peru for Messrs. Jas. Veitch & Sons, with whom it flowered, and was described by the late Professor Reichenbach in the *Gardeners' Chronicle*, 1879, p. 524, the author remarking on the peculiarity of the deep green tint of the whole flower, except the short whitish fringe of the labellum. Like many other interesting plants, it soon drifted out of gardens, and nothing more was seen of it until the year 1898, when Messrs. Sander & Sons showed the fine variety of it which we now illustrate from a specimen supplied by F. Monteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth). This variety was provisionally named *Lycaste Mooreana*. It belongs to a section comprising about a dozen species distinguished by the fringed label- lum.

* Official organ of the American Phytopathological Society, Vol. 1, No. 1, February, 1911. Published bi-monthly for the Society by Andrus & Church, Printers, Ithaca, N.Y.

SCOTLAND.

FIRE IN A GARDEN.

A FIRE occurred in the garden at Croys, Kirkcudbrightshire, the property of Mr. J. Beaumont Neilson, early in the morning of April 19. The house and garden staffs were summoned, and Mr. Neilson assisted, with the result that the fire was prevented from extending to the vineries and Peach houses, although the potting and tool houses were destroyed.

THE LATE MISS CRUICKSHANK.

It will be remembered that Miss Anne Hamilton Cruickshank, who died at Aberdeen recently, rendered a service to botany and horticulture by her gift of the Cruickshank Botanic Gardens at Old Aberdeen to the University of Aberdeen. This gift Miss Cruickshank associated with the name of her brother, Dr. Alexander Cruickshank. The deceased was a generous benefactor to the district in many ways, and her loss, at the advanced age of 90 years, will be deeply regretted. By the terms of her will, Miss Cruickshank has left £10,000 to trustees for the founding and supporting in Marischal College of a science library to be called the Cruickshank Science Library.

GLASGOW PARKS IN SPRING.

At Easter the various parks in Glasgow attracted a considerable number of visitors, and the appearance of the grounds was favourably remarked upon by the public and the local press. In the Botanic Gardens, both indoors and in the open, the display was highly creditable to the staff. At Springburn, Queen's Park, Tollcross, and the other leading parks the Louses open to the public were bright, and the early flowers on the rockeries were highly attractive.

AN "ARBOR" DAY AT GRANTOWN.

Few of the Scottish towns do as much to improve their amenities as they might, and others would do well to imitate the northern burgh of Grantown, which has an "Amenities Committee," through the instrumentality of which an "Arbor Day" has been inaugurated. This took place on April 19, when a large company assembled in the square, and were addressed by Provost Barclay and other gentlemen. After the speeches a procession was formed, and proceeded towards the west end of the town, when trees were planted along the road leading to the skating pond. The first was planted by Mr. Grant Thomson, and others by some of the school children. The procession then moved to the open space in front of the County Buildings, where further trees were planted.

ABERDEEN AND NORTH OF SCOTLAND COLLEGE OF AGRICULTURE.

From the report for 1909-1910 just issued, it is evident that striking progress is being made in practically every department of this college. The enrolments in the various classes show a capital increase. An evening class in chemistry was attended by an average of 125 each night, and an evening class in forestry by 140. In the day classes stock-judging had an average of 40; butter making, 50; surveying and field work, agricultural hygiene, and agricultural zoology, each 26; bacteriology, 4; organic chemistry, 7; seed testing, 7; and the farmers' four-weeks' course totalled 46. Experiments were carried out at 201 centres, 106 of the number being devoted to grass seed mixtures. For these 1,553 plots were utilised, the approximate acreage being 146.

In his report on the forestry department, Mr. William Dawson, the lecturer, states that it would be an excellent thing if further facilities for the study of the subject were provided at this centre, which, so far as practical forestry is concerned, is unique, it being situated in the midst of one of the best wooded areas in the country, and in close proximity to varied woodlands. By using existing facilities in the University and Agricultural College, and by the

addition of one or two new lectureships, it would be possible to give instruction in forestry as complete as that provided by any institution in this country, while for practical instruction Aberdeen is situated perhaps more favourably than any other. It is highly desirable that these increased facilities for study should be provided, as experience goes to prove that there is no lack of students of the right type who are ready to take advantage of them. *Correspondent.*

MARKET GARDENING.

SWEET PEAS.

Our stock of Sweet Peas has just been transplanted from the 3-inch pots in which they were raised into suitably-prepared trenches. The seed was sown towards the end of January, the pots being filled to the rim with old soil from a Cucumber house, five or six seeds being placed in each pot. The seeds were germinated in a forcing house, but as soon as the plants appeared through the soil they were transferred to a stage near the roof-glass, in a house having a minimum temperature of about 50°. Subsequently the plants were removed to a cold, shallow pit to harden them, the sashes being removed on fine days and replaced in the evenings, a little ventilation being permitted at night. The trenches are 4 feet apart from centre to centre, each being 12 inches wide and about the same depth. A 5-inch or 6-inch layer of short stable manure is incorporated with the soil, the trenches being afterwards filled with the excavated soil a few inches above the ground level to make allowance for the soil subsiding. Before turning the plants out of their pots, the soil is made moist, and they are then planted in the trenches 6 or 8 inches from clump to clump, making the soil firm about the roots. Thus planted the haulms will have ample room to develop sturdily and furnish long-stemmed, substantial flowers in abundance during the summer and early autumn. After planting, a little soil is drawn up to the plants on either side of the rows, and the stakes are placed in position close up to the plants on either side. The Pea-sticks should range from 5 to 6 feet in height.

GATHERING AND BUNCHING THE FLOWERS.

The flowers should be gathered before they are fully opened. Place from 18 to 24 blooms in a bunch made in the form of a spray in the process of gathering, in order to show off each flower to advantage; the bunches must be faced. Every crooked-stemmed and otherwise deformed spike should be picked off the plants and discarded. No seed-pods should be allowed to develop on the plants so long as the latter are likely to produce flowers fit for marketing. Where manure is fairly plentiful, a mulching, 3 or 4 inches thick, should be placed on the sides of the rows, as this will not only result in extra fine blooms, but also prolong the flowering period by maintaining a uniform degree of warmth and moisture at the roots. We cultivate the following varieties: (*Ward standards*) Apple Blossom Spencer, a large flower with rose-coloured standard and blush-rose wings; Countess Spencer, a beautiful, large-flowered pink variety; Florence Morse Spencer, a delicate blush-rose shade, with pink margins; Frank Dolby, pale blue, a variety after the style of Lady Grisel Hamilton, but with much larger flowers; Gladys Unwin, pale pink; King Edward Spencer, crimson-scarlet; Miss Willmott Improved, deep orange-pink, a larger and much-improved flower than the original variety; Maude Holmes, a crimson variety of the largest size, the colour being proof against bright sunshine; Nora Unwin, a pure-white variety, excelling Dorothy Eckford in both size and form, and Queen Alexandra, a grand scarlet variety that withstands bright sunshine. *H. W. Ward, Lime House, Rayleigh.*

THE ALPINE GARDEN.

RETAINING MOISTURE IN SEED PANS.

In order to prevent the soil in my seed pans from becoming dry quickly, I adopted the following device: A frame was selected and the soil was removed from the interior, leaving the frame approximately 18 inches deep at the back and 14 inches at the front. The bottom and sides were made watertight with cement, there being a fall of 4 inches from back to front. Next a piece of lead pipe was placed along the front of the frame inside, and this was supported on pieces of crocks to keep it clear of the bottom. The pipe was perforated with holes at intervals of 1 inch, the holes being placed downwards. The opening at one end of the pipe was closed, the other end being bent at right angles and passed through the brick wall of the frame, so that it protruded 1 inch on the outside. A layer of bricks broken to about 1 inch cubes, from which the dust had been sifted, was placed in the frame to a depth of 4 inches, and on the top of this a 2 inch layer of the same material broken to the size of $\frac{1}{2}$ inch. At the back, right-hand corner of the frame another piece of lead pipe $\frac{3}{8}$ inch in diameter was passed through a hole cut in the top plate or sill. This pipe was also perforated, the holes being placed on the bottom side so as to prevent them becoming choked with small particles of brick or soil. The pipe was carried along the back of the frame, being bent to the left, so that it rested on the pieces of bricks. Next some fibrous portions from peat moss were placed to a depth of 1 inch, and upon this layer some finely-sifted peat to a depth of 6 inches. The layer of peat moss was to prevent the finer particles of peat getting in between the broken bricks. A piece of rubber piping was attached to the lead pipe projecting through the bottom of the front wall, and it was so arranged that the free end of it could be raised or lowered as desired. The inlet pipe being connected with the water supply the moisture saturates the broken bricks, the surplus moisture passing through the outlet. The water rises through the several layers and keeps the soil in the seed pans moist, but not too wet. In very dry weather, or when considered necessary for other reasons, the rubber pipe may be raised an inch or two, so that an inch or so of water remains in the bottom of the frame. A very small stream of water suffices to keep all the materials in the frame moist, and if a water main is not available a small barrel may be requisitioned. *R. A. Malby.*

AUBRIETIA MRS. E. M. CROSFIELD.

The blooms of this variety are larger than those of Dr. Mules, the colour of the petals being a rich violet-blue, and the plant is, I think, freer in bloom than Prichard's A1, which seems to be its nearest rival. I am informed that it was raised in the garden of Mr. E. M. Crosfield, and was first distributed some three years ago. *S. A.*

SPECIES OF TULIPA.—Mr. Wyndham Fitzherbert, in his excellent article (see p. 241), seems to have overlooked the claims of one or two good species. For instance, *T. praestans*, with its brilliant, orange-scarlet flowers borne two and three on a stem, makes a striking blaze of colour; *T. sauveolens* is a taller and stronger grower, and flowers later than *praestans*, but the colour is much the same. *T. montana* is a striking species, about a foot in height; the flowers are brilliant scarlet, with a large central black star. *T. linifolia* and *T. Batavica*, if planted in juxtaposition, make a very pleasing contrast. *T. pulchella* is not a very handsome species, as though the colour varies, most of the flowers exhibit a dull shade of carmine-rose. *T. Kaufmanniana* certainly deserves to be more widely grown, for a group of a few dozen plants of this species in a sheltered corner makes a picture on a bright day in early March which is scarcely equalled by any other subject in flower at the same time. *W. G. Bearington, Bygnor Park Gardens, Pulborough.*

The Week's Work.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

FRENCH BEANS.—A sowing of dwarf French Beans may be made as soon as possible, selecting a south border with rich, sandy soil, for if the soil is cold and wet the seeds of this early sowing are more likely to rot than germinate. The seeds may be sown in drills 2 feet apart, and covered with 2 inches of fine soil. When the plants are above the ground some means of protection should be kept in readiness in case of frost; Earliest of All and Ne Plus Ultra are good sorts for early sowing out-of-doors. Plants in pits or houses from which supplies are being gathered should be watered frequently with tepid liquid manure. Syringe freely amongst the foliage to prevent red spider, and admit air freely during mild weather to plants in heated pits. Cold pits should be closed as early in the afternoon as possible in order to husband the sun heat.

LARGE ONIONS.—Assuming that seeds were sown early in the year for the purpose of cultivating large Onions, the plants should now be hardened off and ready for planting out. If the ground has been trenched and a liberal supply of manure given in early winter, the surface should be broken up with a digging fork and the soil allowed to remain loose until dry enough to crumble under the foot when trodden. It should then be trodden evenly all over the bed and made level before planting commences. After this has been done, plant out the Onions in rows at 18 inches apart, allowing 15 inches between the plants in the row, just planting deep enough to keep them in an upright position and pressing the soil round the neck of the plants with the hand. If the weather is dry at the time of planting, give the plants a liberal supply of water separately.

SCORZONERA.—Seeds of Scorzonera may be sown in rows 18 inches apart.

SORREL.—Plantations of Sorrel may be made now on good rich soil in order to grow the leaves as large and as juicy as possible. Allow the plants 18 inches between the rows. Plants which may have been forced during the spring may be pulled to pieces for the purpose.

HERBS.—Seedling herbs should be pricked out on a well-prepared border in order to get a stock of young plants for next season's plantations.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C., V.O., C.I.E., Westonbirt, Gloucestershire.

DECIDUOUS DENDROBIUMS.—Most of the species and hybrids of this section have passed out of flower, and are now pushing forth new growths from the stem-like pseudo-bulbs. It is at this time that any necessary repotting or top-dressing should be attended to. The disturbance of plants well established in a good root medium should be avoided beyond picking out some of the surface material and replacing it with new. Young, vigorous plants that are root-bound should be shifted on with as little root disturbance as possible, using receptacles of sufficient capacity to accommodate the plants for two years. But any specimens that have become exhausted should have all the material shaken from their roots, and after dividing the plants, cutting away all dead roots and useless pseudo-bulbs, pot up the divided portions into pots of sufficient size only for them to become established for growing on again into specimens. Well-drained pots or pans are the most suitable receptacles for these plants, and the potting compost should consist of *Osmunda* and *Polypodium* fibres and Sphagnum-moss in equal parts. These materials should be well broken up, and a free addition of coarse silver sand and crushed crocks used in the mixture. Pot the plants moderately firm, keeping the base of each plant a little below the rim of the receptacle, and surface them with a thin layer of clean,

chopped Sphagnum-moss. Small plants should be suspended from the roof, but the larger specimens may be accommodated on the stage. The culture of the *Dendrobiums* is not difficult, provided a warm, moist atmosphere is afforded them. During the early stages of growth only sufficient water should be given to keep the rooting materials just moist, increasing the supply as the roots increase in the new material; from that time until the terminal leaves have formed and the pseudo-bulbs are fully developed, a hot, moist, buoyant atmosphere and liberal treatment are necessary. The plants delight in a clear light, excepting at the present time, when since the growths are young and root disturbance is taking place, extra shading is necessary. Towards the latter end of the growing season they do not require much shading. Deciduous *Dendrobiums* can easily be propagated by division, by taking advantage of apical growths proceeding from immature pseudo-bulbs, or by cutting off some well-ripened bulbs, choosing, as far as possible, those that have not bloomed. Lay these bulbs on a bed of moss, or cut them into short lengths and insert them as ordinary cuttings in pots filled with chopped Sphagnum-moss and sand, placing them in a warm propagating case, where they will soon develop new growths.

NIGHT TEMPERATURES.—At the present season there is always the risk of frost and cold winds at night, necessitating an increase of fire heat; but the less heat employed at night the better for the health of the collection generally. A decided fall in the temperature occurs in most tropical countries at night, and similar conditions are necessary for *Orchids* under cultivation. Often when the sky appears clear and there are indications of frost at the time of putting the fires right for the night the temperature rises directly afterwards, the atmosphere becomes dull and cloudy, and on entering the houses in the early morning a rise in temperature is found to have occurred instead of a fall, which would have given just the restful temperature the plants enjoy. It is far better for the heat to drop a few degrees below what are the recognised temperatures than for it to rise on a warm, muggy night; therefore, when in doubt, the fires are better left rather low than high. I do not advocate keeping very close to stated temperatures by night or day, having found much better results accrue from working with the weather, so to speak, and instead of keeping too much fire-heat or cold nights or having cold pipes when the weather is warmer, allow a little drop in the former case, and keep the air circulating by warm pipes and ventilation even when the out-of-door atmosphere is warmer than usual.

PLANTS UNDER GLASS.

By JAMES HEDSON, Gardener to Lt.-Col. D. RODRIGUEZ, Lt.-Col., Gunnersbury House, Acton, Middlesex.

AGAPANTHUS UMBELLATUS.—Old plants of *Agapanthus* frequently become crowded in their pots, and it is then advisable to divide them. This is best accomplished by cutting up the mass of crowns into convenient portions, and placing a suitable number in tubs, which are better than pots, as the pressure of the roots frequently breaks earthenware receptacles. Employ good turf loam and well-broken mortar rubble, which is better than sand, as a potting mixture.

HYMENOCALLIS MACROSTEPHANA AND PANCRATIUM FRAGRANS. These handsome flowering plants, which require only a moderately high temperature, thrive well in a stove. The growths should not be allowed to become crowded in the pots, for only vigorous, strong bulbs will produce satisfactory flower-spikes. If any disturbance at the roots of either subject is contemplated, the present is a suitable time to undertake the work. The offsets may be potted to increase the stock, placing not more than three of the small bulbs in the same pot. Even the largest bulbs do not require big pots, as the specimens do best when they are divided frequently. In potting, afford similar conditions to those advised in the last calendar for *Eucharis grandiflora*.

URCEOLINA PENDULA (SYN. AUREA).—I prefer to grow this autumn-flowering bulbous plant singly rather than in masses. One stock has just been repotted, and the plants are starting into growth afresh. The blooms last in a good condition for fully a fortnight, and are very acceptable during the dull days of November and

December. The plant requires a similar treatment to *Eucharis grandiflora* when in active growth. The flowers appear after the foliage has died, and at that stage water must be afforded sparingly.

CLIVIA MINIATA.—As soon as the flowers of *Clivia miniata* have faded, growth recommences, and that stage affords a suitable time for re-potting. It is not advisable to disturb the plant unless signs are observed that fresh rooting material is necessary, but if the plant shows signs of declining vigour then repot, but do not divide the specimens unless an increase of stock is desired. I prefer to employ as a compost half peat and half loam. After the plants are repotted, stand them in a temperate house to encourage a quick, free growth.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

EARLY PEACHES AND NECTARINES.—In many instances these fruits will now be stoning, and they should not be hurried with excessively high temperatures during that period. When they again commence to swell, however, if ripe fruit is desired as early as possible, the house can be more sparingly ventilated, and a higher temperature maintained by closing the house earlier in the day and increasing the temperature at night. No time should now be lost in removing any fruits above the number required for the crop, taking care to avoid overcropping. Expose the fruits to the light as much as possible, as this will enhance the flavour and appearance of the crop. This is easily done by using fairly wide labels or laths, cutting them into strips long enough to reach from wire to wire on the trellis, and placing them immediately under the fruits. Do not attempt to raise any fruits that are awkwardly placed and difficult to upraise, but generally most of them can be so treated by loosening an occasional tie. Remove any growths not required, and as the fruits colour they should be kept free of the foliage. The borders will require plenty of water, and, when stoning is completed, copious supplies of liquid manure water and good artificial manure well washed down. Continue to syringe the trees freely, early in the morning and afternoon, using soft water for preference. As the ripening period advances, the flavour will be considerably improved by a free circulation of air, admitted whenever possible both at top and bottom. Allow the ventilators to remain open a little at night, but at the same time maintaining warmth in the water pipes. Discontinue syringing as the colouring and swelling of the fruits increase.

MELONS.—The bright sunshine has done much for the successional plants of Melons. These plants require similar treatment to that advised for the earliest batch. Maintain plenty of heat at night, not allowing the temperature to fall below 70°. Except when in flower, the plants should be syringed freely with tepid water, and tepid water should also be employed for the root waterings. Fertilise the pistillate flowers towards mid-day, and continue to do so until an even set is secured, removing the earliest set and those which are advanced beyond the others. Three fruits will be a good average for cordon plants. Stop the growths at one node beyond the fruits, keeping the foliage pinched and regulated at intervals to prevent overcrowding. The earliest Melons, which are now swelling freely, should be supported before they get very heavy. There are several devices for doing this, but I prefer the small nets made for the purpose. The plants will require plenty of manual assistance whilst swelling their fruits, and the bed must not be allowed to become dry. Maintain a humid atmosphere in the house by frequent dampings and syringings, with damping the floor space last thing with manure water. The use of stimulants should be gradually withheld as the fruits develop and begin to net, and the ventilation increased, but do not subject the plant to excessive dryness which would cause the foliage to wither before the fruits mature. Seed of varieties for succession should now be sown for frame and pit culture as required. When making new borders keep a sharp look out for wireworm, and where this pest is known to be prevalent in the loam, fresh loam free from the pest should be obtained. Great destruction is often caused by this pest eating the roots of young Melon plants.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens Buckinghamshire.

WALL TREES.—Wall fruit trees that are still in bloom should be protected until all danger of frost is past, then the coverings should be gradually removed. Pears will now be in full flower, and I would take this opportunity to urge the importance of thinning the fruit early, especially the choicer kinds, or those that may be required for exhibition or any other special purpose. Peaches, though better than Apricots, are yielding us a light crop. There was a fair show of blossom, but many of the flowers were very weak; the young wood did not get properly matured last season. Most wall trees will soon require constant attention in disbudding, stopping, and regulating the young shoots, and preserving them from the attacks of insects. Peaches, Nectarines, and Cherries especially, require unemitting attention to keep the young growths clean and healthy. Let all disbudding be done gradually, removing a few shoots at each operation. During warm weather give the trees a good syringing with the garden engine three or four times a week. Look over newly-grafted trees, and remove all shoots and suckers that proceed from below the grafts. Attend to all young trees planted during the present season, and, if necessary, thin the buds, leaving the best placed and strongest for the formation of the future tree, and during dry weather give the trees a good supply of water. Plums, Apples, and Pears growing as cordons or Espaliers, that do not assume the desirable characteristics of naturally developed spur growths, should be induced to do so artificially by pinching to the third or fourth leaf; growths are usually produced very freely, and a proportion might well be reduced by disbudding; beside growths from dormant buds, there is usually a number from quite dormant buds, both among the spurs and older branches, and it is these which too often over-crowd the trees with half-ripened, unfruitful wood. Their early removal will simplify the management of the tree later in the season.

VINES ON WALLS.—If these are pruned on the spur system they should have all but two growths removed from each spur, leaving one to bear fruit and the other as a successional shoot to be pruned to two buds in the following winter. Where strong, well-ripened canes can be laid in, some of the buds must be rubbed off, for by this time these will be advancing into active growth. In training the vine it is necessary to keep three principal objects in view, first to cover the space allotted to it with fruit-bearing branches, leaving room both for ripening the fruit and the branches that are to bear fruit the succeeding year; second, to take off the top of each branch or growth bearing fruit at the second or third joint beyond the branch; and, third, to remove all lateral growths as they arise, and any shoots which, though formerly laid in for fruiting, turn out unproductive. By regulating the growths early the fruit will become larger and ripen sooner than when the vines are allowed to grow as they will.

STRAWBERRIES.—Recently-planted Strawberries, as advised in a former calendar, should have all flower trusses removed as soon as they appear. Copious waterings may be necessary, and every assistance should be given the plants to aid them in developing strong crowns by the autumn.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

ANNUALS.—In gardens where the strains of *Nemesia strumosa* will not continue in flower during the whole season, seeds should be sown at the present time in beds or borders where the plants may bloom in order to form a succession to those raised under glass. Other seeds which may now be sown out of doors are *Amaranthus caudatus* (Love Lies Bleeding), *A. hypochondriacus* (Prince's Feather), and *Mignonette*. *Mignonette* requires soil which is extremely rich and friable; in the best cultivation single plants will cover 2 or 3 feet of surface. The seeds of *Mignonette* should only be covered very slightly. Dwarf *Nasturtiums* may be sown where the plants are to flower, one foot apart is quite close enough. The soil selected for these plants must be what is known as poor soil, as they develop an undesirable amount of foliage if the ground is only moderately rich.

Varieties known as the Pearl and Salmon Coloured Dwarf are among the most attractive, but some prefer varieties with deeper-coloured flowers.

THE MIXED BORDER.—Those who have a supply of pigeon or poultry manure will find either material very valuable if applied thinly over the mixed border. If either material is coarse or much mixed with feathers it should be sifted, the coarser portions laid aside, and the finer portions being used. It is generally possible to plant up those portions of the mixed border reserved for short-lived plants before the general bedding-out is commenced, employing such plants as Larkspur, Antirrhinum, *Matricaria*, *Penstemon*, *Salvia patens*, and East Lothian Stocks. The hardy Staticee, for example, *S. Suworowii* and hardened plants of *Scabiosa*, Pansies and Indian Pinks are also in proper condition for transplanting at the present time. If the ground has not been prepared previously, it should be worked well with a fork, and some thoroughly decayed manure introduced. Then the soil may be made firm for planting. If any annuals are to be sown in this border no time should be lost before this is done. The front of the border nearest the lawn or path should be well furnished with flowers, even if the portion further from the side is less well furnished.

ANTHEMIS TINCTORIA.—This indigenous plant is worth cultivation in the flower garden. It may be planted in masses or in small groups, and will flower continuously for months together.

THE FRENCH GARDEN.

By PAUL AGATIAS.

HOT-BEDS.—The frames and lights may now be placed in position on the site allotted for the Melons. Do this on a calm day, as the Cauliflowers will be liable to become uprooted if the weather is boisterous. Make the paths level with the beds by placing short manure in them, and fill up the spaces at the sides of the frames with fine soil. The hose is now used for watering. The carrots are swelling fast, and require an abundance of moisture. Turnips also are forming their roots, and need copious waterings. The lights may be removed from the frames during the day in favourable weather, but they should be replaced again at night until eight or ten days have passed. The second batch of Cos Lettuce growing in the beds under cloches will shortly be ready for market. The plants are generally cut as soon as possible, in order that the glasses may be used for the third batch on the north side. The cloches should be shaded with linewash, as the sun is warm and bright.

UNHEATED BEDS. Both types of "Little Gott" Lettuces have been marketed, and we are now cutting the variety "Passion." The frames and lights occupied by the Lettuces are utilised for the second batch of Melons. The ground occupied by the Cauliflowers is hoed, raked, and then covered with a good mulching of manure.

MELONS. The earliest Melon plants are being pruned a second time by stopping the two laterals at the fifth leaf. As side growths develop from the "collar," remove them carefully to ensure a clear stem. The planting of Melons is being hastened as quickly as time allows, especially as all the materials used for the spring crops are available. The work necessitated by making the beds and filling the frames is usually done by one man, help being given him only for carrying the manure and setting the frames. Employ mats at night-time, and afford a moderate amount of ventilation for two or three hours daily after the plants are established. A can of water once a week is sufficient for each light until the next two weeks; select a warm day for watering.

TOMATOS IN FRAMES.—Where a variety of crops is desired, Tomatos may be grown in frames. The plants are now set on ground prepared previously for the purpose. Eight plants are placed in each light—24 per frame in three rows. The soil is covered with a layer of straw or hay 1 inch in depth. When the plants are well established, they are stopped after the fifth leaf has formed. The five side shoots that develop are allowed to grow until they form one truss of flowers each, then they are stopped one leaf beyond the inflorescences; by this system tying and staking are unnecessary.

NURSERY BEDS.—Cucumber and Melon plants should receive the necessary watering and ventilation. During bright weather, shade the plants lightly by spreading straw or dry manure over the glass. Young Melon plants should be stopped after the second leaf at an early stage, as growth is very rapid at the present time. Cucumbers, however, are not stopped until after the sixth or seventh leaf. The last batch of Celery for the season should now be sown under cloches or in a spare light. The plants will form the main winter batch of Celery, and are planted out late in July. Young Tomato plants should be gradually hardened off by giving air day and night when possible.

WORK IN THE OPEN GROUND.—Tomato plants may now be planted on a south border, preferably in firm ground. The plants are covered with cloches, which should be lime-washed to prevent the leaves from flagging in bright sunshine. Turnips sown early this month should be thinned, and water afforded whenever moisture is needed. The plants of Passion Lettuce should receive ample waterings to favour a quick growth, in order to have them ready for cutting within the next fortnight, as after that date prices are too low to be remunerative. It is often necessary to market them before they have formed good hearts, especially when there is a batch of 10,000 plants or more.

THE APIARY.

By CHLORIS.

THE DISEASE.—Whilst disease is so common and apparently spreading, every care should be taken to minimise the danger of contagion. Some few days ago I met a beekeeper who informed me he had lost every stock from disease. His colonies had undoubtedly died of "Isle of Wight" disease, which he himself suspected, but the hives are allowed to stand undisturbed at the risk of spreading the disease. I endeavoured to persuade him to at least close the entrances, but he would not listen, and unfortunately there is no power that can compel him. I have lost all but two colonies myself, but this has not deterred me, and I have burnt all the infected hives, frames and everything connected with the diseased stocks.

PREPARING FOR THE HONEY SEASON.—In fruit growing districts beekeepers should lose no time in hurrying up the colonies by slow feeding, so that they will be in readiness to work in the supers, storing an excellent sample of honey. When it is found that the upper cells in the brood chamber are tipped with new, white wax it is time to add storing space above. First scrape off all brace-combs on the top of the brood frames, and take care to place all these in some convenient receptacle. If this wax is allowed to fall on the floor board the wax moth will find it and lay eggs in it. Having removed all brace-combs and having looked for the grubs of the wax moth, put on the zinc excluder, which should fit truly but not tightly. It is usually best to put in shallow frames with fully drawn-out combs first, then, after the bees have got into the habit of storing above, the frames may be replaced by sections. Some beekeepers remove the queen excluder when these are put in, but such a proceeding is only safe when done by an expert. After the supers are added they should be covered warmly by quilts, remembering that it is hardly possible to make the hives too cosy. It is useless to expect the bees to fill sections unless the colony is a very strong one and honey producing flowers abundant. If colonies are not strong enough to take full advantage of the early honey flow, then two colonies should be united in the manner previously indicated, so that the combs in the brood chamber are a solid mass of brood. Unless the pasturage is everything that could be desired, it is a waste of effort and no economy to endeavour to secure honey from the fruit blossom.

GENERAL REMARKS.—Where bees are raising brood rapidly, and if the weather is bad, it will be necessary to feed the bees slowly, but regularly. If the queen ceases laying through lack of food she may cease for weeks during the slack time that is often experienced during May, when cold winds prevent the bees from leaving the hives during days together. The losses in bee life are often heavy during the early part of May.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR MAY.

- TUESDAY, MAY 2—
Perpetual-Flowering Carnation Soc. Sh. at Botanic Gardens, Regent's Park (2 days). Scottish Hort. Assoc. meet.
- WEDNESDAY, MAY 3—
Nat. Auricula and Primula Soc. (Midland Section) Sh. at Birmingham Bot. Gdns. (2 days).
- THURSDAY, MAY 4—Linnean Soc. meet.
- SATURDAY, MAY 6—
Soc. Française d'Hort. de Londres meet.
- MONDAY, MAY 8—
United Hort. Benefit & Prov. Soc. Com. meet.
- TUESDAY, MAY 9—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. H. Corveon, on "Alpine Gardens.")
- WEDNESDAY, MAY 17—
North of England Hort. Soc. meet.
- FRIDAY, MAY 19—
Soc. Nationale d'Hort. de France (Paris) Spring Exh. (19-26).
- SATURDAY, MAY 20—
Soc. Nationale d'Hort. de France (Paris) Congress (2 days).
- TUESDAY, MAY 23—
Roy. Hort. Soc. Sh. in Temple Gdns., Thames Embankment (3 days). Gard. Royal Ben. Institution Ann. Festival Dinner in the Grocer's Hall, Princes Street, London. Devon Counties Sh. at Newton Abbot (3 days).
- WEDNESDAY, MAY 24—
Nat. Tulp Soc. Ann. Exh. Linnean Soc. Ann. Meet.
- WEDNESDAY, MAY 31—
Bath and West and Southern Counties Sh. at Cardiff (May 31 June 5). Irish Gard. Assoc. and Benev. Soc. meet.

AVERAGE MEAN TEMPERATURE for the coming week deduced from observations during the last fifty years at Greenwich—49.9°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, April 26 (6 P.M.): Max. 60° Min. 49°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, April 27 (10 A.M.): Bar, 29.5; Temp, 56°; Weather—Overcast.

PROVINCES.—Wednesday, April 26: Max 56° Cambridge; Min. 47° Ireland, S.W.

SALES FOR THE ENSUING WEEK.

- WEDNESDAY—
Herbaceous Plants and Perennials, Lilies and other Hardy Bulbs, at 12; Palms and Plants at 4; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
- THURSDAY—
Presentation Cups, Medals, &c., by Messrs. T. Cripps & Sons, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
- FRIDAY—
Imported Cattleyas Aurea and other Imported Orchids, Established Orchids, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The National Rose Society.

The National Rose Society has existed for 33 years, and it is perhaps not a little curious that it should have held its first Rose Conference on Tuesday last. April was an appropriate month to select for holding the Conference, for it was in the month of April, 1857, that Reynolds Hole first suggested in the pages of *The Florist* "that we should hold near some central station a grand national Rose show—a feast of Roses at which the whole brotherhood might meet in love and unity to drink out of the cups of silver success to the queen of flowers" and a year later the Society came into being. There have been

Rose Conferences before this, the later ones including the Conference at Chiswick in 1889, and that at Holland House in June, 1902, but these were quite formal affairs with set programmes held under the auspices of the Royal Horticultural Society.

The National Rose Society has, from time to time, held meetings for the discussion of particular questions. Among the most noteworthy of these special conferences were the symposium on Tea Roses, and that on the preparation of soils for Roses, but quite different from these was Tuesday's Conference. First it was a Conference of the whole Society, and was so well attended that the large room at the Westminster Palace Hotel engaged for the purpose was not big enough to hold the numerous company which responded to the Society's invitation. Next, this Conference was, as it was clearly intended to be, quite informal, and this informality was fully in accordance with the traditions of the Society. The intention was that the occasion should afford opportunity for members to raise and discuss the special difficulties which they experience.

There was no formal list of speakers. The President, the Rev. J. H. Pemberton, opened the discussion with a survey of the routine of Rose-culture, taking as his text the necessity for personal observation for success with Roses. Let the cultivator go into the lanes, or, better, into the woods and study the differences between the habits of growth of the wild English Roses, and let him make himself familiar with the differences between the Dog Rose and *Rosa arvensis* before he enters his own garden with the object of pruning.

After the President's opening address, the discussion became general. It was clear that each speaker brought forward the matter that most nearly concerned him. One member sought for assistance as to the cultivation of Gloire de Margottin and Paul's Carmine Pillar, which had puzzled him, and this led to the interesting statement from Mr. G. L. Paul, that, whilst Paul's Carmine Pillar had occasionally been stated to be an offspring of Gloire de Margottin, it was in fact a chance seedling, and its parentage could only be indirectly inferred. Another member asked for advice as to what kind of pruning he ought to apply to Gruss an Teplitz and Mme. Alfred Carrière.

The treatment appropriate for the deadly black spot received considerable attention. Mr. G. L. Paul caused much amusement by saying that, though he knew some men who could cure or prevent it, of whom a few had passed through his nursery, he had never been able to get any of them to tell him how they did it! This may not seem very helpful. And yet Rose-growers know how true it is, and how often the real gardener, with the keen eye, can prevent what he cannot cure, and by a whole-hearted devotion often attain a sympathetic power of knowing the condition of his plants, amounting almost to divination, which enables him he cannot tell you how—to avert these maladies.

He is a thorough Rose-grower, but he cannot tell you how he obtains success. If others watch him, and they have also that keen eye, they may, if they love their plants, learn in time. We remember being filled with admiration for a lovely box of Roses which was being set up by such a Rose-grower as we have described. "How do you manage to get such lovely flowers?" we said. "What is the secret?" "Well, I don't know, sir," was the answer, "they just grow."

All who attended the Conference will agree that the President is to be heartily congratulated both on the idea of the Conference and on the way it was conducted. The dinner afterwards was well attended, and made a pleasant termination to the proceedings.

The National Rose Society has increased in prosperity very much in late years, and it may be asked if its usefulness to the members has increased in the same degree? We hope that it has, and that the Conference is a new departure for the furtherance of the objects which the Society has always pursued.

ROYAL COUNTIES AGRICULTURAL SOCIETY.

—It has been decided to add a flower show to the attractions of the Society's show to be held at Weymouth in June next. Mr. C. S. FUDGE, of 7, Silverdale Road, Southampton, has been appointed superintendent, and all communications relating to the Horticultural Department should be sent to him.

PERPETUAL-FLOWERING CARNATION SOCIETY.

—The tenth exhibition of the Perpetual-flowering Carnation Society will be held in the Royal Botanic Gardens, Regent's Park, on Tuesday and Wednesday, May 2 and 3. Particulars may be obtained from the Hon. Secretary and Show Superintendent, Mr. E. F. HAWES, Royal Botanic Gardens, Regent's Park.

SPRING FLOWERS AT BELVOIR CASTLE.—

Mr. DIVERS informs us that the spring flowers at Belvoir Castle are now at their best, and that they may be expected to continue in good condition for several weeks. The recent severe weather has not damaged the dwarf plants, but some of the evergreen shrubs have suffered injury. The Duchess Garden is open to the public every week day.

PRESENTATION.—

Mr. J. SAUNDERSON, who has relinquished the charge of the Bodnant Gardens in North Wales, was formerly forman of the forcing department at Chatsworth, under the famous Mr. SPEED. Mr. SAUNDERSON left Chatsworth just on 50 years ago to go to Bodnant. At that time Bodnant was a comparatively small garden, but Mr. H. D. POCHIN, the father of Lady McLAREN, the present owner, had recently acquired the estate, and was already engaged in enlarging and beautifying the gardens. Under Mr. SAUNDERSON'S skill and care, this work went on apace. Terraces were made, and the sheltered fertile slopes of the valley below the mansion were planted with many coniferous and other rare trees and shrubs. Nymphæas, together with a variety of reeds and rushes, have since been planted in large ponds, so that now Bodnant contains an extensive collection of rare and interesting plants. On the occasion of his retirement, Mr. SAUNDERSON was presented with a silver tea service from Lady McLAREN and a large timepiece from the garden and estate staffs.



LILIUM BROWNII LEUCANTHUM,

FLOWERS WHITE, WITH A CRIMSON FLUSH ON THE EXPOSED SIDE OF EACH SEGMENT.

(FROM A PLANT GROWN BY CAPT. SAMUEL REID AT YALDING.)

APPOINTMENT FROM KEW.—Mr. JOSEPH DAVENPORT SNOWDEN, a member of the gardening staff has been appointed by the Secretary of State for the Colonies, Assistant in the Agricultural Department of Uganda.

ROYAL GARDENERS' ORPHAN FUND.—The 23rd annual dinner in aid of this fund will take place at the Hotel Cecil, Strand, W.C., on Thursday next, May 4, under the presidency of NATHANIEL N. SHERWOOD, Esq., vice-president. The following supporters of the fund have kindly consented to act as stewards on this occasion, and will be glad to receive contributions for the Chairman's list:—Messrs. W. R. Alderson, Hershham Road, Walton-on-Thames; A. R. Allan, Hillingdon Court Gardens, Uxbridge; William Y. Baker, Thames Bank Iron Co., Upper Ground Street, London, S.E.; George H. Barr, King Street, Covent Garden, W.C.; W. Bates, Cross Deep, Twickenham; John Brydon, 3, Tubwell Row, Darlington; G. L. Caselton, Garden Superintendent, Crystal Palace, S.E.; George H. Cuthbert, The Nurseries, Southgate, N.; William H. Cutbush, The Nurseries, Barnet, Heits.; Charles Daniels, Royal Norfolk Seed Establishment, Norwich; C. Dixon, Holland House Gardens, Kensington, W.; R. A. Dixon (Messrs. E. P. Dixon & Sons, Ltd.), Paragon Square, Hull; John Harrison, Market Place, Leicester; W. Howe, Park Hill Gardens, Streatham Common, S.W.; D. Ingaunells, 27, Catherine Street, Covent Garden, W.C.; R. B. Leech, The Cottage, Wood Hall, Dulwich, S.E.; John Lyne, Foxbury Gardens, Chislehurst, Kent; H. B. May, V.M.H., Dyson's Lane Nursery, Upper Edmonton; J. F. McLeod, Dover House Gardens, Roehampton, S.W.; J. W. Moorman, 33, Wetherall Road, South Hackney, N.E.; Thomas A. Morris, 67, 68, Cheapside, E.C.; Whitpaine Nutting, 106, Southwark Street, S.E.; R. Hooper Pearson, "Braewyn," Earlsfield Road, Wandsworth Common, S.W.; William Poupart, Marsh Farm, Twickenham; G. Reynolds, Gunnersbury Park Gardens, Acton, W.; E. Rochford, Mill Lane Nurseries, Cheshunt; T. W. Sanders, 124, Embleton Road, Lewisham, S.E.; Edward Sherwood, 152, Houndsditch, E. (treasurer); David W. Thomson, 113, George Street, Edinburgh; W. P. Thomson, 25, Bollo Lane, Chiswick, W.; T. P. Trounce, J.P., Bank House, Waltham Abbey; Harry J. Veitch, V.M.H., Royal Exotic Nursery, Chelsea; P. C. M. Veitch, J.P., Royal Nurseries, New North Road, Exeter; J. H. Witty, St. James's Villa, Swain's Lane, Highgate; and B. L. Wright, Fruit Market, Covent Garden, W.C. We trust that our readers will do all that is possible to make this event a success. At the present time the number of orphan children seeking relief is so large that the resources of the fund are taxed to the utmost.

FORESTRY IN SCOTLAND.—Official announcement has been made of the appointment by the Secretary for Scotland of the following committee to consider and report as to certain questions regarding forestry in Scotland:—Sir JOHN STIRLING MAXWELL, Bart. (chairman), the Right Hon. Lord LOVAT, C.B., K.C.V.O., &c., the Right Hon. R. C. MUNRO FERGUSON, M.P., JOHN D. SUTHERLAND, Esq., Oban, Sir JOHN FLEMING, LL.D., Sir MATTHEW WALLACE, R. H. N. SELLAR, Esq., Mr. H. WARR CORNISH, Dover House, Whitehall, S.W., is the secretary to the committee. The following are the terms of reference to the committee:—"To report as to the selection of a suitable location for a demonstration forest area in Scotland; the uses, present and prospective, to which such area may be put (including the use that may be made of it by the various forestry teaching centres in Scotland); the staff and equipment required for successful working; the probable cost; and the most suitable form of management. To report as to any

further steps following upon the acquisition of the said area which, in the opinion of the committee, it is desirable should be taken with a view to promoting sylviculture in Scotland, due regard being had to the interests of other rural industries."

THE EPIDEMIC AMONGST BEES.—The Board of Agriculture and Fisheries desire to inform bee-keepers in Great Britain that investigations are being carried on by their scientific advisers into the causes and characteristics of the disease among bees which has now broken out in many counties, and which originally made its appearance in the Isle of Wight. The Board would be glad to receive communications from bee-keepers whose bees have been affected by the disease, and who would be willing to supply information likely to be of service in connection with the investigations. A statement of the points upon which it is desired to obtain particulars would be sent on application. Information as to new outbreaks in districts only recently infected is especially desired. In certain cases specimens of diseased bees will be required. Correspondents are therefore requested to say whether they could send bees for examination. Bees should not be sent to the Board until asked for. Communications should be addressed to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W.

FORMALIN FOR SEED-STERILISATION.—The importance of destroying the spores of parasitic fungi which may be adhering to the coats of seeds is well known and widely practised in the case of cereals liable to be attacked by certain kinds of smut. It is, therefore, useful to know what strength of formalin may be employed with safety, and this has been determined by the staff of the Utah Agricultural Experiment Station (*Bulletin* No. 108), with the following result:—One pound of formalin to 50 gallons of water did not seriously reduce the percentage of germination of Wheat, Oats or Barley, the reduction being: in Wheat from 97 per cent. to 91 per cent., in Oats 99 per cent. to 91 per cent., and in Barley none. On the other hand, one pound of formalin to 40 gallons of water reduced the germination of Wheat by almost one-half, though it did not very greatly affect that of Oats or Barley.

PUBLICATIONS RECEIVED.—*Board of Agriculture and Fisheries. Agricultural Statistics, 1910.* Vol. xlv., part I. Acreage and Live Stock Returns of Great Britain; with Summaries for the United Kingdom. (London: Wyman & Sons, Ltd.) Price 5d.—*Studies of Trees and Flowers*, by M. Wrigley, with descriptions by Annie Lorrain Smith. (London: Methuen & Co., Ltd.) Price 15s. net.—*Department of Agriculture, Trinidad. Bulletin: The Cacao Thrips*, by F. W. Ulrich. (Trinidad: Government Printing Office, Port-of-Spain).—*Journal of the Board of Agriculture.* General Index Vols. i-x., from 1894 to 1904. Price 1s. General Index Vols. xi-xvii., 1904 to 1911. Price 4d. (London: R. Clay & Sons, Ltd.)—*Field Experiments at the Harper Adams Agricultural College, Newport, Salop, in Staffordshire, and Shropshire.* Report for season 1910. (Shropshire: Harper Adams Agricultural College.) Price 1s.—*Royal Botanic Gardens, Kew. Bulletin of Miscellaneous Information.* Catalogue of the Library, additions received during 1910. (London: Darling & Son, Ltd.) Price 3d.—*The Women's Agricultural and Horticultural International Union.* Monthly Leaflet, April 15, 1911. (London: The Women's Agricultural and Horticultural International Union, 64, Lower Sloane Street.) Price 2d.—*Rhododendrons and Azaleas*, by William Watson, A.L.S., with preface by Fred W. Moore, M.A., in Present-day Gardening series, edited by R. Hooper Pearson. (London: T. C. and E. C. Jack.) Price 1s. 6d.—*The Gladiolus*, by Matthew Crawford and Dr. W. Van Fleet. (Chicago: Vaughan's Seed Store.)

LILIUM LEUCANTHUM.

(See Supplementary Illustration.)

THOUGH it would be an exaggeration to say that *L. leucanthum* has ever been common in this country, there can be no doubt it is a good deal rarer at the present time than it was some few years back; indeed, it no longer figures in the catalogues of any of the recognised dealers in Europe, and is probably confined to a few gardens where its value is known and appreciated.

This scarcity is not easy to explain, for whilst, on the one hand, *L. leucanthum* cannot fairly be placed on the index of "difficult" plants, on the other, a ready means of increase is provided by the axillary bulbils with which the stems are as a rule so liberally endowed, so that, in the ordinary course of things, the Lily ought, one would suppose, to be found in many gardens.

L. leucanthum was originally reported 24 years ago by Henry, who found it, in the first instance, near Ichang, at the eastern end of the Yangtse gorges, and subsequently in Southern Yunnan, towards the Tonkin frontier. Henry described the Ichang Lily as growing in rocky places at no great elevation and in shelter, but not in shade, the direct opposite of *L. Henryi*, which grows in the same district, but always in exposed places.

The discoverer observed that the variety he found growing in Southern Yunnan had larger flowers than the Ichang plant, and that the stem bulbils and the greenish tint of the flowers made it look very different from *L. Brownii*, which also grows in the same district, and which, by the way, is not the *L. Brownii* of gardens, a cultivated product of the Japanese and Dutch nurseries, but the typical Lily of Mielhez, still very rare in this country.

L. Brownii and its so-called varieties, *chlorostacter*, *viridulum*, *platyphyllum*, and *leucanthum* present many points of interest to those who care for the subject, and the relationship, especially between *L. Brownii* and *L. leucanthum*, is obscure, a consideration of the bulb, flowers, stem, and leaves, with their axillary bulbils leading one to regard it rather as an eastern form of *L. sulphureum* than as a variety of *L. Brownii*; indeed, what with the typical *L. Brownii* and its varieties, as well as *L. myriophyllum* and *L. formosum*, it seems almost possible that in Western China we may have a fine object-lesson of the way nature adapts her plants to geographical and climatic differences, and perhaps be able to follow the changes by which some parent bulb of ages back has given rise to *L. longiflorum* *Brownii*, *myriophyllum*, *formosum*, and *sulphureum*, with the distracting army of varieties.

As regards cultivation, the writer has observed that *L. leucanthum* does well in a bed of sweet leaf-mould, overlying a well-drained, gravelly loam; like *L. Henryi*, it does not seem to take much account of lime one way or the other: it is a stem-rooting Lily, and, as to the bulb, there is nothing to choose between it and *L. myriophyllum*, *L. Brownii*, and *L. longiflorum*, they are alike as four Peas: the flowers are more tubular, and, consequently, less showy than in *L. Brownii* and *L. sulphureum*, and there is a fine crimson flush on the outside of the petals that takes the place of the chocolate tint in *L. Brownii*.

The Supplementary Illustration is reproduced from a photograph taken by Messrs. André & Sleigh, of a plant growing at Valding, in the garden belonging to Capt. Savile Reid, that has produced so many things of interest to gardeners in general, and growers of Lilies in particular; the Lily was almost 4 feet high, and had been in the ground for four years, flowering year by year, except in 1909. *A. Grove.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

MARKET GARDENING IN CAMBRIDGESHIRE.—Varieties of Tulips we are now cutting (April 25) from the field include Keizerskroon, Yellow Prince, La Reine, L'Immaculée, and Princess Marianne. Tulips, among other things, need rain badly, the flowerstalks being shorter than desirable. *Stephen Castle.*

CREOSOTE IN A GREENHOUSE.—Seeing that a correspondent enquires about creosoted timber for a greenhouse (see p. 256), I may say there is a house here that was erected nearly 30 years ago, and in strong sunshine it still smells strongly of creosote. During the first years it killed many valuable plants. The plants were taken out for over 12 months after the erection of the house, but it was not considered perfectly safe during the first seven years. I may say that the house



THE LATE WILLIAM E. GUMBLETON.

(See note in last issue, p. 255.)

is still in good repair, although it is used for Orchids and is always kept damp. The use of creosoted timber is very undesirable for building a greenhouse. Paint was tried on this one about 15 years ago, but still the creosote came out on top. *J. R.*

LITHOSPERMUM, PROSTRATUM.—Mr. Somerville's note on page 253 suggests that the presence of lime in the soil is essential to the well-being of this beautiful little sub-shrub. This is not always the case, for it luxuriates in ordinary garden soil in a mid-Somersetshire garden and here, at Bohmant in North Wales, several fine clumps have grown well and are covered with their charming miniature Gentian-like flowers, without the assistance of lime. Personally, I should not care to mix anything of a drying nature with the soil in order to grow a plant which likes moisture at the root. I would recommend that the plant under notice be firmly planted in a rich soil, where it is screened from rough winds, and that a rugged, little boulder be placed for it to rattle over. *B.*

CANARINA CAMPANULA.—Fig. 109 in last week's issue gives a capital idea of the habit and appearance of this uncommon plant. Whilst at Pencarrow, a botanical friend gave me a seedling plant raised from seed he himself collected in the Canary Islands, and I was successful in flowering this plant annually until the Pencarrow collection was dispersed. The plant was grown in a 24-sized pot in a large, cool greenhouse—a structure which only received sufficient artificial heat to exclude frosts. The tuber was potted with only moderate firmness in a light loam, with one-fifth leaf-mould and a good sprinkling of coarse sand. Water at the root was plentifully supplied until the earliest flower-buds appeared, from which time until the leaves began to lose colour the plant was kept drier, but never allowed to become dry at the root, and weekly surfacings of Clay's fertiliser were applied. Under these conditions the plant did not become taller than 4 feet 6 inches, but it produced a goodly crop of fine flowers. The twin shoots by the side of the flower-stalks each bore flowers in due course, and these again gave rise to shoots which produced

more flowers. As the foliage turned yellow, water was gradually withheld, and the plant was kept dry until the tuber showed signs of renewed activity. *A. C. Bennett.*

MEMORIAL TREES FOR THE CORONATION.—The coronation of King George on June 22 will be celebrated throughout the length and breadth of the land. I would remind committees and individuals of the appropriateness of trees as commemorative tokens of such events; witness their enduring nature and their yearly increasing beauty and interest. There are some important points to be considered in planting a memorial tree; first, the situation should be such as will afford it a permanent home, and the place should be open to public access, so that the next generation may watch the progress of the tree and be reminded of its significance. Fortunately, many villages have their green, and where they have not they are more and more availing themselves (either through private munificence or their councils) of recreation grounds. Suitable protection against accident

or vandalism must be accorded the trees in their early years, and this protection must be of such a nature that it shall not prejudice their welfare. A permanent tablet should be placed near, recording the event and date, and also the correct name of the specimen planted. I suppose the first tree to which the mind reverts when thinking of memorials is the British Oak, than which what could be better, provided that there is sufficient space and that the soil is of a somewhat tenacious nature? The Beech is a noble tree as a single specimen or in clumps, and would be thoroughly at home on chalky or light soil. The common Elm and the Spanish Chestnut are not often met with as memorial trees, but are, nevertheless, in every way suitable where space can be given them, and the soil is of a light, warm nature. A slight elevation, flattened at the summit, would give distinction to a tree or clump of trees during their infancy, and for choice, on rising ground, the higher points, being more commanding, should be selected. Such trees should not be planted near to dwellings or any other buildings. Planters should bear in mind the ultimate dimensions of the species planted, where an enduring mark is aimed at. On many points it would be well to obtain the advice of an expert on the preparation of the site; this work could be proceeded with at once, which would allow the soil to get settled again before the date of planting. Undoubtedly the date of the Coronation presents some little difficulty with regard to the safe removal of deciduous trees, and extensive planting in any place could not be undertaken. It may be presumed, however, that the nurserymen have prepared young trees for the purpose by placing them in temporary receptacles, ready for dispatching them at a suitable date. The supply will be limited, and to ensure the arrival of a specimen at that date, it would be wise to order at once. *Edwin Platt.*

PROPAGATION BY LEAVES.—This method of propagation has now been proved to be the best and certainly the surest way of obtaining vigorous and healthy plants of Begonias, and particularly Begonia Gloire de Lorraine. I have had plants over 3 feet each way from leaves of this variety rooted in leaf-mould and I have been most successful with the type of which Winter Cheer, Ensign, and Mrs. Heal are some of the best examples. Gloire de Sceaux will make good plants from leaves, as also will the beautiful Rex varieties, these particularly so, one leaf making several plants. Saintpaulia ionantha makes delightful little plants from leaves which readily flower, as also will the beautiful *Ranondia pyrenaica*, if the leaves are inserted in pans of sand under bell glasses until rooted, when they may be planted in their flowering quarters, which should be on the northern or north-eastern side of the rockery. I have rooted leaves of Cyclamen which have filled a pan of considerable dimensions with roots, but have never had one make a plant yet. *Codiaeum* (*Crotons*) root readily from leaves, but they also refuse to make plants. This method of propagation is a matter well worth attention, as there are, no doubt, many plants which make flowering specimens from leaves much more readily than they will from seeds or cuttings, throwing up young growths from the base freely and so furnishing the plants with strong, flowering shoots in a manner that cuttings do not. *S. A. C.*

AQUILEGIA.—The Columbine is one of the oldest garden plants, beloved for its beauty and grace, both by poets and painters. Shakespeare sang its praises, and Titian and Dürer painted it. The Italians in their old embroideries favoured it, and Parkinson in the 17th century speaks much of the Columbine; but none of these long-ago Columbines compares in beauty with the present-day hybrids. The lovely *corulea* of the Rockies, and *glandulosa* of Siberia, besides many others, were unknown in Parkinson's day, and the most of these only became our garden plants in the 19th century. Their colours are superior to that of the common *Aquilegia* in purity and variety, though they are inferior in robustness to the present-day hybrids, which far surpass them in every way, and these hybrids have, by inter-crossing, attained a size of bloom, floriferousness, range of colour, and length of spur which no pure species possesses. No plant hybridises more easily than the *Aquilegia*, and none is capable of throwing a greater variety of colours. No matter

how carefully it is fertilised there will be good and bad forms among the seedlings, and these latter must be weeded out. To have really fine seed it requires a specialist to raise it. It is a great mistake in an amateur to expend care, trouble, and time over bad seed, which takes an equal time to raise, with very indifferent results and much annoyance to the raiser. It is a most interesting experiment to sow one seed vessel of this plant. In no other way may one be convinced of the variety one seed pod is capable of producing. There will be all colours, some good and some bad, long and short spurred; in fact, anything but what one is expecting, namely, reproductions of the parent flower. *Glandulosa* has been much used as a seed parent, but it is a most capricious plant, often refusing to flower at all and dying off for no evident reason. Its offspring inherits much of its beauty, size and colour, but also much of its delicacy of growth. Nearly all the pure species have been used as seed parents with excellent results, but it takes years to fix the quality for which they were used—some for colour, others size of bloom or length of spurs, for there is no doubt that it is the long, delicate spurs which enhance the beauty and gracefulness of this charming plant. Many of these fine hybrids flower very abundantly the first year, and after that begin to dwindle away, so that it is much better to sow seed yearly. The last two years have been extremely bad seed seasons, the seed at any time is irregular in germinating. Some of the seeds that were sown last August, after ripening, germinated fairly well in about a month to six weeks, and at the beginning of April others came up thickly, having lain dormant all that time, and these late seedlings give often the very finest flowers. There is a great diversity of opinion about the best time to sow seed. Some prefer to sow soon after the seed ripens, others in spring, but success depends on the after treatment. Spring-sown plants can be pricked out in the open, and autumn-raised seedlings require protection all the winter and pricking out into boxes early in the spring. One thing is certain, too late planting out is not satisfactory, as Columbines are often shifted in the ground by frost and so get their roots frozen if they have not had time to make good roots and get a satisfactory hold of the soil before frost sets in. They do very well when sown very thinly in a prepared bed outside from late spring till the middle of summer, and should be allowed to remain till May, when they can be planted where they are to grow. They are not plants that thrive with moving unless as seedlings, so they are best planted where they are to grow. No garden is perfect without *Aquilegias*; they are plants which to a pre-eminent degree lend grace and elegance to a border; they bloom at a time when little else is in flower, and any care that is bestowed upon them is returned with a freedom and liberality of bloom, beauty of flower, and elegance of habit exceeded by no other plant. E. N. L.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 25.—The exhibition on Tuesday last provided another fine display of flowers, the hall being filled with exhibits. The National Auricula and Primula Society's annual show was held in conjunction with the meeting, and the displays of these flowers yielded further variety. Orchids were shown numerous and well, the collections of these flowers being remarkably fine, and there were many novelties submitted for award, but the ORCHID COMMITTEE granted only two Awards of Merit. In the displays before the FLORAL COMMITTEE collections of hardy flowers and rock-garden exhibits predominated. This Committee recommended a Gold Medal for a large display of Alpines and forced shrubs in flower, shown by Messrs. CUTBUSH & SON. Messrs. GEORGE MOUNT & SONS staged magnificent Roses, and there were also splendid exhibits of *Cinerarias*, *Carnations*, *Schizanthuses*, *Pelargoniums*, *Clivias*, and *Standard Cytisuses*. This Committee granted three Awards of Merit.

The exhibits of *Daffodils* were the best seen this season, and the NARCISSUS COMMITTEE conferred one First-class Certificate and two Awards of Merit.

The only exhibit of importance staged in the

fruit and vegetable section was a collection of vegetables shown by Messrs. SETTON & SONS.

At the 3 o'clock meeting in the Lecture Room, the Rev. Joseph Jacob gave an address on "The Tulip: its Problems and History."

Floral Committee.

Present: Mr. W. Marshall and Mr. Henry B. May (Chairmen); and Messrs. C. Blick, A. Turner, E. H. Jenkins, W. J. James, C. R. Fielder, Chas. E. Pearson, W. G. Baker, W. B. Cranfield, Chas. T. Druery, A. Kingsmill, John Green, W. J. Bean, G. Reuthe, Wm. Howe, C. J. Lucas, R. C. Reginald Nevill, W. Bain, Herbert J. Cutbush, John Dickson, Chas. Dixon, Chas. E. Shea, Geo. Paul, R. C. Notcutt, James Hudson, F. Page Roberts, and J. E. McLeod.

The largest exhibit was Messrs. W. CUTBUSH & SON'S display of Alpines and forced shrubs, for which a Gold Medal was awarded. It took the form of an unusually large rock-garden exhibit, with a stream of water, the shrubs being grouped mainly at the back. There were two magnificent trees of *Magnolia*, unfortunately rather past their best condition of flowering, but the plant of *M. Soulangeana* still remained a glorious sight, bearing several hundreds of flowers. The setting of Alpines was skilfully carried out, and especially the corner with the water garden, plants of *Ranunculus pyrenaica* appearing to grow most naturally from the face of perpendicular rock-work. There was a wealth of choice plants, including *Schizocodon soldanelloides*, *Rhododendron Kauschaticum*, *Eritrichium nannum*, a lovely gem of the Alps, with pale blue flowers; *Primula denticulata alba*, *Aquilegia Stewarti*, *Saxifraga Bathoniensis* in luxuriant patches, and many other interesting species. The same firm also filled a large table with greenhouse plants and *Carnations*. There were grand flowers of *Carnations* *Lady Coventry*, *Lady Miller*, flesh pink; and *Viscountess Goschen*, a scented, dark rose variety, all three of the perpetual "Malmaison" type; besides these, there was a selection of the best perpetual-blooming *Carnations*.

MESSRS. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, filled a large table with *Cinerarias*, the showy flowers making a glorious spectacle. Those of the Cactus-flowered type were especially pretty, the inflorescences being very large. Another type with pretty, star-like flowers was seen in *Cineraria Pelyantha*. Then there were *Feltham Pink*, *Langley Blue*, *Feltham Beauty* (carmine), *Antique Rose*, *Light Pink*, and *Feltham White* also prominent in the collection, which embraced 17 distinct sorts. (Silver Flora Medal.)

MESSRS. H. B. MAY & SONS, The Nurseries, Edmonton, staged a collection of dwarf Roses in small pots, suitable for indoor decoration, *Jessie*, with numerous deep-rose flowers being the best; *White Pet*, *Baby Dorothy*, and *Phyllis* were also shown well. In the centre of the group was a batch of the pale pink flowered *Tausendschön*, set in a bank of *Clematises*. The exhibit contained numerous choice Ferns, including a batch of the beautiful *Nephrolepis Marshalli compacta*. (Silver Banksian Medal.)

MESSRS. STUART LOW & CO., Enfield, made a large exhibit with *Carnations* and other greenhouse flowers, large plants of *Metrosideros foribunda* being a feature. The *Carnations* embraced choice blooms of *Roseate Dawn*, pale rose; *Britannia* and *O. P. Bassett*, two excellent scarlet varieties; *Lady Alington*, and Mrs. Charles Knopf, faint pink. There were also blue and white-flowered *Hydrangeas*, the pretty pink-flowered *Crowea angustifolia*, *Gerberas*, *Boronia heterophylla* and *Azaleas*. (Silver Flora Medal.)

MESSRS. H. CANNELL & SONS, Swanley, Kent, exhibited 52 varieties of Zonal-leaved *Pelargoniums*, the bunches of flowers being a great attraction. There were excellent bunches of such beautiful varieties as *Lucania*, cerise and orange; *Mentmore*, rosy cerise; *Countess of Jersey*, salmon; *Saturn*, orange-crimson and white; *Hibernia*, red; *Arabic*, scarlet; *Naples*, scarlet; *Campania*, mottled salmon; and *Venus*, white. (Silver Banksian Medal.)

MR. VINCENT SLADE, Taunton, Somerset, showed 32 varieties of Zonal-leaved *Pelargoniums*, the more noticeable being *Chavari Herminos*, a double scarlet variety; *London*, a fine crimson flower; *Dublin*, rosy-magenta; *Livedon*, scarlet, with orange sheen; and *Cymric*, a fine purple variety.

MR. L. R. RUSSELL, Richmond, Surrey, put up a group of shrubs, mainly varieties of *Cytisus*, and a table full of the scarlet *Salvia Glory of Zurich*, in company with an improved form named *Glory of Richmond*, the truss being larger and denser. The plants of *Cytisus* were trained as standards, and included *C. Andreanus* and its prostrate form; *C. Mayfly*, *C. versicolor*, *C. purpurea*, *C. praecox*, and *C. p. alba*. The group was enlivened with *Spiraeas*, *Clematises*, and *Weigelas*. (Silver Flora Medal.)

MESSRS. R. & G. CUTBERT, Southgate, staged varieties of hardy Ghent *Azaleas*, a few outstanding varieties being *coccinea speciosa*, deep orange; *Louis van Houtte*, carmine; *Guelder Rose*, citron, the petals being edged with rose; and *Raphael de Smet*, blush rose, the flowers being a deeper tint in the open. (Bronze Flora Medal.)

MESSRS. GARRAWAY, Clifton, Bristol, showed their strain of *Schizanthus*, a cross between *S. Wisetonensis* and *S. pinnatus*. The inflorescences were large, and the flowers embraced a wide range of colours. (Silver Flora Medal.)

H. LITTLE, Esq., Twickenham, showed a seedling *Clivia* named *Baronshalt*, a good type of this greenhouse plant, with big, globular trusses of reddish-orange flowers. (Bronze Flora Medal.)

Some magnificent plants of *Schizanthus* were displayed by W. JAMES, Esq., West Dean Park, Chichester (gr. Mr. W. H. Smith), for which a Cultural Commendation was awarded. (Silver Banksian Medal.)

MR. CHARLES TURNER, Royal Nurseries, Slough, showed *Auriculas*, a batch of the interesting *Ochna multiflora* with its scarlet fruits, and two fine white *Rhododendrons* in *Purity* and *exoniensis*. (Silver Banksian Medal.)

Mrs. OPPENHEIM, Clewer Mead, Windsor (gr. Mr. W. Allum), showed flowers of hybrid *Gerberas*.

MR. H. N. ELLISON, West Bromwich, again exhibited *Gerberas* and *Ferns*.

ROSES AND CARNATIONS.

MESSRS. GEORGE MOUNT & SONS, LTD., Canterbury, showed Roses the finest observed this season. The flowers were shown in large batches, every bloom being a superb specimen and the varieties those that are most popular for decorative purposes as cut blooms. They included *Lady Hillingdon* (apricot yellow); *Caroline Test-out* (pink); *Richmond* (red); *Liberty* (red); and *Joseph Low* (pink). (Silver-gilt Flora Medal.)

MESSRS. W. PAUL & SON, Waltham Cross, staged a delightful group of pillar Roses, with a few pot plants of H.T. varieties in the foreground. The hybrid multiflora Rose "Fairy" has large, drooping trusses of white flowers, falling like a shower of blossoms. *American Pillar* (bright rose) is especially striking, the flowers and trusses being extra-large. *Kathleen* (pink) is another pretty variety of this type. (Silver Flora Medal.)

MR. G. PRINCE, Longworth, Berkshire, exhibited Roses in variety, having such beautiful sorts as *Frau Karl Druschki*, *Capt. Hayward*, *Flower of Fairfield* (a perpetual-flowering variety), *Mildred Grant*, splendid blooms of Mrs. Longworth (white splashed with pink), *Fortune's yellow*, *Mme. Jules Gravereaux* (chrome yellow), and *Blush Rambler*. (Bronze Flora Medal.)

MESSRS. BEN R. CANT & SONS, Colchester, exhibited miscellaneous Roses, the specimen blooms of *Mme. Abel Chatenay*, *Prince de Bulgarie*, *Maman Cochet*, *Richmond*, and the newer *Rose du Bari*, *Lady Beay Sallie* and *Elizabeth* being well shown. (Silver Flora Medal.)

MR. H. PURNETT, Gorseley, had another exhibit of *Carnations*, his blooms being unrivalled by any others in the show. (Silver-gilt Banksian Medal.)

HARDY FLOWERS.

MESSRS. T. S. WARE, LTD., Feltham, exhibited Alpines and hardy flowers of good quality, for which a Silver Banksian Medal was awarded. *Rehmannia angulata*, *Tillium Snow Queen*, batches of *Aubrietias*, and *Lithospermum prostratum* were features in the display. (Silver Banksian Medal.)

MESSRS. GEO. JACKMAN & SON, Woking, Surrey, showed boxes of Alpines against a background of shrubs in flower, these latter being very effective, especially *Pyrus* (*Mespilus*) *canadensis* and *Spiraea van Houtte*. Amongst the Alpines we observed good examples of *Onobus vernus*, *Lithospermum prostratum*, *Aubrietia Leichthum*

(reddish-crimson). *Onosma albo-rosea*, *Tiar-ella cordifolia*, *Ranunculus serbica* (an especially fine plant, with eight inflorescences), and *Myosotis ruficola* (a delightful shade of pale blue). (Bronze Banksian Medal.)

Messrs. G. & A. CLARK, LTD., Dover, again showed their fine strain of coloured Primroses, the variety *Lady Edward Cecil* being coloured reddish crimson, not unlike a Wallflower. *Viola Bridal Morn* (deep lavender), *Anemone coronaria*, *Viola gracilis*, *Ambrietta Violet Queen* and *Androsace Chumbyi* were also conspicuous in this exhibit. (Bronze Banksian Medal.)

Mr. AMOS PERRY, Enfield, showed hardy flowers, including Trumpet Daffodils, the varieties *Glory of Leiden*, *Victoria*, *Emperor* and *Mme. de Graaff* being shown in large clumps. In the centre of the group was a magnificent pan of *Saxifraga decipiens grandiflora Bathoniensis*. Other subjects shown well were *Primula frondosa*, *P. rosea*, *Primrose Miss Massey* (a splendid flower, of purple colour), *Corydalis nobilis*, *Erythronium Watsonii*, and the double-flowered *Caltha palustris* (Bronze Banksian Medal.)

Messrs. BARR & SONS, 11, 12 and 13, King Street, Covent Garden, showed a large exhibit of Alpines and border flowers, relieved with Daffodils and dwarf shrubs. They showed a large assortment of *Ambriettias*, making a feature of Peter Barr, a variety of rich purple shade, the older blooms fading to mauve. Other interesting plants observed were *Iris tingitana*, *Dimorphotheca Ecklonis*, *Fritillaria pyrenaica*, and *Gentiana veina*.

Mr. H. HEMSLEY, Crawley, was the exhibitor of a rock-garden, having, besides a collection of the more showy Alpine plants, *Alyssum Idemum* (a hybrid from *A. montana* and *A. repens*), *Gentiana acaulis alba*, *Armeria cespitosa* (a splendid pan of this pretty, pink flowered Alpine), *Primula muscarioides*, *Reseda sessamoides*, and a dwarf *Viola* labelled *oriocahis*, with flowers of the shade known as French grey.

Mr. G. RETHE, Keston, Kent, showed *Rhododendrons*, *Daffodils*, *Auriculas*, and a variety of Alpines, amongst which we noticed *Primula Croussei* fl. pl., a delightful Primrose with mauve-purple flowers; *Calyso borealis*, *Lewisia Tweedii*, a fleshy-leaved plant, with pale pink flowers, reminding one somewhat of an *Ethiopia*; and *Ourisia macrophylla*, the white flowers being produced in successional whorls. (Bronze Flora Medal.)

Messrs. R. WALLACE & Co., Colchester, showed hardy flowers in variety and a batch of Tulip species. *Primula muscarioides*, with its small, drooping, blue flowers, was conspicuous, also *Androsace Chumbyi*, *Lithospermum prostratum*, *Ambrietta Dr. Mules*, *Gentiana veina*, and *Morisia hypogaea*.

Mr. MAURICE PRICHARD, Christchurch, Hampshire, staged a rock-garden, having suitable stones well arranged and planted with *Saxifraga Bathoniensis*, *Orobis vernus major*, *Primula frondosa*, *Myosotis Ruth Fisher*, a very beautiful *Forget-me-Not*, and *Tulipa Clusiana*. (Silver Flora Medal.)

Messrs. J. CHEAL & SONS, Crawley, were also the exhibitors of a rock-garden, on which we observed a fine clump of *Gentiana acaulis* and good coloured Primroses.

Mr. JAMES BOX, Lindfield, also put up a rock-garden exhibit planted with suitable subjects.

Messrs. BAKERS, LTD., Wolverhampton, showed *Meibomia primuloides*, *Saxifraga Red Admiral*, *Aquilegia glandulosa*, *Ambrietta J. S. Baker*, a deep lavender flower with a white "eye," and other choice Alpines.

Messrs. JOHN PEED & SON, West Norwood, exhibited many pretty Alpines in small pots, with *Maples*, *Heaths*, *Cytisus præcox*, and *Daffodils* at the back.

Mr. A. R. UPTON, Guildford Hardy Plant Nursery, showed hardy flowers with shrubby *Veronicas* and plants of *Spirea confusa*.

The BERTON HARDY PLANT NURSERY, Christchurch, were awarded a Silver Banksian Medal for an exhibit of hardy plants.

Messrs. PHILLIPS & TAYLOR, Bracknell, Berkshire, staged a large group of *Primula rosea*, with *Ambriettias* and *Auriculas* at either end of the exhibit. The back was enlivened with *Narcissus* and some excellent pot plants of Alpine *Auriculas*. (Bronze Banksian Medal.)

Mr. CLARENCE ELLIOTT, Six Hills Nursery, Stevenage, showed a rock-garden, making a fine

effect with grey, weather-beaten stones, planted with excellent specimens of *Gentiana acaulis*, *Saxifraga muscoides* var. (these being remarkably well flowered), *Ambrietta Prichard's Al*, *Ranunculus crenatus*, *Morisia hypogaea*, and other Alpines.

The Misses HOPKINS, Shepperton-on-Thames, staged a rockery with a great assortment of plants in flower, the *Daisies Alice* (pink) and *Rob Roy* (deep red) being remarkably good. *Bellis sylvestris*, a charming little Daisy, with deep, rose-coloured florets, set off in an orange disc, was also noticed in this exhibit.

A small rock-garden exhibit was shown by Messrs. EGGETT, Portsmouth Road, Thames Ditton.

Messrs. CARTER PAGE & Co., 52-53, London Wall, exhibited varieties of *Violas*, *Schizanthus Wisetonensis*, *Dimorphotheca aurantiaca*, *Linaria maroccana*, *Nemesia strumosa*, *Nemophila insignis* and other annuals.

Messrs. STORRIE & STORRIE, Glencarse, Perthshire, put up a large number of ornamental Borecoles, most of them white with veinings of green, yellow and purple. The plants are recommended for ornamental bedding. (Silver Flora Medal.)

AWARDS OF MERIT.

Primula Chenies Erectior.—This *Primula* was said to have been raised from *P. japonica* ♂ × *P. obconica* ♀, by Mr. Dickson, gardener to Duchess ADELINE of BEDFORD, Chenies, Rickmansworth. The inflorescence develops its claret-coloured flowers in whorls, sometimes as many as four, after the habit of *P. japonica*. The plants are free in blooming, and almost hardy, the specimens exhibited having been grown in a frame throughout the winter without heat. The foliage favours *P. obconica*.

Rhododendron Penquer (*R. Thomsonii* × *R. Griffithianum* syn. *Aucklandii*).—The flowers of this hybrid are a rich red, with a sheen of rose in the centres. The truss was made up of 12 blooms, each about 4 inches in diameter. The dark green leaves are about 9 inches long. The seed parent was a plant of *R. Thomsonii*, about 20 years old, that has been growing always in the open. Shown by Sir JOHN LLEWELYN, Bart.

Auricula Empire.—An Alpine variety, with chestnut-red flowers, approaching scarlet. The beautiful circle of clear, white paste sets off the rich colour of the petals. The blooms are large and developed on rather long stalks. Shown by Mr. JAMES DOUGLAS, Great Bookham.

CERTIFICATE OF APPRECIATION.

This award was made to Messrs. COCKER & Co., Aberdeen, for their work in raising coloured Primroses.

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); and Miss E. Willmott, Messrs. R. Sydenham, J. T. Bennett-Poe, W. F. M. Copeland, W. W. Fowler, G. W. Leuk, W. Goldring, C. F. Digby, H. A. Denison, W. A. Milner, J. D. Pearson, W. T. Ware, C. Dawson, P. D. Williams, H. Backhouse, W. Poupert, J. Jacob, W. B. Cranfield, A. Kingsmill, P. R. Barr, and C. H. Curtis (hon. secretary).

Messrs. BARR & SONS, King Street, Covent Garden, arranged the finest collection of *Narcissus*, in which the *Barrii* and *incomparabilis* sections were especially well represented, followed by those of the trumpet and *Poeticus* types. In the yellow trumpet Daffodils the variety *C. H. Curtis* was conspicuous, with *Gray* and *King Alfred*. Mrs. G. H. Barr (white trumpet) showed well as a little whiter than *Loveliness*. *Catrina*, *Peter Barr*, and *Preference* were good in the same section. *Whitewell* and *Macebearer* were noteworthy *incomparabilis* varieties from the size and substance of their perianths. *Czarina* appeared one of the most distinct sorts of the giant *Leedsii* section, with a pale yellow fringe to the broad, white trumpet. *Poeticus* varieties included *Lewis Carroll*, *Ruskin*, *Horace* and the new variety *Socrates*. Perhaps, however, the most distinct flowers in the group were *Marie Louise* and *Bloodstone*, the former from the vivid self-colouring of the cup and the latter on account of the degree to which the cup is frilled. (Silver-gilt Flora Medal.)

Messrs. R. H. BATH, LTD., Wisbech, showed a small group of *Narcissus*, in which the varieties of interest included *Bernardino*, *Marie Hall*, and *Apricot*. H. J. Veitch was the best trumpet variety, whilst *Laureate* and *Horace* were the best of the *Poeticus* type. (Silver Banksian Medal.)

Mr. C. BOURNE, Bletchley, staged a group which was unsurpassed for quality. Its premier flowers were *Queen of Hearts* (see Awards) and *White King*, a giant *Leedsii*, rivalling *White Queen*, and a little larger in the bloom. The group was especially rich in varieties and hybrids of the *Triandrus* type, *Earl Grey*, *Lemon Belle* (paler and with larger trumpet), *Moonstone*, *Cecil Rhodes*, and *Dewdrop* (the most distinct of the group on account of the pale yellow edge to the cup), being conspicuous examples. The pale yellow-cupped *Leedsii* *Evangeline* was shown in first-class form, as also were the yellow trumpet *Warleyensis* and the giant *incomparabilis* *Great Warley*. (Silver-gilt Banksian Medal.)

Messrs. WM. BULL & SONS, Chelsea, staged a small group, in which the *Poeticus* varieties (*Alsace*, *Elvira*, &c.) were prominent with the double orange and sulphur *Phoenix*, but some of the blooms were past their best condition.

Rev. Canon FOWLER, Earley, Reading, staged a representative group of more than 40 varieties in competition for the Barr Silver Cup, but as this was the only entry, no award was made, in accordance with the terms of the schedule. The quality of the blooms was good, but it was evident that they had suffered from the dry spring. *Outpost*, *Apricot*, *Cristata*, *Orangeman*, *Ariadne*, *Niobe*, and *Queen Alexandra* were amongst the choicest varieties.

Rev. G. P. HAYDON, Canterbury, showed a remarkable group of Trumpet Daffodil seedlings, some of the blooms being of an immense size. Among yellow trumpets, *Fox*, *Kirk*, *Day*, and *Sevenoaks* were noticeable. *Pearl of Kent* is a magnificent white trumpet Daffodil, and *Dropmore*, *Oak Apple*, *Craig* and *Viscount Milner* were also finely shown. *Dutch Hoy* and *Chart* were outstanding sorts amongst the pale yellow Trumpet *Narcissus*. The names of the seedlings seemed bizarre in many instances. (Silver Banksian Medal.)

Mr. F. LILEY, Guernsey, staged a number of *Narcissus*, but the feature of his group were the *Darwin Tulips*, *Cream Beauty*, *Glow*, and *Pride of Haarlem*, with the May-flowering *Vitellina* and *Cornuta*. (Bronze Banksian Medal.)

Mr. A. W. MERRY, Welwyn, Hertfordshire, staged an interesting collection of some hundred varieties of Daffodils, but if a little more skill had been shown in arrangement, some of the flowers would have been better displayed. Miss WILLMOTT's seedling *Eion Merry* was noticeable for its waved perianth. *Jessica*, *Lord Muncaster*, *Mrs. Merry*, *Diana*, and *White Lady* were also good. (Silver Banksian Medal.)

AWARDS.

FIRST-CLASS CERTIFICATE.

Miss Willmott.—A *Poeticus* hybrid derived from *Ornatus* and a variety in the *Barrii* section, the foliage and constitution being distinctly of the *Poeticus* type. The flowers are of a large size, the breadth and substance of the pure-white perianth segments contributing to an almost perfect, full outline. The large, yellow, spreading chalice, distinctly edged with red, makes it one of the finest additions to its class. Shown by Messrs. WALTER T. WARE, LTD., Bath; raised by Mr. van Tubergen, Haarlem.

AWARDS OF MERIT.

Queen of Hearts.—A variety belonging to the section *Barrii*. The large flowers are of fine rounded form, the perianth segments being pale cream, broad, flat, and of great substance. The cup is large for a variety of this section, and a bright orange colour. Shown by Mr. C. BOURNE.

Socrates.—A variety of *Poeticus*, of great substance and fine quality, to which distinction is given by the broad red band edging the cup. Shown by Messrs. BARR & SONS.

CULTURAL COMMENDATION.

To Mr. JAMES DOUGLAS, Great Bookham, for extra choice blooms of *Lady M. Boscawen* and *Calathinus*.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), de B. Crawshaw, Gurney Wilson, W. Bolton, J. S. Moss, A. Iye, J. E. Shill, J. Cypher, W. H. Hatcher, A. A. McBean, H. G. Alexander, T. Armstrong, F. Monteith Ogilvie, F. Sander, F. J. Hanbury, R. G. Thwaites, Stuart Low, Harry J. Veitch, and Clive Cookson.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for an effective group of rare species and hybrids, the front of which was graced by several specimens of the pure white *Trichopilia Backhouseana*, each plant with about 15 large, fragrant flowers. At the back of the group were choice specimens of *Oncidium Marshallianum*, and in front of these were *Laelio-Cattleya Dominicana* and its white-petalled variety *alba*, a selection of scarlet and red *Odontiodas*, *O. Diana* (*C. Noezliana* × *O. anabilis*), a fine flower of a glowing cherry-red tint, and *O. Lambeauianum*, a fine rich-scarlet variety. Various fine *Brasso-Cattleyas*, a selection of richly-coloured hybrid *Odontoglossums*, the violet-lipped *Zygo-Colax Charlesworthii*, a selection of *Cypripediums*, *Odontonia Lairessi*, *Cynorchis kewensis* (with four spikes), and other rare species were also noted in this collection.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for a fine group, the centre of which included fine forms of *Cattleya Schröderae* and *C. Mendelii*. On one side were several very dark-coloured forms of *Laelio-Cattleya Hyeana*, with scarlet *Odontiodas*, some (of a new batch) having an attractive magenta hue over the deep-scarlet flowers. A collection of hybrid *Odontoglossums* included specimens of the deep claret-blotched type, whilst the best novelty amongst *Laelio-Cattleyas* was *L. C. Cora* var. *igneae* (*L. Latona* × *C. Mendelii*), the petals being striped with rose-purple. Other choice Orchids noted included a good example of *Cologyne pandurata*, a grand specimen of *Maxillaria Sanderiana* (see Awards), *M. pubifera*, a number of scarlet-flowered *Renanthera Inmschootiana*, *Cattleya Robert de Wavrin*, *Anguloa burniana*, *A. Ruckeri*, and *Acanthophippium bicolor*.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for a fine group in which choice forms of *Cattleya Mendelii*, *C. Schröderae*, *C. Mossiae*, and *Odontoglossums* were prominent. A number of well-flowered plants of *Masdevallias*, *Restrepia elegans*, *Maxillaria Sanderiana*, *Miltomia Phalenopsis*, and large-flowered plants of *M. vexillaria*, *Renanthera Inmschootiana*, showy varieties of *Lælia purpurata*, various *Cypripediums*, including the massive *C. Bridgeri*, *Dendrobium*, including *D. Wardianum album*, the white *Cattleya Dusseldortei* *Undine*, *Odontodia Bradshawii* were also noted in finely-grown and well-flowered examples.

SAMUEL LARKIN, Esq., The Ridgways, Haslemere (gr. Mr. Hale), was awarded a Silver Banksian Medal for a compact group, in which *Phalenopsis*, so well cultivated by him, were the leading feature. A selection of *P. Schilleriana*, *P. Aphrodite*, and *P. amabilis Rimestadiana* were effectively displayed. At the back of the group was a good form of *Vanda suavis Veitchii*, various pretty *Odontoglossums*, *Phaius Sanderianus*, *Laelio-Cattleya Gottleiana*, good *Odontoglossum Adrianae*, *Cattleyas*, and *Cypripediums*.

GEORGE W. BIRD, Esq., The Manor House, West Wickham (gr. Mr. H. Redden), was awarded a Silver Banksian Medal for a select group of splendidly-grown *Odontiodas* and *Odontoglossums*, mostly hybrids, raised by the exhibitor, and all showing excellent qualities.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Banksian Medal for an extensive group in the front of which was the charming little *Dendrobium crepidatum*, covered with its rose-tinted flowers. Behind it were *Dendrobium Devonianum*, *D. Wardianum* (including the white variety), the yellow *D. chessingtonense*, and various pretty *Laelio-Cattleyas*, *L. C. Mrs. Temple* having very fine flowers, and *Cattleya Mossiae Reineckiana*, a good white variety, with purple markings on the lip. *Odontoglossums Rolfeae* and other hybrids of this Orchid were noticed, also two fine, red-flowered plants of *Odontodia Charlesworthii*, a good example of *Cattleya Schröderae*, *Oncidium lamelligerum*, and *Miltomia Roezlii*.

BAPON BRUNO SCHRÖDER, The Dell, Egham (gr. Mr. Shill), showed a fine three-flowered inflorescence of his handsome *Brasso-Cattleya Queen of Spain*, a variety having fine, rose-tinted flowers

with a rich, purple-crimson front to the fringed labellum.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed two plants of his new *Brasso-Laelio-Cattleya Triume* (*L. C. Hyeana* × *B. C. Digbyano-Schröderae*), the large, rose-tinted flowers varying in the purple veining on the lip.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed *Odontoglossum percutum*, Goodson's variety, an excellent form with violet-purple flowers, having a small, white blotch on the tips of the segments.

Mons. H. GRAIRE, Amiens, exhibited *Odontoglossum Rossiana* var. *flavida*, the cream-yellow flowers being spotted with chocolate red.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), staged two plants of *Brasso-Laelio-Cattleya Fowleri*, a pretty, orange-coloured flower, veined with copper colour.

Mr. TRACY, Twickenham, showed a singular *Gongora* named *G. Tracyana*, imported from Peru, and allied to *G. Charontis*.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed several of his hybrid *Odontoglossums* and *Odontiodas*, including *O. Quintus* (*Hunnewellianum* × *crispum-Harryanum*), with flowers heavily blotched with dark brown; *O. Dirce* (*Harvengtense* × *ardentissimum*), a finely-formed flower; *O. Leonidas* (*Hallio-crispum* × *triumphans*); *Odontodia gattoensis*; and the true *O. rosefieldensis*, with reddish-scarlet flowers. The plant certificated at the last meeting under that name was now stated to be a variety of *O. Vuylstekeae*, and the award was withdrawn.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a group in which were noted two plants of the pretty, yellow *Baibophyllum Sillemianum*, *Dendrobium pallens* (with a fine head of bloom), *D. Sbyl*, *D. Wardianum album*, *Brasso-Cattleya Digbyano-Schröderae*, and *Odontoglossum crispum Jeanette*.

Messrs. J. & A. A. McBEAN, Cocksbridge, staged a select group, in which we noticed some fine specimens of *Odontoglossum crispum*. One grand white form, slightly flushed with lilac, and bearing 15 flowers on the spike, was exceptionally good, as was also a finely-blotched variety, *O. crispum xanthotes*, with very large flowers; *Miltomia vexillaria*; a pretty, new type of *O. ardentissimum*, with well-rounded flowers, showing much of *O. Pescatorei*, and spotted with purple; *Cattleya Mendelii*; and *C. Schröderae* were also good.

R. G. THWAITES, Esq., Streatham (gr. Mr. Black), showed *Odontoglossum Clytie* (*Pescatorei* × *Edwardii*), the plant having a nine-branched spike; a pretty, light form of *O. Thomps nianum*; the pure-white *O. Pescatorei virginalis*; and other rare Orchids were included in this exhibit.

Messrs. HASSALL & Co., Southgate, staged a small group of Orchids, containing good *Odontoglossums*, *Odontodia Charlesworthii*, two plants of the dwarf form of *Epidendrum stamfordianum*, *Oncidium pulchellum*, *Trichopilia Backhouseana*, *Cypripedium Dominicanum*, *Odontoglossums*, and *Dendrobium Brymerianum*.

Messrs. DUCHESNE & LANTHOINE, Watermael, Brussels, showed a grand plant of *Miltomia vexillaria Memoria G. D. Owen*, with two spikes of very fine flowers.

AWARDS.

AWARDS OF MERIT.

Odontoglossum ramos-Edwardii (*ramosissimum* × *Edwardii*), from Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White).—A pretty hybrid, with flowers resembling those of an enlarged *O. ramosissimum*; they are bluish-white, spotted with purple on the inner parts of the segments. The finely-grown plant had a 10-branched inflorescence, very gracefully arranged.

Dia-Cattleya Sanderia (*Cattleya Mendelii* × *Diacrium bicornutum*), from Messrs. SANDER & SONS.—One of the finest of the crosses with *Diacrium bicornutum*, the flowers being of a good size and shape; they are white, with slight rose markings on the lip and a pale yellow disc. The plant resembled a small specimen of *D. bicornutum* in growth, but the pseudo-bulbs were slightly compressed.

CULTURAL COMMENDATIONS.

Messrs. SANDER & SONS, St. Albans, were awarded a Cultural Commendation for a magnificent plant of *Maxillaria Sanderiana* with nearly 50 large white and claret-coloured flowers.

The same award was granted to Lieut.-Col. H. POWYS GREENWOOD, Whitsbury House, Salisbury, for a large and well-flowered specimen of *Cymbidium eburneum*.

Fruit and Vegetable Committee.

Present: Mr. G. Bunyard (in the Chair); and Messrs. A. H. Pearson, A. Dean, G. Woodward, O. Thomas, J. Harrison, J. Jaques, H. Markham, G. Reynolds, P. G. M. Veitch, E. Beckett, W. Jefferies, J. Davis, A. W. Metcalfe, A. R. Allan, J. Vert, and H. S. Rivers.

A handsome Pear, sent by the Government of South Africa for name, was recognised as *Emile d'Heyst*.

Lord HILLINGDON, Sevenoaks, Kent (gr. Mr. J. Sketton), showed two boxes of excellent fruits of Royal Sovereign Strawberries. (Silver Banksian Medal.)

THE WEST INDIAN PRODUCE ASSOCIATION, Fenchurch Street, London, showed Oranges from Cyprus. The fruits were sent originally for exhibition at the Colonial Fruit Show held last December, but owing to delay they have been only just received. (Silver Banksian Medal.)

Messrs. STORRIE & STORRIE, Glenferse, Perthshire, staged a large exhibit of ornamental Kales. (Bronze Knightian Medal.)

Messrs. SUTTON & SONS, Reading, again set up a collection of some 50 dishes of vegetables, the quality of the produce throughout being of the highest excellence. Broccoli were represented by Eastertide and Sutton's Snow White, and Cabbages by Harbinger, April, and Flower of Spring. Good Batavian Endive and Cabbage Lettuces Golden Ball and Early Paris were displayed in flat baskets. There were also mounds of Cucumbers, Ideal Peas, French Beans Tender and True and Princess of Wales, long White Gem Turnips, Mustard and Cress in boxes, Inimitable Forcing Carrots, Breakfast Radishes, Winter Beauty Tomatos, Ringleader and Ninetyfold Potatos, Mushrooms, Globe Artichokes, and Asparagus. Stems of The Sutton Rhubarb were richly coloured. (Silver-gilt Knightian Medal.)

NATIONAL AURICULA AND PRIMULA.
(SOUTHERN SECTION.)

APRIL 25.—The 34th annual show of this Society was held on Tuesday last, in conjunction with the fortnightly exhibition of the Royal Horticultural Society. The season has not been a favourable one for the development of refined flowers of Auricula, the cold winds of early April having affected adversely the delicate self colours and rendered harsh the green, grey, and white-edged flowers. But, notwithstanding this, the show was a success, the blooms being of good quality, and the number of exhibits satisfactory. Several new members were successful in winning prizes in a strong competition.

SHOW AURICULAS.—In the important class for 24 show Auriculas, in not fewer than 12 dissimilar varieties, there were four entries, all the exhibits being of a high standard of quality. Mr. JAMES DOUGLAS, Great Bookham, Surrey, was awarded the 1st prize, having splendid specimens of Queen of Spain, Mikado, Prince Charming, Mrs. Harry Veitch, and Bella Donna. 2nd, Mr. W. B. CRANFIELD, East Lodge, Enfield Chase, whose best examples were Heather Bell, Mikado, Conservative, Ruby, and a pale-yellow self named Sunshine.

Mr. DOUGLAS was also successful in the class for 12 varieties, dissimilar, having almost perfect specimens of George Lightbody, the premier show Auricula in the exhibition, also Queen of Spain, Eucharis, Marmion, Mr. Smith, and Harrison Weir. 2nd, Messrs. PHILLIPS & TAYLOR, Bracknell, Berkshire; with Mr. CRANFIELD a close 3rd.

The class for six show Auriculas was well contested. Mr. J. L. GIBSON, Silverwood, Leatherhead, Surrey, being placed 1st with a grand exhibit, his varieties being Favourite, Shirley Hibberd, Mrs. Phillips, Prince Charming, Acme, and Geo. Lightbody; 2nd, Mr. W. H. PARTON, Hollywood, Birmingham, with Favourite, Acme, Mrs. Henwood, Mrs. Phillips, Geo. Rudl, and Abbé Liszt.

In the class for four plants of show Auriculas, the 1st prize was won by Mr. F. W. PRICE, Beckenham, who staged Olympus, Mrs. Henwood, R. Headley, and Acme; 2nd, Mr. PARTON.

SINGLE PLANTS.—The single plant classes for show Auriculas produced a keen competition.

The best green edged flower was Prince Charming, shown by Mr. DOUGLAS; 2nd, Ethel, shown by Mr. W. SHIPMAN, Altonham. A fine truss of Shirley Hibberd was a close 3rd.

Mr. DOUGLAS also excelled in the classes for (1) a grey-edged variety, having Geo. Lightbody, Mr. BENNETT POË being 2nd with the same variety; (2) for a white-edge variety, with Acme, the same variety, shown by Mr. SHIPMAN being 2nd; and (3) for a self, with Harrison Weir, the 2nd and 3rd prizes in this class being awarded to Mikado.

There was a class for members who have never won a prize at the Society's shows. It was for four show Auriculas, dissimilar. The best exhibit was made by Mr. W. G. LANGLANDS, Epsom, who showed Mikado, Favourite, Acme, and Geo. Ridd.

In the class for four show Auriculas, dissimilar, open only to amateurs who do not employ a gardener regularly, the 1st prize was won by Mr. J. L. GIBSON, Leatherhead, with clean flowers of Miss Prim, Dr. Kidd, Love Bird, and Heather Bell.

ALPINE AURICULAS.—There was a keen contest in the class for 24 Alpine Auriculas, and, although Mr. DOUGLAS was placed 1st, Mr. PHILLIPS, of Bracknell, showed almost equally well. Mr. DOUGLAS had splendid plants of Phyllis Douglas, Dazzle, Admiration, Commander, J. F. Bennett-Poe, and Roxburgh. In Mr. PHILLIPS'S group was a fine new variety named Sylvia, and the premier Alpine in Majestic.

The exhibits in the smaller class for 12 Alpine Auriculas were all of the highest merit, and the same exhibitors competed, resulting in Mr. DOUGLAS being again placed 1st, and Mr. PHILLIPS again 2nd. The premier stand included Admiration, Argus, Ettrick, and Janet.

There were no fewer than eight exhibits in the class for six Alpine Auriculas, resulting in a keen competition. Mr. F. W. PRICE, Beckenham, easily out-distanced his competitors, his example of Violet Vanbrugh being awarded a First-class Certificate, whilst Thetis and Mrs. M. Smith were also shown splendidly.

There were nine entries in the class for four Alpine Auriculas, Mr. C. C. PRICE being placed 1st, and Mr. F. W. PRICE 2nd.

The silver medal offered by Mr. Douglas in the class for seedlings was won easily by Mr. HUMPHRY R. TAYLOR, Cheam, Surrey, with a meritorious exhibit.

Mr. DOUGLAS excelled in the class for 12 fancies; 2nd, Mr. CRANFIELD.

POLYANTHUSES AND PRIMROSES. This section of the show was well represented. Mr. F. BOSTOCK was awarded the 1st prize in the class for a collection, although it was the general opinion that Messrs. STORRIE & STORRIE'S exhibit was superior in quality and general effect. Mr. BOSTOCK, Springfield, was the 1st prize-winner in the class for 12 specimen Polyanthus; whilst the best basket of Primulas was shown by Sir JOHN T. D. LEWELYN, Bart. Other exhibitors who showed well in the Polyanthus and Primrose section were Mr. S. MORLIMER, Rowledge, Farnham, Surrey, and Mr. JOHN COOK, Fingest, The Avenue, Camberwell.

DEVON DAFFODIL AND SPRING FLOWER.

APRIL 19, 20.—The eighth annual show of this society was held in the Guildhall, Plymouth, on these dates. Last year the exhibition took place at Parnstaple, and, although this innovation led to a considerable enlargement of the membership, the classes were not very well filled and the attendance was somewhat meagre. This year, the show was a great success, the exhibit of hard-wooded flowering shrubs being superb and far superior to those exhibited at the show of the Cornwall Daffodil and Spring Flower Society held at Truro a fortnight earlier. The Daffodils were very good, both in the open classes and those confined to cultivators in Devonshire, the latter being very well filled, most classes having from 12 to 14 entries. It was remarked that the Devon exhibits were quite as good as those in the open classes. The attendance was not very large, probably owing to insufficient advertisement.

In the class for 24 varieties of Daffodils, the 1st prize was won by Miss CLARICE VIVIAN, with a fine stand, including Aragon, Bullfinch, Beacon,

Incognita, Will o' the Wisp, Castile, Stonechat, Wheatear, and Mrs. Bowley, all very bright; as well as Ptarmigan, Mrs. Camm, Mme. de Graaff, Greeneye, Queen Sophia, and Homespun.

In the class for nine varieties of Magni-coronati Narcissi, Miss CLARICE VIVIAN again won the 1st prize, having Grandis, Empress, J. B. M. Camm, Mrs. Camm, P. R. Barr, M. J. Berkeley, Lord Roberts, Weardale Perfection, and Mme. de Graaff.

The 1st prize in the class for nine varieties of Medio-coronati Narcissi was won by Miss POPE with White Star, Bernardino, Sebastian, Lady Margaret Boscawen, Estelle, Homespun, Gold Chalice, Strongbow, and White Queen, a very perfect stand of choice flowers.

Miss POPE also won the 1st prize for three varieties of Incomparabilis with white perianths, her varieties being White Queen, Bernardino, and Lady Margaret Boscawen.

The 1st prize for three varieties of Incomparabilis with yellow perianths was won by Miss CLARICE VIVIAN, who showed Queen Sophia, Leone, and Autokrat.

The best three varieties of Barri were shown by Miss POPE in Southern Star, Circlet, and Solene.

Mr. H. G. HAWKER excelled for three varieties of Leedsii with Dryad, Evangeline, and White Lady, whilst the best three varieties of Parvi-coronati were shown by Miss CLARICE VIVIAN in Bullfinch, Ptarmigan, and Stonechat.

The 1st prize for three varieties of Poeticus was won by Mr. H. G. HAWKER, with Abnira, Cassandra, and Herrick. This gentleman also showed the best single bloom of a Magni-coronati variety, having Mrs. H. J. Veitch; the 2nd prize was awarded to Weardale Perfection, and the 3rd to Glory of Nordwyk.

The best single bloom of a Medio-coronati variety was shown by Miss POPE in Bernardino, White Lady being placed 2nd and 3rd.

For one bloom of a Parvi-coronati variety, the 1st prize was awarded to Miss POPE for Silene, Incognita taking the 2nd, and Cassandra the 3rd prize.

The nine classes for cut Daffodils confined to the county of Devon were well filled with fine flowers, and there were also classes for those who had not before won a 1st prize.

In the class for 12 varieties of spring flowers the 1st prize was won by Mr. H. GRIGG with a beautiful stand of choice specimens.

For six bunches of Anemones the 1st prize was awarded to Miss A. YONGE, whilst Mrs. BAINBRIDGE excelled in the class for six bunches of Anemone fulgens.

The 1st prize offered for the best bloom of Camellia was won by Mr. H. GRIGG with a specimen of Camellia reticulata fully 7 inches across.

For a collection of hard-wooded flowering plants there were six entries in the open class and three in the Devon class.

The 1st prize in the open class was won by Mr. H. GRIGG with a splendid stand, containing Citrus trilobata, Pyrus nivalis, Calceolaria violacea, Erica australis, Primys aromatica, the rare Draculum racemosum, Prunus persica flore-pleno, Jasminum pulchellum (very fine), Clematis indivisa lobata, Camoethus rigidus, Magnolia Soulangiana, Ribes speciosum, Cerasus Watereri, Forsythia suspensa, and Amelanchier canadensis; a special Certificate of Merit was awarded to this display. The 2nd prize stand, shown by Mr. T. E. BORTHO, was but little behind, and included Viburnum rugosum, Aescia diffusa, Correa laevis, and Chorizanthe Lowii, all good and rare plants. A Certificate of Merit was awarded to the Rev. A. BOSCAWEN for Prestanthera rotundifolia shown on his stand. It is a pretty shrub with purple flowers, and is very uncommon.

There were also classes for Polyanthuses, Primroses, Roses, Cinerarias, Lily of the Valley, Cyclamen, Auriculas, Schizanthus, and Carnations, and a prize for the best basket of cut Daffodils, which was won by Miss PARLAY.

NON-COMPETITIVE EXHIBITS.

The general effect of the show was rendered still more pleasing by the nurserymen's exhibits. The Devon Rosery, Torquay, which was given an Award of Merit, provided a splendid display of pot Roses in full bloom, many carrying magnificent flowers.

MESSRS. ROBERT VEITCH & SON, Exeter, also received an Award of Merit for a very interest-

ing stand containing Kalmia latifolia, Camellia reticulata, Clematis Nellie Moser, Erica Veitchii, E. carnea, E. mediterranea alba, Trachelospermum jasminoides, Correa cardinalis, Clematis montana rosea, Caltha platypetala, and a collection of Carnations.

MESSRS. BARR & SONS, King Street, Covent Garden, staged a fine collection of Daffodils, for which they were given a Gold Medal. Among the most striking varieties were Torchlight, Bernardino, Diana, Crown Prince, Oracle, White Queen, Lucifer, Charm, Great Warley, Ice Peak, Easter, Ibis, Red Beacon, Cœur de Lion, Bedouin, Peter Barr, Socrates, Lolah, Venus, Cerasus with primrose perianth and spreading, brilliant orange cup; and several seedlings.

HUNTINGDONSHIRE DAFFODIL AND SPRING FLOWER.

APRIL 21.—Daffodil growers North of London ought to be very grateful to Miss Louise Linton for the pleasant little gathering she provides every spring at Huntingdon. It is purely an amateur's show in the sense that the classes for competition are open to amateurs only, and the four long tables in triple tiers down the whole length of the Corn Exchange, filled without a gap by the competitors, furnish ample evidence, if any be needed, that there is no difficulty in getting the amateur to exhibit if his wants are properly catered for. In this late year many of the best show varieties are even now only beginning to open their flower-buds, and most, if not all the competitors must have experienced considerable difficulty in preparing their flowers for the show. The excellent way, therefore, in which all the classes, even in the Poeticus section, were filled reflects great credit on the admirable management of the show, no less than does the progressive excellence of quality, which is shown in the flowers staged, point to the good work the society is effecting in the cultivation of the Daffodil.

The class for the cup given by Messrs. Barr & Sons for a group of 50 varieties attracted six competitors, and the exhibits occupied a large part of the centre of the hall. The regulations for this class might be amended with advantage, so as to limit the number of flowers in a vase to three or four. As many as nine are at present admitted, but this is too great a number to show the individual flowers well.

Mr. S. F. STAFFORTH'S winning group contained some beautiful flowers, and, it may be added, erred very little in the matter of overcrowding.

The nurserymen's groups were arranged around the sides of the hall. I noticed on Messrs. BATH'S stand near the door some brilliant flowers of Fireflower, a yellow Incomparabilis with a fiery cup. Beyond it Messrs. CARTWRIGHT & GOODWIN had some beautiful flowers, very noticeable among them were the strikingly white forms of White Rose and White Cloud, which, if my memory serves me, we owe to Mr. Backhouse, also some blooms of Long-fellow were well shown in this group.

On the other side of the hall was Messrs. BARR & SON'S stand, noticeable for several good seedlings as yet unnamed. Next to this was a group, not of Daffodils, but of Roses, belonging to Messrs. W. & J. BROWN, Peterborough, and most delightful to my senses, both of sight and smell, was a lovely box of 24 blooms of Maréchal Niel, all exhibition flowers. No Rayon d'Or could compete with this fine old warrior if only it would adapt itself to our climate. Madame Abel Chatenay was there, too, but its colour under glass is, to my taste, somewhat too deep and hard to be really pleasing; it lacks the delicacy found in blossoms from the open air.

The Huntingdon show is generally remarkable for the number and beauty of the varieties of Daffodils of the Leedsii type staged by amateurs. There must, I think, be something in the soil or climate of the neighbourhood which is particularly favourable to the Leedsii varieties; they were there again this year, but hardly, I thought, in their full beauty. Lovely and spotted they were, but they brought this year a certain sense of frailty with them, caused no doubt by the lateness of the year and the sudden warmth of the Easter sun. To some extent their place was supplied by a larger number of the Trumpet section, most of which must have been at their best. I thought the flower of Weardale Perfection, which

won the prize as for the best single Trumpet Daffodil, particularly graceful in form and delicate in colouring.

We must take the seasons as we find them, and enjoy what they give us, as we do the Huntingdon show. To transcribe the words of the old school song:—

Some will bring us good flowers,
And some will bring us bad,
And some will bring us nothing at all
For all the pains we've had.

Yet I hope the last may never happen to Miss Linton and her society, nor do I think there is the least likelihood of so unfortunate an occurrence. Take it all round, the Daffodil is a very reliable flower, and its power of growing in water after it is cut, together with its wonderful lasting power, makes it a much easier flower to show on a given date than is, for example, the Rose. *White Rose*.

NATIONAL ROSE.

APRIL 25.—A special general meeting of the above Society was held at the Westminster Palace Hotel on the above date, to consider the report of the Council on the proposed alterations to the rules and by-laws of the Society. The president, Rev. J. H. Pemberton, presided, and there was a good attendance. On the motion of Mr. C. E. Shea, seconded by Dr. A. K. Williams, the amended rules and by-laws were adopted, after one or two minor alterations of wording had been carried out.

At 5 p.m. a conference was held, and the President delivered an address on "Roses for the Garden." Mr. Pemberton said that the great popularity of the Rose was due to its peculiar suitability for garden cultivation, but it was also the national emblem of England. The Rose enjoyed a longer season of blooming than any other garden flower. Owing to the great progress made in raising new varieties and improving the methods of culture, Roses were seen in the garden in September just as in June. The Rose appeared to meet all requirements as a garden subject; some of its many forms were suitable for forming hedges, covering screens, pergolas, or pillars, whilst it was valuable for bedding purposes or for planting as specimens. The average gardener, said Mr. Pemberton, was not generally good at Rose growing, because the Rose family is very large, and the members need different treatment. No Rose is a true climber, the nearest approach being *R. arvensis*, which is a rambler. There was no need to trouble about budding and grafting the rambler varieties, as they all formed roots freely from cuttings, which should be taken off with a heel of old wood and made firm in sandy soil. Passing to the question of pruning, Mr. Pemberton said that care must be taken not to cut off the flowering shoots, but only to remove unripened branches or those that cause crowding. In training, the long shoots should be tied in a pendulous manner, rather than in the upright form so often seen; in the pendulous system the finest flowering effects are obtained. Roses intended to produce good effects in masses should be planted closer together than is usual, and when planted in beds, set exactly as other bedding plants, and not dotted about as specimens.

The discussion was opened by Mr. H. R. Darlington, who warmly congratulated the President and the Society on the inauguration of the conference, which was so well attended by members. He wished to put forward what he considered the chief points in a perfect Rose. These should be, in order of merit: perfect form, pleasing colour, perpetual blooming, fragrance, and good constitution.

Mr. Frank Cant supported the remarks made by the president in regard to the mistakes made in pruning rambler Roses. He said that complaints reached him from time to time of the shy flowering of rambling Roses, and, on investigation, he found that the cause was due to the removal of the greater part of the flowering wood, in order to make the plants appear tidy. Rambler Roses should be allowed to grow at will, and only the unripened portion of the shoots should be removed in pruning. Mr. W. Easlea said he was opposed to making all Roses perpetual-bloomers, as he thought much of the charm of special varieties would thus be lost. Messrs. Felton, Paul, Burch, Lockington, Bates, and others contributed to the discussion.

In the evening a dinner was held in the same hotel, at which the President presided.

Obituary.

B. LATOUR-MARLIAC.—It is with the deepest regret that we record the decease of this noted French horticulturist, which took place a few weeks ago. M. Latour-Marliac's name will ever be associated with the race of hybrid *Nymphaeas* he raised. These hybrids are now the glory of our lakes and ponds, adding a charm to the water scenery of the pleasure ground, whilst even the smaller cultivators delight to grow them in small tanks or tubs. In his nursery at Temple-sur-Lot in the district of Lot-et-Garonne, M. Latour-Marliac worked at the hybridisation of *Nymphaeas* for 40 years, and he persevered in his object for a long time before any satisfactory results were apparent. During the first 10 years, he saw no decided result; then, when he had raised one that gave signs of a decided break in colour, he was most unfortunate in losing it. M. Marliac's varieties were exceedingly numerous, but some of the best include *Nymphaea Marliac*, a flamea, *N. M. rosea*, *N. M. chromatella*, *N. gloriosa*, *N. colossea*, *N. Robinsoniana*, *N. ignea*, *N. sanguinea*, *N. lucida*, *N. Escarboucle*, *N. Meteor*, *N. atropurpurea*, *N. Ellisiana*, *N. Vesuve*, *N. Paul Harriot*, *N. odorata exquisita*, *N. odorata sulphurea grandiflora*, *N. pygmaea Helvola*, *N. Laydekeri* in variety.



THE LATE B. LATOUR-MARLIAC.

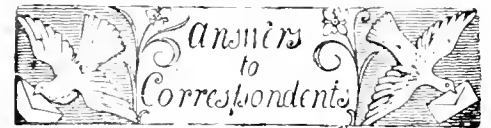
N. somptuosa, *N. Newton*, *N. Caroliniana* in variety, and *N. virginialis*. There are others which are not yet in commerce, but these will be distributed in due time. In 1893 Latour-Marliac was elected Mayor of Temple-sur-Lot, and in 1898 he was awarded the Veitch Memorial Medal for his hybrid *Nymphaeas*, whilst in exhibitions upon the Continent his productions won many gold medals and other awards. In all of this work with the genus *Nymphaea* he was ably and lovingly aided by Madame B. Latour-Marliac, who survives him. He had attained his 80th year at the time of his death. The business will be managed by his son, who relinquishes the position of postmaster at Bordeaux in order to succeed his father. M. Marliac also gave great attention to the culture of the genus *Bambusa*. We hope to describe the system of the cultivation of *Nymphaeas* and *Nelumbiums* at Temple-sur-Lot in an early issue.

J. N. HORDEBISE.—M. J. N. Hordebise died at Liège on the 9th inst. in the 67th year of his age. He was the founder of the firm of Hordebise-Godfrin, which for a long time past has enjoyed an honourable reputation. He was also founder and member of the committee of the Royal Horticultural Union of Liège, and in a

large measure contributed to the success of the union at the Amsterdam, Antwerp, Paris, Milan, and Brussels Exhibition. He was a distinguished pomologist, and was frequently called upon to assist the jury at various exhibitions. In him horticulture, and especially the horticulture of Liège, loses a most devoted friend. There was a large assembly of mourners at the funeral, many well-known representatives of Belgian horticultural societies being present.

WILLIAM WHITE.—On the afternoon of April 22 a fatal car accident occurred in Edinburgh, near Montpelier Park. Mr. William White, a retired gardener, 65 years of age, residing at Balmello, Leuchars, Fife, on alighting from one of the trams, stepped in front of a motorcar, and sustained such injuries that he died in the Edinburgh Royal Infirmary on the following morning. Mr. White had filled several good appointments in the course of his gardening career.

JOHN RICHARD TRANTER.—The death of Mr. John Richard Tranter, nurseryman, Henley-on-Thames, occurred on the 20th inst. in his 79th year. Mr. Tranter was a well-known grower and raiser of Dahlias, and was a member of the committee of the National Dahlia Society.



APPLE TREES IN THE HEDGEROWS: C. L. Apple trees are grown in some European countries along the sides of the road, and in some cases close to hedges, but if planted quite in established hedges they have a very poor chance in competing with a mass of roots, and it is probable that the result in your case would not be worth the expense. To be entirely out of the way of horses and cattle the trees would have to be tall standards, and even then, unless the banks of the hedgerows are high, expensive tree guards would be necessary to keep the animals from reaching the lower branches. Also 1 inch mesh wire netting 2 feet high would be needed around the trunks to prevent rabbits and hares from gnawing the bark. Birds would find the fruit convenient to their shelter places, and for that reason, as well as in view of possible pilfering, a variety which can be gathered somewhat early and a strong upright grower is desirable if the venture is to be made. The variety Lord Grosvenor fulfils these conditions, and, although a good culinary Apple, it is less tempting in flavour than most other sorts worth growing.

EGGS ON APPLE SHOOT: A. T. H. The eggs are those of the Lackey moth, *Chissiocampa neustria*. Some of them are already empty, the caterpillars having hatched. The young caterpillars enclose a few leaves with a web of fine silk, and feed on the foliage, spreading after a time over the whole tree, returning to

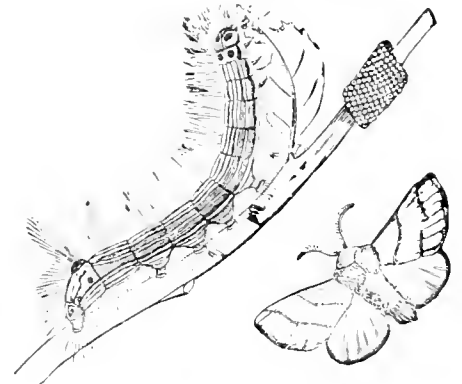


FIG. 120.—THE LACKEY MOTH.

the web at night. If the pest is present in considerable numbers spray the tree with an arsenical wash. In winter watch for the presence of eggs on the trees, taking care to prune and burn any shoots that are infested with them. They are usually deposited on the wood of the current year.

GARDENERS' HOURS AND HOLIDAYS: *Lilac* and *S. S.* It is customary for gardeners in large and small establishments to work from 6 a.m. till 5 p.m. with half an hour allowed for breakfast and one hour for dinner. During times of extra pressure, such as when bedding-out or Grape thinning are matters of urgency, the staff is usually expected to work overtime, such work being paid for. With regard to Saturday afternoons, it is becoming the general practice for gardeners to relinquish work at noon. In those establishments where this is adopted, it is generally found that the relaxation from work is not detrimental to the best interests of the employer, but obviously arrangements must be made for giving the requisite attention to the fires and to ventilating the houses. The Christmas and Easter Bank holidays are usually observed in gardens, and in many places near towns the garden staff is allowed a holiday on all the bank holidays. No deduction is made from the gardeners' wages when such holidays are observed.

glove, Cereals, Mirabilis, Antirrhinum, Maize, &c. An article on Orchid albinos was published in this journal—February 6, 1909, p. 81.

MUMMY PEA: *Subscriber.* You appear to have confused the Mummy Pea with a variety of Sweet Pea. It is a singular variety of the garden Pea, and grows about 4 feet high, producing a cluster or crown of flowers that are followed by bunches of pods (see fig. 121). The stem is gross growing and becomes fasciated near the top, forming a head or crown, hence it is often known as Crown Pea. The story of its having been discovered in the hand of an Egyptian mummy is fabulous.

NAMES OF FRUIT: *H. Dix.* Lane's Prince Albert.

NAMES OF PLANTS: *H. W. A.* 1 and 5, garden varieties of *Narcissus Leedsii*; 2, *Haecquetia (Dondia) Epipactis*; 3, *Berberis buxifolia*; 4, *Hymenanchera crassifolia*; 6, *Asarum europaeum*.—*E. W. T.* 1, *Anemone apennina*, found wild in Britain in some localities; 2, *Saxifraga ligulata*; 3, *Erythronium dens canis*.

mence spraying when the leaves are expanded, and repeat the spraying at intervals. Campbell's Sulphur Vaporiser may also be used with good effect. The Bordeaux mixture is injurious to the leaves of Peaches or Almonds, even when sprayed upon them in a diluted condition.

PEACH SHOOTS UNHEALTHY: *G. W. D.* There is no fungus disease present, and the injury is probably due to syringing the plants with water from a tub that has recently contained paraffin.

SPAWNING OLD PASTURE FIELD FOR MUSHROOMS: *T. A.* The best season for planting spawn is any time from the middle of May to the end of June. A turf about one foot square should be cut about 3 inches thick, taking out about 4 or 5 inches of soil. Refill this with prepared stable manure, and place a quarter of a brick of spawn in the centre. Tread firmly down, and replace the turf, beating it down as firmly as possible. If planting is left late the spawn may need watering; the turf turning

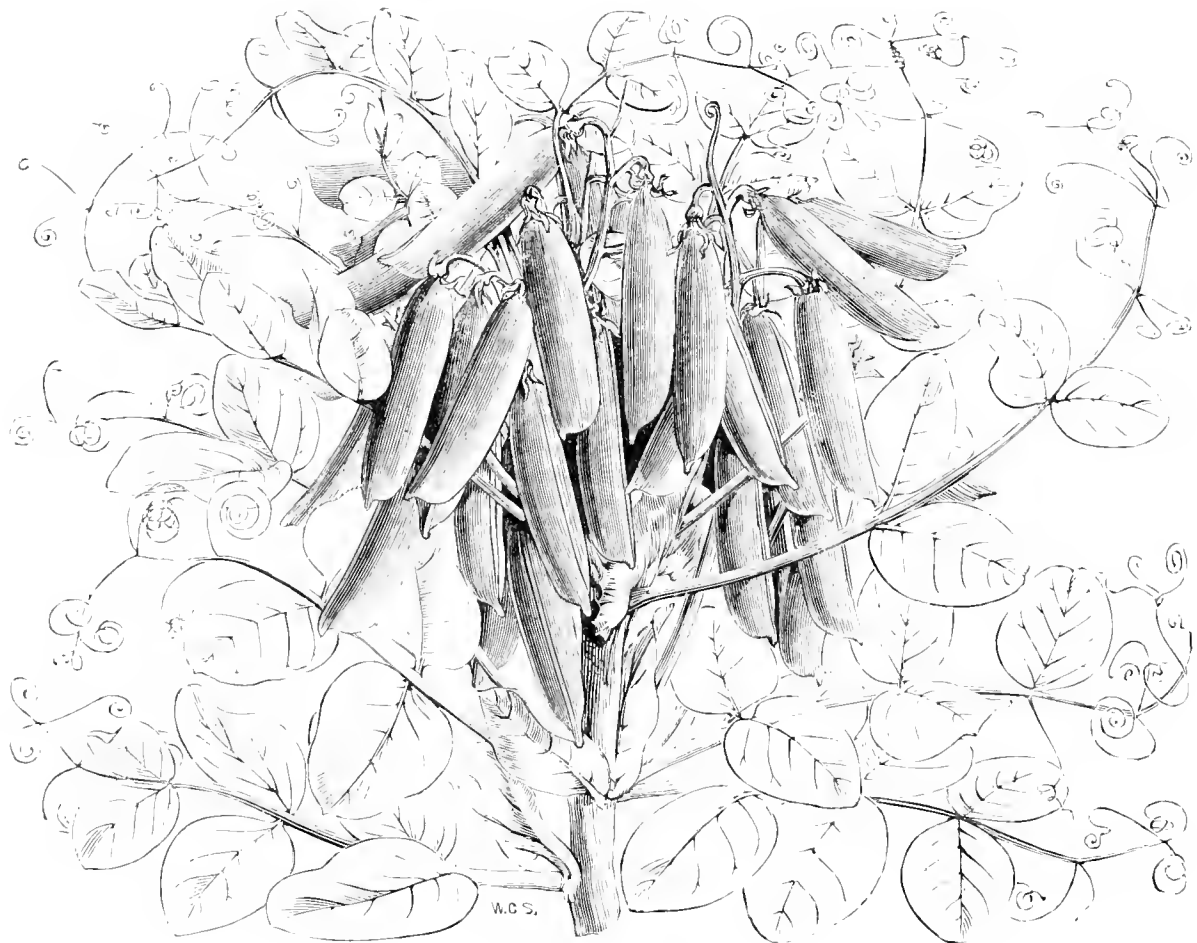


FIG. 121.—CROWN OR MUMMY PEA.

INSECTS IN HERBACEOUS BORDER: *F. Coverdale.*

The specimens submitted for examination are the larvae of a predaceous beetle, which is not known to be destructive to plants of any kind.

LILY OF THE VALLEY FAILING: *K. & Sons.* The plants are injured by the *Botrytis* that causes Lily disease. In all probability the soil is infected with the fungus, and should be dressed with lime.

MANURE FOR IDENTIFICATION: *Kainit.* The sample of manure you send is kainit.

MENDEL'S LAWS AND ORCHIDS: *C. R.* There can be little doubt that Mendel's laws will be found to apply to Orchids, though this class of plant has not, for obvious reasons, been used at all extensively for Mendelian experiments. Experiments in genetics, confirming and extending Mendel's original experiments with culinary Peas, have been made with many kinds of plants; among others with Sweet Peas, Chinese Primrose, Stocks, Fox-

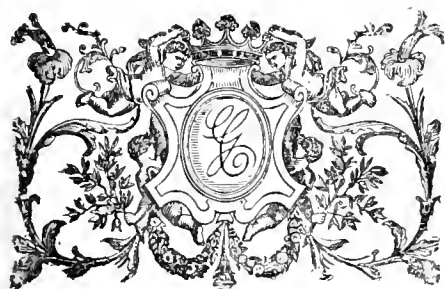
—*J. B.* *Bignonia capreolata* var. *atrosanguinea*.—*R. N. H.* A light form of *Lycaste Skinneri*.—*H. H. S.* 1, *Dendrobium dixanthum*; 2, *D. crispatum*; 3, *D. Farmeri*.—*J. H.* 1, *Oncidium luridum guttatum*; 2, *Maxillaria tenuifolia*; 3, *Andromeda floribunda*; 4, *Thujopsis dolabrata*; 5, *T. d. variegata*.—*L. W. G.* 1, *Narcissus incomparabilis Stella*; 2, a variety of *N. Leedsii*; 3, *N. Cernuus*; 4, *Tulipa sylvestris*; 5 and 6, next week. Thanks for 2s. for the R.G.O.F.—*J. M.* 1, *Milla (Tritelia) multiflora*; 2, *Primula Kewensis*; 3, *Narcissus Burbidgei*.

PEACH LEAVES DISEASED: *H. H.* The Peach leaves are attacked by the Shot hole fungus (*Cercospora circumscissa*). Spray the trees with the ammoniacal solution of copper carbonate. Take of copper carbonate 1 ounce, carbonate of ammonia 5 ounces, and water 16 gallons. Mix the carbonate of copper and the carbonate of ammonia, and dissolve it in about a quart of hot water. When thoroughly dissolved, add 16 gallons of cold water. Com-

—brown being an indication of this necessity. In this way plant as much or as little as may be desired, and at distances of 3, 4, or more feet apart.

THE ROOT FUNGUS OF ORCHIDS: *C. R.* It has been proved that the roots of many Orchids are always infested by the mycelium of a fungus, and it has been demonstrated by the late Mr. Bernard and others that seeds and seedlings of such Orchids fail to germinate and develop unless the symbiotic fungus is present. Practical Orchid raisers do not, however, find any serious difficulty in raising seedlings, for the fungus is widespread in the old roots and probably occurs also in the soil in which Orchids have been grown. Hence by adding such soil to the compost in the seed pan infection is induced.

Communications Received. J. W. T.—J. M.—W. R. P.—Pixie, N. Devon—J. E. G., Ipswich—W. J. B.—Ignoramus M. Brochers R. F.—J. H.—E. W.—R. S. S.—W. D.—D. W.—W. C. T.—D. E. B.—A. H.—A. P., Chelmsford—W. E. B.—P. C.—Dr. R., Italy—C. G.—A. D. W.—W. E. H.—J. E.—W. H. S.



THE

Gardeners' Chronicle

No. 1,271.—SATURDAY, May 6, 1911.

CONTENTS.

Alderman, Mr. A. ...	281	Orchid notes and gleanings—	
Bequest to a gardener	281	Mittonia Bleuana	275
Books, notices of—		Pectersie ...	276
A Study in Symbiosis	277	Peaches and Nectarines	284
Cottage gardens, the value of ...	281	Rose catalogue, suggested	281
Daffodils, three new	275	Societies—	
Dahlias, new French single flowered ...	288	Horticultural Club ...	281
Dahlias? progression or retrogression in ...	283	Keut, Surrey, and Sussex Daffodil ...	287
Dahlias, single ...	276	Midland Daffodil ...	285
Dahlias, types of 280 & Forestry, British, the development of ...	281	National Chrysanthemum ...	281
International Horticultural Exhibition, 1912	281	National Rose ...	284
Iris pumila ...	277	National Sweet Pea ...	281
Kew Guild annual meeting ...	281	National Tulip ...	281
Lambay Island, weather at ...	285	Perpetual-flowering Carnation ...	287
Llanover, Monmouthshire ...	273	Royal Horticultural (Scientific Committee) ...	281
Madrid International Agricultural Congress	281	Vines, the forcing of ...	284
Obituary—		Week's work, the—	
Bryce, Thomas ...	288	Flower garden, the ...	278
Corderoy, Justus ...	288	Fruits under glass ...	278
Graaf, Simon de ...	288	Hardy fruit garden, the	279
		Kitchen garden, the	278
		Orchid houses, the ...	279
		Plants under glass ...	279

ILLUSTRATIONS.

Daffodils Queen of Hearts, Socrates, and Miss Willmott	275
Dahlia Leslie Seale	277
Dahlia Madame Van den Dael	284
Dahlia Mrs. Douglas Fleming	282
Dahlia "Sweetbriar"	283
Dahlias, single, in Mr Edward Mawley's garden	276
Graaf, Simon de, the late, portrait of	288
Llanover, Monmouthshire (Supplementary Illustration)	274
Mittonia Bleuana Pectersie	276
Narcissus Coronation	286

LLANOVER.

(See Supplementary Illustration.)

THOUGH Monmouthshire is not a Welsh county, it is in sentiment essentially Welsh, and Llanover, in the heart of the county, is, and has been for nearly a century, the Mecca of the Welsh bard, minstrel, and harpist; and in accordance with the custom of the wealthy patriotic houses of the Principality, the house of Llanover has its own harpist in residence still.

Over "Porth Mawr," the chief of four entrances to the lovely, broad-acred park, is an inscription in the ancient Welsh tongue:—

"Pwywyt ddyfodwr?

Os cyfaill, croesaw calon iti.
Os dieithr, llettygarwch a' th erys.
Os Gelyn, addfywynder a' th garchara."
which may be freely translated:—

Who art thou, comer?

If friend, a hearty welcome greets thee.
If stranger, hospitality awaits thee.
If foe, meekness shall captivate thee.

The above sentiment is characteristic of Llanover at the present time under the reign of the Honble. Mrs. Herbert, and was so equally during the long life of the late Lady Llanover.

An inscription on the inside of the arch, which can be read by those leaving the demesne, runs:—

"Ymadawydd hynaws,
Gad fendith ar dy ol;
A bendithier dithau.
Iechyd a hawddfyd it ar dy daith
- A dedwydd ddychwelia."

Translation:—

Genial departing one,
Leave behind thee a blessing,
And be thyself blest.
Health and facility to thee on thy journey,
And a blissful return.

The Usk Valley rivals in many places that of the more circuitous Wye for charming scenery, and the four miles or so traversed from the important border market town of Abergavenny resembles a lovely garden, having the steep Sugar Loaf and Skirrid mountains and the Blorlinge as a protecting background. Beautifully-wooded, smaller hills merge with undulated lowland containing a wealth of verdure and a native flora difficult to surpass. The park is famous for its hardwood trees. Beech, Elm, Lime, Oak and Plane abound singly and in groups, and many of the specimens are of quite extraordinary proportions.

The mansion is said to be one of the most perfect examples of Tudor architecture; but with this bare remark the very imposing edifice must be left for the—to gardeners—more interesting subject of the gardens. I have not ascertained who it was that planned and laid out these magnificent grounds, but he was certainly an artist, and knew trees and shrubs well, for the collection is one of the best I have seen. Happily, too, it has been well cared for, and the specimens are almost perfect: Magnolias grown into majestic trees are presumably about 80 years old; the Black Walnut, and Ailanthus glandulosa (the Tree of Heaven) near by, 95 feet to 100 feet high, whilst Abies Smithiana and Taxodium sempervirens just beyond are about the same height; the latter has a girth of 4 feet. Pinus excelsa is a beautiful tree, hardly less in height than those already mentioned. Cedrus atlantica, in the above distinguished company, holds its own with dignity.

Two particularly fine Tulip trees arrest attention, and a Libocedrus decurrens and Taxodium distichum are excellent specimens. The foregoing, with many other fine companion subjects are found in the gardens west of the mansion. On the east side, is a remarkably fine Liquidamber, about 50 feet high, and a girth at 4 feet from base of 5 feet; also a perfect pyramid of Sequoia gigantea, 100 feet. Of this gigantic tree, there are several specimens in the park and gardens, a pair near the kitchen garden being exceedingly fine, and said to be 130 feet high. Cryptomeria japonica flourishes, and is, where the position suits it, one of the most ornamental of Conifera.

The Evergreen Oak, Q. Hex, is well represented, and a very remarkable specimen among the worthies aforementioned

occupies a very considerable space both groundward and skyward.

A fine Catalpa at one end of the ground vies with a Paulownia in a distant part for ascendancy: both have run up well.

A description of the west front garden would no doubt be interesting, but where there is so much to see we cannot do more than take a passing glance at the gorgeous displays of Begonias in masses of self colours, of Salvias, and a host of other summer subjects which are seen here to perfection. Leaving to the imagination all the bedding displays, the wealth of bloom of Queen Rosa, especially the Wichuraiana varieties on tripods, we proceed by way of the broad, central path, which is at intervals intersected by other paths, and centred by an ornamental fountain and basin, to the fairy wells, passing en route between two long borders of herbaceous plants, which are backed by well-trimmed Laurel hedges. Here many of the most up-to-date subjects are grown, and at nearly all times of the year there is something interesting in flower. Fuchsia Riccartonii, F. globosa and others have attained quite large proportions.

The canopy of Oaks—some real monarchs, others gnarled and moss- and fern-covered—becomes more and more dense, and with specimens of monstrous fungi flourishing on all hands it needs no great powers of imagination to conjure into view the fairy of the wells. I think there are five of these wells or pools of beautifully clear water, irregularly formed, each surrounded and partly hidden by a wealth of native ferns, the Royal Osmunda regalis and the Lady Fern being prominent.

Bamboos, too, have been introduced and are thriving, the fairy space being surrounded by walls of Rhododendrons, forming an almost impenetrable thicket. Entering the forest from this point—suggestive of remoteness and solitude—the mind is impressed with the contrast between the hustling life of the present day and that of the Druids of the olden time, who dwelt in such Oak groves in constant communion with nature.

Immediately on emerging from this "Druid" grove, a Druid Cromlech appears, but, alas! it is but an imitation; disappointment, however, is atoned for by an introduction to more "wells," called "Fynon Over," or "Gover's Well," whence the mansion and village derive their name, Gover, originally written "Goyor," being the patron saint. These wells, or springs, are nine in number, all within the space of a few yards, snugly reposing in a grove of Yew and Holly.

Not far from this spot is a fine bush of Rhododendron Nobleanum 30 feet in diameter, and bushes of the better hybrids, including "Pink Pearl," and many of the Himalayan forms, all doing well.

Azalea indica alba grows and flowers very freely, one piece measuring 12 feet across. Bamboos in this part of the gardens luxuriate as though in a greenhouse. So also does Acer palmatum, and I noticed an Acer Negundo variegata 30 feet high.

Clorodendron trichotomum and *Desfontainia spinosa* were conspicuous, with large plants of *Berberis japonica*, *Olearias*, *Viburnum plicatum*, and a great variety of flowering shrubs, among the latter being massive specimens of *Pernettya mucronata* and of *Gaultheria Shallon*. Following a delicious odour, we find a sheltered corner bordering the woodland filled with Sweet Briar, and immediately there appears a beautiful lake nestling in the wood. Of the area of this lake I am not certain, but it is considerable, and has a delightful island reached by a rustic bridge. The huge Silver Firs, Spruce and other forest trees tower to a great height on either side, and are charmingly re-

lake is certainly one of the chief features of the place, and water effects are frequent throughout the whole of the gardens. Such subjects as *Gunnera scabra*, *Iris* in fine variety, *Polygonums* of the larger-growing varieties, *Rumex Hydrolapathum*, and a host of water-loving and semi-wild garden plants enhance the beauty of the scene.

An older mansion, named "Ty Uchaf," exists within the park, and around it is found a wealth of the finest-grown trees. Here is a Tulip tree of 100 feet or more, a grandly-spreading Western Plane with a diameter spread of about 75 feet, Beech and Hornbeam of like proportions, and many more subjects worthy of note.

There are a number of quaint old fruit

ture cascades, which runs from the old-world garden, a Rose garden opens out suddenly, and the stream path leads to a large and well-stocked, walled-in vegetable garden, in which are span-roofed plant-houses, three-quarter span forcing houses partly sunk in the ground, and a long range of lean-to vineries and Peach-houses. Without detailing, one can sum up the effect and general condition of indoor crops as excellent.

Wall fruit trees, orchard trees outside the garden, and all garden crops were eminently satisfactory. Perhaps one ought to have specially mentioned, among indoor plants, the fine *Calanthes*, always well grown here.



FIG. 122.—MILTONIA BLEUANA PEETERSIAE: FLOWERS WHITE WITH ROSE-PURPLE PATCHES.

(See p. 275.)

flected in the clear water, which is immediately skirted by groups of Dogwood (scarlet), Pampas Grass, Rhododendrons, *Berberis*, *Cotoneasters*, *Willows*, &c., one promontory being covered by climbing Roses. A broad encircling pathway is backed by a pleasing combination of coloured trees and flowering shrubs, such as Japanese Maples, Purple Beech, Purple Hazel, *Arbutus Unedo*, *Spiraea arifolia* and *Philadelphus*. A rustic summerhouse has its sides and roof covered with *Honeysuckle*, *Clematis*, *Bignonia* and *Dorothy Perkins Rose*. The

and vegetable gardens, and in this part of the grounds there are many interesting features, one of which, a *Rhododendron ponticum*, planted by the late Lady Llanover's mother, is over 100 feet in circumference. Ty Uchaf, meaning The Upper House, belonged originally to the Cecil family, who were descendants from the old Cymric stock of "Seisyllt," from which name that of Cecil is derived. From the Cecils it passed into the hands of the Waddington family, the late Lady Llanover being a Miss Waddington. By way of a delightful stream, with numerous minia-

At the end of one range stands a white *Camellia* in the most perfect health, and which is 20 feet across; this has stood out doors for many years.

In conclusion, "Lletty Rhys," the gardener's snug cottage, must be mentioned with its quaint gables, in a pretty setting of lawn and flower beds, with *Crimson Rambler Roses* forming one great bush and a *Pyracantha Lelandii* on a post making a lovely picture. Knowing the retiring disposition of Mr. Rees, the gardener I refrain from a eulogy of his achievements during 25 years' service. G. W. C.

ORCHID NOTES AND GLEANINGS.

MILTONIA BLEUANA PEETERSLE.

THE *Miltonia* (see fig. 122) shown by Mons. Firmin Lambaen, Brussels (gr. Mr. E. Demunter), under the above name at the Royal Horticultural Society's meeting on April 11 last, and for which a First-class Certificate was awarded, is remarkable, because in this variety the

with the variety of *M. Roezlii* with the inner thirds of the petals coloured violet or claret-purple has been conducive to the production of similar colour in the resultant progeny is an open question, but in this, as in most other cases of cross-breeding, the advantage of exceptionally fine parents is evident. The flowers are white with the inner parts of the petals rose-purple, the sepals also having a lighter shade of the same colour. The lip has a yellow crest with a

THREE NEW DAFFODILS.

AMONGST the new varieties of Daffodils contributed to recent exhibitions, the parvi-coronati class has been well represented. The improved flowers possess perianths of better form, or the crown or cup is marked by a greater depth of colour or a new shade. As showing the popularity of this type the three varieties depicted in fig. 123 all received awards at the last meeting of



FIG. 123.—THREE NEW DAFFODILS.
(1) QUEEN OF HEARTS, (2) SOCRATES, (3) MISS WILLMOTT.

deep claret-purple colour at the base of the petals seen in the best varieties of *M. Roezlii* appears for the first time, in marked degree, in a form of *Bleuana*. The absence of this colour in former raisings has often been remarked, and whether in those cases the lighter, or wholly white forms of *M. Roezlii* have been used, or whether the use of the very dark-coloured *M. vexillaria Leopoldii* crossed

crimson mask, in front of which is a rosy band. The derivation of *M. Bleuana Peetersia* is by crossing *M. Bleuana Peetersii* (*Roezlii* x *vexillaria Leopoldii*) with a good form of *M. Bleuana*. Considering that many batches of *Miltonia Bleuana* have been flowered during the past 20 years, it is a matter of considerable interest that a variety so widely separated from those previously seen should now appear.

the Royal Horticultural Society, whilst the novelty which exhibited the most perfect form at the Birmingham Daffodil Show last week was a true Poeticus named *Coronation*, of which an illustration is given in fig. 129. *Queen of Hearts*, belonging to the *Barrii* section, has cream-coloured perianth segments relieved by a bright orange-coloured cup. *Socrates* is a beautiful Poet's Daffodil, to which distinction is given by

the broad red band that outlines the cup. The flower named after Miss Willmott is remarkable for the great size of its perianth and the spreading, yellow chalice, which is tipped with red. It may be mentioned that awards were also conferred on the varieties Miss Willmott and Socrates at the show of the Midland Daffodil Society.

PEACHES AND NECTARINES.

THINNING THE FRUITS.

(Concluded from p. 260.)

IF the trees are properly disbudded and attended to during the summer, the young shoots have generally an abundance of strong, healthy blossom buds in the following season. Many expert Peach growers of the past believed that when the trees were overlaid with blossom it was a sound practice to thin out the weaker flowers before they had time to set and thus become a burden on the resources of the tree. On the face of it, this proposition seems sound one, and it should carry conviction, but in these days the practice has almost lapsed. How far the thinning of the bloom may be the means of influencing the crop is not easy to say, but with regard to the advantage of a free and early thinning of the fruits there cannot be two opinions.

If the trees are furnished with an adequate number of one-year-old branches, then one fruit to each of these, or perhaps two in the case of a few shoots necessary to provide one fruit to each square foot of wall space, is all that is necessary for a crop. Thus the futility of delaying the thinning becomes, I think, only too apparent. The system so largely practised of thinning the fruits a few at a time in successive stages over a period of three weeks or a month, and even until after the stoning period is passed, must be condemned. But some will argue that Peach and Nectarine trees are liable to cast some of their fruits during the stoning period, and that, in order to provide against the danger of having a poor crop, it is necessary to leave a surplus of fruits until after that stage is passed. To an ordinary mind, uninfluenced by past traditions and usage, it would, I think, naturally occur that this system is much more calculated to bring about the feared trouble than would an earlier and more drastic system of thinning the fruit. My experience goes to prove that if a tree is in robust health and that the thinning of the fruits to the number required to furnish a crop has been done early, there is practically no danger whatever from the casting of any appreciable number of fruits at the stoning stage. On the contrary, I believe that the chief cause of the fruits falling at that time is brought about by the weakened condition of the trees in consequence of the useless burden of surplus fruits which have ultimately to be cast away! This view of the case is supported by the fact that in seasons when frosts have thinned the fruits I cannot call to mind a single case of the fruit falling at the time of stoning. In thinning the fruits early it is practically impossible to make a mistake in selecting those which are best for furnishing the crop. It will always be found that one or two or even more of the young fruits on a shoot commence to swell before the others, and from these must be selected those which are retained. It has been my experience that the young fruits of the Peach and Nectarine swell more freely and attain to a larger size if they are partially shaded by the foliage of the tree up to the time of the second swelling, than if they are exposed fully to bright sunshine. After this stage, when the time of ripening and colouring is approaching, the fruit is improved by full exposure to the sunshine, excepting perhaps in the last stage of ripening, when there is danger of the skin of the fruit being scorched by a too free exposure to the sun. This trouble is specially to be guarded against in the case of Nectarines. *Owen Thomas.*

SINGLE DAHLIAS.

THE single Dahlia is by no means a modern plant, for we hear of *Dahlia coccinea* flowering in a London nursery so far back as 1805. That even this first introduction had much of the free-flowering and attractive quality of the modern single Dahlia is shown by a statement once made by that prince of florists, Mr. James Douglas, to the effect that when visiting Penrhyn Castle Gardens in 1880 he saw a large number of plants of this very Dahlia grouped together, each plant bearing "scores of its pretty flowers," and altogether forming "a most imposing sight." About that time, the wild types of Dahlias were reintroduced into this country, large numbers of varieties were raised from them, and the single flowers soon became very popular.

Then, after a time, this simple and graceful

of the garden. In fact, there is, I venture to say, no other flower which at that period of the year, or, indeed, at any other period of the year, can, when its combined qualities of continuous blooming and the clear brightness of its flowers are taken into consideration, compare with the single Dahlia for effective display. No doubt, one great reason for this pre-eminence is its apparent indifference to adverse weather conditions. Autumn is a very variable, and often a very wet and boisterous season; yet, rain or shine, the flowers of the single Dahlias retain their beauty unimpaired. They possess, moreover, the great advantage over most other flowers that they are very easily cultivated.

Single Dahlias may be grown with other flowers in borders, but to see them at their best they should be grown in a bed by themselves in an open position and away from the shade of trees.

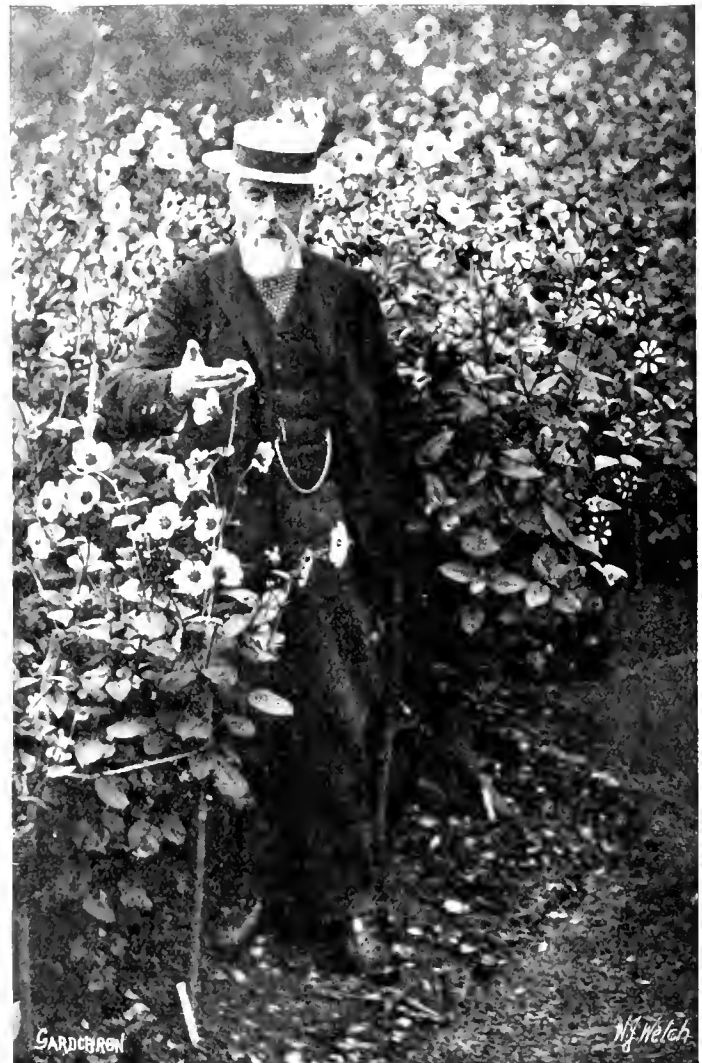


FIG. 124.—MR. EDWARD MAWLEY MAKING AN INSPECTION OF HIS SINGLE DAHLIAS.

type had to yield to the fascination of the comparatively new Cactus Dahlias, the popularity of which was due not only to their larger and more varied flowers, but also to the great advances towards refinement of flower which, year by year, were being made in them. Nevertheless there has always been a band of constant admirers of the more modest singles; and it is through the persistent energies of these admirers that the single Dahlia has been steadily improved, until, at the present time, there are numerous varieties which, for perfection of form, freedom of flowering, and the graceful carriage of their blooms, have never been equalled. So much is this the case that, if a visit is made in September to a nursery where all the different types of Dahlias are grown, it will be found that the quarter devoted to the single Dahlias is the gayest spot

The plants should be inserted 4 feet apart each way, so as to allow of their full natural development. The time for planting must necessarily vary somewhat according to the locality, some places being much more liable to late spring frosts than others, but early in June will be found, in most districts and in most years, a safe time. Each Dahlia should be secured to a firm stake directly after it is planted, and, when the plants have grown sufficiently, four additional stakes, at equal distances apart, should be firmly driven in around each plant. This firm staking is of much importance, and will add greatly to the welfare of the plants. Two, or even three, rows of strong but soft twine, according to the height of the variety when fully grown, should then be fastened to the stakes, and made to encircle the plants in such a way as to keep

the growths in position, but the rows should not be so close or high as to destroy the natural habit. Dahlia shoots are very brittle, and, therefore, easily broken by high winds unless supported in some such way as that indicated. The plants require no other attention until they come into flower, when the blooms should be removed as they fade. This removal of the dead flowers is the real secret of their continuous blooming. Provided that it is done regularly, say, twice a week, the flowers will continue to follow one another in rapid succession until the plants are either cut down entirely or crippled by frost. It may be necessary in some localities to set traps for ear-wigs, but in my own garden it is not necessary, although when I grew show and fancy Dahlias for exhibition in the bed where the singles now are, it often became necessary to enclose each young bloom in a muslin bag to keep out these destructive pests. Last year, my bed of single Dahlias, which contained nearly 100 plants, was one blaze of bloom from the beginning of September until November 5, when the plants were killed to the ground by 12° of frost whilst in full flower; yet this bed has only once in the last 12 years had any manure at all.

Among the best varieties to grow may be mentioned Winona (maroon), Miss Roberts (yellow), Snowdrop (white), Amy (terra-cotta), Betty (pale rose-lilac, with crimson ring), Columbine (very pale rose, shaded very pale orange), Lady Bountiful (mauve, with crimson ring), Leslie Seal (silvery lilac, with crimson ring) (see fig. 126), Owen Thomas (crimson tipped with yellow), Peggy (rose, with orange band), Princess of Wales (pale pink), Rosbank Scarlet (scarlet crimson), Serita (deep crimson, shaded purple), and Stromboli (maroon, tipped with white).

Many people have an idea that single Dahlias are of no use as cut flowers, but this is a mistake, for, when tastefully arranged, they are charming. But then it is not generally known that for cutting purposes the flowers must be gathered quite young; that is to say, when less than half the centre florets are open. Cut at that stage and placed in water, they expand fully in a short time and remain fresh for days. They have, moreover, this advantage over most flowers, that it is very rare indeed to find an imperfectly-formed bloom. *Edwd. Mawley.*

IRIS PUMILA.

GREAT as is the confusion in *Iris* nomenclature, no name is probably so frequently misused as that of *I. pumila*. It occurs in every nurseryman's catalogue, but it is extremely rare to find a specimen of the plant in their gardens, except in the shape of *I. pumila corulea*, which is a true *pumila*. Of this, there are in commerce at least two forms, one of which is slightly larger than the other, and vastly more vigorous and floriferous. *I. pumila* is indeed one of the most floriferous of all Irises. In most species it is only the central growth at the end of the rhizome that produces a bud, but in *I. pumila* as many as three or four of the growths on either side are also capable of flowering, so that each small rhizome may produce as many as nine flowers.

The home of the species ends in the West at the hills near Vienna, where it grows abundantly in many colour forms, red-purple, blue, white, and yellow. The plant can there be traced eastward down the Danube, round the Black Sea by Odessa and the Crimea to the Volga, beyond which it does not apparently extend.

The features of the true plant are firstly the absence of stem; secondly, the long (2 inch or more) perianth tube; thirdly, the loosely wrapping, and, as it were, shapeless spathe valves, and lastly, its early-flowering habit, for the true *I. pumila* is always the first of the bearded Irises to flower. The plants, with which it is confused, are forms and hybrids of the French and Italian Irises, to which the names *lutescens*, *chamæiris*, *olbiensis*, and *italica* have been given.

In these the stem is always obvious, though of only an inch or two in length, the perianth tube is not much more than an inch in length, the spathe valves are keeled, and their outline is better defined, and the flowering time is a week or two later than that of *I. pumila*. *W. R. Dykes, Charterhouse, Godalming.*

NOTICES OF BOOKS.

PLANT-ANIMALS.*

THE present essay forms one of the pioneer group of volumes of the new series of Cambridge manuals of science and literature. In the 160 small pages at his disposal, the author gives an outline of what is known of the behaviour and structure of the two marine worms *Convoluta roscoffensis* and *C. paradoxica*, mainly the result of brilliant

factors of the environment, so that their life functions are carried on at each moment under the most favourable conditions. This portion of the work includes a very able analysis of the factors at play and of the responses of the plant-animals, treated with great originality and intelligence, and raising in one form or another nearly every question of current interest in the physiology of irritability.

The second section is concerned with the green cells and the way in which, after it has become inoculated by them, the *Convoluta* is enabled to substitute a vegetable for an animal type of nutrition, living on its algal cells in the same way as the colourless part of a green plant lives upon its chlorophyllous apices. The relationship, however, has its limits, as with lapse of time, but not before it has matured its eggs, the *Convoluta*, actually digests the green cells on which it had



FIG. 125.—SINGLE DAHLIA LESLIE SEALE IN MR. MAWLEY'S GARDEN.

researches carried out at his seaside laboratory on the north coast of Brittany. The great interest of these worms depends on the fact that at a certain stage in their development their larvae are invaded by algal cells, which play a part in their economy analogous to that of the algal cells in the Lichens—indeed, an appropriate descriptive name for composite organisms of the kind would be "Animal Lichens."

The book falls, roughly, into two sections. The first deals with the behaviour of the worms, their occurrence in sharply-defined zones on the seaboard, and the adjustment of their habits to the recurrent tidal cycles, to light and other

so long subsisted—no doubt under the imperious necessity of nitrogen hunger.

So far as the alga is concerned, the association with *Convoluta* is without significance, for its existence as a species is carried on by individuals, which retain quite independent of the worms, a small percentage alone finding their way into the bodies of the *Convoluta*, where they gain temporary immunity from the scarcity of nitrogen which prevails outside, to succumb finally, as we have seen, to the nitrogen greed of the animals. Thus it appears that in the symbiotic relations which exist between the two components of the plant-animals, the *Convoluta* is distinctly the predominant partner. The book is illustrated by numerous text figures and a coloured frontispiece. *F. W. O.*

* A Study in Symbiosis, by Professor Frederick Keeble, 163 pp., illustrated. The Cambridge Manuals of Science and Literature. (Cambridge: University Press.) 1910. 1s.

The Week's Work.

THE FLOWER GARDEN.

By R. F. BROTHERSTON, Gardener to the Earl of Haddington, K.L., Tynninghame, East Lothian.

DEUTZIA.—The newer forms of *Deutzia* promise to give much pleasure to lovers of hardy shrubs. At Tynninghame all the *Deutzias* are hardy, including *D. gracilis*, which forms specimens of considerable dimensions. The finest variety of this species is *D. gracilis venusta*, but it grows very slowly; *D. g. campanulata* is more vigorous, though less effective when in flower. The variety *fastuosa* is another form well worth cultivation. One of the loveliest *Deutzias* is *D. Lemouinei* "Boule Rose," which has deeply-coloured buds and rosy-pink flowers, produced in trusses. *D. discolor diversifolia* has a blush tint, but this plant is not so attractive as some of the others. One of the most floriferous is *D. gracilis eximea*, and there are still many newer varieties which need further trials. Like the varieties of the later-blooming and much taller *D. crenata*, these and other dwarf forms require to have the older shoots removed each year in order to provide space for the newer and more floriferous growths. It is sometimes beneficial to cut the whole plant to the ground level, just like Willows or purple-leaved Plums, after which treatment the plants produce strong shoots, which flower abundantly. The latter operation may be performed immediately after the flowering season is passed, or in late districts it may be done in spring, but in the latter case it results in the loss of a year's flowers. *D. crenata* varieties, such as *Wellsiana* and *Pride of Rochester*, never need such drastic treatment, but the older growths should be excised, and the best flowering shoots will be found in those formed in the previous year. *D. crenata* is considered the hardiest of the species, but in most districts it might be worth while to try all the *Deutzias*, planting them in rather poor, well-drained soil, in positions where the young shoots are likely to mature. If systematic pruning is intelligently carried out, and the plants are thereby forced to make growth, they will succeed. Some plants, growing in almost pure gravel, at Tynninghame, are nearly as vigorous as those in more fertile soil, but they are pruned just as regularly as fruit trees in the fruit garden.

ANTIRRHINUM.—Plants raised from seeds sown very early are ready for planting in beds and borders, and it will be an advantage if the work is undertaken at once. Those of an intermediate height should be placed at a distance of 12 inches apart, but in the case of the taller varieties 18 inches will not be too much space. If it is intended to have them in distinct colours, for which purpose they are suitable for furnishing beds, it will be essential to examine every plant in order to see that they are all of the proper type. This may be determined if the undersides of the leaves are examined, each variety being coloured differently in its foliage. In most cases, it can be ascertained if the plant is true to variety by observing the foliage without turning the leaves over, but in cases of doubt an examination of the under surface provides an infallible test. Not only are *Antirrhinums* valued for massing, they are also useful for intermingling with other flowers. Those, both intermediate and tall growing, of a yellow colour associate well with the blue flowers of *Salvia patens*, blue-flowered Larkspurs and *Anchusa italica*. The white varieties, and especially those of the taller type, give a good effect when used with other white-flowered plants, but it must be remembered that the yellowish-white flowered *Antirrhinum* does not harmonise well with any greenish white flower. Some specially fine effects can be produced by combinations of pink and other pale flowered *Antirrhinums* with mauve flowers, such as Lupins and Larkspurs.

PENTSTEMON. Delay in planting seedling *Pentstemons* sometimes results in the plants failing to flower satisfactorily. It is therefore advisable to commence the planting at once, and each specimen must be allowed a space of 18 inches or 2 feet. *Pentste-*

mons succeed best in a retentive soil; land of a porous nature should receive a heavy dressing of rotted cow manure, or have clay or strong loam incorporated with it. The *Pentstemons* used for bedding purposes, such as *Newbery Gem* and *Preston Hall Seedling*, should also be planted as soon as possible. *Newbery Gem* and *heterophyllus* need to be planted closer than the others; a distance of 9 inches apart, and even less on light soils is ample.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

PINEAPPLES.—The houses in which Pineapples are grown will need frequent attention with regard to damping down, and fresh air should be admitted gradually as the temperature rises on bright mornings. The ventilators should be closed early in the afternoon before the sun's rays are off the house, and the plants syringed with tepid water. The floor should be damped well late in the evening. Apply liquid manure to the roots as frequently as possible. Queen Pines that are swelling require much manurial assistance, and liquid manure properly diluted should be given alternately with an artificial fruit manure. Peruvian Guano is a splendid stimulant, and the best way to use it is to stir it in the water that is applied to the roots. Pineapples enjoy full exposure to the sun's rays, and unless they have been disturbed recently, the plants should not be shaded. As the fruits approach the ripening stage give a slight increase of air with less moisture.

LATE VINERIES.—Vines in late houses will need the growths to be stopped, and, if they are in contact with the glass, tied to the wires. At this season the shoots grow rapidly, and it allowed to touch the glass, they soon become damaged by scalding. If the borders are dry, water copiously, so that water will not be required again until after the berries are set. In the case of Muscat and other shy setting varieties, this must be specially observed, because any undue excitement at the flowering period must be averted. Ventilate the houses freely during the daytime as the weather permits. In the case of the Muscat house, allow 5° higher at night-time than in the case of the other varieties, and ventilate more cautiously during the day. When the vines are in flower, keep the houses drier and close them a little later in the afternoon. Muscat of Alexandria and other shy-setting Grapes should not have their bunches thinned until it is ascertained which have set the best. In many instances the thinning of the berries is not a heavy task, and it is surprising how well the bunches develop after what appears to be a poor set of the berries.

EARLY VINERIES.—The Grapes on permanent vines in early houses will soon commence to colour, and, if moisture is considered necessary, water should be given. The berries nearest the hot-water pipes usually ripen first. A little fresh air should be admitted through the front ventilators on warm days. The top ventilators should be left open a little on mild nights, and the houses will now need ventilating earlier in the mornings of warm days. Unless this is attended to carefully in early houses containing vines of *Madresfield Court*, the berries will be likely to split. Continue to remove the laterals where the foliage is too thick. The surplus leaves will be useful for garnishing dessert fruit, and owing to their softer texture, they are much to be preferred to older leaves for the purpose.

TOMATOS.—Plants intended for the main batch will be ready for transplanting. If placed in large pots, allow plenty of space for applying periodical top-dressings. The pots should be well drained, covering the crocks with good, rough loam, and a sprinkling of bone-meal. A few 5-inch bones placed over the crocks first will be an advantage. Pot firmly in a compost consisting principally of turfy loam, some spent manure from an old Mushroom-bed, with a sprinkling of lime rubble, wood ashes and soot. Water must be applied carefully until the roots are growing actively, and, until the first fruits commence to swell, no stimulants will be required. Encourage a sturdy growth by providing free ventilation. Remove the side growths, and on bright days damp between the pots, also spray the plants overhead. If the Tomatos are

to be planted out, a narrow trough should be prepared and the compost made firm before planting. Tomatos intended for fruiting out-of-doors will require a shift into 6-inch pots. The present is a good time for making a further sowing of varieties for fruiting in cool houses in the autumn. Sow in a gentle heat, allow the seedlings all the light possible, and grow them under cool conditions.

THE KITCHEN GARDEN.

By JOHN DENN, Kitchen Garden Foreman, Royal Gardens, Windsor.

CHICORY.—This is a most valuable winter salad plant, and should be sown in drills 15 inches apart. The ground should be light and rich, and thoroughly pulverized to the depth of 2 feet. Sow the seeds thinly and keep a careful watch for slugs. The best way to deal with these troublesome pests is to sprinkle the surface of the bed with lime during the night or very early in the morning before the slugs have time to return to shelter. When the plants are large enough to handle, thin them to 9 inches apart in the row. Little further will be necessary beyond keeping the bed free from weeds until November, when the roots may be lifted and stored until required for forcing.

TOMATO.—Plants for outdoor cultivation should now be ready for potting into 6-inch pots, using turfy loam with a little leaf-soil. Pot rather firmly, placing the plants as near the glass as possible in a slightly heated pit. The pit should be kept close for a few days until fresh growth commences, when air should be admitted freely. Much depends on the state of these plants when the time arrives for planting them in the open; short-jointed plants with the first truss of flowers showing colour should be the aim of the cultivator. Plants swelling their fruit should be afforded frequent dustings of artificial manure previous to watering with clear water. Do not allow Tomato plants to become too dry at the root, or when watering takes place, many of the fruits will split. Young plants for succession should be confined to single stems and grown in a well ventilated house until they have set full crops, when they may be given more warmth.

SALSIFY. This plant deserves, on account of its rich and distinctive flavour, to be grown more than it is at present. Sow the seeds in drills 15 inches apart and 1 inch deep, choosing a light, rich soil which has been well broken up. When the plants are large enough, thin them to 9 inches apart, and apply liberal supplies of water in dry weather.

CELERY.—The trenches should be prepared for the planting of the earliest batch of Celery, which, if raised early in the spring, should be ready for planting out as soon as the condition of the weather permits. The plants may be put out in single lines, as this is the best way to grow early Celery. The trenches should be made 18 inches deep. The bottom of each trench should be thoroughly broken up with a fork, after which 6 inches of well-rotted cow manure should be placed in each trench and covered with sufficient good surface soil for planting in. Choose a dull, damp day for planting and give a thorough watering to each row of plants as soon as it is completed. The trenches for the main crop should be made ready as soon as possible; then, when the weather is favourable, the planting may be proceeded with. Where this crop is cultivated extensively, three rows may be planted in each trench with good results, provided that a plentiful supply of manure and water is available. Continue to prick out seedlings at 6 inches apart, so that a good ball of soil may be lifted with the roots at the time of transplanting.

POTATOS.—Complete the planting of late varieties of Potatos as soon as possible, breaking up the soil finely as the work proceeds. The earliest plants will need protection from frost and cold winds, therefore draw the soil closely up to the stems, leaving the tops uncovered until the approach of frost, when a light covering of dry Fern may be placed over them at night and removed in the morning. Potato tubers in store should be examined frequently, and all young shoots removed. Keep them in total darkness, or they will soon deteriorate.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CLEANSING THE PLANTS.—Experienced Orchid-growers know how important it is to rid young Orchid growths of insects at this season, when the pests are either hatching or emerging from their winter quarters and instinctively finding the tender, growing shoots. It is surprising how quickly scale insects spread over distichous-leaved Orchids, and their hold on the plants becomes more tenacious as the season advances; therefore measures should be taken to destroy them when they are young. A black-scale insect with a white lining is often a source of trouble amongst the summer-flowering Cypripediums, and is sometimes present in company with red spider. Fumigating with a vaporising compound will destroy numbers of the scale, and it is always advisable, if the insects are plentiful, to fumigate the house at regular intervals, sponging the plants carefully afterwards. Cattleyas should also be examined for the presence of scale, as the young foliage, if once infested with these insects, will be permanently disfigured by the spots caused by them. The creatures are frequently found clustering around the bases of the pseudo-bulbs about the rhizome and dormant "eyes," and should be carefully removed by means of a pointed stick or stubby brush. Orchids in cool houses are sometimes infested with a soft, woolly insect, resembling mealy bug, and this should be destroyed or the plants will suffer in health. Insects are found chiefly on the lower surface of the leaves; therefore each plant should be taken down and the undersides of the foliage examined carefully. Should aphids appear on the developing flower-spikes, it can usually be got rid of by means of a damp sponge. When fumigating Orchid houses it is well to remember that two mild applications during the same night are preferable to one strong dose. The morning following the fumigation syringe the plants freely with clear water, admit air earlier than usual, and lower the blinds before the sun's rays reach the house.

ZYGOPETALUM.—The various members of the genus *Zygopetalum* supply a desirable colour amongst Orchid flowers, their blooms being, for the most part, of some shade of blue. The species *Z. crinitum*, *Z. Gautieri*, *Z. Perrenoudii*, and *Z. Sanderianum* are now producing their flower-spikes simultaneously with the young growths. The blooms last for a long time, but it is advisable to remove them after they have been open for a reasonable period. As soon as the inflorescences are removed, any plants needing fresh rooting material should receive attention, as roots soon develop from the base of the new growths; but as *Zygopetalums* are impatient of root disturbance, the plants should not be repotted unless it is absolutely necessary. The compost advised in a previous calendar for *Zygopetalum Mackayi* will meet the requirements of the other species.

ANGULOA.—The present is a good time to overhaul the plants of *Anguloa*, repotting flowerless specimens if they need fresh rooting material. The flowering plants should not be disturbed until the blooms have faded, the roots, as a rule, not making much progress until after this stage. *Anguloas* grow best in an open compost; a mixture of good, fibrous peat, turfy loam and well-chopped Sphagnum moss, in equal parts, with a liberal addition of crushed crocks and coarse silver-sand, well mixed together, will give the best results. The plants should be grown in well-drained pots, and the rooting medium pressed moderately firmly about the roots, keeping the base of the plant a little below the rim of the receptacle. After potting, and if roots are fairly plentiful, give a good soaking of water to settle the compost, but keep them subsequently on the dry side until the roots are growing freely. They will then require a liberal supply of moisture until the end of the summer, at which time the pseudo-bulbs should be fully developed. The plants should be afforded a light position in a house having a cool, intermediate temperature and where a moist atmosphere is maintained, otherwise they will be subject to attacks of red spider and scale, which infest the lower sides of the foliage.

LYCASTE.—*Lycaste Skinneri* and its varieties, also *L. macrophylla* and the hybrid *L. Bullii* are now growing actively and developing new roots; therefore, if new rooting material is required it should be afforded. As *L. aromatica*, *L. cruenta*, and *L. Deppii* produce their flowers and new growths simultaneously at this season, the affording of fresh rooting material to any of these plants should be deferred until after the flowers have been cut. The compost and treatment advised for *Anguloas* will be found equally suitable for *Lycastes*, except that the latter plants require rather more shade.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gonnorsbury House, Acton, Middlesex.

STOVE FLOWERING PLANTS.—In many establishments it is necessary to have stove plants in flower at a certain season of the year. This can, to a great extent, be achieved by pinching out the points of the shoots at various times, according to the nature of the plants. For instance, in the cases of *Allamanda Hendersonii*, *A. Chelsonii*, and *A. nobilis*, the shoots should be stopped at 12 weeks from the desired time of flowering. It is necessary that all the shoots should be stopped at the same time in order that the plant may break into flower evenly. In stopping, cut the growth back to the first fully developed leaves; as a rule, this will result in four side shoots developing. Some of the growths that are pinched back may be about to flower; if these are rooted in a brisk bottom heat without any check, they will form dwarf plants that will ultimately flower. In the case of *Allamanda grandiflora* only 10 weeks should be allowed from the time of pinching the shoots.

IXORA.—Many *Ixoras* may be treated in a similar manner to *Allamandas*. In the case of most varieties, it is advisable to stop the plants 16 weeks before they are required to flower, and in their case also it is necessary to stop all the shoots at the same time. *Ixora Prince of Orange*, *I. Williamsii*, *I. Fraseri*, *I. aurantica*, *I. javanica floribunda*, and *I. Westii* are all amenable to this treatment, but I have not found it successful with *I. coccinea*, *I. macrothyrsa*, or *I. salicifolia*, and these need to be treated differently. For instance, if they are required to flower early, a good, late, autumnal growth is necessary, but for flowering later in the summer, the plants should be pruned in the spring, and allowed to grow six months before they are wanted to flower.

RONDELETIA.—In the case of *Rondeletia speciosa* a period of 12 weeks will suffice, merely pinching out the top of each shoot, but in dealing with *R. s. major* 16 weeks must be allowed. This variety is much more frequently grown than the type, and the pinching of the shoots causes a surprising difference in the flowering. Ordinarily the blossoms are produced over a long period, but a specimen is never so effective as when stopped as advised.

CLERODENDRON FALLAX.—This plant needs only six weeks in which to flower from the time of stopping the shoots, which should be done after every second pair of leaves has formed. The plant may be stopped three and even four times as the later shoots develop, and this will produce a much finer display. In the interval I have mentioned *C. fallax* should be repotted at least once. In order to retard the climbing *Clerodendrons*, the shoots should be stopped only once.

VINCA.—The *Periwinkles*, such as *Vinca rosea* should be pinched to every second pair of leaves throughout their period of growth. If they are afforded a generous treatment, a period of one month will suffice to have them in bloom after they are stopped.

BOUGAINVILLEA.—*Bougainvillea glabra* and others of its type, such as *B. Cypheri* and *B. Sanderiana*, require 12 months in which to flower, from the time of stopping, when grown under cool treatment. I advise a cool stove or an intermediate house for this plant, because the floral bracts are much finer in colour when developed without too much heat. It must be remembered that the shy-blooming *B. spectabilis* is not amenable to this system of stopping. This plant should

be pruned hard immediately after it has flowered early in the summer, and the growths that form will be those which will flower next season. Endeavour in this case to have the shoots as well ripened as possible.

DIPLADENIA AND OTHER CLIMBING PLANTS.—The *Dipladenias* should only be stopped for the purpose of procuring well-shaped, strong plants. Stopping is not necessary to promote flowering, and should not be attempted when the plant is a good specimen. See that the growths do not become entwined with each other. It is a good plan to train each shoot to a string, for when grown in this way Mealy bug can be easily detected. Rapidly growing stove climbers, such as *Passifloras*, must not be allowed to become entangled or a mass of growth, and the same remark applies to *Gloriosas* and *Aristolochias*, for when the growths are crowded they are more often infested with red spider. *Cissus discolor* makes a beautiful screen for the end of a stove, but care should be taken to prevent any overcrowding of the growths, allowing them to drop naturally.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Chilton Gardens, Buckinghamshire.

FRUIT TREES ON WALLS.—The protective coverings should not be allowed to remain on the trees longer than is really necessary, otherwise the young shoots become weakened and unfitted to withstand full exposure and bright sunshine. Where the foliage of Peach and Nectarine trees has become curled or blistered, the trees should be examined carefully, and the affected leaves picked off and destroyed, after which the trees should be syringed thoroughly with an insecticide to cleanse the leaves on both surfaces. The work should be performed during the early part of the afternoon, or, should the weather be dull or cloudy, it may be done during the forenoon, but in either case sufficient time must be allowed for the evaporation of the moisture before the sun sets. An occasional operation of this kind will keep insects in check, and, by promoting the vigour of the trees, render them less susceptible to attack. Upon the first appearance of mildew on the young foliage, dust the leaves with flowers of sulphur, which seldom or never injures the most tender foliage, and often effects a complete cure, if administered early. A more speedy application of the sulphur might be made by mixing it with the water used for syringing the trees, adding a small quantity of soft soap. One ounce of sulphide of potassium in two gallons of water, sprayed gently over the trees, is considered by some growers to be a good specific against mildew. Aphides may be killed by tobacco-water, using about a pint of tobacco juice in two or three gallons of water. Leaves of Apricots are often curled by leaf-rolling caterpillars; these pests are difficult to destroy by insecticides, as they are well protected, and must be searched for and destroyed by crushing between the thumb and finger. Lack of persistence in these matters is all too frequently the cause of failure when dealing with these pests.

STRAWBERRIES.—Established, fruit-bearing beds of Strawberries may be assisted by the application of liquid manure to the plants, especially if the soil is of poor quality, or the plants in their last year of bearing. In any case the flower-trusses now appearing will be strengthened, and the fruits accelerated in growth. Strawberry plants that have been forced may, if required, be planted out after being hardened in cold frames, as advised in a former Calendar. It is not desirable to obtain runners from such plants for stock during the current year. After planting, give the plants a liberal watering at the roots, and continue to afford moisture until they are established. Frequent syringings overhead during hot, dry weather will assist in keeping red spider in check. Attention should be given to the destruction by hoeing of all weeds as soon as they appear, so that the fruit quarters of the garden may appear neat and tidy and be in a good condition of cultivation generally. The effect of weeds is to impoverish the soil to the detriment of the cultivated crop.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, MAY 6—

Soc. Française d'Hort. de Londres meet.

MONDAY, MAY 8—

United Hort. Benefit & Prov. Soc. Com. meet.

TUESDAY, MAY 9—

Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. H. Corveon, on "Alpine Gardens.") Hort. Club meet.

AVERAGE MEAN TEMPERATURE for the ENSUING week deduced from observations during the last Fifty Years at Greenwich—51.3°.

ACTUAL TEMPERATURES.—

LONDON.—Wednesday, May 3 (6 P.M.): Max. 54°; Min. 46°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 4 (10 A.M.): Bar. 29.9; Temp. 56°, Weather—Sunshine.

PROVINCES.—Wednesday, May 3: Max. 54° Cambridge; Min. 47° Yorkshire.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Herbaceous and Other Plants, Hardy Bulbs, &c., at 12; Trade Sale of Hardy Bulbs, &c., at 3; Palms and Plants, at 5; at 67 & 68, Cheapside, E.C., by Frotheroe & Morris.

FRIDAY—

Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Frotheroe & Morris.

The types of Dahlias now in cultivation are more numerous than is sometimes realised, yet, if we except the Cactus Dahlias, they have all been derived from the single-flowered varieties which were introduced to Europe about the beginning of the 19th century. It is sometimes assumed that all Show and Fancy Dahlias, the latter being colour variations of the Show Dahlia, are suitable merely for the show bench, but this is scarcely correct, for some of them form effective bushes when allowed to grow naturally in the flower garden. At the same time the flowers are of the most formal character, and they do not appeal to those who choose their flowers mainly for their decorative qualities. Pompon or bouquet varieties are miniature Show and Fancy Dahlias, and German horticulturists who first grew them named them Lilliputians. The flowers of the best Pompon varieties are of the most perfect form, and many of them exhibit dainty shades, whilst others are of more decided colours. The plants grow naturally into perfect bushes varying from 2 to 4 feet in height, and they produce a wealth of flowers possessed of good decorative qualities. Small size and neat form are the points which distinguish exhibition specimens, which ought always to be fully developed with the centres fairly high.

The modern Cactus Dahlias have originated from Dahlia Juarezii, which was introduced into Europe from Mexico in 1872 and was figured in these pages in the issue of October 4, 1879. Juarezii was first shown in England by Mr. Cannell in 1880, and subsequent to this date begin the records of the earliest Cactus vari-

ties raised in England. It has been stated by an eminent authority on the Dahlia that the modern Cactus Dahlias might quite well have developed had Juarezii never been introduced. This, though improbable, is not, perhaps, impossible, because there is ample evidence that for many decades before the introduction of Juarezii, seedlings which showed a tendency to produce long and recurved florets instead of the shell-shaped florets required for the Show Dahlia, were destroyed. In this way it may have been that many seedlings which might have become the progenitors of Cactus Dahlias were sacrificed owing to lack of imagination on the part of the raisers. When Juarezii appeared the florists saw in it possibilities that have since been more than fulfilled. They soon commenced to raise seedlings, and the popularity of the type spread in the most remarkable way, but the fact that it became a show flower proved not altogether advantageous. The raisers selected their varieties solely for their qualities as exhibition Dahlias, and, in consequence of this practice, varieties were raised which were so unsuitable for garden decoration that cultivators who were not exhibitors soon tired of them, and it is to be feared that many gave up Dahlia cultivation altogether. These facts are pointedly brought out in the letter by "Progressive" which appears on another page. It is satisfactory, however, that Dahlia breeders are now awakening to a sense of the circumstances which have caused Dahlia cultivation to wane in popularity; they are seeking to obtain free-flowering varieties that produce their blooms on erect stems well above the foliage: qualities which are essential in garden Dahlias.

The miniature Cactus Dahlias stand in practically the same relation to the Cactus Dahlia as the true Pompoms do to the Show Dahlia. Most of the varieties make bushy plants from 2 to 4 feet in height, and they flower very freely.

The dwarf Cactus varieties are well worth the attention of those interested in bedding effects, since they are peculiarly adapted for furnishing displays in public parks and gardens. They grow about 18 inches in height and produce a wonderful profusion of small, well-formed, double flowers. Of these dwarfs, only some eight or ten distinct varieties are at present obtainable.

The decorative Dahlias were remarkable for their flat florets and smooth flowers, which were scarcely less formal than the Show Dahlias. It may be said that, whilst some demand for their revival appears to exist in this country, their popularity in America has never waned.

The Pæony-flowered Dahlias afford an example of a type which was produced in England for a very long time only to be thrown away. Some of the older florists have stated that they frequently found varieties possessing the semi-double characteristics of the Pæony Dahlia amongst their seedlings, but the flowers failed to obtain appreciation in this country until selected varieties were introduced

from Holland a few years ago. Pæony-flowered varieties are now fairly popular; they are strong growing, free-blooming plants, and produce gorgeous effects when grown in clumps. The colour combinations in some of the varieties are very striking, and they invariably attract attention at the exhibitions. It is to be hoped that raisers will observe the same rules in the development of this strain as are now being applied to the Cactus type, and that all varieties offered for distribution will be such as produce their flowers on erect stems.

Single Dahlias have a charm that is not to be found in any other type. As Mr. Mawley, president of the National Dahlia Society, observes on another page, they flower more freely and longer than any others if the faded blooms are removed before they have time to set seeds. There are now several classes of single Dahlias, but the true single flowers are still the most popular, namely, those with round, flat, or slightly reflexed flowers. Single Dahlias required for decorative purposes should be cut when they are only three-fourths open, and put immediately into water. If they are cut at that stage they will generally remain fresh for several days. The foliage to associate with the flowers should be cut from plants grown in pots, it being a fact that the foliage of pot plants is harder and lasts longer than that produced by plants with an unrestricted rooting-medium. Single Dahlias are frequently cultivated from seed sown in a warm house or frame in January or February, and the seedlings thus raised bloom in the following August and September, but the best results are obtained from the choice named varieties offered by the nurserymen.

The type known as single Cactus Dahlias are single Dahlias with pointed and twisted florets; they are not generally popular. A strain known as Star Dahlias consists of single Dahlias that produce star-shaped flowers, many of them with white florets having distinct stripes or edges of scarlet, crimson-maroon or purple. The Tom Thumb Dahlias are dwarf single Dahlias often used for bedding purposes. These latter plants usually grow only about 12 inches high, and the small, single flowers are produced in profusion 2 or 3 inches above the foliage.

Collarette Dahlias are mostly introductions from the Continent, and many of them are very attractive. The row of semi-developed florets round the centre disc is always of a colour distinct from that of the outer florets, and some decorators think that they last as cut flowers rather better than flowers of the simple type. In this connection the letter from the pen of the late Mr. Gumbleton, printed in this issue, is interesting.

There have been frequent complaints that modern Dahlias of nearly every type are less hardy than the older sorts, that they do not come into flower so early in the season and that they are less floriferous than the old-fashioned decorative varieties. These are serious disadvantages and they account in a large



LLANOVER COURT, MONMOUTHSHIRE, THE RESIDENCE OF THE HON. MRS. A. HERBERT.

measure for the comparative neglect which these flowers have suffered in the past few years. The exhibitors of any kind of flower are small in number in comparison with the general cultivators. Therefore raisers who persist in ignoring this fact do so in opposition to their interests. Another matter that nurserymen should make quite certain about is that the pot plants they distribute early in May are properly hardened before they leave the nursery, so that they will start into growth without suffering a severe check. Cultivators may do something to develop the best qualities of the plants by taking care to plant them in soil which is only moderately rich, and to plant them firmly. Manure water or top dressings can be applied later when the plants have commenced to bloom freely. Dahlia plants should have one main stem only, and the shoots should be thinned as much as is necessary to expose all parts of the plant fully to the sunshine.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of the Royal Horticultural Society will take place on Tuesday, May 9. At the afternoon meeting of the Fellows, Mr. H. CORREYON will deliver a lecture on Alpine gardens.

—The President and Council greatly regret the unavoidable delay which has taken place in the issue of the Society's *Journal*, caused by the recent strike of printers' operatives in London. *W. Wilks, Secretary.*

THE HORTICULTURAL CLUB.—At the last committee meeting of the Horticultural Club the following candidates were received into membership.—Messrs. J. M. BRIDGEFORD, THOMAS H. COOK, GEO. H. CUTHBERT, JAS. CUTHBERT, R. J. CUTHBERT, Dr. FRED. KEEBLE, M.A., ANDREW KINGSMILL, HENRY DUNCAN MCLAREN, M.P., FRED. W. MOORE, M.A., LEONARD SUTTON, T. ERNEST WALTHAM, and J. GURNEY WILSON. The next dinner and meeting will take place on the 9th inst., when Mr. T. ERNEST WALTHAM will give a lecture entitled "Glimpses of Morocco and the Canary Isles," illustrated with 100 lantern slides from photographs taken by the lecturer. Particulars of the Club may be obtained from the hon. secretary, Mr. R. HOOPER PEARSON, Hotel Windsor, Westminster.

NATIONAL TULIP SOCIETY.—The eighteenth annual southern exhibition of the National Tulip Society will be held under the auspices of the Royal Horticultural Society in the Temple Gardens, Thames Embankment, during the second and third days of the Temple Flower Show, May 24 and 25. Particulars may be obtained from the Hon. Sec., Mr. W. PETERS, Farcet House, Cambridge.

NATIONAL SWEET PEA SOCIETY.—A special general meeting of the members of the National Sweet Pea Society will be held at the Hotel Windsor, Westminster, on Thursday, May 18, when the general committee will submit new rules governing the election and duties of the floral committee.

NATIONAL CHRYSANTHEMUM SOCIETY.—The National Chrysanthemum Society will hold two exhibitions this year, and both of them will take place at the Crystal Palace. The early autumn exhibition is fixed for October 4 and 5, and the principal exhibition on November 1, 2, and 3. A Conference on Chrysanthemums will be held at Carr's Restaurant, Strand, on Monday,

December 4, and particulars of the papers will be announced later. Clevedon has been selected as the place of visit for the annual outing this year, which will take place on July 17. The Floral Committee will pay a visit to Messrs. CRAGG, HARRISON & CRAGG'S Nurseries, at Heston, Middlesex, on Saturday, October 21. Members of the society are invited to join the party on this occasion, but notice must be given to the secretary not later than October 14.

KEW GUILD ANNUAL MEETING.—The annual dinner and general meeting of the Kew Guild will be held at the Tavistock Hotel, Covent Garden, on Wednesday, May 24. Dinner will be served at 7 p.m., and will be followed by the general meeting. Mr. R. HOOPER PEARSON will preside.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.—The Lord Mayor has issued invitations for a Mansion House Meeting for the purpose of promoting the success of this exhibition. The meeting will take place on May 10, at 3 p.m., in the Egyptian Hall. Amongst those who are expected to address the meeting are Lord BALGOL of Burleigh, K.T., Lord ROTHSCHILD, G.C.V.O., Lord ALDENHAM, the Hon. VICARY GIBBS, Alderman SIR MARCUS SAMUEL, Bart., and Sir JEREMIAH COLMAN, Bart.

MADRID INTERNATIONAL AGRICULTURAL CONGRESS.—Sir THOMAS ELLIOTT, K.C.B., the Permanent Secretary of the Board of Agriculture and Fisheries, has left England to attend an International Agricultural Congress at Madrid, after which he will proceed to Rome to be present as one of the British delegates at the forthcoming session of the general assembly of the International Agricultural Institute.

PRESENTATIONS TO GARDENERS.—Mr. A. ALDERMAN, who is relinquishing his post as gardener at Eppingham Hill, Dorking, owing to the death of the employer, has been presented with an illuminated address and a gold watch by the members of the Eppingham Working Men's Club. Mr. ELLINGHAM has been chairman of the club since its formation. The presentation was made the occasion of a social gathering. Mr. WILLIAM BOYD, who is relinquishing his position as head gardener at Belleisle, Ayr, after 15 years' service, in order to take up a similar duty at Haigh Hall, Wigau, was recently presented with a gold watch by his friends in the district. The gardener staff at Belleisle also made a presentation to Mr. BOYD.

VALUE OF COTTAGE GARDENS.—On the occasion of a visit by members of the Independent Labour Party to the village of Burnville, Birmingham, on April 15, Mr. GEORGE CANNERY, head of the firm of CANNERY BROTHERS, stated that the produce of 19 gardens at Burnville had been estimated for one year. After deducting the cost of seeds, manure, &c., the result showed a profit of £54 per acre, or about 12 times as much as when under pasture. The value of the produce reduced the rent of cottages with gardens of average size from 6s. 6d. a week to 4s. 7½d.

BEQUEST TO A GARDENER.—Under terms of the will of the late General ROBERT CHILDREN WHITHEAD, C.B., of Poynton Hall, Radnor, a sum of £200 is left to his gardener, Mr. HENLEY JOHNSON.

PUBLICATIONS RECEIVED.—*On Adaptation of Plants to Environment*, by Alexander Morrison, L.R.C.P. and S. Reprinted from *Journal of the Natural History and Science Society of Western Australia*, Vol. III., No. 1., June, 1910.

DAHLIAS.

A SELECTION OF THE CHOICER VARIETIES.

The list of Dahlias enumerated below includes a selection of the choicer varieties for both show and garden purposes. There are many other good sorts, and possibly some that I have omitted may be equal to those that I describe, but my selection embraces the pick of those in cultivation. The Cactus type is the most popular at the present time, and the best of these are given first. The variety H. H. Thomas is a splendid Dahlia for exhibition purposes. The colour is a deep, rich crimson, the florets being irregular and interlacing, but forming a perfect incurved bloom. The plant is a good grower, and produces its flowers with freedom well into the autumn. Red Admiral is a glorious flower of a ruby-scarlet colour, and the best of its shade. The blooms are exceptionally large and of a fine form. The plant grows with such freedom, and bears so many side shoots, that a succession of flowers is produced during many weeks. But the flowers flag quickly after they are cut, and because of this it is a difficult matter to have them in the best condition at exhibitions. The flowers of La La are a bright shade of rose. They are of good form, moderately incurved, and are developed on long stems. The plant has a dwarf, sturdy habit, and flowers freely. One of the finest white Cactus Dahlias is seen in Prima Donna, a variety which has good qualities generally. The blooms are large, with moderately incurved florets, and produced on long stalks. The plant is a strong grower.

Mrs. Douglas Fleming (see fig. 126) is one of the finest of the newer varieties; the florets are pure white, very full and deep. The plant possesses a good habit. The variety was granted an Award of Merit at the meeting of the Royal Horticultural Society on August 30, 1910.

As an exhibition variety, Indomitable is well deserving of its name. The blooms, especially those on the main growths, are often of a very large size, the long florets intermingling. The plant is a delicate grower, and the shoots are thin. The finest flowers are produced in batches, with perhaps a number of inferior flowers interspersed; the colour is mauve-lilac. Although the variety Conquest is very shy of flowering, the deep maroon crimson blooms are splendid, both for size and colour. The plants should be grown early, and induced to break low down in order to make as much wood as possible. Amongst fancy Cactus varieties there is none to compare with Jupiter, either for size or form. The florets are coloured yellow at their bases and pink at their tips, the whole bloom being marked with splashes and stripes of scarlet. The flowers are produced with freedom. The bad habit of growth in Quinbo is somewhat atoned for by its exceedingly free flowering habit. The pretty, well-formed blooms are dark-maroon coloured. The growths need to be thinned well throughout the season. In Iolanthe we have another free-flowering Cactus Dahlia, with wiry, upright habit. The flowers are large and moderately incurved; they are coral-red in colour, relieved by yellow suffusions at the tips of the florets. It has proved a most reliable Dahlia throughout the whole of the season.

In form, Maggie may possibly not please exhibitors, but in other respects it is a good variety. The flower-stems are long, as are also the florets, the flowers being exceptionally deep. The colour is a deep shade of maroon-crimson, the tips of the florets being white.

Johannesburg is a large, flat flower, suitable for either show or garden purposes. The blooms have fairly long stems, splendid centres, and are of a striking bright gold colour.

Although the blooms of Gwendoline Tucker are abnormally large, our plants were delicate and quite yellow, but they showed their proper character later and produced extra-large flowers. This novelty is to be recommended.

When first introduced, The Imp was regarded more as a novelty than as a Cactus Dahlia of merit, but it proved later to be a desirable variety. The flowers are almost black; the shoots also are very dark-coloured. The Imp is worth growing for any purpose.

The following are the best of the older Cactus varieties:—

Snowdon, a useful pure-white Dahlia, is valuable for any purpose. The blooms have full centres, and are freely produced.

Rev. T. W. Jamieson, in many respects one of the best Cactus Dahlias, has a strong flower-stalk, pretty bloom, and a free-flowering habit.

not include Glory of Wilts, a beautiful yellow variety of great size and good form. But it is a shy bloomer, and it is a difficult matter to procure blooms for show purposes just when they are wanted.

A large and beautiful crimson Dahlia is Stormer, a plant of dwarf habit and fairly free in flowering.

Harold Posman is the best yellow Cactus Dahlia for all-round purposes, the blooms being large and freely produced.

C. E. Wilkins is the best of the pink varieties, whilst Mrs. Walter Baxter is a fine, dark, purplish-crimson variety.

mittet at the meeting of the Royal Horticultural Society on September 13, 1910. The stems are strong and erect, and the fine flowers are produced very freely.

Joan of Arc is one of the best Dahlias to hold its flowers above the foliage, the stems being strong and upright. The blooms are yellow, flushed with pink at the tips of the florets.

Erecta is a capital garden Dahlia, producing its flowers on perfectly erect stems. The colour is a pretty rose-pink.

Penguin may be regarded as a companion variety to Erecta, the colour being old gold.

Nisi Prius is a brilliant orange-scarlet flower, produced on a fine, stiff stem.

Echo also is an all-round, useful variety; the flowers are rose-pink and they are produced on strong stems.

Nellie Riding is a pretty bi-coloured Cactus Dahlia, free in flowering, and in every way good. The colour is crimson, tipped with white.

Other good sorts are Foxhunter, Arthur Rickard (new), Mrs. J. Emberson, Zoe, T. G. Baker, Primrose, Mrs. H. L. Brousson, Lustre, Acrobat, Caradoc, Dreadnought, and Eureka.

DECORATIVE VARIETIES.—For garden purposes the decorative varieties are especially valuable, and one of the best of this type is the beautiful pink Mme. van den Dael, shown in fig. 128.

SHOW DAHLIAS.—I name only the 24 best double varieties. Mrs. Gladstone, John Walker, Chieftain, Arthur Rawlings, Mrs. Langtry, Prince of Denmark, Victor, Goldfinder, Maud Fellows, Shirley Hubbard, Gracchus, Tom Jones, F. Trauter, Wm. Powell, Warrior, John Hickling, J. T. West, Perfection, R. T. Rawlings, Duchess of York, Colonist, Dr. Keynes, George Rawlings, and Wm. Rawlings.

FANCY DAHLIAS.—Twelve good fancy Dahlias are:—F. W. Girdlestone, Rebecca, Rev. Camm, Dandy, Dorothy, Mrs. Saunders, Emin Pasha, Matthew Campbell, Goldsmith, Mabel, Mrs. J. Downie, Duchess of Albany, and, for garden purposes, Mrs. N. Halls, Peacock, and Prince Henry.

POMPON DAHLIAS.—There are several new Pompon varieties of merit, and amongst them I may instance Amelia, Arthur Kerley, Donald, Laddie, Annie Doncaster, and Lassie. Of the older sorts of this type, Queen of Whites, Adelaide, Douglas, Tommy Keith, Nerissa, Ideal, Bacchus, Jessica, Daisy, Rosebud, Darkest of All, Emily Hopper, Nellie Broomhead, and Gany-mede are all excellent varieties.

POMPON CACTUS.—A few remarks on the newer Pompon Cactus Dahlias may be useful. Of these the best are Martha, a flower of medium size and fine floret, not over-deep when allowed to flower in abundance; Nora, a fancy Pompon Cactus variety, being yellow, striped with crimson. This is one of the best sorts of recent introduction, although the flowering is not so free as might be wished. The flower is of the most approved form, and is in every respect a small replica of a Cactus Dahlia. The variety Sweet is a lovely colour, being crimson, lightening to pink, and tipped with yellow. The growth is wiry and never very robust.

A model Pompon is seen in Tomtit, a flower of mauve-pink colour.

Perce is the best white variety up to date, the plants being sturdy, free-flowering, and healthy.

Grace is another variety of wiry growth, and yet fairly free in flowering. The flower is yellow, scarlet, and white. The florets are not so narrow as is desirable, and the variety is not the best type for exhibition purposes, because of this defect.

The Bride is white, but too large for a Pompon, although very pretty. It is a rather delicate grower, especially in the young stage.

Coronation is a scarlet variety, also too large for exhibition purposes, but splendid for the garden or in-lower-decoration. A variety good for furnishing cut blooms is found in Mignon. The colour is a deep pink, with yellow at the base of the florets. P. P.

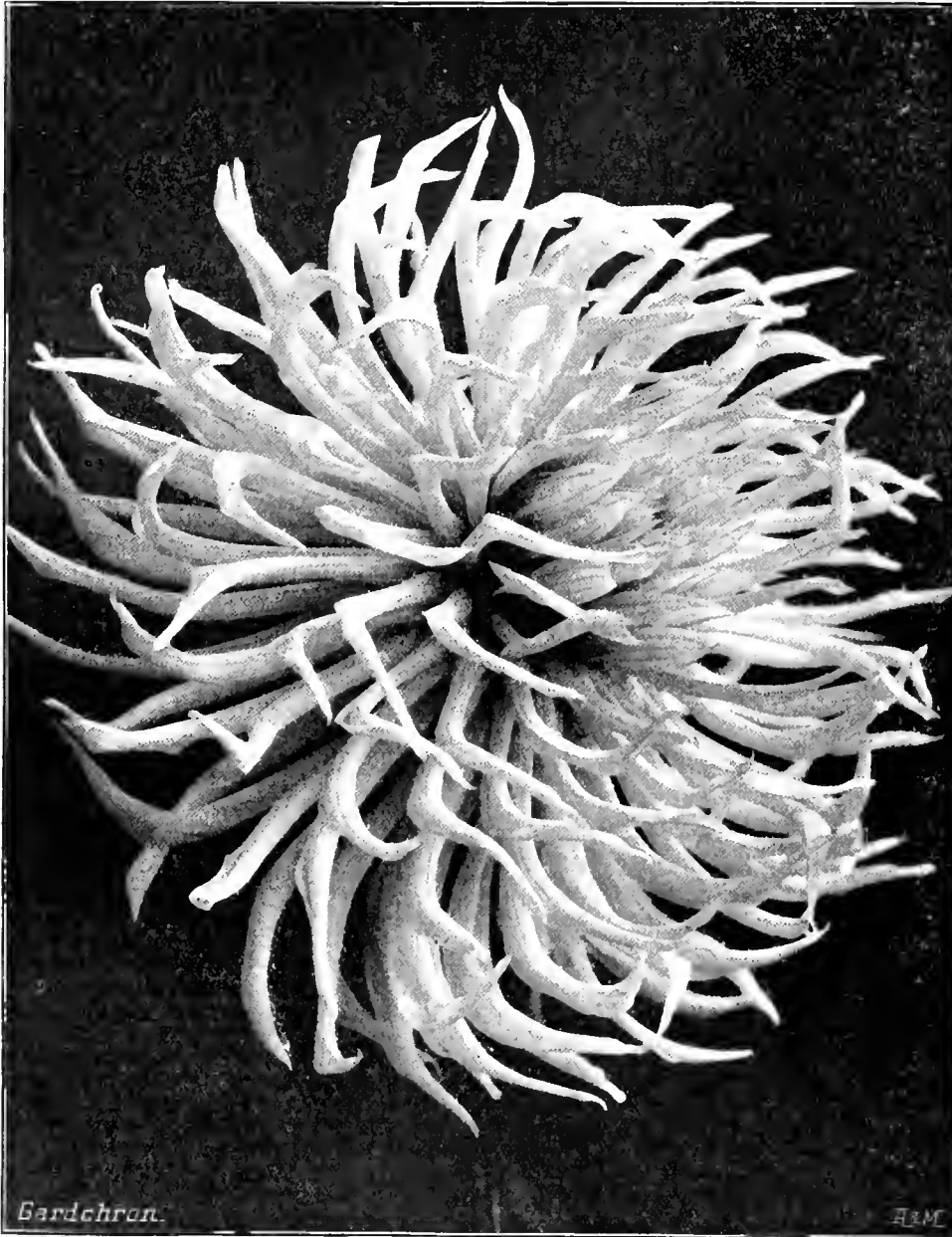


FIG. 126.—DAHLIA MRS. DOUGLAS FLEMING: A WHITE CACTUS VARIETY.

The florets, however, are somewhat short for an ideal exhibition flower.

Such a cactus should only be grown for show, for such purpose it is almost indispensable. The colour is a lovely shade of pink, and the form of the flower is almost perfect. The plants should be started early and grown on as fast as possible.

Buzard is a capital, free-flowering crimson Dahlia. The plants are dwarf and fine-wooded, but the growths always produce full-centred blooms.

Monarch is not a free-flowering variety, but the large and imposing flowers are never shallow.

No list of Cactus Dahlias is complete if it does

Others that may be recommended are Wm. Marshall, Ruby Ginsted, Ivornia, J. B. Riding, Nelson, Clincher, Mrs. F. Ginsted, Rev. Arthur Bridge, J. H. Jackson, and Mrs. Macmillan.

GARDEN CACTUS VARIETIES.—Amongst Cactus varieties specially adapted for garden purposes, the following may be recommended:—Mary Purrier is a large crimson flower developed on a correspondingly large stalk. The flowering is not free, but every bloom which is produced is a good one.

Sweetheart is (see fig. 127) a new variety of deep pink colour with paler centre. It was given an Award of Merit by the Floral Com-

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

NEW FRENCH SINGLE DAHLIAS.—For the last three or four years I have had in cultivation in my garden a series of beautiful and most distinct single Dahlias, raised and sent out by Messrs. Rivoire & Son, of 16, Rue d'Algérie, Lyons, under the distinctive name of Dahlias à colerette, from each flower having a crown of smaller or abortive petals of a different colour to those of the flower, usually white or pale yellow, surrounding the central disc, and imparting a most curious and distinct appearance to the bloom. One of the best of the older varieties is Maurice Rivoire, which was much admired in my garden last summer. These flowers are

tion as the first flower of each variety came to perfection. Abbe Hugomard is a very fine variety, being quite the largest single Dahlia I have ever seen, the flowers, when fully expanded, being rather over 6 inches in diameter. The ground colour of the centre and the edges of all the petals is white; the remainder of the petal deep crimson. Altogether, a very conspicuous and handsome flower. Souvenir de bel Accueil is a fine, large, bold flower, with a yellow ground, distinctly splashed with reddish orange. It is a tall and vigorous grower, and is an accentuation and improvement of the other yellow-grounded variety, Mme. Pilé. The pale yellow collarette round the centre is specially well developed. W. B. Grumbleton (the late).

PROGRESSION OR RETROGRESSION IN DAHLIAS?—In recent years it has been pain-

They would only recognise flowers that were prim and proper in their formation. In a word, they worked upon artificial lines and rules, and what they said was recognised as law by all and sundry. Eventually, however, a new school arose, consisting of men and women who looked upon flowers with artistic eyes, and this school has ever been growing. With what result? They have overridden the old artificial doctrines: they refused to trample a flower in the dust because its petals were not of regulation form, and thus it comes about that the American serrated-petalled Carnation has superseded the old Tree Carnation, and to a large extent the Malmaison Carnation also. Further, there are indications that the true free-flowering border Carnation, with its vigorous growth, is going to supersede the types that can only be shown upon boards with their petals combed down in regulation form. The fancy Pansy has displaced the prim and proper show Pansy, and to a large extent one may see that popular feeling everywhere leans towards the unconventional. Even with Roses this is to be observed, for many of the varieties which have won fame on the show board are passed nowadays for others that will bloom and bloom again without any faking and scheming. The Show Dahlia and the Fancy Dahlia, sometime champions, were, in the eyes of the old school, all that is perfection. They were show flowers in every sense of the word, and the singles and Pompons were also given a similar standing. Then came the Cactus type, and people saw in it a less formal and far more elegant flower. Some of the florists set about improving it, but with florists' eyes they went for the flower alone. They made it big, extended the petals, made them prim and stiff, twisted the stem, in fact did everything that was possible to make them show flowers. From short, broad, straight petals raisers worked until they got them many inches in length, some curled, some straight, some with enough width to make a good flower, others like spiders' legs. And so it went on, until we had as many forms in the Cactus Dahlia as days in a week, some being very similar to Japanese Chrysanthemums. Still more continued to direct all their attention to the flower. Then came murmurs that the new Cactus sorts were worthless for the garden, the flowers were short in stem, and consequently hidden by the foliage. Stems were gradually lengthened, but they were miserable stems incapable of holding a flower unless wired, and with no value for a garden show. People grumbled. Raisers said the grounds of complaint could not be removed just yet, and they went on turning out exhibition flowers at 7s. 6d. each, fondly anticipating that buyers would never fall off. Not even the ceasing demand for show Dahlias appeared to give them an indication that gardeners could drop all types of Dahlias. And then came the Peony Dahlia, brought out by the Dutchmen. Dahlia specialists laughed. Great gawky things, such as we have thrown away by the thousand, they said. But for all that the public wanted the "Peonies," because they showed evidence of being garden decorators. Prior to the advent of "Peonies," the true decorative type was wasting its substance, only cottagers troubling to grow it in Britain. In America the decorative Dahlia held a strong place, and the American growers regarded most of the English Cactus sorts as poor things. But the Peony type caught on, and a few men laid themselves out to meet the demand. Raisers began turning out Peony Dahlias in large numbers, but even then they failed to see the essential value of the first Peony Dahlia. New varieties in many cases were weak stemmed, and the flowers could not stand up after cutting. Had this continued, the Peony would have gone down as no gain. However, the continuous call for stiff stems has pulled up raisers, and it is not likely that many Peony forms will appear in future unless they have stiff and long stems. But will the stiff, long-stemmed Peony Dahlia continue to hold the appreciation of the public? It may, but it has a rival. The raisers of Cactus varieties have at last awakened. They gnash their teeth at the Peonies, call them all the names possible, but, thanks be praised, they are not confiding themselves to this alone. They are at work, real earnest work, evolving a Cactus Dahlia that will win out as a garden Dahlia. Merely the garden Cactus is here, an accomplished fact, and, before many years we shall see first class show



FIG. 127.—DAHLIA SWEETBRIAR: FLOWERS DEEP PINK, WITH PALER CENTRES; A GOOD VARIETY OF THE GARDEN CACTUS TYPE.

(See p. 282.)

almost unknown in British gardens, having never been taken up by English growers; but I was pleased to see that some few of the exhibitors at last season's show of the National Dahlia Society, in Vincent Square, included some of them in their groups. Messrs. Rivoire sent me five new varieties named Abbe Hugomard, Viscountesse de Monts, Mme. Pilé, Comte de Vezet, and Souvenir de bel Accueil. All these made most luxuriant and vigorous growth, the wet season seeming to suit their requirements. They also bloomed abundantly and beautifully, commencing to open early in September, and they continued in flower till cut down by the frost. Quite the best and most distinct of the set are the first and last mentioned in the above list, which may be described as follows from observa-

tion as the first flower of each variety came to perfection, and the average observer would, if asked, hazard that the development in autumn blooming Roses, early Chrysanthemums, and late blooming Asters, both annual and perennial, was largely responsible for the Dahlia's decline. Undoubtedly the advances made with other flowers have largely affected the popularity of the Dahlia, but whilst these flowers have been advancing, the Dahlia has not been neglected by the specialist. Indeed, one might almost say that few, if any, flowers have been improved to such an extent as the Dahlia. But here arises a difficulty. Dahlias like many other old-time flowers, became set, as it were, in the eyes of old-time florists. The florists, when taking up any particular class of flower, hedged it in with rules and regulations,

Cactus varieties on long, strong stems. Before we get these, raisers have to go backwards, and that they are going backward can be seen by the type of flower they are producing. Shorter in petal, broader and stiff looking, but carried on stems as hard and almost as long as crowbars. Minerva, White Ensign, Flagstaff, and Sweet Briar are all of this type, yet nevertheless they are good to look upon. They are not the florist's ideal of the Cactus Dahlia, but they are good enough for the public, and as the flowers improve so will the demand for Cactus Dahlias increase. Already one raiser has got beyond the stiff, broad-petalled flower, for in Mary Purrier we have a bright crimson flower of great size, well-formed, and quite equal to some of the best exhibition types. To Mr. J. T. West we owe our acknowledgements, because he sent out Mary Purrier. *Progressive*.

NATIONAL ROSE SOCIETY'S CATALOGUE.—What a boon it would be to the amateur if a yearly supplement, containing a list of the newer varieties of Roses, were issued by the National Rose Society. I am sure the ordinary member, who is not an experienced rosarian, would appreciate the publication of such an official list. Although the number of Roses increases fast annually, there are not many that would require to be bracketed with others as synonymous, or too much alike as, for example, in the case of Sweet Peas. I am aware such a publication would entail much labour, but much of the work would be of a mere clerical character. A short time ago this body did not appear to know how to spend their fast-accumulating funds, therefore the question of expense could not be urged against the proposition. The only fault I have to find with the 1910 edition is that it does not go far enough. The method of enumeration adopted is quite suitable. *E. M., Hants.*

FORCING VINES.—Knowing the vineries under the care of Mr. Jefferies, I am aware that very early forcing is not practised in them. If it was, and Mr. Jefferies could syringe half of his small vinery without bringing about humidity in the other half, the experiment would be worth trying. My practice of syringing would not be of such a force as to wash off dressing, if any, but to damp every part of the house, vines included, in order to bring about a humid atmosphere. I have had charge of early and late vineries in different parts of the country, and I have seldom found two alike; for the pitch of the house, its situation, the amount of water piping, and many other things have their influence upon the conditions in the house. I have always found the syringe more useful than the waterpot for moistening the house during early forcing, and I never suggested syringing vines in leaf excepting when red spider was likely to appear, and then there is more than one way to use the syringe. The advice given by Mr. Beckett was thoroughly practical. *C. J. Ellis.*

It would be very instructive if some of the growers who have recently given their opinions on the matter of syringing vines would also state what precautions are taken to keep red spider from attacking their vines. Of course, the damping of floors and walls is a matter of general routine in the cultivation of the Grape. The method of applying sulphur to the hot-water pipes is, no doubt, effective, but is a clumsy practice to adopt. I have a vivid recollection of the ill effects caused by applying sulphur to hot-water pipes, which occurred when I was quite a young man. Since that time I have been employed in gardens in various parts of the British Isles, and whilst in some gardens, red spider gave little or no trouble, in others it was the worst pest we had to contend against under glass. From this point of view, the arrangement of the hot-water pipes is a matter of great importance. I have frequently noticed that where a junction occurs inside a vinery, or other fruit-house, the foliage immediately above is very liable to become attacked with red spider if special precautions are not taken, owing, of course, to the excessive heat which arises from the pipes. In many old vineries the smoke flue is built in, or adjoining, the back wall, and the heat arising from it causes a dry atmosphere, which is quickly followed by an attack of spider unless the wall is damped frequently. Where vines are the sole occupants of the structure (as they should be), the work of keeping down the pest is simple, compared with cases where other plants are accommodated in the

house. Thorough cultivation is the best preventive, but even the most robust vines are sometimes attacked, and any hints on how to combat the pest from those who know of a good remedy not in general use would be extremely valuable. *C. Rose, Lambay Island, Rath, Co. Dublin.*

I certainly support Mr. Beckett in the excellent advice he offered in his weekly Calendar on this subject. A few lines from such an able grower as Mr. Taylor (see p. 253) are appreciated, but in his remarks he says he never syringed a vine unless for the purpose of applying an insecticide. Why should an insecticide be required if the treatment he recommends is such an admirable one? I have lived with some of the finest Grape growers of the last 50 years, who have treated their vines precisely as recommended by Mr. Peckett, and there never was any need for an insecticide. Mr. Arnold says "the water may be used in a tepid condition, but it becomes cold in a very short

as they are pruned and cleaned, they are tied up in their proper positions, and a sufficiently high and uniform temperature and a humid atmosphere are maintained, they will break quite uniform without the aid of the syringe, as sufficient food is stored up in the rod in the form of starch, &c., to start it into growth, if the vine is in good health. As soon as a sufficiently high temperature is reached, the diastase acts upon the starch, and converts it into sugar, which must be done before the latter can pass through the cell walls and contribute to the development of the bud. Inasmuch as these processes are dependent on temperature, it will follow that cell division and growth would take place much faster at the top of a badly-ventilated vinery than at the bottom, for the temperature would be much higher at the top. The reason for lowering or twisting the rods in the early vineries is not to stop the "rush of sap," but to bring the rod into a more uniform heat in the bottom part of the vinery, since a



FIG. 123.—DAHLIA MADAME VAN DEN DAEL: COLOUR SILVERY PINK; A GOOD EXAMPLE OF THE DECORATIVE TYPE.

(See p. 282.)

time, and sometimes remains on the foliage all night." At what hour does he syringe the vines, for this to take place? He also stated that it tends to weaken the growth, and does not assist them to ripen. Are we to believe that if vines are sprayed when they commence to break, they will not ripen properly in the autumn? I have grown Grapes for a good many years now, with more than average success, and I believe that gentle sprayings are beneficial, but no one who has any experience of the management of vineries would spray them at an hour when they would be likely to remain wet all night. The amount of syringing can only be determined by the style of the houses provided for Grape growing, some houses drying up much quicker than others. *S. A. C.*

My idea is that vines do not require syringing to start them into growth. If, as soon

regular temperature cannot be maintained in the upper part owing to the need for ventilation. Syringing would stop transpiration to a certain extent, which would be detrimental to the vines, as it is only by a sufficient quantity of water passing through the vines that the organic and inorganic substances are obtained in sufficient quantities for the formation of carbo-hydrates and proteids which form the food of the vine. I fail to see how the non use of the syringe would keep vines back three weeks, especially if started in November. I know of an unheated lean-to house, situated at the east end of a dwelling with a vine planted at one end of the back wall, and four lateral branches trained the whole length of the wall. At the point where the chimney of the dwelling-house passes up the wall, near the centre of the lateral branches, the two buds on each

lateral always start into growth 12 or 14 days before any other part. This shows there is no "rush of sap." *Geo. Figgis, The Yeats Lodge, White Hill, Blechnigley.*

—In further reply to Mr. Wm. Taylor (p. 253), I am afraid he has not yet converted me on the above question. I think few will deny the fact that young vines, in 99 cases out of every 100, will break stronger at the top than either at the base or the middle of a two-year-old rod, whatever the length; it matters not whether the pipes are in the front or at the back of the house, and, in spite of anything Mr. Taylor may say to the contrary, I believe that little doubt exists in the minds of most practical men that if steps are taken to prevent a rush of sap to the top, it is helpful to the buds nearer the base of the plant. I have never as far as I remember, advised a saturated atmosphere. What I did say was that the vines must be sprayed frequently during fine weather, and I still hold to this. Mr. Taylor somewhat questions the value of showers during the spring months to assist the young buds to unfold their new growth. As he says, how much credit must be given to showers, and how much to temperature? I fully admit, of course, that temperature has much to do with it, but I believe also that a combination of warmth and moisture is most essential, either in natural or artificial conditions, and I am fully persuaded also that market gardeners who practise not only the forcing of vines, but other subjects, in immense quantities, would not waste either time and water in the way they do, simply by way of experiment or because some writers advise it, but they spray their vines because they have proved by experience that the practice is beneficial. Generally speaking, it is safe to imitate nature as far as possible in the cultivation of plants and other subjects under unnatural conditions. I had an object lesson of this many years since, on paying a visit to the historic kitchen gardens at Hampton Court, which were then being utilised for market purposes and were under the supervision of a clever Scotch gardener. Mushrooms were largely and most successfully grown in rudely-constructed thatched buildings. I was struck with the magnificent crops in all stages of growth. My then employer had constructed for me, under my own supervision, an up-to-date Mushroom house, but my attempts had been anything but satisfactory. I asked my friend if he would kindly give me a few hints as to their culture. He said: "Yes, I will do so willingly, and quite briefly. Endeavour to imitate nature as nearly as possible; try and create a temperate and atmospheric condition as far as possible similar to a fine, mild autumn night." His words were not wasted, and I have never had the slightest trouble in producing good crops of Mushrooms since. Nature does not provide us with glasshouses, consequently we have to produce in some way artificial showers, or it is reasonable that we should, equally as much as supplying the inside border with water to the roots. *E. Beckett.*

THE WEATHER AT LAMBAY ISLAND.—The weather during the first half of April was cold and dry, with a fair amount of sunshine. The rainfall was extremely small. Strong winds prevailed from April 19 to 21st, and were almost exclusively from the south-west. On the 18th rain fell heavily, and on the following day there was thunder with heavy showers at intervals. On the 20th rain and hailstorms were experienced, and the wind, which had been strong during the two preceding days, amounted to a gale. The wind and hail caused much damage to vegetation, and the fruit blossoms were damaged, especially of Red Currants, some young bushes having all their foliage destroyed. The foliage of Pears, Apples and Cherries was also damaged. Fortunately the blossoms on these trees were not expanded. *Colin Ruse, Lambay Island, Co. Dublin.*

THE DEVELOPMENT OF BRITISH FORESTRY.—Mr. Forbes, in his last communication, yet once more distorts a statement of mine, for he alleges that I suggest "that Wales and Herefordshire afford the most typical examples of mountain land in general." The reality is very different. I mentioned this district, "for example," as one lying within "50 or even 100 miles of the western coast," and therefore as one in which readers of this journal could test the accuracy of Mr.

Forbes's statement that in such a district on all western slopes (unless sheltered) every tree or wood shows stunted and distorted growth. Such repeated misrepresentations of my statements render further discussion unprofitable. Accordingly from the number of erroneous statements as regards matters of fact contained in Mr. Forbes's latest communication, I select for comment only one, and this because it concerns the reputation of a third person. I did not "unearth Sir R. Christison's observation on tree-growth," but extracted from the more recent and comprehensive series of papers written by Dr. David Christison, whose careful measurements extended over a number of years, and concerned a very considerable number of species of trees (in one paper alone measurements of 50 species are given). *Perry Groom.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

APRIL 25.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair), Sir Everard in Thurn, Dr. A. B. Randle, Messrs. A. Worsley, W. C. Worsdell, J. O'Brien, J. Douglas, R. H. Pearson, W. Hales, C. E. Shea, G. Gordon, and F. J. Chittenden (hon. sec.).

Gongora sp.—Mr. J. O'BRIEN brought forward a species of *Gongora*, introduced by the late Mr. Tracy from Peru. It was apparently a new species, and was referred to Kew.

Oncoba spinosa var. Roulledgei.—Mr. SHEA showed flowers and foliage of this newly-introduced greenhouse shrub. The seed had been sent home to Mr. SHEA from Central Africa, a fruit having been presented to a friend of his by a native chief as a parting gift, on account of its great value as a means of ridding one of enemies with little trouble. The instruction given was to soak the hard fruit in water and present the decoction to the person to drink. The fruit has therefore probably very poisonous properties. The plant, which belongs to the Bixineæ, has large showy white flowers, strongly scented, and with numerous yellow stamens. Many of the flowers lacked a pistil. Mr. SHEA's plant appears to differ from the type which is a native of Arabia, and the varietal name of Roulledgei is in honour of the sender of the seed. It was unanimously resolved to recommend the award of a Botanical Certificate to the plant on the ground of its novelty and peculiar properties. [The correct name of this plant is still undetermined.—Eos.]

Sport in Daffodil.—Mr. BOWLES showed flowers of a sport from "Weardale Perfection," which had appeared among a group of that variety in Mr. CRANFIELD'S garden. It had a yellow-tinted perianth, and a much deeper yellow trumpet than the type.

Double Primroses, &c.—Messrs. COCKER & SONS, of Aberdeen, sent a large number of flowers of double *Polyanthus* and *Primus*s which they had raised from seed. The colours ranged from Primrose yellow through white to purplish-blue shades, but were not, as a rule, very bright. They were raised by crossing the Wisley blue *Primrose* ? with the well-known *Polyanthus platypetalus plena*. In the second and third generation numerous double-flowered forms had appeared of a wide range of colours. It was unanimously resolved to recommend the award of a Certificate of Appreciation to Messrs. COCKER in acknowledgment of their work in raising these plants.

Rhododendron hybrid.—Sir JOHN LEWELYN showed flowers cut from the open of a seedling *Rhododendron*, raised from *R. Thomsonii* × *R. Aucklandii*. The leaves had something of the blue-green coloration of *R. Thomsonii*, but were devoid of hair beneath, much longer and more acute than those of that plant. The corolla was deep red, and lacked the spotting often seen in *R. Thomsonii*.

Pyronia × Sedenii.—Mr. WORSLEY reported that he had examined the fruit of this hybrid shown at a recent meeting, and had failed to find ripe seeds in it. The cells each contained as a rule three undeveloped seeds.

MIDLAND DAFFODIL.

APRIL 27, 28.—To many lovers of the Daffodil the Midland show held in the Botanic Gardens, Birmingham, has become one of the most interesting events of the year. First there is the pleasant evening before the show, spent at one of the hotels frequented by the Daffodil exhibitors, some of whom have already been at work during the afternoon putting up their flowers for the morrow; and then comes the show itself. It has become a commonplace that the most important new seedlings of the year will be found at Birmingham, but we shall not readily forget the amazement with which we looked on them on our first visit to the show, now some years ago: the number of new forms was most bewildering, and the freshness with which they were presented, a revelation. Every year it is the same, and though the first feeling of bewilderment is now replaced by expectation, we find that neither interest nor appreciation abates.

At this year's show there were plenty of instances of advance in desirable directions. There is room for deeper-coloured yellows, and for purer whites, and instances of both were in evidence. We cannot recall anything more beautiful in the whites than the lovely Moonbeam, particularly the vase which appeared in the centre of Messrs. BYRN & SONS' stand, perfect among much that was excellent, whilst more beautiful flowers of the same variety were shown in the honorary exhibit from Mr. A. M. WILSON. A very striking flower is Whitewell, which, if we remember aright, appeared for the first time last year (1910) at this show. This year it was shown in several of the trade stands, a fact which points to its popularity. A true *Poeticus* variety named Coronation, exhibited by Mr. CROSFIELD, was probably the best-formed flower in the show, and certainly the smoothest *Poeticus* variety. It is illustrated in fig. 129; the diameter was 3 inches, the segments 1½ inch wide, and the crown 2 inch across.

The Ware Cup, for a group of "Obvious *Triandrus* hybrids," was a class that attracted a good deal of attention; and, nevertheless, was something of a disappointment. We enquired where the obvious resemblance to the beautiful *N. triandrus* was to be seen. "Oh! don't you see," said a friend, "they all have broken necks!" A little hard perhaps, this; but the fact is that, while many of the smaller *Triandrus* hybrids are exceedingly beautiful and graceful, beauty and grace both seem lost when the size of the flower increases very much beyond that of the type. To see two or three great flowers the size of Emperor shouldering one another in the endeavour to show their somewhat ample charms on a single stem is to feel that the increase of size is, in this case, not an advance but a retrogressive change. For, whereas, in the case of the large single flowers, though many may be fair, and remind one of the Queen of Spain, itself a beautiful type, yet resemblance to the lovely Angels' Tears is far to seek, and perhaps altogether lost.

Taking the show all round, it was not a little remarkable how well the flowers looked. We scarcely remember a year when the flowers suffered so much in transit. The cold weather of late March and early April kept the flowers almost at a standstill, while the hot Easter sun forced them as if they had suddenly been brought under glass. The result was that many exhibitors found, when it came to staging, that the "backs" of their blooms were not as stiff as they should be, and many a fine flower had to be replaced in the hall by a smaller but younger specimen. As some compensation, the flowers were unusually clean. The result was that the flowers, particularly those of the amateurs, were not quite of so much substance and rigidity of petal as we have seen them in other years. Still, in spite of it all, the flowers were there, from trumpet to poet, and all—as the lawyers say, "anything herein to the contrary notwithstanding"—looking most fresh and fair.

In the evening, Mr. Robert Sydenham entertained the principal exhibitors, judges, and visitors to dinner at the Strand Hotel. Mr. W. B. Cranfield proposed the health of the judges and exhibitors, and Mr. Williams and Mr. Duncan Pearson responded. Mr. Engleheart proposed "The Midland Daffodil Society," and Mr. Sydenham responded. Mr. Jacob proposed "The Visitors," to which Mr. Backhouse, Mr. Van Waverin, and the Rev. Mr. Browne responded.

Mr. Engleheart made a few remarks on the future development of the Daffodil which provoked a discussion, in which the following took part:—Mrs. Johnston, Mr. Sydenham, Mr. Wallace, Mr. Cranfield, Rev. J. Jacob, Mr. P. Arson, Mr. F. Herbert Chapman, and Mr. P. Williams. The subjects discussed included the value of garden flowers as against exhibition flowers, and the quality of scent in Daffodils. It was generally agreed that the exhibition flower was not the best garden plant, and that scent in flowers was an extremely desirable quality to cultivate. It was also thought desirable that raisers should take greater care not to distribute varieties that have weak constitutions.

As regards the success of the show, it may be said that the exhibits were more numerous than last year, and the receipts were higher.

CUT FLOWERS (OPEN CLASSES).

The greatest display was made by Class No. 1, which was arranged for a collection of 50 varie-



FIG. 129.—NARCISSUS "CORONATION."

(A fine-famed Poeticus variety exhibited by Mr. Crosfield at the Midland Daffodil Show.)

ties of Daffodils (bunch-flowered varieties excluded). Messrs. CARTWRIGHT & GOODWIN, Kidderminster, who have won the 1st prize (5 guineas) in this class for several years past, again secured the premier place with a grand lot of flowers that well represented the different sections. We cannot enumerate many of the flowers, but may mention the following varieties, which attracted our attention by reason of their first-class quality:—Longfellow, Libra, Incognita, Long Tom, and Cleopatra. The 2nd prize was awarded to Mr. C. BOURNE, Bletchley, who also showed a collection of high merit; whilst Mr. JOHN POPE, of King's Norton, who gained the 2nd prize last year, was awarded the 3rd prize.

It may be mentioned here that Messrs. CARTWRIGHT & GOODWIN won 1st prizes in the following classes:—(1) Twelve varieties of long trumpet Daffodils (Mr. J. POPE 2nd). (2) Six varieties of short trumpet Daffodils (Rev. J.

JACOB 2nd). (3) Twelve varieties of large-cupped Daffodils (Rev. J. JACOB 2nd). (4) Six varieties of true Poeticus, and (5) six varieties of flat-cupped Daffodils (Mr. C. BOURNE 2nd). The 12 long trumpet Daffodils shown by Messrs. CARTWRIGHT & GOODWIN were Herod, Wardale Perfection, Admiral Makaroff, Mrs. Betteridge, Glory of Noordwijk, Mrs. H. J. Veitch, Princess Ena, Mme. de Graaff, Onslaught, and Felspar. The six short trumpet Daffodils were Long Tom, Bert Sands, Neptune, Giraffe, Lady M. Boscawen, and Felspar.

The Rev. J. JACOB, Whitewell Rectory, Salop, won the 1st prize for 12 varieties of short-cupped Daffodils, showing Delicacy, Firebrand, Pancake, Ellen Barr, Vivid, Japonica, Jacob Faithful, Scarletta, Ecstasy, White Lady, Charlotte, and another. 2nd, Messrs. CARTWRIGHT & GOODWIN.

MESSRS. CARTWRIGHT & GOODWIN'S selection of six true poeticus varieties included Sir Philip Sydney, Rudyard Kipling, Matthew Arnold,

as nine entries, and it was found impossible to award the 1st prize to a single collection, consequently equal 1st prizes were given to Mr. H. R. DARLINGTON, Potter's Bar, London, and the Rev. T. BUNCOMBE.

The best exhibit of three distinct varieties of short-trumpet Daffodils was shown by Mr. N. Y. LOWER, and his varieties were Orangeman, Winifred, and Lady Margaret Boscawen. Mr. DARLINGTON gained only the 2nd prize in this class, but in the following one, namely, for nine varieties of large-cupped Daffodils, his exhibit was adjudged the best. Mr. DARLINGTON showed the following varieties:—Seagull, Gloria Mundi, Evangeline, Princess Mary, Diana, Albatross, Lucifer, Magpie, and another.

Passing to the small-cupped Daffodils, the best collection of nine varieties, from Mr. LOWER, consisted of Eyebright, Firebrand, Cassandra, Beacon, Rhymester, Blood Orange, Homer, White Lady, and Florace. The same exhibitor showed the best collection of six varieties of Daffodils, costing not more than 3s. per dozen bulbs. It is interesting to note that such cheap Daffodils include Barri conspicuus, Mme. Plemp, Frank Miles, Saturn, J. B. M. Camm, and Lulworth. Mr. W. H. PARTON obtained the 2nd prize in this class.

Mr. DARLINGTON had the best three varieties of flat-cupped Daffodils in Queen of Scots, Ariadne, and Incognita; and Mr. GUMBLETON, Tewkesbury, the best three double Daffodils, in Primrose Perfection, Orange Phoenix, and Golden Rose.

The 1st prize for three distinct varieties of bunch-flowered Daffodils was won by Mr. W. H. PARTON, Moseley, and he selected the varieties Jaune à Merveille, Alsace, and Irene.

At this point in the schedule a few classes were inserted for exhibitors who had not won more than three 1st prizes at the Society's exhibitions. The best group of 12 varieties in this section was shown by Mr. H. H. JONES, Ludlow, the best collection of six varieties of long-trumpet Daffodils by Mr. B. BOWEN, large-cupped Daffodils by Mr. W. F. MITCHELL, true Poeticus by Mr. G. STOCKS, and bunch-flowered Daffodils by Mr. E. DEAKIN.

PREMIER BLOOMS.

A number of classes was set apart for the best flowers of each type, thus serving to bring to the public notice the best varieties. Those which won 1st prizes were as follow:—Long-trumpet Daffodil (yellow self), Harold Cartwright; long trumpet (other than yellow self), White Knight; short-trumpet variety, Giraffe; large-cupped Daffodil, Cressus; small cup, Annabel; true Poeticus, Coronation; flat-cupped Daffodil, White Star; double Daffodil, Primrose Plumix; triandrus hybrid, Wave Crest.

NEW VARIETIES.

The Bourne Challenge Cup was offered for the best collection of 12 varieties of Daffodils raised by the exhibitor. The 1st prize was awarded to Mr. P. D. WILLIAMS, Lanarth, St. Keverne, Cornwall, for a very fine exhibit, composed for the most part of unnamed seedlings. 2nd, Mr. E. M. CROSFIELD, Bridgwater, who had beautiful flowers of Coquette, Tinsel, Red Globe, Anchorite, and Charles Surface. 3rd, Mr. W. WELCHMAN, Wisbech.

Mr. A. M. WILSON, Bridgwater, won the 1st prize in a class for six varieties of Daffodils, raised by the exhibitor and not yet in commerce, showing Seborga (a very beautiful trumpet flower with rich-yellow trumpet and pale-sulphur perianth), Leontes, Abigail, Druid, and Amicet (a Poeticus with a thin ring of a peculiar shade of pink around crown); 2nd, Mr. C. H. CAVE, Mangotsfield, Bristol; and 3rd, Mr. J. POPE. In another class, for three seedlings, open only to exhibitors who have never won a prize for seedlings, Mr. G. STOCKS, Doncaster, won the 1st prize, showing Charley's Aunt, Avicé, and O'Criley.

The Cartwright Challenge Cup, offered for 12 varieties that have not been in commerce more than four years, was awarded to Mr. E. M. CROSFIELD. He showed the varieties Zouave, Chintz, Anchorite, Fire-eater, Sarchedon, Gay Bird, Royal Lady, Tinsel, Spartan, Iliad, Coquette, and another. Royal Lady is a flower resembling White Lady, but it is larger and has rather more lemon tint. 2nd, Messrs. CARTWRIGHT & GOODWIN; and 3rd, Mr. F. HERBERT CHAPMAN.

Childe Harold, Oliver Goldsmith, and Highland Bard, and their half-dozen of flat-cupped Daffodils, Sulphur Eye, Orange Eye, Incognita, Circlet, Semiramis, and Armeline.

The best exhibit of six bunch-flowered varieties was shown by the Rev. J. JACOB, and the varieties were Orient, Jaune à Merveille, Elvira, Sunset, Triumph, and Klondyke.

AMATEUR CLASSES.

The most comprehensive class in the amateurs' section called for 25 distinct varieties already in commerce, but not costing more than half-a-guinea per bulb. There were numerous entries, and the flowers made a very fine display. There were five prizes offered, and the first three were awarded as follow:—1st, Mr. S. F. STAFFURTH; 2nd, Rev. T. BUNCOMBE, Black Torrington, Devon; and 3rd, Mr. N. Y. LOWER, Presteign. In the following class for nine distinct varieties of long-trumpet Daffodils, there were as many

A similar class for six varieties was won by the Rev. J. JACOB, with the varieties *Endurance*, *Charles*, *Whitewell*, *Mrs. W. O. Wolsley*, *Redbrook* (very fine), and *Haarlem*. 2nd, Mr. H. D. PHILLIPS, Olton.

The Herbert Chapman Poeticus Trophy, offered for six varieties of true Poeticus type, which have not been in commerce more than four years, was won by Mr. CROSFIELD, with *Socratus Coronation*, *Bret Harte*, *Hiad*, *Snow King*, and *Sarchedon*. 2nd, Mr. A. M. WILSON.

The Walter Ware Challenge Cup was offered for the best group of obvious triandrus hybrids, and it was won by Mr. CROSFIELD, who was followed by Messrs. CARTWRIGHT & GOODWIN and Mr. F. H. CHAPMAN. We have already remarked in the opening paragraph on the flowers shown in this class.

There were also classes for Daffodils and Tulips cultivated in pots, and for Daffodils and Lily of the Valley, &c., cultivated in moss fibre. In the latter classes the prizes were offered by Robert Sydenham Limited. In most of the classes, Mr. J. H. KENRICK, Edgbaston, or Mr. J. SEANEY, Harborne, won 1st prizes.

A bowl of Daffodils shown by Mr. J. POPE, in a class for decorative exhibits, was greatly admired.

CUPS AND MEDALS FOR AGGREGATE POINTS.

The Barr Cup, offered to the exhibitor who was awarded the greatest number of points in certain defined classes, was won by Dr. LOWER. The Birmingham Botanical and Horticultural Society offered six medals to exhibitors gaining the most points in groups of classes, as follows:—Classes 2 to 9 and 26 to 35, silver medal, won by Messrs. CARTWRIGHT & GOODWIN; bronze, by the Rev. JOSEPH JACOB. Classes 11 to 18, silver medal, won by Mr. H. R. DARLINGTON; bronze, by Dr. LOWER. Classes 26 to 35 and 37 to 39 and 41 and 44 to 47, silver medal to Mr. J. A. KENRICK, Harborne; and bronze medal to Mr. A. M. WILSON.

FIRST-CLASS CERTIFICATES.

Narcissus ornolu.—A fine *Incomparabilis*, with flat, red crown and nearly white perianth. From Mr. A. M. WILSON.

Miss Willmott (see fig. 123), a poeticus flower (4 inches in diameter).—From Mr. WALTER T. WARE.

AWARDS OF MERIT.

Narcissus Elegy.—From Mr. F. HERBERT CHAPMAN.

Poeticus Socrates and *Sheba*.—From Messrs. BARR & SONS.

Middletun Favourite.—A fine trumpet flower. From Mr. J. POPE.

Crasus.—Fine circular flower, with red crown and pale-sulphur perianth. From Mr. A. M. WILSON.

Matthew Arnold (Poeticus), *Princess Eud* (bicolor trumpet), *White Wolf*, *May Hanson* (white *Incomparabilis*), *Whitewell*, and *Hervine* (very large Burbidgei, white segments, big, wide, yellow cup, with orange ring).—These six varieties were exhibited by Messrs. CARTWRIGHT & GOODWIN.

AWARDS TO NON-COMPETITIVE EXHIBITS.

Gold medal.—A. M. WILSON, Bridgwater, for Daffodils.

Silver-gilt medals.—Rev. G. H. ENGLEHEART, Dinton, for Daffodils; BARR & SONS, Covent Garden, for Daffodils; YOUNG & Co., Cheltenham, for Carnations.

Large silver medals.—Miss CUREY, Lismore, for Daffodils; BAKERS, Wolverhampton, for Alpine plants in flower; SUTTON & SONS, Reading, for Cinerarias; B. R. CANT & SONS, Colchester, for Roses; H. N. ELLISON, West Bromwich, for Gerberas and Ferns; S. MORTIMER, Farnham, for Polyanthus Primroses.

Silver medals.—J. R. PEARSON & SONS, Lowdham, for Daffodils; R. WALLACE & Co., Colchester, for Alpine plants and cut flowers; A. W. WATTS, St. Asaph, for Polyanthuses; LLOYD EDWARDS, Llangollen, for hybrid Saxifragas; W. A. MILNER, Sheffield, for Polyanthuses; T. E. DAWES, Syderstone, for Rhubarb; C. BOURNE, Bletchley, for Daffodils; HOGG & ROBERTSON, Dublin, for Tulips; and ROBERT SYDENHAM LIMITED, for Daffodils.

KENT, SURREY, AND SUSSEX DAFFODIL.

APRIL 26.—The sixth annual exhibition of this society was held in the Great Hall, Tunbridge Wells, on this date in brilliant weather. The number of entries compared favourably with those of preceding years, whilst the standard of excellence in the exhibits was fully maintained.

The principal class for Daffodils was for a collection of 10 varieties each, of the Trumpet, chalice-cupped, and flat-crowned groups. There were only two competitors, and the 1st prize, which included a silver challenge cup, was won by Mr. C. G. A. NIX, Tilgate, Crawley, whose collection comprised excellent blooms of (Trumpets) Mrs. G. H. Barr, Henri Vilmorin, Cygnet, Rev. D. R. Williamson, Weardale Perfection, Lord Roberts; (chalice-cupped), Pilgrim, Lady Margaret Boscaven, Homespun, and Sunrise; (flat-crowned), Red Beacon and Fair Maiden, and Horace, Isis and White Standard, of the poeticus (permitted under the new classification in the last-named group); 2nd, Mr. C. G. A. NIX, Tilgate, Forest Lodge, Crawley.

In the class for 12 distinct varieties of Daffodils representing the same three groups, Mr. W. C. BELL, Ransgate, was placed 1st, for fine blooms of Mme. de Graaff, Weardale Perfection, Albatross, Lucifer, Monarch, and others; 2nd, Rev. G. P. HAYDON, Canterbury; 3rd, Col. H. FINN LYDD.

For 12 distinct single varieties of true Trumpet Daffodils, Rev. G. P. HAYDON was awarded the 1st prize, having Loveliness, Peter Barr, Pearl of Kent, G. P. Haydon, and Philip de Vilmorin in splendid condition; Miss A. NIX was placed 2nd, and Mr. E. M. EVERSFIELD, 3rd.

In the class for 12 distinct single varieties of chalice-cupped Daffodils, Miss A. NIX won the 1st prize with White Lady, Sunrise, Gipsy Lad, Albatross, and others; 2nd, Rev. G. P. HAYDON.

Mr. F. BARCHARD, Maresfield, won the 1st prize for six distinct single varieties of saucer or flat-crowned Daffodils with Purity, Horace, Firebrand, Laureate, Homer, and Pindar; 2nd, Mr. C. F. BANKS, Crawley.

Mr. BANKS won the chief honour in the class for nine distinct varieties of Narcissus; 2nd, Mr. G. SHEPHERD; 3rd, Miss E. D. ROBERTS.

Mr. E. M. EVERSFIELD showed the finest single bloom of a Trumpet Daffodil in Weardale Perfection; 2nd, Rev. G. P. HAYDON with Pearl of Kent; 3rd, Mr. F. BARCHARD with Weardale Perfection.

Rev. G. P. HAYDON had the finest single bloom of a saucer or flat-crowned variety in Kingsley; 2nd, Mr. F. BARCHARD with Purity; 3rd, Mr. C. G. A. NIX, with Harold Finn.

Trade exhibits as usual contributed largely to the success of the show. Messrs. CHARLTON & SONS, Tunbridge Wells, Geo. BUNYARD & Co., Maidstone, G. & A. CLARK, LTD., Dover, and Geo. REUTHE, Keston, showed attractive exhibits of spring flowers, whilst Messrs. BARR & SONS and Mr. F. HERBERT CHAPMAN, Rye, both put up excellent stands of choice Daffodils.

PERPETUAL-FLOWERING CARNATION.

MAY 2, 3.—The 10th exhibition of the Perpetual Flowering Carnation Society was held in the Royal Botanic Gardens, Regent's Park, on Tuesday and Wednesday last. The weather was somewhat dull, but there was a good attendance. An interesting and good show resulted, the flowers being of excellent quality.

OPEN CLASSES.

The Gold Medal offered for the best group of cut Carnations in not fewer than 12 varieties arranged with foliage on a table for effect, was won by Messrs. YOUNG & Co., Cheltenham. The exhibit contained choice flowers of White Enchantress, Mrs. H. Burnett, Mrs. Greswold-Williams, Rose Enchantress, Winsor, and other varieties. The 2nd prize, a Silver-gilt Medal, was won by an amateur, Mr. F. C. HARWOOD, Torquay. His best flowers were Winsor, Harlowarden, Black Chief, Britannia, Emperor and Gov. Duncun.

Mr. C. ENGELMANN, Saffron Walden, secured the Brunton Challenge Cup in the class for three vases of British novelties, distributed since January 1st, 1909, 12 blooms in each vase, with the varieties Regina, Rex and Carola.

Mr. BERTIE E. BELL, Guerdsey, won the challenge cup offered by the American Carnation Society for the best three vases of American novelties, with Gov. Duncun, Bay State and J. Whitcomb Riley; 2nd, Mr. W. E. WALLACE.

Mr. W. E. WALLACE, Eaton Bray, Dunstable, was awarded the 1st prize in the class for two varieties of market Carnations, 60 blooms of each variety, to be shown in two vases and two boxes, thus winning the Covent Garden Bowl outright, this being the second occasion he has won in this class in succession. His varieties were Rose Pink Enchantress and White Enchantress. The THATCHAM FRUIT AND FLOWER FARM was placed 2nd.

Mr. WALLACE again won the 1st prize in the class for 25 blooms of a variety, selected from Enchantress, Melody, Fair Maid, and varieties of a similar colour, followed closely by Mr. B. E. BELL, Mr. H. BURNETT being 3rd.

In the class for 25 blooms of a pink coloured variety Mr. A. SMITH, Enfield Highway, was a good 1st with Empire Day, followed by Messrs. WALLACE and A. F. DUTTON in the order of their names.

For a similar number of blooms of a deep pink variety, Mr. W. E. WALLACE led with a handsome vase of Winsor; 2nd, Mr. B. E. BELL; 3rd, Mr. H. BURNETT.

In the class for a variety of a rose shade, Mr. B. E. BELL secured the 1st prize, having Mrs. C. W. Ward in excellent form; the blooms were also awarded the Silver Gilt Medal offered for the best vase of Carnations in the trade classes; Mr. C. ENGELMANN was placed 2nd with Mrs. T. W. Lawson; and Mr. A. F. DUTTON 3rd with Lawson Enchantress.

Mr. W. E. WALLACE won the 1st prize in the class for 25 blooms of a white variety with White Enchantress; 2nd, Mr. B. E. BELL.

Mr. A. F. DUTTON was placed 1st in the class for 25 blooms of a scarlet variety with Beacon; 2nd, Mr. BELL with Britannia.

Mr. C. ENGELMANN led in the class for a crimson variety with the fine variety Carola.

The best variety of a self colour was shown by Mr. B. E. BELL in Rose Done.

Mr. C. ENGELMANN was awarded the 1st prize in the class for fancies with Harlequin, and he also won the 2nd prize in the class for 12 blooms of Carnations of any variety not in commerce, with a yellow, flaked white self line.

Messrs. Felton & Sons, Hanover Square, London, offered a piece of plate, valued at two guineas, in the class for a vase of 36 blooms arranged for decorative effect. The prize was awarded for a splendid vase of May Day arranged by Mr. W. E. WALLACE; Mr. BELL being placed 2nd for blooms of Winsor and President intermingled.

There was a keen competition in the classes for decorated tables; Mrs. A. D. RUFF, Sharnbrook, won the 1st prize in both the open and the amateurs classes.

AMATEURS' CLASSES.

The 1st prize for a table of cut Carnations was won by Mr. FRANK MAY, Radlett (gr. Mr. T. F. Stalnett), his best blooms being Mrs. H. Burnett, Britannia, O. P. Bassett, and Rose Done.

Other successful exhibitors in the amateurs' classes were Lord BURNHAM, Lord GERARD, Lord HOWARD DE WALDEN, and Sir RANDOLF L. BAKER, Earl.

NON-COMPETITIVE EXHIBITS.

CECIL F. RAHAEL, Esq., Porter's Park, Shenley (gr. Mr. A. Grubb), exhibited a fine group of pot plants of Carnations and cut blooms, relieved with foliage plants. (Silver-gilt Medal.)

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, staged a collection of Carnations and other subjects. (Silver-gilt Medal.)

Mr. C. ENGELMANN, Saffron Walden, showed choice Carnations (Gold Medal); and Messrs. W. CUTBUSH & SONS, Hitchgate, had also a fine display of Carnations (Silver-gilt Medal).

Mr. H. BURNETT, Guerdsey, showed Carnations of extra fine quality, for which a Gold Medal was awarded.

A splendid vase of the new British-raised pink seedling, Empire Day, was shown by Mr. A. SMITH, Enfield Highway.

AWARD OF MERIT.

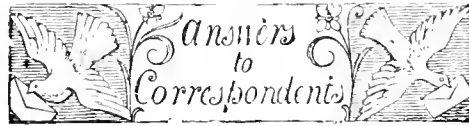
Edith Waters.—A variety of bright cerise colour. Shown by Mr. C. F. WATERS, Deanland Nursery, Balcombe.

Obituary.

S. A. DE GRAAFF.—The death of Mr. S. A. de Graaff, of the well-known firm of De Graaff Brothers, Ltd., Leiden, occurred on April 25, from heart trouble. The association of the De Graaff family with horticulture dates back to the latter part of the 17th century, the firm of S. A. & H. de Graaff being well-known growers of medicinal plants at Lisse, Holland, at that period. In 1720 the firm commenced cultivating a few Lulbs. In 1762 the partnership of the business was dissolved, and S. A. de Graaff, the grandfather of the late Simon Adreaans de Graaff, started a nursery in Leiden, where he soon became known as an importer and grower of Cape bulbous plants, and was the first in Europe to flower Cape Hippeastrums. During recent years the firm has made specialties of Narcissi and Tulips, and the late Mr. de Graaff paid much attention to the culture of Hippeastrums (Amaryllis) and other Cape bulbs. Many fine new Amaryllis raised by the late S. A. de Graaff were purchased by English growers. In 1872 he made his first visit to England, and the late Mr. Peter Barr accompanied him on a journey through England, Scotland, and Ireland. Having grown some of Peter Barr's Daffodils, Simon de Graaff soon became a Daffodil enthusiast, and commenced raising seedlings. Daffodil growers will remember the introduction of the beautiful pale trumpet Daffodil Madame de Graaff, raised from a cross between Empress and Albicans. Following the introduction of Madame de Graaff the firm sent out Glory of Leiden and Madame Plomp. In recent years Mr. de Graaff's finest introductions were the pure white Daffodils, Loveliness, Mrs. G. H. Barr, Mrs. Robert Sydnham, White Knight, Lady of the Snows, and Maid of the Mist. In 1900 Mr. S. A. de Graaff retired from active business, leaving the management to his two sons, Jan and Willem H. de Graaff. He then undertook a long holiday to the East Indian Dutch Colonies to visit his youngest son, Dirk, who was manager of a coffee plantation. During the last few years Mr. Graaff had suffered from an affection of the heart. He expired suddenly in the presence of his wife on the morning of Tuesday, April 25, at the age of 71 years. The funeral took place on Friday, April 28, at the cemetery "Rynhof," on the outskirts of Leiden. A large number of personal friends and acquaintances followed the coffin, which was borne to the grave by employes who had been long in the service of the firm. Among the friends who attended was Mr. Peter Rudolph Barr, of the firm of Messrs. Barr & Sons, London. Amongst those who sent wreaths were the employes of the firm, the Barr family, Mr. Walter T. Ware, and Mr. Harry J. Veitch. The coffin was covered with sprays of Narcissus Madame de Graaff and Glory of Leiden.

JUSTUS CORDEROY.—The death of Mr. Justus Corderoy, of Blewbury, Didcot, occurred on March 22, in his 80th year. Mr. Corderoy was a farmer, but he also paid considerable attention to horticulture, and was an old correspondent of the *Gardeners' Chronicle*. He was well known and appreciated at Kew, where, in his early days, he spent much time in the study of succulent plants, of which plants he was one of the most successful cultivators in Europe. His collection was not a large one, but it contained many old, rare, and interesting specimens. Those who have had the privilege of seeing it will have been impressed by the remarkable proportions and symmetry of some of the species it contained, such as his giant examples of *Leuchtenbergia Principis*, a species that is not easy to cultivate, whilst the freedom with which his plants flowered has been the envy of many other growers. Besides these plants Justus Corderoy had a great fondness for all that were in any way remarkable, either in abnormality of growth, colour of flower, or variegation of foliage. His liking for things of this kind also extended to animals and birds, and those which he possessed were well cared for and treasured.

THOMAS BRYCE.—We record with regret the death, on Monday, May 1, of Mr. Thomas Bryce, gardener, to Sir C. Dalrymple, Bart., Newhailes, Edinburgh.



ABNORMAL CAULIFLOWER: *S. P. S. E.* The inflorescence shows fasciation, similar to that seen in the "Coxcomb" *Celosia*. The abnormality is not uncommon.

ACACIA FAILING TO FLOWER: *C. Garland.* The dropping of the buds of the Acacia is due either to a too close and moist atmosphere, or dryness at the roots. Admit plenty of fresh air to the house, and endeavour to obtain strong, well ripened shoots. A shady place such as you describe is not suitable for Acacias, as they are essentially sun-loving subjects.

ANTS IN VINERIES AND PEACH HOUSES: *I. H.* If the ants' burrows are in such positions boiling water can be poured on them easily, this will be sufficient to destroy the ants. Another plan is to inject some bisulphide of carbon or Vaporite in the runs. The "Ball-kingram Ant Destroyer" is also to be recommended. This consists chiefly of arsenic, and should be labelled poison, and used with great care.

BLUE HYDRANGEAS: *J. C. H.* The plants can be made to produce blue flowers by watering the roots with a solution of alum water. Many



THE LATE SIMON DE GRAAFF.

other contributory causes for the development of blue colour in Hydrangeas are known, as may be seen from the correspondence on this subject published in *Gardeners' Chronicle*, February 2, 9, 16, 23, and March 2, 1907.

FIGS TURNING YELLOW: *G. C. P.* The yellowing is due to condensation of moisture on the fruit. Some varieties of Figs are very susceptible to injury by moisture. Ventilate the house freely and early in the day.

INSECTS IN A GREENHOUSE: *M. Brothers and John Snell.* The insects damaging your greenhouse plants are Weevils. Bisulphide of carbon or "Vaporite" may be employed for destroying the grubs that are below the surface of the soil, but there are various ways of trapping the beetles. As they feed chiefly by night, and have the habit, like most other Weevils, of dropping to the ground on being suddenly disturbed, it is desirable to group the plants together during the day, standing them on a large, greased sheet of white paper or calico. After this has been done enter the house at night time with a bright light, and tap the pots or shake the plants whilst holding them to one side, when the Weevils will fall on the sticky surface, and may be caught easily. Another method is to trap them with pieces of some vegetable, such as Potato or Carrot.

MELON LEAVES WITH MARKINGS: *G. W. T.* There is no trace of disease caused by fungi. The injury is due to the action of sunlight on damp leaves. Ventilate the house early in the morning.

NAMES OF PLANTS: *A. W. G.* 5, *Juniperus Sabina* var. *tamariscifolia*; 6, *Populus balsamifera*.—*W. R. P.* *Phillyraea decora* (sometimes called *P. Vilmoriniana*).—*Geo. H. Greenham.* 1, *Pulmonaria officinalis*; 2, *Garrya elliptica*; 3, Rose, probably *Niphetos*; 4, *Nuttallia cerasifloris*; 5, *Ceterach officinarum*; 6, *Berberis Darwinii*.—*W. J. B.* *Primula Forbesii*; *Saxifraga cespitosa*.—*Pixie, N. Deron.* 1, *Saxifraga muscoides*; 2, *S. hypnoides*; 3, *Juniperus bermudiana*.—*Ignoramus.* 2, *Trachelospermum jasminoides*; 4, *Aloe* sp.; 5, *Osmunda palustris*; 6, *Thalictrum* sp.; 7, *Buddleia variabilis*; 9, *Kerria japonica flore pleno*; 10, *Cydonia japonica*; 11, *Epimedium pinnatum*; 8, 12, grasses cannot be named unless flowers are sent. The other specimens were too scrappy to recognise.—*J. E. Hawkins.* It is impossible to name such scraps as those you send.—*G. G.* *Pelargonium tomentosum*, commonly known as Peppermint scented Geranium in gardens.—*C. F. M.* 1, *Bonssingaultia baseloides*; 2, *Pulmonaria mollis*.—*F. P.* *Catacnum macrocarpum*.—*H. A. Herts.* 1, *Leucojum aestivum*; 2, *Pulmonaria officinalis*; 3, *Saxifraga cordifolia*; 4, *Prunus sinensis flore pleno*.

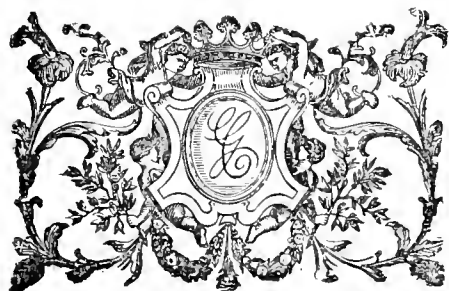
PEACH BUDS DROPPING: *H. P. G.* The reason for Peach and Nectarine buds dropping is to be found in some check the trees have experienced. It most frequently results from a wrong condition of the border during the resting season. If the borders are either too dry or excessively moist at that stage, bud-dropping may result, but it is most frequently to be attributed to drought at the roots in the autumn. It must be remembered that some varieties of these fruits are more prone to bud-dropping than others. We do not think that the hot-water pipes in the centre of the house are responsible for the trouble.

PEACH SCALE: *Anxious.* You are correct in your assumption that Bordeaux Mixture is not safe to use for syringing Peach trees, as this specific is injurious to the foliage. Syringing with kerosine emulsion you mention would not be nearly so effective as scrubbing the branches with the same preparation. An ordinary nail-brush may be requisitioned, the operator taking care to dislodge any of the scale that is present, and to wet the branch thoroughly with the emulsion, which is made with kerosene, soft soap, and water (two gallons of petroleum, $\frac{1}{2}$ lb. of soft soap, and one gallon of boiling water). One gill of this mixture is sufficient for mixing with one gallon of water.

PRIMULA VITATA: *North Staffs.* This handsome *Primula* is a native of the frontiers of China and Tibet, where it is found at very high elevations. It may be described as a purple-flowered *P. sikkimensis*, having the same characteristic umbels of drooping flowers. Although perennial in some places, it more frequently dies after flowering. The leaves are spatulate and from 6 to 8 inches long whilst the flower stems attain to a height of about a foot. The plant grows naturally in bogs and marshes, and requires similar conditions in cultivation to those that suit the Sikkim Primrose. Seeds may be sown in pots or boxes, either in a little heat or in a cold frame, using soil of a rather peaty nature. When the seedlings are large enough, they may be pricked off into boxes and grown on till large enough to plant out. In planting, select a somewhat shady place, where the soil is rich, deep, and moist. An illustration of *Primula vittata* was given in *Gardeners' Chronicle*, June 24, 1905, p. 390.

SPIRÆAS DISQUALIFIED: *J. E. G.* The specimens sent were all forms of *Spiræa* (or *Astilbe*) *japonica* (not *S. astilboides*). *Spiræa palmata* might be shown in class 37 according to the conditions of the schedule.

Communications Received.—*H. N. R.*—*F. T. B.*—*A. D.*—*P. S. K.*—*W. J. V.*—*C. R. L.*—*M. S. A.*—*Reading.*—*A. A. E.*—*C. F. M.*—*G. G.*—*J. W.*—*C. J. E.*—*I. M. & Co.*—*Mrs. W. E. B.*—*M. L. B.*—*A. P.*—*H. H. R.*—*E. J. H.*—*Rochester.*—*N. Y.*—*A. P.*—*Manchester.*—*R. P. B.*—*W. H. W.*—*J. H.*—*Levinton.*—*A. H. R.*—*G. D. Y.*—*A. B.*—*Bedford.*—*H. W.*—*C. R.*—*Ireland.*—*A. & B.*—*J. Brothers.*—*W. H.*—*E. M.*—*W. K.*—*W. T.*—*Bath.*—*J. S.*—*W. C. L.*—*M. E. T.*—*S. A.*—*H. R.*—*Uitenhage.*—*F. W. J.*—*S. C.*—*W. P. R.*—*D. R. W.*—*W. E. B.*—*R. S. L.*—*W. L.*—*A. D. W.*—*W. A. C.*



THE

Gardeners' Chronicle

No. 1,272.—SATURDAY, May 13, 1911.

CONTENTS.

Academy, pictures at the	289	Orchid notes and glean-	
Barnard, Mr. H. A. ...	298	ings—	
Birds and fruit buds ...	304	Bulbophyllum tremu-	291
Birmingham, flower		lum	
shows in	298	Catasetum Rodiga-	
Books, notices of—		sianum	291
Profitable Beekeep-		Dia-Cattleya Sanderæ	290
ing	293	Epidendrum Stam-	
The Open Book of		fordianum Wallacei	290
Nature	202	Plants, new or note-	
Boston, U.S.A., flower		worthy—	
show	297	Mexican Pinguiculas	292
Carrot fly, the	304	Queen Mary's corona-	
Daffodils at the shows		tion bouquet	298
Gardeners', Worshipful		Rhododendron sinense	304
Company of: visit to		Rosary, the—	
Holland	298	A serious Rose disease	293
"Geo. Monro" concert		Scotland, notes from ...	293
Gooseberry-mildew,		Societies—	
American	298	Royal Gardeners'	
International Horticul-		Orphan Fund	301
tural Exhibition, 1912:		Royal Horticultural	299
Meeting at the Man-		Royal Meteorological	298
sion House	296, 303	United Hort. Benefit	
Leaves, propagation by		and Provident	301
Lilac, treatment of,		Trees, coronation	298
after forcing	304	Vine mystery, a	298
Lithospermum and		Week's work, the—	
lime	298	Flower garden, the ...	294
Market fruit garden,		French garden, the ...	295
the—		Fruits under glass ...	295
The May outlook	291	Hardy fruit garden ...	294
Obituary—		Kitchen garden, the ...	295
Collins, C. R.	304	Orchid houses, the ...	294
Lock, George	304	Plants under glass ...	294
Macmillan, Hector ...	304	Wires, the attaching of,	
Service, Robert	304	to trees	292

ILLUSTRATIONS.

Barnard, Mr. H. A., portrait of	298
Bulbophyllum tremulum	291
Dia-Cattleya Sanderæ	290
Dutch garden exhibited at the Boston (U.S.A.) flower show	297
Rose canker	293
Sherwood, Mr. N. N., portrait of	302
Wires to trees, method of attaching	292

THE ROYAL ACADEMY.

LANDSCAPES AND FLOWERS.

THIS year's Academy will probably be remembered as a Landscape Year, the number of important figure-subjects in the higher branches of Art being but few.

In any critical consideration of the annual exhibition of the Royal Academy it has to be kept in mind that in these days, whatever it might have been in the past, the Burlington House exhibitions cannot be taken as representative of the yearly output of British Art: for 1,975 works, including miniatures, cannot adequately represent some 20,000 artists.

The following survey of this year's exhibition confines itself mainly to works depicting Garden-subjects and landscapes; and it may be remarked at once that Flower-pieces and Orchard-pictures are by no means numerous.

Now, in neglecting the flower-piece pro-

per, the hangers of any wall—be it of public exhibition or the home—make a great mistake. Apart from its special interest to the lover of flowers, the flower-picture, with its mass of pure colour, as any hanger should know, comes in most usefully in arranging balance of effect on a wall. In imparting an atmosphere of peace or gaiety, of cheerfulness or sobriety, colour tells for much, and in no way can pure colour be obtained so well as in flowers, real or pictorial.

In Gallery No. I., the Diploma Picture, deposited on his recent election by Arthur Hacker, R.A., "A Wet Night, Piccadilly Circus," represents London very truly in its 20th century night-aspect—an aspect which has been little commented on, either by pen or pencil. The metropolis has taken on so much varied colour in its artificial light that it is almost gayer by night than day. Mr. Hacker has seized this impression and produced a brilliant work. Not far away is a distant scene depicted by Albert Goodwin, in the charm and glamour of his delicate style. It is the celebrated "Taj Mahal of Agra," one of the wonders of the world—a tomb erected to the memory of a beloved wife by an Indian Rajah. It stands out like a fairy palace, with its domes and spires, against the evening sky. "Fair Provence," on the line, by Mrs. Elizabeth Forbes, next claims attention. Near by hangs a cleverly-drawn study of "Pæonies," by A. F. Hayward. In the same room is "A Cottage Border," by Henry S. Kortwright—Sweet Williams, Pansies and other humble and familiar friends set off by a quiet background of trees, emphasize a contrast to the attractions of Continental landscape, and the familiar appeal carries weight. Passing to Gallery II., "Runner Ducks," sheltering in a corner on the line, is one of the most excellent pieces of work here. The form of the birds is well studied; the tone and colour admirable. "Springtime in Provence," by Sir E. Waterlow, misses the charm of E. Armstrong's rendering of the same local colour and atmosphere. "An Italian Garden," by H. La Thangue, one of our most distinguished painters, might be anything in English eyes but a garden, nevertheless, it is an excellent piece of colour and an original composition. It represents a child in red on a stone step, above a tank of water filled with small goldfish, which strike red-gold in colour as they disperse in every direction; another touch of subtle red in a jar of Cacti on the step completes a remarkable colour scheme.

The Long Gallery No. III. is regarded as the chamber of honour, in which the larger works and many portraits are hung. In this gallery are also the most important garden-, or, rather, orchard-picture of this year's Academy, and the most brilliant flower-pieces. The orchard-picture has received the unpretentious title of "A Cottage Garden"; and the artist, Arthur Meade is to be congratulated on an admirable work. It has none of the petty

prettiness which characterises so many second-rate garden-pieces, but is a conscientious and serious study of nature. The time is toward evening, the sun declining, leaves the full-blossoming fruit trees of the middle distance in transparent opal shadow, but glances brightly here and there on the stems of darker trees behind. The skill with which the masses of tender bloom in the half-light are rendered is admirable. The lines of low espaliered fruit trees along the border of the long rows of young vegetables, all converging in perspective, leading the eye toward the central interest—that last golden kiss of the setting sun on the red stems of the Fir trees. Beyond, in the shadow, is the soft grey of the thatched roof of a little homestead.

The flower-pieces are by Sir Lawrence Alma-Tadema: "A Summer Offering" and "When Flowers Return"; the faces of the girls who carry the flowers are fair and charming, but the flowers are the pictures, and it would take long to find purer quality of colour in flower rendering. The pink Roses in the former and the Daffodils in the latter picture are magical in their beauty. As examples of pictorial art these works cannot be judged, for they fail in synthetic pictorial quality and imaginative proportion, but as pieces of pure realism they are perfect.

In the same room are two examples of the most synthetic and imaginative painter of the day, Charles Sims. His "Legend" is one of the most wonderful dreams of fantastic colour and form ever projected on canvas. It may be claimed that this work alone might give distinction to English art of the 20th century.

In Gallery IV. is a flower-piece of considerable size and importance, "Ariel—," who is a foreshortened detail, semi-nude, disporting among masses of mauve and pink Rhododendrons, which bloom up against the sky in their native luxuriance. A piece of intense blue drapery gives value to the colour of the flowers.

"Wild Flower-growth on a River's Bank," by M. Lindsey Williams, is a piece of conscientious work, a little dull in colour, but full of promise for the future. Near by is a remarkable work by Frank Craig, one of the most promising of our younger painters. It is a representation of Christina Rossetti's poem, "Goblin Market." The fruit and flowers in the hands of the weird creatures afford fine scope for a rich subdued tone of colour. Julius Olsson's "Moonlit Shore" should not be overlooked, for it has received the honour of being selected by the Chantry Committee. There are several fine landscapes in this gallery, notably, "The Chalk Pit," by A. Talmage, and "Malham Cove," by Arthur Streeton.

But we must pass on to Gallery VIII., where the "Boyhood of Hamlet," by Andrew Turnbull, claims attention in its illustration of the lines, "He hath borne me

on his back a thousand times." In a garden where Loosestrife, Poppies, and other flowers mentioned by Shakespeare are seen in profusion, Yorick carries the merry boy. There is admirable pre-Raphaelite work in the details of the trees in this picture. Mr. John Collier's "Eye" is decidedly the more convincing of the two Eyes present in their respective Edens; though no artist ever succeeds in realising a true ideal of our universal mother. The face here is decidedly too modern, the figure not grand enough, yet there is beauty in the shrinking, graceful form upon which the first shadows are seen falling from the rich green foliage of a perennial summer which as yet has seen no autumn. But fear fills her eyes as, looking back, she sees the fresh green leaves curling up, drooping—touched with the first blight. No serpent

ton depicts a convent garden, backed by a grey stone building. A sweet young nun in white cap and wimple walks towards you, a basket on her arm, her face and hand outstretched to one of the flowers on a great blooming bush of Gloire de Dijon, which she regards wistfully. As the title implies—the Rose has its day—but not the maiden. But, of all the pictures in the Gem Room for simple beauty and exquisite skill in workmanship, "Ragwort," by Grace Sainsbury, is to be recommended. Thence to a study of Red Azalea "From the Greenhouse," by Jessica Hayllen, and "Niphetos Roses," by Jessie Algie—an accomplished Scottish flower painter.

This notice must not conclude without brief allusion to the water-colours which, as a whole, are not distinguished this year. The flower gar-

ORCHID NOTES AND GLEANINGS.

DIA-CATTELEYA SANDERÆ.

DIACRIUM BICORNUTUM, with its hollow pseudo-bulbs, was always considered a difficult plant to cultivate, and the probability of using it for bigeneric crosses was considered to be unlikely. Nevertheless, the species has been successfully crossed with *Epidendrum*, *Laelia*, and *Cattleya*. *Dia-Cattleya Sanderæ* (see fig. 131), for which Messrs. Sander & Sons received an Award of Merit on April 25 last, is from a cross between *Diacrium bicornutum* and *Cattleya Mendelii*: it has clear-white flowers, with some small rose-coloured markings on the lip, which has a pale-yellow disc. The pseudo-bulbs are slightly compressed, and they do not appear to be hollow, as in *D. bicornutum*.



FIG. 131.—DIA-CATTELEYA SANDERÆ: FLOWERS WHITE, WITH ROSE MARKINGS ON THE LIP.

is visible, but the mottled tendrils of some large-leaved plants suggest the rattlesnake beneath.

Gallery IX. is known as "The Gem Room," for it is always hung with small pictures, many highly worked and of a purchasable size. It contains many desirable canvases notably "Zinnias" and "Carnations," both by H. D. Hart. "Michaelmas Daisies," by Alfred Sutton—a charming little cottage garden, broadly treated, and "The Garden That He Loves," by Andrew Gow. The latter being a pensive Cavalier, who caresses his Standard Roses "all of a row" on a green glass plot; but were Standard Roses a reality in Charles II's day? Is not this an anachronism, if not in costume of the man, in the variety of the Rose?

Again, "The Rose's Day," by E. Blair Leigh-

den par excellence is Alfred Parson's drawing of "Japanese Peonies," in their fresh crisp reds and pinks. It is a contrast in treatment with the more "worried" examples surrounding it. A "Spider's Web," by F. Baragwanath, which hangs pendant to a Blackberry bush, is a very careful and altogether delightful little study. "Muriel," a miniature, by M. Edward, in which lilies are introduced in a violet colour scheme, is distinguished in style among the many surrounding it.

As, in leaving the gallery, one looks back at that excellent study of "White Hawthorn," by Anne Behen, in its brown jug—it seems simply to breathe fragrance around! And what more could be wished in a flower-piece? *Mary L. Breakell.*

EPIDENDRUM STAMFORDIANUM WALLACEI.

The species is widely distributed, having been imported from Mexico, Costa Rica, Panama, New Grenada, Santa Martha, and other localities. The plants vary considerably in stature, probably according to the elevation at which they were collected. The tall growing type was discovered by Mr. G. Fre Skinner in Guatemala in 1837, and years ago it used to form an effective plant in collections of exhibition Orchids. The variety Wallacei, described by the late Professor Reich-bach in the *Gardeners' Chronicle*, April 25, 1867, p. 543, was sent home by Mr. Wallace from the mountains south of Bogota. It is smaller in growth than most other forms, and has flowers with slight structural peculiarities,

varying much in tint, but always compact and floriferous. The sepals and petals are pale yellow spotted or striped with purple; the lip cream-white changing to yellow after maturity. Several distinct forms have been named, Mr. Lee's variety having buff-yellow flowers with purple markings, and a light rose-coloured lip. Sir Trevor Lawrence's has the sepals and petals vinous red bordered with yellow, and with a light-yellow lip spotted with rose. The variety Wallacei in its various forms has again appeared in the collections of Messrs Hassall & Co., Southgate, and Messrs. Stuart Low & Co., Bush Hill Park.

BULBOPHYLLUM TREMULUM.

THE feather-lipped section of *Bulbophyllum* gives an interesting instance of a remarkable character in a genus of Orchids being found in various species widely separated geographically, and in districts where the general characters of the floras in other respects are very dissimilar from one another. *Bulbophyllum tremulum* (fig. 132), which is found in the highlands of the Mysore Hills, India, with its nearly black, motile lip, has flowers which in their general structure resemble those of the curious West African *B. barbigerum*, which, with its feathery lip rising and falling in the currents of air around it, has attracted more attention than many much more handsome flowers. In the peculiarity of the labellum, too, *B. saltatorum* and *B. calamarium* and other tropical African species are of the same class, which is also represented in Burma by *B. penicillium*, in New Guinea by several interesting species, and in Brazil by *B. Sanderianum* and *B. exaltatum*. *B. tremulum* has flowered at the Royal Botanic Gardens, Glasnevin, Dublin, with Sir Trevor Lawrence, Bart., K.C.V.O., and with Sir Jeremiah Colman, Bart., to whom we are indebted for the specimen illustrated in fig. 132.

CATASETUM RODIGASIANUM.

THIS rare and handsome species is flowering in the Orchid houses of W. E. Balston, Esq., Barvin, Potter's Bar. The plant bears a fine spike of 23 flowers, and each flower is about 3 inches in diameter. The sepals and petals are nearly equal; they are pale green spotted with chocolate-brown, the sepals being the darker. The rounded lip is concave, and tridentate, the middle tooth being raised and thickened; in colour the lip is yellow spotted with reddish-purple. The variety now in flower is near to *C. Rodigasianum tenebrosum*, flowered by Sir Trevor Lawrence, Bart., K.C.V.O., in 1894. It was imported originally from Santa Catharina, Brazil, and was figured in *Lindenia* VI. t. 259. *C. Rodigasianum* has always been a rare species, and it is one of the finest of the section.

THE MARKET FRUIT GARDEN.

THE MAY OUTLOOK.

FRUIT growers had a bad scare on April 5 and 6, when a veritable blizzard visited this country. An exposed thermometer registered 4° of frost at midday on the 5th, and 6° at night, while 8° were returned from some districts. A little Plum blossom was open at the time in a few parts of the country, and the vitality of it was destroyed. Elsewhere generally there was no blossom open, and, although some apprehension was expressed as to possible injury to buds not expanded, this fear appears to have been groundless, as the blossom, when it did come out, was as perfect in appearance as it was profuse in quantity. A more magnificent show than that of great branching trees of Early Prolific I have never seen, and Czar and Victoria were almost as splendid in their turn. Indeed, all the ordinary market varieties were full of blossom, Monarch being the least so. Even such choice Plums as the Old Greengage, Coe's Golden Drop, and Deniston's Superb Gage made a good show, while some large trees of Black Diamond were covered

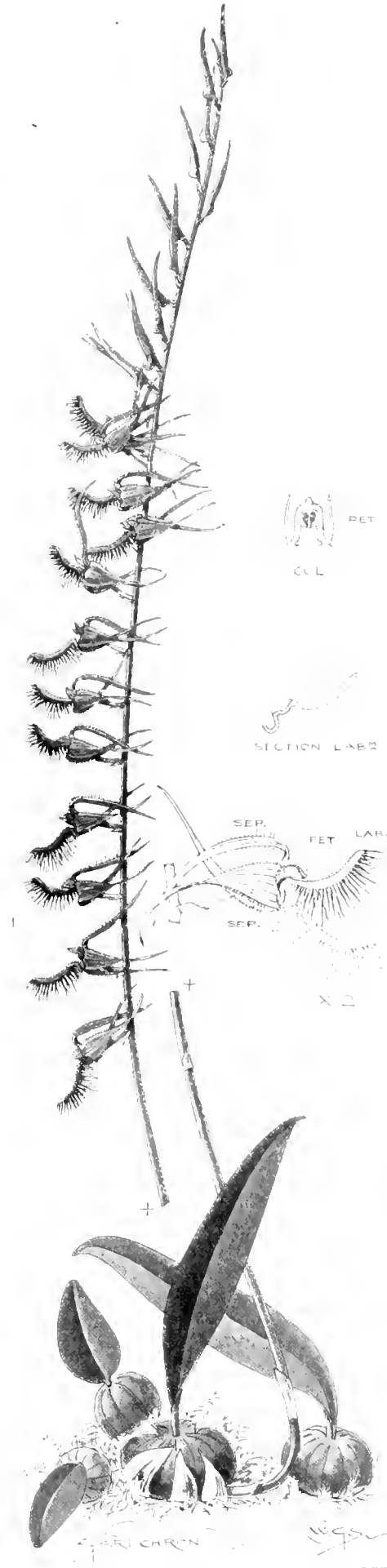


FIG. 132.—BULBOPHYLLUM TREMULUM.

with bloom for the first time. Pear blossom is reported to have been injured in some places, but here it was not nearly open, and no harm appears to have been done to it. Cherries also were in a safe stage of development, and have made a splendid show somewhat later than usual. My chief fear was for Red Currants and Gooseberries. A few blossoms of the former were open, and these were spoilt in places exposed to the wind, while many of the rest presented a shrivelled appearance; but there is a promise of an exceptionally abundant crop, nevertheless. Gooseberry-leaf was cut badly where the bushes were fully exposed to the freezing blast, and there was some reason to fear that the blossom-buds, although not open, would prove to have been injured to some extent. This fear has been realised in exposed situations at least. Pears were unequal in shows of blossom, some varieties which blossomed profusely, but without result, last season, having had very little, while others were covered. Apples and Black Currants were not in a sufficiently advanced stage to be in any danger, although the foliage of the latter was cut by frost in exposed situations. The tips of the leaves around the clusters of Apple blossom-buds were also blackened, but there will be a good display of flowers on nearly all varieties.

PROMISE AND PERFORMANCE.

It is much too early in the season to count upon good fruit crops. We are not yet beyond the danger of damage by frost, and it remains to be seen how fruit will set. Plums, it is hardly necessary to say, are always uncertain until they have passed through the stoning period, while the numerous pests of Apples have to be reckoned with. The remembrance of the wholesale dropping of embryo Plums and Apples which took place last season is a check to over-sanguine expectations.

SOME DATES OF BLOSSOMING.

In consequence of the checking effect of the cold weather of the first half of April, the earliest blossoming Plums were somewhat backward in making a display, and when the weather turned mild and sunny there was a general development among all varieties which rendered flowering more nearly simultaneous than it is usually. Monarch and Black Diamond were in full blossom on April 24, a few days later than in 1910, and Early Prolific followed on the 25th. Victoria on the 27th, Czar and Coe's Golden Drop on the 28th, and Old Greengage on the 30th. Czar is usually ahead of Victoria, but the latter has the habit of coming out suddenly, and this season it was one day before Czar. Pond's Seedling, usually much behind those named above, was nearly in full blossom on the 30th. Early Pears were in full beauty on April 28, six days later than in 1910, and early Cherries on the same date, three or four days later than usual. Gooseberries were somewhat later, not being in full blossom before April 25, as compared with April 15 in last season; while Red Currants were abreast of Gooseberries, instead of being, as usual, a few days behind them.

A SACRIFICING ORDINANCE.

In pruning some vigorous and well-furnished young trees of Irish Peach recently, a great deal of hardihood was required for the carrying out of a predetermined policy, namely, that of keeping them short-jointed, in order to increase the number of the terminals upon which the fruit of this variety is mainly produced, and to check pendulous growth. The trees had been planted five years, and nearly every one of the long shoots made last season had a fruit-bud on its end. In cutting these shoots back, three-fourths of the promised crop of Apples were thrown away; but the sacrifice had to be made for the future well-being of the trees. For comparison, however, some trees well furnished with sturdy new shoots, not too long, were left uncut. A Southern Grower

NEW OR NOTEWORTHY PLANTS.

MEXICAN PINGUICULAS.

MR. WATSON'S description and figure of *Pinguicula Rosei* (see p. 62, Feb. 11) open up an interesting question, as it reminds me very much of a plant which I found when, in company with Mr. F. D. Godman, I ascended the volcano of Popocatepetl, in Mexico, in April, 1888. This was a *Pinguicula* growing at about 8,000 feet in dry volcanic sand on sunny banks outside the forest.

Its leaves formed a small, close rosette, which was dried up into an ovoid mass as big as a small Cherry, and considerable numbers of the plants were sent home by post, wrapped separately in paper and packed in a small tin box.

Mr. Godman flowered the *Pinguicula* in a greenhouse for several years in succession. The flowers were much smaller, but otherwise precisely similar to the larger ones which Mr. Godman found in the hot, wet forest of Misantla, at about 4,000 feet, which latter are of the form commonly cultivated as *P. caudata*. In my own case, however, I attempted to imitate the conditions under which I found it and the plant soon died, whereas I have had no difficulty in keeping *P. caudata* growing in Sphagnum in a cool Orchid house, where I have even raised seedlings from it.

In Hooker's description of *P. caudata*, in which *P. Bakeriana* is treated by him as a synonym, it states that there were dried specimens at Kew from damp, shady woods in Mexico, c.f. *Botanical Magazine*, 6664. Another species, also from Mexico, *P. orchidioides*, D.C., *Botanical Magazine*, 4231, flowered at Kew in 1845-46, having been sent from Real del Monte (Hidalgo) by Mr. Repper, and this, except for its colour, a deep violet-purple, which seems to agree with that of *P. Rosei*, might also very well be a form of *P. caudata*. Having regard to the great difference between the leaves of these plants when in a resting state, as I saw them in Mexico, and when fully developed, which is remarked on in Hooker's account of *P. caudata*, I think it is quite possible that the three plants are all forms of one species modified by great differences in the conditions under which they grow.

I have referred these notes to Dr. Stapf, of Kew, who is good enough to reply as follows:—"I have looked up the *Pinguiculas* you mention in your note. I think you are right in considering *P. orchidioides* D.C. and *P. caudata* as identical. Benjamin, in his revision of the Lentibulariaceae, has come to the same conclusion; but the *P. orchidioides* of *Botanical Magazine*, tab. 4231, is certainly not the true *P. orchidioides* as described by De Candolle, as the latter has a deeply two-lobed upper corolla lip. We have type specimens of both *P. orchidioides* and *P. caudata*, and they appear to me, at least in the dry state, identical. They represent a state with somewhat smaller flowers and narrower corolla lobes than those of the usually cultivated form, and it was very likely this form which you saw on Popocatepetl. Our specimens of *P. caudata* (= or hybrid's D.C.) range from Jalisco and Potosi to Guatemala, and from over 9,000 feet on Pic Orizaba to below 4,000 feet (C) at Mirador (Vera Cruz). We have the commonly-cultivated state with large flowers and broad corolla lobes from various places within the area indicated, but there is nothing in the collector's notes to show whether these specimens were found in more favourable situations. Still, I think that the differences between the robust and the more fragile forms are probably due to conditions of nutrition. Watson's *P. Rosei* is clearly distinct from *P. caudata*, as you will see if you compare the corollas of his and of the *Botanical Magazine* (tab. 6624) plant. *P. Bakeriana* is, of course, also a *P. caudata*. *P. Rosei* comes probably near to the *P. orchidioides* of the *Botanical Magazine* (tab. 4231) but it differs in the broadly emarginate (not subquadrate) upper lip and

generally broader, truncate and crenulate lobes. "There is a little known *P. moranensis*, Kunth, named after Moran, the locality where it was found, close to Real del Monte. It may be the *P. orchidioides* of B.M., not of D.C., but we have no specimen of it." *H. J. Elwes, Coltsbourne.*

ATTACHING WIRES TO TREES.

CONSIDERABLE injury is often caused to trees by the careless manner in which wires, chains, or bands are attached to them. Trees are not usually employed in this country to support electric wires, but wires are often attached to them for other purposes, and unless care is taken there is a risk of girdling the tree, especially if there is a great strain on the wire. Where a strained wire is to be attached to a limb or trunk that is increasing annually in size the arrangement shown in A, fig. 133, will be found effective. The

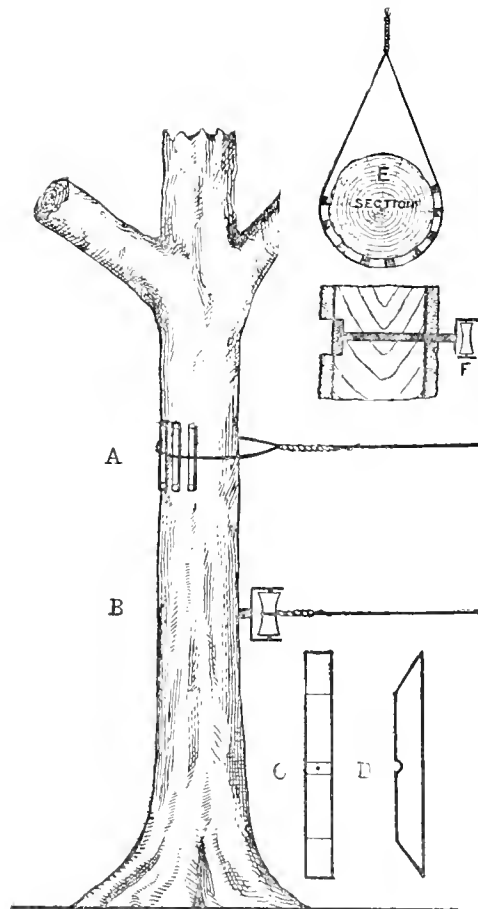


FIG. 133.—ATTACHING WIRES TO TREES.

A, an ordinary wire; B, electric wire; C and D, slips of wood inserted under wire at A; E, sectional plan of A; F, attachment with insulator.

slips of wood prevent the wire from cutting into the tree, which has room to expand, and they are kept in position by the groove in which the wire runs. The method of attaching electric wires to trees is shown at B. A hole is drilled through the tree, a bolt is passed through, and secured by a nut. When the bolt is fixed in position the hole made in the tree is filled with tin composition as far as the cambium layer. The bolt is soon covered over by a callus formed by the tree. An insulator, after the style of those commonly used, is attached to carry the wires. But there is always a danger in this method of attachment, and it is the duty of the town forester to oppose its adoption; for, no matter how good the insulator may be, it is usually more or less faulty in damp weather. Where wires are attached, as at A, to any electric wires, care should be taken to see that an efficient insulator is put in between the tree and the live wires. *Pem.*

NOTICES OF BOOKS.

THE OPEN BOOK OF NATURE.*

THE author of *The Open Book of Nature*, the Rev. Charles Hall, is an ardent advocate of the study of nature, and succeeds in expressing in the pages of this excellently got-up book some of the enthusiasm which he feels.

As is inevitable in books of this kind, the text is somewhat discursive, and deals, like the poem of Lewis Carroll, with "many things"—fruits, birds, flowers, insects, rocks, and snakes. We are not sure, however, that this is altogether a defect in a book for young people, who themselves are apt to be discursive, and in their earliest days are best nourished on a varied diet. At the same time, however, the author is at pains to maintain that he stands for thoroughness, an assertion amply justified by the account of a May walk to which we refer subsequently, and the "references to literature" which he gives at the ends of the chapters. If the youthful naturalist, however, fired with enthusiasm, determines to be both encyclopedic and thorough, we are afraid, though he win Mr. Hall's approbation, he may get into trouble with some of his other teachers.

The book is pleasantly written; but, like most enthusiasts, the author is somewhat inclined to be didactic and to point the morals which adorn his tales. Few nature study teachers can resist the temptation to do this. They show you the effects of running water on the roadside, and then read you a homily on coast-erosion. The danger appears to be inherent in the method, but after all if Mr. Hall succeeds in fixing the attention of his readers on natural objects, he achieves so useful a purpose that an occasional outbreak in prose or poetry may be allowed him.

The illustrations, both black and white and coloured, are excellent, though why they appear generally away from the text which they illustrate it is difficult to understand. Thus the blackbird occurs among the carboniferous rocks, and the hedge accentor among the volcanic, the scentless May-weed finds its place in the Palaeozoic era, and the broad-leaved Garlic lies cheek by jowl with corals. Despite these minor blemishes, Mr. Hall has produced an excellent specimen of the nature study species of book. The admirable chapter entitled "A Ramble in May," will serve to illustrate both the excellence and thoroughness of Mr. Hall's teaching and the defects to which we have referred already. The ramble and its consequences last for 65 pages. In it we obtain, among other things, a knowledge of the eggs and nest of the hedge sparrow, of the flowers of White Dead Nettles, a digression on other Nettles, and the characters of the Labiates and Urticaceae. We learn to identify brimstone, small white and other butterflies. We find tadpoles and Duckweed, a moorhen and Water Crowfoot, Marsh Marigolds and Cuckoo-flowers, Thrushes and lesser Celandine, and meet once more Wordsworth's inevitable line: "There's a flower which shall be mine. 'Tis the little Celandine." Later in the day more flowers are found, and butterflies and rabbits and a quarry. The happy party of tutor and Victor and Howard must have started early, Victor with the big vasculum, Howard with the haversack, and the tutor with the pill-boxes in his breast-pocket and the geological hammer "of fair weight" ingeniously slung in a loop on the back of his waistcoat.

Boys have evidently changed very much for the better since our time, for otherwise there would have been no sandwiches left to divide at the frugal noontide meal. Perhaps, however, the tutor carried them! In any case, Victor and Howard were not destined to lunch in peace, though they had one piece of luck, namely,

* *The Open Book of Nature*: an introduction to Nature Study, by the Rev. Charles A. Hall. (London: A. & C. Black) 1911. 3s. 6d. net.

the discovery of *Nasturtium officinale*, which made "a lovely and a healthy salad." Later in the meal came skylarks (*Alauda arvensis*), quotations from Shelley's famous ode, remarks on snakes and adders, and so the lunch party broke up with the tutorial remark: "We have had a long rest and a long talk; now we will have a rinse in the brook and a long walk." What they saw later in the day we will leave the curious to discover. By the time the party reached home, even the tutor confessed to being tired. What must have been the state of Howard and Victor? Nevertheless, the "Ramble in May" is not yet finished. After dinner they all settle down to a little "pleasant work and conversation," in short, to some 34 pages, before bedtime brings release. The author, who writes from Meiklerigg, Paisley, must have designed his work for Scotsmen, who, as he says of the men of the Highlands, are a hardy and determined folk. They can evidently stand nature study in such large doses as would overpower the folk of the "Sunny South." Verily, the mother of southern Howards and Victors would have bundled them off to bed when they returned home toiling under the big vasculum filled with plants and the haversack full—as we are sure it was—with chunks of rock. We write feelingly, for we also have been Howards and Victors in the time long ago. We have carried that vasculum and groined beneath that rock-filled haversack; but then we had no such charming and high-spirited tutor to make the May day fly or to make the road homeward easy to our weary feet.

PROFITABLE BEEKEEPING*.

ALTHOUGH numerous books have been issued on beekeeping during recent years, few of them are of such assistance to the beginner as *Profitable Beekeeping*. Short of seeing the operations carried out by an expert, this book supplies the next best information, for the practical hints it affords are most valuable. The beginner is carefully advised how to commence bee-keeping, what to purchase, and how he himself may construct hives and other requisites. This last is an important item, because lack of surplus funds deters many from keeping bees. As the small holder is likely to be also a fruit grower, it is a pity that room has not been found for a chapter on the part played by the honey bee in the pollination of fruit blossom. The work includes a series of illustrations which will enable the amateur to learn how to manipulate his stocks in a thoroughly practical and up-to-date manner. Unfortunately, this interesting little book has made its appearance at a period when bees are suffering badly from disease, and the losses have been so numerous and general as to damp the ardour of the most enthusiastic beekeepers.

THE ROSARY.

A SERIOUS ROSE DISEASE.

ARE our modern garden Roses becoming more subject to disease? or is it that the conditions under which we grow them afford some fungous pests, formerly unadapted for development in the Rose, means of gaining access to the plant? Whatever be the reason, it seems that in the closing years of the last century at least three different kinds of fungous pests found entrance to our gardens and attacked our Roses. Of these, one of the most serious is the subject of this note, and is called in this country the Parasitic Rose Canker, or *Coniothyrium Fuckelii* disease. The disease is quite distinct from the canker which has been long known on *Marechal Niel* and a few other Roses when budded on certain stocks, and which is confined to budded or grafted Roses.

The name canker, doubtless, was applied to the new disease on account of the swelling pro-

duced by its attack, but is a little unfortunate, as the new disease is of an infectious character.

The name *Coniothyrium* is taken from two Greek words, signifying respectively "dust" and "a little beast." I suppose this must be the exclamation of disgust uttered by the rosarian who finds his plants attacked, for there is nothing of an animal nature about it, the disease being fungous, pure and simple.

So far as can be ascertained, the disease was first noticed in Germany, about 1890, but it was not till some 14 years later that its nature was discovered.

I first observed it in my own garden after the late snow and frost which came in the Easter week of 1908, though I did not then know the cause of the trouble, and put it down to the effect of the severe weather coming so late in the year.

The disease is usually first noticed at pruning time, stems of the affected plants being found swollen and cankered, usually, but not always,



FIG. 134.—ROSE CANKER CAUSED BY *CONIOTHYRIUM FUCKELII*.

near the ground or near the base of the shoot, if a side-shoot, and at times the bark is split and even detached from the stem. When this occurs the branch above usually dies, and there is nothing to be gained by leaving it on the plant. The diseased part should be cut right away and burnt. *Coniothyrium Fuckelii* is a minute fungus producing yellowish-brown spore-cases, from which are scattered the spores, which then find entrance to other Roses, and infect them with the disease. The fungus first appears on the plants in the form of small streaks or patches, generally running up the stem, to a greater or less distance, on one-year-old wood. Mr. Massee describes it as being "in the form of more or less elongated patches, scattered over the green bark." I have not myself yet observed it of this colour, and think perhaps that Mr. Massee may have noticed it when carrying the spore cases I have referred to. However this may be, the fungus alone does not seem to do any very

serious harm, though, no doubt, it weakens the shoot, for a badly-infected shoot does not seem to produce strong growth, but when the winter frosts supervene, especially where they are preceded by damp, or accompanied by snow, the affected parts of the stems become cracked, and the cankerous appearance is then produced by the callus formed by the plant in the attempt to heal the cracks. The disease is a serious one, and often destroys plants in this country, but from Dr. Laubert's account of the disease it seems to have been even more fatal in Germany, for he mentions cases where 20 and even 50 per cent. of the plants in different collections have been destroyed.

The disease seems to affect almost all varieties of garden Roses. I have noticed it chiefly on Teas, H.T.s, and Ramblers, but Dr. Laubert says it also attacks H.P.s.

From the fact that I have observed the presence of the fungus principally, if not entirely, near to pruning cuts, or where old stumps of shoots have been left, I assume that the fungus finds entrance where the bark has been in some way injured or lacerated accidentally. It would, therefore, seem good practice where the disease is found, to paint over the cut surface with paint or painter's notting, to prevent the spores from gaining access to the plant. This mode of infection seems not improbable from the fact that the fungus belongs to a class, many members of which are saprophytic, i.e., living on dead or decaying matter.

In order to combat the disease all affected parts of the plants should be cut away at pruning time and destroyed, and later on in the year, whenever the fungus patches are observed, the cut surfaces should be painted with some material to prevent the spread of the spores. Mr. Massee advises the use of creosoted Stockholm tar for the purpose, but perhaps if cyllin were used with the tar, or a cyllin paint of some kind employed, it would be more effectual and less harmful to the plant. *White Rose*.

SCOTLAND.

COST OF THE EDINBURGH PUBLIC PARKS.

At a recent meeting of the Municipal Parks Committee of Edinburgh, the provisional estimates for the year ending May 15, 1912, were considered. The estimated revenue is £3,075, compared with an estimated revenue for the current year of £2,615, and an actual revenue in 1909-10 of £2,585. The estimated expenditure for the year is £15,780, compared with an expenditure for 1910-11 of £14,305. The actual expenditure for the year ending May 15, 1910, amounted to £14,355. As the water for the Ross Fountain in Princes Street Gardens would in future be charged for by the company, it was decided to recommend the Council to discontinue the service.

THE FINLAYSTONE YEW.

THE estate of Finlaystone, Langbank, Glasgow, which is about to be sold, includes the famous Finlaystone Yew. It is stated that John Knox dispensed the Communion Sacrament in the open air at Finlaystone under the old Yew tree, which is still in a wonderful state of preservation.

PROPOSED SWEET PEA EXHIBITION IN ABERDEEN.

ARRANGEMENTS are being made for a Sweet Pea exhibition to be held in Aberdeen early in August. It will in all probability be held in the Music Hall Buildings.

BAND CONTEST IN GLASGOW PARKS.

THE first of a series of band contests took place recently in Bellahouston Park, Glasgow, when the 1st prize offered for military bands, with not fewer than 30 or more than 32 performers was won by the 5th Highland Light Infantry. The prizes offered were £15, £12, £9 and £6. Nine bands competed. J. I.

* *The Small Holder Library*, No. 1 "Profitable Beekeeping," by H. Geary, F.E.S., published by C. Arthur Pearson, Ltd. Price 1s.



The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

CARNATIONS.—Carnation plants are showing their flower-stems, and it will be advisable to provide supports at an early opportunity. If stakes are employed they should be of a sufficient length to serve later as a protection to the growing stalks, which may otherwise be broken by Tomtits. Our plants are extra strong this year, and although they have already received manurial stimulants more help of this nature may be useful. Soot provides an excellent manure for Carnations; not only does it stimulate the plants, but it also deters Bullfinches from eating the leaves. This dressing of soot may be repeated several times during the summer months, sowing it broadcast over the soil. If dry weather continues the plants will need watering, and it is a good plan to place about one ounce of superphosphate in each three gallons of water. Carnations, when well established, are much benefited by stimulants.

PRIMROSES.—The best time to divide Primroses is directly the flowers are over. In certain soils it is essential, in order to obtain the best results, to divide and replant Primroses at brief intervals, and generally the replanting should be practised in alternate years. In addition to *Primula vulgaris* and its varieties, other early-flowering species, such as *P. rosea* and *P. viscosa*, may be treated in the same manner. In dividing the plants preserve as many as possible of the healthy roots; this may be rendered easier if the plants, when dug up, are immersed in water, and shaken till none of the soil remains on the roots. In planting, set the divided portions rather deeper than were the old plants, as Primroses have a tendency to lift themselves out of the ground as they grow. The plants will soon establish themselves, and all the attention they require consists in waterings in dry weather. The Auricula and those of its class should have the dead portions of the root stock removed. Some of the yellow forms of garden Auriculas are highly decorative and are very free bloomers. Surplus plants of *Primula kewensis* and *P. obconica* that are not required in the greenhouses may be planted in the mixed border or elsewhere, provided the situation is moist, whilst if a lightly shaded one it will be all the better.

STAKING HERBACEOUS PLANTS.—Large plants of Peony will require staking, five stout bamboo rods being placed to each specimen. The stakes should not be less than 5 feet, and should be inserted obliquely, so that their tops spread out several inches from the vertical. When the stakes are in position, one or two strands of stout string twisted around them, near the top, will keep the shoots in position. A few days after the staking, the string and supports will be hidden by the leafage. It is important to insert the stakes early, for if a plant once assumes a straggling habit, it is a very difficult matter afterwards to get it to grow neatly and in an orderly manner. There has been an abundant rainfall lately, and little fear need be entertained that the flower buds will be "blind," as they often are in poor soils in dry seasons. Single Peonies raised from seed furnish very pretty flowers and need no staking. Where plants of *Eremurus* are growing in exposed positions it will be advisable to insert short sticks to support the flower-spikes, and the stakes should be inserted in a slanting direction so that the roots are not damaged. The flower stems of *E. himalaicus* are rather less rigid than of the other species, and some support is essential in their case. Pyrethrums also will need some support; a heap of wire supported on two sticks inserted in the ground will serve to hold the growths in position. Plants with hard, rigid stems, such as Phloxes, may be kept in bounds by a piece of stout string encircling the shoots. Where Phloxes are grown in large groups it will only be necessary to place supports to the outside plants.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

STEPHANOTIS FLORIBUNDA.—Pot plants of *Stephanotis floribunda* may easily be controlled in the matter of flowering. If the plant is required to be in flower at the end of July, it should be pruned now, thus allowing 12 weeks between the pruning and blossoming. Before cutting the shoots see that the plant is dry at the roots in order to avoid "bleeding."

TREATMENT OF PLANTS AFTER FORCING.—Plants that are used for forcing may, provided they receive proper attention, be made to do service for several years. *Rhododendron indicum*, or, as the plant is more generally known in gardens, *Azalea indica*, should have the old seed-pods removed and any shoots that show signs of extra vigour, pinched. If repotting is necessary, let this be done without delay; the small plants that are imported annually from the Continent always need a shift the first spring after they are introduced. Employ pots only one size larger, as this will provide ample space for the plants' needs. The peat used for potting should be of the best quality. It should not be of a soft, spongy texture, but somewhat hard to the touch, yet full of fibre. The only addition to the peat should be sand. Pot firmly and do the work very carefully, afterwards placing the pots in a moist, genial atmosphere. The plants should be syringed freely on all favourable opportunities. Black thrip is the worst enemy of the *Azalea*, and a close watch must be kept for its presence, as the pest increases very rapidly. *Azaleas* of the deciduous section will not need potting again, if this was done when the plants were purchased last autumn, but pruning may be necessary. These plants will flower satisfactorily for several years in pots; in fact, I find that they last longer in flower after they are old-established, and are not so liable to drop their flower-buds when half-expanded. All these plants should be encouraged to break into fresh growth at once. Hardy *Rhododendrons* also may be treated in the way I have advised except that pruning is not necessary.

DEUTZIA GRACILIS.—Plants of *Deutzia gracilis* may be cultivated in pots for almost any number of years, provided that they are properly attended to after flowering. My plan is to thin out the weak growths, remove the old flower sprays, and grow them on in a moist, warm atmosphere, such as is found in ainery where the vines are being forced. The new growths will form after a few weeks of this treatment, and when they are developed fully the plants should be removed into a cooler house, or to a favoured spot out-of-doors. Some cultivators cut the plants down after they have flowered, and this practice is to be recommended if dwarf plants are required. The other species of *Deutzia* should be afforded a similar treatment to that advised for *D. gracilis*.

LILACS.—After the flowering of forced Lilacs is over, the plants should be pruned, planted out, and allowed to remain at least one season before being forced again. This system can easily be adopted by providing an extra batch of plants.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to LL-Col. Sir G. L. HOLLING, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CÆLOGYNE CRISTATA.—Plants of this species and its varieties having commenced to grow, the supply of moisture to the roots should be gradually increased. Ascertain which plants need repotting or require only to be top-dressed and let the work be carried out. When large specimens are desired, the plants may remain for some years without disturbance if the potting is done in a thorough manner when the masses are made up. Plants in need of repotting should have all the old material shaken from their roots, carefully pulling the mass to pieces and cutting away all dead roots and old pseudo-bulbs, leaving three or four bulbs behind each leading growth. Pans of suitable sizes are the best receptacles, and these should be filled with drainage material to about two-thirds of their depth, covering this with a layer of thin turf. In preparing the compost it is well to keep in mind that a moderate depth of compost that will last well is better than a lot of material that will need renewing

next season. The compost may consist of turfy loam two-fifths, fibrous peat two-fifths, and Sphagnum-moss one-fifth, adding a liberal quantity of crushed crocks and silver sand and well mixing the ingredients together for use in a rough state. The specimens should be made up on a raised mound, packing each piece securely with the potting mixture and making use of copper-wire pegs to hold them firmly in the compost. After repotting, place the plants in a shady position, and spray them overhead frequently in fine weather in order to prevent the pseudo-bulbs from shrivelling more than is avoidable. A warm greenhouse or intermediate house is the best place for *C. cristata*, and it does not require much shade when well established. In a summer temperature ranging night and day respectively from 60° to 70° or 80° the plants will grow rapidly, and begin swelling up their bulbs in early autumn, at which period abundance of moisture should be afforded until the pseudo-bulbs have completed their development.

CÆLOGYNE PANDURATA.—The present is the usual flowering season for this fine species, the blossoms of which are distinct from those of any other known species. This Orchid requires plenty of heat, and a shady, moist corner in the warmest house. Given a suitable position, it is a vigorous grower, pushing out over the sides of the receptacle in a short time. The plants may be grown in baskets or shallow pans, which may be nearly filled with drainage, a thin compost sufficing. The compost may consist of *Osmunda* fibre, Sphagnum-moss, and partly-decayed Oak leaves in equal parts. Like all *Cælogynes*, *C. pandurata* dislikes being disturbed at the roots; therefore, when repotting, give room enough at first, and during the process the back pseudo-bulbs should be reduced to two or three behind each lead, for if these are allowed to remain, they not only become a drain upon the plant, but they necessitate the use of larger receptacles than would be needed otherwise. With regard to root moisture, *C. pandurata* is a very thirsty plant, delighting in a moist atmosphere and plenty of water at the root. The thin compost allows this to pass away readily, so that frequent waterings are necessary during the growing season. No resting season as generally understood is required, for no sooner are the pseudo-bulbs finished than the young shoots make their appearance. This is the time when the least moisture is needed, but the pseudo-bulbs must never be allowed to shrivel.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

WATERING FRUIT TREES.—Owing to the prolonged period of drought during April, the borders are, in many cases, very dry, and need water. This is especially necessary in the case of fruit trees growing in dry or exposed situations. The watering will render the soil in a better condition for the reception of liquid manure, which should be applied when the fruits are swelling. Newly-planted trees need to be kept well supplied with moisture; mulchings of partly decayed manure or other suitable material applied afterwards will assist in retaining the water in the soil. These precautions against dryness at the roots are especially necessary in the case of young trees, otherwise a persistent flagging of the immature foliage during hot, sunny days will prove extremely harmful. Liquid manure may be given with advantage to Gooseberry and Currant bushes that are carrying heavy crops of fruit. Caterpillars on Gooseberry bushes will, unless means are taken to rid the trees of the pests, cause considerable damage through eating the leaves. Hellebore powder may be used as an insecticide early in the season, either by dusting it on the infested branches, or by mixing one ounce in about one gallon of water and applying the mixture with a syringe. The precaution should be taken to wash the trees well with clear water as soon as the caterpillars are destroyed, the powder being poisonous. The thinning of the young fruits on trees growing against walls should be commenced early. Many trees set their fruits in profusion during favourable seasons, and unless a number is removed by the cultivator, some will push the others off the branches. It is best to commence the thinning soon after the fruits are set, reducing the fruit where they are present in clusters to a reasonable

extent according to its kind. The work of thinning should not be done all at once, as it frequently happens from some cause on another that a number of the fruits drop off. Thin so that it will require to be done again early in June; in some instances, the final thinning may be deferred even later than this date, making three operations. A safe principle to follow at each thinning is to select the largest and best shaped fruits, and those most favourably placed on the branches. Remove all others, especially those growing on undersized or weak shoots. In the case of healthy, established trees that are making much wood, a large crop may be allowed, as it will prevent the development of gross, useless shoots. Trees of a weaker habit, even if healthy, should have their fruits thinned more freely. Although no general rule can be laid down as to the number of fruits to be retained, or even the distance apart from each other, the following circumstances should always be taken into consideration: (1) the kind of fruit; (2) the size it attains at maturity; and (3) the health and general condition of each tree. But it is always wisest to thin freely, for what may be lost in numbers will be gained in bulk, as well as in quality.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

SUCCESSIONAL PEACH HOUSES.—Peach and Nectarine trees in mid-season, and late-house and unheated cases, will need frequent attention with respect to tying during the time that growths are developing. This is a matter of great importance, because it affects the shape and condition of the trees in future years. As soon as the shoots are large enough, they should be tied in at the base, parallel with the old growth; if this is done neatly in the first instance the subsequent ties will be quite easy. The raffia should first be soaked in water as it can then be much more easily used, and the ties appear neater when finished; be very careful to leave space in the ties to allow the shoots to swell. If the shoots are too thickly placed, let them be thinned out. The thinning of the fruits must not be too long deferred. In late houses, the blossoms usually set profusely. Remove a considerable number when the first growths are disbudged, and continue to thin at intervals, leaving a good crop to stone. Syringing must be regular and thorough, otherwise the trees will soon become infested with red spider. Twice daily in bright weather is none too frequent. Thrips are very troublesome, and on their first appearance fumigate the house with the N.L.-All vaporising compound when the foliage is dry, and syringe thoroughly next morning. During fine weather Peach and Nectarine trees under glass require plenty of ventilation, and on warm days abundance of fresh air should be admitted both by the top and front ventilators. Where much watering has to be done, a warm day should be chosen, and the water applied by means of the hose pipe; stimulants can be washed into the soil by such waterings. Woodlice often ascend the walls after a good watering, in considerable numbers; these should be collected and destroyed.

STRAWBERRIES.—Excepting those that have fruits colouring, Strawberries should be syringed regularly, and those with crops of swelling fruits should be supplied with stimulants. Manure water from a farmyard, properly diluted, is an excellent stimulant, but, failing that, there should be a tank in which manure water is prepared from animal manures; sprinklings of artificial manures may also be applied occasionally. At this season a less sunny position than due south is much more convenient, as the plants require less watering and are less susceptible to red spider. In many places the pots are placed on turves, and this practice has much to recommend it, as it very much assists in keeping the base of the pot moist. Those plants in flower require careful watering with clear soft water. Thin out the fruits, and support them as necessary.

GENERAL REMARKS.—The present season is perhaps the busiest in fruit-houses, and much work of all kinds needs attention. Such work as thinning, watering, and tying should be kept well in hand. Watering must not be overlooked. Where there are many houses, it is an excellent plan to make a note of the time when each house

was watered, and also what stimulant was applied. Vineries that have only inside borders must especially be looked after. Figs carrying crops of swelling fruits and in restricted borders, require copious supplies of nourishment, and the borders should be well mulched with decayed farmyard manure. Endeavour to keep the houses in a clean and smart condition by the timely removal of all rubbish and weeds. Suckers arising from Peach and Nectarine trees should be carefully removed as near to the base of origin as convenient.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

CUCUMBERS.—Plants from which Cucumbers are being gathered should be kept growing freely. The bed should be top-dressed with loam and horse-droppings as often as the young roots appear. Remove all decaying foliage and stop the growths frequently, never allowing the plants to become crowded. Syringe the walls and floor on bright days, so that a moist atmosphere may be maintained; the foliage also may be lightly sprayed with soft water twice daily when the weather is bright, closing the house early in the afternoon. Cucumbers in frames without fire-heat should not be allowed to become crowded; therefore, thin the foliage and stop side shoots at the first or second joint beyond the fruit. Peg down the leading shoots to encourage young roots to develop. Syringe the foliage lightly with soft water early in the afternoon, so that it may become dry before night, as mildew often attacks the leaves if too much moisture is present at night time.

ENDIVE.—A small sowing of Green Curled Endive may be made now in drills drawn at 1 foot apart; when the plants are large enough they may be thinned to the same distance in the rows. Afford liberal supplies of water during dry weather, and tie up the leaves to blanch the centre ones 10 days before they are required for use.

RUNNER BEANS.—A sowing of Runner Beans may be made now in rows 7 feet apart, choosing rich soil for this crop. The stakes should be placed in position as soon as the plants are through the ground. A few seeds should be placed in pots to make good any blanks that may be caused by slugs. Mont d'Or, the climbing Butter Bean, may also be sown now and treated in the same manner as the ordinary Runner Beans.

LEEKS.—The earliest Leeks should be planted in trenches specially prepared for them as soon as the plants are sufficiently hardened. The trenches may be made 18 inches deep, and a quantity of decomposed manure dug into the bottom until the trench is half-filled, covering the manure with a few inches of soil as the digging proceeds. Into this soil the young Leeks should be carefully planted, allowing 15 inches between the plants in the row. Leeks are cross-feeding plants, and they should be afforded liberal supplies of manure water during the growing season. When the plants have made sufficient growth, earthing-up may be commenced by carefully placing some fine soil round the plants at intervals, so that the trench may be filled to the ground level by the end of the season. By this means good specimens may be obtained early in the autumn. Leeks for ordinary supplies may be grown to a good size by trenching the ground and giving a liberal dressing of manure, which should be placed within 9 inches of the surface as the trenching proceeds. If drills are afterwards drawn 1 foot apart and 3 inches deep, the young seedlings may be planted at 1 foot apart with an ordinary dibber, allowing a small quantity of fine soil to drop in amongst the roots as the work proceeds, but not sufficient to fill the hole. If the weather is dry at the time of planting, a good watering with clear water should be given.

ASPARAGUS.—Great care should be exercised in cutting Asparagus that none of the crowns are injured by the knife. A sprinkling of agricultural salt may be applied with advantage two or three times during the growing season. Young plants in seedling rows should be thinned to 4 inches apart; nothing more will be necessary beyond hoeing and keeping the ground clean.

THE FRENCH GARDEN.

By PAUL AQUATIUS.

THE HOT-BEDS.—The Carrots growing on hot-beds in company with Cauliflowers are ready for pulling. The crop is generally all cleared at once, as the smaller roots, when disturbed, cease growing. After this crop is marketed, the ground should be hoed and made tidy. The Cauliflowers will soon take advantage of the additional space, especially if they are watered freely. As the curds appear, they should be covered with leaves broken from the base of the plant, renewing these as often as necessary. This covering will cause the heads to be better flavoured and more tender thus enhancing their market value. The Cos Lettuces grown under the cloches should be marketed to favour a quick development of the Carrots, which form a succession to those grown in frames. If the Cauliflowers have not yet been planted on the outsides of the bed, the work should be done without delay. Turnips sown in March on the manure beds are ready for market; only those of a market size are pulled, and the work is generally spread over a fortnight. Some growers utilise these beds when at liberty for the last batch of Melons under cloches. The trench is marked out as in the Melon quarter and the soil placed on one side, while the old manure is put on the other. Fresh manure is brought in and mixed with the old, and the fermentation produces a heat sufficient for Melons at this time of the year. Replace the soil on the manure and set 30 cloches on the whole length, till frames and lights are at liberty from the earlier batch in August. Cucumbers may be grown in the same manner. Where Cos Lettuces have been grown under cloches without hot manure the cloches should now be removed, as the sun's heat is becoming too powerful for the plants.

MELON BEDS.—If frames and lights are to be used for Melons, the beds should be completed and the Melons planted as soon as the fermentation of the manure commences. Great care should be taken in regard to shading the young plants before they become well established. The first batch will soon show the first female flowers on the second side shoots; the growths are stopped at the second leaf. Keep the plants dry for about eight or ten days whilst the fruits are setting; this stage is an anxious one for the grower, and the greatest vigilance is necessary in ventilating and covering the glass at night in order to avoid a check to the plants. Cucumbers may be planted in the beds intended for them. Set the plants 12 inches from the bottom of the frame in a slanting position to avoid breaking the stems when they are directed towards the top of the light. Cucumbers require more shade and less ventilation than Melons. It is preferable to use mats for shading, rather than lime-washing, till the end of June.

NURSERY BEDS.—The main batch of Celery is ready for pricking out. The plants should be placed 3 inches apart in ground that has been well prepared for this crop. Light waterings may be given whenever necessary. The plants of the last batch are coming through the soil; the shelter of the glass will only be required in chilly and wet days. The last batch of Cauliflowers for the season should be sown in a sheltered corner; the seeds will require light waterings both morning and evening during hot weather.

CROPS IN THE OPEN.—The Passion Lettuces should be marketed as quickly as possible, as the financial success of this crop depends entirely upon the weather, there being little demand for salads in wet weather. The prices obtained have been far from encouraging, yet the plants are the finest and best of the year. Spinach sown as an inter-crop amongst Cos Lettuces is now ready for cutting; the whole plant is cut below the collar. It is not advisable to send many bushels of this vegetable to market at the same time, as the demand is not large and what is unsold is wasted. The Tomatos should be planted as soon as possible, especially where the shelter of a cloche can be afforded to each plant. Tomatos in frames are growing freely, and ventilation is necessary day and night. Seeds of Witloof Chicory, one of the best of winter crops, are now inserted in drills 12 to 14 inches apart in good, rich soil. If necessary the seeds may be sown broadcast in a nursery bed, and the seedlings transplanted late in June, but this system can only be adopted on light soils.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, MAY 17.—
North of England Hort. Soc. meet.
THURSDAY, MAY 18—
Nat. Sweet Pea Soc. General Meet. at Hotel Windsor, Westminster.
FRIDAY, MAY 19—
Soc. Nationale d'Hort. de France (Paris) Spring Exh. (19-25).
SATURDAY, MAY 20—
Soc. Nationale d'Hort. de France (Paris) Congress (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—53° F.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, May 10 (6 P.M.): Max. 75°; Min. 48°.
Gardener's Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, May 11 (10 A.M.): Bar. 29.9; Temp. 63°; Weather—Sunshine.
PROVINCES.—Wednesday, May 10: Max. 66° Cambridge; Min. 56° Cornwall.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous Plants and Hardy Bulbs, at 1, Palms and Greenhouse Plants, at 3; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Clearance Sale of 50,000 Bedding Plants, at 158, Ravenscroft Road, Beckenham, by Protheroe & Morris, at 4.
FRIDAY—
Imported Cattleya Dowiana, also Established Orchids in variety, at 67 & 68, Cheapside, E.C.
At the Mart, Tokenhouse Yard, E.C.
Freehold Horticultural Property: Wychfield Nursery, Hockley, Essex, with Residence, Greenhouses, Coach House, Shed, &c., with possession.
Freehold Property: Arundene Fruit Farm, Rudgwick, Sussex, with Bungalow, outbuildings, Glasshouses, and 5 acres planted Fruit, also adjoining Bungalow, Stable, Greenhouse, and 4 acres partly planted. With possession.
At a low reserve. Freehold Property: Lokoja Nursery, Kayleigh, Essex, with 1 ungalow, 16 fitted Greenhouses, Reservoirs, engine, pump, &c.; area 3 acres 0 roods 19 perches. With possession.
By Protheroe & Morris, Auctioneers.

The Royal International.

The meeting convened by the Lord Mayor of London to promote the success of the Royal International Horticultural Exhibition, 1912, took place on Wednesday last at the Mansion House. The audience was thoroughly representative of horticulture, and the Lord Mayor gave sympathetic expression to the general feeling of regret at the absence through ill-health of Lord Balfour of Burleigh and Lord Rothschild. For a detailed report of the proceedings our readers are referred to another page; it suffices to say here that the meeting demonstrated, by the enthusiasm of the speakers and the cordiality of the audience, that the purpose for which it was called is already certain of achievement. Both the Lord Mayor and Lord Aldenham were able to assure those present of the widespread interest which the project of the 1912 exhibition has already created among the general public. Lord Aldenham, who speaks with equal authority on matters pertaining to horticulture and to the City, expressed his conviction that the International Exhibition would meet with enthusiastic support from City men. He pointed out that, even in these days of its universal popularity, gardening is nowhere more popular than among City men. On them falls in no small measure the bur-

den imposed by the stress of modern commerce, and it is natural for them to seek relaxation and enjoyment in the tranquil pursuits of gardening. Sir Marcus Samuel, in seconding the resolution committing the meeting to support the exhibition, referred to the spirit of good-fellowship which distinguishes horticulturists all the world over, and drew attention to the importance of Great Britain doing in its turn, and in a worthy manner, what has been done of recent years by the chief countries of the world. In the course of his speech supporting the motion, Sir Trevor Lawrence contrasted in the most interesting way the horticulture of long ago with that of to-day, and predicted that the wonderful progress made in the cultivation, discovery, and hybridisation of plants would be a revelation to the thousands who would attend the exhibition.

In a speech, admirable alike in its brevity and its masterly treatment of intricate details, Sir Jeremiah Colman gave an account of what the Executive Committee has achieved already in the organization of the exhibition. No one who heard or reads his speech can doubt that the Committee is rendering splendid service in devoting so much time and ability to the difficult task which it has taken in hand. The Chairman of the Committee, Mr. Gurney Fowler, was able to announce to the meeting that the arrangements for the Exhibition were in active preparation, and information upon these matters would be ready for distribution in the near future. Mr. Harry Veitch, who humorously claimed almost equal place with Sir Trevor Lawrence in the ranks of the veterans, put a climax to the enthusiasm of the audience by declaring that the 1912 Exhibition must be the greatest exhibition ever seen in this or any other country.

Daffodils at the Shows.

The Daffodil season is now over, so far as the exhibitions are concerned. A few flowers may linger in the garden for another fortnight or three weeks, until the double white Poeticus brings the Daffodil year to a close, and cultivators again begin to think of lifting the bulbs, and, perhaps, of adding some novelties to their collections for next spring. The impulse given by Mr. Engleheart to cross-breeding of Daffodils is still felt by cultivators, and he remains the chief exponent of the art. The number of noteworthy seedlings continues to increase every year, thanks to the industry of an ever-increasing number of raisers.

It is unfortunate, though, perhaps, unavoidable, that so many of the new seedlings should be shown under the numerical references affected by their raisers, and we appreciate the wisdom of the rule made by the National Rose Society which requires new seedlings to be shown under distinctive names, for it is not human to regard 625 N. or 115 H. with as much interest as, say, a Whitewell or a Challenger. But we are told that Daffodils are not quite like Roses; and for the present, at all events, we must take them

as we find them. Even so, our interest in a new seedling has a somewhat indefinite character until that seedling has acquired a name. From the number of seedlings with a pink or salmon tinge in the trumpet or crown, it would seem that we might expect before long to see flowers with this colour well developed. In the trumpets this colour is displayed at present in a way that is rather curious than beautiful; but in the Incomparabilis it is otherwise, and two seedlings of this class were shown at Birmingham this year, one in Mr. Engleheart's exhibit and another in an exhibit from Mr. Crosfield, which had pink chalice, at once delicate and striking. In some seedlings, we noticed a tendency to show a broken cup, something like that formed in Cristata, but with a double colour, say, orange with red markings, just as is seen occasionally in a bad flower of Albatross. The crinkled, self-yellow cup of Cristata is often very beautiful, but the mixture of two colours and the broken cup is less pleasing, though the variation may lead to a type of crested Daffodils.

Among the unnamed seedlings there were some wonderfully large and deeply-coloured trumpets, holding out good promise for the beds and borders when these fine flowers are common enough to be used in large numbers.

Another distinct and pretty class of seedlings now coming into notice is that which includes flowers with a green centre or base to the chalice. There were several examples of this class shown this year, some with white, some with yellow, and others with orange or red in the outer circle of the cup, the perianths varying from white to buff. One flower which was creamy white, except for the green centre, was very attractive, as was another in which the margin of the cup took a soft orange tint; but, on the whole, the green centre is more pleasing when contrasted with the paler tints than when a strong red is present in the cup. This green-centred type is not new this year; for it was represented several years ago by a variety known as "Green-eye," which is now fairly cheap, but evidently the forms are improving in quality.

In recent years there has been considerable advance in the white trumpet section, at least, from the point of view of cutting for the house and the show bench. The varieties Lady Audrey and Florence Pearson have been noticeable whenever shown, and Messrs. Barr & Sons seem to have a beautiful flower in Patrician. Pearl of Kent seems scarcely to be as fine this year as it appeared formerly when shown from Mr. Haydon's garden; but this may be merely an accident of the season, and it will probably get back to its own form again. Among yellow selfs, we have a vivid remembrance of Michael, a fine flower, shown by Messrs. Barr, and of Sir H. Plunkett, an Irish Daffodil. The Incomparabilis Whitewell and Cræsus have been shown as bold and distinguished flowers; so has Macebearer, which might be described as a coloured Diana. Heroine, resembling Albatross, but larger, is a flower to attract attention; so is Red Beacon,

with its brilliant-red cup and fine, white perianth. Few could fail to notice Great Warley, the bicolor Sir Watkin, with its expanded yellow cup, probably an excellent garden flower, but scarcely refined enough for the show bench. In the Giant Leedsii section, the most notable flowers have been Empire and Venus. Nearer the true Poeticus division is "Miss Willmott," illustrated in our last issue, a very large flower that is likely to prove most valuable for the garden. An older flower, Eyebright, is an acquisition both for the shows and the garden. Of true Poeticus varieties, Socrates is a flower with a large, white perianth, and rich scarlet edge to

only a confused mass of colour, and the beauty of form of the individual flower, the special attraction of the Daffodil, is sacrificed. We do not depreciate the value of Daffodils for massing in the park or garden, but the chief point at the exhibitions is to see that the flowers are so arranged that visitors can admire the good form and beautiful colouring that characterizes modern Daffodils. The perfect show flower is not always the best flower for the garden; those flowers with red in the chalice, for example, are not often valuable in the open, the colours being too fleeting. This is not, however, peculiar to the Daffodil, for the

Queen of Spain, in which mere size should be regarded as a defect. At present these lovely varieties are seldom seen upon the show stage. Entries might be few at first, because the flowers would not be very striking, and the taste of exhibitors has been exercised in other directions. Nevertheless, without neglecting the larger forms, room might be made for the miniatures, for many of them excel the larger flowers in grace and elegance.

BOSTON, U.S.A., FLOWER SHOW.—The great National Flower Show held at Boston, Massachusetts, U.S.A., from March 25 to April 1, has



FIG. 135.—A DUTCH GARDEN EXHIBIT AT THE BOSTON (U.S.A.) FLOWER SHOW.

the cup; whilst Matthew Arnold is remarkable for its beautiful crown. Of a rather different style is Mr. Chaplin's Sonata, the eye or cup of which is clear yellow, with a well defined red rim.

In recent years nurserymen have shown great improvement in their methods of staging Daffodils. Whether this is because comparatively few flowers of the newer varieties are obtainable at a given date, or from a general improvement in taste, it is a change in the right direction. If a vase contains only two or three flowers tastefully arranged with Daffodil foliage each flower has its own value and can be examined with pleasure, but in a mass of flowers bunched up in a vase there is

exhibition Rose is seldom the best for a pergola or pillar: hence the garden Daffodil deserves separate consideration.

It is generally supposed that in the near future there will be a Daffodil show under the auspices of the Narcissus Committee of the Royal Horticultural Society. Should this be so, it is to be hoped that the claims of the smaller Daffodils will not escape attention. In all flower shows the quality of size seems to obsess even the best judges, and there are few indeed who free themselves from it. Classes are badly wanted at the Daffodil shows for *Narcissus calathinus*, the Hoop petticoats, and similar Daffodils. Other classes are required for intermediate types, such as

been described in the American horticultural papers as the most comprehensive and most complete horticultural exhibition ever held in America. The exhibition covered a space of about 5½ acres, and every part of this area was utilised for the exhibits. The displays by nursery firms were excellent, some of the chief exhibits being comprised of Palms, Ferns, Rhododendrons (Azaleas), Lilacs, and other forced shrubs, Roses, bulbous flowers, Orchids, Evergreens, and indoor foliage plants. In the grand hall a "Dutch" garden was arranged by Messrs. R. and J. FARQUHAR & Co., Boston (see fig. 135). This exhibit consisted mainly of Dutch bulbs, Evergreens, including Bay trees (*Laurus nobilis*), and forced shrubs. Messrs. FARQUHAR'S exhibit covered nearly half the floor space of the hall.

FLOWER SHOWS IN BIRMINGHAM.—The Birmingham Botanical and Horticultural Society have decided to again hold two flower shows during the present summer. They will be held at the Botanical Gardens, Edgbaston, on June 8 (Orchids and early summer flowers) and July 20 (Roses and midsummer flowers). Honorary exhibits of flowers, fruits and vegetables will be welcomed. Schedules may be obtained from the hon. secretaries at the Botanical Gardens, Birmingham.

QUEEN MARY'S CORONATION BOUQUET.—The pink variety of Carnation, Lady Hermine, has been selected for the bouquet which the Gardeners' Company will present to Queen MARY on the occasion of her Coronation. The flowers will be arranged in a silver or silver-gilt basket, reproduced from the design represented in the crest of the company.

AMERICAN GOOSEBERRY - MILDEW. — OUT-BREAK OF SUMMER STAGE.—The summer stage of this mildew was recorded in two fruit plantations in Cambridgeshire on May 8, which is rather more than a week earlier than the first outbreak of the disease in this district the previous year. There seems to be a tendency for this mildew to occur earlier in successive seasons, for last year also the summer stage was recorded earlier than the year before. Gooseberry growers therefore should ascertain if the disease is present on their premises. Spraying the bushes with liver of sulphur made up by dissolving 1 lb. of this substance in 32 gallons of water has been shown to check the progress of the disease, especially when applied in the early part of the season. Those whose fruit was affected last year should apply this dressing without delay.

THE "GEO. MONRO" CONCERT.—The following donations have been made as part proceeds of the "Geo. Monro" concert, held at the Queen's Hall, in February last:—The Gardeners' Royal Benevolent Institution, £12 12s.; Royal Gardeners' Orphan Fund, £2 2s.; Wholesale Fruit and Potato Benefit Society, £3 8s.; Surgical Aid Society, £5 5s.; Charing Cross Hospital, £4 4s.; Covent Garden Lifeboat Fund, £2 2s.; Royal Ophthalmic Hospital, £2 2s.; "Geo. Monro Ltd." Pension Fund, £3 3s.; and "Geo. Monro Ltd." Outing Fund, £3 3s.; making a total of £43 1s.

WORSHIPFUL COMPANY OF GARDENERS.—A deputation of the Worshipful Company of Gardeners, consisting of Mr. CHARLES BAYER (Master of the Company), Mr. BEAUMONT SHEPHEARD, Mr. N. N. SHERWOOD, Mr. E. A. EBBLEWHITE (Clerk of the Company), Mr. JOSEPH FRANCIS, Mr. J. GURNEY FOWLER, Dr. PURNELL PURNELL, Mr. H. S. HARRIS, Mr. J. E. RUBIE, and Mr. H. C. BAYER, have just returned from a visit to the Dutch bulb growing districts. Mr. A. G. L. ROGERS (of the Board of Agriculture) accompanied the deputation as the guest of the Master and Wardens; and Mr. BOONE, the Beadle of the Company, was in attendance. Mr. R. BONHUIS (Horticultural Expert to the Board of Agriculture of the Netherlands) and Mr. K. VOLKERSZ (Horticultural Expert for the bulb districts under the Netherlands Board of Agriculture) joined the company, and remained with the party during the visit, which lasted from April 27 to May 1. Visits were made to bulb farms in Katwijk, Hillegom, Haarlem, and other centres. At Haarlem, the bulb farms and nurseries of Messrs. E. H. KRELLAGE & SON were inspected. The deputation also visited Amsterdam, and thence to Aalsmer, where they met Professor DE VRIES. At Wageningen, they were received by Professor Dr. J. RIJZEMA VOS, the State entomologist and vegetable pathologist of Holland.

ROYAL METEOROLOGICAL SOCIETY.—A meeting of the Royal Meteorological Society will be held at 70, Victoria Street, Westminster, on Wednesday, May 17, when the following papers will be read:—(1) "On the Frequency and Grouping of Wet Days in London," by Dr. HUGH ROBERT MILL and C. SALTER; (2) "Report on the Phenological Observations for 1910," by EDWARD MAWLEY, V.M.H.

PUBLICATIONS RECEIVED.—*A Guide to the Arnold Arboretum*, by Charles S. Sargent, (Boston, U.S.A.: Houghton Mifflin Company, 4, Park Street). Price 30 cents.—*Vocabulaire Forestier*, by J. Gerschel and W. R. Fisher, (Oxford: The Clarendon Press). Price 5s.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

JUBILEE OF MR. BARNARD.—An interesting presentation took place at the Royal Nurseries, Bush Hill Park, on the 29th ult., when Mr. Barnard was presented with a timepiece and ornaments inscribed as follows:—"Presented to Mr. Harry A. Barnard on the celebration of the jubilee with the Lows, of Clapton, as a mark of esteem and affection from all employed at the Royal Nurseries, Bush Hill Park, April, 1911."



MR. H. A. BARNARD.

Mr. Stuart H. Low, who made the presentation, remarked on the extraordinary adaptability to change Mr. Barnard had always shown from the days when Orchids were rare plants until the present time. The swiftly changing features of the horticultural trade appeared to come quite naturally to Mr. Barnard, and he moved with the times without difficulty. Mr. Barnard, in replying, nearly broke down, but being reminded by Mr. Low that he had faced greater difficulties, he rose to the occasion with his usual readiness, and made a good speech, giving some advice to the younger generation. The extraordinary vigour of Mr. Barnard was evident, even during his recent visit to the United States, when he was dubbed by his companions "an old hustler." *Correspondent.*

LITHOSPERMUM AND LIME (see p. 253).—Mr. W. Somerville is probably correct in his inference that the genus *Lithospermum* benefits by the presence of lime in the soil. Unfortunately he does not state the nature of the sub-soil in the mid-Somerset garden where he says *L. prostratum* flourishes, nor does he say what it is at Bodnant in North Wales. The beautiful little *Lithospermum coruleum* is found on the mountain limestone at Cheddar, and is also a native of the coast of Glamorgan on the lias limestone. The more common *Gronovell*, *Lithospermum officinale*, grows on the banks of the Bristol Avon, also on limestone, where only a few inches of soil cover the rock. Much of the soil of mid-Somerset is

composed of limestone, whilst oolite is present in other places. In connection with this subject I remember several years ago when walking along a limestone road in Somersetshire my companion, a practical chemist, remarking on the wisdom of a farmer, who had dotted his land, formed of the detritus of mountain limestone, with lumps of lime from a lime-kiln, but on the face of it, it appeared like carrying coals to Newcastle. *Frank Gunning, York.*

My experience with *Lithospermum prostratum* leads me to say that lime in the soil is detrimental. At Swanmore the soil is largely impregnated with chalk, so much so that *Rhododendrons* will not succeed unless the soil is specially prepared for them. I have experienced no difficulty in growing this *Lithospermum*, which is the best of all its class, but I have to take extreme care each year to add fresh soil and provide an abundance of moisture during the plants growing season. Our specimen is planted in the crevice of an exposed rock facing south in peat, loam, and sharp silver sand. It has grown and flowered freely each year. After flowering I placed tufts of good fibrous peat amongst the shoots, pegging them down to the peat. To this increased rooting space and the copious supplies of moisture afforded, I attribute the splendid health of our plants. *E. M.*

CORONATION TREES (see p. 266).—The orders for trees required for planting at the time of the Coronation should be sent to the nurserymen at once with a request for them to be planted in leaf soil in boxes. The leaf-mould should not be too fine, the more particles there are of the size of a sixpence or a shilling the better. The roots will cling to these, and their weight will not break the fibrous growths which are fairly numerous by the end of June. The trees should be sent to their destination early in June. On their arrival the boxes should be sunk in the ground, where the roots will be in more congenial surroundings than if the boxes are fully exposed. At planting time it will only be necessary to knock out one end of the box and slide the contents into the hole prepared for planting the tree. *W. P. R., Cwmystwyth.*

PROPAGATION BY LEAVES.—I read with interest the article by S. A. C. (see p. 266) on propagation by leaves. As one who has been very successful with this method of raising plants, I can support the statement that many subjects, and especially *Begonias* (both tuberous and fibrous-rooted kinds) make finer plants when propagated from leaves than from cuttings. In addition to the subjects named by S. A. C. *Zonal Pelargoniums*, *Hoya*, *Stephanotis*, *Bryophyllum*, *Ficus elastica*, *Achimene*, *Gesnera*, *Crassula* and *Gloxinia* make fine plants the first season from leaves which root readily in leaf-mould and sand. I hope S. A. C. will have greater success next time with *Codiaeums* (*Crotons*), as these will furnish plants just as readily as *Ficus elastica*, if plunged in a propagating pit provided with a strong bottom heat. The propagation of plants by leaves should be more generally practised by gardeners, as many subjects may be increased in a shorter time and grow much better under this system. *Wm. Horne, The Mount Gardens, Dinas Powis, near Cardiff.*

A VINE MYSTERY.—On April 6 I was called to inspect some vines which were apparently in a state of collapse. There were four plants in a small house, but two only appeared to be affected. On the previous evening the gardener was at work tying down the shoots till he could see no longer, and was congratulating himself on their promising appearance. In another week they would be in full flower, and as they were all of the variety Black Hamburg, and very healthy looking, there was every reason to anticipate success. Next morning, on entering the house, he discovered that two of the vines were drooping badly. When I arrived about noon every full-grown leaf on the two vines appeared to have been singed, a small patch, in most cases, not more than an inch wide, nearest the leaf stem, only remained green. A new boiler had been got into working order the previous evening, and there was naturally a suspicion that sulphur fumes had found their way into the house. But no hole could be found for the fumes to enter, and there were tender plants, including Ferns

and small seedling Tomatos quite uninjured. The question arose could it be the frost, for the vine leaves were close to the glass, and the tender plants were sheltered by the vine leaves. No, the thermometer had not fallen below 55°. Nevertheless, it was the frost. The vine border was outside and the stems were exposed. At the time of my visit, at noon, there was ice on the water outside, quite half-an-inch thick, and, of course, it had been thicker earlier in the morning. But why had not the vines all suffered? The two which had apparently escaped had much less length of stem exposed, about 9 instead of 18 inches, and another building ran at right angles with that end of theinery, sheltering it from the wind, which was blowing from that quarter. My advice was to cover the stems with hay, as there was a likelihood of more frost, retain the withered leaves for the sake of the small patches of green in them, and allow sub-lateral shoots to grow till after the flowering time. I made another visit on April 10, and found the small patches of green tissue still alive in the principal leaves, although the other parts of the same leaves were dried up like tinder, and where one or two of these leaves had been broken off the wound had bled profusely, proving that these small patches had been useful. All the very small leaves at the points of the shoots, as well as the sub-laterals had escaped injury, and healthy growth was developing. The other two vines, which on my first visit had apparently escaped injury had now lost much of their green colouring matter from the principal leaves, but the new growth was satisfactory. I have not seen the vines since, but was informed last week that they had improved beyond expectation, and that many of the bunches appeared to have set fairly well. Nothing like this has ever before come within my experience. *Wm. Taylor.*

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 9.—The usual fortnightly meeting took place on Tuesday last, in the Society's Hall, Vincent Square, Westminster. The exhibits filled all the available space, including the two annexes. The majority of the exhibits before the FLORAL COMMITTEE consisted of hardy border flowers and Alpines. Apart from these, there were important displays of Roses, Auriculas, Cinerarias, Carnations, flowering shrubs, and Sweet Peas. This Committee granted six Awards of Merit.

There was the usual fine show of Orchids, and the ORCHID COMMITTEE granted one First-class Certificate and three Awards of Merit.

The exhibits before the NARCISSUS COMMITTEE were almost all Tulips. An Award of Merit was made to a variety of Narcissus.

The FRUIT AND VEGETABLE COMMITTEE granted four Awards of Merit to vegetables after trial at Wisley Gardens.

At the 3 o'clock meeting in the Lecture Room, 84 new Fellows were elected, and an address on "Alpine Gardens" was delivered by Mr. H. Correvon.

Floral Committee.

Present: Messrs. W. Marshall and Henry B. May (Chairmen); and Messrs. C. T. Dery, W. J. Bean, Jno. Green, R. C. Notcutt, Jas. Douglas, C. R. Fielder, C. Blick, W. Howe, Jno. Jennings, J. F. McLeod, John Dickson, Charles Dixon, Herbert J. Cutbush, Chas. E. Pearson, Charles E. Shea, W. Cuthbertson, W. P. Thomson, W. J. James, E. H. Jenkins, George Paul, W. B. Cranfield, James Hudson, R. Hooper Pearson, and Alexander Kingsmill.

Messrs. SUTTON & SONS, Reading, flanked a fine display of Tulips on either side with their new Reading Gem Cineraria, a strain with lax inflorescences, bearing star-shaped flowers in a great assortment of colours.

Messrs. W. CUTBUSH & SON, Highgate, London, made a showy display with flowering shrubs and Carnations. A large bank of Pink Pearl Rhododendron found many admirers, and their Azaleas and Lilac were equally attractive. Coleus James Atfield, with rose-tinted leaves, somewhat like Cordelia, gave a touch of leaf-colouring. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, The Nurseries, Edmonton, staged batches of Verbenas Queen

of Whites, Princess of Wales (blue), and Miss Willmott (pink). They also showed many varieties of Zonal-leaved Pelargoniums, some being novelties, of which Jean de Vries, a double, purplish variety, and Paul Maurice, single, rosy-salmon flowers, were the more noticeable. The hybrid (Zonal × Ivy-leaved) variety Chingford Rose is a novelty. In addition to these, the exhibit included a batch of Heliotrope Lord Roberts, and an assortment of Ferns. (Bronze Flora Medal.)

Messrs. HUGH LOW & CO., Enfield, showed Carnations and greenhouse plants. The Carnations were bordered by a row of the small Rose Jessie, the plants being only a few inches tall, although flowering in profusion. Two fine Rhododendrons were seen in R. fragrantissima (white) and R. Dalhousianum (pale, sulphur-yellow). Ceanothus dentata was well bloomed, also Correa cardinalis, Metrosideros floribunda, Yumelia diosmaefolia, and Pyrus Malus Scheideckeri. (Silver Banksian Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, filled a large table space with splendid plants of Schizanthuses, of the type known as grandiflora hybrids. Several specimens of Medinilla magnifica, Primula Maximowiczii, with its bright-red flowers, and a collection of Auriculas were staged at one end of the Schizanthuses. As a separate floor group, the same firm showed their fine Cineraria Feltham Bouquet, a tall-growing variety, with spreading inflorescences of reddish-mauve flowers. The plants are suitable for arranging in corridors, or where a bold effect is desired. Next to these were forced shrubs from the Coombe Wood Nursery, many new plants being shown, including the recently introduced Rhododendrons coombense (with rosy-purple flowers) and R. cinereum (with yellow blossoms). (Silver-gilt Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, again made a large floor group with standard plants of Cytisus, and filled an adjoining table with Salvia splendens, including the new variety known as Pride of Richmond. (Bronze Flora Medal.)

Messrs. PAUL & SON, The Old Nurseries, Chessington, showed hardy shrubs in flower, Deutzia discolor carnea, Philadelphus rosea, P. Lemoinei, Potentilla fruticosa Vilmoriana, Exochorda Albertii macrantha, and Cerasus lutea being all showy subjects.

Messrs. J. CHEAL & SONS, Crawley, were the exhibitors of flowering trees and shrubs, forms of Pyrus Malus, such as Scheideckeri, floribunda and atrosanguinea, making a remarkable floral effect. Flowering Cherries also were a feature, the varieties Kigansakura and Naden being superior to the ordinary form. (Bronze Banksian Medal.)

Messrs. J. PEED & SONS, West Norwood, put up a group of Chinese Maples, relieved with Cytisus praecox and large flowering Clematis.

Messrs. H. CANNELL & SONS, Swanley, Kent, had a number of plants of the pink-flowered Phyllocactus German Empress, the petals being tipped with white; in front of these were blooms of larger-flowered varieties. Adjoining was a large batch of the fine yellow Calceolaria Clibranii.

A group of finely-flowered herbaceous Calceolarias was shown by G. T. WIGAN, Esq., Forest Park, Windsor (gr. Mr. G. Hill). (Bronze Flora Medal.)

Gerberas and Ferns were again well shown by Mr. H. N. ELLISON, West Bromwich.

Messrs. DOBBIE & CO., Edinburgh and Marks Tey, staged varieties of Sweet Peas, amongst them being several new sorts. Melba is a new light-salmon-tinted variety, showing an orange sheen in the standard. Mrs. Cuthbertson is a delightful flower of the Apple-blossom type, whilst May Campbell belongs to the marbled section, the cream ground having wavy lines of deep rose colour. These three novelties are of much promise. There were also excellent bunches of Dobbie's Cream, Dobbie's Scarlet, Cherry Ripe, and Sunproof Crimson. In addition to the Sweet Peas, Messrs. DOBBIE showed varieties of Violas. (Silver Banksian Medal.)

Mr. C. W. BREADMORE, Winchester, exhibited Sweet Peas in variety, having a selection of well-known varieties and several seedlings, the best novelty being Iris of a pale salmon shade.

ROSES AND CARNATIONS.

Messrs. T. ROCHFORD & CO., LTD., Broxbourne, exhibited the largest group of Rambler Roses we

have observed at these exhibitions, the collection covering a space of 700 square feet. All the plants were magnificently bloomed, especially the larger specimens, which numbered 50. The ground was formed of dwarf varieties of the Polyantha section, such as Mrs. W. H. Cutbush, Maman Levassieur, and Delight. Lady Gay and Dorothy Perkins were the finer of the pink-flowered varieties; Tausendschon has larger flowers of the same shade, the plants being magnificent specimens. Others specially meritorious were Hiawatha, Crimson Rambler, with its sport Flower of Frau-feld and Delight. (Gold Medal.)

Messrs. GEO. MOUNT & SONS, LTD., Canterbury, again showed superb Roses. (Silver-gilt Flora Medal.)

Messrs. W. PAUL & SON, Waltham Cross, had large pillar Roses. Several plants of the white-flowered Sylvia showed to advantage in the centre of the display. Hiawatha was also conspicuous for its profusion of flowers. (Silver Banksian Medal.)

Mr. CHAS. TURNER, Slough, exhibited tall plants of Pink Rambler and the creamy-white Wichuraiana Alberic Barbier Roses. A separate exhibit shown by Mr. TURNER consisted of Auriculas and Souvenir de la Malmaison Carnations. Auricula Golden Queen is an admirable variety for bedding purposes.

Messrs. FELTON & SONS, 7, 8, and 9, Hanover Square, London, staged splendid blooms of Roses Molly Sharnan, Crawford and Lyon.

Mr. H. BURNETT, Guernsey, again displayed magnificent Carnations, all the blooms being of splendid quality, and especially the varieties R. F. Felton, Mrs. C. F. Raphael, and Snow Queen. (Silver Flora Medal.)

A display of Carnations was presented by E. J. JOHNSTONE, Esq., Burrs Wood, Groombridge, Kent (gr. Mr. A. T. Paskett), blooms of Souvenir de la Malmaison Princess of Wales being especially choice. (Bronze Banksian Medal.)

Messrs. YONG & CO., Hatherley, Cheltenham, showed varieties of perpetual-blooming Carnations. (Bronze Flora Medal.)

Mr. A. J. HARWOOD, St. Peter's Nursery, Colchester, showed hybrids of Primula Sieboldii.

A new variety of Ivy-leaved Pelargonium named Emmeline, with rose flowers, faintly suffused with purple, was shown by Mr. W. J. JENKINS, Albion Nursery, Farnham, Surrey.

A seedling Myosotis, named Marie Raphael, raised from Royal Blue, was exhibited by W. RAPHAEL, Esq., Hopedene, Dorking (gr. Mr. W. Honess). The flowers, as presented in a mass, were very attractive and novel, the clear-blue petals having prominent white lines. The flowering is very free, and the plant gives a fine addition to the bedding varieties of Forget-me-nots.

Varieties of bedding Heliotropes were shown by the KING'S ACRE NURSERIES, Hereford.

Mr. JAMES DOUGLAS, Edenside, Great Bookham, staged a remarkable collection of Auriculas, with a few large plants of Myosotidium nobile. The Auriculas included more than 200 plants and all were flowering superbly. The choicer of the show type were (green edged) Henry Wilson, Shirley Hibberd, and Rev. F. D. Horner; (grey edged) Marmion and George Lightbody; (white edged) Acme and George Rudd. Choice Alpine varieties were observed in Urania, Teviotdale, Flora McIvor, and Mikado. (Silver-gilt Flora Medal.)

HARDY FLOWERS.

Messrs. BAKERS, Wolverhampton, showed their new varieties of Saxifraga decipiens, forming large colonies of these choice Alpines, some of the blooms being 1 inch in diameter. The plants were masses of flowers, those of Lady Deane (white), Miss Willmott (white, tinged with brown), R. W. Hooper (crimson), and Bakeri (deep rose) being the finer. (Bronze Flora Medal.)

Messrs. WARE, LTD., Feltham, had numbers of Alpines and border flowers, amongst which were noticed Veronica repens, as a carpet of bloom, the double-flowered Saxifraga granulata, Anemone sulphurea, Trillium grandiflorum roseum, Ranunculus graminifolius, and Thalictrum anemonoides. (Bronze Flora Medal.)

Messrs. GEORGE JACKMAN & SON, Woking, filled a large table space with hardy flowers, Anemone alpina sulphurea and varieties of Trollius europaeus being conspicuous features. They also showed the red-flowered Primula Lockburniana.

Mr. H. HEMSLEY, Crawley, arranged a rock-garden in good style, the various subjects, such as *Gemm. Rossi*, *Teucrium latifolium*, with china-blue flowers, *Androsace primuloides*, *Gentiana verna*, *G. acaulis*, *Alyssum repens*, *Oenothera ovata*, a dwarf yellow-flowered species; *Androsace villosa*, *Ranunculus amplexicaule*, and *Ethionema schistosum*, being well grown. (Bronze Flora Medal.)

Mr. JAMES BOX, Lindfield, Sussex, had magnificent flowers of *Ademone coronaria* Rouge Ponceau, with rich scarlet flowers, in a collection of Alpines and hardy plants. (Bronze Banksian Medal.)

A large rockery was arranged by Messrs. HEATH & SON, Cheltenham, in which choice Alpines were planted. *Saxifraga speciosa* has rosy purple flowers; *Meconopsis aculeata* also has flowers of this shade, the plant being very pretty in bloom. *Stachys corsica*, *Corydalis tomentosa*, *Viola Olympica*, *Primula Bulleana*, and a reputed hybrid from *P. frondosa* and *P. farinosa* are other choice plants shown in this exhibit.

Mr. H. PULHAM, Elsenham, Essex, arranged a large rock-garden exhibit in first-class style, with shrubs at the back for relief. (Silver Banksian Medal.)

Mr. AMOS PERRY, Enfield, showed the fine yellow *Trillium Newby* Giant in company with others, including the orange coloured *T. Fortunei plena*, *T. Golden Globe*, and *T. giganteum*. There were also a pretty double flowered *Viola*, the delightful *Lithospermum prostratum* Heavenly Blue, and forms of *Saxifraga* (*Megasia*) cordifolia.

MESSRS. GEO. BUNYARD & CO., LTD., Maidstone, showed Alpines and border flowers in company with Tulips. *Primula pulverulenta* and *P. sikkimensis* were conspicuous plants amongst the Alpines.

Messrs. BARR & SONS, King Street, Covent Garden, exhibited boxes of Alpines with shrubs at the back. They showed a choice strain of Polyanthuses, and some fine new Saxifrages of the decipiens type, including *Cherry Blossom* and *Southern Belle*.

The MESSRS. HOPKINS, Shepperton-on-Thames, exhibited Alpines and other hardy flowers. Their basket of *Aurecula Yellow Beauty* was very pretty; also a fine lavender-blue *Anbrieticia* named Lloyd Edwards.

Messrs. G. & A. CLARK, LTD., Dover, showed Alpines and border flowers in a setting of rock-work. *Pentstemon Scouleri* grows about 10 inches high, and has a large bunch of pale lavender-blue flowers. The dwarf *Asperula tuberosa* forms a cushion-like growth, and has long, tubular, flesh-coloured blooms. The *Trillium* in variety, Tulips and *Ademone coronaria* were very showy.

Mr. CLAREN E. ELLIOTT, Six Hills Nursery, Stevenage, arranged a rock-garden that was a perfect model. It was built of grey limestone, and planted with Alpine gems, some in large sheets of colour. A patch of *Lithospermum Heavenly Blue*, and another of the delightful *Gentiana verna* were charming. Other subjects noticed were *Anbrieticia Mochumii*, *Vesicaria utriculata*, *Androsace villosa*, *Iris Susiana*, and *Wahlenbergia serpyllifolia*.

Messrs. PHILLIPS & TAYLOR, Bracknell, Berkshire, showed Alpines and hardy flowers, including *Aureculas*, with exceptionally fine trusses of blooms. (Bronze Flora Medal.)

Mr. S. MORTIMER, Rowledge, Farnham, Surrey, showed superbly flowered plants of Polyanthus, in batches of white, crimson and yellow shades.

Mr. JOHN CROOK, Fingest, The Avenue, Canterbury, showed a good strain of Polyanthus.

Exhibits of Alpine and hardy plants were also shown by the GUILDFORD HARDY PLANT NURSERY; BERKON HARRY PLANT NURSERY, Christchurch, Hampshire (Bronze Banksian Medal); Mr. G. REITH, Keston, Kent; Messrs. G. P. EGGETT & SON, Thomas Ditton, Surrey; Messrs. W. FILLS & SON, Hitchin, Hertfordshire; and Mr. MAURICE PUGHARD, Christchurch, Hampshire. (Silver Flora Medal.)

AWARDS OF MERIT.

Asplenium decorum. A very decorative sport from *A. bulbiferum*, of more compact growth than the type. Shown by Messrs. H. B. MAY & SON.

Ismene picta. Mr. A. WORSLEY exhibited fine flowers of this hybrid, which he obtained some years ago from a cross between *Ismene cala-*

thina and *Elisena* (*Ismena*) *longipetala*. The flowers are pure white, and very charming. The specimens shown were produced by a plant that had received the shelter of a frame in winter, but which had made all its growth out-of-doors, where it flowered. A description of the hybrid by Mr. WORSLEY appeared in *Gard. Chron.*, November 4, 1905, p. 322.

Rhododendron "Dawn's Delight."—This grand *Rhododendron*, exhibited by Miss MANGLES, might easily be mistaken at first sight for *Pink Pearl*. It is almost as handsome as that most popular variety, but evidently it comes from a different parentage, and it blooms much earlier than *Pink Pearl* growing in the same garden.

Rose Mrs. George Shawyer.—This Hybrid Tea variety is remarkable for its very large petals, and consequent long flower-buds, and for the great strength of the flower-stalk. The colour is rich pink, and the variety will be sure to meet with appreciation. Shown by Messrs. LOWE & SHAWYER.

Rose Orleans Rose.—This is a dwarf Polyantha variety, seldom growing more than 2½ feet high. It produces very large trusses of magenta-rose coloured flowers, and has the qualities of a perpetual bloomer. Shown by Messrs. W. PAUL & SON.

Viola "Massey Perfection."—This *Viola* is a very large and perfectly formed flower. It has been recognised for some years in the Northern counties as the finest yellow exhibition *Viola*. Shown by Messrs. BAKER, Codsall and Wolverhampton.

Narcissus Committee.

Present: E. A. Bowles, Esq. (in the Chair); Miss Willmott, and Messrs. J. T. Bennett-Pow, Alec. Wilson, C. Bourne, W. W. Fowler, G. W. Leak, W. T. Ware, W. Goldring, C. T. Digby, R. W. Wallace, P. R. Barr, J. Jacob, J. D. Pearson, F. H. Chapman, W. Poupard, W. R. Cranfield, and C. H. Curtis (hon. sec.).

The following resolution proposed by Mr. A. Wilson and seconded by Rev. J. Jacob was carried unanimously by the Narcissus Committee, and subsequently passed by the council:—"That five flowers of a Daffodil be submitted for an Award of Merit instead of eight as heretofore."

Messrs. BARR & SONS, King Street, Covent Garden, showed a very varied and rich collection of Tulips, relieved by a few Japanese Maples and sprays of Beech and Birch. Darwin varieties predominated, with some especially fine vases of *Clara Butt*, *Pride of Haarlem*, *Suzon*, *Queen of Britants*, *Nora Ware*, and *Rev. H. Exbank*. The Cottage varieties included *Bouton d'Or* of the deepest yellow; *Moonlight*, with large, pale yellow, egg-shaped blooms; *Pauline* and *Lady of the Lake*. A number of Parrot Tulips were also shown with such species as *Batalini*, *linifolia* and *Geogin*, but the beauties of these were unduly overshadowed by the larger blooms of the garden varieties. (Silver-gilt Banksian Medal.)

Messrs. R. H. BATH, LTD., Wisbech, exhibited a small collection of Tulips, in which elegant *alba*, *Picotee*, *Mrs. Moon*, and *vitellina* (Cottage varieties), and *Margaret*, *White Queen* and *Suzon* (Darwins) were among the choicer blooms. (Silver Flora Medal.)

Mr. J. BOX, Lindfield, Sussex, arranged a small group of standard varieties of Tulips: *Inglescombe Pink*, *Inglescombe Yellow*, *Dainty Queen*, *Picotee*, *Isabella*, and *Hobbema* (better known as *L. Rye*) were noticeable.

Messrs. A. DICKSON & SONS, Belfast and Dublin, made one of the most effective displays on 5 feet wide tabling, arranging the flowers in vases in the foreground and Bamboo stands at the back. These Irish-grown blooms were superior to the English ones in size and richness of colouring. *Gold Vase* was very fine, and this, with the bronze varieties *Sensation* and *Dom Pedro*, is grouped for convenience with the Darwins. *Clara Butt*, *Duchess of Westminster*, *La Tulpe Noire*, *Innovation*, *Dora*, and *Pride of Haarlem* were also conspicuously good. (Silver-gilt Banksian Medal.)

Messrs. MASSEY & SONS, Spalding, staged an interesting group of Tulips in the recess, which showed to disadvantage owing to the bad light. *Picotee*, *Fashion*, *Elegans alba*, *Gloire de Hollande*, and *Fulgens* were shown well.

Messrs. HOOG & ROBERTSON, LTD., Dublin, put up one of the richest collections of Tulips, having perhaps, the finest quality blooms in the hall, but

they were much too densely packed to show to the best effect. *Clara Butt* (particularly richly coloured), *maculata globosa* (immense crimson flowers), *Mrs. Keightley*, *The Fawn* (among the best blooms shown), *Garibaldi*, *Leghorn Bonnet*, *Miss Jekyll*, and *albiflora* were all shown excellently. (Silver-gilt Flora Medal.)

Messrs. SUTTON & SONS, Reading, staged a number of Darwin varieties, including *Flora MacKinley*, *Wedding Veil*, and the breeder *Turenne*. (Silver Flora Medal.)

ROBERT SYDENHAM LIMITED, Birmingham, staged the only collection of Daffodils. With the exception of *Weardale Perfection*, the group consisted of small-cupped varieties (*Barrii*, *Leedsii*, and *Poeticus*). *Cassandra* was specially neat and good, and the delicately coloured *Leedsii* varieties *Evangeline*, *White Lady*, and *Katherine Spurrell* were also shown in fine form. *Bullfinch*, *Cavalier*, *Blood Orange*, *Gloria Mundi*, *Horace* and *Northern Queen* were also included in this display. (Silver Banksian Medal.)

Messrs. R. WALLACE & CO., Colchester, put up the only group of Tulips in which any definite attempt was made to arrange the blooms in an harmonious colour scheme. Such pink varieties as *Clara Butt*, *Margaret*, *John Ruskin*, and *Inglescombe Pink* led through lilacs and mauves—*Erguste* and *Rev. H. Exbank*—and crimson-blacks—*Ravenswing*, *Sultan*, *Zulu*—to the bright roses, scarlets and crimsons, such as *Mr. Farncombe Sanders*, *Baronne Tommaye*, *Claude Gillot* and *Millett*. Yellow sorts were mingled through the group, showing to the best effect where *vitellina* contrasted with *Sultan*. Japanese Maples and *Euphorbias* were also employed as colour values. (Silver-gilt Flora Medal.)

Messrs. WALTER T. WARE, LTD., Bath, staged a batch of the fine Tulip *Inglescombe Pink*.

AWARD OF MERIT.

Narcissus Sonata.—A late-blooming *Poeticus* seedling, with broad, overlapping segments of good form. Shown by Mr. F. H. CHAPMAN, Rye.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, R. Brooman White, F. Sander, Clive Cookson, Gurney Wilson, W. H. Hatcher, A. A. McBern, F. M. Ogilvie, Walter Cobb, W. P. Bound, J. Cypher, H. G. Alexander, J. Charlesworth, A. Pye, T. Armstrong, W. H. White, F. J. Hubury, J. W. Potter, W. Bolton, and de B. Crawshaw.

Messrs. SANDLER & SONS, St. Albans, were awarded a Silver Flora Medal for an extensive group of hybrids and species. The middle of the group was of a very fine strain of *Cattleya Schrödera*, the varieties ranging from that named *Vulcan*, with crimson-purple lip, to the wholly white form. On each side were hybrid *Odontoglossums*, and good forms of *O. crispum*, *Odontoda Bradshawne*, and two new *Odontodas*, one of them being of a light, rosy-crimson colour. There were several varieties of *Dendrobium crystallinum*, two being nearly white forms, the pure white *Trichopilia suavis alba*, various *Brasso-Cattleyas*, and *Laelio-Cattleyas*, *Coleogyne nervosa*, and other interesting species.

Messrs. HUGH LOW & CO., Bush Hill Park, were awarded a Silver Banksian Medal for an interesting group, at the back of which were various *Oncidiums*, including good *O. Marshallianum*, *O. sarcodes*, *O. ampliatum majus*, and others. A good form of white *Cattleya Schrödera*, a batch of the pretty *Dendrobium crispatum*, *D. thyrsoforum*, various *Brasso-Cattleyas*, *Cattleya Berthiana*, good *C. Mendelii*, *Odontoglossum Rodfear* and other *Odontoglossums*.

J. S. MOSS, Esq., Wintershill, Bishop's Waltham (or Mr. Kench), was awarded a Silver Banksian Medal for an interesting group of Orchids raised from seeds, the forms of *O. crispum* varying in a remarkable degree, the variety named *Kenchii* having the greater part of the flower blotched, with light purple. Another interesting batch was of *O. bella* (*crispum* × *bellatum*), resulting in variations closely approaching rather small blotched forms of *O. crispum*, varying in shape and colour, but showing nothing of *O. tripudians*, which might be expected through the *O. bellatum* parent. *O. Maritania* (*Saxifraga* × *Rodfear*), *O. exultans* (*excellentis* × *crispum*), and other seedlings were also shown.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded a Silver Banksian Medal for a group in

which the varieties of *Miltonia vexillaria* and *M. bleuana* were well shown. *Masdevallia Becking* Hybrid, *M. Veitchii grandiflora*, *M. Arminii*, *Lælio-Cattleya Dominiana*, and other *Lælio-Cattleyas* and *Brasso-Cattleyas*, *Cattleya Skinneri alba*, some hybrid *Odontoglossums* and *Odontiodas*, and finely-flowered *Odontoglossum crispum* were also noted.

F. MENTEITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent *Cattleya Mendelii alba* The Shrubbery variety, a very fine pure-white flower with a large, crimped labellum, having an orange disc; a noble plant of *Miltonia vexillaria virginalis* with 12 spikes; and a fine form of *M. Hycana* (see Awards); cut spikes of a very large *Odontoglossum Pescatorei*; and a branched specimen of *O. crispum*.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), sent *Brasso-Lælio-Cattleya King Emperor* (B.-L. *Digbyano-purpurata* × *L.-C. Dominiana langleyense*), a very large and distinct flower, with silver-white sepals and petals tinged with rosy lilac, the broad, fringed lip being light rose-purple with a gold base and red lines.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks, sent *Odontoglossum Orion* (*Lucasianum* × *crispum*), *O. Ganymede* (*elegans* × *Edwardii*), and two other fine hybrids. (See Awards.)

PANTIA RALLI, Esq., Ashted Park, sent a fine pure-white form of *Cattleya intermedia alba*.

MR. E. V. LOW, Vale Bridge, Haywards Heath, staged a small group, in which were several very fine forms of *Odontoglossum crispum*, a good specimen of *Cypripedium Lawrenceanum*, *Cirrhopetalum Amesianum*, *C. Colletti*, and *C. Roxburghii*.

Messrs. J & A. A. McBEAN, Cocksbridge, staged a group, in which were several very handsome forms of *Odontoglossum crispum*, good *Odontioda Vuylstekeae*, *Cattleya Schroderae alba* and *C. Schroderae* var. *W. H. Cheal* (a noble flower of fine colour), *C. Mendelii Pearl McBean* (already certificated), and *C. Mendelii striata* (with purple lines on the petals), a very handsome *Cattleya Mossiae*, good *Odontoglossum ardentissimum*, and the pale-yellow *O. crispum aureum* West Bank House variety.

R. BROOMAN WHITE, Esq., Arddaroch, showed a large number of cut spikes of finely-grown, superb varieties of *Odontoglossum crispum*.

Mrs. NORMAN COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman), showed a stand of single blooms of many fine blotched varieties of *Odontoglossum crispum*, very interesting for comparison. Some of the unnamed forms were the best in colour, but of the named varieties *O. c. Grace Ruby*, *O. c. Leonard Perfect*, and *O. c. Chapmanii* were grand flowers.

SAMUEL LARKIN, Esq., The Rideways, Haslemere (gr. Mr. Hales), showed a good specimen of *Lycaste gigantea*, with large, greenish flowers with showy, fringed, chestnut-red lip.

AWARDS.

FIRST-CLASS CERTIFICATE

Odontoglossum illustrissimum var. "Queen Mary" (*Lambianum* × *ardentissimum*), from W. THOMPSON, Esq., Walton Grange, Stone (gr. Mr. W. Stevens).—This is a very beautiful hybrid, with the sepals and petals of a deep, vinous purple, except a small spot at the base, and a very thin white margin. The reverse of the flower is deep claret with a star-like ray, the mid-ribs of the petals being white and the sepals white tinged with rose. The broad lip is white, with purple blotches in front of the yellow crest. The plant bore a fine spike, and was an excellent example of good culture.

AWARDS OF MERIT.

Miltonia Hycana (*Bleuana* × *vexillaria*), from F. MENTEITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).—A very large and well-formed flower, the labellum being specially broad. In colour it is of soft rose-pink, with the white ground showing through. The base of the lip has a light purplish-red mask in front of the yellow crest.

Odontioda Rosefieldiense (*C. Noezliana* × *O. triumphans*).—A very worthy production, with flowers among the largest of the *Odontiodas*, the sepals and petals being of a clear orange-scarlet, the colour not displaying blotching as might be expected from a cross of *O. triumphans*. The lip is reflexed and the colour yellow, tinged with red, and bearing prominent yellow ridges at the base.

Odontoglossum harvingense *Crowshaynum* (*crispum* × *triumphans*), from DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables).—In size, form and general beauty this home-raised hybrid is very superior either to the original natural hybrid (formerly known as *O. loochristiense*) or other home-raised varieties. The flowers are of fine substance, and almost equally broad in the sepals and petals. The ground colour is primrose-yellow, the inner halves effectively blotched with light brown and the lip showing traces of *O. triumphans* in the arrangement of the chestnut-brown blotches in front of the crest.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. A. H. Pearson, J. Cheal, G. Wythes, A. Dean, G. Woodward, W. H. Divers, J. Jaques, J. Basham, A. R. Allan, G. Reynolds, O. Thomas, C. O. Walter, J. Willard, W. Bates, J. Harrison, W. Humphries, J. Davis, A. W. Metcalf, P. D. Tuckett, and J. Vert.

LORD CRUXON, Hackwood Park, Basingstoke (gr. Mr. F. West), showed a dish of fine fruits of Royal Sovereign Strawberry.

DR. NEWINGTON, Titchhurst, Kent (gr. Mr. F. W. Salcombe), showed well-preserved fruits of Annie Elizabeth and Bramley's Seedling Apples.

Messrs. SUTTON & SONS, Reading, staged 18 dishes of salads, including baskets of Cabbage Lettuces Early Paris (with very solid hearts), Golden Ball, Sutton's Giant, and Market; Tomato Winter Beauty; Mustard and Cress; Cucumber Sutton's Market; and Carmine Forcing, French Breakfast, and White Forcing Radishes. (Silver Banksian Medal.)

Messrs. JAS. VEITCH & SONS, Chelsea, set up a capital collection of vegetables, prominent amongst which were baskets of Broccoli Late White, Model, and Chelsea Favourite; Cabbages Beconsfield and Incomparable; excellent Cabbage Lettuces of the varieties Early Frame, Tom Thumb, Golden Queen, Early Market, Late Black Gott, and White Passion; Cucumbers Perfection and Market Gem; Asparagus, French Beans, Spinach, Long Pod Beans, Champion Rhubarb, Mushrooms, various Radishes, and Early Milan Turnips. There were 26 dishes in all. (Silver Knightian Medal.)

AWARDS OF MERIT.

The following vegetables received Awards of Merit, after trial in the Society's gardens at Wisley:—

Cabbage Harbinger (SUTTON & SONS).—This variety was planted in quantity at Wisley, where it proved to be exceptionally early and true to name.

Winter Sprouting Kale Labrador (LAXTON Bros., Bedford).—This Kale also was grown at Wisley in considerable quantity, and produced long, tender sprouts in abundance. The plants are very hardy, and those at Wisley were free from disease. The stock is one selected many years since by the late Mr. Thos. Laxton, and has been grown continuously by the firm. It is one of the best of all branching Kales.

Asparagus Early French (JAS. VEITCH & SONS) and *A. Green Canadian* (BARR & SONS).—These two varieties of Asparagus resemble each other closely. They both proved, in a trial of plants raised three years since from seed, to be stronger, earlier, and otherwise distinct from other varieties in the trial. These vegetables were inspected at Wisley by a sub-committee on the 27th ult.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

MAY 8.—The monthly committee meeting of this society was held in the Royal Horticultural Hall, Westminster, on the above date. Mr. Charles H. Curtis presided. Three new members were elected, making a total of 39 members who have joined this year. A lapsed member having reached 60 years of age, withdrew the sum of £11 11s. 8d standing to his credit. Several members over 60 drew the interest on their account, as per Rule 13. The sum of £51 15s. has been paid for sickness since the last meeting. The secretary will be pleased to send copies of the report for 1910 to any member who will undertake to distribute them.

ROYAL GARDENERS' ORPHAN FUND. ANNUAL FESTIVAL DINNER.

RECORD SUBSCRIPTION LIST OF £1,550.

MAY 4.—The seventy-third annual festival dinner of the Royal Gardeners' Orphan Fund took place on the above date at the Hotel Cecil. The chair was occupied by Mr. N. N. Sherwood, who was supported on the right hand by Mr. Arthur W. Sutton and Canon Curtis, and on the left by Mr. Harry J. Veitch and Mr. William Atkinson. There was present a company of 158, and amongst the diners were many of the foremost representatives of every branch of horticulture. The tables were prettily decorated with Tulips, Irises, Lilies, and other flowers, whilst the side of the banqueting hall facing the chairman was decorated with a very large and imposing group of fine foliage and other plants, kindly lent by Messrs. James Veitch & Sons, Ltd.

After the loyal toasts had been honoured, Mr. N. N. Sherwood proposed the toast of the evening, namely, that of the Royal Gardeners' Orphan Fund. At the outset the Chairman related some interesting particulars respecting the early history of the Fund, which we may summarise as follows.—The first meeting was held on March 22, 1837, in the conservatory at the Royal Horticultural Society's gardens at South Kensington. This meeting was called to consider a proposition made by Mr. Charles Penny, Mr. H. J. Clayton, and Mr. James Udale, "to establish a gardeners' orphanage or fund for the benefit of the orphan children of gardeners as a memorial of the Jubilee of Queen Victoria." The late Mr. George Deal was appointed chairman, and a resolution was adopted unanimously that, "in the opinion of this meeting it is desirous to establish a fund to be called the Gardeners' Orphan Fund." A provisional committee was appointed to prepare a scheme, and this committee consisted of the chairman (Mr. Deal), Shirley Hibbard, Maxwell T. Masters, James Douglas, John Fraser, Charles Penny, C. H. Sharman, Harry J. Veitch, J. Roberts, A. F. Barron, Richard Dean, J. Matthews, John Wright, B. S. Williams, William Richards, Brian Wynne, and W. Roupell. Mr. William Richards was appointed hon. treasurer, and J. Wright, B. Wynne, and A. F. Barron hon. secretaries. The first list of subscriptions received up to that date amounted to £23 14s. 6d., and the list was made up in the office of Messrs. J. Carter & Co., by Mr. Penny, and Mr. Sharman. After numerous meetings of the provisional committee had been held, and rules drawn up, the Fund was duly constituted on July 12, 1837, at a meeting held in the Arcade over the western annex of the conservatory at South Kensington. Sir Julian Goldsmith, Bart., presided at that meeting, and there were present, amongst others, Dr. Hogg, representing the council of the Royal Horticultural Society, Dr. Masters, and Messrs. H. J. Veitch, Shirley Hibbard, George Deal, John Fraser, and others. The first annual general meeting was held at the Cannon Street Hotel, London, on July 15, 1838. Mr. George Deal presided. There were 10 candidates for election, but at the time when the voting papers were issued the committee did not consider it prudent to elect more than six. Later, when the accounts for the year were closed, the financial position had so much improved that the committee decided to place all the candidates upon the Fund. Queen Alexandra, then Princess of Wales, became patroness of the Fund in January, 1892, and early in 1893 Queen Victoria commanded that the Fund should be called the Royal Gardeners' Orphan Fund. The total sum distributed in relief since the establishment of the Fund is £22,958.

After these reminiscences, the Chairman proceeded to state that the present number of children receiving benefits from the Fund was 143. One of the earliest orphan girls to receive assistance is now showing her gratefulness for help received by contributing annual subscriptions. The expenditure each year now amounted to something over £2,000 but, unfortunately, the annual receipts from subscriptions was less than £400. Mr. Sherwood said that it was 22 years since he occupied the chair at the festival dinner. Much progress had been made in those years; the Fund was now in a sound and satisfactory financial condition, although it was scarcely equal to the claims it had to meet. There must be further progression or there would inevitably come upon them a period of decline,

therefore he asked those present to do their very best to help forward the progress of the Fund. It was frequently said that in England more charity is dispensed than in any other country in the world. That was probably correct; in any case, it was a fact that Englishmen accepted the responsibility that they ought to look after the needs of the orphans. Let them, therefore, that evening have a record list of subscriptions, that the amount for the benefit of the Fund might exceed anything that had been raised heretofore. They knew that the Great Teacher of the Christian faith had said that "whosoever shall give to drink unto one of these little ones a cup of cold water . . . verily he shall in no wise lose his reward." Let them heed the words spoken more than 1900 years ago, and they would have their reward.

ing men, and frequently they were exposed to adverse weather conditions. If they were confined to the house owing to bad weather, it was just on those days that they saw the gardener at work. The Chairman had said that in England more money was given in charity than in any other country. He, Mr. Sutton, might say that Monsieur de Vilmorin had stated in a recent letter that there was no such society as the Royal Gardeners' Orphan Fund in Paris, but M. de Vilmorin enclosed a cheque for the English Fund. Mr. Sutton was quite sure that those present at the dinner could raise a fund higher than anything they had ever obtained. To this end, let all give half as much again as they intended to give when they entered the room. The Chairman had brought a larger sum of money to that meeting than any chairman had done previously, and

Horticultural Society had more than trebled in number. He thought it could scarcely be denied that gardening in the neighbourhood of London was better than it used to be. He referred to the offer of £1,000 for a bunch of Sweet Peas, and said that he thought that anything so sensational was scarcely to be commended. If this sort of thing was to go on, he did not know how the horticultural trade would be able to cater for future requirements. Next year, for instance, there might be offered a "fortune for Fuchsias" or a "Peerage for Pansies." Mr. Bilney also referred to the school of science at Wisley, and to the international show to be held in London next year.

The toast of "The visitors" was proposed by Mr. Edward Sherwood, and responded to by Mr. William Atkinson.

The next toast was that of "The Chairman," proposed, as usual, by Mr. Henry B. May, chairman of the Executive Committee. Mr. May said that on the present occasion their president was one of the best known and most highly-respected representatives of horticulture. He spoke of the ability the chairman had shown in his own business and also to the extraordinary liberality he had shown towards the gardening charities. The committee was under an extreme debt of gratitude to Mr. Sherwood, not only for presiding at the dinner, but for the great amount of work he had done towards collecting the largest sum of money that they had ever obtained. In response to the toast, Mr. Sherwood said that he thought that the Coronation year should be marked by the establishment of a "Queen Mary" Fund. He believed that at present the Queen was not a patroness of the Fund, but he hoped that she would become a patroness. In any case, it was desirable to collect a sufficient sum of money that, being invested, would yield a dividend of £13 a year, and thus permanently endow one orphan. If such a sum could be obtained, he should have pleasure in giving £50.

The Secretary, Mr. Brian Wynne, announced that the result of the proceeds of the Chairman's list was as follows:—N. N. Sherwood and family, £276 5s.; Mr. G. E. Messer, £100 Consols, memorial of his late father and mother; Martin H. F. Sutton, £5 5s.; Sutton & Sons, £50; Arthur W. Sutton, £50; Covent Garden list, £203 5s. (Mr. Ingamells, £120; H. J. Wright, £58 9s.; and W. Poupert, £24 16s.); Mr. Reynolds, £100 12s. 6d., including £50 from Mr. Anthony Waterer and £10 10s. from Leopold de Rothschild, Esq.; G. H. Cuthbert, £74 16s. 6d.; N. M. Rothschild & Sons, £26 5s.; Sir Horace B. Marshall, £21; J. F. McLeod, £35; T. P. Trounce, £25; David W. Thomson, £18 7s. 6d.; Whitpaine Nutting, £16 5s. 6d.; W. Atkinson, £15 15s.; R. Hooper Pearson, £15; Chas. Daniells, £12 5s. 6d.; W. Hemmingway, £10; F. G. Ivey, £10 10s.; Alf. Watkins, £10 10s.; J. C. Geislbrecht, £10 10s.; Barr & Sons, £10 10s.; J. C. Eno, £10 10s.; W. P. Atkinson, £10 10s.; James Veitch & Son, £10 10s.; James Carter & Son, £10 10s.; J. Harrison, £10 10s.; F. C. Stainsby, £10 10s.; F. Topham, £7 10s.; P. C. M. Veitch, £9 16s. 6d.; G. L. Castleton, £8 3s.; W. Howe, £8 17s.; H. B. May & Sons, £7 7s.; J. Brydon, £7 7s.; T. W. Sanders, £7 7s.; Worshipful Company of Gardeners, £5 5s.; Worshipful Company of Vintners, £5 5s.; Edward White, £5 5s.; W. J. Jefferies, £5 5s.; Sir T. Lawrence, £5 5s.; and R. Sydenham, £5, making a grand total of £1,550.

The toast of "The Secretary," proposed by the Chairman, was received with enthusiasm.



MR. N. N. SHERWOOD, V.M.H.

(President at the Royal Gardeners' Orphan Fund Festival Dinner.)

Mr. Arthur W. Sutton responded on behalf of the Fund. He said that he felt that all had come to that meeting to do what they could for the splendid fund under whose auspices they had met. Their sympathies should be stirred by the fact that six of the candidates whose claims had been approved by the Executive Committee and who were in every way deserving of help, failed at the last election to be placed upon the full benefits of the Fund. It was only possible to elect 15 out of 21 selected cases. He thought that the least they could do was to raise an additional fund at that meeting to provide for the six unsuccessful candidates. Few of them knew what it was to be an orphan, cast upon the sympathies of the world, but surely they could realise how much orphans needed their assistance. He did not know any class more deserving than gardeners' orphans. Gardeners were hard-work-

ing men, and frequently they were exposed to adverse weather conditions. It only rested with them to do their share and a record subscription list would result.

Canon Curtis proposed the next toast, namely that of "Gardeners and Gardening." In an interesting speech, he described several types of gardeners, and, as to gardening, he said that there were several forms of gardening. One of these forms followed nature, the other subverted nature. He had but little sympathy with the latter form of gardening. Canon Curtis spoke eloquently of the pleasure of gardening, saying that the late Dean Hole once remarked to the speaker that gardening afforded a "tremendous peace and solace in old age."

The response came from Mr. W. A. Bilney, who referred to the progress gardening had made in the 22 years since Mr. Sherwood presided at the festival dinner. This was evidenced by the fact that in that time the members of the Royal

THE NATURAL HISTORY MUSEUM.—At a meeting of the Council of the Royal Horticultural Society, on the 9th inst., the following resolution, carried unanimously, was ordered to be forwarded to the Prime Minister:—"The Council of the Royal Horticultural Society beg to record their great regret that it should be proposed to encroach on the entirety of the site which was secured to the Natural History Museum by the delimitation of its northern boundary by the Treasury and the Office of Works in 1899, which site they regard as being of vital importance to the efficiency of the Museum."

[A resolution to the same effect, adopted by the Council of the Linnean Society, has been forwarded to the Prime Minister, the First Commissioner of Works, and the Trustees of the British Museum.]

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.

MEETING AT THE MANSION HOUSE.

THE LORD MAYOR PRESIDES.

MAY 10.—At the invitation of the Lord Mayor of London, Sir Vezey Strong, a meeting took place in the Egyptian Hall of the Mansion House on Wednesday last for the purpose of promoting the success of the Royal International Horticultural Exhibition, 1912. The Lord Mayor presided, and amongst those on the platform were Lord Aldenham, Sir Marcus Samuel, Bart., Sir Jeremiah Colman, Bart., Mr. J. Gurney Fowler, Mr. Harry J. Veitch, and Mr. Edward White.

THE LORD MAYOR said that the meeting had been called in order to advance the scheme for the holding of a great horticultural exhibition next year. Forty-four years had elapsed since an International show was held in London, and it had occurred to many that it was very desirable an exhibition of this nature should be again held there. Many exhibitions of the kind had taken place in various parts of the world, and it was now thought that London could fairly claim the privilege of having the next exhibition in its midst. He regretted that Lord Balfour of Burleigh could not be with them that day owing to indisposition, and that Lord Rothschild also was prevented from being present. Both those gentlemen wished them every success.

LORD ALDENHAM then moved the following resolution: "That this meeting cordially approves the idea of holding the Royal International Horticultural Exhibition in London in May, 1912, and pledges itself to do its utmost to ensure the success of the undertaking." His Lordship said that the exhibition of 44 years ago was held at Kensington on the ground where the Natural History Museum now stood. The gardens of the Royal Horticultural Society adjoined the site, and they contributed greatly to the success of the show. A large profit was obtained, and part of that sum was spent in purchasing the Lindley Library and part was given to the Gardeners' Royal Benevolent Institution. The exhibition next year would be held on an excellent site at Chelsea. Twenty-two acres had been allotted to it, and they hoped to make a much greater success of the show than was the case 44 years ago. Everybody who followed horticulture knew that, whereas gardening was once the pursuit of the few, nowadays there were not many people who did not know something about flowers and plants. As the Lord Mayor had said, there had been many International horticultural exhibitions, some of the more recent being those of St. Louis, Liège, Ontario, Ghent, Berlin and Buda Pesth. He was sure they would feel that the time had arrived when London should show what English people were doing. He thought the City was a very appropriate place to speak of horticulture. Those who worked in the City needed some refreshment, recreation and relaxation. Some of us, said his Lordship, do not feel able to hunt as we used to hunt, nor do we care, as we used to care, to go out and kill something; but the love of horticulture does not leave us. Once a man has a love for a garden, he has it for ever. However old he is, and even if he has to be wheeled about in a bath-chair, he can still enjoy the garden. Nor does it signify whether he is rich or poor, whether he has a large garden or only a small garden, he can enjoy the relaxation. It was with much pleasure that he moved the resolution.

SIR MARCUS SAMUEL seconded. He heartily endorsed all that had been said by Lord Aldenham. The fact that the R.H.S. had decided to forego their own Temple Show in favour of the International exhibition proved the deep interest of the Society in the scheme. He was quite sure that nothing could better help to promote the comity of nations, and nothing could do it more agreeably than an interchange of ideas on matters of horticulture. The members of the Worshipful

Company of Gardeners had just visited Holland, where they received a most cordial reception from Dutch horticulturists. He was sure that the City would do everything possible to ensure the success of the present movement, and visitors to the exhibition next year would receive a first-rate welcome.

SIR TREVOR LAWRENCE, BART., President of the R.H.S., supported the motion. His recollection of the R.H.S., he said, went back many years, as he was now approaching his eightieth year. Many years ago, when he came home from school, he always looked forward with the greatest possible pleasure to being taken to the gardens at Chiswick. Since those days the R.H.S. had passed through a long period of prosperity followed by adversity, but the society now held a higher position in the opinion of horticulturists than it had ever held. The love of horticulture had spread through the length and breadth of the land, not only amongst those who had large gardens and plant-houses, but amongst even those who could barely get the necessaries of life. On many notable occasions English horticulturists had received the greatest hospitality from many sources on the Continent, and it was desired to extend the same hospitality to their visitors when they came here. He well remembered the show in 1866. It was a most successful one, but he was certain that they could now make an exhibition that would excel the earlier one in every respect.

SIR JEREMIAH COLMAN, BART., also supported the motion. As Hon. Treasurer, he gave on behalf of the Executive Committee, some particulars in regard to the exhibition scheme. As to patronage, they had been fortunate enough to obtain the patronage of their Majesties, the King and Queen, and they had every reason to anticipate that their Majesties would be present in person to open the exhibition. Following their Majesties' names came that of Queen Alexandra, who on so many occasions had evinced her love for horticulture. He thought he might say without exaggeration that after the name of Queen Alexandra followed those of the rest of the Royal Family. Turning to the list of vice-presidents they would find there what the historian described as the "Flower of the English aristocracy," and there were also the names of a large number of ladies and gentlemen who were prominent, not only in horticulture, but in many other spheres. In order that they should not confine themselves to England, Scotland, Ireland, and Wales they had got what they termed an "Empire List of Honour," and already they had such names as those of Lord Strathcona, High Commissioner of Canada, Sir George Reid, High Commissioner of Australia, Sir Richard Solomon, High Commissioner of Africa, and the names of the highest representatives of nearly every British colony. In order that the exhibition should be really international, they had got a long list of foreign members of honour, including eminent gentlemen connected with horticulture in foreign countries, from America in the west to Russia in the east, and he believed that the list already numbered 150 names. So he thought they would feel that, so far as brotherhood was concerned, there was very little left to be desired. Coming to the Executive Committee, they had been fortunate enough to secure as President his Grace the Duke of Portland, who would use his personality and influence in helping to perform the functions which would naturally devolve upon the Executive. Then they would agree that they could not have been more fortunate in their Chairman than by selecting Mr. Gurney Fowler, not only because he was a man of affairs, but because he had a great knowledge of horticulture, and was Treasurer of the Royal Horticultural Society. Mr. Edward White, who had been selected as Honorary Secretary, would spare no pains on behalf of the exhibition. The Executive Committee had been chosen from gentlemen who had great experience in horticultural affairs. He did not know whether it should be a matter of reproach that the only member that they had been able to find who had a knowledge of the management of the last international exhibition was their veteran friend, Mr. Harry Veitch, whom they were so glad to see with them that day. Then, as to the site. In London it was no easy matter to find a sufficiently large open space; but they had obtained an admirable site at Chelsea. It comprised something over

20 acres, of which 16 acres were available for the purposes of the exhibition, and although he had no doubt but that they could fill a space ten times larger than that, he felt that it was better that the site should not be too large, because they wanted people to know that when they came to the exhibition they would see nothing that was not of the best. It was not a disadvantage that those who had the duty of allotting the space would be able to do so only to exhibits which were worthy of the occasion. A very strong committee had been formed, with the Right Hon. Dyke Acland, chairman, and Mr. F. J. Chittenden, secretary, to promote a scientific and educational section of the exhibition. There would be a considerable exhibit relating to plant physiology, so far as it concerned cultivation. Another exhibit would deal with the effects of fungi and bacteria, and other things of that nature. There would also be an exhibit of insects that are helpful or harmful to plant life, and there would be another exhibit in connection with breeding and the Mendelian theory of inheritance, about which hybridists knew so little but wished to know so much. They hoped to go further and have discussions on the various steps which might be taken by the legislature for the benefit and advantage of horticulture, and also as to the condition of employment—horticultural employment in different parts of the world. He thought that he had said sufficient to show that the educational and scientific side had not been forgotten. Touching on the question of resources, Sir Jeremiah Colman said that they had no experience of the actual amount which might be required, nor was it possible to get exact knowledge at this early stage. There was every reason to suppose that the exhibition would be an unqualified success, but, at the same time, they asked for support in the shape of guarantees and subscriptions, so that they could give their services unhampered by any anxiety as to the financial side of the question. The collection of these amounts was in the very able hands of Mr. Ingram, of the Gardeners' Royal Benevolent Institution. He wished particularly to say, in connection with the executive and its relations with the R.H.S., that the fact that they had with them at that meeting, Sir Trevor Lawrence, the President of the Society, and Mr. Fowler, the treasurer, was sufficient evidence that those relations were of the most cordial nature. The R.H.S. had come forward in a very generous spirit, and had given £1,000, besides becoming guarantors to the extent of £4,000. In return, the Fellows of the R.H.S. were receiving very substantial privileges. As to the awards to be made at the exhibition, he had the strongest feeling that the honour of gaining a place should be the highest award anyone could desire; but, for good reasons, money was offered in certain difficult classes, in addition to the large number of cups, medals and diplomas. It was hoped that they might get together a collection of paintings of flowers, to be exhibited at functions to be held in the R.H.S. Hall or some other place. In fact, they were working for an exhibition which would be representative and historic. He must not omit to say how thankful they were to the comity secretaries throughout the country for their valuable services. The resolution was adopted.

MR. GURNEY FOWLER moved a vote of thanks to the Lord Mayor for lending them the Egyptian Hall for that meeting and for taking the chair. He added, that in the course of a week or so the Executive would send a statement giving full particulars of the International show to all interested in horticulture, whose names could be obtained.

MR. HARRY VEITCH seconded the motion. Alluding to the remarks of Sir Trevor Lawrence, he said that he himself could remember attending a Chiswick Flower Show 60 years ago. At the coming exhibition they would have many flowers not known in 1866, but they would miss many that were seen at that great show. At the same time he did not hesitate to say that there was every prospect that next year's show would exceed anything that had been seen in London or anywhere else. The motion was adopted with enthusiasm.

SIR MARCUS SAMUEL returned thanks for his Lordship, who had to leave before the close of the meeting.

Obituary.

ROBERT SERVICE.—Mr. Robert Service, a well-known nurseryman, of Maxwelltown, Dumfries, died on May 8. Mr. Service was brought up to the business of a nurseryman by his father, the late Mr. James Service, and for a number of years was, together with his brother, Mr. Joseph Service, in business under the name of James Service & Sons. For a short time after his father's death, Mr. Robert Service remained in partnership with his brother, but the firm was dissolved, and he continued the business at Galloway Street, and the Corberry and Janefield Nurseries, under the old name. Last year the business was sold, and Mr. Service, whose health had almost completely failed, withdrew from active work, when the esteem in which he was held was evinced by the presentation of a testimonial. Mr. Service was a member of the Floral Committee of the Royal Caledonian Horticultural Society, and was connected with a number of associations devoted to scientific and antiquarian pursuits. He is survived by his widow, two sons, and several daughters.

C. R. COLLINS.—The death of Mr. C. R. Collins, J.P., of Hartwell House, Exeter, occurred on May 7. Mr. Collins was 86 years of age, and was one of the best-known amateur gardeners in the county of Devonshire. For many years he was chairman of finance for the Bath and West and Southern Counties Show, and the magnificent baskets of Adiantum—7 feet through—hung in the flower-show tent at these exhibitions are still remembered as the finest seen in the county. Some years since he was president of the Devon and Exeter Gardeners' Association, and 21 years ago, when High Sheriff of the County of Devon, president of the Devon and Exeter Horticultural Society. At the time of his death he was president of the Devon and Exeter Auxiliary of the Gardeners' Royal Benevolent Institution. At one time Mr. Collins was the owner of large paper mills in Devonshire, and was the first contractor to the Government for postcards when they were introduced.

GEORGE LOCK.—The death of Mr. George Lock, corn and seed merchant, High Street, Crediton, occurred on May 5, following an attack of apoplexy. Until a short time ago deceased was gardener to Mr. B. Cleave, and latterly to Miss Cleave, at Newcombes, Crediton. For 20 years he was a successful exhibitor of vegetables, fruit, Chrysanthemums, and specimen plants at the Devon and Cornwall shows.

HECTOR MACMILLAN.—It is with regret that we learn of the death of Mr. Hector Macmillan, Gardener at Torrisdale, Kintyre. Mr. Macmillan was for nearly 40 years gardener to the late Peter Hall, Esq., Torrisdale, and to the present owner of Torrisdale, Major MacAlastair Hall.

ANSWERS TO CORRESPONDENTS.

BIRDS AND FRUIT BUDS: *E. S. R., Waltham Cross.* The lime and sulphur used by "Southern Grower" (see p. 229) was obtained in prepared form from Messrs. Voss & Co., one gallon being mixed with six to eight gallons of water as a wash for dormant trees only. The density of the preparation varies, and it is desirable to ascertain from the makers how much sulphur it contains, and then to dilute so that there will be at least 10 lb. of sulphur in 50 gallons of wash as applied to the trees. If there are 12 lb. it will not be too strong for dormant trees. Or the density may be ascertained by means of a Baumé hydrometer, costing 5s., and then the dilution should be varied as follows, according to recent American trials:—At 20°, 1 gallon to 5 gallons of water, increasing the water by half-a-gallon for each degree of higher density, until at 30° the dilution will be 10 gallons of water to 1 gallon of solution. The preparation may be made at home by boiling in an iron vessel for an hour 40 lb. of the best quicklime and 80 lb. of flowers of sulphur in 50 gallons of water, stirring well at intervals, and adding hot water to keep the quantity up to 50 gallons. After cooling, the preparation should be strained. It will be best, the mixture should test at least

24° Baumé, and then one gallon will need to be diluted with seven gallons of water. Smaller quantities can be made in the same proportion.

CARROT-FLY: *Lygtonian.* Spray the plants with paraffin emulsion, made by mixing paraffin and soft soap in water in the proportion of one gallon of paraffin and half-a-pound of soft soap to 10 gallons of water. Dissolve the soft soap in one gallon of hot water, add the paraffin, and incorporate this mixture with a hand pump or syringe. The water should be added afterwards. Another method which has been found very effective is to spray the bed after sowing with the paraffin emulsion, spraying again after germination, and again after thinning. Care must be taken to prevent the female flies from laying their eggs on the plants. Soot, earth, ashes or sand may be sprinkled with carbolic acid and applied to the plants before they become well established.

KOCHIA TRICHOPHILA: *L. H.* This plant has been in cultivation since 1903. It is a sport or variety of *K. scoparia*, and not a distinct species. The type is a native of Europe.

LEAF-MOULD AND WOOD ASHES: *A. P.* Leaf-mould is very beneficial in most soils. The humus it contains supplies valuable plant food; it also serves to lighten heavy soils, and, being retentive of moisture, is a valuable addition to light, sandy ground. Being of a dark colour, it assists in warming the land, through absorbing the sun's heat. Wood ashes are chiefly valuable for the large amount of potash they contain, and, in the case of heavy soils, they assist in promoting an open texture. The charred portions of wood often present in wood ashes assist in sweetening the soil.

MARROWS IN FRAMES: *Lygtonian.* Marrows may be grown in frames, but special care must be taken in respect to ventilation. Artificial pollination is advisable: pick off the male blossoms, and, taking them with the finger and thumb, rub them over the stigmas of the female flowers.

NAMES OF PLANTS: *W. J. H.* *Spiraea arguta*.—*Wm. P. & Co.* *Apium graveolens* (Wild) (Celery).—*T. N.* 1. *Stellaria grammaea*; 2. *Ambrietta Dr. Mules*; 3. *A. lilacina*; 4. *A. Leichtlinii*; 5. *A. rosea*; 6. probably *Ambrietta purpurea*.—*R. T. T.* 1. *Aerides japonicum*; 2. *Pleurothallis rubens*; 3. *Stelis micrantha*; 4. *Gongora portentosa*; 5. *Masdevallia simula*; 6. *Ocotelea diaphana*.—*Bilmont.* *Oncidium Marshallianum*.—*J. F. M.* 1. *Berberis Darwinii*; 2. *Pyrus Malus floribunda*; 3. *Akebia quinata*; 4. *Spiraea confusa*.—*I. B. C.* *Cypripedium philippinense*.—*E. T.* *Aerides virens*, and a hybrid *Dendrobium* of the *D. Ainsworthii* class, probably that known as *D. splendissimum grandiflorum*.—*F. G.* *Clematis indivisa lobata*.—*I. E. B.* A very good form of *Cattleya Mossiae*, nearest to *Cattleya Mossiae Arnolliana*.—*B. W. C.* 1. *Viola sylvestris* var. *alba*; 2. *Sesleria cerulea*; 3. *Carex digitata*.

PEACH BUDS DROPPING: *H. F. G.* If you suspect that the central hot water pipes are responsible for the buds dropping, do not heat them next season. The crop may be a little later, but it will prove whether your assumption is correct.

PEACH LEAVES DISEASED: *G. W. D., Burton.* The foliage is affected with blister or curl (*Exoascus deformans*). Remove any diseased leaves when they are seen, and burn them, and prune back the branches which bear the diseased leaves beyond the point of infection. Spray the trees with dilute ammoniacal solution of copper carbonate.

PROTECTING SMALL FRUITS: *J. W. B.* Zinc netting is not often employed for protecting small fruits from birds. Why not use ordinary wire netting, which is merely galvanized to preserve it?

RHODODENDRON SINENSE (SYN. AZALEA MOLLIS) AND PEONIES: *C. D. Y.* These plants are naturally free-blooming subjects, but if they are growing in a shady situation they will not produce many flowers. If they are in a sunny position, growing freely, and yet fail to bloom, it points to a too generous treatment in the way of manures. Do not apply a mulch too early in the year, but allow the sun to warm the ground first. If no manure is given this season, the plants will probably flower satisfactorily in 1912.

ROSES PRODUCING SEMI-DOUBLE FLOWERS: *G. D. Y.* Forced blooms of Roses may develop semi-double flowers from one of two causes: (1) forcing imperfectly-ripened plants, or (2) forcing them too hard, so that the blooms are produced before sufficient root action has taken place. Next season, maintain a lower temperature in the greenhouse where the Roses are introduced.

SPARMANNIA AFRICANA: *L. H.* When grown under favourable condition, it is not unusual for *Sparmannia africana* to produce fertile seeds in this country.

TOMATO: *J. P., Manchester.* Sleepy disease is to be detected in Tomato plants by the leaves appearing dull, and afterwards drooping, the stem also collapsing. The disease attacks the roots first, and is not seen until it has grown through the stem and tissues of the plants to produce its spores. All diseased plants should be burnt, as there is no cure when the fungus is present in the tissues.

TOMATO DISEASED: *J. M.* The Tomato plants are affected with Black Spot (*Cladosporium lycopersica*). Directly the leaves show signs of attack, they should be removed, and burnt at once. Avoid using green manure, and anything that might cause the fruits to crack, as the spores of the fungus gain an entrance to the fruit through punctures in the skin. Over-watering also has this effect. As a preventive of this disease, ventilate the house freely, and spray the plants at frequent intervals with potassium sulphide. This should be prepared as follows:—Dissolve 1 ounce of potassium sulphide (liver of sulphur) in a quart of hot water, then make up to 2½ gallons with cold water. The plants should be fed with manure water.

TREATMENT OF LILAC AFTER FORCING: *Lilac.* Lilacs after being forced should be removed to a cool house or pit from which frost can be excluded, and be kept rather on the dry side, in order that they may get a partial rest. After about three or four weeks of this treatment they should be reotted, using a compost of loam, sand, and well-rotted manure. When danger from frost is over the plants should be plunged out-of-doors in a sunny position, and be given liquid manure occasionally during the summer months. The need for cutting back the shoots will depend upon the condition of the plants; as a rule, only a very little shortening of the younger wood is necessary. In any case, do not cut back into the old wood, and always cut to a plump bud. Much good results from disbudding as soon as the shoots are showing well, removing all weakly and blind branches, but leaving the strong-growing shoots. A most important point is to keep the plants well fed during their growing season.

VIBURNUM: *J. B.* The specimen sent for determination is *Viburnum Tinus* var. *lucidum*. It can be propagated in July by means of cuttings made from shoots of the current year's growth. The cuttings may be 4 or 5 inches in length, and they should be inserted in pots of sandy soil, which should be plunged in a slight bottom heat in a close frame. Care must be taken to prevent the bottom heat becoming excessive, for this would be less satisfactory than providing no heat at all. When the cuttings are rooted, place them in a cold frame for the winter and plant them out in a nursery border next spring.

VINE LEAVES DAMAGED: *Correspondent.* The small green bug, of which two damaged specimens were enclosed, belongs to the genus *Calocoris*; but unless the pest occurs in great numbers it is improbable that the injury to the tips of branches has been caused by these creatures. It is more probable that a wrong condition of the borders is responsible for the defect, although the larger perforations in the smaller leaves may be due to punctures made by *Calocoris* bug. If the pest occurs in considerable numbers, tap the vines over an inverted umbrella once or twice daily, and destroy any bugs which may be caught in this way.

Communications Received.—A. A. F.—W. T. R.—L. Y. T.—B. S. W.—Fermey (thanks for donation to R. G. O. Fund)—T. S. Chelmsford—R. P.—W. B.—E. M. C.—L. E. W.—W. A. H.—W. D.—W. B. H.—J. A. C.—J. R. W.—S. C.—A. J.—R. W.—E. B.—H. W.—W. E.—G. W.—A. P.—R. F.—D. R. W.—S. A.—H. R.—F. W. J.—W. J. V.—R. I. L.—T. G. W.—H.—G. F.—D. M.—G. H.—J. R. S.—L. & Co.—G. H. L.—W. E. B.—G. F. Y.—W. E. B.—H. T. G.—A. H. A.—A. W. S.—B. & Sons.—J. Edwards.

THE

Gardeners' Chronicle

No. 1,273.—SATURDAY, May 20, 1911.

CONTENTS.

Bee-stings, a remedy for	313	Orphan Fund, Royal	316
Benevolent Institution, Gardeners' Royal	313	Parks, L.C.C., the cost of	313
Books, notices of	312	Prunus insignis in South	314
Crown-Gall of Plants	314	Australia	314
Knowledge	314	Plants, new or noteworthy—	
The Botanical Magazine	313	Beaumontia fragrans	306
The Flora of Buenos Aires	308	Potato disease	316
The Raising of Plants from Seed	308	Rhododendrons, new, at the Boskoop show	313
Cardiff, gift of a park to Cineraria "Beauty of Cambridge"	315	R.H.S. Gardens Club	313
Coronation trees	316	Rosary, the—	
Cyder industry, the	305	Fragrant Roses	315
Formosa, the stinging tree of	314	Scotland, notes from	307
Fruit prospects in North Wales	316	Societies—	
Fruit traffic, restriction of, in the Transvaal	314	British Gardeners'	319
Fruit trees, self-sterility in	312	Horticultural Club	318
Grapes at Charlecombe	313	National Auricula and Primula (Midland section)	317
Gra ge, Bath	313	North of England Horticultural	318
Kew, annual visitors to	313	Royal Horticultural (Scientific Committee)	316
Law note—		Scottish Horticultural	318
Failure of a market gardener	319	South Africa, dispatching plants to	306
Lilac, a disease of the Lithospermum and lime	316	Storm, a severe	316
Market fruit garden	309	Temple flower show	312
Nursery note—		Trees and shrubs—	
Bull & Sons, William, Chelsea	314	Bamboos in tubs	307
Obituary—		Prunus serrulata var. James H. Veitch	306
James Boddie	320	Rhododendron Edgeworthii	306
Orchid notes and gleanings—		The Douglas Fir	307
Cypripedium vogelzang	308	Vine mystery, a	316
Epi-Cattleya salmonicolor	308	Week's work, the—	
Odontioda rosefieldensis	308	Apiary, the	311
Odontoglossum crispum "Coronation"	315	Flower garden, the	310

ILLUSTRATIONS.

Auricula "Henry Wilson"	317
Beaumontia fragrans (Supplementary Illustration)	306
Beaumontia grandiflora in California	307
Cineraria "Beauty of Cambridge"	309
Cypripedium vogelzang	314
Hippeastrums in Messrs. Bull & Sons' nursery	308
Odontioda rosefieldensis	308
Odontoglossum crispum "Coronation"	315

THE CYDER INDUSTRY.

TRAVELLERS in Devon and Somerset may notice Apple orchards which apparently get but scant attention from their owners.

It does not appear necessary to set the trees upright when blown down by the winds, nor does the wood of old decayed trees which have succumbed to previous storms seem worth cutting up for firewood, for they are left prone, to be scratched on by the red cattle. As for pruning or regulating the branches, the reasons for these operations do not appear to be known to the proprietors. Lichens and mosses clothe the trees in parasitic peace, undisturbed by caustic washes or anything else.

Such are the impressions of observers used to the trim, well-kept, modern orchards of Kent and some other counties, but there is another aspect which must not be overlooked. These "ancients" are the producers of the "Wine of the Country." Whether the produce pays such a poor return that the trees are neglected, or whether the axiom, "as it was in the beginning, is now, and ever shall be" is the motto of the farmer, or the order of the farm, I cannot say, but on inquiry, I find that cyder-making for home consumption is dying out, the growers preferring to send their fruit to a factory rather than to make cyder at home, with the incident trouble, and the chance of the brew turning out badly. The working classes now prefer beer to cyder, and the old-fashioned plan of giving cyder as part of the wages is dying out.

January 1 is the settling day for fruit purchased in Totnes, and quite a crowd of growers attend. Those living further away are paid later at Exeter. I was much interested in an interview kindly granted me by the Mayor of Totnes, head of the firm of John Symons and Co., whose cyder has a world-wide reputation. Being at Totnes in March, I had to imagine the stores filled with cyder or vintage fruits, but a few minutes sufficed to convince me that there was ample accommodation for a bumper crop, and an up-to-date plant to deal with it without delay or confusion. Totnes may be considered as the "Clapham Junction" of the industry. The River Dart flows at the foot of Symons's enormous stores, giving ready access for the import of fruit by river, and for the export of the finished article by sea carriage via Dartmouth, while at the other side of the stores the Great Western Railway has a siding, bringing the fruit from local sources, together with Welsh coal for the engines which provide power for haulage, grinding, pressing, elevating and disposing of the hogsheads, pumping up the liquor to the vast tanks, blending, drying the pomace or refuse after pressing: all important matters: for manual labour must be minimised and accuracy ensured, together with cleanliness and promptitude in despatch and in checking the inward delivery of fruit.

Returned bottles are first washed outside by an ingenious process, and then thoroughly washed inside by a steam brush, the most difficult operation being to remove the tin-foil, which sticks very closely.

One hundred-weight of fruit gives 10 gallons of juice, and 7 tons make 16 barrels. There is ample storage for 20,000 hogsheads, each holding 63 gallons, and the firm has other stores at Newton Abbot, Ashburton, Buckfastleigh, Staverton, Paignton, and Tuckenhay.

Owing to the restrictive tariffs on export (1s. 6d. per gallon to France, 5s. to Germany, and equally high customs duties to America), it is surprising that any foreign trade is done. It is only the excellent quality of the produce, and the natural appetite which the Devon natives across the water have for their home drink that enable the firm to maintain their export trade, and in our sun-burned possessions of Cyprus, Malta, Egypt, and India cyder is a welcome beverage to those unable to afford the Champagnes and Moselles of the Continent.

Prizes for orchards are awarded by the County Council in the middle of the gathering season, regard being paid to the general management, the absence of Thistles, Nettles and coarse grasses which, by obscuring the sun's rays, prevent the roots from getting the benefit of the solar warmth.

Besides the firm of Symons, Messrs. Henley & Sons, and Benthall & Co. carry on a large business at Totnes, and have stores at Newton Abbot and Paignton. Messrs. Harper are also noted makers at Crediton.

Naturally the busy season is in September and October, but work is found for the regular hands in washing and mending the bags, coopering the casks, cleansing them by shaking steel rings in and around them, steaming them for purification, and in testing and blending the various brews, so as to secure an even regular quality, whereby the average and much-admired flavour, aroma and body may be secured.

Messrs. Symons's London stores are in Rattcliffe, E., where a large staff is employed in bottling, labeling, tin-foiling, and packing for export and home delivery.

The National Cyder Institute at Long Ashton, Bristol, has done much to encourage the growth of vintage Apples, and has raised a fine stock of healthy, vigorous trees. The Institute gives

demonstrations to direct farmers how to plant, protect and prune young stock, in order to produce fine, evenly-balanced trees, and have insisted on the keeping of newly-planted trees free from grass. Scientific work is carried on in the laboratory attached to the farm, and advice is given free to all inquirers.

This action will have beneficent results in the future, and I was much pleased with my inspection of the Institute.

As regards the Devon orchards themselves, they are generally grazed by cattle and pigs, and the grass is often very long and lush, but it must be borne in mind that the value of cyder apples consists, not in large size and consequent low specific gravity of the juice, but in the percentage of tannin, malic acid and sugar they contain, and these natural qualities are best secured in fruits of medium size. The virtues, so to speak, lie under the skin, and large fruits are apt to produce watery cyder which will not keep.

On entering Messrs. Symons's ample stores, I noted first a weighbridge to check the bulk of Apples as they arrive in bags. Above the weighbridge was an apparatus to haul the bags to an upper floor, where they are disposed in bins (perfectly clean and whitewashed). There the stock of each grower, or of each variety, is kept till the bulk is mellowed and fit for crushing. Such Apples as are fit for immediate use are at once put in hoppers from the weighbridge on an endless chain, and ascend to the crushing mills, where they are torn to pulp, and drop to the frames for pressing. The frames are on iron rails, and each holds two sets, one being under pressure, and the other being filled for pressing at the same time. When most of the juice has been extracted, the "pomace" is returned to the angry teeth of the crusher and again pressed to get every drop of juice from it. It then descends to the ground floor and is ready for desiccation. This process was a novel one to me, as I always believed that the "pomace" was useless, having seen it thrown aside in waste heaps. However, Messrs. Symons now make the dried pomace into a valuable cattle food, which is considered by feeders to be equal to cotton cake, and is less in price. The "pomace" has been analysed, and its constituent elements are found to be admirably suited for feeding cows kept for cheese-making, but naturally a dry feed is not advisable for milk production. It is heaped in the pastures and the cows help themselves as they like. It must be put out in small quantities since it soon becomes mouldy.

The expressed juice is led by pipes to vast oak tanks, and thence is pumped to the hogsheads above, through iron pipes lined with glass, so that the acid in the juice does not come in contact with any metal. Careful watching of the fermentation then ensues, and this is supervised by the foreman, who, from long experience, knows exactly when to arrest the process. Samples are then analysed, and the results give the operator an insight into the proper blend required to turn out "sweet," "dry," "sparkling," or "imperial" cyder. Old cyder experts prefer to see a "mother" or "cobweb" in the liquor, but London hotels insist on the cyder in bottle being perfectly clear, and to obtain this condition a special carbonising machine is employed.

The cyder of the current year is fit for use the next season, and one wonders whither it all goes, when tuns holding 10,000 to 15,000 gallons are in evidence—vast oak receptacles some 18 to 20 feet high. These stores enable the dealers to equalise

the supply, as cyder Apples are not abundant every year (1910 was a short season), but the growers say that one year with another the returns are pretty regular; a short crop with high prices, a bumper crop and accompanying drop in prices for the larger output.

Messrs. Symons consider the Foxwhelp, Tavy Harvey, and Beckington Grey Apples make cyder of the best quality, but other notable varieties are Cherry Pearmain, Black Taunton, Norman Sweet, Red Spark, Butter Boxes, and White Norman. Their stock brands of cyder are "Imperial Dry," Apple Blossom (dry and sweet), and Champagne Cyder (dry and sweet). They also make an Imperial Perry, and (?) Ginger Wine in the off season. I am not a judge, and do not presume to criticise, but all of these seemed very pleasant brands.

Unfortunately, my leisure time has never permitted me to see the cyder trees in flower, but I feel sure that the lovely Pink Apple blossom would lead me to adopt some of them as varieties suitable for garden decoration. *George Bunyard, Maidstone.*

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

BEAUMONTIA FRAGRANS.

(See Supplementary Illustration.)

BEAUMONTIA is a genus of Apocynaceæ of which about half a dozen species have been described. They are evergreen, climbing shrubs with large opposite leaves and handsome white flowers in terminal cymes, and natives of India or Malay. The best-known species is *B. grandiflora*, a native of the Eastern Himalaya up to 4,000 feet. It has a stout, woody stem, with long, climbing shoots, which sometimes reach to the top of very high trees; leaves broadly oblong, from 6 to 12 inches long and 3 to 7 inches wide, tinged with red when young; flowers tubular-bell shaped, 5 inches long, creamy white, very fragrant, with five rounded segments. Under cultivation in a greenhouse they are developed freely in May, and a well-managed plant is one of the handsomest of all warm-house climbers. We have seen it in fine condition at Kew, where it is trained under the roof glass of a tall intermediate

from March until August. I have been trying for some time to get more plants of it from Honolulu, but have not succeeded; probably they do not know how to propagate it there." The Supplementary Illustration represents a picture of *B. fragrans* obtained by Mr. Sturtevant from Honolulu.

Somewhat similar to *B. fragrans* is *B. breviflora*, which is figured and described by Oliver in Hocker's *Icones Plantarum*, t. 1582 (1886), and is a native of Hainan. It is said to be allied to *B. grandiflora*, from which it differs in the broad calyx segments, and more markedly in the form of the corolla, which is rather rotate than infundibuliform, as it is in *B. grandiflora*. In the latter species, too, the lobes of the corolla are relatively much shorter than they are in *B. breviflora*. The flowers of *B. fragrans* are very shallow bells about 4 inches across, and they are said to be very fragrant. The plant ought to be valuable for clothing pillars, &c., in large, warm houses in this country, and in warmer countries it will, no doubt, prove as good a garden plant as *B. grandiflora*. We should mention that *B. grandiflora* is quite hardy in Los Angeles, where it covers the gable end of Mr. Sturtevant's house (see fig. 138), the shoots clothing even the chimney pots.



FIG. 138.—BEAUMONTIA GRANDIFLORA GROWING AGAINST MR. STURTEVANT'S HOUSE AT LOS ANGELES, CALIFORNIA.

(See also Supplementary Illustration.)

SOUTH AFRICA.

DISPATCHING PLANTS TO SOUTH AFRICA.

In March last a well-known nursery firm consigned to the Public Park of Uitenhage, Cape Colony, a case containing Clematis and Peonies per R.M.S. "Walmer Castle." The steamer arrived in Algoa Bay (Port Elizabeth) 19 days later (March 30), and at once discharged her cargo, but although Uitenhage is only 20 miles from Port Elizabeth by rail, with a good daily service of trams, it was not until eight days later that the case of plants reached its destination. Fortunately, owing to the excellent manner in which the plants were packed, they arrived in a splendid condition, and are likely to do well. My own experience of importing bulbs and plants is that, in cases where it is possible, the parcels post should be taken advantage of. One instance will suffice. One Thursday (English mail day) in February, 1910, I was advised by a London firm that they had dispatched a collection of Michaelmas Daisies by parcels post. A little more than 48 hours later the plants had been received and potted. *H. F. Uitenhage, Cape Province.*

house; but there the flowers are apt to be spoilt by fog. It has been in cultivation since 1818 and is now widely distributed in gardens throughout the tropics. A second species, *B. Jerdoniana*, a native of the Deccan Peninsula, is also in cultivation, but it is probably nothing more than a small-flowered variety of *B. grandiflora*.

We are indebted to Mr. E. D. Sturtevant, Hollywood, Los Angeles, California, for particulars of a *Beaumontia* which he has in cultivation at Los Angeles. He first sent a tracing of the flowers and a leaf, asking if the species could be identified. There is little doubt that it is *B. fragrans*, of which there are dried specimens in the Kew herbarium, but of which very little is known, beyond the mention of the name and a very brief description by Pierre in Planchon's *Prodromus Apocynacea* (1894). The species was found by Pierre in Cochinchina, and was at first supposed to be a form of *B. grandiflora*. In a second letter Mr. Sturtevant wrote:—"I have a plant of the new *Beaumontia* which is now 18 inches high. I obtained it from Honolulu, Hawaiian Islands, where it is cultivated in gardens under the name of *B. grandiflora*, which I know to be wrong, as that species is represented in my garden by a large plant which flowers freely in the open air

TREES AND SHRUBS.

RHODODENDRON EDGEWORTHII.

This Himalayan *Rhododendron* is not hardy except in particularly favoured parts of Great Britain. When growing freely it forms a somewhat loose bush, clothed with firm, leathery leaves that are markedly rugose on their upper surfaces, and densely clothed with tomentum underneath. This tomentum is also found on the young shoots. The large, pure-white flowers have a yellowish blotch on the upper part of the interior petal, and they are deliciously fragrant.

On account of its fragrance *R. Edgeworthii* has been largely employed by the hybridist, and many of the greenhouse *Rhododendrons* are related to it, including such well-known varieties as *fragrantissimum*, *Lady Alice Fitzwilliam*, *Princess Alice*, *Sesterianum* and *Forsterianum*. The last-named—a hybrid between *R. Veitchianum* and *R. Edgeworthii*—has the largest individual flowers of any of its section, and forms a magnificent conservatory plant.

Some thirty years or more since, a number of hybrids of *R. Edgeworthii* was raised by the late Mr. Isaac Davis, of Ormskirk, but though they were very popular for a time they seem to have almost dropped out of cultivation.

Some of these forms, particularly *Countess of Derby*, *Lady Skelmersdale*, and *Mrs. James Shawe*, are of a dwarf habit than most of the hybrids of *R. Edgeworthii*. This is to be accounted for by the fact that the other parent was the dwarf, free-flowering *R. multiflorum*, itself a hybrid between *R. ciliatum* and *R. virgatum*.

The Ormskirk hybrids were all white-flowered, save that some varieties showed a little colour in the flower buds. The flowers of most of them have crinkled petals and are fragrant. *R. Edgeworthii* often occurs as an epiphyte on tall trees in its natural habitat, and does not need a large mass of soil about its roots. The pots should be well provided with drainage materials, and the compost should consist of fibrous peat and sand. The plants need a liberal amount of water, especially during their actively growing season. W.

PRUNUS SERRULATA VAR. JAMES H. VEITCH.

AMONGST the several varieties of *Prunus serrulata* which are available for garden decoration, the one under notice is perhaps the most beautiful. The deep-pink flowers, $1\frac{1}{2}$ inch across, are

borne in great profusion and are of a richer colour than those of any other variety. They are very effectively disposed amongst the partially developed leaves, which in themselves are not devoid of beauty, for they have a rich, reddish-brown colour. The variety is of vigorous constitution, and grows rapidly when planted in good, loamy soil. It possesses characteristics similar to those of other varieties of the same species, for example, the flowers are borne on short, spurry growths which appear from all parts of the branches. This and other Japanese Cherries are peculiarly adapted for planting as lawn specimens, and are infinitely more suitable for gardens in the vicinity of large towns than the evergreen, coniferous trees which are often selected. They have also special qualifications for small gardens, for they never fail to blossom freely, and may be enjoyed for many years before they out-

in corridors or upon staircases. Where tall, spreading Palms cannot be employed, there the Bamboos will be found useful. They impart a pleasing shade of green, and associate well with almost all kinds of flowering subjects. A good selection would be found in *Phyllostachys aurea*, possibly the best of all, because of its compact manner of growth and the stiff character of the stems; *P. nigra*, another excellent hardy variety, but of more spreading growth and a more graceful plant generally; *P. viridi-glaucescens* and *P. violascens*, two handsome Bamboos, but not quite so dense in leafage as the others I have named. *P. fastuosa*, which is better known in gardens as *Arundinaria fastuosa*, a tall, handsome Bamboo, even more erect in growth than *P. aurea*; *Arundinaria nitida*, one of the most graceful of all Bamboos, and, for grouping, as useful as many of the Palms; and *Thamno-*

open formation its annual increase in girth is greater, the rings contain more of the dark red, stony-hard, summer wood to which it owes the name of red Fir. Hence, in different parts of one and the same tree the wood may appear red and yellow. In mountainous regions the wood shows less variability, and is red. The wood of mountain-grown Douglas Fir is denser and more resistant than that of trees grown near the coast.

SCOTLAND.

EDINBURGH AUTUMN SHOW.

THE Council of the Royal Caledonian Horticultural Society have decided to alter the date of their autumn show in the Waverley Market, Edinburgh, from September 6 and 7 to September 13 and 14, the date for the close of entries being altered to September 6. The railway arrangements will be the same as on previous occasions.

BEQUESTS TO GARDENERS.

THE late Mr. Finlay Smith, of Messrs. F. & J. Smith, tobacco manufacturers, Glasgow, who died recently, has left two bequests to gardeners in his employment. To Mr. George Irvine, who was gardener at Italian Villa, Pollokshields, he has bequeathed an annuity of £25 per annum. To Mr. Lachlan Mackinnon, his gardener at Gadgirth House, Annbank, Ayrshire, he left £150, and to Mr. David Barbour, his forester, a bequest of £100. One year's wages are also left to domestic and other servants who had been in his employment for at least six months prior to his death.

HOPETOUN HOUSE GARDENS.

It is announced that the Marquis and Marchioness of Linlithgow, whose marriage took place recently, are to take up their residence at Hopetoun House, South Queensferry, in September. The gardens there, for many years noted as among the finest in Scotland, have been much improved within recent years. The late Marquis encouraged the improvement of the gardens, but the principal developments are due to the great love of gardening of the Marchioness, who has been ably supported by Mr. Thomas Hay, the gardener. Mr. Hay is recognised as one of the ablest of present-day Scottish horticulturists. The autumn borders are universally admired, and attract many visitors every year. At the time when the Marquis and his bride take up their residence these borders will be very fine indeed, but the whole place is of exceptional beauty. *Correspondent.*



FIG. 139.—CINERARIA "BEAUTY OF CAMBRIDGE": FLOWERS WHITE, TINGED WITH VIOLET.

grow their space and interfere with other trees in the vicinity. By a little careful manipulation of the young growths in the way of stopping, it is possible to keep some of these varieties as moderate-sized bushes for a long time. W. D.

BAMBOOS IN TUBS.

SEVERAL species of Bamboo make extremely useful decorative plants when grown in tubs. Now is a good time to give them attention at the roots. Most of the Bamboos remain healthy for several years in tubs, provided that they receive a reasonable amount of attention; in fact, they do better in tubs than pots. An occasional shift into a larger-sized receptacle will result in a more luxuriant growth in the succeeding season. I prefer to employ good, turfy loam and leaf-mould, or, if the latter is not available or of reliable quality, peat. After potting, the plants should be given some encouragement to produce fresh growth. When well established, they may be used in dwelling-room decorations, preferably

calamus falcata (syn. *Bambusa gracilis*), a plant of very light and elegant growth. Even small pot plants of this species are most useful for decoration. *Jas. Hudson.*

THE DOUGLAS FIR

MR. E. H. FROTHINGHAM, writing in the Journal of the German Dendrological Society (vol. xviii.), makes some very interesting observations on the coast form and the mountain-form of the Douglas Fir (*Pseudotsuga Douglasii*), and on the significance of the yellow and red wood which this species produces. He demonstrates that the kind of wood—red or yellow—is determined entirely by the habitat and mode of growth of the tree. Thus, the green, coast-form of the Douglas Fir, when grown in close formation, in a region with a moist littoral climate, shows rapid growth in height and comparatively slow increase in thickness. In these circumstances it produces yellow wood. When, however, it is grown in the same region but in more

CINERARIA "BEAUTY OF CAMBRIDGE."

This is one of the numerous hybrids I raised some years ago, from a cross between *C. Heritieri* and a white form of the common *Cineraria*. The pure white flowers are tinged here and there with violet, just sufficiently to add intensity to the white ground. The plant is fairly intermediate in the habits of the parents; it has larger leaves, is more branching and much stouter than *C. Heritieri*, but the foliage is smaller than that of the common *Cineraria*. The flower heads are similar in size to the last-named parent, but they are much lighter in appearance, and the entire plant is marked by a grace and elegance that the common *Cineraria* does not possess. Unlike the garden *Cineraria*, *Beauty of Cambridge* is easily propagated from cuttings, and fine specimens can be had in small pots. It is an ideal *Cineraria* for vases and room decoration. The illustration in fig. 139 is from a photograph of a plant growing in the Cambridge Botanic Garden. *R. Irwin Lynch.*

NOTICES OF BOOKS.

THE FLORA OF BUENOS AIRES.*

A CATALOGUE of the Vascular Plants of a defined area always presents points of interest, more especially when, as in this case, that area happens to be in the southern hemisphere. Dr. Hicken claims for his catalogue that it is so nearly exhaustive of the native and naturalized plants of the city of Buenos Aires and its environs that possible further discoveries can have but little importance. Few of us realise, probably, that away down on the Atlantic coast of South America, in about 35° of latitude, there is a city of approximately a million inhabitants, and that that city was founded in the sixteenth century. Yet so it is, and it was named Buenos Aires, otherwise Good Air. Dr. Hicken's catalogue brings these facts to mind, and we examine his catalogue with great interest, as no reliable account of the vegetation previously existed. Unfortunately, the author does not give any particulars of the extent of the area covered, beyond the statement that it is the flat coast lands, from El Tigre (an island in the

Eryngium), Solanaceæ (including 26 species of Solanum), and Cruciferae, relatively numerous represented in the order named. The Cruciferae occupy this high position from the fact that more than half the 33 species are colonists, and mostly from Europe. Ferns are represented by 21 species, mostly rare or very rare. Ephedra Tweediana is the only Gymnosperm. Liliaceæ and Iridaceæ are the most numerous among petaloid monocotyledons. Orchids number only five species, namely, three of Habenaria, Chlorea membranacea, and Oncidium bifolium; the last rare, growing on a willow (*Salix chilensis*), which is not uncommon on some parts of the coast. *Cocos Romanzoffiana* is the only Palm, and this, in a wild state, is restricted to the delta of the Parana. Characteristic Brazilian families, such as the Myrtaceæ, Melastomaceæ, Malpighiaceæ, Lauraceæ, and Passifloraceæ, are very rare or unrepresented by indigenous species. The Euphorbiaceæ number about 30 species, including half-a-dozen forms or species of *Sapium*, none of which has a popular name, or is recognised as of economic value. Apparently, Dr. Hicken has not seen Hubert's revision of the genus *Sapium*, nor the series of figures in Hooker's *Icones Plantarum*. It may

and mode of treatment. The treatment both of the commoner and also of the rarer plants is admirable, and even the specialist may derive useful hints from a perusal of Mr. Benary's work. In turning the pages, the eye is struck continually by evidence that the writer not only lives among plants, but that he is a keen observer of them, and is, moreover, a genuine lover of horticulture. Thus, when he comes to special groups, for example, Cactaceæ, he points out how interesting are the seedlings of the various genera, and how readily they may be raised. The work is well printed, and should find a place on the shelves of all horticultural libraries.

ORCHID NOTES AND GLEANINGS.

ODONTIODA ROSEFELDIENSIS.

FROM a cross between *Cochlioda Noezliana* and *Odontoglossum triumphans* Mr. de B. Crawshay (gr. Mr. Stables) produced this very desirable *Odontioda*, for which he obtained an Award of Merit at the Royal Horticultural Society's meeting on May 9 last. The scarlet colour appears in greater or lesser degree in most hybrids of *C. Noezliana*, and in the present form it is almost uniform over the whole flower, with a slight yellow shade. The lip is yellow, tinged with red, the ridges at the base being bright yellow. The plant appeared to be of free growth, and it bore a very fine flower-spike.

EPI-CATTLEYA SALMONICOLOR, KRANZL.
(*CATTLEYA MENDELI* ♂ × *EPIDENDRUM AURANTIACUM* ♂).

THE flowers of this hybrid are stellate, 8-9 cm. in diameter, the sepals are lanceolate and acuminate. The petals are twice as broad and oblong-acuminate. All the segments are 5 cm. long. The lip is broadly ovate-oblong, convolute or funnel-shaped and rounded at the apex. The sepals and petals are salmon-coloured with a rose tint; the lip is rich yellow, except for an area of deeper rosy-salmon at the top and a line of the same colour from the top to the throat of the lip. The column is rather short and white. The stems are about 20 cm. high and a little compressed; the leaves are oblong and about 16 cm. long to 5 mm. in breadth. The spikes usually bear three flowers each.

As might be expected, the crossing of two plants so dissimilar as *Cattleya Mendeli* and *Epidendrum aurantiacum* has produced a rather striking hybrid. The size of every part of the flower is intermediate between the parents, and so is the colour intermediate between the deep orange yellow of *Epidendrum aurantiacum* and the tender rose colour of *Cattleya Mendeli*. The pollen masses are those of *Epidendrum* or *Cattleya*. The elder generation of Orchidists will remember that the late Professor Reichenbach once united the two genera into one (*Epidendrum*) on account of the resemblance of the pollinia and column. The hybrid is also somewhat like a *Laelia* in the flower, the outlines resembling very much those of a medium-sized *Laelia anceps*. I can also liken the flowers to those of *Epidendrum Brasavola*, the spreading of the six segments being nearly all the same, but in comparison to which the new hybrid is richer, both in colour and in the breadth of the parts.

The hybrid was raised by Mr. Paul Wolter, Magdeburg, Wilhelmstadt, and flowered for the first time in 1909, but the flowers were not very good at that time, and it seemed better not to describe them. Probably they will improve still further by longer cultivation. *Fr. Kranzlin*.

CYPRIPEDIUM VOGELZANG.

AT the meeting of the Royal Horticultural Society, on January 17 last, Mr. Firmin Lambaert, the leading Belgian Orchid amateur, of Villa Vogelzang, Brussels, showed this fine hybrid between *Cypripedium Hera Maria* and *C. Hitchinsia*, and the Orchid Committee gave it an Award of Merit. As will be seen by reference to



FIG. 140.—ODONTIODA ROSEFELDIENSIS: SEPALS AND PETALS CARMINE-RED, LIP BLOTCHED WITH RED.

delta of the Parana) to La Plata. And half a page of information on the local physical conditions would have been very useful. But we learn from other sources that the average annual rainfall is about 34 inches, and the average annual temperature 63° Fahr., with 75.6° for January, and 50 for July. As to the extremes, we have no data at hand, but the general vegetation is quite of a temperate type; not even warm temperate. This fact is emphasised by the large number of European plants (largely also British) abundantly naturalised. Hicken's figures are: 1,261 species, belonging to 546 genera and 119 families; but he supplies no data of the proportions of indigenous and introduced species, though the origin of the latter is given in the body of the enumeration. The families most numerous represented are Compositæ, Graminaceæ, Leguminosæ, Umbelliferae (including nearly a dozen species of

be added that the general, as well as the local, distribution of the plants is given, and such popular or vernacular names as are in use. *W. B. H.*

THE RAISING OF PLANTS FROM SEED.*

ALL who are able to read German and who require a book of reference dealing with the practice of seed-raising should obtain the new and enlarged edition of Mr. Ernest Benary's excellent treatise on the raising of plants from seed.

The work consists of a general and a special part; the former is devoted to general methods of cultivation, seed sowing, manuring and the like, and the latter deals with the methods of seed-raising of vegetables, herbs, garden-flowering plants, and greenhouse and stove plants.

The information given with respect to the several plants is summarised in an admirable series of tables, which give the character and duration of each plant, its habit, date of sowing

* *Die Erziehung der Pflanzen aus Samen*. Second edition. (Berlin: Paul Parey.) 1911. 12 marks.

* *Chlorea Platanis Argentina*, por Cristobal M. Hicken. Trabajo presentado al Congreso Científico Internacional Americano celebrado en Buenos Aires en 1910. (Buenos Aires: Imprenta y Casa Editora Juan A. Alsina, Calle Alberti, 1910.) Large octavo, pp. 292.

our illustration (see fig. 141), the flower is of excellent proportions, and the well-displayed markings indicate *C. Hera Enryades* (*Leucanum* × *Boxallii*), the flat dorsal sepal following *C. Hitchinsie* (insigne × *Charlesworthii*). The dorsal sepal is white, with a yellowish-green base, and dark, claret-purple blotches. The ground colour of the petals and lip is pale yellow, tinged and veined with reddish-purple. It was shown as *C. Elizabethae*, but, as that name had been previously used, it was changed to *C. Vogelzang*, at our suggestion.

THE MARKET FRUIT GARDEN.

INSECT ATTACKS.

THE aphid put in an appearance on Apples as soon as the clusters of blossom buds emerged from their sheaths, at the same time an extraordinary infestation of thrips was observed, and a few Apple suckers were also found before the end of April; but they were feeble little things, almost devoid of vitality. Whether spraying with lime and sulphur just before the fruit buds burst had anything to do with this feebleness cannot be determined. In some places Apple trees are reported to be swarming with suckers. As soon as the clusters of Apple buds were sufficiently divided, the trees were freely sprayed with quassia extract and soft soap, which killed most of the aphides and Apple suckers, but not many of the thrips. A few winter-moth and bud-moth caterpillars were also found among the blossom-buds of some varieties, and in such cases a little arsenate of lead was added to the wash. Plums, up to the time of writing, have been troubled much less than usual with aphides, with the exception of Gisborne. If it were not for this exception, spraying with lime and sulphur just before the fruit-buds burst might have been credited with producing the immunity. The pests appeared quite thickly upon the blossom-buds of Gisborne, when they were in so compact a stage that the insects could hardly get between them, while there was not any show of foliage. The most complete success ever attained by me in spraying against the aphid—usually a more or less ineffective operation—was attained in promptly attacking the pest on the Gisborne Plums. We used three of Hartjen's pneumatic knapsacks, with the action of which I am much pleased, though experience as to their duration in efficiency has yet to be tested. The discharge of spray is much more regular than that caused by hand-pumping, particularly when the operator is a man not fond of exertion, and it is a great convenience for the man to have two hands available for directing the spray, instead of one, especially when he has to use a long lance for high trees. The pumping of air into the machine after each filling is not light work when the maximum of the pressure required is approached; but the operator cannot shirk this exertion, as he knows that any pressure short of the proper amount will fail to empty his knapsack. In spraying Apples for aphid or Apple sucker, it is important to wait until the clusters of blossom-buds are well divided. When they are in compact form the spray does not get between them sufficiently to wet the pests which are there. Quassia and soft soap do no harm even when some of the blossoms are open; but no arsenate of lead should be used then, or it may poison the bees which visit the trees. At the best, many aphides and suckers escape wetting by the wash, and the former reproduce their species so rapidly that one operation is not sufficient to prevent them from doing serious injury. As soon as the blossom has fallen, another spraying

is due, and if there are many aphides or suckers then, quassia and soft soap will be used with the arsenate of lead which has to be employed to poison the food of caterpillars. For varieties liable to scab, Woburn Bordeaux paste will be added, but, where this is used, the profuse spraying desirable for use against aphides and Apple suckers cannot safely be carried out.

HIDDEN PESTS

It may be useful to some readers to call attention to the need of thorough searching for aphides and Apple suckers early in the season. A casual observer may easily miss the finding of these enemies when they first appear, particularly if he trusts to the naked eye. A lens is essential to a proper examination, and so is something more than just looking at a cluster

were cut off in the winter pruning; but now there is a further development of the fungus, and much more cutting will be necessary. The only comfort lies in the remembrance of similar treatment having been necessary in the young stages of some older trees of the same variety, which now show very little of the malady. The disease shows about equally upon three rows of trees on the crab, free, and Doucin stocks respectively, growing side by side. The only other varieties that I have grown which have the same wholesale tendency to develop canker on new wood are King of the Pippins and Potts's Seedling, which had to be grubbed up when ten years old from the planting. Worcester Pearmain shows it to a smaller extent in rows close to Cox's Orange Pippin. The outbreak seems to be incompatible with the theory that canker is merely a wound parasite.

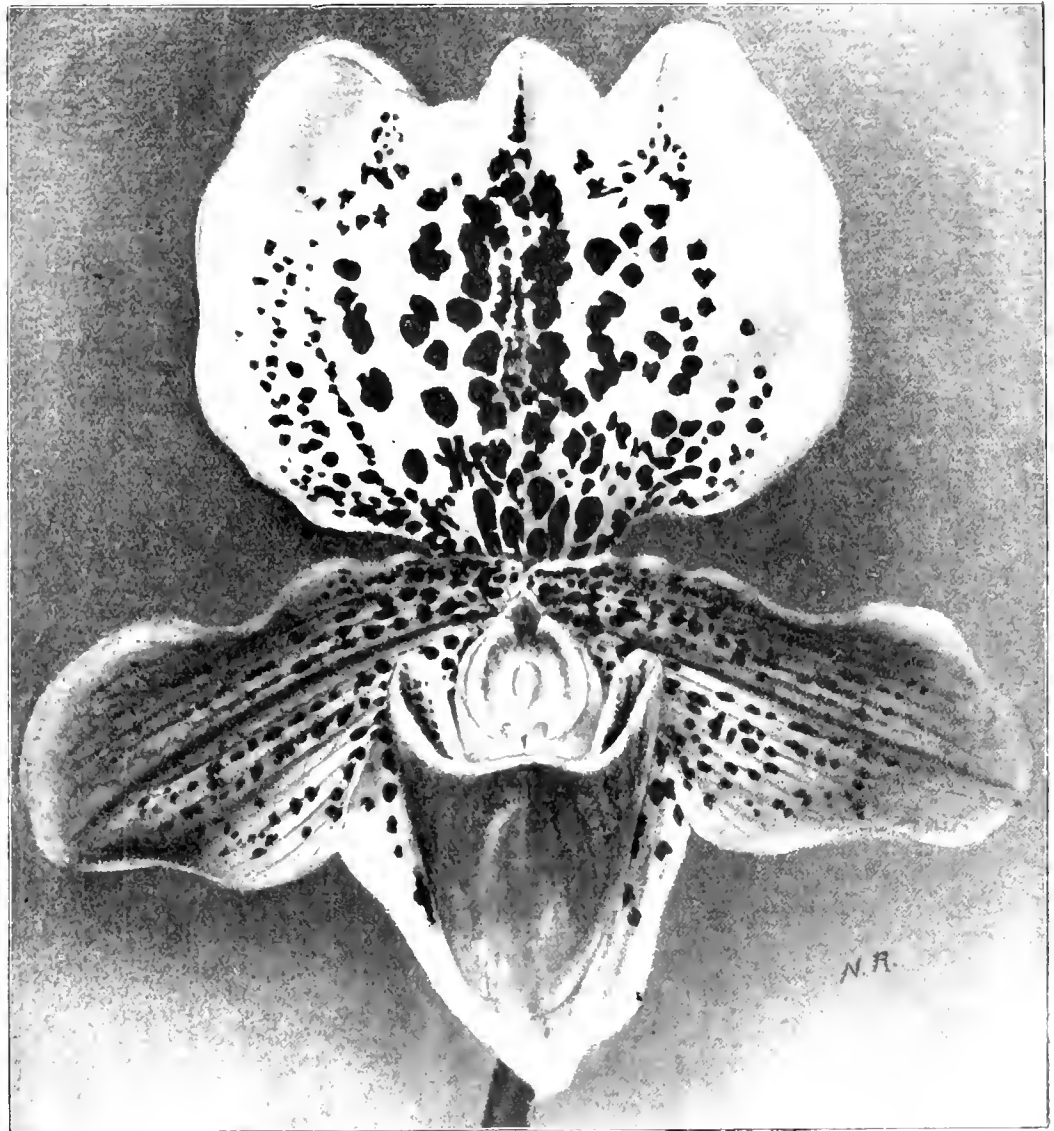


FIG. 141.—CYPRIPEDIUM VOGELZANG, A HYBRID RAISED BY MONS. FIRMIN LAMBEAU.

of blossom-buds without dividing the parts of it. The pests are often concealed under the dead scales of the sheaths from which the clusters of blossom-buds emerged, and these often need to be lifted with a finger-nail to make sure of the presence or absence of the enemies.

COX'S ORANGE PIPPIN AND CANKER.

It is distressing to notice the damage done by canker upon some trees of Cox's Orange Pippin planted five years ago, which are growing vigorously, and are promising a good crop of fruit for the first time. The disease, which had not previously appeared on the trees, develops mainly on new wood and fruit spurs. All affected parts

APHID ATTACK ON PLUMS.

Since the preceding notes were written a somewhat bad attack of aphides on Early Prolific Plums has begun. There is (May 8) a slight and partial infestation on Czar and Gisborne, the only varieties which appeared to need spraying for aphid before blossoming; also on Victoria and Pond's Seedling, while Monarch is more generally attacked. In all probability the attack will become much worse than it is at present, and the effect upon the crop of fruit may be serious. As the pests are protected in curled leaves, it would be little better than waste of money to spray the trees. *A Southern Grower.*

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

DENDROBIUM.—*D. Dalhousieanum*, *D. moschatum* and *D. fimbriatum*, when well grown, are large and handsome Orchids; the tall, stately stems and the racemes of flower being as fine as anything in the genus. During the growing season these free-growing and vigorous rooting plants require a tropical temperature and an abundant supply of moisture both to their roots and in the atmosphere. This treatment should be continued until the terminal leaves are formed, when the plants should be induced to rest for a time by keeping them cooler and drier. These plants have commenced to develop their new growth, which will be 12 to 15 inches in length before they produce roots, but it is not advisable to wait for these before performing any repotting operations that may be necessary, because the root below would be extremely active, and would suffer in consequence. The plants require fair-sized pots, which should be provided with ample drainage, and the latter protected with a layer of rough moss before any soil is added. A rough, open compost is necessary, consisting of fibrous peat, of the best quality, *Osmunda* fibre, and *Sphagnum*-moss in equal parts, with a good addition of crushed crocks, charcoal, and coarse silver sand. Pot firmly, and keep the base of the plant on a level with the rim of the pot. After root disturbance, and during the early stages of growth, the plants should be watered very carefully. *D. densiflorum*, *D. thyrsoflorum*, *D. chrysoxum*, *D. suavisimum*, *D. clavatum*, *D. aggregatum*, *D. Brymerianum*, and *D. Farmeri* are showy, ever-green species, which flower at about this season. The plants will thrive in company with the three species mentioned previously, but they do better, and keep more regularly to their season of growth and rest when afforded an intermediate temperature, a light and well-ventilated position, with ample atmospheric moisture being chosen for them. Strong and healthy plants produce flower-spikes very freely, and perhaps the more frequent mode of ill-treatment is allowing the plants to flower themselves to death. These *Dendrobiums* will, if permitted, produce an abundance of bloom for a few years, but eventually they become so weak that they cannot start into growth, and, in consequence, the eyes at the base become blind, a condition which no amount of care can afterwards alter. Freshly-imported plants should be established in receptacles just large enough to hold them, but afterwards they must not be too much pinched for pot room as the habits of the plants are strong, and the roots fairly vigorous. After the flowering period, any necessary repotting should be attended to, placing the dwarf-habited species in pans or baskets for suspending, and the taller-growing kinds in pots for growing on the stage. The same kind of potting mixture, and method of employing same, as advised above will be found suitable.

DENDROBIUM PHALÆNOPSIS.—This is an excellent Orchid to grow where cut flowers are much in request during the autumn. It is a species which likes plenty of heat and moisture and a good light when making its growth, thriving best when suspended near the roof glass. The plants are now starting into growth, and, as soon as the young shoots have attained a few inches in length, a cluster of new roots emerges from their base. Before this stage is reached, the state of the rooting material should be ascertained, and any plants requiring it should be repotted, employing a similar compost to that advised in a former calendar for deciduous *Dendrobiums*. Afford good drainage, as the plants require a plentiful supply of water during the growing season. In whatever they are grown the plants should be rather pinched for room as they thrive much better so than if allowed a considerable bulk of compost. This *Dendrobium* requires very little shade, therefore, the thinnest of shading material should be used, and this only during the hottest hours

of the day. When the plants are in full growth, the syringe should be used freely about them whenever practicable.

DENDROBIUM FORMOSUM.—This autumn-flowering species succeeds under similar treatment to *D. Phalænopsis*, and should be suspended where it can get the maximum of light and air. Since flowering last autumn, the plants will have been resting. They are now commencing to grow, but water must be sparingly applied till growth is well advanced.

DENDROBIUM INFUNDIBULUM and its variety *Jamesianum* are also on the move. These should be repotted or top-dressed as they may require. Similar treatment should be afforded these, except that they require a cool, intermediate temperature instead of the warmest division.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HADDINGTON, K.T., Tynninghame, East Lothian.

IRISES.—*Iris Kæmpferi* may be considered to be the most beautiful of all the race. The plant is not suited for ordinary gardens, because it requires to be grown on the bank of a stream or some other wet place, but this difficulty is often solved by making an artificial ditch, which is kept flooded during the season when the plants are in active growth. Other cultivators grow them similarly to *Celery*. The finest display of Japanese Irises that I have seen was in a Cheshire garden, where they were grown in a pool, from which the water was drawn off during the resting period. When planted in ordinary soil, a number of the plants are sure to die, even though they are watered regularly during the summer. The present is a suitable time to propagate *I. stylosa*. Divide the clumps into portions with four or five strong growths and re-plant them. In our northern climate *I. stylosa* does best in a dry, warm situation.

ROSES.—The new growths of Rambler Roses are extending rapidly, and will need to be trained to the trellises or other supports. Dwarf Roses also are growing freely, and it will repay the trouble to rub off weakly and badly-placed shoots. If aphid appears on Roses trained to walls, the plants should be syringed with quassia extract or paraffin properly emulsified with soft soap. Common soapsuds form a useful insecticide for Roses if they are used in a sufficient quantity.

SUMMER BEDDING.—The greater part of the summer bedding will need to be planted between now and the end of the next fortnight, and if the beds are ready and the locality a mild one the sooner the work is done the better. Some gardeners put all their efforts into the work so as to finish it quickly, leaving everything else in the garden that is not urgent. This need not be, because the hardier subjects, such as *Pelargoniums*, *Lobelias*, *Ageratums* and *Verbenas* may be planted first and the tender ones at intervals later. Those that are growing in boxes or planted out in frames should be put in when the weather is dull, but pot plants may be set out in sunny weather, although they need to be watered before and after planting. If the soil is very dry it will be advisable to water it some few hours before the work is commenced; if this is not done the layer of dry soil on the top should be pushed aside before the holes are made. I always sprinkle the surface of the beds with superphosphate before the summer bedding is planted; the fertiliser gets mixed with the soil when the ground is disturbed, and its effect on the plants later is seen in a more vigorous growth and brighter colours than usual in the flowers. Large beds need not be planted so closely in the centre as the outer parts. I prefer to plant close up to the grass, so that the grass and flowers meet.

ARRANGEMENT IN PLANTING.—Do not adopt a stereotyped method of planting. There is a wide choice of subjects for furnishing variety, and the plants employed might be changed, if not annually, at least every few years. At Tynninghame we are forming a series of beds this season with dwarf plants. "Dot" plants will be employed in other parts of the garden less frequently than in former years, and the general colour scheme of the bedding will be entirely different. There is, of course, a danger of falling below the average in carrying out novel

methods of bedding, but the danger will not be great if the capabilities of the plants employed are known to the grower, and the colour scheme properly thought out beforehand. The careful gardener will not knowingly introduce plants of doubtful utility, nor will he care to trust implicitly to his own judgment in the matter of colour schemes.

"DOT" PLANTS.—These cannot always be planted at the same time as the other occupants of beds, therefore, before commencing to fill the bed, mark the stations for the "dot" plants, and there sink empty flower-pots of the exact dimensions of those occupied by the plants. It will be a simple matter later to withdraw the empty pots, after first turning them round, lest any soil should crumble down, and immediately transfer the ball of the "dot" plant into the hole. Some plants, such as *Standard Fuchsias*, are not usually turned out of their pots. In such cases the empty pots must be sunk somewhat deeper, or else slightly larger ones used to enable the *Fuchsias* to be plunged deep enough for the pots to be hidden by the soil.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

VEGETABLE MARROWS.—Seeds of Vegetable Marrow may be sown now in small pots. Place them in a house having a temperature of 60° until the first rough leaves are formed, after which stage they should be gradually hardened off for planting out at the end of May.

BEET.—Beet may be sown now to produce roots for consumption next winter, sowing in drills prepared at 15 inches apart and 1 inch deep. *Paragon* and *Blood Red* produce well-shaped roots of good colour where long roots are desired, and *Early Model* is the best Turnip-rooted variety. At Windsor, we sow the variety *Model* late in June, to produce small, round roots for winter use. Beet should be thinned to 9 inches apart as soon as the plants are large enough to handle.

GLOBE ARTICHOKE.—Examine the *Globe Artichokes* which have remained out-of-doors during winter, and remove many of the small, spindly suckers, in order to admit light and air to those which are likely to bear a crop. These plants will benefit by liberal supplies of manure water from the farmyard during the growing season. Seedling plants in pots should be gradually hardened for planting out about the end of May on ground which has been trenched and manured for the purpose.

LATE BROCCOLI AND SAVOYS.—A sowing of these may be made now to produce plants for putting out about the end of June, choosing an open situation in order that the plants may grow as hardy and short jointed as possible. Late-sprouting Broccoli may also be sown now, and a small sowing of *Rosette Colewort* may be made to produce some young heads for autumn cutting.

LETTUCES.—Continue to plant out Lettuces from seedling beds, and make fortnightly sowings, in order to maintain a regular supply during the summer months. *Mammoth White Cos*, *Iceberg*, and *Pearl* stand a long time in good condition, and should be sown on a border sheltered from the early afternoon sun.

PEAS.—A sowing of maincrop varieties of Peas should be made as soon as the seedlings of the last batch are through the ground. If this advice is followed a continual supply of young pods will be available throughout the summer and autumn. It is a good plan to sow three or four varieties at the same time, selecting sorts that will furnish pods some earlier and others later by a few days in order to ensure an unbroken supply. The trenches in which the seeds are sown should be made about 4 inches deep, selecting ground that has been specially prepared for this crop. If, after the seeds are covered with soil the trench is about 2 inches below the level of the surroundings, the rain water will collect in it and benefit the plants; plenty of moisture at the roots is essential in the successful cultivation of Peas. As soon as the plants are a few inches high, a little soil may be worked in amongst the stems, and the sticks placed in position before winds or heavy rains break the tender shoots. In dry weather a mulching of rough manure should be applied before the soil cracks.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

WALL FRUITS.—Continue to disbud Peaches and Nectarines, and tie or fix by nailing the young shoots as they become sufficiently advanced, removing entirely any that are not required. Continue to thin fruits of all kinds as they become large enough, regulating the crop according to the state of the tree. Syringe Peach and Nectarine trees with diluted tobacco water as soon as green fly appears. Give every attention to the regulating and training of young trees in order to get specimens of the best form. The roots must be given an abundant supply of water during hot weather, and a layer of half-decayed cow manure spread over the surface of the roots is an excellent safeguard against excessive evaporation and drought. Peaches growing in well-drained borders delight in an abundant supply of moisture during the development of the fruit.

BLACK CURRANTS in this neighbourhood promise to be an abundant crop, but here and there some of the main branches are showing signs of weakness, and these will be promptly removed, in order to make room for the young shoots growing from the base of the bushes. If any of the bushes are showing signs of general failure it will be better to remove them, and replant with younger trees next autumn.

FILBERT NUT BUSHES should have all basal suckers removed as soon as they appear, and trees infested with insects should be syringed frequently. Caterpillars are often found on the bushes a little later in the season, so that a sharp lookout should be kept for them, or the prospects of any fruit during the following year will be destroyed. Tom-tits, although sometimes condemned by fruit growers, are of much service among this class of trees, and they should be encouraged rather than otherwise, for they destroy many insect pests.

CHERRIES growing against walls will need disbudging very carefully, otherwise strips and portions of bark may be detached from the main branches whilst the young shoots are being removed. Intelligent disbudging will materially decrease the necessity for pruning the branches during the autumn or winter months, a point in the cultivation of the Cherry that ought never to be lost sight of as the trees are very apt to gum and canker when pruned severely by the knife. All fruit trees that are carrying heavy crops will be benefited by occasional applications of sewage or other suitable liquid manure.

FRUITS UNDER GLASS.

By E. BECKWITH, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

GATHERING AND PACKING FRUITS.—Peaches and Nectarines that are ripening should be examined each morning to ascertain if they are ready for gathering. They should be lifted carefully upwards, when those that are ripe will become detached easily. These soft fruits should never be pinched, as is commonly done in the case of Apples and Pears, in order to ascertain if they are fit for the table. Peaches and Nectarines that are gathered at the correct time, are of a much better flavour than those over or under-ripe. I do not place nets under the trees, as is often done, to catch any fruits that may drop, as the nets prevent a ready access to the fruit, and usually those that fall are not perfect specimens. Shallow trays or baskets provided with a lining of wood wool, are the best receptacles for conveying the fruits to the fruit-room or packing shed, and the less handling they receive afterwards the better will be their appearance. Figs should always be perfectly ripe before they are picked, otherwise the flavour will be inferior. These fruits require to be handled and packed very carefully. They are best packed in a single layer, in boxes just deep enough to admit also of a layer of wood wool. Each fruit should be wrapped separately in a soft vine leaf, laid on a cover of tissue paper, and covered over with the same material. Forced Strawberries should always be picked when they are perfectly ripe and evenly coloured. For sending some distance they may be placed in single layers in shallow boxes. Another excellent plan, and one finding favour, is to pack them in small punnets, from which they can be

transferred direct to the dessert dish. In the case of Melons, as with Pears, it is sometimes difficult to ascertain when they are in a proper condition for gathering. The fruits should be cut when the stem begins to part from them, and placed in a cool, airy fruit-room until required. Grapes, and especially the earliest bunches, should be thoroughly ripe before they are sent to the table; their appearance generally testifies to the degree of ripening, but one can make doubly sure on this point by tasting a berry. Grapes require careful handling, or the appearance of the bunch is soon marred. There are various devices for packing Grapes for travelling, but probably the best method is to lay them in cross-handle baskets, two bunches in each, properly lined and the bunches carefully secured. Wooden lids are preferable to paper for covering the top of the basket. If sent in boxes, the bunches should first be laid in soft paper and then made secure with wood wool. Nothing is more suited for the packing of the various kinds of fruits than this material, and a quantity should be kept free from dust and evenly pulled out for the purpose. Clean boxes only should be used, and the lids should never be tightly secured with nails but tied with string.

GENERAL REMARKS.—Trees of Peaches and Nectarines should, after the fruits are gathered, receive a good syringing with clear water; if red spider is present, give an occasional syringing with some insecticide. Increase the amount of ventilation; on fine days the ventilators should be thrown wide open. Attend to the borders, and see that they are supplied regularly with moisture. Strawberries, after being forced in pots, intended for planting out-of-doors, must not be allowed to suffer from lack of water.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

CERASUS PSEUDO-CERASUS.—The beautiful varieties of flowering Cherry, such as James U. Veitch and Watereri, are excellent subjects for flowering in pots, and they last for several years. The plants need to be treated carefully after the blossoms have faded, so that the new growth may be strong and healthy, and suitable for flowering the next spring. It is not advisable to re-pot them at this season, as this is best done in the autumn, but the plants should be encouraged to grow as strongly as possible.

FORCED BULBS.—Narcissi and other bulbs that have been forced should not be cast aside as of no further use. Those that have been allowed to ripen after flowering should be shaken out of the pots, and planted in rows temporarily to be planted permanently at the proper season. Many of the Tulips and Hyacinths that have not been forced hard may also be saved for replanting. Lily of the Valley and Solomon's Seal should be planted out after forcing, as the plants will provide stock for future use. I have not found that old Astilbes (*Spiræas*) repay for retaining, although in some soils and in more congenial surroundings they would no doubt be worth saving. *Lilium longiflorum* is of service for planting out, but the plant shows a decline in vigour after forcing, although the flowering is fairly good for one season afterwards. *Richardia africana*, the Arum or Calla, should be planted out as single crowns for lifting again next autumn.

THE GREENHOUSE.—No artificial heat is now required in the greenhouse proper, and, except when cold winds prevail, the ventilators should be allowed to remain open continuously. Guard against the presence of aphides on such plants as *Calceolarias*, which will soon be at their best stage of flowering. It is preferable to give two light fumigations or vaporisings rather than one strong dose, allowing a day to intervene between the two applications. Weak liquid manure will benefit the *Calceolarias* at this stage, and the same stimulant may be applied somewhat stronger to *Pelargoniums*. Weak soot water, in the case of *Pelargoniums*, will produce a deep green in the foliage. In order to prolong the flowering as far into July as possible, some of the more backward plants may be pinched, it being only necessary to stop the end of each shoot. The scented-leaved *Pelargoniums* will require increased room, and this may be given now that the bedding plants are, to a great extent, out of

the way. Specimens that have been wintered in small pots should be given a shift; these, towards the end of the summer, will make useful plants for decorating the conservatory, but to flower thus late in the season they will need to have the growths stopped occasionally. As soon as the plants are established after the re-potting, they may be placed out-of-doors. This system I find suits them better, and they are much freer from insect pests than when grown all the summer under glass. *Pelargoniums* of the Ivy-leaved section are invaluable for late summer decoration. If some of the more compact plants are afforded larger pots, they will form fine specimens for flowering in August and September. These are, in my opinion, to be preferred at that season of the year to the zonal-leaved varieties, although the latter are much the better for autumn blooming. It is scarcely late enough for *Fuchsias* to be brought into flower. Rather grow the plants on, affording them larger pots if necessary, and pinching out the tips of the shoots. A period of six weeks should be allowed between the time the plants are stopped and that at which they are required to flower.

THE APIARY.

By CHLORIS.

WATER.—The amount of water needed to soften the honey and pollen before it can be utilised as food for growing grubs, is greater than many beekeepers imagine. The supply should not be left to chance, thus compelling the insects to frequent undesirable places, such as manure heaps and stagnant pools or water butts, where many may get drowned. Unless the hives are within easy distance of the sea or a pure stream, the beekeeper should supply water throughout the year. Take a small quantity of salt and dissolve it in warm water, filling jam bottles and overturning them on a board which has very little channels cut in it. Since bees seem to have a preference for light blue, plates or saucers of this colour may be used in place of the grooved board.

SWARMS.—No beekeeper with any pride or interest in the craft would allow a swarm to take place in May, but those who are desirous of beginning this early should commence with a good swarm from an apiary where no disease prevails. It is best to buy them by weight, but if they have travelled some distance by rail they will have lost some weight, because bees, before issuing from the parent hive, gorge themselves with honey, ready for comb-building in their new home, and some of this is consumed as food on the journey. A moderate swarm is about 3 lbs., or one gallon, and a good one would weigh 5 lbs., or a little less than two gallons.

PREVENTION OF SWARMING.—Since the apiarist should concentrate his efforts on getting honey rather than swarms, it is necessary to know how swarming may be partially controlled by affording the bees more room. It is useless to say it can be entirely prevented. The bees must be watched from day to day after this date. This does not imply that the hives are to be continuously opened, but the outside conditions must be studied, and the state of the interior thus deduced. Should the bees show signs of swarming, take off the stored honey and look at the outer frames in the brood chambers. If these contain honey instead of brood, take them out and whisk out the honey in the extractor, or if these have brood and honey, extract the honey and remove one comb of brood, replacing by a frame fitted with a wired sheet of foundation placing it in the centre of the brood nest. Should queen cells have been commenced, then remove these and place an extra rack above the brood chamber before replacing those formerly used, if they are three-quarters full. Later, when the weather is much warmer, it is necessary to give more ventilation, sometimes by wedging up the brood chamber off the floor board. The frame containing brood can be usefully employed to strengthen another and weaker colony. Sometimes a stock will persist in coming out; then the beekeeper must take a hive fitted up with foundation (full sheets), and brush all the bees off the combs into the new hive, and replace all supers which have been on the old hive. The frames containing brood may be utilised, as before, in strengthening weaker colonies. If the queen is in her second year, all further desire to swarm should be thus completely checked.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. It desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, MAY 20—
Soc. Nationale d'Hort. de France (Paris) Congress (2 days).

TUESDAY, MAY 23—
Roy. Hort. Soc. Sh. in Temple Gdns., Thames Embankment (3 days). Gard. Royal Ben. Institution Ann. Festival Dinner in the Grocers' Hall, Princes Street, London. Devon Counties Sb. at Newton Abbot (3 days).

WEDNESDAY, MAY 24—
Nat. Tulip Soc. Ann. Exh. Linnean Soc. Ann. Meet. Kew Guild Annual Meet. and Dinner.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—55.1°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 17 (6 P.M.): Max. 72°; Min. 52°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, May 18 (10 A.M.): Bar. 31°; Temp. 58°; Weather—Overcast.

PROVINCES.—Wednesday, May 17: Max 65° Cambridge; Min. 49° Scotland, N.

SALES FOR THE ENSUING WEEK.

TUESDAY—

Unreserved Sale of 200 Orchids, by Order of Messrs. Sander & Sons, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.30.

WEDNESDAY—

Rare Plants from the "Oakwood" Collection of Orchids, by Order of Executors of N. C. Cookson, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.

Herbaceous and Border Plants, Hardy Bulbs, &c., at 1; Palms and Greenhouse Plants at 3; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

THURSDAY—

Established Orchids from various sources, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

Self-sterility
in
Fruit Trees.

An article by Mr. C. H. Hooper (*Journal of the Board of Agriculture*, April, 1911) draws attention to the general prevalence of self-sterility in various kinds of fruit trees, and, incidentally, to the advisability of fruit-growers keeping bees and making sure that too many specimens of one kind of fruit tree are not grown together to the exclusion of other kinds. The phenomenon of self-sterility is well known, but by no means understood. In self-sterile plants, the pollen, though placed on the stigma, fails to fertilise the ovules, and, as a consequence, mature fruit may not be formed. In some cases, the fruit may swell and give rise to seedless fruits; in others, failure of fertilisation results not only in absence of seed, but also in absence of fruit.

In certain instances, as in the Nut, the danger lies, not in self-sterility, but in a deficiency of pollen. In all wind-pollinated plants, to which category the Cob and Filbert Nut belong, there is inevitably a great wastage of pollen. For chance alone determines the deposition of pollen grains on the stigmas of wind-fertilised plants. Hence it is good practice, where Nuts are grown extensively, to plant occasional free-pollen-bearing trees—for example, "Cosford" Cob among those which make up the bulk of the plantation.

Mr. Backhouse, of the John Innes Horticultural Institution, finds that self-sterility

is common among Gooseberries, and that the flowers do not possess any natural mechanism for self-fertilisation. Gooseberries rely, therefore, on insect-agency for the pollination of their flowers, and hence the value of bees for the setting of their fruit is apparent.

In the case of Plums, Mr. Backhouse finds that the flowers are generally self-fertile, though hybrids show tendencies to sterility. For example, Victoria is self-fertile, whereas Rivers' Early Prolific appears to set fruit with its own pollen with great difficulty. Old Greengage is self-sterile, but sets fruit readily when pollinated with the pollen of Early Rivers'.

Mr. Hooper cites an instance in which these facts had a markedly practical significance. Rivers' Early Prolific and Black Diamond, planted separately in large groups, fruited badly, except on the outside of the plantation, where they were neighboured by Plums of other varieties.

Among Cherries, Black Tartarian appears to be self-sterile, and, for the Cherry generally, bees are of great importance in effecting pollination.

Self-sterility is very general among Pears, two-thirds of the known and investigated varieties of Pear having been found to be unable to set fruit unless cross-pollinated. Among the minority of self-fertile Pears are Duchesse d'Angoulême, Beurré Bosc, Beurré Diel, Doyenné d'Alençon, Durondeau and Conference.

Mr. Chittenden, working in Essex, tested 24 varieties of Apple, and of these only three, Gladstone, Stirling Castle, and King of the Pippins, set fruit when self-pollinated.

As is well known, Strawberry plants sometimes bear only pistillate flowers, and in that case are sterile unless pollen from adjacent staminate flowers reaches them. An interesting observation by the late Professor F. Cheshire may be cited with respect to the Strawberry. He found that plants with large blossoms tend to become staminate, and are apt to bear badly, but to produce runners freely, whereas the smaller flowers tend to develop perfect pistils and to produce large fruits, but are apt to form few runners. Evidently, in the propagation of Strawberries, runners should be chosen from the latter and not from the former plants.

Crown-gall.

The cause of the well-known tumour-like swellings which occur on so many plants, and particularly on the Apple, has long been a matter of uncertainty and dispute. Thus, Masee, following Toumey, holds that crown-gall of Rose and Chrysanthemum is due to a Myxomycete, *Dendrophagus globosus*, but other observers have failed to associate the malformation with the presence of any disease-producing micro-organism.

Mr. Erwin F. Smith, however, claims to have demonstrated* and apparently on good ground that the crown-gall, which affects very many different species

of plants, is due to the presence of a bacterium, *B. tumefaciens*.

The crown-gall-producing bacterium has been isolated by Mr. Smith and his co-workers from a large number of different plants afflicted with this disease, and has been shown by inoculation tests to be capable of reproducing the malformation when introduced into the tissues of a healthy plant.

Further, as Mr. Smith demonstrates, a wide range of cross-inoculation is possible; thus the bacterium isolated from diseased specimens of the Paris Daisy is capable of setting up the tumid malformation in the Peach, Grape, Sugar-beet, and Hop: that from the Peach induces the disease in Apple, Daisy, Pelargonium, Poplar and Sugar-beet, and so on. On the grounds of his extensive experiments Mr. Smith concludes that, in general, all plants susceptible to crown-gall are capable of developing the disease as the result of artificial inoculation. As to the extent of cross-inoculation in Nature, he is less definite, but claims that there is considerable evidence tending to show that inoculation often takes place when one species of plant is planted in place of another, a diseased species; for example, when Peaches are planted in the stead of Raspberries or Apples. Mr. Smith has come to the conclusion that hard and soft galls of Apples are both due to the attack of *Bacterium tumefaciens*, though he is not prepared at present to state the reason why the tumour is in one case soft, and in another hard. With respect to the amount of damage done by the gall-producing bacterium, Mr. Smith is not disposed to dissent altogether from the view expressed by other plant-pathologists that, owing to the slow growth of the gall, the direct ill-effects are inconsiderable. He points out, however, that owing to the fact that the gall is not covered by a sound layer of bark, the affected trees are more liable to attack by wound parasites than are intact trees.

"Apple hairy-root" appears to be due to the presence of a bacterium scarcely distinguishable from that which is the cause of crown-gall, and Mr. Smith suggests that if the two bacteria are identical then hairy-root and crown-gall are to be regarded as different symptoms produced by the introduction of one and the same disease-producing micro-organism into different parts of the plant: hairy-root arising when the roots are infected, and crown-gall when the bacterium gains an entrance to the plant at the "collar."

TEMPLE FLOWER SHOW.—The Royal Horticultural Society's great Spring Show will be held, as usual, in the Inner Temple Gardens, Thames Embankment, on May 23, 24, 25. Fellows, and those with transferable annual tickets, will be admitted at the following times:—Tuesday, from noon to 7 p.m.; Wednesday, from 7 a.m. to 7 p.m.; and Thursday, from 9 a.m. to 6 p.m. On Wednesday, May 24, the public will not be admitted until noon, therefore Fellows should make the best of this opportunity of inspecting the exhibits. The Society's Offices at Vincent Square will be closed on the days of the Show.

* *Crown Gall of Plants: Its Cause and Remedy*, by Erwin F. Smith, N. A. Brown, and C. O. Townsend. U.S. Department of Agriculture; Bureau of Plant Industry Bulletin, No. 213; and *Phytopathology*, Vol. 1, No. 1, February, 1911.



BEAUMONTIA FRAGRANS ; FLOWERS WHITE.

ROYAL KEW.—Amongst the visitors to the Royal Gardens, Kew, on Saturday, the 13th inst., were their Royal Highnesses the Duke and Duchess of CONNAUGHT.

THE ROYAL HORTICULTURAL SOCIETY.—The President and Council of the Royal Horticultural Society have approved a recommendation of the Narcissus Committee to the effect that "five flowers of a Daffodil be submitted for an Award of Merit instead of eight, as heretofore." The Society's Regulation No. 25 for the standing committees is therefore amended accordingly.

The following letter has been addressed by the Council to the Chairman of each of the Society's Committees:—"I am desired by the Council to recall to the minds of the members of the Committees the high merit which should be represented by all the awards, certificates, and medals of the Society. It is probably to be expected that the number of awards should increase slightly year by year, but there exists a constant danger of their too lavish bestowal. It should therefore be a matter for constant watchfulness that the relative standards of merit be fully maintained, and that none of the medals, &c., should become depreciated by neglect in the use of the award ranking below it. If, for example, the use of the bronze medal is allowed to lapse, it can only result in the equivalent depreciation of the next higher awards, which in turn will have a tendency to fall out of use and depreciate those still higher; until at last little value would attach to even gold medals. The value attaching to each medal can only be secured by maintaining the appropriate value of the medal ranking below it, and so on in descending scale. The value attaching to the Society's bronze medal is therefore the primary factor of the value which attaches to the highest gold medal, and whatever depreciation the bronze medal suffers, the silver and gold will inevitably reflect in their turn. The Council therefore urge the Committees to make greater use of the bronze medals, regarding them as very honourable awards suited to groups and collections which require something more than a mere 'vote of thanks.'—Faithfully yours, W. WILKS, Secretary.

R.H.S. GARDENS CLUB.—The annual re-union of the past and present students and employees of the Royal Horticultural Society took place on Saturday, May 13, at Wisley gardens. The weather was splendid, and visitors by train enjoyed a pleasant drive across the delightful commons and fragrant pine woods. On arrival at the gardens, they were met by Mr. S. T. WRIGHT, who conducted them through the glasshouses and grounds. The business part of the meeting was held in the laboratory after tea, the principal duty being the election of officers for the ensuing year. Mr. E. A. BOWLES was appointed president, and Messrs. H. J. VITCH, Rev. W. WILKS, and Mr. CHITTENDEN vice-presidents. Mr. JOHN FRASER was elected to the office of editor of the *Journal*. Mr. S. T. WRIGHT was appointed treasurer, and Mr. R. J. WALLIS secretary. The following committeemen were appointed: Messrs. SPOONER, TINLEY, SMITH, McINTOSH, READER, and JOHNSON.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We wish to remind our readers of the 72nd anniversary festival dinner of this institution, which will take place on Tuesday next, May 23, at the Grocers' Hall, Princes Street, City, at 7 o'clock, under the presidency of Sir MARCUS SAMUEL, Bart. Subscriptions in aid of the funds, to be placed on the Chairman's list, are earnestly solicited, and will be thankfully received by Sir MARCUS SAMUEL, Bart., 3, Hamilton Place, W., HARRY J. VITCH, Esq., Chelsea, or the Secretary, Mr. GEORGE J. INGRAM, at the office, 92, Victoria Street, Westminster.

NEW RHODODENDRONS.—Messrs. M. KOSTER & Sons, Boskoop, inform us that at the recent Pomological Society's Show they were awarded a Gold Medal for Rhododendron Mme. de Bruin, a variety with amaranth-red flowers, and Silver-gilt medals for the varieties Dr. Ed. B. Koster (rose coloured), Mme. van den Tak (pale rose), Betsy de Bruin, and Agathe, the two last-named of the Felix de Sauvage type.

A DISEASE OF THE LILAC.—An epidemic which recently declared itself in Lilac has been traced by Mr. MASSEE (*Kew Bulletin*, No. 2, 1911) to a fungus, *Helminthosporium syringæ*. The leaves are first attacked, brownish stains running down the leaves at some distance from the midrib. Later the leaf becomes brown and dry, and often more or less cracked and torn.

A REMEDY FOR BEE-STINGS.—Mr. FRANK H. PERRYCOSTE, writing in *Nature*, recommends belladonna plaster as a remedy for bee stings. He finds that, if applied at once, the plaster produces its remedial effects very quickly, though where the sting is severe, or the person stung is very susceptible, the swelling and irritation are not prevented altogether.

GRAPES AT CHARLCOMBE GRANGE.—The death on May 9 of Mr. JAMES CHAFFIN, J.P., Alderman and Father of the Bristol City Council, at the age of 90 years recalls the famous vineries which he established at Charlcombe Grange in the early '80's. After meeting with success as an exhibitor of vegetables, Mr. CHAFFIN turned his attention to Grape growing, and in July, 1885, he secured the services of Mr. WILLIAM TAYLOR, gardener to the Marquis of BATH, at Longleat. Mr. TAYLOR, who had been foreman in the gardens belonging to the Earl of DERBY, at Knowsley, and manager of MEREDELIA'S Vineyards near Liverpool, was well known as a successful Grape grower. Alderman CHAFFIN commenced with one small house for Grapes, but three new vineries were soon erected—one 140 feet by 30 feet, a second 70 feet by 40 feet, and the third 70 feet by 24 feet. Mr. CHAFFIN'S Grapes were awarded prizes at the principal horticultural shows, including those held at the Crystal Palace, Shrewsbury, Edinburgh, Manchester, Birmingham, and Bath. The varieties with which he achieved such success were Muscat of Alexandria, Gros Maroc, Black Alicante, Madresfield Court, and Black Hamburg. In 1902 Mr. TAYLOR'S association with Mr. CHAFFIN ceased. Mr. TAYLOR has contributed several letters to the discussion on vine culture now taking place in these columns.

THE COST OF LONDON PARKS.—At a meeting of the London County Council on the 9th inst., the estimates of the Parks Committee for the coming financial year were presented. The total amount required was £165,360, of which £25,000 was for capital account. The following accounts were allocated for the maintenance of the parks and open spaces—South District, £25,895; South-East District, £32,375; North-West District, £17,430; and North-East, £36,750. A sum of £12,500 was also set apart for bands. The capital estimates of the Parks Committee contained provision for a number of proposals not yet specifically approved by the Council, the largest items being £5,500 for laying out "The Grange" property at Kilburn, recently acquired by the Council, and £1,000 for laying out St. James's recreation ground, Ratchiff. There was also an estimate of £5,600 in respect of the acquisition of "The Grange" property. The estimates on rate account show a decrease of £3,445 in the net expenditure on parks and open places (excluding expenditure on boating) as compared with the estimates for 1910-1911.

The operations in respect of parks boating are estimated to result in a surplus balance for the year of £1,310, after paying all working expenses, interest on and repayment of debt and income tax. This surplus, added to the estimated balance of £549 brought forward, makes a total estimated surplus on the parks boating account at the end of March, 1912, of £1,859, of which the Parks Committee propose that £1,500 should be regarded as transferable to the General County Account, to be applied in relief of other parks expenditure chargeable on the general county rate, including facilities for recreation. In conjunction with the Parks and Open Spaces Committee the Local Government Committee submitted an estimate on capital account for the acquisition of Sir Robert Geffery Almshouses, in Shoreditch, at a cost of £34,850 towards which contributions of £8,900 will be receivable from other sources.

"THE BOTANICAL MAGAZINE."—The volume for May contains illustrations and descriptions of the following plants:—

RHODODENDRON LACTEUM, tab. 8372.—This species of Rhododendron is one of the numerous plants sent from China by the late Abbe DELAVAY, who forwarded seeds to Paris. Plants were received at Kew as far back as 1888, but the first specimen that flowered in Europe was in Mr. P. L. de VILMORIN'S garden at Verrières-le-Buisson in 1908. It was not until April, 1910, that a specimen flowered in this country. This was growing in Mr. F. D. GODMAN'S garden at Horsham, and the material from which the illustration in the *Botanical Magazine* was prepared was obtained from this source. The flowers are white with a blood-red patch in the upper interior portion of the tube. They are each about 2 inches wide and very rotund. Unfortunately, there is another Rhododendron known as lacteum, a native of Borneo, and for this latter it is proposed to substitute the name of *R. stapfianum*.

DEINANTHE CAFRUELA, tab. 8373.—This plant also is a native of China, having been introduced by WILSON whilst plant collecting for Professor SARGENT. Mr. ELVES has been successful in raising plants from seed in his garden at Colesborne, his specimens being the first to flower in this country. Although Mr. WILSON describes the flowers as ranging from white to purple, the Colesborne specimens are a delicate lavender-blue shade. From the behaviour of the plants at Colesborne, it is hoped that the species will prove hardy in England. It forms an herbaceous perennial from 1 to 1½ feet high, and has affinities with the Saxifragas.

ONCIDIUM SANDERLII, tab. 8374.—This species was described by Mr. ROLFE in *Gardeners' Chronicle*, vol. XLVIII, p. 67. The lateral sepals and wavy lip are of a striking yellow colour, with spottings of brown. The upper sepals are long and narrow, and a reddish-brown colour.

LONICERA HENRYI, tab. 8375.—This species was first met with by Mr. A. HENRY in Hupeh, China, but it was introduced to cultivation by Mr. E. H. WILSON. It forms a hardy evergreen climber, with flowers produced in clusters of pairs at the ends of the branches. The exterior of the corolla is creamy-yellow, the interior reddish, passing to bronze.

VILLAREZIA MUCRONATA, tab. 8376.—There is a tree of this Chinese species between 50 and 60 feet high in the garden of the Earl of ITCHESTER at Abbotsbury, but the species appears to be only hardy in favoured districts. Some of the leaves are spiny, not unlike those of the Holly, but the upper foliage is devoid of spines. The inflorescences are developed in the upper axils, and are about 1½ to 2 inches long, with whitish-yellow petals. The specimen at Abbotsbury was planted about 1840.

THE RESTRICTION OF FRUIT TRAFFIC IN THE TRANSVAAL.—Notice No. 321, February 18, 1911, of the Union Government of South Africa prohibits the introduction into certain districts of the Transvaal of Apples, Pears, and Quinces in the fresh state. The object of the notice is to check the spread of the codlin moth pest.

“KNOWLEDGE.”—The excellence of this scientific monthly is well maintained in the issue for May, which contains several articles of botanical interest. Perhaps the most remarkable is that by Mr. A. W. SHEPPARD, on luminous bacteria, which contains, among other illustrations, a portrait of Lord LISTER, illuminated by cultures of *Photobacterium phosphorescens*. Though the existence of light-producing bacteria has been known for a long time—on putrid fish, &c.—their remarkable light-producing properties still await elucidation. It is known, however, that they actually produce light and do not, like phosphorescent bodies generally, merely absorb and emit it.

PINUS INSIGNIS IN SOUTH AUSTRALIA.—The Conservator of Forests, Adelaide, South Africa, contributes an interesting account of the introduction and successful utilisation of *Pinus insignis*

ing effects are, apparently, sometimes experienced without actual contact with the plant. I was one day walking through the hot, steaming forests near the Tista River, in British Sikhim, with a friend. The *Laportea* was abundant, and we carefully avoided it. On our way home my friend was seized with the peculiar stinging sensations of the *Laportea* in several parts of his body. These lasted several days, and on the night immediately after being stung became so bad that he was unable to get any rest and became feverish. On another occasion I had to cut a survey line through dense forest with an undergrowth of *L. crenulata*. The coolies avoided the leaves as much as possible, and cut the stems low. Some of them were stung on the body, but all were attacked in different degrees with sneezing, violent catarrh, and ultimately vertigo. I myself, although at some distance from the actual cutting operations, though I had to walk up the cut line, suffered to a less degree in the same way. Yet I have often dashed a leaf across the back of my hand with no ill effects! Sir J. HOOKER and others have noted that the effects are worse at some times of the year than at others. The inflorescence, it should be noted, is covered with hairs, and I have only been able

method is, as Professor WHETZEL points out, that the plant pathologist, having succeeded in discovering a means of controlling a disease, is able to demonstrate the efficacy and practicability of the remedy he prescribes. The increasing use of lime sulphur for Apple scab and Peach curl was the subject of other communications, and the chemistry of this fungicide was treated of by Mr. L. VAN SLYKE, who recommends a solution containing 1 part lime, 2½ sulphur, and 3.6 water; for example, 36 lbs. of lime 80 lbs. of sulphur, and 50 gallons of water. In this connection it may be mentioned that, according to Professor WHETZEL, the addition of arsenate of lead to the lime-sulphur not only confers on it insecticidal powers, but increases its fungicidal efficiency by 50-100 per cent. For other interesting contributions presented at this meeting of the society readers should consult the full report.

NURSERY NOTES.

MESSRS. WILLIAM BULL & SONS.

To celebrate the jubilee of the establishment founded by the late William Bull at Chelsea, in 1861, and to revive a practice which was an annual event until the death of the founder, the present firm has arranged an effective display of flowers in the spacious winter garden of their nursery. On either side of the central walk is a charming show of decorative flowers grouped beneath stately Palms and tree Ferns and many fragrant Lilies are conspicuous. The Pillar Roses are well displayed, and among other florists' flowers masses of Verbenas Miss Willmott and Queen of Whites, a patch of the new *Richardia* Glory of Hillegom of primrose-yellow colour, *Rhododendron balsamiflorum*, and other showy flowers are effectively arranged. The winding walk on the right has the main show of Orchids, which are arranged with artistic effect beneath the Palms and tree Ferns, some of the smaller *Oncidiums*, such as the pretty yellow *O. concolor*, being suspended. Throughout the displays there are many varieties of *Laelio-Cattleya* General Baden Powell of varying tints of rose and reddish-purple, and in groups of three or four some excellent home-raised blotched forms of *Odontoglossum crispum*. The best of these is *O. crispum* Coronation (see fig. 143), a very fine flower, with the upper sepal 1½ inch wide, the other segments being proportionate. The reverse of the sepals is heavily tinged with purple, and the fringed sepals and petals are finely marked with rose-purple. *O. crispum* Prince of Wales, *O. c.* Diadem, *O. c.* The Kaiser, and other handsome and distinct forms are also present. *Laelio-Cattleya* Aphrodite of a very fine strain also makes a good show, the flowers throughout being nearly white with the label-lums of various shade of purple. Among varieties of *Cattleya Mendelii*, those named Sybil and Princess are handsome and distinct; *C. Mossiae* Duchess is a pretty light form of the *Arnoldiana* class, which should develop into an attractive flower. Among hybrids there are *Brassavola Digbyana*, *Brasso-Laelias* *Digbyana purpurata* and *Helen*, and *Brasso-Cattleya Digbyana Mendelii*; specially fine are *Oncidium Papilio majus*, *O. flexuosum*, and some other *Oncidiums*, *Odontioda Bradshawia* of a very peculiar and attractive colour, and *O. chelciensis*, a neat flower of a pale rosy-mauve tint. *Vanda suavis* and *V. tricolor*, some effectively arranged masses of *Dendrobium devonianum* and *D. Wardianum*, good specimens of *D. thyrsiflorum*, *Renanthera linschootiana*, and other Orchids of the season are included.

The corresponding path on the other side has a grand display of *Hippeastrums*, the flowers being large and of excellent shape and substance throughout. The prevailing colours are bright scarlet and crimson, but some are white with rose



FIG. 142.—HIPPEASTRUMS IN MESSRS. W. BULL AND SONS' NURSERY.

—the Remarkable Pine—into South Australia to the *Agricultural Journal of the Union of South Africa* (vol. 1, No. 2, March, 1911). The Remarkable or Monterey Pine, which is native of the neighbourhood of San Francisco, was introduced into Australia by the late Baron VON MUELLER, where it was regarded for a long time as of ornamental value only. Mr. W. GILL, however, has proved that it is very serviceable for timber purposes, for example, in furniture making, and particularly—owing to the fact that it does not split—for the manufacture of packing cases for fruit.

THE STINGING TREE OF FORMOSA.—With respect to the Stinging Tree of Formosa, which formed the subject of notes in these pages, March 11, page 154, and April 3, page 221, a correspondent of *Nature* for April 27 last, writing from the Camp, Central Provinces of India, gives the following interesting information:—“With reference to the letter on the Stinging Tree of Formosa in *Nature* of March 2, it would be interesting if your correspondent would throw light on the exact mechanism by which the sting in *Laportea pterostigma* and *L. crenulata* is produced. *L. crenulata* is locally abundant in some parts of India. The curious point is that the leaves are often glabrous. Moreover, the sting-

to account for the facts above described by supposing that it is these deciduous hairs of the inflorescence which get into the clothes and become inhaled when the tree is shaken.”

THE WESTERN NEW YORK HORTICULTURAL SOCIETY.—The 56th annual meeting of this society, which has for its object the advancement of the science and art of fruit culture, was held at Rochester, N. Y., in January, 1911. The report of the proceedings contains, beside the opening address by the President, Mr. WM. C. BARRY, valuable summaries of the papers read before the society and of the discussions to which the papers gave rise. Mr. W. H. JORDAN, Director of the New York Agricultural Experiment Station, described the scope of research stations and insisted on the importance of the workers in such stations playing a part not only in investigating problems of a practical kind, but also in giving verbal explanations of their results to horticulturists at meetings and conferences. Professor WHETZEL advocated a system of field laboratories for the investigation of plant diseases. By this system, which Professor WHETZEL has inaugurated with marked success, the laboratory and the investigator are taken to the field or orchard instead of, as is more usual, the diseased specimens being sent to the laboratory. The advantage of this

to crimson lines radiating from the centre, one very fine flower being almost entirely white. A group of six varieties (see fig. 142) selected as the best are "Coronation" (a large white flower flushed with rose-pink), "The Kaiser" (rich scarlet), "The Kaiserin" (veined and tinged with pale red, the centre being light green), "Prince of Wales" (white with green centre and faint red markings), "Princess Victoria" (light scarlet with darker veining), and "Duchess" (of a delicate salmon colour); some new and very effective tints appear in some of the flowers now open for the first time, and all are of good shape. The exhibition remains open until May 20.

GIFT OF A PARK TO CARDIFF.

In the article on Cardiff Public Parks in the issues for April 15 and 27, no mention was made of Syr Dafydd's Field, known locally as "Thompson's Park." Mr. Charles Thompson, the owner and creator of this beautiful park, has

Thompson's Park was a portion. The site was laid out and opened to the public about 20 years ago, since which time many improvements have been made at Mr. Thompson's expense. This gentleman has also maintained the place at his own expense, and it is still his wish to do so after the park becomes the property of the Corporation. It is Mr. Thompson's desire that the park shall be known by its old name of Syr Dafydd's Field, to commemorate the fact that Syr Dafydd Matthew, armour-bearer to King Edward IV., fought for his King at the battle of Taunton, and was rewarded by the gift of an extensive tract of land, which included the site of the park.

Syr Dafydd's Field includes a playing ground with several excellent tennis courts. Steep paths shaded by trees lead to the ornamental portion, which includes a circular pool and fountain with beds around planted with Tulips. At one end of a larger pond is an extremely fine clump of *Arundinaria anceps*. A third pond is situated in the rockery which, though not large, rivals the one in the Roath Park for beauty. The pond

THE ROSARY.

FRAGRANT ROSES.

THERE can be no question that Roses derive from their exquisite fragrance—which is not always restricted to the flower—much of their fascination. There are, indeed, a number of quite impressive varieties which may be said to be destitute of this attribute, and among these, most unfortunately, is Frau Karl Druschki, one of the grandest garden and exhibition Roses, and assuredly the largest and loveliest of all pure white flowers. Had this glorious hybrid perpetual the splendid perfume of one of its parents, viz., the magnificent Caroline Testout, and the full central formation of Kaiserin Augusta Victoria, it would be a close approximation to perfection. Most of the scentless Roses that continue to be cultivated notwithstanding this limitation have been originally derived from the venerable Baroness Rothschild. But highly endowed Roses, like Frau Karl Druschki, Spencer, Her Majesty, and Merveille de Lyon, have such an imposing aspect that we are liable, when gazing with admiration upon their grandeur, to forget their lack of sweetness. It is gratifying to remember that both of my rose-namesakes—one of them raised at Newtownards, the other at Waltham Cross, are what may be characterised as richly-fragrant "garden" varieties; while one of them at least has been exhibited very successfully at the Temple Show. Of all Roses, my supreme favourites for fragrance—though this is by no means their highest qualification—are La France, Viscountess Folkestone, and Caroline Testout; and I venture to say that any garden would be very attractive that had a large border consecrated exclusively to the cultivation of these. Another Rose of great fascination in this charming direction is Captain Hayward, unquestionably one of the most precious Roses for garden culture and decoration. The name of fragrant varieties is "legion"; and only a few of them can be enumerated here. Among Hybrid Perpetuals, Lady Helen Stewart and Hugh Dickson (the latter one of the finest crimson Roses in cultivation) are supreme favourites with me; they may be regarded—in association with the already characterised Captain Hayward—as typical representatives of this extensive class. Among pure Tea Roses I am enamoured of Catherine Mermet, which has a peculiarly fruity fragrance; and more especially of Souvenir d'un Ami and Souvenir de S. A. Prince. I have already, perhaps, sufficiently indicated—when I eulogised incidentally such large and lustrous beauties as the incomparable La France, Caroline Testout, and Viscountess Folkestone—the finest for fragrance of the Hybrid Teas. During last summer, when walking through my garden, I was frequently attracted by the odour of J. B. Clark, whose splendid dimensions and unique plum complexion also invariably exercise, when this grand H.T. is seen at its finest, a marvellous fascination. Another great Rose, which I also find, at that season, irresistible in its beauty and odorous fascination, is Mrs. Paul, a prominent member of the Bourbon family, and a derivative (though a fine illustration of the law of variation) from Madame Isaac Periere. Of Noisettes and their hybrids, three of the most fragrant are Madame Alfred Carriere, L'Idéal, Niphotos, and that queen of the conservatory, Marechal Niel. The beautiful China Roses, from which the Teas derive their graceful attributes, are delicately perfumed; the pendulous Austrian and Penzance varieties are charming alike in their fragrance and the refinement of their flowers. It was quite an inspiration, by his truly exquisite hybrids, the names of the heroes and heroines of Sir Walter Scott. *David R. Williamson.*

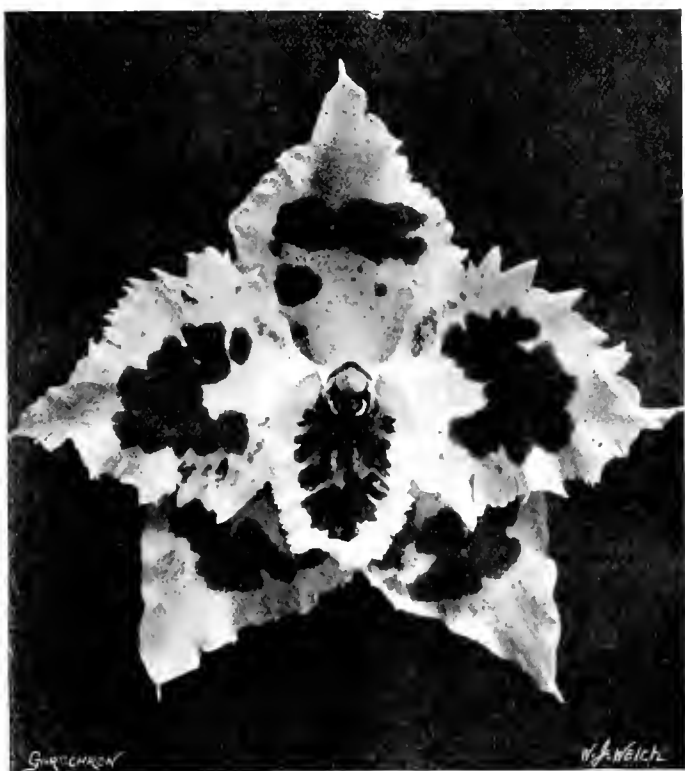


FIG. 143.—ODONTOGLOSSUM CRISPUM "CORONATION" IN MESSRS. BULL AND SONS' COLLECTION.

recently offered the freehold to the city, subject to certain conditions. The land is situated at the Canton end of Cardiff, close to Llandaff Fields. These fields, comprising 70 acres of flat meadow, were acquired by the Corporation of Cardiff from the Ecclesiastical Commissioners in 1898 as an open space for the purposes of recreation at a cost of £70,000, towards which the Thompson family contributed £5,000. As the cost of purchase was so large, provision was made for the Corporation to sell, if necessary, 14 acres for building purposes. This has not been done up to the present time, and one of the conditions imposed by Mr. Thompson in his present offer is that the Corporation shall not sell the land. Without this condition the gift of Thompson's Park itself might be advanced as a reason for selling the other land, because the open spaces are so numerous in the neighbourhood. But Mr. Thompson does not intend his gift to take the form of an exchange of ornamental park for existing recreation ground.

Mr. Thompson's father owned the Preswylfa Estate, of which the public ground known as

is planted with aquatics, and the banks with Trollius, Astilbes (*Spiraeas*), King-cups, Primulas, Cotoneaster horizontalis, Primula denticulata, Fritillarias, and Marsh Marigolds. Gentiana acaulis not only grows well, but blooms profusely in this district. The back of the rockery has been planted with Wichuraiana Roses that ramble over old tree stumps.

Large beds near by are planted in spring with Narcissi, these being the feature of the place; indeed, they are almost too numerous, their more sparing use at Roath displaying them much better.

If Mr. Thompson's offer is accepted by the Corporation, the land available for public recreation in Cardiff will be increased by about 15 acres. The Corporation has under construction two other parks (Waterloo and Penylan Brook Gardens), which will involve an expenditure of £2,000, but they are virtually extensions of Roath Park. When these are opened the city will have more than 300 acres of public parks and open spaces. *Caltha.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

ROYAL GARDENERS' ORPHAN FUND.—I was much interested in Mr. Sherwood's opening remarks, when presiding at the annual festival dinner of the Royal Gardeners' Orphan Fund (see p. 301), respecting the origin of this successful institution. I happen to be one of the coterie who had to do with its inception, and the facts as retained in my memory are as follow:—The widow of a gardener, with a large family, wrote to Messrs. James Carter & Co., asking if there was any institution that could help her with her children. No such society was known, and at the suggestion of the late Mr. E. J. Beale an enquiry was made and particulars obtained of an orphan society connected with railway servants. A letter was drafted and submitted to Mr. Charles Penny, at that time gardener to the late King, when Prince of Wales, at Sandringham. He approved of its purpose, signed it, and it duly appeared, I think, in the *Journal of Horticulture*. The result was about twenty replies, mostly containing money. Mr. Penny was much perplexed to know how to deal with these sums, so they were sent to Messrs. Carter & Co. I added my mite, and the moneys were deposited provisionally in the name of Mr. C. H. Sharman, then manager to Messrs. Carter & Co., at the Forest Hill branch of the London and South-Western Bank. Next came the formation of a committee, and a properly-constituted body, with the happy result that is seen to-day. *Donald McDonald.*

CORONATION TREES (see p. 298).—The best system of preparation is to have trees planted in wooden crates, which are much better than boxes. In one of the Royal Gardens, where I was employed some years ago, memorial trees were required at all times of the year, and the practice was to always have suitable trees growing in crates for this purpose. The crates were made of oak battens fixed together about 2 inches apart. The crates containing the roots of the trees can be planted, as it were, in the home nursery, and be lifted and replanted at any future time desired. The roots can, of course, push out between the battens, and the crates eventually rot away. *W. H. Y.*

FRUIT PROSPECTS IN NORTH WALES.—As far as bloom is concerned, this season looks like constituting a record. Apples just now are a beautiful sight, while other fruits, such as Plums, Pears, Currants, and Gooseberries have been equally gorgeous, and have set well. Some Apple trees that were root-pruned three years ago are a wealth of blossom, but previously they had never bloomed. Some trees, dressed last January with Al fluid, are showing a marked improvement, and we hope to treat many more next winter. *J. S. Higgins, Rug Gardens, Corwen, N. Wales.*

A VINE MYSTERY.—Mr. Taylor's notes under this heading on p. 298 brings to memory a similar incident that occurred here more than 30 years ago. I referred to the circumstance at the time, under, I believe, the heading "Vines Killed by Frost," in the pages of the *Gardeners' Chronicle*, but I will now again venture to do so. In our case young Muscat Vines, planted in spring in an outside border, had, by the end of summer, covered their trellis with miniature growths. Upon entering the house one morning in September, after the sun had gained considerable power, the vine leaves were found to be hanging by their foot stalks and withered. Syringing did not rectify matters, and the result was that the young wood, and, of course, the leaves, shrivelled and died. It is by no means an uncommon occurrence here for severe frosts to be experienced in September, and we had a visitation of this kind on the night previous to the calamity taking place. As in the case alluded to by Mr. Taylor, the exposed portions of the vine stems were frozen through and connection between roots and shoots was thus, as it were, completely severed. Had we foreseen the danger and protected the exposed parts of stems with hay bands or some other means, the evil would have been avoided, or had we known in time even, what had occurred and had gradually thawed the frozen stems before the sun

gained power, the injury might still have been minimised. Recommending, as I have frequently done, the practice of confining vine roots entirely to inside borders, it may be asked why we planted Muscats in those borders which were placed out-of-doors. The reason was because the vines then planted were succeeding old ones that had been infested with Phylloxera, and it was at that period considered that this insect was powerless in this country, owing to wet and cold, to injure vines that had their roots wholly placed in external borders. *Thomas Coomber, The Hendre Gardens, Monmouth.*

A circumstance which puzzled the grower was once brought to my notice. The vines were growing in an outside border with portions of the stems exposed. One morning on entering theinery the man in charge was much alarmed at the drooping condition of some of the vines. The vines were trained on the extension system. In this case the variety was Black Hamburg, and as only some of the vines were affected and the same treatment had been afforded to the entireinery, the case presented, at first sight, a mystery. After examining the interior of theinery for some possible explanation, the outside border was inspected, and, lastly, the exposed stems, and here the mystery was solved, for mice had destroyed the bark and had also gnawed into the wood, thus bringing about the failure of the plants. *C. Ruse, Lambay Castle, Rush, Co. Dublin.*

A SEVERE STORM.—On the 11th inst., this district was visited by a terrific thunderstorm, accompanied by torrents of rain. Thunder prevailed all the afternoon, and at 4.35 p.m. the downpour of rain commenced. By 5 p.m., when the worst of the storm was over, the rainfall registered 1.62 inches, and when rain finally ceased 1.95 inches. The villages around here have all suffered heavily, many of the crops, including Potatos having been washed out of the ground. In these gardens some of the crops were washed away and others buried, whilst the paths and roadways appeared like ploughed fields. *A. J. Morris, Compton Bassett Gardens, Calne, Wiltshire.*

LITHOSPERMUM AND LIME (see p. 298).—Mr. F. Gunning has evidently confused my remarks with the original note by Mr. Somerville. The many plants of *Lithospermum prostratum* which thrive so well at Bodnant are growing in herbaceous borders, rockery, and at the corners of Rose beds. In each case there is a deep, rich soil. A short time ago various samples of soil from Bodnant were sent to the R.H.S. for analysis, and they were reported to contain all the constituents necessary for growing healthy plants, but were deficient in lime, and this is a soil in which *Lithospermum prostratum* flourishes. In the mid-Somerset garden mentioned by me this plant was growing in a kitchen-garden border. *A. C. Bartlett.*

THE POTATO DISEASE (see page 248).—I thought that it was generally believed after Mr. Worthington Smith's discovery of the resting spores of *Phytophthora infestans* that these hibernated during the winter in the soil. Those who have noted the early development of the fungus spots on the leaves cannot fail to have observed that it is from the soil upwards that they progress. The lower leaves, thin of texture, and, because they are so much in the shade, lacking chlorophyll, are the first to suffer from contact with the spores. It may be admitted that if the resting spores hibernated in the flesh of the tubers, just the same upward progress of the spot affection would be likely to occur. Against the soil hibernation theory it may be mentioned that when Potatos are planted on soil which has not yielded a Potato crop for many years, disease presents itself all the same. So when tubers unaffected with resting spores are planted, disease spots are liable to develop on the plants. With regard to the soil theory, however, it may be assumed that so volatile are the disease spores, they may be carried on a breadth of Potatos in a garden or field to all parts of it, and presumably those spores finding no host plants on which to feed or vegetate become in the soil resting spores, or they give rise to resting spores in the soil. But even the most healthy of tubers will produce diseased plants, and yet tubers which show the

effects of disease upon cutting them have been known to produce plants which appeared perfectly healthy. At the same time, it is my experience that tubers affected badly with disease seldom give growth; indeed, one of the arguments in favour of the sprouting of tubers set in boxes or on shelves a month or two prior to planting, is that diseased tubers either fail to sprout or sprout weakly, and hence can be rejected, only sound tubers being planted. With reference to soil treatment for the purpose of any small experiment sterilisation is practicable, but it would be impossible to sterilise the soil of a large area. When it is shown that in an experiment Potatos on both sterilised and non-sterilised soil gave similar results, it is obvious that sterilisation of soil is of no value, hence we are driven to the conclusion that either the atmosphere at a given period of the summer must be sterilised and that is, of course, impossible, or the planting sets must be sterilised to destroy any disease spores they may contain. This latter object can scarcely be attained without destroying the vitality of the tubers. Thus, so far as any kind of treatment of soil or tubers is concerned cultivators appear to be on the horns of a dilemma. It would seem as if scientists must first satisfactorily determine how the resting spores hibernate. When that is determined any remedial measures that may be suggested must be tested severely before they are recommended for general adoption. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MAY 9.—*Present*: Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Sir Everard Im Thurn, Dr. A. Voelcker, Messrs. W. E. Ledger, W. Cuthbertson, C. E. Shea, W. W. Fowler, J. T. Bennett-Poë, W. Hales, R. Hooper Pearson, J. Douglas, J. O'Brien, A. Worsley, and F. J. Chittenden (hon. secretary).

Gongora Tracyana.—This plant, shown at the last meeting by Messrs. TRACY and referred to Kew, proved to be an undescribed species, to which the name of G. Tracyana Rolfe has been given. It was unanimously resolved to recommend the award of a Botanical Certificate on the ground of its novelty.

Oncoba Routledgei.—The plant recommended for a Botanical Certificate under the name of *Oncoba spinosa* var. *Routledgei* at the last meeting had been further examined at Kew, and it has now been made a separate species and named *O. Routledgei*.

Malformed Odontoglossum.—A spike of a form of *Odontoglossum crispum* from Sir JULIUS WERNER, of Luton Hoo, bearing several malformed flowers, as well as others of a normal character, was referred to Mr. Worsdell, who reports as follows:—"The balance of the spike is quite upset. Most of the flowers are normal, however. The peculiar structure present is due to a compromise between two tendencies (1) that making for reduction or fusion, and (2) that making for multiplication of parts. There is no evidence at all for actual synanthony or for the 'passing of one part of a flower into the next,' as the spatial distribution of the flowers on the spike appears to be normal. On the other hand, there is an equal absence of evidence that an increase in the number of flowers on the spike is occurring. In one flower there is a remarkable case of 'positive dedoublement'; four sepals, uppermost (posterior) forked; four ordinary petals (which might have resulted from forking of the lateral ones); one of these four lies exactly in the median plane (anterior); two labella forming with the column a whorl of three within the four ordinary petals; the column is double below, but triple above (there being three anthers). One anther is becoming petaloid. Owing to the causes above mentioned the flower comes to have a larger number of members than usual, and the composition of the whorls is altered, owing to the fact that, under the circumstances, the members must be more or less rearranged, so as to obey the law of alternations. In the second flower there are three normal sepals, but the anterior one is in structure and appearance intermediate between a sepal and a petal, as it has the brown blotches of the former; but it is lighter in colour than the

sepals and has a slight tendency to be fringed at the margin like a petal; there is no present evidence as to its origin, but it perhaps arose by division of the normal sepals, two labella forming with the double column a whorl of three. In the third flower the reductive or fusion tendency has overpowered the other (or multiplicative). The two lateral sepals have fused into a single one in the anterior median plane, but this sepal is triple, and the middle lobe may represent the third sepal-like petal of the second flower referred to, and this is very likely, in which case it would not be accurate to speak of fusion of two sepals. Two labella, one of which is much smaller than the other and has its stalk completely fused with the column. The column is double, but the anthers are much more closely approximated than in the last two flowers (an interesting fact as showing the fusing process). The sepals are more petal-like and larger than usual, as is natural. In the fourth flower the reduction and fusion

direction on the axis of the spike. The structure of the dimerous flower has probably, from a morphological point of view, nothing whatever to do with the other malformations, but, physiologically, there may be a connection. Exigencies of nutrition may demand that, if some flowers have an extra number of organs to be fed, other flowers must not be supplied with so many organs, economy in the spike-household being thus maintained."

Fasciated Asparagus.—Canon FOWLER showed a fasciated and contorted stem of *Asparagus*, about 1½ inch in diameter.

Tulip Disease.—He also showed specimens of Tulips with numerous brown patches upon their leaves. This disease appears to be caused by the *Botrytis* form of a species of *Sclerotinia*. When the attack is a bad one, the fungus forms black sclerotia near and about the top of the bulbs, between them and in the soil, and by these the

small, whitish flowers, and *Rhododendron concinnum* and *R. rufescens*, the latter a dwarf species, about 6 inches in height, with white flowers about ½ inch in diameter, and having somewhat the habit of *R. intricatum*.

Hymenocallis × festalis.—Mr. WORSLEY showed spikes of this hybrid raised by him between *Ismene calathina* ♂ and *Elisena longipetala*. The hybrid is remarkably vigorous in habit.

NATIONAL AURICULA & PRIMULA. (MIDLAND SECTION.)

MAY 3, 4.—Miss Mary Chamberlain performed the opening ceremony at the 12th annual exhibition, held at the Botanical Gardens, Birmingham, on the above dates. Although several well-known exhibitors did not compete, the show was a good average one. The Alpine varieties were superior to any ever seen at Birmingham; but the show varieties were not quite so good as we have seen them. The exhibition was larger than any of its predecessors, and it is gratifying to observe the increased interest taken in the culture of the Auricula by amateurs. Local growers were well to the fore.

SHOW AURICULAS.

In the premier class for eight varieties, dissimilar, C. WINN, Esq., Selly Hill, Birmingham (gr. Mr. T. Sheppard), was awarded 1st prize, with well-flowered plants of *Eucharis*, Lancashire Hero, Henry Wilson, Mrs. Potts, George Lightbody, Mrs. Henwood, Mikado, and Rifleman; 2nd, Mr. F. SIMONITE, Sheffield, whose best varieties were Lancashire Hero, Acme, George Lightbody, and Letitia; 3rd, W. H. PARTON, Esq., Moseley (gr. Mr. W. Carpenter).

Mr. C. WINN also gained 1st prize in a class for six varieties, dissimilar. He showed beautifully clean specimens of Harrison Weir, Lancashire Hero, Marmion, George Lightbody, Mrs. Henwood, and Mrs. Potts. In Mr. F. SIMONITE'S 2nd prize collection we noted a very promising unnamed grey-edged seedling.

In a class for four varieties, there were 10 contestants. 1st, Mr. W. C. G. LUDFORD, Four Oaks, Sutton Coldfield, with superbly-grown plants of Harrison Weir, Shirley Hibberd, Mrs. Henwood, and Mrs. Potts. 2nd, Mr. C. REEVES, Handsworth, whose examples of Acme and Mrs. Phillips were of outstanding merit.

The best pair of varieties, dissimilar, was exhibited by Mr. RICHARD HOLDING, Bournville. He had Acme and Mrs. Phillips in splendid condition. 2nd, Mr. H. W. MILLER, Handsworth, with Shirley Hibberd and Mikado.

SHOW AURICULAS (SINGLE PLANTS).

Five classes were provided for these. In the class for green-edged varieties, the 1st and 2nd prizes were won by Mr. C. WINN, with Mrs. Henwood. Both plants were remarkable for their large, leathery leaves and bold trusses of shapely flowers. 3rd, Mr. W. M. SHIPMAN, Altrincham, with Miss Ethel, Marmion was the best grey-edged variety, shown by Mr. W. C. G. LUDFORD. Mr. C. WINN had the best white edge in his specimen of Acme. Mr. RICHARD HOLDING beat 24 competitors in a class for self varieties, with a plant of Harrison Weir. 2nd, Mr. C. WINN, with Victor. The last-named exhibitor had the best yellow, primrose, orange, or buff self. He showed Daffodil in splendid condition.

Mr. A. GILBERT, Handsworth, was successful in a class reserved for maiden growers; and Mr. C. WINN beat nine competitors in the local growers' class for three varieties, dissimilar. The varieties exhibited in the last-named class were George Lightbody, Mrs. Henwood, and Mikado. 2nd, Mr. W. C. G. LUDFORD.

There were five entries in a class reserved for young amateur growers, and of these Mr. H. G. SPENCER, Four Oaks, Sutton Coldfield, was 1st, having good plants of Lancashire Hero, Shirley Hibberd, and Harrison Weir. 2nd, Mr. J. FREEMAN, Sparkhill.

SEEDLING SHOW AURICULAS.

The most successful exhibitor in these classes was Mr. F. SIMONITE, who took 1st prizes in classes for (1) green-edged, (2) grey-edged, (3) white-edged, and (4) two varieties, dissimilar.

ALPINE AURICULAS.

In the principal class, which was for eight Alpine Auriculas, dissimilar, the 1st prize was



FIG. 144.—AURICULA "HENRY WILSON": THE PREMIER SHOW VARIETY AT THE BIRMINGHAM EXHIBITION.

tendency is all-potent; the flower is 2 merous. It has two sepals (antero-posterior), the anterior one being very large, owing to fusion of the two normal lateral ones; two lateral petals larger than normal, doubtless correlated with the complete absence of the labellum. The absence of the latter must be attributed either to abortion or to congenital and intimate fusion with the column (an analogy for such a fusion exists in the third flower, and the column has its lateral petaloid appendages larger than usual). The ovary appears to be normal. A very interesting fact is that the bracts subtending two or three of the flowers showing positive dedoublement, are double, having two tips and two midribs. In such cases the splitting tendency is very powerful, and if it went further would result in the formation of two flowers side by side; these then might become spatially separated in a vertical

disease is continued into the next year. The spread of the disease may be checked by spraying with potassium sulphide, but it is well to completely remove and destroy badly diseased plants, to plant in fresh soil, and to discard any bulbs showing traces of the sclerotia (which vary in size from a pin's head to a pea) when planting is done in the autumn.

Twin-flowered Daffodils.—Mr. SHEA showed several varieties of *Narcissus* having two flowers in place of the normal one, and a specimen was sent from Darlington of a form of *N. poeticus* with three flowers. Several members remarked upon the common appearance of this phenomenon this season.

New Plants.—Messrs. VEITCH showed specimens of *Viburnum Davidii*, an evergreen *Viburnum* with large, glossy leaves and corymbs of

Mr. W. LAWRENSEN, Yarmouth, showed Carnations, amongst which we noticed a white seedling of immense size and good substance, named "Snowstorm." Rambles in pots and Alpines also formed part of the exhibit. Silver Medal.

Messrs. W. ARTHUR & SONS, Sheffield, showed a large exhibit of Violas and Tulips. Silver Medal.

Messrs. R. P. KER & SONS, Liverpool, exhibited Rhododendrons in pots and a few Tulips. Silver Medal.

Messrs. W. & J. BROWN, Peterborough, had a miscellaneous exhibit consisting of Verbenas, Marguerites, Heliotropes "Lord Roberts," and cut sprays of Lilacs. Large Bronze Medal.

Messrs. F. J. BELL, Whitby, Bagg, showed Violas. The centrepiece was formed of the variety "Lord Nelson," of bluish purple, streaked with creamy white. The bright yellow variety "Moseley Perfection" was also well shown. V. R. Finlay in a delicate creamy white Viola, fringed with pink. Large Bronze Medal.

Messrs. J. WOOD, Boston Spa, exhibited a small rockery, which was well adapted to a fine subject. Bronze Medal.

Messrs. A. J. HARRISON & SONS, Biele, showed many fine specimens of Iris. Bronze Medal.

Mr. A. J. HALL, Harrington, exhibited Alpines in pots, Asters, and a new scarlet-flowered Pelargonium named "Coronation." Bronze Medal.

Messrs. DICKSON & ROBINSON, Manchester, staged a collection of Tomatoes, Verbenas, Heucheras, and Tulips.

Mrs. HILLYARD, Ilkley, showed several Auriculas.

Mr. H. HEVSLER, Bradford, staged the new Myosotis alpestris "Marie Rayne." This variety has a rich red white striped ground each petal. It was awarded a National Diploma of the Second Class. A few fine Alpines were also included in Mr. Hevsler's exhibit.

Mr. MATTHEW GREENBERG, Leeds, exhibited a collection of flowers, including Tulips, which were awarded a Cultural Commemorative Certificate for flowers, Rhubarb, and Peas.

Messrs. ALDS & ROBINSON, Leeds, exhibited Rambling Roses, in pots, and a collection of Carnations, and Ferns.

Mr. J. E. SABERS, Bradford, exhibited a collection of Cyrtoidium falcatum, and a fine specimen of Queen of Spain.

Messrs. WM. WOOD & SONS, W. of Green, staged horticultural exhibits.

ORCHID COMMITTEE

AWARD

Third-class Diploma.—Laelia cattergae and hamiana, shown by Mr. W. MATTHEWS, Harrogate, Jr. Mr. R. B. GIBBS.

PLANT AND FLOWER COMMITTEE

AWARDS

First-class Diploma.—Anthurium Salpitrinum maculatum, from Mr. J. RAMSDEN, Bath, Jr. Mr. G. T. TAYLOR; Carnation "Snowstorm," from Mr. W. LAWRENSEN, Yarmouth-Tees.

Second-class Diploma.—Myosotis alpestris Marie Paphiel, from Mr. H. HEVSLER, Bradford; Troilus Elsie Harcourt and Derby Day, from Messrs. HARRISON & SONS; Aubretia Mrs. Lloyd Edwards, from Messrs. CLIBRANS, Ayr; Auricula and Auricula Sulphur Queen, from Mr. J. W. RAMSDEN, Bath.

The Scientific Committee met under the chairmanship of Professor Seaton.

At the meeting held during the afternoon in the University Lecture Hall, Dr. W. Head gave a lecture, illustrated by lantern slides, on "The Distribution of Plants."

BRITISH GARDENERS' ASSOCIATION.

MAY 9.—At the meeting of the executive committee held on the 9th inst., Mr. W. H. DIVERS in the Chair, 12 new members were elected bringing the total up to 2142. It was decided to invest £250 in local loans, and to grant an honorarium to each of the secretaries of the local branches of the association. A resolution was passed to favour of the Government scheme for National Insurance, and it was decided that the association should watch the

progress of the Bill through Parliament, and to work the United Horticultural League's President's scheme.

ANNUAL MEETING.

The annual general meeting of the Association will take place on Thursday, May 25, at 7 p.m., at Harris Restaurant, Strand, when the annual report and balance sheet will be presented. We print the following:

EXTRACTS FROM THE REPORT.

The executive committee are glad to report that the year 1910 was, in every respect, a successful one. The financial position is satisfactory, and the work of the Association has been carried out in a most efficient manner. The annual meeting at Bath was particularly successful, and the report and balance sheet were well received.

During the past year the Association has received the support of the Government, and the work of the Association has been carried out in a most efficient manner. The annual meeting at Bath was particularly successful, and the report and balance sheet were well received.

Mr. W. H. DIVERS, Secretary, attended a conference at Harrogate, and reported on the progress of the work of the Association.

The Association has received the support of the Government, and the work of the Association has been carried out in a most efficient manner. The annual meeting at Bath was particularly successful, and the report and balance sheet were well received.

Letters were received from the Secretary of the Royal Horticultural Society, and the work of the Association has been carried out in a most efficient manner.

PROCEEDINGS OF THE COMMITTEE.—The committee have considered the report of the Secretary, and have decided to recommend that the Association should continue its work in a most efficient manner.

Mr. W. H. DIVERS, Secretary, reported on the progress of the work of the Association, and the committee have decided to recommend that the Association should continue its work in a most efficient manner.

Mr. J. E. SABERS, Secretary, reported on the progress of the work of the Association, and the committee have decided to recommend that the Association should continue its work in a most efficient manner.

Mr. W. H. DIVERS, Secretary, reported on the progress of the work of the Association, and the committee have decided to recommend that the Association should continue its work in a most efficient manner.

Mr. J. E. SABERS, Secretary, reported on the progress of the work of the Association, and the committee have decided to recommend that the Association should continue its work in a most efficient manner.

LAW NOTE.

FAILURE OF A MARKET GARDENER.

At the F. Hall, Colchester, on the 15th inst., George James Arnold, trading as the "Armed" Fruit and Market Gardeners, was liquidated. The liquidator has issued a summary of the liquidator's statement, which shows that the liquidator has received from the liquidator's assets £115 10s. 6d., and that the liquidator has paid out of the liquidator's assets £115 10s. 6d. The liquidator has also received from the liquidator's assets £115 10s. 6d., and that the liquidator has paid out of the liquidator's assets £115 10s. 6d.

ROYAL GARDENERS' ORPHAN FUND.

The annual meeting of the Royal Gardeners' Orphan Fund was held on the 15th inst. at the F. Hall, Colchester, when the annual report and balance sheet were presented. The report shows that the fund has received from the liquidator's assets £115 10s. 6d., and that the fund has paid out of the liquidator's assets £115 10s. 6d.

MARKETS.

CURRENT GARDEN MARKET.

We cannot accept any responsibility for the prices of the various articles mentioned in the following list, which are the result of the market. The prices are given in the following list, and are subject to change without notice.

Table with columns: Cut Flowers, 50c Average Wholesale Prices. Lists various flowers like Carnations, Tulips, and their prices.

Table with columns: Cut Foliage, 50c Average Wholesale Prices. Lists various foliage items like Ferns, and their prices.

Table with columns: Plants in Pots, 50c Average Wholesale Prices. Lists various plants in pots like Begonias, and their prices.

Table with columns: Fruits, Average Wholesale Prices. Lists various fruits like Apples, and their prices.

Fruit: Average Wholesale Prices (continued).

Table listing various fruits and their prices, including Cherries, Dates, Figs, Gooseberries, Grapes, Lemons, and Vegetables.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Asparagus, Beans, Broccoli, Cabbages, Carrots, Cauliflowers, Cucumbers, Endive, Herbs, Horseradish, Lettuce, and Potatoes.

REMARKS.—Arrivals of Australian and Tasmanian Apples received this week amounted to 60,000 boxes, the fruits showing a decided improvement in those of recent shipments.

Table listing prices for Potatoes, including Kent's, Lincoln's, and York's varieties.

REMARKS.—Trade is very steady, and recent arrivals have been lighter in bulk. The stocks in London are not quite so heavy.

THE WEATHER.

THE WEATHER IN WEST HERTS

Week ending May 17.

A very warm week.—The last 10 days and nights have been all warm. On the three warmest days the temperature in the thermometer screen rose respectively to 74°, 72°, and 72°, which are unusually high readings for the middle of May.

Obituary.

JAMES BODDIE.—We have to record the death of Mr. James Boddie, Ivan Cottage, Port Erroll, N.B., which occurred a few days ago.

ANSWERS TO CORRESPONDENTS.

ALOES: J. F. Young. Aloes are succulent plants, and most of them are natives of Cape Colony. They are cultivated for their handsome leaves; the flowers, though singular in appearance, are not very attractive.

APPLE SHOOTS DISEASED: E. M. M. The injury has been caused by the bud moth Hedya ocellana. Spray the trees with an arsenical insecticide in the late summer, and again in the following spring, when the buds are bursting.

CARNATION FOLIAGE DAMAGED: F. W. B. No disease is present. The blistering of the leaves has been caused by some external agency, such as the sun's rays scorching them when they are wet.

COBLEM (CROTON) LEAVES: Wansinensis. No disease is present. The injury is due to the condensation of moisture in drops on the leaves.

LOGANBERRY: Leirion. The canes are injured by a fungus known as Gloeosporium venetum. If the canes are very badly diseased they should be cut out; if not, spray the plants thoroughly twice each week with liver of sulphur, using one ounce to three gallons of water.

NAMES OF PLANTS: R. P. 1, Spiraea arguta; 2, Cerastium Biebersteinii; 3, Cydonia Malus; 4, Pulmonaria angustifolia; 5, Choisya ternata; 6, Tiarella cordifolia; 7, Waldsteinia fragarioides; 8, Helianthemum vulgare hyssopifolium flore pleno; 9, Phlox subulata var.; 10, Linaria Cymbalaria; 11, Stachys lanata.—H. M., Gainsborough. Pyrus Malus floribunda.—F. P. 1, Rodriguezia secunda; 2, Oncidium ampliatum; 3, Epidendrum ciliare; 4, Oncidium flexuosum.—H. B., Tetrameria bicolor, often called Leptotes bicolor.—H. C., Zephyranthes carinata.—P. J. P., Metrosideros floribunda (Bothribrush)—H. S. 1, Dendrobium caniferum; 2, Dendrobium Parishii.

RECORD BUNCH OF GRAPES: A. B. The largest bunch of Grapes grown in the British Isles of which we have record was shown at the International Fruit Show at Edinburgh, held on September 15 and 16, 1875. The variety was Raisin de Calabre, and the weight was 26 lbs. 4 ounces. It was grown in Mr. Douglas's garden at Eskbank, Dalkeith, the gardener being Mr. Curror.

RHOODODENDRON (AZALEA) INDICUM: G. D. Y. The plants have not set their flower-buds, or they would have bloomed satisfactorily. The flower-buds are formed in the previous season. After the flowering is over, plants of Azalea indica should be kept in gentle heat and syringed frequently to encourage the development of young growths.

STRAWBERRIES ROTTING: Bradwell Grove. Strawberry mildew is present on the fruits. Spray the plants with liver of sulphur, taking care to wet the under surfaces of the leaves during the operation.

STREPTOCARPUS WITH DAMAGED LEAVES: M. S. A. The leaves are injured by mites. Dip the foliage in Tobacco water, or spray the plants with a nicotine preparation.

TULIPS FAILING TO FLOWER: T. C. The bulbs are perfectly healthy, but they did not mature properly last season, with the result that the flower-spikes are too weak to develop satisfactorily.

VINES FAILING TO FRUIT: A. B. Excess of nitrogenous matter in the soil with imperfect aeration of the roots and crowding or mutilating of the foliage are generally the causes of non-fruiting in vines. You do not state the treatment the outside border has received. A similar case of non-fruiting in vines came under our notice last autumn. On examination of the border the soil was found to be so inert and solid that it could not be broken easily, though it could be chopped into pieces with a spade. It had been made of rich materials and mulched almost continually with stable and cow manure. No fibrous roots could be found, only a few very strong ones. A dressing of freshly-slaked lime was applied at the rate of half a bushel to each rod of the border. The soil was turned up a spit deep with a fork and moved occasionally again during winter, whilst the ground was frozen. A dressing of 7 lbs. of super-phosphate and 3 lbs. of sulphate of potash was applied to each rod in the spring, and 1 lb. of sulphate of ammonia, or nitrate of soda, will be applied to each rod at intervals of six weeks during the summer. Although there is no fruit this season, the buds are already becoming prominent, and the prospects are favourable for a crop next year. Should the summer be dry and hot, a little strawy manure will be placed on the border towards midsummer and removed at the end of August, if the condition of the weather permits.

VINES: H. E. C. It may be that owing to faults in the glass or deficient ventilation the leaves are singed by the rays of the sun, but we cannot tell if this is so without knowing something of the conditions of the house or having specimens for examination. If you have any reason to suppose that the vines are affected with disease, send a few shoots to this office. We will then examine them and inform you whether there is disease present or not.

Communications Received.—W. E.—T. B.—J. P., Kildare. T. S.—W. B.—T. A. H.—C. G. A. N.—A. D.—W. L., Meath. H. C.—J. H.—E. V. and Son.—J. H.—L. E. W.—F. A.—W. C.—E.—W. H. S.—W. T.—J. McK.—J. C., Baginbally. S. C.—G. W.—Eberswally.—O. B.—F. W. C., Fawley.—M. C.—D. W.—W.—C. T.—D.—C. G. Van T., Haarlem.—M. L.—B.—H. J.—V.—R. E.—R.—M.—S.—E.—W.—G. Q.—G. P.—Moresby.—H. T.—G.—D.—M.—P. E. C., Maidstone.—G. F.—Lasswade.—H. E.—Curth.—F. A.—J.—J. B. H., Leeds.—E. G.—L.—D.—J.—C.—E.—J.—B.—W.—F. R.—Farnham.—W. H.—W.—J.—J., Wrexham.—J. L., Otterbourne.—W. K.—L. S.—C. R.—L.—Mascot.—A. B.

THE
Gardeners' Chronicle

No. 1,274.—SATURDAY, May 27, 1911.

CONTENTS.

Benevolent Institution, Gardeners' Royal ...	339	Orchid notes and gleanings—	
Books, notices of ...		Hybrid Cattleyas ...	323
Journal of the New York Botanical Garden ...	329	Odontoglossum crispum Lynwood var. ...	323
Trees and Shrubs in Calcutta Botanic Garden ...	323	Plants, new or noteworthy—	
Charlock, the eradication of ...	329	Oncoba Routledgei ...	322
Davidia involucreta, the flowering of ...	330	Plum trees killed by Eutypella prunastri ...	329
Electric current and trees ...	324	Plums, brown rot on ...	324
Gardeners, young, should travel ...	324	Rhododendron campylocarpum ...	331
Greenwich Park, new superintendent of ...	330	Roses for foliage ...	321
Lathyrus pubescens ...	324	Sclerotinia disease of Mangolds ...	329
London parks, appointments to ...	330	Societies—	
Manganese manures ...	329	National Sweet Pea ...	349
Modern gallery, the ...	330	Royal Horticultural ...	331
		Temple flower-show, the Warblers, the coming of the ...	328
		Week's work, the Williamson, Wm. ...	326-327 328

ILLUSTRATIONS.

Coleogyne burfordiense ...	331
Davidia involucreta ...	329
Lelio-Cattleya Germiana ...	325
Lewisia Cotyledon ...	337
Lilium "Golden Glean" ...	336
Odontoglossum Black Prince "Dell Variety" ...	332
Oncoba Routledgei, hermaphrodite flower of ...	323
Oncoba Routledgei, plant of ...	322
Oncoba Routledgei (Supplementary Illustration)	
Rhododendron Corona ...	334
Rhododendron "Little worth corallina" ...	335
Rose Orleans ...	334
Rose Fortia ...	333

ROSES FOR FOLIAGE.

AT the Rose Conference held last month, Mr. George Paul referred to the various Roses which are worth a place in the garden for their foliage alone. This type of Rose is best represented in some of the species in which the leaf is more finely cut than in our ordinary garden Roses. Many of them are very beautiful as foliage plants, and, I think, never more so than when they put on the fresh green of May.

The first to attract attention in my garden is, generally, *R. cinnamomea*. This Rose produces smooth, reddish-brown stems in autumn, and in April these put forth brilliant green buds expanding in delicate leaves, which, in contrast with the dark stems, are very attractive. More than once this spring I have found myself making expeditions to the part of the garden in which *R. cinnamomea* is growing in order to look at its brilliant green. The Rose is found wild on the continent of Europe, and the flowers are single. Later in the year, perhaps, it is not specially noticeable, though the pointed flower-buds, with their long sepals, are pretty, and the fragrance, from which the Rose takes its name, is distinct. This Rose forms a compact little bush, 2½ to 4 feet high, and will grow anywhere. It is useful in an open shrubbery.

R. Hugonis has very graceful, finely-cut foliage, and will grow with branches spreading down to the ground, if well treated. *R. Moysesii*, with rather larger leaflets, is worth growing for its foliage as well as for its large, single flowers of distinct colour. For the distribution of these two Roses, I believe we are largely indebted to the firm over which Mr. G. Paul presides.

Of the Roses distinguished for their

foliage, two of the most beautiful, growing from 5 to 8 feet, are forms of *R. sericea*. The silky Rose, *R. sericea tetrapetala* has leaves composed of some 13 little leaflets packed closely together, six on each side of the stalk and one at the end, giving a very graceful and fern-like character to the foliage. The Rose produces strong basal shoots covered with hundreds of small prickles or aciculi, as well as a number of strong thorns. The aciculi are, when young, of a translucent red colour, which has a wonderful effect in the sun. These basal stems must not, however, be alone relied on to furnish the plant, or it becomes leggy, but older branches must be encouraged to furnish the base with branching side shoots. The flowers are composed of four glistening white petals, and are produced in May, usually beginning to open soon after the middle of the month: when fully out, they give the shrub a very striking appearance. Later on, the flowers are replaced by numerous orange-coloured fruits, which last till the close of summer.

R. sericea pteracantha (see figs. in *Gard. Chron.*, October 7, 1905, pp. 261, 262), is very like tetrapetala, except that it is, with me, an even stronger grower and has extraordinary thorns, often 1 to 1½ inch wide at the base; being a translucent red, they are pretty when young, but later they turn grey and black. On the whole, I think I prefer the tetrapetala form, but the thorns of pteracantha are certainly a curiosity. Lindley, in his Monograph, figured a five-petalled form of *R. sericea* with a pink tinge, and from other sources I gather that forms with yellow shading have been noticed. I have never seen any of these coloured forms, and think they would not be so effective as the two I have mentioned, in which the pure glistening white of the flowers, on a background of feathery foliage, is very attractive.

The foliage of some of the relatives of the Burnet Rose is very beautiful in spring, particularly so in *R. altaica*, which has a large, cream coloured single flower. Even more striking are the yellow-green budding leaves against the red-brown stems of *R. xanthina*. This and *R. hispida* are of soft shades of yellow, and *R. spinosissima lutea*, also with pretty foliage, has a full yellow flower. All these, when growing well, throw up shoots from the base, which may be trained slantwise into a hedge, or they may be allowed to grow into bushes, 3 to 4 feet high.

Not altogether unlike these in foliage, but rather smaller and more Fern-like, is a little Rose, *R. microphylla*, which grows about a couple of feet high, and branches out pleasantly. It is small enough to use on rock work if desired.

Two little gems, specially useful for the rock garden, with beautiful foliage, are *R. nitida* and *R. foliolosa*. *R. nitida* is altogether charming all the year round. It throws up little stems, about a foot high, covered with tiny red needles, and the foliage is bright and shining, turning in the autumn to a brilliant red. The old wood should be cut away every spring, leaving the red shoots of the previous year, which should be bent and pegged down. The

single rose-red flowers are also very gay, and of a pleasing tint.

R. foliolosa is a little taller, making a bush about 18 inches high; the foliage is bright-green and the flower, deep rose.

Quite different from any of these is *R. rubrifolia*. It has proved with me rather a slow-growing Rose, but in time it makes a bush 5 feet or more in height. When the leaf buds first push in the spring they are a brilliant salmon-scarlet, and, as the leaves expand, they change to a soft, glaucous blue, still retaining a tinge of pink, particularly on the mid-ribs and base of the leaf stalk. They are covered with a "bloom," resembling that seen on a bunch of Grapes, the stems being smooth and of a purplish-red colour. The flowers are small and pink, and the foliage is the chief attraction of *R. rubrifolia*. This is most useful for arranging with other Roses of a suitable shade of colour, especially those of a soft pink, like *La France*. Such a combination is highly decorative, and always attracts attention.

Rosa blanda has a very happy effect in the spring when the bright green leaf-buds begin to push from the smooth red stems, and, though rather different in character, I think I ought not to omit from Roses desirable for their foliage *R. Fedtschenkoana*, a Rose which seems to have the advantage of being very hardy.

Not one of these Roses is particular as to soil or situation, and all the taller varieties will do well in an open shrubbery. They are not, of course, suitable for growing with the ordinary garden Roses, by which I mean the H.P.s, H.T.s and Tea Roses, but are so graceful that they are well worth growing in a bed or border by themselves, or in association with other flowering shrubs. *White Rose*.

RHODODENDRON CAMPYLO-CARPUM.

CULTIVATORS and, more especially, breeders of Rhododendrons have hitherto overlooked the claims of *R. campylocarpum*. It was introduced along with other species from the Sikkim Himalaya by Sir Joseph (then Dr.) Hooker, by means of seeds collected at from 11,000 to 14,000 feet, and it first flowered in 1856 in the nursery of Messrs. Standish and Noble, Bagshot, when a figure of it was published in the *Botanical Magazine* (t. 4968). We are there told that the plant is abundant in rocky valleys and open spurs in the mountains of Sikkim at an elevation which would lead us to expect that the plant would be hardy in the open air in Britain. It was described as a compact bush about 6 feet high, which, when covered with its delicate inflorescences, claims precedence over its more gaudy congeners, and has always been regarded by me as the most elegant of the Sikkim Rhododendrons. The plant exhales a grateful honeyed odour from its lovely bells, and a resinous sweet odour from the stipitate glands of the petioles, pedicels, calyx and capsules. In habit and foliage it resembles *R. Thomsonii*, and the flowers, which are good in substance and arranged in loose terminal heads, are shallow bell-shaped,

2 inches or more across the mouth, the colour being sulphur yellow or pure white, without spots.

It is only in recent years that *R. campylocarpum* has been treated rationally, even at Kew. There was, notwithstanding all that had been said as to the hardness of *Rhododendrons* by Sir Joseph Hooker, a rooted belief that they would not thrive in the open air, consequently, such species as *R. Thomsoni*, *R. campanulatum*, *R. barbatum*, *R. cinnabarinum*, *R. campylocarpum*, and even *R. fulgens* were grown under glass where the conditions, particularly in summer, were not favourable to the health of plants which, in nature, are found only at high altitudes. *R.*

campylocarpum raised from seeds of the yellow-flowered form grown at Menabilly and presented by the late Mr. Jonathan Rashleigh, having lately flowered in a border there, and among them is a very fine white-flowered form, a pure *R. campylocarpum*, of course. There is also one which must be the result of an accidental cross, the leaves being larger and different in venation from those of *R. campylocarpum*, whilst the flowers are white, with a clear margin of delicate rose. For practical purposes, however, it is only a variation of the mother species, and we have given it the varietal name of Jonathan Rashleigh.

So far as I know no one has made use of *R. campylocarpum* for hybridising, yet it has all the attributes of a very good garden plant, in this re-

NEW OR NOTEWORTHY PLANTS.

ONCOBA ROUTLEDGEI.

(See figs. 145 and 146, also Supplementary Illustration.)

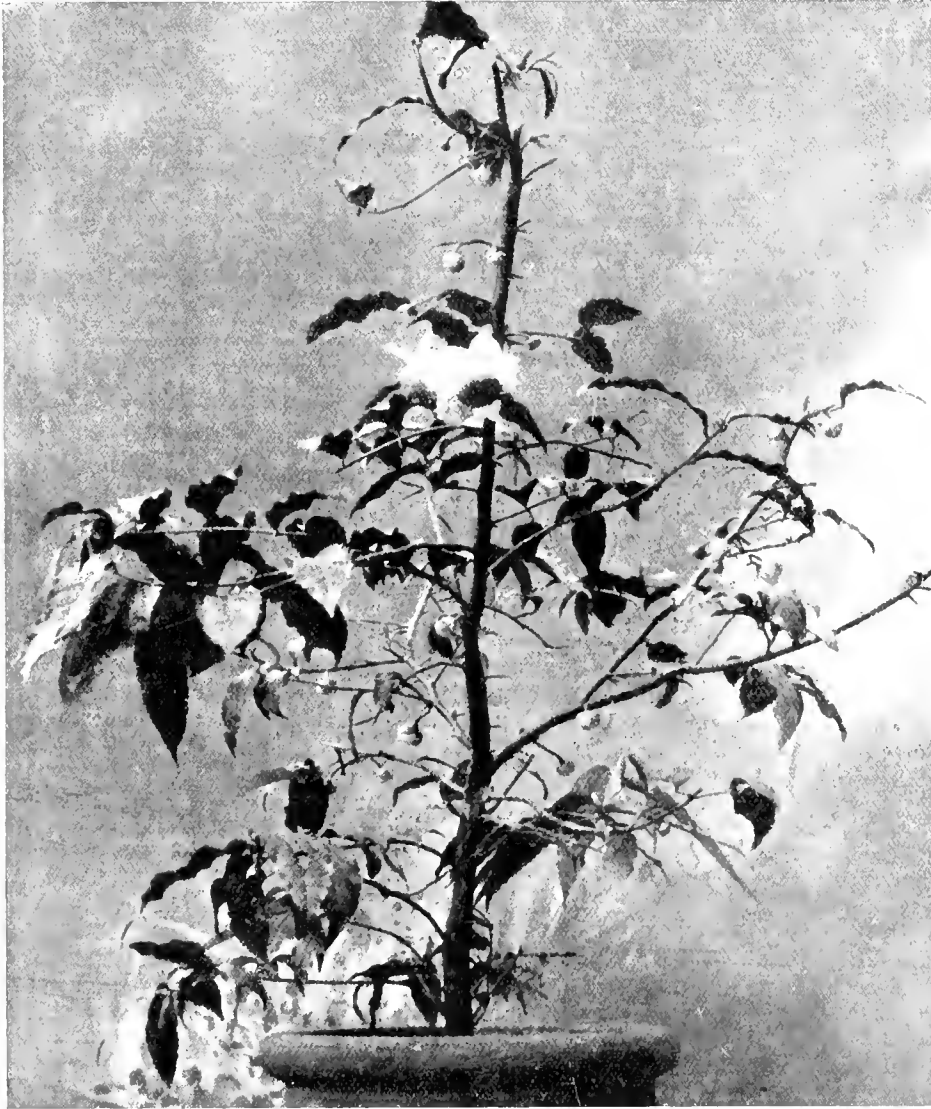
ONCOBA, as defined in the *Flora of Tropical Africa* and *Die Natürlichen Pflanzenfamilien*, included 20-25 species, natives of tropical Africa and America. It has recently been divided, however, into five distinct genera by Dr. E. Gilg, who retains the name *Oncoba* for those species which are spiny and have woody indehiscent fruits, namely, *O. spinosa* and *O. brachyanthera* (see *Engler's Jahrbücher*, xl. 454). These species are further characterised by the serrate or crenate margin of their leaves, the large flowers borne singly or two together on the old wood, and the ovary with numerous placentæ, so that they evidently constitute a well-defined natural group. *Oncoba* belongs to the order Bixaceæ, which also includes the genus *Aberia*, one species of which, *A. caffra*, has edible fruits and is also of value as a hedge plant in subtropical countries. The genera *Azara* and *Idesia* also belong to this order.

Oncoba spinosa and *O. brachyanthera* are both natives of tropical Africa. The former was discovered in Arabia and described by Forskal in 1775. It was subsequently collected in the Yemen district of Arabia by Defflers, but appears to be much more common in Africa, where it has been found in numerous localities from Senegambia and Abyssinia in the north to Angola and Natal in the south. *O. brachyanthera*, on the other hand, appears to be confined to Sierra Leone and Liberia. A third species, *O. Routledgei*, is now known: its history is as follows:—

In 1907 a small plant of *Oncoba* was brought to the Kew Herbarium for identification by Mr. C. E. Shea. The plant bore only a single male flower, and as one of the best distinctions between *O. spinosa* and *O. brachyanthera* lies in the nature of the stigma, it was not possible to determine the species with certainty. It was provisionally named *O. spinosa*, however, as it seemed to have more in common with that species. At the meeting of the Royal Horticultural Society on April 11, 1911, a plant of this *Oncoba* was submitted to the Floral Committee by Mr. C. E. Shea, and received a First-Class Certificate. As Mr. Shea's specimen differed from the type in having much larger petals, it was given the varietal name of *Routledgei* in honour of Mr. Jas. Routledge, from whom the seeds were received. It was therefore certificated as *O. Spinosa Routledgei*. Mr. Shea submitted specimens to the Scientific Committee on April 25, and that body granted the plant a Botanical Certificate.

On April 27 a leafy shoot and two male flowers were received at Kew from Mr. C. E. Shea, and the matter was gone into again. With the better material available, it was possible to determine Mr. Shea's plant as a new species intermediate in some respects between *Oncoba spinosa* and *O. brachyanthera*, but differing from both in the shape of the leaves. This new species was already represented in the herbaria at Kew and Berlin, but had been determined as a form of *O. brachyanthera* at Kew, on account of its floral characters, and as a form of *O. spinosa* at Berlin, on account of the nearly glabrous leaves. The chief differences between the three species of *Oncoba* are as follow:—

1. *ONCOBA SPINOSA*, Forskal.—Leaves elliptic, usually more or less cuneate at the base, finely serrate or crenate-serrate, 1½-2 times as long as their breadth, glabrous; lateral nerves not impressed on the upper surface, slightly raised on the lower, running towards the margin without forming conspicuous loops; veins finely reticulate, the primary ones usually no more conspicuous than the others. Anthers linear or oblong-linear. Stigma peltate, margin entire or slightly divided.



[Photograph by Mr. C. E. Shea.]

FIG. 145.—PLANT OF ONCOBA ROUTLEDGEI: FLOWERS WHITE.

(See also Supplementary Illustration.)

fulgens did, however, get better treatment, for there are some big bushes of it in the *Rhododendron Dell* which have been there at least thirty years, and they flower freely every year. More recently, the hardier among the Himalayan species have been cultivated out-of-doors at Kew with satisfactory results.

Reverting to *R. campylocarpum*, it should be borne in mind that the species, when wild, is either yellow or white-flowered, so that if seeds sown from a yellow-flowered plant produce some seedlings which are white, or *vice versa*, that is no more than one should expect. Proof of this may be seen at Kew now, several plants of *R.*

spect equalling at least *R. Thomsoni*, the parent of numerous first class hybrids. Even if it had no claims as a breeder, *R. campylocarpum* has excellent qualities as a hardy garden shrub, and there are, I know, some good specimens of it now in a few collections where *Rhododendrons* receive special attention. If it has a fault it is that of coming into bloom early in May, when frost may spoil the flowers; still, this same fault, if it be one, is common to many garden favourites. One might reason in favour of such plants because the slight element of uncertainty with respect to their coming to perfection adds to the delight experienced when they do. W. W.

2. *ONCOBA ROUTLEDGEI*, Sprague.—Leaves elliptic-oblong or oblong, obtuse or rounded at the base, coarsely crenate-serrate, 2-3½ times as long as their breadth (the lower leaves of a branchlet sometimes elliptic, 1½ times as long as their breadth), almost glabrous; lateral nerves not impressed on the upper surface, distinctly raised on the lower, running towards the margin without forming conspicuous loops; primary veins much more conspicuous than the others, running nearly at right angles to the midrib, ½-1 lin. apart. Anthers oblong. Apex of style divided into several distinct branches with capitate stigmas.

3. *ONCOBA BACHYANTHERA*, Oliver.—Leaves elliptic, obtuse or rounded at the base, very coarsely crenate-serrate, 1½-2 times as long as their breadth, coarsely pilose, especially on the lower surface and in a young state; lateral nerves deeply impressed on the upper surface, conspicuously raised on the lower, joined to one another by very conspicuous intra-marginal loops; veins coarsely reticulate, the primary ones somewhat more conspicuous than the others, rather irregular but running more or less at right angles to the mid-rib, 1-2 lin. apart. Anthers broadly oblong. Apex of style divided into several distinct branches with capitate stigmas.

It will be noticed that the hermaphrodite flower (fig. 146) shows a peltate stigma. Dried specimens in the Kew Herbarium, however, which undoubtedly belong to the same species as Mr. Shea's plants, have about eight short style-branches with capitate stigmas. Unfortunately, I have seen only male flowers of Mr. Shea's plant, and, therefore, cannot offer a satisfactory explanation of the apparent discrepancy.

O. Routledgei is at present known only from Uganda, British East Africa, and German East Africa, at altitudes ranging from 4,000 feet to 8,000 feet. Mr. M. T. Dawe, who collected specimens on Mt. Ruwenzori, described it as a shrub about 20 feet high. It bears strong axillary spines 1 inch long or less. The leaves are alternate, as in all Bixaceæ, shortly petioled, elliptic-oblong or oblong, shortly tapering to an obtuse apex, obtuse or rounded at the base, coarsely crenate-serrate, 2½-4½ inches long, 1¼-2¼ inches broad (rather narrower in proportion on young plants), almost glabrous, thinly coriaceous in a dried state; lateral nerves rather oblique, about five or six on each side of the midrib. Flowers borne singly or two together on the old wood, white, fragrant, 2-2½ inches across. Calyx deeply four-fid, reflexed below the young fruit. Petals about eight. Stamens very numerous; anthers oblong, yellow. Ovary one-celled; style divided below the apex into about eight capitate branches radially arranged. Fruit globose, woody, indehiscent. *T. A. Sprague.*

We are indebted to Mr. Shea for the material from which our sketch and photographs were prepared, and also for the following particulars:—

"In June, 1905, I received by post (posted at Mombasa, E. C. Africa) a pod of seed, with the information that the sender did not know what it was, but that the plant (a big bush) was a grand spectacle when in full bloom. The sender was my friend Mr. Jas. Routledge, who was then big game shooting in Central and East Central Africa. He did not describe the situation in which the plant was found, but the seed pod was given to him by a friendly native chief with whom he hunted, with the information that if he (Mr. Routledge) had any friend whom he did not want to see again he might be asked to take an infusion of the seed pods.

"The seed was sown on June 30, 1905. So quickly does the plant grow that two years later I was able to take a very small plant, with one expanded bloom on it, to Kew, where it was decided that the plant was in all probability *Oncoba spinosa*, although the petals were larger than in that species. It has since been made a new species.

I have several seedlings. All have been grown in a greenhouse having a temperature averaging 55°. Some plants were stood out-of-doors during the summer, and these grew and flowered the best. Cutting back of the shoots induces early flowering, but it spoils the shape of the specimens. The blooms develop on the old, hard wood, and have a delicious perfume. The plant forms seed freely, and my specimens have several seed-pods that are swelling fast.

"The plant does not need a very high temperature; indeed, I should not be surprised to find that in favoured situations in S. Ireland, or perhaps in Cornwall, it would grow in the open. It did not survive the winter with me. I planted several specimens out-of-doors in situations as protected as my garden affords, but they all died. As a clue to the probable home environment of the plant, I may say that Mr. Routledge at the same time sent me a *Cinnam*, which, however, turned out to be a known variety. The seed of *Oncoba spinosa* came in one big pod, the size of a small Orange, and so hard that we had

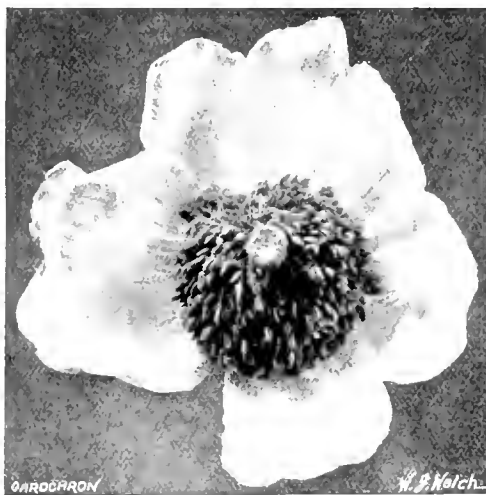


FIG. 146.—HERMAPHRODITE FLOWER OF *ONCOBA ROUTLEDGEI*.

to use the saw to open it. The seeds look something like Orange pips, but they are not so large, being about the size of small Apple pips. They germinated in seven weeks.

"My plants have not developed seed-pods until this year, but now there are several. Possibly this home-saved seed may produce plants a little more hardy than the original plants. My gardener, Mr. George Swallow, has devoted very great and intelligent interest to the growing and treatment of this new plant."

NOTICES OF BOOKS.

TREES AND SHRUBS IN CALCUTTA BOTANIC GARDEN.*

THE first part of the fifth volume of the Records of the Botanical Survey of India consists of a list of the trees and shrubs growing in the Calcutta Botanic Garden, by Major A. T. Gage, the superintendent. It is something more than a catalogue, and a better title would have been Name-Guide, &c. The garden covers an area of about 270 acres, and is very irregular in shape, having a river boundary upwards of a mile in length and an extreme width of 1,000 yards. Within this area there are some 25 lakes and ponds of most varied outline and size. The largest, King Lake, is about 500 yards long, and in it are several islands of considerable size. Prani Lake is irregularly star-shaped, reminding one of the Celebes and other islands in the Malayan Archipelago. For the purposes of this Name-Guide, as we pre-

* Catalogue of the Non-herbaceous Phanerogams cultivated in the Royal Botanic Garden, Calcutta.

fer calling it, the whole garden was divided into squares of a 100 feet side. These squares are numbered, and the trees and shrubs within each square are labelled, the label bearing the name and a number. The squares are indicated by quite inconspicuous posts, and only one series of numbers is employed for the plants throughout the garden. An excellent map shows the situation of the squares, which bear numbers corresponding to those repeated in the text. The label numbers run to 4,001. Many of the names are necessarily repeated over and over again, and at present there is no direct clue to the number of different species growing in the garden. But a second part is to be issued, giving a systematic arrangement of the collections, and some historical and other information. When complete, it will be a most useful and interesting compilation. *W. B. H.*

ORCHID NOTES AND GLEANINGS.

HYBRID CATTLEYAS.

Four interesting hybrids, though florally not very remarkable, are sent by Eustace F. Clark, Esq., Evershot, Dorchester, the most noteworthy being a flower of a hybrid derived from *Cattleya Schroderae* crossed with, it is supposed, *Laelio-Cattleya* × *highburiensis* (*L. cinnabarina* × *C. Lawrenceana*). The flower shows no trace of *L. cinnabarina*, *C. Lawrenceana*, or *L. C. highburiensis*, it being in effect a small, narrow-petalled *C. Schroderae*, and of a similar pale lilac or peach blossom tint usual to that species. An examination of the pollinia, however, indicates *Laelio-Cattleya*, and the parentage stated is therefore probably correct.

ODONTOGLOSSUM CRISPUM LYNWOOD VARIETY.

A FLOWER of this distinct variety of *Odontoglossum crispum* is sent by Mr. H. Hadden, gr. to J. J. Neale, Esq., Lynwood, Penarth, and although the interest in coloured "crispums" is not so great as it was, the variety is worth recording on account of the peculiarity of its colouring. The flowers are white, the segments slightly fringed, the sepals being tinged with rose at the back. The bases of the sepals and petals are white, the central parts being tinged with light rose-purple, the margins and tips being white. The fringed lip is white with a pale yellow crest, around which are some cinnamon-brown blotches. The back of the column is purple, and the wings are striped with pale red.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE COMING OF THE WARBLERS.—Throughout the country the Warblers have now settled themselves in their summer quarters. They are extremely modest birds, not timid but retiring, and thus it is that they often escape observation. Few of the migrants render such yeoman service to gardener, farmer, and forester as does this great company of insectivorous birds known collectively as the Warblers. The chief enemy of these birds is the egg-seeking youth, who brushes aside all considerations of protective legislation, scours the countryside with an energy worthy of a better object, and leaves destruction in his wake. Another source of danger lies with the Jays which rob small nests. The diet of the Warblers is insectivorous in character, although in times of stress the Whitethroat and the Blackcap resort to such fruits as are obtainable. Caterpillars, small insects, and house flies particularly are the staple diet. There are many nature lovers who, incidentally, are keen horticulturists and flower lovers, and who welcome the return of these dainty birds of modest plumage. Apparently the Warblers are fewer this year than usual; this may be explained by the severe

weather which swept over southern and mid Europe in the early spring, at which time the northern movement of the Warblers commences. Yet, despite the inclemencies of climate and the risk which must needs be run in the face of the Hawks that gather by the sea coast to take toll of tired migrants, a fair number have returned. Already (May 16) I have heard the Chiffchaff, the Blackcap, and Whitethroat, and have seen the Willow Wrens. The Blackcap usually precedes the Nightingale by a few days. Naturally the advent of the Warblers synchronises with the appearance of large numbers of larvae, and it is upon these that the Whitethroat, Blackcap, Garden Warbler, Willow Wren, Chiffchaff, and their congeners subsist, although in autumn, when Raspberries and Currants are tempting duties in the garden, a few of the bolder species may cause the gardener some slight anxiety. W. *Francis Rankine.*

THE ELECTRIC CURRENT AND TREES.—With the extending application of electricity to domes-

physiological effect of direct currents is not yet understood, but it appears to disorganise the whole cell system and break down the protoplasm. Trees subjected to a very powerful discharge may have a section of the cambium layer entirely destroyed, and when the injured section girdles the tree it is obvious that death must follow. A low current, if it is direct, will kill a tree without showing signs of burning. In the case of a very high current passing through a tree, the effect is seen at once, as there is very marked burning of the part damaged. The effects of alternating currents are usually purely local, that is, they cause damage by burning at the point of contact. Except in wet weather there is little fear of damage, as wood has a very high power of resistance. When a wire carrying a high alternating current comes in contact with a limb the current at once commences to run to ground through the moisture in the tree, and if it is not checked great heat is generated, and the wood for some distance above and below the wire is charred and in a

trees is becoming more and more prevalent amongst municipal engineers, and unless the man in charge of the trees insists on this practice being stopped, trouble is sure to arise sooner or later, as, even though the guy wires may be properly insulated, there is always a danger of the insulation failing during the time the atmosphere is saturated. Everyone is familiar with the effect of a severe lightning discharge on trees, but few are aware of the effect of a slight grounding of atmospheric electricity through trees. When the current is very strong the whole of the cambium layer is burnt, the bark is burnt off, and in very severe discharges, the wood also is shattered. In the case of slight lightning discharges the effect is often not seen for some years, as only a small internal wound is made, usually a slight hole in the cambium running the whole length of the trunk. This injury becomes apparent in later years by the formation of a ridge in the bark caused by the healing of the damaged tissue. These ridges are of great importance to the man who buys timber, but are of no account to the town forester. *Pom.*

LATHYRUS PUBESCENS.—This lovely blue Everlasting Pea, recommended by some as only suitable for a cool house, or very warm corner out-of-doors, seems, in reality, to be even hardier than the old white Lathyrus. I planted last spring three clumps of *L. pubescens* on a warm border, the plants having been grown a year in pots without flowering. They grew nearly 9 feet high during the summer, but did not flower. In the autumn I decided to let them stand out during the winter, and, as a protection to the roots, left the top growth and stakes as they were. This top growth kept green all through the winter, and early in the spring flower-buds appeared all over the haulm. The plants are now flowering grandly, and appear likely to do so for some time to come. It looks as if our summer is too short for the current year's growth to reach the flowering stage. I may add that the ordinary white Everlasting Pea was cut down as usual last autumn by the first frost. *T. E. Tomalin, Bessborough Gardens, Co. Kilkenny.*

BROWN ROT ON PLUMS.—It is with much regret that I report the most extensive attack of brown rot (*Sclerotinia fructigena*), formerly known as *Monilia fructigena*, on Plums that I have ever seen. Many of the fruit spurs containing embryo Plums have died off suddenly. If broken or cut off, it is seen that the wood is quite rotten just below where the blossom was, and in some cases where the spur joined a branch. The attack has been noticed in the same plantation in previous years, but never to the same extent as that of the present season. The extension is probably attributable to the extremely wet weather of last October, November, and December, and the frequency of rain in March. The attack is bad enough to spoil the Plum crop to a very serious extent. *A Southern Grower.*

SHOULD YOUNG GARDENERS TRAVEL?—This is a question which is seldom discussed in the columns of the gardening Press, but it is one that should arouse the interest of all young gardeners who wish to rise in their profession. The Britisher, with his insular prejudices, has, generally speaking, the deeply-rooted conviction that there is no country like his own, and that what is not known here about any particular subject is not worth knowing; and, though this belief has partly disappeared of late years, nowhere is it more prevalent to-day than in the ranks of horticulture. In other walks of life a young man's education is not deemed to be complete until he has had an opportunity of visiting the various centres of learning and industry abroad, and of comparing the methods and principles in force in the various countries with those practised at home; but how often is this the case with the young gardener? Anyone who has been connected in any way with the various horticultural establishments around London which supply Covent Garden and other markets with fruit, flowers, and vegetables, is well aware of the large proportion of foreigners occupied in these establishments; but what is still more noticeable is that the same young men are sold in encountered two years in succession. The reason for this is not far to seek, for, contrary to what obtains in most trades where the foreign element is present, these are young men who, in the



[Photograph by W. J. Vasey.]

FIG. 147.—ORLEANS ROSE: A DWARF POLYANTHA VARIETY WITH ROSY-MAGENTA FLOWERS.

(Awarded R.H.S. Award of Merit on May 9. See p. 300.)

tic and industrial uses we may expect more and more electric wires for our trees to contend against. Up to the present we have not had in this country any very serious trouble through escaping current, but in those neighbourhoods where electricity is much in use there have been many deaths amongst street trees. The subject is even more likely to cause trouble between the engineer and the town forester than the gas question, as it is not always so obvious what is the cause of the injury, especially as the damage may result from an instantaneous discharge. Of the two classes of current, the direct is much more injurious than the alternating. Fortunately, up to the present, we have few direct currents except those driving trams and railways. The exact

short time burned through. When there is a leakage and grounding through street trees there is danger of people receiving severe shocks, as by putting their hands on the tree, the current may run to ground through the body. It is during wet weather that there is danger of this grounding, as the best insulators are powerless to check entirely the escape during certain atmospheric conditions. What is the remedy? The obvious one is the prevention of wires touching the trees. Where there are high tension wires near a tree there should not be any other wires attached to the latter, as there is always a danger of the live wire touching the tree wire, and so causing the current to escape. The custom of guying electric wires to street and other

majority of cases, having completed their apprenticeship, or undergone a course of instruction in a gardening school in their native country, come here for a time to add to their knowledge by learning something of our methods of culture, and also something of our markets. In a large number of cases, England is by no means the limit of their travels. They also visit the Continental countries which are foreign to them, and where horticulture has been brought to a fine art. Speaking from personal experience, in one small town near London, in the season 1903-4 I found that quite 60 per cent. of the staffs of the various market nurseries was composed of foreigners, nearly all of whom only stayed one season. The large majority in this case consisted of Frenchmen and Germans, with Belgians, Dutch, Italians,

enjoy the same privileges, and it would be difficult to estimate the large number of these who have been enabled, chiefly owing to the personal efforts of the president, Mr. Geo. Schneider, to find employment in the neighbourhood of London alone. These societies hold periodical meetings, at which the members contribute papers on interesting subjects, compare notes, and exchange experiences. In fact, everything is done to make the member's stay in England as pleasant and, above all, as profitable, as regards the acquisition of knowledge, as possible. If young gardeners of other nations follow such a plan, and derive great benefit from doing so, why not the British gardener? Is it because he thinks there is nothing to be learnt by going abroad? If that is so, then I submit that the recent boom in what is termed

Germany for the purpose of enabling the young British gardener to procure a situation in those countries. That may be so, but the demand for one will be sufficient to overcome this difficulty, and, in the meantime, the French society is always willing to do anything in its power for a young man who wishes to work in France, the only condition being that he endeavours to obtain a situation for a young Frenchman in this country. Then, again, the average journeyman gardener will say, "But what about the expense?" Well, in reply, I say that, in my humble opinion, there should be no expense, that is to say, that he should be able to earn sufficient to cover all ordinary expenses. I do not speak without knowledge, having spent a considerable time as a journeyman gardener in



FIG. 148.—LELIO-CATTELEYA GERMANIA: COLOUR OF SEPALS AND PETALS ORANGE-YELLOW.

(Exhibited at the Temple Show by Messrs. Charlesworth & Co. See p. 333.)

Swiss, Danes, and even Russians. There are societies which exist for the express purpose of enabling young gardeners of foreign countries to come to England for a season or two, the best known amongst them being the German Gardeners' Association and the French Horticultural Society of London, both having their headquarters in the metropolis, the latter being affiliated to the R.H.S. In connection with the former, any German-speaking gardener desirous of visiting England is eligible for membership, is supplied with necessary information and a list of establishments in this country where hands may be wanted, and helped in various ways on landing here. The French-speaking gardeners who join the French society

"French gardening" in this country is, in itself, a sufficient answer, and there is no doubt that if the British gardener had taken the trouble to visit the district around Paris in the course of his training, there would have been no necessity to bring French experts over here and pay them high salaries to show us how (and often, alas! how *not*) to do it. There has been no "boom" in Germany, simply because so many young Germans visit France annually, and carry back sufficient knowledge with them to be able to adapt the French methods of cultivation to suit their climate and markets, and, consequently, they are in no way behind their neighbours in that branch of the art. It may be said in objection that no society exists in, say, France or

France, Belgium, and Germany, and, although I certainly proved the truth of the proverb about the "rolling stone," yet I consider that period of my life to have been the most enjoyable and, withal, the most instructive, and only regret that I did not go yet farther afield. I think that any young gardener who is worth his salt, cannot do better than devote a year or two of his training period to visiting the various centres of horticultural note in Continental countries, to the benefit not only of himself but of all who come in contact with him in after life. And, looking at it from a national point of view, it is by such interchange of visits that the surest foundations of an international "entente cordiale" are laid. D. M.

The Week's Work.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Chinton Gardens, Buckinghamshire.

BUSH FRUITS.—The effects of pruning the bushes, and especially Gooseberries, may now be seen. Where the shoots were indiscriminately cut back, the trees are now full of young growths, which will hide the fruits and central parts of the bush from sunshine prevents the air from circulating freely. One of the best systems of growing bush fruits is to train eight or nine main branches from the base to curve slightly in an outward direction from each other, the shoots developing from these being the fruiting branches. Some of the young growths may soon be thinned out. The branches that are now bearing fruit may, in the early autumn, be cut away, making room for those that are to take their place. This mode of training has its advantages. From the position which the growths take relatively to each other, they become, in a great measure, protectors one of another, and, growing more or less in a semi-pendant form, the blossom and fruit are sheltered. Bush fruits seldom receive the attention they deserve. A general thinning of the young shoots should take place where practicable. Where this is judiciously practised, the fruit grows larger and is better in quality. All growths proceeding from the main branches should be thinned moderately, so as to admit the direct rays of the sun, and permit the air to circulate freely throughout the trees. The side growths of Red and White Currants may now be stopped at the third or fourth leaf. By shortening these shoots early in the season, numerous fruit-buds will be formed at their bases, but the leading shoots should be allowed to grow unchecked. Under proper management and favourable natural conditions, Currant trees quickly develop into a permanent fruiting stage, and, as the bushes increase in size, and attain to maturity, summer pinching and winter pruning will become almost unnecessary.

GRAFTED TREES.—Newly-grafted trees should be examined carefully, and, where advisable, the clay or grafting wax should be removed and ties or bandages loosened. All the shoots that develop from the stocks below the grafts must be removed promptly, in order that the grafts may receive the full amount of sap. The same rule may be observed with trees budded last summer, keeping the stock clear of all growths that would draw nourishment from the bud.

STRAWBERRIES.—The plants should be supplied regularly and abundantly with water during dry weather until the fruits commence to change colour, at which stage moisture should be withheld, unless the season proves extremely dry. Mulches are an important item in the cultivation of this fruit, for they prevent to a large extent evaporation of moisture from the soil, whilst they keep the fruits clean and dry.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

ONCIDIUM.—Few species of this genus are more admired when in flower, or useful for exhibition and decorative purposes than *O. macranthum*, and others of its section, as *O. superbium*, *O. serratum*, *O. loxense*, and *O. lamelligerum*. Few Orchids grow more freely or need less attention than these when cultivated in suitable positions. They like a cool house temperature, protection from strong sunshine during the summer months, and a liberal supply of water at the roots at all seasons of the year; but as the flower-scapes appear some months before the flowers open in spring and early summer, it is necessary that watering should receive most careful attention at that period. If the plants are allowed to suffer from want of root moisture, the bulbs will begin to shrivel and the extra strain to flowering plants caused by having to sustain the flower-spikes with the new growths renders it difficult to get the pseudo-bulbs back to their normal condition. Only

strong specimens should be allowed to flower, as the exceedingly large flower-scapes exhaust weakly plants to an undesirable extent. These *Oncidiums* dislike root disturbance, therefore re-potting should only be carried out when absolutely necessary, and just when the young growths are seen to be producing fresh roots. The roots require ample space for growth, and the potting material should be similar to that used for *Odontoglossums*. Owing to their climbing habit, established plants often produce roots some distance from the surface of the compost, and, in such cases, a little material should be placed in such a position that these roots may reach it, and thus eventually enter the compost beneath.

CÆLOGYNE ASPERATA.—This beautiful species is another useful Orchid for decoration and exhibition. The plants usually flower from the middle of May till the end of July, and the blooms last several weeks in full beauty if kept free from damp. *C. asperata* is a strong and free-growing plant, and it requires a good-sized receptacle, provided with good drainage, and a rough, open compost. A warm, moist atmosphere and a good supply of water at the roots when in full growth are suitable conditions, and drying-off is not necessary; but, on the contrary, a graduated supply to meet the demands of the plant at its various seasons.

CÆLOGYNE MASSANGIANA.—The colours in this species are not brilliant, but the long, pendent racemes so freely produced by good specimens are distinct from everything else in the genus. The plants thrive well in a shady position in an intermediate temperature, and are best cultivated in shallow pans or baskets suspended from the roof rafters.

CÆLOGYNE DAYANA.—This is another pretty species flowering at this season. It should be grown in company with, and treated similarly to, the above. The best time to give new rooting material to any of these species of *Cælogyne* is when new roots are seen emerging from the young growths; but the plants will not require very frequent disturbance, provided proper rooting material is used at the re-potting. The compost should be similar to that advised in a recent calendar for *C. pandurata*.

THE KITCHEN GARDEN.

By JOHN DESS, Kitchen Garden Foreman, Royal Gardens, Windsor.

SEAKALE.—Young plants of Seakale are advanced sufficiently to require attention: the shoots should be reduced to one or two on each plant. After this has been done a liberal sprinkling of soot may be applied, and the soil between the rows stirred by the Dutch hoe to promote a quick growth. Seakale which has not been forced this season should be cut through the stem just below the surface of the soil; if this is not done the plants will run to seed and be of little value for forcing purposes next year.

BROAD BEANS.—A sowing of Broad Beans may be made in some cool part of the garden. This crop requires a good, rich soil which has been dug deeply and manured for some time previous to sowing. As soon as the first few pods are set the tops of some of the plants may be pinched in order to procure an early dish or two of Beans.

FRENCH BEANS.—A sowing of French Beans may be made in any part of the garden where the soil is sufficiently rich to ensure a free growth. Frequent other sowings should be made throughout the summer in order to keep up a continual supply of young, tender pods. At Windsor the Beans are gathered when they are very small and cooked whole.

CARROTS IN PITS.—This crop should now be ready for use. The lights should be removed from the pit, and liberal supplies of water afforded the plants. The earliest batch of Carrots in the open should receive the final thinning, allowing a distance of 3 or 4 inches between the plants, as nothing is gained by leaving them closer. Frequent small sowings of stump-rooted Carrots should be made throughout June and July in order to provide roots to save drawing upon those intended for winter use.

CAULIFLOWERS.—Plants raised last September are making rapid progress, and should be afforded liberal supplies of liquid manure from the farm-

yard. After this stimulant is applied, hoe the ground deeply between the rows. Make further plantations of spring-sown Cauliflowers on good, rich land, and keep the plants well watered during dry weather. There is still time to sow Autumn Giant and Halloween Giant to provide plants for use in September and October. This crop requires a rich soil, and a distance of 2 feet should be allowed between the plants each way.

RADISHES.—Radishes may now be sown in cool situations in light, rich soil. Give liberal and frequent waterings to ensure a quick growth.

MUSTARD AND CRESS.—This salad may also be sown in a cool spot, such as under a north wall; cover the seeds with paper until they germinate.

POTATOS.—Early varieties of Potatos now require earthing-up, but, before doing this, stir the soil with a digging fork between the rows. This stirring of the soil should be done before the roots have extended far enough to be injured by the work. If the land is of poor quality, a dressing of Potato manure may be applied with advantage before the ground is disturbed. In placing the soil about the stems remember that acute ridges will allow the rain water to run down the alleys beyond the roots, and this must be avoided, especially in the case of light soils. Therefore, make them as broad-shouldered and flat on the top as possible. Potatos growing in cold pits should have the lights removed and be given a plentiful supply of water whilst they are growing freely.

SPINACH.—Make frequent sowings of Spinach, choosing a site, such as a border facing east, where the crop will be protected from strong sunshine during the warmest part of the day. During hot, dry weather, liberal supplies of water should be given the plants. A sowing of New Zealand Spinach may be made in any part of the garden where the soil is in a good condition. Strong sunshine has no ill effects on this crop; in fact, the plants benefit by warm weather, and produce large quantities of thick, tender leaves under conditions which are unfavourable to ordinary Spinach. A distance of 3 feet may be allowed between the rows, as the plant grows freely, and covers a large space when established. If seeds are sown in pots, and placed in a pit, the seedlings will be ready for planting out at about the middle of June.

ONIONS.—Spring-sown Onions will now be ready for thinning, which operation should, if possible, be done during damp weather. Thin the plants to 4 inches apart in the rows, but, if extra large bulbs are required, more room must be allowed. When the crop has been thinned, a light dressing of soot may be applied, and the soil stirred lightly with the Dutch hoe to destroy small weeds. Deep stirring of the soil should be avoided in the case of Onions, although it is beneficial to most of the other kitchen-garden crops. The best Onions are grown in firm soil. Autumn-sown Onions should be kept free from weeds, and a sprinkling of artificial manure applied on the approach of rain.

BRUSSELS SPROUTS.—To procure an early supply of Brussels Sprouts, the first batch of plants should be ready for planting-out. The soil having been prepared during the winter months will require no further preparation beyond hoeing, after which the drills may be drawn 3 feet apart, and the plants carefully lifted with as many roots intact as possible. Plant at 2½ feet apart in the row. If the ground is loose, it should be carefully trodden whilst dry before the plants are put out. If the weather is dry at the time of planting, water must be afforded the plants freely. Young plants intended for a succession may be pricked out in beds, allowing a distance of 6 inches between them each way.

GENERAL WORK.—Clear the ground of *Pro-coli* stumps as soon as the crop is cut in order to manure and prepare the soil for some other crop. As digging proceeds, the soil should be broken as finely as possible, especially if it is of a heavy nature, for if this is not done, it may be a difficult task in dry weather to get it in a fit condition for planting or sowing seeds. Weeds should be destroyed as soon as they appear. Attend to the earthing up of advancing crops of Cauliflower, Cabbage, &c. Make frequent sowings of Radishes, Mustard and Cress, and Chervil, so that a continuous supply of these salads is assured.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

PLANTS IN HANGING BASKETS.—Ivy-leaved Pelargoniums, Fuchsias with a pendulous habit of growth, and tuberous-rooted Begonias of the Alice Manning type, are all useful for planting in hanging baskets. Where the baskets are required for autumn decoration, they should be made up now, allowing, on an average, six plants to a basket. For mixed baskets Lobelia Richardsonii and *L. tenuior* are suitable, but I prefer baskets planted with one subject and of one colour. Tropæolums are useful for this purpose, and no variety equals Ball of Fire, or, as it is called often, Fire Ball; for furnishing large baskets it is unsurpassed in its colour. It may be employed for baskets hanging from verandahs or similar places, and will continue to flower until frost appears. It is necessary to remove the flowers when they fade to prevent the seeds from forming.

HARD-WOODED GREENHOUSE PLANTS.—Many of the hard-wooded greenhouse plants are at their best during May, and careful attention must be given in watering them. For instance, if Ericas are allowed to become dry when the flowers are developing, the petals will be deformed and not open properly, or they may even turn yellow and fall off. The watering should be thorough, and sufficient to moisten the ball right through. The varieties of Helichrysum (Aphelëxis) are now in bloom, and care must be taken in watering the plants not to wet the flowers, otherwise the petals will fade quickly. Plants of the latest batch of Azaleas will soon be in flower. During warm weather they will need close attention in watering, and, up to the time of almost full expansion of the blooms, light syringings will be beneficial.

TROPÆOLUM "FIREBALL."—The decorative value of this climbing Tropæolum is not nearly so much recognised as it should be. The plant is frequently employed in the flower garden, but I wish more particularly to press its claims as a winter-flowering subject for a moderately warm greenhouse or conservatory. I can recommend it as a pillar plant, or for training up the rafters of any light glasshouse. Specimens usually thrive better planted out than when grown in pots, even if the watering and other minor details are carefully attended to. The present is about the best time of the year for planting this Nasturtium in a well-drained border of sandy loam, making the soil moderately firm. Small specimens in 4½ or 6-inch pots are quite large enough for planting, and they should be healthy and free from insect pests. Until the end of next October this Tropæolum will flower satisfactorily in a house in which the temperature is normal.

SALVIA SPLENDENS.—The varieties of *Salvia splendens* named grandiflora and Pride of Zurich are invaluable plants for pot culture in the conservatory, where they will flower from early September until November. The fine colour of the inflorescences is specially attractive in the autumn. Pride of Zurich is much the dwarfier variety, and it flowers some weeks earlier than grandiflora. By pinching out the earlier flower trusses it can be had in bloom in September. The variety known as Grandiflora is a taller grower, and will flower in a temperate house as late as Christmas. A selection of each of these varieties should now be made from the stock of plants grown for bedding purposes. The plants will probably be in 4½ or 6-inch pots, and, if they are well rooted, another shift should be given them, and the flower trusses be pinched out. From now onwards an ordinary frame or cool pit will suit their requirements, where they will not be so liable to attacks of red spider as in a house.

CANNAS.—Cannas are extremely useful and highly decorative subjects throughout the summer season; indeed, it is hardly possible to point out more ornamental plants, either for foliage or noble spikes of flower. The plant appears to advantage in a conservatory, where it associates well with Palms and other fine foliage plants. Cannas, provided they are watered freely, and afforded an occasional stimulant, will last for a long time in a good condition, and each spike will afford three or more trusses of flower. Green fly often attacks the plants, but this pest

can be easily eradicated. If surplus plants are available, it will be well to give them a shift, and grow them for flowering later. For pot culture I prefer to employ a mixture of leaf soil and loam or peat. Six choice varieties are Wm. Saunders (scarlet), Buttercup (deep yellow), Roi Humbert (orange scarlet, with dark, bronzy foliage; one of the finest varieties), Oscar Dannecker (bright orange, shaded with terra-cotta), Louisiana (vivid scarlet, the foliage is very handsome), and Königin Charlotte (deep red and canary yellow).

LILIUM LONGIFLORUM HARRISII.—At the present time African-grown bulbs of this Lily are on the market, and I have found them most satisfactory, both for planting in pots or in borders. If purchased now and potted up, they will flower and prove most useful about mid-September. These African-grown bulbs seem to have a vigour peculiarly their own. A single bulb in a pot is generally to be preferred, using light, loamy soil. After potting them, cover the soil with a layer of some such material as cocoa-fibre, in order to conserve the moisture, to avoid the necessity of frequent waterings. Earlier batches of *L. longiflorum* will need examination to detect green fly, as this pest causes the immature flowers to be deformed.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of HADDINGTON, K.T., Tynninghame, East Lothian.

FORSYTHIA SUSPENS.—As soon as the flowering is over, the shoots of *Forsythia suspensa* should be pruned closely. This pretty shrub does well when the growths are kept pinched closely, but the sprays of flowers are not so useful for decoration under this system of training.

ROSEMARY.—The Rosemary, *Rosmarinus officinalis*, is often grown as a wall plant, for which purpose it is very suited. Specimens grown in this manner need to be clipped closely as soon as the flowers are over, and the fastenings examined, replacing those that have perished. The present is a suitable time to plant Rosemary; if the situation is an open one, select strong two or three-year-old plants, as these will be able to withstand the cold of winter.

THE ROCKERY.—The rock-garden may be made tidy by removing the dead flower-stalks of Saxifragas, the old leaves of Eranthes, which may be removed now without harm to the plant, dead leaves or rubbish, from the other early-flowering bulbs. Bare spaces may be sown with neat-growing plants, such as *Sedum cœruleum*, annual *Calceolarias*, and *Femopsisidium acule*. The stronger growing species will need to be kept in bounds, and weeding must receive attention.

PLANTS FOR THE VASES.—Vases of large proportions require good-sized plants in order that they may become furnished at least as soon as the flower-beds. Two-year-old specimens of Zonal and Ivy-leaved Pelargoniums, *Calceolaria amplexicaulis*, Paris Daisies, *Companula pyramidalis*, Fuchsias, *Chrysanthemums*, fibrous-rooted Begonias, Verbenas, Veronicas, *Plumbago capensis*, and *Agapanthus umbellatus* are only a few of the many suitable plants. A good edging plant for the same purpose is *Lysimachia nummularia aurea*. The compost for the vases should be unusually rich, that is, it should contain a considerable amount of manure in a state ready for absorption by the roots, and the compost should be made quite firm. Smaller vases may be appropriately furnished with Zonal Pelargoniums or Paris Daisies, *Kochia trichophylla*, and *Dracena indivisa*. One plant may be sufficient for the smaller vases, but several may be grouped in those which require rather more furnishing. The planting should be so arranged that the growths of some of the plants at least may hang over the rims for an edging.

AGAPANTHUS.—Plants of *Agapanthus* will now be better accommodated in the open than under glass. Those bedded in soil since autumn should be carefully examined to see if they are going to flower. The flower-buds will be found in the centre of the growth, or, if this is not the case, a swelling may be felt a little lower down. If there is any evidence of flowering, it will be useless to plant the specimens, as they will not flower later. In planting *Agapanthus* provision should be made for watering; therefore they must be lowered somewhat below the

level of the ground, leaving a shallow depression round the ball of roots to receive the water. Those in tubs may also be arranged in their usual positions. *Agapanthus* flowers all the better for being pot-bound, but it requires frequent applications of manure water and surface dressing of some approved chemical manure.

BAYS, PORTUGAL LAURELS, MYRTLES, and similar plants should be reboxed if necessary. If the receptacles are already very large it will be safe at this season to reduce the roots, cutting them cleanly in such a manner that they may be placed again in receptacles of the same size. Such plants can be kept in good health for several years by applying manure every time water is given, but the soil must never be allowed to get very dry, or it will be difficult to again moisten it, unless hot water is used of a temperature of from 120° to 150°.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

CUCUMBERS.—During the recent warm, sunny weather frequent thinning and stopping have been necessary to prevent overcrowding of the trellis. Afford the plants frequent waterings with manure water, and also top-dressings of rich soil. If exhibition fruits are required, extra attention must be given to secure specimens of perfect form and colour. By far the best method I know consists in the use of wooden troughs made of thin material, and built up of two sides and the bottom securely nailed together; these are tied or slung up to the trellis, and the fruits laid in when in quite a young state. As the fruits swell and lengthen, we use pieces of wedge-shaped cork to keep them as straight as possible, and when the fruits are of sufficient size they are cut and the ends placed in water, still fixed securely in the wooden trough. When required for exhibition they are packed straight away, and they reach the show in a perfectly fresh condition and free from all trace of rubbing. Cucumbers are frequently grown larger than is desirable.

MELONS.—As soon as the crop is taken from the earliest batch of plants, the whole of the growth and the bed should be cleared away at once, and the woodwork, glass, and walls, etc., of the house thoroughly cleansed. Successional batches in houses and frames will need much attention, as growth is very quick at this season. Canker is troublesome in many establishments, and when traces of it are to be seen the affected parts should be dressed with quicklime. Some growers use collars round the base of the plants to keep the stems dry, and so prevent canker, but I consider that if the plants are planted as I have previously recommended in an earlier calendar, a little higher than the level of the bed in porous, well-drained soil, and if reasonable care is taken when watering, the collars are scarcely needed. Plants which have set good crops of fruit will need plenty of manurial assistance, and the beds will require copious supplies of water, and damping down, and syringing. Admit plenty of air on warm days, especially to growing plants before the flowers are set, to encourage a strong shoot and foliage. Melons that were planted in frames as advised in a former calendar will now be growing freely. The thinning and other attention required should always be performed when the outside conditions are most genial. Excepting just at the setting of the flowers, strict attention must be given to syringing, watering, and feeding. When the set has been secured and the fruits swelling, manurial assistance should be given. Admit air cautiously, and if possible on the leeward side of the pit if the outside air is cool. Preparations should be made for a further batch of Melons in frames by making up a hot-bed of tree leaves and litter.

GENERAL REMARKS.—Where a plantation of Strawberries is grown especially for producing layers for pot culture, the flower-spikes should be removed and the ground hoed, applying a mulch afterwards. Avoid having any break between the latest forced Strawberries and the earliest in the supply out-of-doors. Introduce plenty of plants in the cool structures, and admit an abundance of air. Apply top-dressings of rich soil to Tomatoes now fruiting in pots. Thin out the growths and secure the leading shoots to the trellis.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, MAY 31—
Bath and West and Southern Counties Sh. at Cardiff (May 31 June 5). Irish Gard. Assoc. and Benev. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—57.1°.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, May 24 (6 P.M.): Max. 72°; Min. 54°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, May 25 (10 A.M.): Bar. 31"; Temp. 65°; Weather—Sunshine.

PROVINCES.—Wednesday, May 24: Max 66° Cambridge; Min. 54° Ireland, S.E.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous and Border Plants, Hardy Bulbs, &c., at 1; Palms and Plants at 3; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Imported Cattleyas and others, Established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

British Botanists:
William
Williamson.

British botanists of the present day occupy a high and honourable place among the ranks of palaeobotanists, and this place, as Dr. Scott pointed out in the course of his lecture on the life and work of William Crawford Williamson, is due in large measure to the inspiring example of that pioneer in the study of fossil botany.

Though they may not have the leisure to follow the detailed progress of palaeobotany, horticulturists with a bent for science cannot fail to be interested in the remarkable discoveries which have been made of recent years with respect to the nature and habits of the plants which flourished "in the deep backward and abyss of time." Hence, though we do not propose to give a technical account of Williamson's important contributions to the advancement of knowledge with respect to fossil plants, a brief reference to what perhaps is his most important discovery may not be out of place. Moreover, beside his distinction in botany, William Williamson has another claim to the sympathetic consideration of horticulturists. For, like many another distinguished man, he was the son of a gardener, and inherited from his father not only a love for natural history, but a keen and rare instinct for gardening. Thus, when he settled in Manchester, his garden became famous on account of its interesting plants. So

successful was he in cultivating rare and difficult specimens that it was said, on the occasion of the Manchester meeting of the British Association of 1857, that "most of the distinguished botanists of Europe and America visited his garden, and not one but who saw something he had never seen before."

Not the least interesting part of Dr. Scott's lecture consisted in the occasional but vivid light which it threw on the intellectual proclivities of the working men of Williamson's period. Thus we learn of him, at an early age, preparing diagrams for a lecture on vegetable physiology at the Mechanics' Institute in Scarborough. Again, in writing his reminiscences of the early forties of last century, Williamson drew attention to the fact that in the neighbourhood around Manchester the botanical interests were chiefly in the hands of the operative community. The hills between Lancashire and Yorkshire swarmed with botanical and floricultural societies, which met on Sundays, the only day when it was possible for them to meet. In this connection, Williamson's account of Richard Buxton, a poor working man, who was author of a standard *Botanical Guide*, deserves to be remembered; as does also the fact that the society to which Buxton belonged had already (in 1849) existed for nearly a century: illuminating side-lights these on the deep and innate love for plants and gardening which existed among our forefathers, and which, as we believe, exist at the present day. Williamson was born in 1816, and made his first and reluctant acquaintance with fossil plants when, as a boy, he was impressed into his father's service of winter evenings to help in the naming of local fossils. As he puts it in his Reminiscences: "My evenings throughout a long winter were devoted to the detested labour of naming these miserable stones." But he adds: "Pursuing this uncongenial task gave me in my 13th year a thorough practical familiarity with the palaeontological treasures of eastern Yorkshire. This early acquisition happily moulded the entire course of my future life." As Dr. Scott pithily observed, those were not the days of the half-educated. Of Williamson's long career as medical practitioner and Professor of Natural History, which included geology, zoology and botany, in the Owens College, Manchester, we have not space to speak. During this period, however, he made many of his most valuable contributions to palaeobotany, among others those containing the discovery—the truth of which was hotly disputed by other botanists—that secondary growth in thickness is not confined to the highest group of plants, the flowering plants, but is exhibited in fossil plants which undoubtedly belong to the cryptogamic division of the vegetable kingdom. Nor may we omit from the tale of Williamson's services to palaeobotany the fact that it was he who induced his most distinguished successor in this branch of science, Dr. Scott, to undertake the investigation of fossil plants. For some years Williamson and Scott worked together at this subject at the Jodrell

Laboratory at Kew. But this work began in 1892, when Williamson was already in his 76th year, and age had begun to quench his hitherto unquenchable energy. Gradually the work devolved more and more upon the younger man, and in June, 1895, Williamson died.

Of him Dr. Scott truly observes: "The grand old race of all-round naturalists found in Williamson its worthy culmination, and we can only regret that, from the nature of the case, he can have no equal successor."

THE TEMPLE SHOW.—No previous Temple Show has presented a more brilliant spectacle than that which opened on Tuesday last. On the opening day in particular the brightness and animation were in marked contrast to the inevitable sombreness of last year's exhibition. Various colours instead of national mourning, bright sunshine, and the presence of their Majesties the King and Queen lent striking animation to the scene. The evident and deep interest taken by their Majesties in the several exhibits has been a source of pride and pleasure to British horticulturists. As in former years, the throng of the visitors rendered detailed inspection difficult, yet, despite this, the enthusiasm of amateurs evinced itself in the sustained and discriminating appreciation which they bestowed upon the plants. The work of the reporters for the horticultural Press was carried out under the greatest difficulties, but our readers may learn from the reports in our columns that they managed somehow to overcome completely the difficulties, albeit at the expense of great personal discomfort. The arrangement of the numerous exhibits showed in the main an improvement on that which has characterised many previous shows. But there are still exhibitors who have yet something to learn, not only with respect to the disposition of harmonising and contrasting shades of colour, but also with respect to the adequate spacing of their plants instead of massing them together as if they were packed for transport instead of exposed for exhibition.

FLOWERS IN SEASON.—Large flowered Anemones of the St. Bridget type, representing a selection over a period of 12 years, have been forwarded by Mr. JAMES HARRIS, Blackpill Nurseries, Swansea. Mr. HARRIS informs us that the plants have been in flower since February, and that they promise to furnish a succession of blooms for another month. Mr. M. CUTHBERTSON, Public Park Nurseries, Rothesay, has forwarded varieties of large-flowered Pansies. The selection embraces several fine blooms shaded with crimson, bronze and yellow, a pleasing change from the blue and purple colours so largely seen in these flowers.

BATH AND WEST AND SOUTHERN COUNTIES SHOW.—The annual exhibition of this old-established society will take place at Cardiff on May 31, June 1, 2, 3 and 5. The show will open at 9 o'clock on Wednesday, May 31, and at 11 o'clock on the same day the exhibition will be formally inaugurated by the Lord Mayor of Cardiff, who will attend in state with the Corporation and will be received by the society's president (the Marquis of BUTE) and the members of the society's council and local committee. The show will close at 6 p.m. on Whit Monday, June 5. In addition to the exhibits of stock and produce, a special pavilion will be devoted to horticulture, and there will be displays illustrating Nature study, forestry, and bee-keeping.

ROYAL SOCIETY OF ARTS.—The society's conversazione will be held, by permission of the trustees of the British Museum, in the galleries of the Natural History Museum, South Kensington, on Tuesday next, the 30th inst.

SCLEROTINIA DISEASE OF MANGOLDS.—Mr. E. S. SALMON describes, in the *Journal* of the South-Eastern Agricultural College (No. 13, 1909) a disease occurring in Mangolds from a clamp, and demonstrates the disease to be due to a species of *Sclerotinia* (*Botrytis*). He points out that, inasmuch as the loss due to an outbreak of this disease may be serious, it is advisable that all rubbish in the neighbourhood should be cleared away and burnt before a clamp is made; that the clamp should be as well ventilated as is possible; that care should be taken not to damage the roots and to reject unsound roots; that the roof of the clamp should not be

of the above-mentioned substances, and six times larger than that obtained from the untreated plot. The total cost of the application of sulphate of iron was estimated at 5s. per acre.

MANGANESE MANURES.—From the facts that compounds of manganese are contained in the green colouring matter of plants, and that they are known to play an important part in various physiological processes, it has been suggested that good results may be obtained by the application of dressings of manganese compounds to cultivated land. Mr. H. ROUSSET summarises the results of experiments in the use of manganese manures in a recent number of the *Annals of French and Foreign Agriculture Science*. He concludes that manganese compounds may exercise a stimulating action on the growth of plants, and that manganese manures may be employed on non-

which on a casual examination in the autumn, appear to be healthy, may be found to be dead in the following spring, the fungus having girdled the bark of the main stem in the meantime. Such trees were infected by the fungus during the previous summer, but the death of the tree does not result until the following year. Older Plum trees have not been attacked, nor have Apple trees succumbed to the disease in this district. The fruit bodies which contain the spores arise as small black pustules during the early summer. The spores are of two kinds, one of which does not develop until the second year after infection. Plum trees are most liable to attack when they have been planted too deeply, though in the case of Czar Plums which have been killed by the disease in Cambridgeshire this year the trees had not been placed deeply in the soil. Trees that have been killed by *Eutypella*



FIG. 149.—SPRAY OF *DAVIDIA INVOLUCRATA*, WHICH HAS JUST FLOWERED FOR THE FIRST TIME IN BRITAIN. (From specimens exhibited by Messrs. James Veitch & Sons at the Temple Show. A First-class Certificate was awarded.) (See p. 330.)

constructed of Turnip, Swede or Mangold tops or Potato haulms; and that, if the disease has declared itself in a clamp, another piece of ground should be used in its place in subsequent years.

ERADICATION OF CHARLOCK.—The value of sulphate of iron for Charlock eradication has been submitted to a careful test by Professor HILTNER (*Praktische Blätter für Pflanzenbau und Pflanzenschutz*, Jan.-Feb., 1911). Professor HILTNER compared the effects of sulphate of iron used at the rate of 53 gallons per acre with those of nitrate of lime and certain patent specifics. The results demonstrated the superiority of sulphate of iron as a Charlock destroyer. On the plot sprayed with a solution of this substance the crop (Oats) gave a yield three times larger than that obtained from plots treated with other

acid soils, even though such soils contain already considerable quantities of manganese, for this substance, though present in a soil, may be so fixed as to be inactive. Mr. ROUSSET states that the manganese should be employed in the form of sulphate or carbonate, and that it should not be used alone, but mixed with other artificials; a good mixture being super-phosphate, nitrate of soda and carbonate of manganese. The quantity of manganese, calculated as Mn_2O_3 , should not exceed 22 lbs. to the acre, for above this strength it is apt to exert a poisonous effect.

PLUM TREES KILLED BY *EUTYPELLA PRUNASTRI*.—During recent years young Plum trees have been frequently killed by this fungus in Cambridgeshire, the Czar variety being particularly susceptible to attack. Young Plum trees,

prunastri should be burnt at once, and if Plum trees are thus destroyed they should be replaced by Apples.

THE "JOURNAL" OF THE NEW YORK BOTANICAL GARDEN for March, 1911, contains a pleasant and appreciative sketch by Dr. W. A. MURRILL of a botanical visit to Europe, illustrated by a small number of well-chosen photographs. Dr. MURRILL's main object was to study the types of Tropical American fungi in European herbaria, and for this purpose he visited Sweden, Denmark, Germany, France, and England. Apart from his special work, he found much to admire wherever he went. Kew Gardens, he says, are in many ways the most attractive public gardens in the world. Of the glasshouses he adds: "The two largest houses, the Palm house and the temperate house,

particularly impress the visitor on account of their splendid perspective, which would be impossible in a climate like that of New York, where interiors must be subdivided for heating purposes." The mycological herbarium, he states, is very complete, the collection of gill-fungi being twice as large as that of any other institution visited, and especially rich in types of American species. Although it was already November, he collected a number of interesting gill-fungi at Kew. Among his photographs is one of the fine grove of Beech trees at Kew on the high ground between the Rhododendron Dell and the Thames.

APPOINTMENT TO GREENWICH PARK.—Mr. THOMAS HAY, Gardener to the Marquis of LINTHGOUGH, at Hopetoun House, South Queensferry, has been appointed by H.M. Office of Works Superintendent of Greenwich Park. Mr. HAY, although quite a young man, has had a long and wide experience. Mr. HAY, who belongs to Cullen, Banffshire, served his apprenticeship at Duff House, and afterwards obtained experience in Perthshire, Stirlingshire, and Kirkcudbrightshire. About 11 years ago he received an appointment as one of the foremen at Hopetoun House, under the late Mr. SMITH. On Mr. SMITH's retirement, about seven years ago, Mr. HAY was appointed gardener. Since his appointment, Mr. HAY has effected great improvements in the fine gardens, and they are now considered among the best in Scotland, the autumn borders, in particular, receiving great praise from visitors. He is a member of the Council of the Royal Caledonian Horticultural Society and the Scottish Horticultural Association. His successor at Hopetoun is another well-known Scottish gardener of high ability, Mr. JOHN HUGHGATE, gardener to the Marquis of TWEEDDALE, Yester, Gosford.

APPOINTMENTS TO LONDON PARKS.—Owing to the death of the late Mr. MELVILLE, superintendent of Finsbury Park, the following changes are likely to occur amongst the L.C.C. park superintendents. Mr. FRANK WRIGHT, who was recently promoted to Southwark Park, will be further promoted to Finsbury Park. Mr. DODSON, who has laid out the pretty Springfield Park, Clapton, N.E., will take over Southwark Park. Mr. WARREN, from the Embankment Gardens, will succeed Mr. DODSON; while Mr. GILES, from Kennington, will fill Mr. WARREN'S position at the Embankment Gardens. Mr. SHIEL, now foreman at Brookwell Park, will attain the rank of a superintendent, and be placed in charge of Kennington Park, to fill the vacancy there caused by the removal of Mr. GILES.

THE GOOSEBERRY CROP.—We learn from our Wisbech correspondent that the Gooseberry crop in that district is almost a failure, although the berries in their earlier stages were most promising. It is considered that the trouble is due to the cold nights, although drought at the roots may have been partly responsible. Samples of berries gathered from one bush showed large and small fruits in the proportion of 1 large one to 20 small berries.

GARDENS AND LANDSCAPES AT THE MODERN GALLERY.—In this pleasantly-lighted gallery is a collection of small water-colour drawings by Miss HERIOT ROYALDSON. Several of these are renderings of charming old Northumberland and Leicestershire gardens; but Haslemere and Burford Bridge supply the locale in many examples, and Kew and Kennington Gardens, carpeted with spring flowers, are also represented. From a botanist's standpoint, as showing what Northumberland and the isles can offer by the wayside, her pleasant sketch of "Wild Borage, Holy Island," is unusually interesting; masses of pure

blue, wild flowers of this deep tint are rare, and tell out with increased effect against the white bank of silvery sand and the pale sky clouds mounting upward. Yellow Ragwort supplies the welcome note of contrast. Miss RONALDSON has a decided feeling for colour, but her work is tentative and needs carrying further; she lacks certain qualities which experience should supply. Flowers growing in mass are difficult to paint, more difficult than the cut bouquet or single blooms. The "Herbaceous Border, Burford Bridge"—a sketch in point—exemplifies the artist's limits. The foreground flowers, the white Anemones and their red neighbours, are carefully rendered in detail but the flowers of the middle distance are delineated quite as minutely as those under your nose, and give the effect of being on the same plane—they need massing and toning down. The artist is more successful with her trees, and sometimes achieves a delicate grey-green which is very true in tone. Perhaps the best sketch is the small colour scheme—"My Little Garden, Windsor," worked out in a purple Aubrietia border contrasted with the white blossom of a young fruit-tree. The full white bloom on the right of the picture is quite skilfully balanced by the lime-whitened trunk of a tree on the left of the little path, and illustrates a paradox of art—that in art anything, however ugly in itself, put in the right place, becomes beautiful! A garden study of Rambler Roses, trained over hoops, is interesting as an idea for a conventional garden, but the true lover of gardens and of Roses prefers Nature—less trained and ordered—intertwining at her own sweet will.

In these days, when every second person paints indifferently, the fine "art of the needle" is somewhat neglected, but there is a revival at hand, and in evidence thereof, a very interesting show in another room of the Modern Gallery of work of the Guild of Embroideresses, under the distinguished patronage of WALTER CRANE, Esq., Sir GEORGE FRAMPTON, and others. It comprises some very beautiful decorative and ecclesiastical work, in which flowers form the staple of design. Most of the pieces shown are distinguished by their simplicity and delicacy of treatment. Miss PESEL has made use of an old MS. in the British Museum as a source of inspiration. The result is a fine piece of embroidery, in which the Scarlet Pimpernel and Lavender, conventionalised, play their parts. "A Fritillary Border," by E. H. TANN, is also specially noticeable.

THE FLOWERING OF DAVIDIA INVOLUCRATA.

THE history of Messrs. James Veitch & Sons' Coombe Wood Nursery during the past 50 years is of the greatest interest. The place is full of memories of famous names, among which those of John Gould Veitch and Charles Marie are prominent. Some of the original plants which these collectors introduced are still thriving there, and many of the hardy trees and shrubs which now grow in every garden first fixed their roots in English soil and first opened their flowers to the English air on this beautiful Surrey hill. To the long list of such plants another and an important plant has now to be added, for at Coombe Wood last week *Davidia involucrata* (see fig. 149) opened its flowers for the first time in the British Isles.

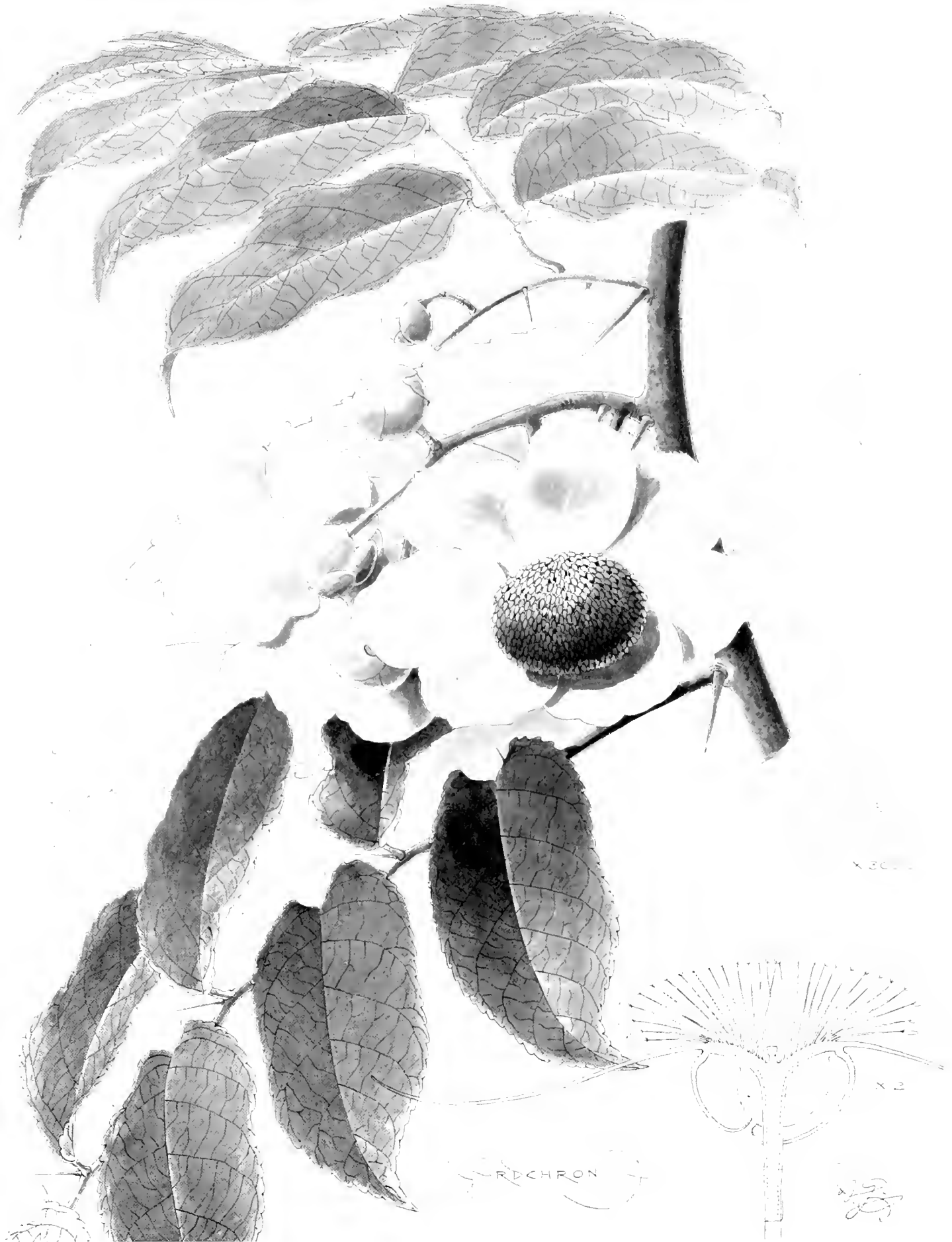
It will be remembered that the introduction of this remarkable tree was one of the chief objects of Mr. E. H. Wilson's first journey to Western China in the year 1900. It was attended with the success that has characterised most of the enterprises of that energetic collector. He sent home to Messrs. Veitch a large quantity of seeds, and the *Davidia* is now widely spread in the gardens of Europe.

It is a deciduous tree, reaching a height of 40 to 60 feet, in habit resembling a Lime, the leaves being very handsome, of a vivid green, broadly ovate or roundish with a cordate base, 3 to 6 inches long, about three-fourths as wide, and coarsely toothed. The inflorescence, which is solitary, is produced at the end of a short spur-like lateral twig, and is pendulous on a stalk about 3 inches long. Its chief feature is a pair of (rarely three) large, leaflike, white or cream-coloured bracts. These bracts are of unequal size, the larger one (as seen on the Coombe Wood tree) being $4\frac{1}{2}$ inches long, $2\frac{1}{2}$ inches wide, somewhat hooded, but ovate in outline, and veined like the leaves. The smaller bract is $2\frac{1}{2}$ inches long, about as wide as the larger one, and, in other respects, similar. The two together make, of course, the most conspicuous feature of the inflorescence. Now, as to the flowers themselves. Where the basis of the two bracts join, there is a large hemispherical mass, $1\frac{1}{4}$ inch across, of whitish stamens, tipped by black anthers. In the centre of this mass is an egg-shaped ovary, $\frac{1}{4}$ inch long, surmounted by a mostly six-rayed stigma and a ring of short, apparently abortive stamens. The floral structure is thus very interesting. The mass of long stamens just mentioned is really a cluster of numerous sessile, apetalous male flowers, each possessing usually five or six stamens. The ovary represents the solitary female flower of the inflorescence, the ring of short, abortive stamens at the top being, no doubt, the remnants of an ancestral state when this flower was hermaphrodite. The flowers are best seen as one stands beneath the tree, the inflorescence being inverted, with the upper bract forming a sort of canopy above it. Although the genus appears to have some affinity with *Nyssa*, it stands very much apart in the vegetable kingdom.

The tree now flowering was raised from Mr. Wilson's seed, sown on April 25, 1901, and planted out on the spot where it now stands in the spring of 1903. As giving an indication of the rate of growth of the species, it may be mentioned that the tree is now 14 feet high, with a stem girthing $8\frac{1}{2}$ inches near the ground. In the winter of 1909 it was root-pruned, which operation, no doubt, induced it to flower. As usually happens with the first blossoming under cultivation of new plants, it does not even suggest, as yet, its greatest beauty. The tree only carries 12 inflorescences, and the largest bract is scarcely three-fourths the size it is known to attain. But whilst it conveys at present no idea of the wonderful aspect of the adult tree as seen in blossom in China and described by travellers, the fact that this tree has flowered so soon and that the species is evidently admirably adapted to our climate gives every hope that we may, in a few years time, have its natural beauty in a full measure revealed to us.

The *Davidia*, as represented by the stock in the Coombe Wood Nursery, shows two distinct types—the one with leaves of a vivid but rather pale green, and smooth, or nearly so; the other with leaves suffused with red and quite hairy beneath. M. Dode, of Paris, considers that these represent two species, the former of which he calls *D. Vilmorinii*, after M. Maurice de Vilmorin, of Les Barres, who raised a single plant of it from seed sent to him by the Abbé Farges in 1897. The tree now flowering at Coombe Wood is of this type. The other he considers the true *Davidia involucrata* of Baillon, as first discovered by David, near Moupin, in 1869. It has to be observed, on the other hand, that some authorities do not consider these two forms specifically distinct. W. J. Bean.

[*Davidia involucrata* flowered in M. Maurice de Vilmorin's collection in 1906, and an illustration was published in *Gard. Chron.*, June 2, 1906, p. 346.—EDS.]



ONCOBA ROUTLEDGEI, A NEW SPECIES INTRODUCED FROM AFRICA,
SHOWING MALE FLOWERS, FOLIAGE AND SPINES. SECTION OF FLOWER AND POLLEN, MAGN.
FROM SPECIMENS SUPPLIED BY MR. C. E. SHEA.

ROYAL HORTICULTURAL SOCIETY.

Temple Flower Show.

MAY 23-25.

THE Temple Show of the Royal Horticultural Society was held for the 24th time in the famous gardens of the Inner Temple, Thames Embankment. Glorious weather prevailed, and the show was again an unqualified success. Their Majesties King George and Queen Mary visited the exhibition on the morning of the opening day, and remained for some considerable time. In the tents there was the usual crush, but opportunity was afforded the Fellows to enjoy a private view from 7 a.m. till noon on Wednesday. That this privilege is fully appreciated may be gauged by the numbers who were present even before most people had breakfasted. The detailed report given below shows that the exhibition was as fine, or finer than ever. Hardy flowers and Alpines were shown in increased numbers, and most of the exhibitors could not resist the temptation to display everything possible, even at the risk of spoiling the effect by overcrowding. Rock gardens constituted the principal feature amongst the exhibits arranged in the open. The annual show and competition of the National Tulp Society was held in a special tent on the second day of the exhibition. As usual, the management of the show left nothing to be desired, and the secretaries, Mr. Wright, Mr. Reader, and other officials deserve the thanks of all concerned.

ORCHID COMMITTEE.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Sir Jeremiah Colman, Bart., F. J. Hanbury, H. J. Chapman, de B. Crawshay, J. E. Shill, W. H. White, H. Little, H. Ballantine, A. A. McBean, R. G. Thwaites, Clive Cookson, Stuart Low, R. Brooman White, A. Dye, H. G. Alexander, W. H. Hatcher, Walter Cobb, W. Thompson, W. Butler, C. J. Lucas, and W. Bolton.

The grand display of Orchids was staged in the large tent, and both in the quality of the exhibits and in the effective arrangement the present show was one of the most satisfactory which has been held in the Temple Gardens. While the nurserymen's groups were probably in excess of those of former years there was a falling off in amateur collections, among which, however, were the important groups of Sir JEREMIAH COLMAN, BART., and of SAMUEL LARKIN, Esq. (gr. Mr. Hales). In the former were many fine hybrids and rare species, and the latter was well arranged and effective.

Sir JEREMIAH COLMAN, BART., Gatton Park (gr. Mr. Collier), staged an extensive group, in the back part of the centre of which was a good *Odontoglossum crispum*, over which gracefully arched the claret and rose sprays of *Odontoglossum Thompsonianum*. The front was composed of very fine examples of *Miltonia vexillaria*, which also extended on each side, arranged with showy scarlet *Odontiodas*, *Lælio-Cattleyas*, *Cattleya Dusseldorfei* Undine, and other *Cattleyas* and hybrid *Odontoglossums*, *Cymbidium insigne*, &c. Along the front of the group were many rare plants, among those noted being the singular little *Eria panacea*, the blue *Dendrobium Victoria Regina*, *Miltonia vexillaria gigantea*, the new *Odontioda Papilio-gattoniensis*, and the handsome *O. Bradshawiae* Gatton Park variety; *Odontoglossum nigrum* and *O. The Kasier*, both very fine hybrids of unrecorded parentage; *O. Lady Roxburgh* (*cirrhosum* × *percultum*), of elegant habit and with prettily marked flowers; *Sarcophilus Hartmanni*, some very brightly coloured *Masdevallias*, *Eulophia Lubbersiana*, and another pretty *Enlophia* from Uganda; *Trigonidium obtusum*, *Nephelephyllum pulchrum*, with a great variety of rare and interesting plants.

SAMUEL LARKIN, Esq., The Ridgways, Haslemere (gr. Mr. Hales), staged a very well-arranged and effective group, in which good *Odontoglossum crispum* and hybrids, fine *Cattleya Mendelii* and *C. Mossiae*, brilliant

scarlet *Odontiodas*, and rose-pink *Miltonia vexillaria* were the principal features. The centre of the group was the highest part, and under the Palms at the back were white *Phalenopsis*. In front were some fine *Cattleyas*, those noted as the best being *C. Mendelii* and Mrs. Sam. Larkin, a lovely white flower with a mauve front to the lip; *C. M. Mrs. Lister*, a very handsome and distinct variety; and *C. Mossiae* var. *G. M. Hales* (see Awards). Well displayed on each side were *Odontioda Royal Scarlet*, *O. Charlesworthii*, *O. Vuylstekeae*, *O. Cooksoniae*, *O. Bradshawiae*, and others, their bright red and rose colours arranging well with the fine, clear white forms of *Odontoglossum crispum*, including several

red *Renanthera Imchoctana*, *Maxillaria Sandersoniana*, good *Miltonia Blumana*, a pretty set of pale-yellow *Cypripedium concolor*, and other *Cypripediums*, *Anguloa Clowson*, the pretty old *Maxillaria tenuifolia*, elegant in foliage and bright in flower; *Bifrenaria Harrisoniae*, *B. pubigera*, *Vanda tricolor*, *Lælia purpurata*, &c.

Messrs. CHARLESWORTH & Co., Haywards Heath, staged a magnificent group, rich in handsome and rare hybrids and species. The centre was of *Phalenopsis Rimsteadiana*, arching over splendid plants of rose-pink *Miltonia vexillaria*, *M. Hycana*, *M. Bleuana nobilior*, *M. B. rosea*, &c., arranged with showy *Lælio-Cattleyas*. The hybrid *Odontoglossums* were remarkably fine, some new forms and unusual colours being



THE TEMPLE SHOW.

FIG. 150.—*CÆLOGYNE BURFORDIENSE*: FLOWERS PALE-GREEN WITH A BLACK SPINY CREST.
(See p. 333.)

pretty spotted forms and the dark-colored hybrids, among which were *O. eximium* Ridgways variety, white blotched with rose-purple; *O. gandavensis*, light violet with white tips; *O. Mrs. Sam. Larkin*, a pretty hybrid of unrecorded parentage, with a yellowish ground colour evenly blotched with claret-purple; *O. amabile* Larkin's variety, a fine flower spotted red on the inner halves of the segments, the outer being rose-pink; *O. amabile splendens*, of good size and colour, and a number of other hybrid *Odontoglossums* of excellent quality. Others noted were a form of *Oncidium Larkinianum*, with more spotting on the yellow lip than in the original, which flowered with Mr. Larkin's uncle at Delrow, Watford; *Brasso-Cattleya Langleyensis*, bright

among them. *O. crispum* Princess Mary was a grand white form, with a rose tint on the sepals; *O. crispum* Princess Victoria Louise, a charming form; *O. eximium* The Kaiserin, Pintadean, and Prince of Wales, all finely blotched; *O. Fascinator* Kaiser Wilhelm, a large flower evenly blotched; *O. illustrissimum* Black Prince and *O. percultum* Blue Bird, with unusual tints of colour, and all kinds of variations in spotted *O. crispum* raised by the firm. Others noted were a fine *Lælio-Cattleya* Golden Glory; the new yellow L.-C. Germania (see Awards); some magnificent varieties of L.-C. Fascinator; L.-C. Wellsiana superba, and other unnamed *Lælio-Cattleyas*. The centre front was brightened by a selection of the dark scarlet *Odontioda*

Charlesworthii, still probably the finest *Odontoglossum*; *O. Lambauniana*, a good red-scarlet; some white *Cattleyas*; *Cypripedium bellatulum* Queen of Spain, very distinctly marked; a fine plant of *Eriopsis biloba*, *Cyrtopodium punctatum* Saint Legerianum; the albino *Vanda suavis pallida* *Catasetum atratum*, *Sepbro-Cattleya Chamberlainiana*. Some curious and interesting crosses were also included, among them being *Oncidioida Charlesworthii* and *Miltonioida Ajax*. The variation in the batches of hybrid *Odontoglossums* as seen in the very handsome strain of *O. ardentissimum*, ranging from almost wholly claret colour to pure white; in the variously tinted *O. Jasper*, always pretty and with seldom two alike; the showy forms of *O. eximium*, and others, is very interesting.

Messrs. SANDER & SONS, St. Albans, had one of the best and largest groups they have ever staged, full of good things. The central design had fine *Laelia purpurata*, mingled with various *Brasso-Cattleyas*, &c. *Cattleya Mendelii* White Lady was a pure white flower with a pale pink shade on the lip, and *C. M. Empress*, a good white with deep magenta lip, and many other specially fine forms were noted. In front was a selection of *Brasso-Cattleyas*, richly coloured *Odontodas*, including the deep scarlet *O. Lambauniana* (see Awards). The depressions on each side of the centre had a grand display of spotted forms of *Odontoglossum crispum* and hybrids, some fine *Cattleya Schroderae*, the best being *Conspicua*, *Sunset*, and *Queen Mary*, all exceptionally fine, the last-named especially large and of a delicate bluish white with deep orange tube to the lip. The ends were of the rose and purple *Laelio-Cattleya Hyeana* Sander's variety, and specially attractive things noted were a batch of the pretty *Miltonia Hyeana*, *Angulea dubia*, pale yellow spotted with red, *Odontioda Graimiana*, and the pretty *O. ornata*, with white ground colour blotched with rosy-red; *Odontoglossum crispum* *Thompsonianum*, still one of the largest blotched forms; *O. crispum* *King George*, a very large white form; *O. Memoria King Edward VII.*, a large dark coloured flower; *O. amabile* *King George*, fine in shape and colour; *O. Black Douglas*; a fine specimen of the old *Rhyncostylis premorsa*, with four spikes; the new *Aerides crispianum*, a dark rose-flowered species of the *Aerides Savageanum* class; some new and rare species, including *Zygopetalum Sanderae* and *Oncidium Mulleri* (see Awards).

Messrs. JAS. CYPHER & SONS, Cheltenham, staged a very large group in a most effective manner, all the plants being splendidly grown and profusely flowered. The centre was of *Phalaenopsis Rimestadiana*, with handsome *Cattleyas*, scarlet *Masdevallia Veitchiana* and *Harryana*, *Odontodas*, &c., the sides having at the back fine specimens of *Laelia purpurata*, with *Cattleya Mossiae* in great variety, forms of *Odontoglossum ardentissimum*, *O. amabile*, the variety *illuminata* being specially showy. The white forms of *Odontoglossum crispum* were very fine, also the forms of *Cattleya Mossiae* and *C. Mendelii*, the former being of a strain showing much orange colour in the lip, and the latter having some excellent white-petalled varieties. Three plants of *Laelia purpurata* were of fine colour; the varieties of *Miltonia vexillaria*, chiefly of the bright rose type, were well furnished with bloom; *Cattleya Mossiae* triumphans, a grand flower of the best coloured type, various *Sepbro-Laelias*, *Odontioda Cooksonae*, and other *Odontodas*, *Cypripedium*, &c., were also noted.

Messrs. MANSELL & HATCHER, Lawdon, Yorks., had a fine group, a bright feature in the centre being many plants of *Renanthera Insechootiana* at the back which were continued on each side, in each case the scarlet spikes being grouped with fine white *Odontoglossum crispum*, various *Dendrobies*, &c. At the ends the prominent subjects were *Miltonia vexillaria*, good and various in tint, *M. Bleuana*, some splendid *Cattleya Mossiae* and *C. Mendelii*, showy *Laelio-Cattleyas*, &c. Noted as specially attractive were *Odontioda rosefeldtensis*, bright orange scarlet and quite distinct; *Miltonia vexillaria gigantea*, of fine size and shape; *Dendrobium Sanderae*, the neat little blue *Vanda corulescens*, *Megacalum minutum*, with pretty little flowers neatly arranged; *Oncidium pulchellum*; a nice selection of good forms of *Odontoglossum ardentissimum* and other hybrid *Odontoglossums*; some spotted forms of *O.*

crispum, the variety *Leonora* being distinct and good; *Dendrobium MacArthuriae*, one of the most beautiful *Dendrobies*, and *D. acuminatum*, with a spike of rose-coloured flowers, and a large number of other rare species.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, had a fine group, with a very good show of *Brasso-Cattleyas* and *Brasso-Laelias*, ranging from white to rosy-lilac, and very effectively arranged, with excellent varieties of *Odontoglossum crispum* and other *Odontoglossums*, *Odontodas*, &c. *Cattleya Skinneri* Temple's variety was the finest of the coloured forms, and



THE TEMPLE SHOW.

FIG. 151. "ODONTOGLOSSUM BLACK PRINCE
"THE BELL VARIETY."

(See p. 234.)

C. Skinneri alba had a good show of white flowers. A batch of *Cypripedium glaucophyllum* showed that ally of *C. Chamberlainianum* to advantage; among a fine set of *Miltonia vexillaria* appeared a good specimen of *Cologyne pandurata*, and the very handsome *Laelio-Cattleya Aphrodite* *Orchidhurst* variety, other pretty forms of it and other *Laelio-Cattleyas* being arranged on the sides, which contained a selection of *Cypripediums*, brightly coloured *Masdevallias*, two plants of *Bulbophyllum galbanum*, a strong specimen of *B. saurocephalum*, various *Oncidiums*, *Pescatorea cerina*, &c.

Messrs. STUART LOW & Co., Bush Hill Park, had an extensive group of good *Odontoglossums*, *Miltonia vexillaria*, showy *Odontoglossums*, *Odontodas*, &c. The forms of *Cattleya Mossiae* and *C. Mendelii*, including some white varieties, were excellent. *C. M. Pintadeau* was a fine bluish white with white lip, having some purple markings in the centre. *Laelio-Cattleya Aphrodite* and *L.-C. Fascinator* varieties were effective; bright *Masdevallia Harryana*, a fine *Cologyne pandurata*, *Chysis Sedenii*, various *Epidendiums* and *Oncidiums*, *Dendrobium dixanthum*, *D. crepidatum*, and other *Dendrobiums*, an interesting selection of the lesser *Masdevallias*, *Pleurothallis*, &c., were also noted.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, Chelsea, added to the effect of their fine exhibit of handsome foliage plants by arranging in front three conical groups composed of the handsome *Brasso-Laelio-Cattleya Veitchii*, one of the showiest hybrids of its class, one specimen having four rose and crimson flowers; several of their pretty *Disa Luna*, *Oncidium Marshallianum*, the white *Cattleya Dusseldorfei* *Undine*, and other white *Cattleyas*; *Cypripedium callosum* *Sanderae* and *C. Maudiae*; some showy hybrid *Odontoglossums*; a very distinct *Laelio-Cattleya Bletchleyensis*, of pale pink colour with claret markings on the sides of the lip, *Renanthera Insechootiana*, good *Cattleya Mossiae*, *C. Mendelii*, &c.

Messrs. J. & A. A. McBEAN, Cooksbridge, staged a fine group, rich in the grand forms of *Odontoglossum crispum* for which the firm is noted. Some very handsome white forms of great size and substance were noted, the most distinct being named *E. V. Low*, a wax-like white flower, a model in shape, and having a few dark reddish spots on the segments; *O. crispum* *Snow Queen* was a pure white with lemon-yellow spotting on the lip, and *O. c. xanthobes* appeared in two good forms. Among the best blotched varieties noted were *O. crispum* *Mrs. J. McBean*, a beautiful shape and richly blotched, and other fine forms. The *Cattleya Mossiae* were of a very fine strain, and some very distinct forms were displayed, indeed, both these and the *C. Mendelii* were so good as to render preference difficult. *Cattleya Mossiae aureola* was a fine white, with the greater part of the lip covered with a golden tinge and orange ray from the base; *C. M. Libella* was a charming bluish-white flower, with a very broad white margin to the lip, which has purple markings in the centre; *C. M. St. Bernard*, *C. Mendelii* *Nora*, and *C. M. Alpha* were also very fine and distinct varieties. Among the hybrids were good *Odontoglossum ardentissimum*; the pretty *O. amabile* *Electro* and others, and the fine plants of *Miltonia vexillaria* were exceptionally well flowered, one specimen having nine flowers on each spike.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a group, in which were two plants of the white *Laelia purpurata* *Lewisii*, a good specimen of the light rose *L. p. Lowii*, and other good forms; *Cattleya Skinneri* alba, *Dia-Cattleya Sanderae*, *Cypripedium Maudiae*, *C. Lawrenceanum* *Hyeannum*, *C. Beckmanni*, *Lycaste Skinneri* alba, *Odontoglossums*, &c.

Mr. HARRY DIXON, Spencer Park Nursery, Wandsworth Common, staged an effective group, at the back of which was a large specimen of *Cologyne Dayana*, with 15 long drooping spikes bearing together about 500 flowers. With it were two finely flowered *Odontoglossum Pescatorei*, a good hybrid near to *O. crispum*, nicely blotched, and another seedling *O. crispum* of good quality; *O. Dora* and other *Odontoglossums*; *Cattleya Dusseldorfei* *Undine*, *Dendrobium nobile nobilium*, said to have been grown in a cold house, *Dendrobium Jamesianum*, with a strong stem of 15 large flowers, and other showy *Orchids*.

Mr. J. ROBSON, Altrincham, Cheshire, staged a good group, in which the bright red *Renanthera Insechootiana* was effectively arranged with good *Odontoglossums*, *Cattleya Mendelii*, *C. Mossiae*, *Miltonia vexillaria*, &c. *Odontoglossum amabile* *Robsonae* was a grand flower of a pale rose-pink blotched with claret-red on the inner halves of the segments, the front of the lip being white. Others were *O. Japonice* of good form; a very deeply coloured *O. ardentissimum*, and various other good hybrid *Odontoglossums*.

Mrs. CHAS. VUYLESTAKE, Lochristy, Ghent, showed *Odontoglossum crispum* *His Majesty*

King George V., a deeply coloured seedling form of fine quality; *O. Grand Monarque* (eximium \times *laudatum*), also richly coloured; *O. coruleum*, the inner parts of the segments being light violet; *O. Loveliness*, white with violet blotches, and *Cochlioda Coronation* (see Awards).

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Lælio-Cattleya Graham White* (L.C. *Phoebe* \times L.C. *Luminosa*), a very pretty and distinct hybrid with flowers of good size, sepals and petals golden-yellow slightly tinged with rose, lips reddish crimson; and the handsome *Lælio-Cattleya Morningtonia* (see Awards).

MALCOLM S. COOKE, Esq., Kingston Hill, sent *Cattleya Mossiae* Cooke's variety.

Mr. JOSEPH BIRCHENALL, Alderley Edge, sent a selection of *Cattleya Mendelii*.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed *Odontoglossum amabile Frederickii*, a very handsome light rose flower spotted with red.

Mrs. NORMAN COOKSON, Oakwood, Wylam (gr. Mr. H. J. Chapman), exhibited the fine *Odontoglossum ardentissimum Peetersii*.

JOHN J. HOLDEN, Esq., Southport, staged *Cypripedium bellatulum* Holden's variety, a large flower and with nearly black blotches.

Mons. H. GRAIRE, Amiens, displayed *Odontoglossum Sappho* (Fletcherianum \times *crispum*).

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Black Prince "Dell variety" (see fig. 151), from Baron BRUNO SCHRÖDER, The Dell, Englefield Green (gr. Mr. J. E. Shill).—A majestic hybrid with very large flowers, the segments being equally broad. The markings of the flower are of a deep chocolate-purple, relieved by slight yellowish markings and a white margin. The plant was grandly grown, and bore a fine spike of 15 flowers.

Lælio-Cattleya Morningtonia (L.C. *Pallas* \times L.C. *Fascinator*), from FRANCIS WELLESLEY, Esq., Westfield, Woking.—One of the most beautiful of *Lælio-Cattleyas* flowering at this season, the sepals and petals being pure white, the lip of a glowing rosy-mauve with a white spot in front, and fine dark purple lines at the base.

Odontioda Coronation (parentage unknown), from Monsieur CHAS. VUYLSTEKE, Ghent.—An improvement on *O. Vuyksteke*. The flowers are of the largest found in *Odontioda*, orange-red in the inner halves, the outer being bluish-white with a reddish-rose margin.

Odontioda Lambauiana (C. *Noelzianum* \times *O. Lambauiana*), from Messrs. SANDER & SONS.—Flowers brilliant scarlet. Very fine.

Oncidium Mulleri, from Messrs. SANDER & SONS.—Allied to *O. corynephorum*. Flowers on trailing spikes; the sepals and petals are white tinged with rose; lip ovate, coloured rose-purple.

Odontioda Bradshawia, *Gatton Park variety*, from Sir JEREMIAH COLMAN, Bart.—One of the finest forms which has yet appeared. Flowers large, deep scarlet.

AWARDS OF MERIT.

Oncidium Clausii, from Sir JEREMIAH COLMAN, Bart.—A curious species with brownish sepals and narrow rose-purple petals and lip.

Calogyne Burfordiense (*asperata* \times *pan-durata*) (see fig. 150), from Sir TREVOR LAWRENCE, Bart., K.C.V.O.—A very handsome hybrid with a general resemblance to *C. pandurata*. Flowers palest green with a black spiny crest, and green and yellow ridges.

Cattleya Mossiae var. *G. M. Hales*, from SAMUEL LARKIN, Esq., Haslemere (gr. Mr. G. M. Hales).—A most extraordinary variety in colour resembling *C. Warneri*; sepals and petals rose colour; front of lip crimson, disc yellow.

Lælio-Cattleya Germania (L.C. *Cappi* \times *Mendelii*), from Messrs. CHARLESWORTH & Co.—In size equal to *C. Mendelii*; sepals and petals clear chrome yellow; front of lip carmine-red.

Odontoglossum amabile Empress of India, from Messrs. SANDER & SONS.—A very showy and finely-marked flower of excellent shape.

CULTURAL COMMENDATION.

To Messrs. CHARLESWORTH & Co. for a grand plant of *Odontoglossum hastilabium Charlesworthii*.

ROSES.

Roses always form a large part of the programme at the Temple Show, and rosarians have become accustomed to go there in expectation of studying the behaviour under glass of the newer varieties, and to make a beginning of the Rose year so far as flower shows are concerned. There were plenty of new Roses to consider, and some material wherewith to speculate upon their behaviour in the open garden later in the year. The various exhibits afforded many examples of the florist's decorative art and of the perfection to which the forced Rose can be grown. But there was nothing greatly beyond our expectations, and nothing revolutionary in the history of the Rose. Taste both in Roses and their arrangement is improving certainly, if slowly, but if we may suggest a warning it must be against falling into too stereotyped methods in arranging the rambling and climbing Roses. Immediately on entering the largest tent was the exhibit made by Messrs. FRANK CANT & Co. Colchester. It

as any of the 1909 Roses. The colour is a bright rose-pink, with just a tinge of yellow at the base of the petal to brighten it. Two exhibition boxes contained blooms of other new Roses, amongst which Miss Cynthia Ford and Middle, Simon Beaumez were two of the most attractive varieties.

Opposite to this exhibit was a bank of climbing Roses set up by Messrs. H. CANNELL & SONS, Swanley. It contained American Pillar and similar varieties, built up on a base of Mme. N. Levavasseur, which was quite pleasing, and a much better colour than it comes out-of-doors.

Hard by was the group contributed by Messrs. WILLIAM PAUL & SON, Waltham Cross. It included, what to some rosarians may have been a chief object of interest in the show—*Sylvia*, a white rambler, white in the centre of the flower, a point where the White Ramblers are apt to fail, and it is said to be perpetual. The wary amateur who has generally found that the part has given him under that description



THE TEMPLE SHOW.

FIG. 152.—ROSE PORTIA: H.T., FLOWERS WHITE.

(See p. 320.)

contained Roses of all sorts, the brightest, freshest, and most cheerful in the Show. Near the centre was a little circle of Wm. Allen Richardson, of a wonderful colour, as bright as Lady Hillingdon, forming a little halo round the head of Richmond, one of the sweetest-scented Roses and one which may be classed amongst the best two or three Roses for use in bedding. The N.R.S. has excluded this variety from (of all others) the decorative classes at the shows of the National Society.

The blooms of Richmond were looking very bright and happy in this exhibit, and just the right size, neither too big nor too small. Near by was a batch of Molly Sharman Crawford, no bad companion to Richmond, if only the plants will prove sufficiently free-flowering in a bed. There was also the Lyon Rose, and a new variety of some interest, Andre Gamon. The latter is certainly a good colour, and perhaps as promising

either perpetuals that refuse to ramble or ramblers whose perpetual (?) character is only represented by a belated flower or two in the autumn, will indeed give it a welcome, if it will both ramble and flower profusely alike in summer and autumn. Near by in the same stand was the variety Arthur R. Goodwin; the original buds of this Rose are perfectly lovely, but they very soon pass to a shapeless flower of little decorative value. Another Rose also pretty in the bud was seen here in Mme. René Collette. The Ramblers *Coginta*, *Excelsa*, *American Pillar*, and *Tausendschön* were noticeable.

On the other side of the tent was a large collection of weeping standards of *Wichuraiana* and other Rambling Roses, staged by Mr. CHARLES TURNER, Slough, the front of the group and spaces between the standards being separated by other Roses, many of them worth more than passing notice.

At the further end of the same tent Messrs. PAUL & SON, Cheshunt, displayed a grand lot of Roses in the place where we have become accustomed to look for them. In a sense it was as interesting as any exhibit in the show. It was tastefully arranged with a background of climbing roses and the foreground was varied both in method of arrangement and matter. At the corner of the group like a finger-post stood out an enormous flower of Niphetos, a little too large perhaps to show the variety in perfection, but just as an intimation that if size is all that is required the firm has no difficulty in supplying the demand. Then, as if in contrast, the eye moved to the soft and delicate beauty of a little spray of Rosa Hugonis with its pretty foliage, while close by was the more striking colour of Mrs. A. R. Waddell. Above was a standard of Arthur R. Goodwin, and behind this specimen some plants of Viscountess

and the one he exhibited this year in tent No. 4 was no exception. Perhaps his art lies in the fine decorative use he makes of his Teas, and he has not forgotten the imposing effect made on other occasions by a central mass of White Maman Cochet. There was a good group also of Molly Sharman Crawford, and of Mrs. Foley-Hobbs, with its delicate pink centre well shown. Noticeable, too, was a flower with an enormous name, ending in Antonio Pelaffo. Some blossoms of Chateau de Clos Vougeot raised the question whether many rosarians have noticed the delightful fragrance of this Rose.

A little farther in the same tent was a gorgeous group of Roses shown by Messrs. GEORGE MOUNT & SONS, Canterbury, without doubt the finest example of the cultivation of the Rose under glass to be seen in the Show. It contained five great mounds of superbly-grown flowers—Ulrich Brunner, Mrs. George Shawyer, Frau Karl

extension of colour in our Roses. The Austrian Briars, both copper and yellow, were well shown, and there was an interesting little group of newer Roses. St. Helena had a fine orange-coloured centre, and Sallie was a pretty Rose, rather similar in colouring but paler, while Lady Reay was a pretty pink shade.

In the long tent parallel with the Embankment was a little group of Roses shown by Messrs. ALEX. DICKSON & SONS, LTD., Belfast. Most noticeable in the centre was Alex. Hill Gray, a fine lemon-yellow Tea variety. Other good Roses were Mrs. Fred. Straker, Duchess of Westminster, Mrs. Foley-Hobbs, and Mabel Drew.

The end of this tent was filled with a collection of rambling Roses shown by HOBBS, LTD., Dereham, the spaces between the more forward plants being filled largely with Roses of a yellow tint, Marquise de Sinety, Soleil d'Or, and the like, while just outside this tent was an exhibit



THE TEMPLE SHOW.

FIG. 153.—RHODODENDRON CORONA: FLOWERS CARMINE-PINK.

(See p. 338.)

Enfield, which Mr. G. PAUL thinks will make a useful Rose. A standard of Lieut. Chauve showed that this Rose is of a fine colour, but perhaps too thin of petal to be of great value. The centre of the group was noticeable for some plants of Shower of Gold, while a little group of flowers of G. C. Wand gave a good illustration of how much the yellow base of the petal can light up the otherwise rather commonplace rose colour of the flower. Beyond this a plant of Mme. de Watterville made us wish that this exquisite Tea Rose was more patient of ordinary outdoor cultivation in our gardens.

There is always something to learn from the groups staged by Mr. GEORGE PRINCE, Oxford,

Druschki, Lady Hillingdon, and Mrs. John Laing, separated by other beautiful Roses, amongst which Richmond, Lady Faire (Joseph Low), and White Killarney were conspicuous. Mrs. George Shawyer is certainly a beautiful Rose, and if it will get over the tendency it seems to have at present to come with a quartered centre, it ought to make a useful Rose for the exhibition box.

In Messrs. B. R. CANT & SON'S group on the opposite side of the same tent, the first thing to strike the attention was a plant of the so-called Blue Rose Veilchenblau, not perhaps very happy in its background of more pleasing-coloured ramblers, but perhaps giving promise of a future

of Roses shown by Messrs. STUART LOW & CO., Enfield, of rambling and polyantha Roses.

Messrs. CUTBUSH & SON, Highgate, also staged some rambling Roses, but chiefly as a background to their tasteful exhibit of Carnations.

GROUPS OF PLANTS.

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, put up a collection of stove and greenhouse foliage plants, with banks of Orchids along the front for relief. Every plant was a choice specimen, selected either for its large size or intense colouring of the foliage, and the various subjects were blended with the best effect. The eye rested immediately on a

grand plant of *Coccoloba pubescens* at the back, with a superb specimen of *Anthurium Veitchii* as its companion. In the front were two elegant specimens of the red-leaved *Dracena indivisa* atropurpurea, acting as corner pieces to a group of *Lælias*, *Cattleyas*, *Odontoglossums* and other showy-flowered *Orchids*. Behind these, gorgeously-coloured *Anthuriums*, *Dieffenbachia Jenmannii*, *Alocasias* and *Codiaeums* (*Crotons*) comprised the main features, with *Marantas*, *Bertolonias*, *Begonia Rex* and decorative *Ferns* at intervals. Tall plants of the elegant *Aralia elegantissima* were grouped at the base with the red spathes of *Anthuriums*, and one of these groups had as a companion a splendid plant of *Cyanophyllum magnificum*. MESSRS. JAMES VEITCH & SONS, LTD., also staged a bank of flowers comprised of an assortment of shrubs and other hardy subjects from their nursery at Coombe Wood. The centre was composed of a showy bank of the lovely *Pink Pearl Rhododendron*, flanked on either side with

ful green lamina being aptly described as vegetative velvet. Above this was suspended a well-pitched plant of *Nepenthes Mastersiana*, and in front was a fine specimen of the golden-leaved *Dracena Victoria*. At the back were *Palms*, *Codiaeums* (*Crotons*), two large plants of *Dracena Sandertiana*, also *Anthurium Veitchii* and *Aralia elegantissima*. In the foreground were dwarfier specimens, including some well-coloured plants of *Caladium*, and a large-leaved Tobacco plant named *Nicotiana colossus variegata*, a striking subject for sub-tropical gardening. The variegated *Pineapple*—*Ananassa sativa variegata*, was shown well, and there were also some delightful little plants of *Nertera depressa*, covered with coral-red berries. *Bertolonias* are a speciality of this nurseryman, and numbers of these were grouped in the display.

Messrs. W. CURRISH & SON, Highgate, staged, in one corner of the large marquee, a brilliant group of flowers comprised of *Roses*, *Carnations*, and *Rhododendrons*, relieved with richly-coloured

pink, white and rose colours, a group of Japanese Maples showing them to advantage. Some were standard plants, and these, rising above the general mass, added to the effectiveness of the display. Along the front were arranged dwarf plants of *A. rustica* in variety, such pretty sorts as *Aida* (pink), *Norma* (rosy-red), *Mecene* (white), *Phœbe* (yellow), and *Freya* (lilac-pink) forming a pleasing frontage. The more noticeable of the larger plants were *Alphonse Lavallee* (orange-red), *Duchess of Portland* (lemon, tipped with rose), *Prince of Orange*, a fine new orange-red variety. *Occidentalis magnifica*, *Graciosa* (white, with lemon-colour on the upper segment), and *Comte de Gomer* (apricot).

Messrs. JOHN WATERER & SONS, LTD., Bagshot, Surrey, showed a large bank of hardy *Rhododendrons* composed of some of the more striking and newer varieties. In the centre was a batch of the lovely *Pink Pearl* variety, the shade ranging from blush to deep-rose; *Mrs. William Agnew*, an old favourite; *Prometheus*, one of the finest of



THE TEMPLE SHOW.

FIG. 154.—RHODODENDRON LITTLEWORTH CORALLINA; FLOWERS PINK.

(See p. 338.)

the yellow *Azalea*, *Anthony Koster*, and a fine plant of *Rose Lady Gay* at the back. A standard plant of *Styrax japonica*, with white, bell-shaped flowers overhung the *Pink Pearl Rhododendrons*. A clump of *Rosa Hugonis* showed off the beautiful yellow flowers of this species; in front were *Tree Pæonies* in variety, notably the salmon-pink variety *Reine Elizabeth*, and *Mme. Stuart Low*, of salmon-rose shade. Between these, on either side, were plants of *Magnolia parviflora*, a late-blooming species, but one of the most perfectly formed and attractive flowers, the creamy-white perianth being set off by a column of red stamens. There were also great banks of *Clematis*, *Hydrangeas*, *Philadelphus*, *Azaleas*, *Wistarias*, *Olearia stellulata* and other showy flowering shrubs, the whole arranged with admirable skill, showing fine colour blending.

Mr. L. R. RUSSELL, Richmond, Surrey, staged a bold group of showy foliage plants in the largest tent, the plants affording a pleasing change from the masses of *Orchids*, *Roses* and other blooms. A place of prominence was given a magnificent specimen of *Anthurium crystallinum*, the beauti-

Codiaeums (*Crotons*) and more sombre *Bamboos*, *Ferns*, and *Palms*. The effect produced was delightful, a bank of *Pink Pearl Rhododendrons* forming a fitting setting to rows of *Weeping Roses*, all splendidly bloomed. The ground was carpeted with polyantha varieties of *Roses*, the most noticeable being *Jessie*, a rosy-crimson variety. From the ground arose large masses of *Carnations*, the variety *Lady Coventry* being conspicuously good. The dark-clove, scented variety, named *Queen Mary*; *The Queen*, terra-cotta; *Scarlet Glow*, *Mrs. Fortescue* (cerise), *Miss Winnie Prior* (scarlet markings on white), *King Arthur* (scarlet), and *Lady Heimoine* (salmon-pink) are a selection of the finer varieties of *Carnations* in this exhibit.

AZALEAS AND RHODODENDRONS.

Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, made a bright group with hardy *Azaleas*, principally varieties of *A. sinensis* and *A. pontica*. The individual plants were splendidly flowered, and the blossoms were largely of orange, reddish-orange,

the red shades; *Gomer Waterer*, a magnificent flower, faintly tinged with rose, and with yellow spots on the upper petal; *Alice*, a new variety of pronounced rose-colour, deeper than in *Pink Pearl*, the variety being almost as showy as the older sort but of a better habit, the truss also being of better form; delicatissimum, the yellow markings on the upper petal giving distinction to the pale-rose flowers; *Baroness Henry Schroder*, white, dotted with red; *Cynthia*, rich rose; *George Hardy*, the best of the white varieties of the *Pink Pearl* type; *Mrs. E. C. Stirling*, a clear, blush flower, with no markings of a deeper tint, and with fimbriated margins; *Dorothy Fortescue*, a bold truss of cerise-coloured blooms; and *Mrs. William Bovill*, of a salmon-rose shade.

Mr. CHAS. TURNER, Slough, had, immediately on entering the large marquee, a group of *Carnations* of the *Souvenir de la Malmaison* type, and pyramidal plants of *Rhododendron* (*Azalea*) *indicum*, also a new white-ground *Picotée*, with a rose edge, named *Sylvia*. *Rhododendron* *Mlle. Marie Van Houtte* was covered with its double cerise flowers; *Spitfire* (brick red), *Mme.*

Van Houtte (salmon), and Roi de Holland (dark salmon), were also effectively displayed.

Messrs. J. PIPER & SON, Bishop's Road, Bayswater, staged a large group of the lovely Pink Pearl Rhododendron, the exhibit being a feature in the large marquee.

CLEMATIS.

Messrs. GEO. JACKMAN & SON, Woking, Surrey, had the largest plants of Clematis in the show. They were mostly in 12-inch pots, and were mainly grafted last season, the finest blooms being produced on these young plants. A few were trained to stakes, and these were interspersed in the group here and there for relief. At the back were older plants, trained in pyramidal form. A selection of the varieties includes Ville de Lyon (claret), Jackmanii rubra (red), Mrs. Geo. Jackman (white), Nellie Moser (pink), Grand Duchess (blush), The President (violet-red), Lady Northcliffe (lavender-blue), and King Edward VII. (mauve).

A group of large-flowered Clematis was staged by Mr. L. R. RUSSELL, next to his exhibit of ornamental-leaved stove and greenhouse plants. The varieties were those most usually grown, and all were hardy. The finest specimen was a plant of the pink variety, Nellie Moser, the darker strip in the centre of the petals giving a pleasing effect. Others especially good were Venus Victoria (double mauve flowers), Mme Van Houtte

well. The use of light bamboos for relief formed a welcome variety from the too commonly-used Asparagus.

Mr. CHAS. BLICK, Warren Nurseries, Hayes, exhibited a good group, in which a prominent place was given to the many fine border varieties raised at Hayes Place. There was a vase of the salmon-pink Self Lady Hermione, which has been chosen by the Queen for the Coronation presentation bouquet from the Gardeners' Company. Lieut. Shackleton, Pater, Harry Lauder, Prince Albert, and Bombardier were representative of a large collection of varieties of the Fancy type.

Mr. H. BURNETT, St. Margaret's, Guernsey, had some of the best Carnations in the show. The varieties Mrs. C. F. Raphael, Marmion, and R. F. Felton were magnificent, and there were also fine vases of Mrs. Tatton, Snow Queen, J. W. Riley, Fortuna, Mikado, and Scarlet Glow.

Mr. A. F. DUTTON, Iver, Buckinghamshire, arranged a good group of Carnations, using Adiantum Ferns and sprays of Asparagus as a foil to the bright colours. Winona was very bright. May Day, Pink Delight, Beacon, and Carola were also well represented.

Mr. C. ENGELMANN, Saffron Walden, Essex, staged a group conspicuous for the fine novelties of his own raising. Rex, soft, clear salmon-pink, is already known, but Rosa (after Lawson, but of a purer rose), Sunstar (the best yellow so far, rich, and of more substance than

advantages of his new cerise seedling Edith Waters, one of the largest and richest in colour of the true perpetual Carnations.

Messrs. W. WELLS & CO., Merstham, Surrey, showed a small group of perpetual-flowering Carnations, which included the finely-scented White House variety, May Day, Pink Delight, Enchantress, and other standard varieties. Mr. WELLS also included a batch of the new season's early-flowering Chrysanthemums.

Messrs. YOUNG & CO., Hatherley, Cheltenham, arranged a pretty group, in which the yellow and slatey-purple of Cecilia and Mikado contrasted well. Hon. Lady Audley Neeld, Duchess of Devonshire, Britannia, White Enchantress, and other varieties were also shown well.

Mr. C. HERBERT, Adcock's Green, Birmingham, showed a bank of the perpetual-flowering Carnation Pink Progress as an end-piece to the Orchid table in the marquee.

TULIPS.

The most extensive and representative group of these flowers came from Messrs. BARR & SONS, Covent Garden, Parrot, Cottage, Darwin, and florists' varieties being all represented. Messrs. HOGG & ROBERTSON, Dublin, also staged an assortment of these flowers. Messrs. SUTTON & SONS, Reading, had a notable exhibit of Tulips, the individual flowers being of very imposing character. The group was chiefly of the Darwin class, Zulu, The Fawn, Mas-enet, Bronze Queen and Wilberforce being notable sorts. Messrs. R. H. BATH, Wisbech, displayed, amongst many varieties: King Harold, Clara Butt, Mrs. Farncombe Sanders, Mrs. Moon, Golden Spire, and Bleu Amiable. A group shown by Messrs. ALEX. DICKSON & SONS, Newtownards, constituted an imposing array, Dom Pedro, Clara Butt, Sunset, and N. F. Barnes being some of the finer varieties. Messrs. G. BUNYARD & CO., Maidstone, were also the exhibitors of fine flowers of Darwin and other Tulips.

BEGONIAS.

Messrs. BLACKMORE & LANGDON, Twerton Hill Nursery, Bath, showed one of the finest and the most varied collections of Begonias. Mrs. W. L. Ainslie is easily the best yellow variety. Princess Victoria Louise (pale pink), G. Pike (deep scarlet), Sir Gilbert Greenall (rich crimson), Winsome Partner (salmon-pink), and Purity (white) were all shown well. The group was much improved by the suspended baskets of Begonias, in which Fleur de Chrysanthème, Lena and Gladys produced an excellent effect.

Mr. A. LL. GWILLIM, Cambria Nursery, Sidcup, sent a wide range of varieties, of which the salmon Mrs. J. C. Gwillim, the crimson Pride of Eltham and the yellow Margaret Gwillim were amongst the most brilliant.

Messrs. T. S. WARE, LTD., Feltham, Middlesex, staged a bold group of large-flowered varieties, which, in addition to standard sorts, included the following novelties:—Lady Cromer, a very large, pink flower, paler at the edges and with cream centre; Mrs. A. P. Brandt, creamy-pink, richly crimped; Lionel Bean, scarlet; Captain Lafone, pale pink and of unusually fine form; Sir John Knill, crimson; and Miss Iris Strover, salmon-pink.

FERNS.

Messrs. J. HILL & SON, Barrowfield Nurseries, Lower Edmonton, showed a magnificent group of specimen Ferns. Hemitelia Smithii, the rare tree Fern, and Lygodium japonicum formed a raised background rising to 20 feet. Gleichenias were well represented, and fine plants were also included of Adiantum Veitchianum, A. imbricatum, Lomaria attenuata, and several Gymnogrammes.

Messrs. H. B. MAY & SONS, Upper Edmonton, showed an extensive collection of greenhouse Ferns, with a few Pelargoniums and a fine plant of the new Clematis lanuginosa Queen Mary. The foundation of the group was composed of specimen Davallias and Platyceriums, and a batch of Nephrolepis Marshallii compacta. Other choice plants included Davallia insignis (new), Davallia solida superba, Selaginella casia arborea, Cyrtomium Rochfordii, Polypodium Mayi, and species of Actinopteris, Notholaena and Blechnum.

Messrs. A. A. FABRIC, Redlands Nursery, Emsworth, again showed the new Adiantum Glory of Noordrecht. Handsome plants were shown in pots ranging from thumbs upwards, in which the



FIG. 155.—LILIUM "GOLDEN GLEAM."

(Award of Merit at the Temple Show.)

(See p. 339.)

(white), President (rich purple), Ville de Lyon (red), Lady Londesborough (lavender), and Mme. Edouard André (deep claret).

CALADIUMS.

Messrs. J. PEED & SON, West Norwood, exhibited a batch of Caladiums, plants that appear to be waning in popularity at these shows. The foliage of Messrs. Peed's plants appeared to be finer coloured than usual, and plants of John Peed (red and green), Mme. J. R. Box (rose and silver, edged with green), King George V. (green maculations on a rose ground), Itacoatiara (green veining on palest rose), Candidum (silver and green), and Mrs. Harry Veitch (with deep rose-coloured ribbing), exceedingly beautiful objects.

CARNATIONS.

Messrs. R. H. BATH, LTD., Floral Farms, Wisbech, arranged an effective group of Carnations with the blooms in vases and bamboo stands. The finer varieties were Mrs. C. W. Ward, of Lawson colour but a larger and fuller flower, and, unfortunately, not scented; Scarlet Glow, Shasta, White Enchantress, Beacon, and May Day.

Mr. BERTRAM E. BELL, Castel Nursery, Guernsey, put up one of the most decorative Carnation groups. Marmion formed a fine centre-piece, with gilt baskets filled with Winsor, arranged on either side. Bay State, J. W. Riley, Britannia, Mrs. Burnett, and May Day were also shown

Riley, but, unfortunately, marred by faint splashes of rose, and Election (buff, edged with red) are not yet in commerce.

Messrs. JONES & SONS, LTD., Coton Hill Nurseries, Shrewsbury, staged a small group of standard varieties, including the newer Rex and the, as yet, undistributed novelties Harlequin and Rosa.

Messrs. STUART LOW & CO., Bush Hill Park, Middlesex, made one of the most tasteful displays of Carnations in the show, with the use of a pale-green silk background, dark-foliaged Palms, and the careful inclusion of a few glazed bowls and vases. The Perpetual-Malmaison Princess Juliana and the sweetly-scented Lady Abington were perhaps their best novelties. Gloriosa, a new garden Pink, also attracted attention, although scarcely clear enough in colour to become popular.

Mr. S. MORTIMER, Rowledge, Farnham, staged an interesting batch of Carnations, with a foreground of the White Perpetual Stock All the Year Round. The best of the Carnations were Royal Purple, May Day, Alma Ward, Victory, Britannia, and White Lawson.

THE THATCHAM FRUIT AND FLOWER FARM, near Newbury (a school of gardening for gentlewomen), arranged a batch of market varieties of Carnations, including Mrs. Burnett, Britannia, Rose Dore, and White Perfection.

Mr. C. F. WATERS, Balcombe, Sussex, had a batch of standard sorts arranged to set off the

young fronds were very richly coloured. The value of the plant and its chief merit over *Adiantum Farleyense* lie in the fact that it grows well under a cool treatment.

Mr. H. N. ELLISON, West Bromwich, staged a small batch of Ferns representing the genera *Dicksonia*, *Adiantum*, *Gleichenia* and *Xipholepis*, with attractive bunches of Mr. Adnet's race of hybrid *Gerberas*.

PELARGONIUMS.

R. J. FRY, Esq., Abbots Leigh, near Bristol (gr. Mr. Geo. Parkes), showed a well-grown collection of zonal-leaved *Pelargoniums*, to which added interest was given by the inclusion of the home-raised seedlings *Fiat* (salmon-scarlet), *Abbot's Pride* (white), and *Mrs. R. J. Fry* (salmon-pink).

Messrs. GODFREY & SONS, Exmouth, Devonshire, staged a valuable collection of Show *Pelargoniums*; most of the varieties were raised in the Exmouth nurseries. *Queen Mary* (mauve-pink), *Lady Mildred Cooke* (salmon-pink), and *Mrs. A. F. Wootton* (scarlet) were the finer of the new introductions. The old-fashioned scented-leaved varieties shown included *Lady Mary Fox*, *Pretty Polly*, *capitatum major*, *Lucerne* (peppermint scented), and *Mme. Nonin* (a hybrid after *Clorinda*, but darker). A fine spray of *Bougainvillea glabra* var. *Maud Chettleburgh* was also included in this group.

Mr. W. H. PAGE, Tangley Nurseries, Hampton, Middlesex, sent three magnificent baskets of his new variety, *His Majesty*, with very large, crimson-scarlet blooms; also *Winter Cheer* (scarlet) and *Fiscal Reformer* (rich salmon-pink). Vases of white Lilies at the back greatly improved the effect of the group.

Mr. VINCENT SLADE, Staplegrove Nurseries, Taunton, Somerset, sent an interesting collection of bedding *Pelargoniums*, which included *Hibernian* (scarlet), *Ascot* (salmon), and a number of double varieties, such as *Regalis*, *Fascinator*, and *Flamme Poitevine*.

Messrs. CARTER, FACE & Co., 52-53, London Wall, E.C., staged a group of flowering plants, mainly composed of *Pelargoniums* and Dahlias. The *Pelargoniums* included *J. T. Hamilton*, a semi-double, scarlet variety, derived from a cross between zonal and Ivy-leaved varieties, and showing the Ivy-leaved character in the foliage and truss, and zonal in the general habit. *Scarlet Crousse* is a new scarlet, Ivy-leaved *Pelargonium*, with the characteristics of the old pink favourite *Mme. Crousse*. The *Paony-flowered Dahlias* were not in good form, but the small *Cactus* varieties were all good. *His Coronation*, *Kriemhilda*, *Mrs. Freeman Thomas*, and *Flame* being particularly effective.

CALCEOLARIAS AND GLOXINIAS.

VIVIAN PHILLIPS, Esq., Crofton Court, Orpington (gr. Mr. T. Hobbs), sent a batch of greenhouse *Calceolarias*, showing many fine forms and a wide range of colours.

WICKHAM NOAKES, Esq., Selsdon Park, Croydon (gr. Mr. W. Howarth), sent a group of *Calceolarias* marked by some large-flowered forms, the colours ranging through cream-white, yellow, orange, rose, and maroon.

Messrs. JOHN PEED & SON, West Norwood, S.E., displayed a collection of *Gloxinias*, especially rich in selfs, and with a wide colour range. *Queen Alexandra* (soft pink), *Queen Mary* (rose), and *Purity* (white) were noticeable.

MISCELLANEOUS GREENHOUSE PLANTS.

Messrs. R. P. KER & SONS, Aigburth Nursery, Liverpool, staged nearly one hundred plants of *Hippeastrums* (*Amaryllis*), representing the pick of their fine strain of these showy greenhouse plants. Prominence was given to the variety *Cherise King*, a unique shade in these flowers, also *Lord Milner*, an immense scarlet bloom, the largest-flowered variety in the collection, *Goliath* (white, striped with carmine), *Nestor* (crimson, shading to white), *Brilliantissima* (maroon crimson, a very rich shade), *Pink Pearl*, *Ruby King* (ruby crimson), and *Silver King* (silvery white), are a selection of beautiful varieties shown by Messrs. Ker.

Messrs. SUTTON & SONS, Reading, arranged a group of flowers the whole width of the largest tent at the top end. The subjects were arranged in half-circular bays, there being five of these, the largest composed of *Cinerarias* of the stellata type, these attracting the especial attention

of *Queen Mary*. The others were of *Schizanthuses* and herbaceous *Calceolarias* respectively, with a row of finely flowered *Begonias* of the tuberous-rooted section. In one bay were some finely flowered *Gloxinias*. A border of *Nemesia strumosa*, with *Caladium argyrites*, formed a suitable finish to a remarkably effective display.

Messrs. J. VEITCH & SONS, LTD., Chelsea, staged one of the best representative groups of greenhouse plants. The achimenchilous and giant strains of *Streptocarpus*, the new hybrid *Cinerarias* derived from *Feltham Beauty* and *C. amiculatissimus* and *Tussilaginis*, *Kalanchoe flammula*, *Lobelia tenuior* and *Elaeocarpus reticulatus* were all shown well. The group also included the new large-flowered scarlet *Impatiens Herzogii* and *Calceolaria Buttercup* (*Golden Glory* - *Clibranii*) said to be hardier than *Golden Glory* and bearing rich spreading trusses of yellow blooms from 18 inches to 2 feet high.

Messrs. H. CANNELL & SONS, Swanley, had a large and effective display of miscellaneous greenhouse plants, but the group suffered a little from overcrowding. The *Pelargoniums* included collections of zonal and show varieties, of which *Maxim*, *Kovalesky*, *Mauretania*, *Uranis*, *Queen of Italy*, and *Mrs. L. Thornton*, *Lord Kitchener*,

a good colour range, is especially rich in purples, but is weak in pinks and the clearer colours.

THE KING'S ACRE NURSERIES, Hereford, staged a collection of *Heliotropes*, of which they make a speciality. Mlle. Marie André, Favourite, and Lord Roberts were among the most distinct varieties.

Messrs. STUART LOW & Co., Bush Hill Park, Middlesex, staged the only collection of New Holland plants, for these, in spite of their beauty, seem to have receded in popular favour. *Puchsia spectabilis*, *Erica Cavendishii*, *E. candidissima*, *E. coccinea*, *Boronia polygalifolia*, and species of *Eriostemon* and *Aotus* were all well shown. A very pretty salmon-pink spathed variety of *Anthurium Scherzerianum* named *Mme. Brabant* and white, blue, and pink *Hydrangeas* gave telling masses of colour.

Messrs. SANDER & SONS, St. Albans, arranged a small group of their double white *Marguerite*, *Mrs. F. Sander*, which attracted so much attention when shown for the first time last year, with, at the back, a fine pot-plant of the mournfully handsome *Ataeca cristata*.

Messrs. E. WEBB & SONS, Wordsley, Stourbridge, staged a varied and well-grown batch of greenhouse flowers. *Calceolarias* were good, and included the variety *Clarkii*, resembling *Clibranii*. The *Schizanthuses* of the small-flowered type in-

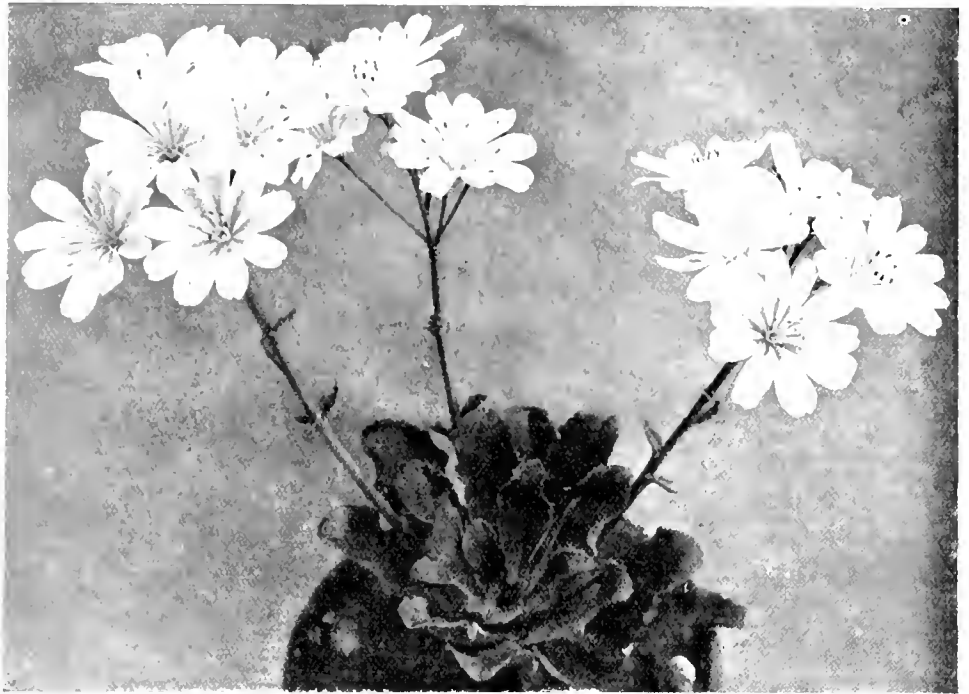


FIG. 156.—IEWISIA COTYLEDON.

Recommended an Award of Merit at the Temple Show.

(See p. 318.)

King Haakon, and *Crimson King* were representative examples. The strain of *Calceolarias* was a good one, and a showy bank of the variety *Clibranii* was placed at the back. The best of the *Cannas* were *R. Wallace*, *J. B. van der Schoot*, *President Meyer*, *Conseiller Heidenreich*, and *Frau G. Siebert*. Against these the novelties *Duma* and *Temes* appeared to disadvantage. The group also included batches of *Myosotis pyramidalis*, *Phyllocactus* and *Pilocereus*.

Messrs. JAMES CARTER & Co., High Holborn, again made a brilliant show at the entrance to the long tent. The large-flowered and cactus varieties of *Cineraria* formed an imposing bank of intense colours. *Gloxinias* and *Schizanthuses* forming the features of the central bed. The *Schizanthuses* nowhere appeared to better advantage than in the hanging baskets, which were arranged with particularly good effect. The double white *Petunias* *Queen Mary*, *Queen of Roses*, and a varied strain of bedding varieties were also shown well. The double-rose *Stock Empress Elizabeth* and standard varieties of *Sweet Peas* and *Carnations* exemplified the representative character of this exhibit.

Messrs. J. GARAWAY & Co., Durdham Down Nurseries, Clifton, Bristol, exhibited their strain of hybrid *Schizanthuses*. The strain has

included a wide range of colour with some particularly good whites. A strain of *Cineraria stellata* was also included.

SWEET PEAS.

Messrs. E. W. KING, LTD., Coggeshall, Essex, arranged a pretty display of novelties, including excellent vases of *Anglian Pink*, *Anglian Orange*, *Mrs. W. King* (rose carmine), *Anglian Blue*, and *Earl Spencer*.

Mr. J. STEVENSON, Wimborne, Dorset, showed good bunches of *Mauve Queen*, *Thomas Stevenson*, of reddish colour, *Nora Unwin*, *Mrs. Routzahn* (pink), and others.

Messrs. H. J. JENES, LTD., Lewisham, arranged 60 or more vases of *Sweet Peas* with graceful grasses. *Stirling Stent* (orange), *Lord Althorp* (orange), *Nancy Perkins* (light salmon), *Thomas Stevenson* (rose and red), *Money-maker* (white), *Anglian Blue*, *Mrs. Hallam* (pink), and *Celestial Paradise* were amongst the best examples in this excellent collection.

Mr. W. E. ALSEN, Desmond Nursery, Hampshire, had excellent vases of *Stirling Stent*, *Maurice Funnell* (pale pink), *Elsie Herbert* (white, with *Picotee* edge), *Mrs. E. Noakes* (giant lavender), and *Apple Blossom Spencer*, the sprays of flowers being of great vigour.

The collection of Sweet Peas exhibited by Messrs. DOBBIE & Co., Edinburgh, contained many novelties, of which Melba (salmon, slightly paler in colour than Earl Spencer), May Campbell (cream and carmine), Lady Knox (cream and buff), Mrs. Cuthbertson (rose pink and pale rose), Red Star (a fine Spencer form of Queen Alexandra), and Mrs. Heslington (rose pink and white) are a selection.

Messrs. CARTER & Co., Raynes Park, had, in the midst of many other flowers, a delightful group of Sweet Peas, including Thomas Stevenson and Constance Oliver.

Other exhibitors of Sweet Peas were Mr. CHAS. W. BREADMORE, Winchester; Miss H. HEMUS, Upton-on-Severn; Messrs. JONES & SONS, Shrewsbury; Messrs. STARK & SON, Great Ryburgh; and ROBERT SYDENHAM LIMITED, Birmingham.

HARDY HERBACEOUS AND ALPINE PLANTS.

The exhibits of Alpine rock and hardy plants generally were the best that have ever appeared in the Temple Gardens. On every hand the wealth, beauty and variety of the plants, cleverly arranged on rockwork, in many instances were objects of comment.

In No. 2 tent Messrs. WALLACE & Co., Colchester, arranged a superb bank of flowers, making a great feature of bulbous plants. Lilies were particularly fine and numerous, including such handsome species and varieties as *L. elegans* Orange Queen, Marhan, testaceum, the true Brownii, richly suffused with bronzy-chocolate colour externally; *odorum japonicum* with its greenish-white flowers; the beautiful new tenuifolium hybrid Golden Gleam, which is a great bloomer; and the dainty rose-coloured rubellum. We also observed *Habenaria pratensis*, with rich, scarlet flowers, representatives of the hybrid race of Irises between *I. pallida* and *I. berberica*: *Ixias*, *Sparaxis*, *Cal chorti*, hardy Orchids, and the large, globular-headed *Allium Rosenbachianum*, with rose-purple flowers.

THE KING'S ACRE NURSERIES, Hereford, set up an arrangement of Alpines with other plants, the former being in pleasing variety.

Messrs. HARKNESS & SONS, Bedale, Yorkshire, staged some very fine Globe Flowers (*Trollius*), novelties including Orange Crest, Northern Glory, His Majesty, and Derby Day, all being coloured orange or light yellow. The flowers were very large and handsome.

Messrs. SEAGRAVE & Co., Sheffield, staged a small though particularly neat exhibit of Violas.

Mr. W. G. MILLER, Wisbech, arranged a group of the double-flowered Pyrethrum Queen Mary. The colour, as seen under canvas, is a pale pink; the plant is obviously possessed of a vigorous growth.

Messrs. GIBSON & Co., Bedale, Yorkshire, brought early Peonies, *Trollius*, Lilies, Poppies and other border flowers.

Messrs. STORRIE & STORRIE, Glencairn, N.B., displayed excellent *Polyanthus*, the strain being rich in yellow and orange shades. Alpine *Auriculas*, too, were of special merit, those with yellow flowers being particularly good.

St. Brigid Anemones in single and double forms, and in great variety of shades, were well shown by Messrs. REAMSBOTTOM & Co., Geashill, King's County, Ireland.

Messrs. RICH & Co., Bath, displayed *Scillas*, *Camassia esculenta*, *Tulips* in variety, and some giant white-flowered Daisies.

Messrs. W. H. ROGERS & SONS, LTD., Southampton, put up a neat exhibit of rockwork planted with showy Alpines and choice shrubs, the latter including cut sprays of *Fabiana imbricata* with white, tubular, Erica-like flowers, and the rare *Vaccinium pennsylvanicum* with bell-shaped flowers of cream and buff shades.

Messrs. LILLEY & Co., Guernsey, staged many interesting plants of a bulbous-rooted nature, none being more fascinating than the so-called "Peacock Iris," which is more correctly known as *Moraea glaucopsis*. There were several vases of the remarkable flowers, the big, peacock blue blotches on their petals rendering them conspicuous subjects. *Sparaxis*, *Ixias* and *Sprekelia (Amarylifolia) formosissima* were also shown in this group.

Mr. G. REUTHE, Keston, Kent, had one of those delightful groups for which he is well known. The collection teemed with choice Alpine plants and shrubs. A particularly interesting novelty, though not in flower, was *Saxi-*

fraga Brunoniana, which, like *S. sarmentosa*, produces a wonderful number of runners. *S. Brunoniana* has runners of a reddish-crimson colour, and in bright sunlight these are most effective. It is a yellow-flowered species and quite hardy. *Cypripediums*, *Haberleas*, *Ourisia coccinea*, *Daphne Verlotii* with lovely heads of pink blooms, and *Ledum buxifolium* were also noted.

Messrs. J. CHEAL & SONS, Crawley, arranged a capital exhibit of rockwork planted with choice Alpines such as *Viola* species, *Primulas*, *Dianthus* in variety, masses of *Phloxes*, and *Edraianthus*.

Messrs. KELWAY & SONS, Langport, were the exhibitors of a group of tree and other Peonies and single and double-flowered *Pyrethrums* in variety.

Messrs. CARTER, PAGE & Co., London Wall, showed *Violas* in variety, and some pretty annuals.

Messrs. WM. ARTINDALE & Co., Sheffield, also showed *Violas*.

Mr. A. J. HARWOOD, St. Peter's Nursery, Colchester, had a group of hardy plants rich in *Primulas*, including *P. japonica* and *P. pulverulenta*.

Messrs. BAKERS, Wolverhampton, had one of the most delightful exhibits the show contained, the group being also of a most extensive character. There were *Sarracenias*, hardy *Cypripediums*, *Trilliums* and other plants in considerable numbers. *Ranunculias*, *Edraianthus*, and *Dianthus* were also remarked, though perhaps the hardy *Primulas* were responsible for the greater show. *P. Bulleyana* (of a rich golden colour), *P. pulverulenta*, and *P. lichiangensis* were prominent in the display; a superbly beautiful specimen, most probably raised from *P. pulverulenta* and *P. Cockburniana*, was labelled *P. Lissadel* hybrid.

Messrs. DOBBIE & Co., Edinburgh, had pretty groups of hybrid *Columbines* and *Violas*, each subject affording a wealth of colour.

Messrs. BACKHOUSE & SON, LTD., York, arranged one of their notable displays of rockwork, the ledge and crevice planting thereon being most cleverly done. In this way *Ranunculias* were displayed to great advantage, whilst a gentle slope was enshrouded with the Royal-purple bells of *Edraianthus serpyllifolius*. *Trilliums*, *Lady's Slipper Orchids*, *Primulas*, *Haberleas*, and other plants vied with each other in their attractiveness.

Mrs. LLOYD EDWARDS showed *Saxifragas* and *Aubrietias*. Mr. J. E. KNIGHT, Wolverhampton, had an exhibit of *Violas*. Messrs. J. FORBES, LTD., Hawick, showed *Pentstemons* and *Violas*. Dr. MACWATT, Morelands, Duns, N.B., put up a group of *Primulas* and *Auriculas*. Mr. J. BOX, Lindfield, Sussex, had Globe Flowers, *Eremuri* and *Primulas* in considerable variety. Messrs. R. GILL & SONS, Penryn, Falmouth, staged a rich exhibit of hardy *Rhododendrons*, together with *Tricuspidaria lanceolata*, and *Embothrium coccineum*.

One of the most extensive and meritorious exhibits in this section was staged by Mr. AMOS PERRY, Hardy Plant Farms, Enfield. A bank of hardy-flowering subjects glittered with choice examples. The colony of North American plants, rich in rarely-seen *Viola* species, *Sarracenias*, *Dodecatheons*, and *Galax*, was a most fascinating one. Hybrid *Regelia-cyclus* and other Irises were here seen in their quaint and imitable beauty. Poppies, Globe Flowers, Peonies and *Pyrethrums* added to the splendour of the collection, while Lilies and *Eremuri* gave a crowning touch to the wealth of flowers.

Mr. R. C. NOTCUTT, Woodbridge, showed varieties of *Trollius*, *Heuchera*, *Eremuri* and similar plants. Messrs. WHITELEGG and PAGE, Chislehurst, had a particularly good colony of *Primula Unique* among other hardy plants. Messrs. JACKMAN and SON, Woking, had a fine hardy-plant group, *Primulas*, *Heucheras* and hardy *Cypripediums* predominating. Messrs. G. BENVENUE & Co., Maidstone, displayed a group rich in Peonies, *Heuchera*, *Eremuri*, and hardy *Cypripediums*. A notable specimen of *Pentstemon Menziesii* attracted more than ordinary notice. Mr. MAURICE PRICHARD, Christchurch, staged choice hardy perennials, Cushion Irises and *Aquilegia Stuartii* especially attracting the eye. *Hyacinthus amethystinus* is a most dainty plant, and is only rarely seen at exhibitions. Messrs. G. & A. CLARK, LTD., Dover, had a fully representative group of hardy perennials, with Irises, *Primulas*, *Ranunculias* and *Saxifragas* on an adjoining piece of rockwork. Mr. B. S. LADHAMS,

Shirley, Southampton, displayed many hardy flowers. Mr. W. J. GODFREY, Exmouth, showed Poppies in variety. Globe Flowers, *Gentianella*, and *Anemone sulphurea* were conspicuous in a group put up by Messrs. J. COCKER & SON, Aberdeen. Messrs. GUNN & SONS, Olton, near Birmingham, had a massed bank of *Viola cornuta purpurea*. Mr. H. HEMSLEY, Crawley, staged an infinite variety of choice Alpines in conjunction with rockwork. A collection of *Violas* and *Violettas* from Mr. HOWARD H. CRANE, Highgate, N., was arranged in pans of sand, a pretty and natural way of exhibiting these flowers. Messrs. BARR & SONS, Covent Garden, had a particularly fine arrangement of Alpines on rockwork in the covered way between the tents.

Mr. A. J. A. BRUCE, Chorlton-cum-Hardy, Manchester, staged an interesting collection of *Sarracenias* and other insectivorous plants. The best of the *Sarracenias* were Sir Frank Crisp (a novelty), *Willmottæ flava gigantea*, *Dormeri* (rare), *Flambeau* (the richest of the red varieties), *Watsonii* and *reticulata*. *Drosera capensis*, *binata* and *rotundifolia*, *Dionaea muscipula* and *Darlingtonia californica* were also included. Mr. BRUCE also showed the Marguerite Blush Queen Alexandra.

AWARDS.

FIRST CLASS CERTIFICATE.

Davidia involucrata.—A hardy tree, introduced from China by Messrs. JAMES VEITCH & SONS. The species flowered in France in 1906, and in the Coombe Wood Nursery a week ago, this being the first occasion in Britain. The best spray exhibited at the Temple Show is illustrated in fig. 149.

AWARDS OF MERIT.

Habelea Ferdinandii Coburgii.—In habit of growth this may be likened to the better-known *H. rhodopensis*. As shown, however, the flowers are less large, and with rather more blue colour in their composition. An interesting addition to a valuable genus. Shown by Mr. J. REUTHE, Keston, Kent.

Lilium tenuifolium "Golden Gleam" (see fig. 155).—This very delicate-looking but extremely pretty Lily was shown by Messrs. WALLACE & Co. It is thought to be a derivative from *L. tenuifolium* and *L. Martagon*. In any case, it is a perennial plant.

Rhododendron Corona (see fig. 153).—This variety has carmine-pink flowers, with darker filaments, in an open, pyramidal truss. The flowers are not large, but they possess a fine texture. There is a suggestion of *Thomsonii* blood in the plant, but the exact parentage is unknown. The unique shade of colour gives the plant its chief value. Shown by Messrs. J. WATERER & SONS, Bagshot.

Rhododendron sinense "Duchess of Portland".—This is a very pretty variety of the plant known in gardens as *Azalea sinensis*. The shades of yellow, with very faint touches of red, make an attractive flower. Shown by Messrs. R. & G. CUTHBERT.

Rhododendron (Azalea) sublancoletum.—This Japanese species has clear pink flowers, 3 to 4 inches in diameter, produced in trusses generally of three flowers. The leaves are ovate-lanceolate, about 2 by 3/4 inches, firm textured, lasting two seasons. A beautiful greenhouse plant from Japan, but a little loose in habit. Shown by Mr. R. C. NOTCUTT, Woodbridge, Suffolk.

Rhododendron Loder's White.—The flowers are pure white, and even on young plants are almost as large as *Aucklandii*, whilst they are produced in a compact, broad truss. The foliage resembles *Aucklandii*. It is valuable as a hardy, late-flowering variety, which escapes the frosts. The suggested parentage was *Aucklandii* × *arborescens* album; but there was very little evidence of the latter species, and the plant is probably a chance seedling. The name is a little unfortunate, as Sir Edmund Loder knows nothing of the plant, and the name Loderi has been given to quite another type of hybrid. In Mr. Watson's recent book on *Rhododendrons* (Present-day Gardening Series), *R. Loderi* is described as a variety of *R. Manglesii*. Shown by Mr. G. REUTHE, Keston, Kent.

Rhododendron "Littleworth corallina" (see fig. 154).—The flowers are flesh-pink, sometimes

shaded with rose on the reverse, bell-shaped, rather long-stalked in a loose truss of 10 or fewer flowers, of magnificent waxy texture. Leaves ovate, flat, mucronate, of deep, glossy green. The influence of the species *R. campylocarpum* may be seen in this fine plant. The trusses exhibited were cut from a specimen about 20 feet high, which, in full bloom, was a remarkable sight. Shown by Miss MANGLES, Seale, Surrey.

Rhododendron (Azalea-Rhododendron) Glory of Littleworth.—Flowers creamy-white, richly blotched with orange. Azalea-like in form, with spreading segments, in a close truss of 15 or more flowers. Leaves lanceolate, short stalked, wrinkled, persisting two seasons. A very beautiful plant. Shown by Miss MANGLES, Seale, Surrey.

Rose Portia (see fig. 152).—This is a fine Hybrid Tea variety, white, with long buds and wide petals. Shown by Messrs. W. PAUL & SONS.

Rose Sylvia.—A Rambler Rose, of perpetual-blooming habit, with pure-white flowers, in clusters. As shown by Messrs. W. PAUL & SONS, the flowers exhibited much refinement.

Lewisia Cotyledon (see fig. 156).—This member of Portulacaceae is a charming alpine plant from the Siskiyou Mountains of Northern California, where it is said to be found growing on well-drained, rocky slopes with a southern exposure. It forms rosettes about 4 inches in diameter; the spatulate leaves are fleshy and about 1 inch across at the widest part. The flowers have 9 or 10 petals, and measure about 1½ inch in diameter, the petals being rose-coloured with a broad, white margin. The species flowered for the first time in this country in 1906, and an illustration appeared in *Gardeners' Chronicle*, May 30, 1906, fig. 156.

FRUIT.

The displays of fruit were limited to a group of fruit trees in pots and a collection of Strawberries. The fruit trees were staged by Messrs. T. RIVERS & SONS, Sawbridgeworth, and comprised some 40 trees. Specially noticeable was a seedling Nectarine, labelled No. 101, with fruits of a rich scarlet colour; there were numerous trees of this unnamed variety. Another Nectarine seedling No. 107, shown for the first time, has fruits of a rich flavour, and will be presented later at one of the Society's meetings for the opinion of the Fruit and Vegetable Committee. It is the result of crossing Dryden with Early Rivers, and is a much earlier-fruited variety than Cardinal. Of the other varieties of Nectarine the most important was Cardinal. Peaches were represented by well fruited trees of Kestrel and Peregrine. Trees of Early Rivers-Plums were heavily laden with fruit, and there were splendid examples of Cherries May Duke, Early Rivers, Elton, Frogmore Bigarneau, and Knight's Early Black.

Messrs. LAXTON BROS., Bedford, set up 26 baskets and dishes of Strawberries, and a number of plants bearing fruits. There were many pot plants and gathered fruits of the new variety George V., a seedling from Louis Gauthier and Royal Sovereign; the berries have very much the colour and shape of the latter parent. The fruit has good flavour and firm flesh, and the variety promises to be valuable for market. Other sorts in the exhibit included George Monro, Bedford Champion, Laxton's Main Crop, and an unnamed seedling.

VEGETABLES.

The most important display of vegetables was a superb collection, comprising some 80 dishes or monnds, exhibited by the Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett). The collection was one of the best ever set up in May by Mr. Beckett, and it covered 36 feet run of tabling. On a raised background were clusters of Late Standwell, Satisfactory, and Latest of All Broccoli; Harbinger, April, Favourite, and Flower of Spring Cabbages; Grove White, Sulham Prize, July, and Superb Pink Celeries; The Sutton Rhubarb; Giant Asparagus; 20th Century Mushrooms; Ornamental Beet; and various Lettuces and Vegetable Marrows. On the tables were Peas Duke of Albany, Centenary Marrowfat, Early Giant, and World's Record; French Beans Princess of Wales, Tender and True, and Canadian Wonder; Potatos Windsor

Castle, King Edward VII., May Queen, Sharpe's Victor, and Ringleader; Cauliflowers Early Forcing and Magnum Bonum; Vegetable Marrows Moore's Cream, Long Green, The Sutton White, Custard, and Pen-y-bid. Of Cucumbers there were handsome fruits of Al, Delicacy, Matchless, and Peerless. Tomatos were represented by Early Market, Perfection, Winter Beauty, Satisfaction, Red Dessert, Golden Nugget, and Yellow Perfection. In addition to these there were Carrots, Turnips, Beets, Mustard and Cress, and long, purple Aubergines.

A well-arranged collection of good vegetables was staged by the THATCHAM FARM SCHOOL OF GARDENING FOR WOMEN, near Newbury, Berkshire. The exhibit included some 50 dishes. The background was draped with Pea plants in pod, and on brackets were mounds of Boule de Neige Cauliflowers; Short Horn, Nantaise, and Early Frame Carrots; Early Paris and Blanche d'Ete Cabbage Lettuces; Grise or Paris White Cos Lettuce; Every Day, Satisfaction, and Telegraph Cucumbers; World's Record, Pioneer, and Improved William IV. Peas; Potatos, Tomatos, dwarf Beans, and numerous Radishes. This was the best exhibit of vegetables we have seen staged from any women's school of gardening.

Mr. T. E. DAWES, Syderstone, Norfolk, had numerous fine stems of Rhubarb Dawes's Challenger, both forced and from the open ground; also some deeply-coloured seedling Rhubarbs, including a variety named Crimson King.

Mr. R. STEVENSON, Burwell, Cambridge, showed two large bundles of very fine Asparagus.

Mr. A. J. HARWOOD, Colchester, also exhibited Asparagus; the stems were large, and not unlike the variety known as French Argental.

(For Awards made by the Council see p. xii.)

Our remarks upon the exhibits staged out-of-doors are unavoidably held over until the next issue.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

May 23.—The 72nd anniversary festival dinner of this Institution took place on the evening of the above date, in the Hall of the Grocers' Company, under the presidency of Sir Marcus Samuel, Bart., who was accompanied by Lady Samuel. There were also present Sir George Wyatt Truscott, Bart., Colonel Mark Lockwood, M.P., Bart., Sir Albert Rolitt, Sir Charles Wakefield, Sir Jeremiah Colman, Bart., Messrs. Harry J. Veitch, N. N. Sherwood, E. White, Walter Cobb, W. A. Bilney, H. Hicks, Jas. Hudson, W. Pompart, D. Ingamells, W. Iceton, S. M. Segar, J. Douglas, G. Paul, N. E. Barnes, A. Mackellar, F. J. Chittenden, J. McKechar, J. F. McLeod, George Bunyard, Ed. Sherwood, W. C. Modral, W. A. Metcalfe, O. Thomas, P. C. M. Veitch, A. J. Munro, J. Rochford, J. G. Veitch, W. Y. Baker, B. Wynne, G. H. Barr, W. Nutting, J. W. Barr, H. W. Nutting, P. R. Barr, C. R. Fielder, and A. Bedford. For the first time in the history of the Institution, the dinner was graced by the presence of ladies, who attended in considerable numbers.

The Royal toasts, briefly proposed by the Chairman, were received with the customary enthusiasm. In proposing "Continued prosperity to the Gardeners' Royal Benevolent Institution," Sir Marcus Samuel, alluding to the fact that ladies were present for the first time, said that he was sure that all the gentlemen present would much appreciate the innovation. They were thankful to the Grocers' Company for lending their splendid Hall for the gathering, and he particularly desired to express appreciation of the presence of Sir George Wyatt Truscott, Bart., and Miss Mary Truscott. Sir Marcus was sure that all present were familiar with the aims and objects of the Institution, and approved them. It was the only institution of its kind, and was, at present, extending assistance to 246 pensioners, of whom 140 were men and 106 women, all of whom were more or less dependent on the Institution for comfort in the evening of their lives. The annual cost of maintenance was £4,500, and the annual assured income amounted only to £1,000.

He urged those present to be generous in their donations to a cause which deserved all the sympathy and support they could afford. Sir Marcus most particularly hoped that we should be able to show our foreign guests who will visit us upon the occasion of the International Show next year that we fully studied the welfare of those who so admirably cater for us in our gardens. He concluded by expressing regret at the absence of many notable horticulturists who are most regular attendants at the dinners and stannch supporters of the Institution, and again appealed to those present to let their sympathy take practical form.

Mr. HARRY J. VEITCH, in responding to the toast, alluded to the fact that this was his 25th year as treasurer of the Institution. He welcomed the presence of the ladies, and he hoped that they would come again. He looked happily back on his 25 years of office, and said that his pen ran more easily and his heart beat more joyously on each occasion when the cheques for pensioners had to be signed. Mr. Veitch spoke enthusiastically of the splendid work of the committee, and generously referred to the untiring work of Mr. George J. Ingram, the Secretary of the Institution. He gave many interesting details of the inner working of the society, and pointed out that with such funds as the Victorian Era, and the Good Samaritan they were able to give most valuable help to those who were waiting for substantial and permanent assistance. Mr. Veitch thanked the provincial auxiliaries for the splendid work they were doing, and took the opportunity of the presence of the ladies to urge upon them to help by the formation of a "Ladies Auxiliary." Finally, the speaker thanked those who occasionally opened their gardens to the public, and presented to the Institution the sums collected at such times.

Sir Albert Kaye Rolitt proposed "the ladies and visitors," and whilst he kept his hearers delighted by his eloquence and wit, he made it clear that the aims and objects of the Gardeners' Royal Benevolent Institution had his real sympathy, and was entitled to the support of all lovers of gardening. Sir George Truscott, Bart., responded in a brief but charming manner. The toast of "Our Chairman" was admirably proposed by Mr. N. N. Sherwood, and responded to by Sir Marcus Samuel.

Mr. George J. Ingram, the secretary, announced that the evening's subscription list amounted to £2,400. Among individual donations were those now enumerated.

Sir Marcus Samuel, Bart. (Chairman), £10 5s; Messrs. Rothschild & Sons, £10 5s; Messrs. Sutton & Sons, £10 5s; Mr. Arthur W. Sutton, J.P., V.M.H. (annual subscription), £2 1s; Mr. Leonard Sutton (annual subscription), £2 1s; Mr. N. N. Sherwood, V.M.H., and his two sons, £15 5s; Messrs. James Veitch & Sons, Limited, £26 5s; Mr. Harry J. Veitch, V.M.H., £2 1s; Mrs. Harry J. Veitch, £20 10s; Mr. Edward White, £2 1s; Sir Charles Wakefield, £2 1s; Sir George Wyatt Truscott, Bart., £26 5s; Mr. Leopold Salomons, £2 1s; Mrs. Leopold Salomons, £3 3s; Sir Jeremiah Colman, Bart., J.P., £2 1s; Sir Edward Stern, £20; Messrs. W. Wood & Son, Limited, £5; Mr. A. Mackellar, V.M.H., £30; Mr. James Hudson, V.M.H., £2 1s; Mr. W. Mackay, £2 1s; Mr. J. McKechar, £2 1s; Mr. David W. Thomson, £2 1s; Mr. Anthony Waterer, £2 1s; Mr. C. R. Fielder, V.M.H., £2 1s; Mr. John Jennings, £2 1s; Messrs. Barr and Sons, £4 1s; Mr. J. W. Barr, £10 10s; Mr. George Bunyard, V.M.H., £13 15s; Mr. E. Lane, £4 1s; Mr. H. W. Nutting, £4 1s; Mr. Thos. Lamb, £4 1s; Mr. George Harrow, £4 1s; Mr. J. F. McLeod, £10 10s; Mr. G. H. Richards, £10 10s; Mr. A. W. Metcalfe, £10 10s; Mr. W. Thompson, £10 10s; The Gardeners' Company, £10 10s; Mr. Alfred Watkins, £10 10s; Mrs. Alfred Watkins, £15 15s; Mr. John Jaques, £10 10s; Mr. J. C. Eno, £10 10s; Mr. Robt. Sydenham, £10 10s; The Proprietors of *Country Life* and *The Garden*, £10 10s; Messrs. Corry and Co., £8 8s; Mr. John Heal, V.M.H., £7 7s; Messrs. Cutbush & Son, £7 7s; Thames Bank Iron Co., £7 7s; Mr. S. M. Segar, £5 5s; Mrs. S. M. Segar, £5 5s; Mr. W. Penrose Atkinson, £5 5s; Mr. W. C. Modral, £5 5s; Messrs. Charlesworth & Co., £5 5s; Mr. Walter Cobb, £7 7s; Mr. C. Allen, £5 5s; Mr. H. T. Pitt, £5 5s; Mr. H. G. Cove including five guineas from the Proprietors of the *Gardeners' Chronicle*, £10 10s; Mr. Donald McDermald, £5 5s; Mr. Geo. Woodward, £5 5s; Rt. Hon. Col. Mark Lockwood, £5 5s; Mrs. Baxendale, £5 5s; Messrs. Paul & Son, £7 7s; Mr. W. A. Bilney, J.P., £7 7s; Sir Albert K. Rolitt, LL.D., £5 5s; Mr. Herbert Hicks, £5 5s; Mr. W. T. Fremlin, £5 5s; Major Macdonald, £5 5s; Covent Garden Tables, per Mr. Joseph Rochford, £200 11s, including Mr. Joseph Rochford, £26 5s; Mr. James Sweet, £2 1s; Mr. F. Rochford, £10 10s; Messrs. Geo. Munro, Ltd., £10 10s; Mr. Geo. Munro, Junr., £26 5s; Mr. John Rochford, £15 15s; Mr. G. Beckwith, £5 5s; Mr. Alderson, £5 5s; Mr. J. P. Rochford, £5 5s; Mr. W. Pompart, £5 5s; Per Mr. D. Ingamells, £100, including Mr. D. Ingamells, £5 5s; Messrs. Butler Bros., £5 5s; Mr. O. H. C. H. C., £5 5s; Mr. Geo. M. S. R., £5 5s; Messrs. Anderson, £6 6s.

NATIONAL SWEET PEA.

MAY 18.—The regulations for the appointment of members of the Floral Committee and for the governing the proceedings of that body were again discussed at a general meeting of the Society held on Thursday the 18th inst. It will be within the memory of readers that considerable dissatisfaction upon the constitution of the Floral Committee was expressed at the annual meeting in December last; it was thought that steps should be taken to insure that the committee should be influenced at least as much by amateur as by trade members. Propositions were made in order to carry this view into effect, but little unanimity was obtained, and later, at a special general meeting, the members found themselves still unable to come to definite decisions. A sub-committee was then appointed to draw up a set of rules which should govern the constitution and action of the Committee. This sub-committee has met on several occasions, and after considerable labour, agreed to recommend to the general meeting certain rules intended to prevent anyone financially interested in novelties from adjudicating upon the same at the trials.

Number 2 of the proposed rules read as follows:—

"The Floral Committee of the National Sweet Pea Society shall consist of nine (9) members of the Society, irrespective of whether they be amateurs or traders. Anyone sending a novelty or novelties to the trials, or having any interest as raiser or distributor in any novelty or novelties sent, or who is in the employ of such raiser or distributor, shall not be eligible to serve on the Floral Committee while such novelties are under trial. Should a vacancy arise under this rule, the General Committee shall have power to fill such vacancy, and the substitute shall be eligible for election the following year."

A long discussion arose on this regulation, and eventually it was decided to delete all the words after the first clause, which terminates with the word traders; this decision was arrived at by almost a bare majority.

On the proposition of Mr. S. B. Dicks, rule number 8 was strengthened in order to obtain some of the benefit which was expected to result from rule number 2. One of the paragraphs in rule 8 will now read as follows:—The Trials Superintendent and the Secretary of the Society will then check over the voting cards, and if it is found that any member has voted for a variety in which he has a financial interest, the vote shall be struck out. The words inserted on the proposition of Mr. Dicks were those italicised. This decision was adopted by a large majority.

Another important decision was arrived at in regard to rule number 14, which read as follows:—

"It shall be within the power of the Floral Committee to 'commend' varieties for market purposes or garden decoration."

This rule was deleted, and the meeting refused to take into consideration varieties which were not of first-class value for exhibition purposes.

Rule 15 was made to read as follows:—The Floral Committee shall bracket varieties which it considers to be identical as growing at the trials; and the following new rule was adopted: "The Floral Committee shall prepare a list of too-much-alike varieties irrespective of whether they have been seen at the trials or not."

It was thought by some of the members, and we think very reasonably, that the latter rule would be sufficient. The Floral Committee can scarcely be in a position to determine whether varieties, which on superficial appearance appear to resemble each other very closely, are actually identical. To ask the committee to state whether they are identical or not appears to us unreasonable.

There were other minor alterations made to the 17 rules, and these were then adopted.

KEW GUILD.

MAY 24—A most successful meeting of the members of the Kew Guild, under the presidency of Mr. R. Hooper Pearson, took place on Wednesday last at the Tavistock Hotel, Covent Garden, the occasion being the annual meeting and dinner. We shall refer to the proceedings in our next issue.

ANSWERS TO CORRESPONDENTS.

ALPINE FLOWERS: *A. L.* The usual price for unmounted herbarium specimens is 20s. a hundred. Mounted specimens ought to realise 30s. a hundred, but the price can never be depended upon.

AMETHYSTEAE: *W. K.* Amethystea is a genus belonging to the Labiatae, the only species being *A. cœrulea*. The plants known in gardens as *A. corymbosa* and *A. trifida* are synonymous with *A. cœrulea*. Amethystea has also been called Amethystina. The plant is a native of Siberia, and grows from 1 to 2 feet high, producing blue flowers in leafy corymbs. The whole plant is very fragrant, and it is hardy in this country.

APPLE SHOOT INFESTED WITH A SMALL RED MITE: *Samuel Searle*. This mite is closely allied to, if not the same as, the one which is a recognised pest on Gooseberry bushes, viz., *Bryobia nobilis*. The mites collect in dull weather in early spring in crevices on the wood, but as soon as the young leaves show and the weather becomes warm, they emerge and feed on the under-surface of the foliage. The only treatment possible at this season is to paint the main branches with liver of sulphur as soon as the fruit has set. In winter, spray the trees with paraffin emulsion.

ASSOCIATE OF THE ROYAL HORTICULTURAL SOCIETY: *Constant Reader*. Professional gardeners, also employes in private and market gardens or seed establishments are eligible to become associates of the R.H.S., but they must be recommended for election by two Fellows of the Society and pay an annual subscription of 10s. 6d. Associates are entitled to one non-transferable pass to the Society's shows and meetings.

BROMPTON STOCK: *J. H. W.* The flower-spike is large, but not exceptionally so.

CARNATIONS DISEASED: *J. B.* The injury is caused by the fungus *Heterosporium echinulatum*. Remove the diseased leaves, and spray or immerse the plants in a rose-red solution of permanganate of potash. Admit plenty of fresh air to the house in which the plants are growing and keep the foliage dry.

FIGS DECAYING: *J. S.* The injury has been caused by *Botrytis cinerea*, which grows first on a syrupy exudation from the end of the fruit. The trouble is induced by over-feeding and excess of water at the roots.

NAMES OF PLANTS: *W. E. P.* 1, *Cytisus Andreamis*; 2, *C. praeox alba*; 3, *Leberis vulgaris*; 4, *Syringa vulgaris*, probably Louis Spath variety; 5, *Lonicera Halleana*; 6, *Spirea media*.—*J. J. H.* 1, *Pyrus Malus floribunda*; 2, *Pyrus Aucuparia* (Mountain Ash); 3, *Cerasus sinensis* fl. pl. (Flowering Cherry); 4, *Prunus Padus* (Bird Cherry); 5, *Crataegus Crus-galli*; 6, *Spartanum africana*; 7, *Eupatorium Weinmannianum*.—*J. S. Bulston*. 1, *Gaultheria Shallon*; 2, *Ceanothus azureus*; 3, *Vaccinium vitis-Idaea*; 4, *Phlox Stellaria* var. *filicina*; 5, *Vinca minor*; 6, *Trollius europaeus*; 7, *Genista hispanica*.—*W. E.* *Cardamine pratensis* fl. pl. —*H. W. J.* 1, *Lithospermum purpureo-corneolum*; 2, *Cytisus Ardoinii*; 3, *Aubrieta*, too faded to recognise; 4, *Narcissus* "Queen of Spain"; 5, *Scilla hispanica alba*; 6, 7, and 8, garden varieties of *Aubrieta*, too faded to recognise; 9, *Scilla hispanica rubra*; 10, *Berberis vulgaris foliis purpureis*.—*W. L. Mouth*. 1, *Phillyrea decora* (often called *P. Vilmoriniana* in gardens); 2, *Erica mediterranea*; 3, *Crataegus punctata*.—*Rev. T. J. H.* Yes, *Viburnum Lantana*, certainly not *V. Charlesii*. The former species was probably used as a stock for grafting.—*F. J. W.* One of the arboreum hybrids of *Rhododendron*; not, we imagine, even regarded as worth naming.—*W. B.* *Cytisus monspessulanus*; it has nothing to do with *C. Andreamis*.—*Malus*, *Pyrus Malus floribunda*.—*Henry Corder*. *Egidia auriculata*—Jew's ear fungus.—*F. W. J.* 1, *Arnebia echioides*; 2, *Potentilla variabilis*; 3, *Geum coccineum*; 4, *Anchusa italica*; 5, *Piptanthus nepalensis*; 6, *Ranunculus bulbosus* fl. pl.; 7, *Lupinus polyphyllus*.—*J. L. Berwick*. 1 *Dendrobium moschatum*; 2, *Exochorda grandiflora*; 3, *Fraxinus ornus*.—*C. E. N.* *Convallaria majalis* the rose-tinted variety is not uncommon.—*Tannicliffe*. 1, *Dendrobium Pierardii*; 2, *Cymbidium pendulum*.

ORANGE: *J. J.* The Orange you describe is the variety known as the Otahite, and is largely cultivated on the Continent for its ornamental fruits, which are produced in large numbers on small plants. The plants should be placed in a house having a temperature of 65° to 70° about the middle of April, and syringed freely on bright days. Exposure to full sunshine has the effect of keeping the shoots dwarf and compact. As soon as the flowers open the atmosphere should be kept drier, and syringing withheld until they are over, dusting the blooms each day with a camel-hair brush. As soon as the fruit begins to swell, syringe the plants again freely, and, if at all pot bound, feed them liberally with some concentrated manure, giving also an occasional watering of soapsuds from the family washing. Guard against green and black aphid on the young growths, also mealy bug on the fruit, as the latter pest quickly destroys their decorative value. After the fruits have commenced to colour, remove the plants to a cool, airy greenhouse, where they may remain until the following spring.

PEACH TREES GUMMING AND CASTING THEIR FRUIT-BUDS: *J. B.* Gumming of the young branches of Peach trees, while the main branches are normal, and the casting of fruit-buds are indications of unripe growths. Possibly, too, there is a deficiency of lime or phosphates in the soil. Apply half a bushel of newly-slaked lime, 7 lbs. of superphosphate, and 7 lbs. of steamed bone flour to each rod of ground. Stop all the shoots early in the autumn, and do not allow leaves to be formed where the sun's rays cannot reach them. The Plum which is employed as a stock for the Peach prefers a moderately heavy soil, light, rich or loose ground being unamiable. The roots of the Plum start growing before there is any sign of growth in the buds, and Peach trees growing under glass must never be allowed to become quite dry during the winter months.

PEACHES: *A. Dix*. Peach mildew is present on the fruits. Spray the trees at intervals of four days with a solution of liver of sulphur at a strength of 1 ounce in 5 gallons of water. Spray also next spring, when the leaves are unfolding.

SCUM ON PONDS. Bordeaux Mixture sprayed on to the surface of the pond will destroy green scum, repeating the operation after several weeks if necessary. Use the mixture at about half the usual strength to commence with, so that the aquatic plants will not be injured. The operation, if carried out carefully, will not harm any fish which may be present in the water.

SWEET PEAS: *L. E. Walker*. The Sweet Peas which you state came from South Africa, are probably the well-known Telemly strain, which was distributed by the Rev. Edwyn Arkwright, Telemly, Algiers. It would be interesting to know if a strain exists in South Africa differing from that obtained by the Rev. Edwyn Arkwright.

SWEET PEAS DAMAGED: *T. S.* The markings on the leaves are in some way caused by the weather, and are not due to fungi or insects.

TULIPS WITH SPOTS: *C. G. A. N.* There is no disease present. The spotting is due to some external agency, most probably adverse weather conditions.

VINE SHOOTS DYING: *C. R. L.* The tips of the vine shoots are infested with *Botrytis*, a fungus that can only thrive when an excess of moisture is present in the air. Spray the vine with a solution of liver of sulphur, and admit plenty of fresh air to the vinery, opening the ventilators early in the day.

VINE AND PELARGONIUM LEAVES DISFIGURED: *Mu cat*. The injury in both cases has been caused by aphides. Fumigate the houses in which the plants are growing with some nicotine preparation.

Communications Received.—*J. F. N.*, *Hants*—*A. B. R.*, *H. R. D.*, *J. L.*, *Shrewsbury*—*J. P.*, *Kildare*—*W. C.*, *J. H. K.*, *W.*, & *S.*, *A. H.*, *Miss M.*, *M. C.*, *C. H. P.*, *W. A. B.*, *Constant Reader*, *W. H. R.*, *F. T. B.*, *Hortus*—*S. C. J.*, *C.*, *Morpeth*—*H. G.*, *A.*, *P. B.*, *R. S.*, *W. E.*, *A. J.*, *W. F.*, *D. M.*, *W. T. R.*, *A. H. A.*, *T. S.*, *T. A. C.*, *C. P. R.*, *Kew*, *M. L. B.*, *C. H. H.*, *H. C.*, *F. E. S.* & *Co.*—*J. C. W.*, & *Son*—*C. F.*—*W. Mc.M.*

THE
Gardeners' Chronicle

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CONTENTS.

Alpine garden, the—	343	Ochna multiflora ..	343
A mozarine garden ...	343	Orphan Fund, Royal	350
New hybrids of Saxi-		Gardeners' ..	350
fraga ..	343	Primulas of the	344
Saxifraga levis ..	343	European Alps, the ..	344
Books, notices of—		Rhododendron irrorat-	350
The Genus Castilleja	344	um ..	350
The Modern Culture		Rhododendron sub-	342
of Sweet Peas ..	344	lanceolatum ..	342
Publications received	351	Rhododendrons, an ex-	352
Bulb garden, the—		hibition of ..	352
Narcissus Jonquilla ..	347	Rosary, the—	
Carbon bisulphide, the		Cultural notes for	
use of ..	351	June ..	342
Ceylon Botanic Garden		Rose canker ..	343
Coronation trees ..	354	Scotland, note from ..	354
Cyder industry, the ..	354	Sedum pilosum ..	347
Drought in North Wales	353	Societies—	
Dutton Memorial Chair		Bath and West and	358
of Entomology ..	351	Southern Counties	358
Fernery, the ..		British Gardeners'	358
British Fern collec-		Association ..	358
tion, a buried ..	346	Kew Guild ..	356
Flower shows, tents at		Manchester & North	358
Gardeners at cricket ..	351	of England Orchid ..	358
Kalanchoe flammea ..	343	National Tulip ..	358
Lathyrus pubescens ..	353	Royal Horticultural	350, 355
Law note ..		Royal Photographic ..	357
Gooseberry bushes,		Spraying demonstra-	
sale of ..	359	tions in Cambridge-	
Lithospermum and lime	353	shire ..	350
Market fruit garden,		Trees and shrubs—	
the ..	341	Hymenanthra cras-	
Moravia, reminiscences		sifolia ..	351
of gardening in ..	346	Vines, forcing ..	353
Moth-trapping flowers	351	Vine mystery, a ..	353
Natural History		Week's work, the—	
Museum, the ..	350	Apiary, the ..	349
New inventions—		Flower garden, the ..	349
Lead "ribbon" ..	360	Fruits under glass ..	349
New coat-of-flower		Hardy fruit garden ..	348
holder ..	360	Kitchen garden, the ..	348
Obituary—		Orchid houses, the ..	348
Bolus, Dr. Harry ..	358	Plants under glass ..	349
MacMahon, Philip ..	358		

ILLUSTRATIONS.

Flowering plants exhibited at the Temple Show by Messrs. Sutton & Sons, 346; by Messrs. Webb & Sons	357
Japanese garden exhibited at the Temple Show by Messrs. J. Carter & Co.	355
Rhododendron irroratum (Supplementary Illustration)	352
Rhododendron sublanccolatum ..	342
Rhododendrons, Messrs. Waterers' exhibition of, at R. H. S. Hall ..	352
Rock-garden exhibited at the Temple Show by Messrs. Cutbush & Son, 356; by Messrs. Pulham & Son ..	354
Rose Sylvia ..	344
Sedum pilosum ..	347

THE MARKET FRUIT GARDEN.
A SPLENDID MAY.

IT is many years since we enjoyed a May so nearly uniform in seasonable warmth and sunshine as that of the present year; the equal of which, indeed, in these respects, I cannot remember. There was a cold snap at the end of the third week, but it lasted only three days, and was an exceptionally slight example of the proverbial fickleness of May. The only drawback to the weather was the lack of rain; but even this had its compensation in the facilities which drought and hot sunshine afforded for the destruction of weeds. My young plantations have been cultivated three times in two directions, hand-hoeing having been done around each tree and bush twice, and there is hardly a weed to be seen in them. The warm and sunny weather, too, was propitious to the speedy expansion of blossom and development of leaf, thus allowing both to grow away from their insect enemies. But it also developed the aphides, which showed in their winged form about a month earlier than usual. In the case of a variety which leaves Apples or Plums for some other plant when it becomes winged, this may be an advantage, but not when the pests simply spread over their native plantation. Still, I have

heard a Hop grower express satisfaction at a hot drought as likely to reduce aphids attack.

THE SETTING OF FRUIT.

Judging from my own observations, the Plum crop is not to be by any means the enormous one indicated by the profuse blossoming. Rivers's Early Prolific, particularly, has set only a very small proportion of its extremely abundant blossom. Or, at least, only a very small proportion is swelling, and I expect to see the tiny Plums drop off. Monarch, in my case, did not blossom abundantly, but has set well what it had. The ever-faithful Victoria promises a great crop; while Czar and Gisborne's have set their blossoms well, and Pond's Seedling fairly well. The crop, in my mature plantation, however, will be greatly reduced by a bad infestation of the aphids on all varieties but Victoria and Monarch, and the worst attack of brown rot that I have ever seen. Many growers attribute the dying of clusters of blossom on Plums and Apples to frost, when the cause is brown rot. No frost occurred here when either Plums or Apples were in blossom. Besides, the effect of brown rot is to be seen in the deadness of the spurs, and, in my case, the Board of Agriculture has confirmed my conclusion as to the cause of the damage. The destructive fungous disease has done great injury to some varieties of Apples, and particularly to Beauty of Bath. Both aphids attack and brown rot are reported to be extensive in fruit districts generally throughout the country, seriously affecting prospects of yield in relation to both Plums and Apples, but particularly the former. Gooseberries are a short crop in many districts, whilst drought has affected, to some considerable extent, the setting of Black Currants. Strawberries are profuse in blossom, but needed rain before May came to an end.

RESULTS OF SPRAYING.

The spraying of the only two varieties of Plums in my orchards which showed any aphides before the blossom opened, beyond a trace or two here and there, seemed at first to have almost entirely cleared off the pest. However, the attack upon them became as bad as on the varieties that were not sprayed, and after the blossom fell the leaves were curled so badly that spraying would have been little better than waste of labour and money. Among Apples the work was much more successful. There has been no bad attack of the Apple sucker in my orchards this season, the comparative immunity being due, I believe, to spraying with lime and sulphur having been done just before the buds showed signs of bursting in each of the last two seasons. The attack of aphids, on the other hand, was both profuse and persistent. The varieties most infested had to be sprayed twice before the blossom expanded and once afterwards. For the majority of varieties, however, once was sufficient to destroy nearly all aphides and suckers, and the trees at the time of writing are, on the whole, more free from pests than they have been in any previous season. It is most important in spraying against Apple suckers and aphides to perform the operation when the blossom buds are well

divided and on the point of opening, as it is only then that the spray can be got between the buds properly, so as to wet the pests. The attack of leaf-eating caterpillars with me was not nearly so bad as it has been in some seasons. Arsenate of lead was added to the quassia and soft soap for spraying just before the blossom opened, and the young foliage, although not much expanded, was thus poisoned. This appears to have been effectual; for, although the foliage which expanded first shows signs of having been preyed upon to some extent, there are hardly any live caterpillars to be found on it now. Shaking branches violently is a good test of the presence or absence of these pests, as where there is any considerable number of them some are certain to fall to the ground.

AN UNKNOWN PEST.

For the third season I have sent to a well-known entomologist specimens of an olive-green aphid, nearly black as it appears to the naked eye, which infests my Boskoop Black Currants. It feeds on the stems just under the terminals of branches, causing the top leaves to curve over in umbrella fashion. It does not attack the leaves as a rule, but its action deforms the bushes and prevents continuous growth. The report has been, and still is, that this aphid is not known in England. Probably, as Boskoop is a Dutch Currant, the pest was introduced to this country on bushes from Holland. It would be interesting to learn if any readers have found it on their bushes. The ordinary green, Black Currant aphid does not infest my plants of Boskoop Giant as a rule, while a new variety, Goddard's Monarch, which I am raising, has the common aphid but not the unnamed one. By the way, there are a good many winter moth caterpillars on Black Currant bushes under Apple trees. This pest seems to be remarkably catholic in its choice of food.

DELUSIVE RECOMMENDATIONS.

My own experience almost induces me to advise planters of fruit not to trust to the recommendations of nurserymen or other growers. By this I do not mean that their recommendations are not made in good faith. What is meant is that varieties which succeed in one soil often fail to do well in another; also that the habits of growth and saleableness of produce are often not sufficiently considered. Therefore, it is advisable to see any variety and obtain knowledge of its habit of growth and its performances generally before planting it at all extensively. Before beginning to plant I was visiting a well-known Middlesex grower, and admiring his somewhat young plantations. He grew a great many varieties of Apples, and on being asked which paid him best, he said, without hesitation, Duchess of Oldenburg. This induced me to plant the variety somewhat extensively, and now I wish I had not a tree of it, as the fruit is not big enough for a culinary Apple, and the flavour is not choice enough for dessert, though its beauty may help its sale, particularly on street barrows. The grower in question must have made dessert prices from his Apples, or he could not have found the variety the most profitable one out of the many that he grew. In an ther

case a nurseryman strongly advised me to plant Norfolk Beauty, and, without ever having seen it in growth, I was foolish enough to adopt his advice. This is now regretted, as the slender growths thickly covered with bunchy spurs indicate the variety as a feeble grower, at least in my soil.

PLANT ONLY YOUNG TREES.

Possibly the bad doing of Norfolk Beauty may be attributable in part to the trees being at least three years old when they were taken out of their nursery beds. No trees over two years old have done as well with me as those of that age, and I would rather plant maidens than trees three or four years old. This is not so much on account of age as in consequence of the harm done to the trees by being left too long in a more or less crowded position, and often unpruned and otherwise neglected. The Norfolk Beauty trees sent to me had obviously been smothered with aphides, and probably had not been sprayed, as the branches of many of them were quite black from the exudations of the insects. Many must also have been covered with aphid eggs, as the young trees were smothered with aphides in the first season of growth after being transplanted. *Southern Grower.*

RHODODENDRON SUBLANCEOLATUM.

Those who prefer to retain the name Azalea for the indica section of Rhododendron must call this an Azalea also, as it is a very near ally of the greenhouse Azaleas, so near indeed that competent judges who saw Mr. Notcutt's plant at the Temple Show considered it was one. The Floral Committee granted an Award of Merit to the species, no doubt owing to the size, about 4 inches across, of the rosy-red flowers. The leaves vary in size and shape, and the habit of the plant is somewhat coarse. *R. sublanceolatum* Miguel (1865) is supposed to be a native of China, being cultivated in Japan under the name of Chinese Azalea, the native name for it being Linkiu Tsutsudzi. Plants cultivated at Kew in the open did not grow happily.

THE ROSARY.

CULTURAL NOTES FOR JUNE.

THERE is always much work that needs to be done in the Rose garden during May. The frosts mentioned in my last article proved very harmful, and especially in the case of standard Briars that were budded last summer, as the majority of the buds had already started into growth. Where the bud has turned black, it will, perhaps, be better to allow one or two shoots that will now be breaking out from the stem to develop. These may be treated in the same manner as the stocks that were planted last autumn to be worked this season. The stocks having been established for two seasons, may be budded early, and if the same varieties are again worked, the loss may, to a great extent, be repaired.

"Shoulders" upon Briars that were not sufficiently strong for budding last summer may be shortened to 9 or 12 inches; the eyes should be removed close to the stem, and the buds inserted in the ordinary manner. Such shoots will have a riper bark, be furnished with plenty of sap much earlier than those that develop this season, and may be worked during the present month, employing buds from plants growing under glass, as these are always well matured, and much to be preferred for the purpose to those from wall Roses in the open. It not infrequently happens that the material used for tying the bud remains intact for a year, causing a constriction in the swelling shoot. The ties should be severed at once.

A destructive insect is found just now upon standard Roses: it is a small, scarlet-red bug

that eats around the bud as it is swelling. Many losses amongst Roses can be traced to this pest. The bugs should be sought for, and killed, either between the finger and thumb, or with a small brush dipped in a lather of Gishurstine, the latter plan being the more effective.

Standard Roses will be developing a large number of suckers, and these must be removed. Stocks for standards planted last autumn should have all but the strongest and most suitably-placed shoots removed, leaving, if possible, those that are opposite to each other to form a well-balanced head. This thinning will prevent crowding as the growths develop. When the

much to be preferred. If the stake is tied to the stem, the whole plant will be kept rigid, and injury from wind prevented.

Dormant "eyes" on dwarf maiden Roses will now be pushing from below the inserted bud. All such growths, as well as suckers, should be removed as soon as possible, as the operation is easier and more effectively done whilst the shoots are soft.

Maggots and caterpillars should be picked off by hand, as washing does not destroy all of them. It is a good plan to syringe the plants with some specific against mildew, whether this disease is present or not. Some growers believe



FIG. 157.—RHODODENDRON SUBLANCEOLATUM; FLOWERS PINK.
Exhibited at the Temple Show by Mr. R. C. Notcutt. (Award of Merit.)

shoots have grown 15 to 18 inches long, they should be stopped by pinching out their points. This will cause the growths to have a stouter girth near the main stem, there will be no long shoots in the way during budding, and the sap will be in a suitable condition for a longer period than when the shoots are allowed to grow at will.

The tops of maiden standards need securing, or wind and rain may do them much damage. The usual plan is to tie a light, strong stick to the stem, and secure the young Rose growth to this; but a long stake driven into the ground is

that if this is persisted in the plants will be free from mildew throughout the season, however unfavourable the weather may be.

Continue to afford small dressings of artificial manure to established Roses; the best time to apply them is just before a shower. A constant moving of the surface soil with the hoe is very beneficial to Roses, and helps to destroy insects as well as seedling weeds.

The majority of Roses will be showing their flower-buds by the end of this month; if extra fine blooms are desired, the small buds around the main or central one should be removed early.

If a beetle or maggot has damaged the flower-bud, cut the shoot back about one-third of its length to secure fresh shoots for flowering.

ROSES UNDER GLASS.

BESIDES the usual routine work, such as keeping the foliage clear of insect pests, the plants that have passed out of flower will need attention. Almost all climbing Roses under glass have finished blooming, and upon their present treatment depends the success or failure of the flowering next season. Cut out as many as possible of the growths that have flowered, thus throwing the energies of the plant into the young shoots that are developing from the base. Liquid manure should be applied freely. If these young growths are developed early and exposed to as much fresh air as possible, they will ripen well, and give a good display of blooms during the following season.

Climbers in pots, when they have made sufficient growth, may be stood in the open, but it is not well to place them out-of-doors too soon. Other pot Roses will be much better if kept under glass until July. Too frequently the plants are stood out-of-doors much sooner than they should be, the consequence being they are subject to chills at night, and serious attacks of mildew follow. Afford larger pots to young plants as the roots require increased room; never allow Roses in small pots to have their roots cramped and curled in a mass, from which condition they seldom recover satisfactorily.

Some excellent shoots for forming cuttings may now be had from plants under glass. Select those that are three parts matured, and only remove the lower leaf or leaves. They should be inserted in loam mixed with sand, and the frame should be kept close until the cuttings are rooted.

Cuttings from the open never give such good results as those from under glass. Stir the surface soil of pot plants frequently, but never deep enough to disturb the roots. The plants will be benefited by being turned round occasionally to expose the shoots equally to the light. *Practice.*

ROSE CANCKER.

THE interesting note by *White Rose*, on page 295, upon what many Rose growers considered to be a new and virulent form of canker, is deserving of every attention. The disease has been very bad in this district, and I have frequently had specimens sent me with a request for a suitable treatment. Like *White Rose*, I was, for some time, inclined to put it down to injury by frost; but it appeared later upon Roses grown under glass. The complaint is not confined to Roses of the Wichuraiana type, although my worst cases were upon plants of *Wichuraiana alba* and *Lady Gay*. It has appeared here upon Hybrid Perpetuals also, as well as on other classes of Roses mentioned by *White Rose*.

I consider it one of the most serious diseases of Roses, and the most difficult to combat. We cut off as much as possible of the affected wood without sacrificing too much bloom, and painted the remainder over with fresh cow manure, which I have found a decided help in checking ordinary canker, and I certainly think it helped in this instance.

I cannot too strongly recommend the practice of burning all Rose clippings and not allowing them to lie on the ground longer than can be helped. The advice given by *White Rose* to use Cyllin with the tar is admirable, and I shall certainly try the effect. I was not aware that the disease was contagious, but, upon reflection, I recall that it spread over a large bed of five-year-old plants of *Lady Gay* in a short time. My impression was that they had all been damaged by frost. I hope other Rose growers will give the results of any experiments they may make in combatting this disease, for it is undoubtedly a dangerous one, and should not be allowed to become widely established. *A. P., Uckfield, Sussex.*

THE ALPINE GARDEN.

SAXIFRAGA LEVIS.

THIS is one of the few Saxifragas found in the Caucasus. *S. levis* grows at an elevation of 7,000 feet, and flowers amidst the melting snow. Plants were sent to Kew in 1910 by Mr. F. N. Meyer, the American Consul at Batoum, along with *S. cartilaginea* and *S. juniperifolia*, all having been collected near Gaden. In Engler's monograph of the genus, *S. levis* is placed in the section "Kabchia," close to *S. luteoviridis* and *S. Kotschyi*, but the present plant evidently belongs to the section "Trachyphyllum," and is closely allied to *S. aizoides*. The mistake arose through two distinct plants having the name *S. levis* applied to them. The one belonging to the former group has since been named *S. caucasica*, while the name *S. levis* has been retained for the present plant. It is of spreading habit like *S. aizoides*, with loose rosettes of narrow elliptic-ovate leaves. The stems are about 2 inches high, tinged with crimson on the lower part, and they bear from four to six rich yellow flowers, which are not large and do not last long. The plants succeed best in a moist position.

NEW SAXIFRAGA HYBRIDS.

SAXIFRAGA × HAAGI.—This is one of several hybrids distributed by Mr. F. Sundermann, Bavaria, in 1909. It was raised by him, and is the result of crossing *S. sancta* with *S. Ferdinandi Coburgi*. Although the influence of the former parent is seen in the green foliage, it resembles the latter in most other respects. It is very compact in habit, with flower stems 2 to 3 inches high, clothed with bracts and tinged with red-brown. The stems and bracts are covered with glandular hairs, while four or five golden-yellow flowers are borne on each stem. *S. Haagii* is a useful addition to an already numerous family of rock plants. It resembles *S. sancta* in its freedom of growth, and is very free flowering.

S. × PUNGENS.—This was received from the same place and at the same time as *S. Haagii*. It is the result of crossing *S. Rocheliana* with *S. juniperifolia*. In general appearance it resembles the latter parent with rather smaller rosettes of sharp-pointed leaves. It is, however, more compact in habit, showing the influence of *S. Rocheliana*. The stems are from 1 to 2 inches high, glandular hairy, and tinged with red-brown, and bear several deep golden-yellow flowers. There is not much evidence of *S. Rocheliana* except in its compact rosettes and good-sized flowers. *W. J.*

A MORaine GARDEN.

I AM pleased to see that Mr. Dixon (p. 162) has formed a moraine garden, but am afraid that his plants will grow excessively strong since he has supplied them with too much food. He states that he has applied 6 inches of leaf-mould, 6 inches of loam, and 4 inches of broken granite, or what we call, I expect, granite grit. Now, a natural moraine is composed of the *debris* which collects at the foot of a glacier, and is therefore the washings from the hills and mountains of loose material, but very little vegetable substance, although it is enough for the welfare of the plants, which grow, presumably, from seed and small pieces, which are washed down in heavy storms. At Leonardslee, we have made and planted a good portion of the Alpine garden after the moraine style, and, if this is successful, more will be done another season. Our mode of operation was first to dig out all old soil and small stones (leaving the large boulders) to a depth of 18 inches. Then a first layer was made of 6 inches of coarse sandstone, just as it is broken, and one cartload of leaves to 12 loads of sandstone; for the remaining 4 inches, we used screened sandstone and granite grit and leaf-mould, one part in six, after which the surface

stones were worked in. For peat-loving plants, for the top course we use one part peat, four parts sand, and one part crushed granite or granite sand. The paths have also been taken out so as to make sure that no weeds are left.

When planting, seedlings should be used as far as practicable, so that the main roots will be able to penetrate down amongst the stones for moisture. When too much vegetable mould or soil has been used, Alpine plants are apt to grow too gross, and out of character, and the more gross-growing plants encroach on the weaker. *W. A. C., Leonardslee Gardens, Sussex.*

PLANT NOTES.

OCHNA MULTIFLORA.

AMONG the more uncommon plants shown at the meeting of the Royal Horticultural Society on April 25 was a group of the singular, yet highly ornamental *Ochna multiflora*. The species has been known to botanists for a long time, but attention was first directed to it as an ornamental plant for cultivation by the late Mr. B. S. Williams, of Holloway, who showed specimens on June 10, 1879, which were granted a First-class Certificate by the Floral Committee of the Royal Horticultural Society. Though but a shrub in stature it has a tree-like habit of growth, forming an erect stem well furnished with side branches, which are developed in an almost horizontal position. The leaves are narrowly elliptical, serrated, and somewhat wavyed. The flowers, each about 1 inch across, are bright yellow in colour, with a crowd of reddish filaments in the centre. Regarded as a flowering subject alone, this *Ochna* is, when in full bloom, very ornamental, although the blossoms are short lived. But it is after the flowers fade that the plant assumes its most attractive aspect. As soon as the bright yellow petals drop, the ovary and sepals enlarge, and the latter become reddish-scarlet in colour. The fruits are at first green, gradually changing to purple, ultimately becoming almost black.

Ochna multiflora is a native of the Sierra Leone region, hence the temperature of a stove, or at least of an intermediate house, is necessary for its successful culture. In looking at examples of this *Ochna* laden with fruit, one is reminded of the common *Enonymus*. The genus *Ochna* gives its name to the order Ochnaceæ, the best known of its allies being the *Gompheas*, a tropical genus of trees and shrubs. One species—*Gompheas decorans*, or *oliveformis* as it is sometimes known—may be occasionally met with in gardens. *W.*

KALANCHOE FLAMMEA.

KALANCHOE FLAMMEA may be propagated from either cuttings or seeds. As a close, moist atmosphere, such as usually obtains in a propagating frame or pit, is not suited to *Kalanchoes*, the cuttings should be placed upon a shelf to root, in a house having a night temperature of about 60°. As soon as the plants are established in 2-inch pots, they should be grown in an intermediate temperature, and allowed a free circulation of air at all times; but the atmosphere should not be excessively dry. During periods of bright weather, the plants should be shaded at the hottest part of the day. One of the essentials to the successful cultivation of *Kalanchoes* is a free, porous compost, and ample drainage. A mixture of about two parts loam to one part mortar rubble and one part leaf-soil, with a liberal addition of sand, will form a suitable rooting medium. Unlike most succulent species, the *Kalanchoe* is a free-rooting subject, and may be afforded a fairly liberal supply of water. Old specimens may be retained to furnish a supply of cuttings. *D. Wilmshurst.*

NOTICES OF BOOKS.

THE GENUS CASTILLOA.

THE seventh part of the thirteenth volume of the *Contributions from the United National Herbarium* consists of a version of the species of the genus *Castilleja*, or *Castilla*, as the author, Mr. Henry Pittier, prefers to call it. This paper, which is almost exclusively devoted to classification, is a valuable supplement to Mr. O. F. Cook's contributions on "The Culture of the Central American Rubber Tree," which appeared in 1903. The work of both writers is largely based on observations made in the field, and the present instalment is copiously illustrated. In an historical sketch of the genus, the author gives his reason for adopting the spelling *Castilla*, which is moreover the form adopted by Cervantes, who founded the genus. Without entering into particulars, it may be conceded that Mr. Pittier is quite justified in restoring the original form, which Mr. Cook had previously suggested. The genus was dedicated by Cervantes to his friend, Juan del Castillo, an explorer and investigator in economic botany, and the alteration in the name was made in our English translation of *Facts Relative to Botany*, which appeared in 1805. Mr. Pittier recognises and describes 10 species, several of them having been previously proposed and less fully described by Cook. They are very closely allied, and the number may, as suggested by Mr. Colville in the preface, be susceptible of reduction or increase with fuller material; but Mr. Pittier is a very accurate and critical observer, and his work is deserving of the greatest respect. Both he and Mr. Cook regard *C. Tenui-Hemslayi*, in Hooker's *Icones Plantarum*, t. 2651, as a mixture of two, or more, species.

THE MODERN CULTURE OF SWEET PEAS.*

THIS volume is by the well-known gardener Mr. Thomas Stevenson, and is, in the main, a résumé of the methods he employs so successfully in the cultivation of Sweet Peas. It would be a not unfair description of the book to say that it is primarily for those who want to produce blooms for exhibition, and for such it forms a handbook of much merit, the many points to be observed to ensure a measure of success being clearly indicated. The author is emphatically in favour of sowing the seed in pots in October, and is convinced that flowers from plants raised in that month are superior to those obtained from sowings in spring. The notes on preparing blooms for exhibition and on the best varieties for that purpose should be very helpful to beginners. The author does not overburden his reader with numbers, and it is possible to select a choice dozen without the usual bewilderment as to which the writer deems the best. Thus we have *white*, Freda or Nora Unwin; *crimson*, Sun-proof Crimson; *rose*, John Ingman; *scarlet*, Monarch and Doris Burt; *crimson*, Cherry Ripe and Coccinea; *cream*, Clara Curtis; *blue*, Anglian Blue; *pink*, Countess Spencer; *cream-pink*, Mrs. Hugh Dickson and Gladys Burt, and a selection of darker tints, of which Mrs. R. Hallum has first place; *lavender*, Asta Ohn; *magenta*, Menie Christie; *mauve*, Marquis; *maroon*, Silas Cole; *orange*, Helen Grosvenor; *picotee*, Evelyn Heius and Elsie Herbert; *salmon*, Stirling Stent; *bicolor*, Arthur Unwin; *tricolor*, Mrs. W. J. Unwin; and *ultra*, Charles Foster.

There are also chapters on other phases of Sweet Pea development and selections for purposes other than for exhibition, but for these the reader must refer to the book. Manures, diseases, and other matters are also discussed. The volume is illustrated with several half-tone pictures and six coloured plates of new varieties. There are 85 pages of text. R. P. Brotherston.

* London: The Cable Printing and Publishing Company. Price 3s.

THE PRIMULAS OF THE EUROPEAN ALPS.

THE vast majority of cultivated European Primulas come under the section "Auricula," the scanty remainder falling under *P. acaulis* and the almost universal *P. farinosa*. By now, however, there is such confusion among the names of the different species that the following notes may be of help in unravelling a little of the tangle. Every species seems at one time or another to have carried the name of every other species, and, to make matters worse, lists and catalogues have nowadays a habit of giving

(1) *Eaauricula*: leaves fleshy, entire or dentate; broad, short bracts; yellow flowers (type *P. Auricula*).

(2) *Brevibracteata*: leaves fleshy, toothed or almost entire; flowers pink or purple; otherwise as in *Eaauricula* (type *P. marginata*).

(3) *Arthritica*: leaves leathery, smooth, quite entire, margined with membrane; calyx long; long-drawn-out bracts; pink flowers (type *P. glaucescens*).

(4) *Erythrodium*: short bracts, pink or purple flowers, leaves fleshy, toothed, clothed in

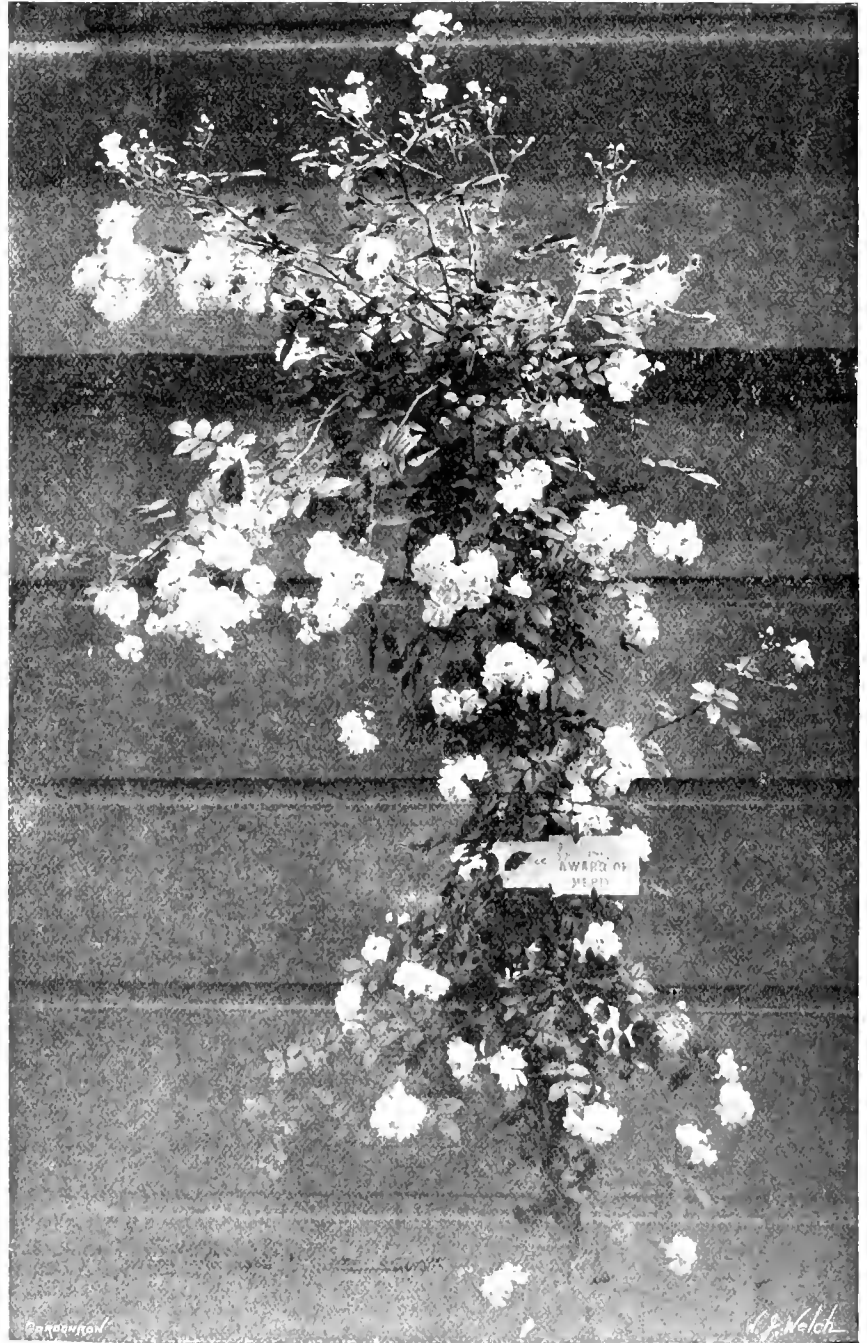


FIG. 158.—ROSE SYLVIA, A WHITE-FLOWERED RAMBLER.

Exhibited at the Temple Show by Messrs. W. Paul & Son. (Award of Merit.)

(See p. 339.)

specific rank to what are mere varietal names, so that the gardener (if he at all resembles me) is perpetually buying such in the hope of getting a fresh species, and then discovering that he has only acquired some variety of a well-known old one. Here, then, to begin with, is a schedule of the sub-sections belonging to the clan *Auricula* of the great family *Primulaceae*.*

* I follow, of course, Pax and Knuth in the *Pflanzenreich*, from which admirable but not universally accessible or intelligible, volume I draw whatever value my matter may have.

glandular hairs with a reddish exudation (type *P. hirsuta*).

(5) *Rhepsidium*: as in 4, but with long bracts and colourless exudation (type *P. Allioni*).

(6) *Cyanopsis*: smooth, fleshy, sticky leaves, crenate-serrate; bracts long and leafy; flowers blue-violet (*P. glutinosa* and *P. deorum*).

(7) *Chamaecallis*: bracts elongate, leaves leathery, smooth, wedge-shaped, serrate and truncate at the end; flowers pink (*P. minima*).

After this follows a long series, of course, of

named, but very variable hybrids between almost all the foregoing sub-sections. With these I shall hope to deal, en bloc, when I have finished with the species.

SUBSECTION 1.—Euanricula.—*P. Auricula*, a noble and splendid species, not needing detailed description, except that its varieties may be securely differentiated. Leaves oval or oblong, stout and fleshy, entire or toothed, generally more or less powdered; scape tall and stout, carrying up to 12 large rich yellow flowers, fragrant or scentless, powdered in their widening throat. The species belongs to all the European Alpine chains, north and south, and is very definitely, by choice, a limestone plant. Having so wide a range, it has local unnamed developments, as in the Abruzzi, and the Apennine, and in Sicily. One very curious form, *P. auricula monacensis*, quite

flowers golden yellow and fragrant (This is a synonym of Widmer's, not, so far as I can see, of Sundermann's *P. A. nuda*, Southern Austria, Val di Ledro (?)). My best collected plant has developed a beautiful waved goffering round the edge of the leaf.

P. Auricula Bauhinii (1) *monacensis* (Widmer): narrow, oblong leaves, thrice the length of their width; Bavarian Highlands (see above).

P. Auricula Bauhinii (2) *serratifolia* (Reichel): round ovate leaves, sharply and rather deeply dentate; the Banat.

P. Auricula Bauhinii (3) *escapa* (Widmer): a stemless form, almost unique.

P. Auricula Waldneri (Pax): thin, powderless, hairy leaves, Freiburg (Black Forest).

P. Auricula Obristii (Stein).—This is Beck's *P. Balbisii* and Stein's *P. similis*. It has

rule. This is a variety of the Southern limestone only. I have collected it on the Fedaja Pass in the Dolomites on rock; and on the Drei Zinnen Ridge in calcareous silt.

All varieties of *P. Auricula* are garden treasures. It must be borne in mind that the distinctions of nature are not so well-fixed as those of botany; these local developments are liable to shade into each other, though, of course, remaining quite constant in culture.

P. Palinuri.—This, the only other member of the section Euanricula, belongs entirely to South Italy (Prov. of Salerno). It forms a mass of large, woody, sub-shrubby rootstocks, rambling about this way and that over the face of the ground like a German Iris. The leaves are much thinner in texture than those of *P. Auricula*—almost flabby, in fact—bright green, powderless, toothed, narrow-oblong, drawing more or less

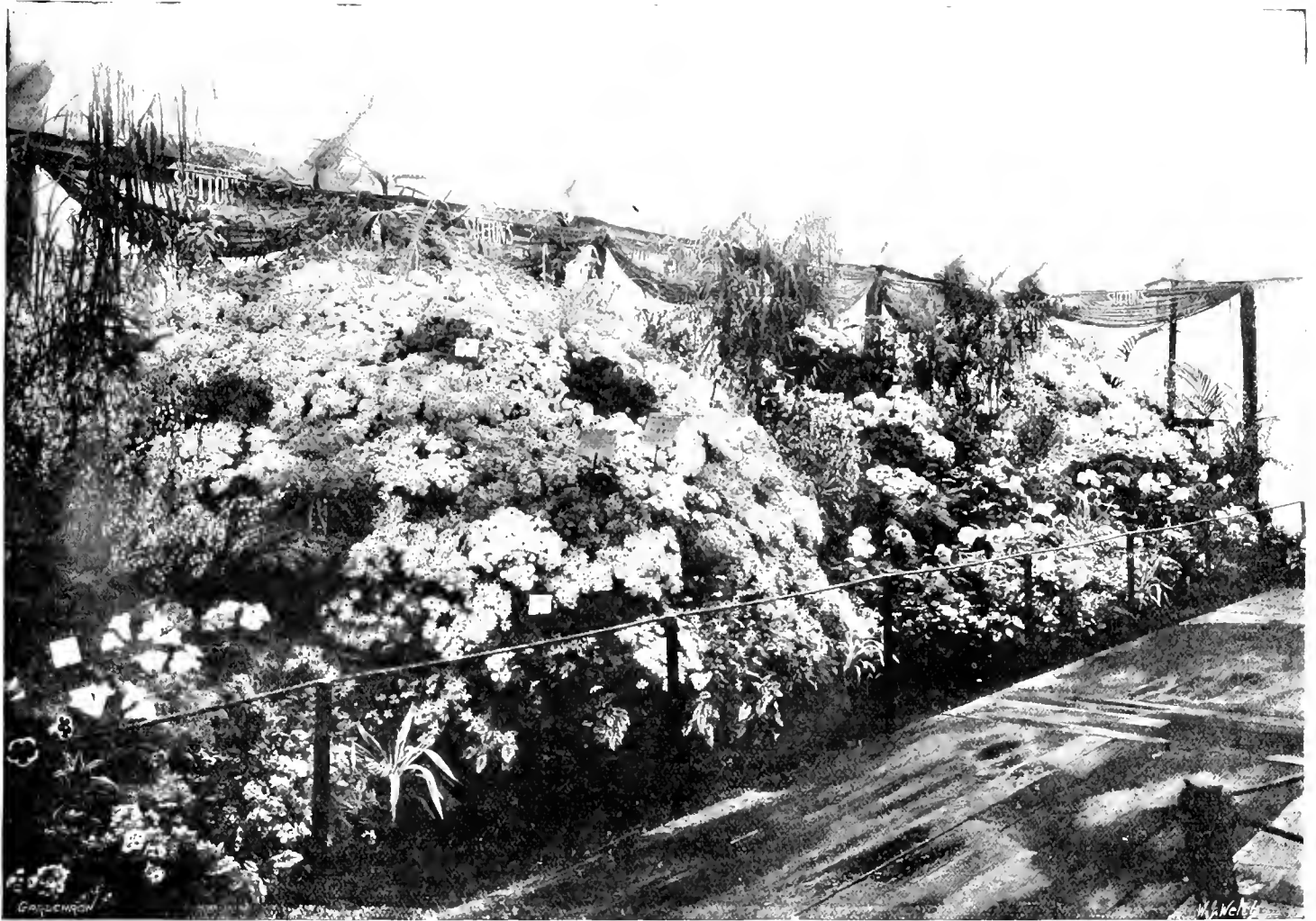


FIG. 159.—MESSRS. SUTTON AND SONS' EXHIBIT AT THE TEMPLE SHOW.
(See p. 337.)

powderless, lingers on the high peaty moors of Bavaria as a relic of the great ice age. Range of the species: Dauphiné, Savoy, Apennines, Abruzzi, Sicily, Servia, West Karpathians, Black Forest, Lower Austria, &c. (Rosenlam, Murren, Scheidegg!)—A rock plant, loving to form large masses in full sun or in shade, rooting far back into limestone (if possible); and growing very robust in the moraine.

P. Auricula Bauhinii (Beck).—This magnificent sub-species is Widmer's *albo-cincta*, and is nowadays often sent out as *P. A. albo-marginata*. It is the special form of the type belonging to the limestone Alps of Lombardy, where it seems equally prosperous in shady gorges or on high, open cliffs. A very large, splendid plant, with broad, great leaves, powdered or hoary, edged with a definite and brilliant hem of solid white;

narrower leaves usually than *P. A. Bauhini*, and, in my experience, is a much smaller plant altogether. The leaves have a margin of membrane, are more or less glandular, powderless, and have a thick marginal fringe of hairs; sweet, deep golden flowers. This is usually a plant of the wood-level, ranging from Judicaria (Cima Tombea) through the Eastern mountain chains.

P. Auricula ciliata (Morettii).—This, and not *P. Obristii*, is the plant nowadays sent out as *P. Balbisii* or *P. bellunensis*. The first is Lehmann's name, and the second Venzo's. It is a very lovely plant, as I know it, and variable. It is, like *P. A. Obristii*, of small size, fringed at the edge of the very broad, rounded, short, toothed and powderless leaves, which are more or less glandular; bright lucent green. Flowers of a soft yellow or a fiery gold, but scentless as a

abruptly to a petiole. The flower-scape is tall and noble, carrying as many as 30 nodding, great golden yellow fragrant flowers in a one-sided umbel. The calyces are densely powdered. In cultivation *P. Palinuri* is rare, although, despite its provenance, it proves absolutely hardy. (Here, at all events, and, I believe, at Kew.) It appears to be of very easy culture in any decent situation, but takes a long time to develop to flowering size, as it does not readily begin to bloom until it is a well-established, many-rhizomed mass. When it has reached this stage, however, it goes on flowering more and more copiously every year. I have it in peat, on limestone, on the northerly-facing cliff, and in full sun in heavy loam in the open garden.
Reginald Farrer.

(To be continued.)

THE FERNERY.

A RECENTLY-DISCOVERED COLLECTION OF BRITISH FERNS.

WE are indebted to Mr. C. B. Green, of Acton, for the discovery of a very remarkable collection of British Fern varieties in the Herbarium at the Natural History Museum at South Kensington. Though this collection embraces so many beautiful and original wild "finds" as to rank undoubtedly with the best in the Kingdom, it nevertheless, curious to say, figures in none of the existing records. Its discovery was due to pure chance. Mr. Green, who has for many years made a study of the flora of Middlesex and has found numerous rare plants in the course of his labours, met, some few years back, Mr. J. Benbow, of Uxbridge, who died about three years ago and left his herbarium specimens to the nation. Mr. Green visited the museum to inspect the collection, and found, to his surprise, that they were associated with hundreds of dried Fern fronds, dating from the 'sixties and wrapped mostly in newspapers of that period. An examination showed that the great majority of the specimens were Mr. Benbow's own "finds" in South Devon and elsewhere, and embraced a large number of the very finest forms known, while, to add to their interest, locality and date of find were attached in every case. Mr. Green at once informed the writer, who, together with Mr. W. B. Cranfield, proceeded to a study of the collection. Their investigations confirm Mr. Green's glowing description of the quality and diversity of the "finds." Careful search through the existing records, especially the list of Mr. E. J. Lowe, fails to discover a reference to these specimens. This is partly accounted for by a slip written by Mr. Benbow in connection with one of his finds which he sent to Mr. Lowe, who thought so highly of it that he proposed to use it as a frontispiece for one of his books; this, however, was not done, nor was the find returned to Mr. Benbow, who wished, as he said, to remain anonymous in connection with his discoveries. In any case, Mr. Benbow having left his dried specimens to the nation, it is incumbent upon us, as far as possible, to embody those most noteworthy in our Fern records, and since his death is comparatively recent and he obviously, by his remarks, collected the living plants and not merely specimen fronds, steps are being taken to discover if any such plants remain alive. Unfortunately he does not appear to have put himself into communication with any of the old Fern pioneers other than Mr. E. J. Lowe, nor would it appear that he was in the habit of distributing his finds, when divisible, among them. Had he done so, it is certain that their marked character and great beauty would have speedily secured appreciation and record, while, as it is, the writer, despite his long experience and personal contact with Mr. Benbow's contemporaries, never heard either of his discoveries or even of his name until Mr. Green's discovery.

On further enquiry it transpires that Dr. F. W. Stansfield, who represents a third generation of British Fern experts, had also never heard of Mr. Benbow as a Fern collector, who, it appears, was a peculiarly taciturn and retiring man. We have here, therefore, one of those regrettable cases where valuable knowledge and acquisitions have been stored, instead of being published and distributed in such a fashion as to benefit others. We understand, moreover, that many of the "finds" were destroyed by an accidental fire, that some of the best were left in a train, and that others would not grow when removed. Hence it is beyond all doubt, that the great majority have been lost entirely, together with any progeny they yielded either by offset or spore. In our own experience with the other pioneers of Mr. Benbow's time, it was their invariable custom to distribute among one another as soon as practicable offsets if possible, seedlings if not, so as to ensure perpetuation of the type if a new or specially good

one. Several times in the writer's career, he has lost an original find only eventually to get it back from a friend, to whom he had given a division years before. In the case under consideration, however, the great mass is only represented by dead dry fronds instead of living plants, and though these may be fertile, half a century is, it is to be feared, too long a period to permit of surviving vitality in the spores.

It is indeed a profound mystery to those who know how cordial a spirit of camaraderie obtained among the Fern lovers of Mr. Benbow's active time that his successes did not transpire at all, especially as he alludes to Sim, of Foot's Cray, one of the well-known Fern dealers of the time, and to whom he purposed to take some striking finds, of one of which, a *deltoid* crested *Blechnum*, Mr. Benbow prepared a drawing, but lost the lot by leaving them in the train—"a great loss," as he well observes, and, to the writer's mind, another item on the mysterious side of the matter. All, however, which now remains to us is to formulate a record of the discoveries of most marked character, with notes of dates and localities, so that at least the long-buried collection may be publicly chronicled.

One very curious fact is connected with the varieties of *Athyrium filix-femina*, of which there are many, viz., that the great bulk of them were found in Black Park, Bucks, no fewer than 68 crested forms having been gathered there in the later 'sixties. On examination, however, practically the whole of these finds appear to be seedlings of the previously known forms of the "Craigii" and "depauperatum" types and hence we are forced to the conclusion that either spores of those forms had been previously scattered in that locality, of which Mr. Benbow was not aware, or that he had unwittingly struck upon seedlings planted out by some previous Fern-grower. Under these circumstances, we omit further details regarding the fronds of this species. With regard also to about a score of forms of *Blechnum spicant* found in the same park, a similar misgiving cannot be avoided, most of them belonging to the "striatum" section though often on very distinct lines; these, therefore, we do not give in detail. No such doubt, however, exists with regard to the species found in Devon and other southern and western Fern districts.

The following represent the best varieties of the several other species concerned, in which the *Polystichums* are by far the most striking, and are therefore described more fully.

THE SHIELD FERNS.

POLYSTICHUM ANGULARE (about 150 varieties in all).

Decompositum splendens, all fine decomposite forms, found at Nether Stowey, 21/10/66; Swanton, 25/5/65; Babbacombe, 3/10/68; Teignmouth, 10/10/68; *Panicum*, very close set subnimbiculate pinnales, very fine, Lyme Regis, 12/10/64; *Lancea*, very slender, central divisions thorn-like, several places in South Devon; *Pterophorum*, subnimbiculate pinnales, sessile; *Pohosium*, handsome broad form, South Devon, 3/10/68; *Uplime*, 11/10/64; *Haves*, Middlesex, 6/7/66; *Concinnum*, very small pinnales, Ottery St. Mary, 14/7/64; *Brondelle Barlow* (D.), pinnales pairs, like swallow's wings, Teignmouth, 10/10/68; *Decurvens flexuosum*, flexuose, with falcate, aculeatum-like pinnales, Honiton, 19/7/64; *Distans*, divisions widely separated, Uplime, 11/10/64; *Revolvens* (D.), several finds of this type described as recurved, Sidmouth and elsewhere; *Oxyphyllum*, a good aculeate, Colyton, 25/5/65; *Angustatum proliferum* (D.), near Charmouth, 12/10/64; *Trippinnatum*, very fine forms found in several places; *Acutibulum*, Kingskerswell, 3/10/68; near Ryde, 27/7/63; *Acutibulum proliferum*, bulbs from base to tip, Paignton, 6/10/68; also *Axonister* and elsewhere; *Angustatum*, a remarkably narrow form à la A. f. f. *Friellii*, Madenscombe, 10/10/68; *Branscombe*, 25/5/65; and *Lyme Regis*, 10/10/64; *Cristatum*, two forms crested, Langley, 9/63; Honiton, 18/10/64; *Conspicuosum* (D.), Nether Stowey, 21/10/66; *Ptericristatum*, crested pinnales, counterpart of Gray's, Somerset, 7/6/65; *Brachiatum*, broad-based form, Lyme Regis, 15/10/64; *Brachiatum*, trifid, basal part of pinna transformed into fronds like Keall's form; *Capitatum*, huge spherical commutated head, pinna plain; *Acrocladon*, very ramose and bunch crested, counterpart of Maplebeck's form. (All three found in one lane in Teignmouth, 10/10/68. They differ much, but Dr. Stansfield thinks they may be seedling variants of the brachiata type, despite diversity.) *Gracile* (D.), very slender, distant pinnales, Stoke on Teign, 10/10/68; *Stipulatum* (D.), very like Carbonell's form, Babbacombe, 3/10/68. A considerable number of other finds were of the depauperate grandidens type, or otherwise defective, and are mostly arranged as a separate set, presumably indicating inferiority.

P. ACULEATUM.

Barlowii, a form very like P. a. pulcherrimum, but very fertile, and with non-imbriate tips, Dartmouth, 8/10/68.

SCOLOPENDRIUM VULGARE.

Of this species over one hundred specimens represent Mr. Benbow's finds; the best are as follows, the names indicating the character, but the large majority are more or less defective forms of "marginatum" type, or otherwise of little interest: *S. v. cornutum*, Brixham, '68, Kingskerswell, '65; *marginato-cornutum*, Minehead, '64; *lacerato-cornutum*, Wilmington, '65; *rotundifolium*, several places; *ramo-cristatum*, several places; *multifidum*, Babbacombe, '64; *grandiceps* (D.), two places; *labeatum* (D.), Nettlecombe, '64; *corymbiferum*, Kingsbridge, '65; *laceratum*, Nether Stowey, '66; *ramosum*, same wall; *cristatum*, two places; *ramo-lobatum* (D.), Littlehampton, '72; *sagittatum*, Darimoub, '68; *crispum*, five types of this rare frilled and barren section were found at Littlehampton, '72; *Gettisham*, '64; *Babbacombe*, '68, Charmouth, '64, and near Ryde, '63; *digitatum*, Berry Harbour, '64; *cristato-multifidum*, same place and time.

POLYPODIUM VULGARE.

Three very good forms were found, viz., *omnilacerum cristatum*, a very promising deeply serrate form with fringed pinnae, Holford, '66; *omnilacerum*, a thoroughly deep serrate cut form, Cleve Abbey, on wall, '64; and *crenatum*, a deltoid form, near Fulmer, Bucks., '92.

CYSTOPTERIS FRAGILIS.

A good crested form was found on a wall near Totnes which yielded fairly true progeny from its spores.

LASTREA FILIX-MAS.

Three forms only worthy of note of this species were found. *L. f. m. brachiatum*, a very marked variety, foliose and ramose, but not tasselled, Fulmer, '66; "serrata" (D.), a beautiful deeply serrate form with fringed pinnae, Axmouth, '64; and *polydactyla*, strongly resembling Dadd's *lfracombe* form, Kingsbridge, '65.

Chas. T. Druery, V.M.H.

REMINISCENCES OF GARDENING IN MORAVIA.

IN 1875 I was appointed, on the recommendation of an eminent London firm of nurserymen, to the onerous post of court gardener to the reigning Prince Johann von und zu Liechtenstein, at his Schloss Eisgrub, situated midway between Vienna and Brunn, the capital town of Moravia. The time of my arrival in Vienna was the month of May, just after the opening of the great international exhibition. There I stayed till the month of September, utilising my time in improving my scanty knowledge of the German language, and sight-seeing, more especially the Imperial gardens, such as those at Laxenburg, near Baden; Schönbrunn, laid out by Le Notre, and whose immense clipped hedges of Elms and general plan of the gardens remain intact to this day. Then there were the gardens in the Au, on the further side of the Danube Canal, which form a source of supply for the Emperor's various palaces; the Belvedere, now a picture gallery; the Rossau Palace gardens, belonging to Prinz Johann v. Liechtenstein; and the new public gardens, formed from the area left free by the removal of the walls, bastions, and fortifications of the city. These last-named gardens were admirably designed, planted, and maintained, and are now a great ornament to the city; moreover, they are well calculated to set off the palatial Government offices, churches, and museums adjacent. I left the Austrian metropolis in the month of September, and took up my new duties at Eisgrub directly afterwards.

The feature of the gardens as Eisgrub was the immense glasshouse, 100 yards in length, 15 in breadth, and 3 yards in height, modelled after that at Chatsworth—a magnificent glass tunnel for harbouring large plants, but not well adapted for displaying small flowering ones.

The large plants consisted of *Rhododendrons* of the arboreum sections; also Himalayan species; enormous plants of *Camellias*, *Acaecias*, *Proteas*, *Adenandras*, *Banksias*, *Boronias*, *Callistemons*, *Citrus*, and *Oranges*, *Cycads*, *Cytisus*, *Diosmas*, *Eugenias*, *Melaleucas*, *Myrtles*, *Neriums*, *Pittosporums*, *Telopon*, and many others incapable of affording good decorative effect, once, indeed, common in gardens in Great Britain, but now rightly discarded in favour of finer plants.

Many of the new Holland plants were of but little more decorative value than birch brooms stuck into small pots, kept as they were to about one size by an annual retopping, and a shaving of the root-masses, so that they might be put back

into the same sized pots as those out of which they had been turned. The sole use of these plants was as screens for the immense Orange, Camellia, and other plant tubs in the centres of the various groups.

The other glass structures were such as were common in our own gardens 100 and more years ago. They were in a ruinous condition, with small glass panes, in almost upright sashes, on the south side, no glass roofs; and they were heated by smoke flues exclusively. These miserable houses were cleared away after a few years, and iron lean-to's and span-roofed houses built, heated by hot-water boilers. These were the only iron-framed glasshouses, heated by modern methods, that existed in the province, or in Lower Austria at that time.

The garden around the Schloss was of about 20 acres, scantily furnished with beds and borders for flowering plants; a lake, with an island of about an acre in extent, planted with Roses, and a few beds for other things. The lawns were of great extent, but indifferently managed, and consisted of wild grasses, or of Italian Rye grass, sown annually. Before my time this was the common practice, and the work must have been burdensome and never satisfactory. So that,

The workpeople in the park numbered about 12, mostly women, who worked under an overlooker. This part of the estate was separated from the garden by a branch of the river Thaya. During the winter the women were discharged, and only a few men, experts in felling trees, were kept on, work of other kinds being impossible when snow 2 or 3 feet in depth covers the land from the first week in November till the end of March. There was a good deal of timber felling necessary, owing to the large number of Poplar trees planted for shelter and drying purposes when the land was laid out; for the Poplar, owing to its enormous crown of leaves, is a capital tree for absorbing moisture from the soil. The wood was employed as fuel in heating the glasshouses, the 30 foot long steam boiler which afforded heat to the great conservatory requiring an enormous quantity of fuel at night, and even by day, with the sun shining, the fire was not allowed to go out. At night, at times, 56° Fahr. of frost is not an uncommon temperature in that region.

The chief beauty of the gardens and park consisted in the trees—native and exotic. Soon after the park was laid out, a botanical collector was despatched to North America for the purpose of

a site, the Field-Marshal built a tower 170 feet high instead. The tower, standing securely at the present day on squared piles of Alder, is in the style of a Turkish minaret, and contains several rooms, furnished in Oriental fashion, at its base.

Eisgrub and the surrounding country for many miles in width and length is devoted to forestry, and what is not forest is agricultural land, much of it owned by peasants, who likewise have a considerable area under vineyard cultivation. The wines are of good repute, and when the Phylloxera was ravaging the vineyards of France 30 years ago, the Moravian red wines were in much demand by the French wine merchants, who, doubtless, sold them under French names. I may give the names of a few places near Eisgrub whose wines are of great excellence, viz., Feldsburg, Nicholsberg, Polau, and Pritlach. I have obtained the wines of these places, delivered in London, for £5 per hectolitre (22 gallons), barrel included. *F. Moore.*

SEDUM PILOSUM.

Of the few new hardy plants exhibited at the Royal Horticultural Society's show in the Temple Gardens last week, *Sedum pilosum* was undoubtedly one of the most interesting and attractive. Pink is such a rare colour in Sedums that any addition to the number with flowers of this colour is very welcome. Two of the other smaller-growing species with similar coloured flowers are *S. pulchellum* and *S. sempervivum*. Groups of *S. pilosum* were shown by Messrs. Ware, of Feltham, Mr. Prichard, Christchurch, and by the Burton Hardy Plant Co. Seeds of this plant were received in various places in this country from Messrs. Regel and Kesselring, of St. Petersburg, last year, and they evidently germinated freely. It is a native of the Caucasus, where it is found growing in exposed stony places at high altitudes, 4,000 feet to 5,000 feet elevation. Coming from this region there should be no question as to its hardiness, given a well-drained, sunny spot in stony soil. Individual plants form several rosettes, that illustrated in fig. 160 having seven, each nearly an inch in diameter before flowering. From the rosettes of thick succulent leaves are produced stems about 3 inches high, also well clothed with leaves covered with a fine pubescence. The pink flowers are borne in much-branched corymbs 2 inches in diameter. Like its near ally, *S. sempervivum*, however, it is evidently a biennial, and, to keep up a stock, seed must be sown yearly. In habit it much resembles *Cotyledon chrysanthus* before flowering, with similar rosettes of fleshy leaves. The name *S. Regelii* has been applied, though wrongly, to this plant in some gardens, for this name has already been attached to a South African plant. *W. I.*

THE BULB GARDEN.

NARCISSUS JONQUILLA.

IN the multitude of new and showier Narcissus which now dazzle the eye there seems to be a danger that such old favourites as the sweet-scented Jonquil may be neglected. None that I have seen possesses such a delicate fragrance; indeed, many of the newer Narcissi seem to emit such an overpowering perfume that a good handful of them would be unpleasant in a small room. Unlike some of the bench flowers, the Jonquil is well adapted for growing in the grass, as also is its double form, which is commonly known as Queen Anne's Narcissus. *A. C. Bartlett.*

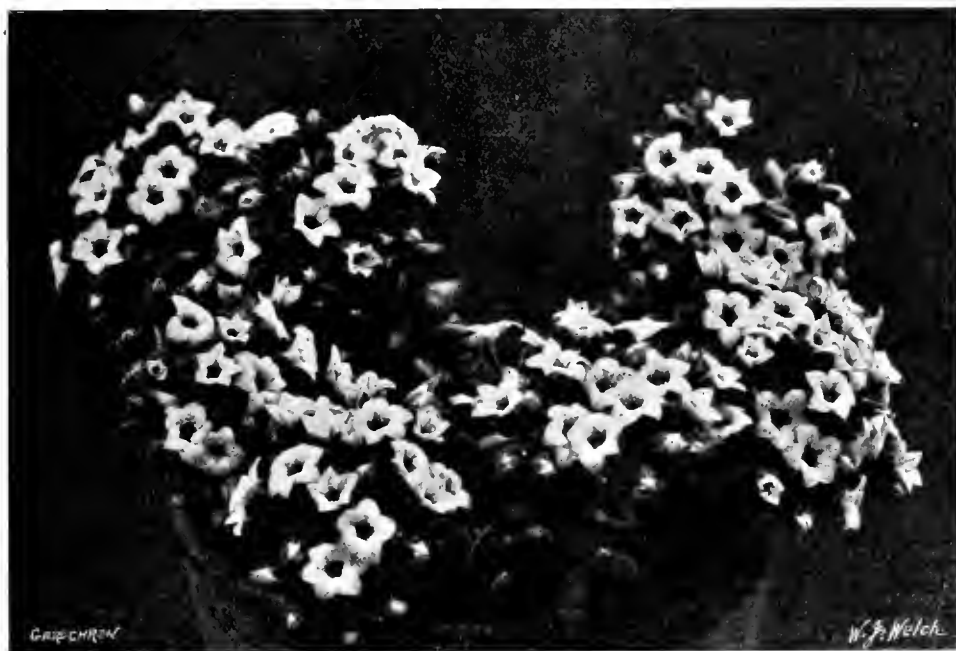


FIG. 160.—SEDUM PILOSUM, A RARE SPECIES EXHIBITED AT THE TEMPLE SHOW.

from my point of view, drastic alterations were imperative. I had the lawns and grass plots dug over, burying the old turf, and I sowed the finest lawn grasses I could obtain, together with a small addition of the small-growing Clover (*Trifolium repens*). Dire were the predictions of the Prince's officials regarding this novel method of lawn-making, and though it turned out a success, I was never forgiven.

The working staff in the great glasshouse and Schloss garden, together with the Orchid-house and small houses for plant cultivation, numbered, in the summer months, about 100 men and women, and in the winter, 70. Of these, six or eight were young gardeners, most of whom were workers under glass, or foremen of out-of-doors gangs. It may be taken for granted that an English garden labourer would do more in a day than three of these natives, and do it better. Each of the young gardeners was attended by two women or girls, who carried water, potting soil, &c., for his use. The workmen smoked nearly all the day, whatever the job they might be engaged upon, the "weed" being carried in a pig's bladder tucked under the waist strap. I tried to stop this custom of smoking at work, but it was not possible to do so effectually.

collecting seeds of trees which were suitable for the Moravian climate, and in this way many of the Oaks of the New World, Conifers, Catalpas, &c., reached Eisgrub, and were distributed over the various princely properties. These trees are now of great size, adding immensely to the beauty of the landscape. The Swamp and Champion Oaks, and the Weymouth Pine (*P. Strobus*), the black Walnut (*Juglans nigra*) are now magnificent specimens.

A large summerhouse, in the form of a Chinese pagoda, and handsomely furnished in Chinese style, forms an attractive feature near the lake, and in front of it are a harbour and a landing-place for boating parties, all in Chinese style.

A hundred years ago the park was mostly a swamp, but, by a successful piece of engineering, the water level was lowered, and the lake of 90 acres formed, the overflow from which empties itself into the Thaya.

The laying out of the park was the work of Field-Marshal Liechtenstein, who employed his disbanded regiment of hussars to carry out his ideas, one of which was the building of a church at the northern part of the shore of the lake, but the bishop of Olmütz refusing, it is related, to consecrate such a building on so insecure

The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CYMBIDIUM.—The flowers of many Cymbidiums are of great beauty, and some of them have a delicious perfume, whilst the majority possess exceptional lasting qualities. The following species and varieties of Cymbidium are all suitable for cultivating in a collection of Orchidaceous plants:—*C. erythrostylum*, *C. Lowianum* and its variety *concolor*, *C. eburneum*, *C. Mastersii*, *C. insigne* *Sanderi*, *C. Hookerianum*, *C. tigrinum*, *C. giganteum*, and their hybrids; *C. Ballianum*, *C. l'Ansoni*, *C. Lowgrinum*, *C. Lowie-eburnum*, *C. eburneo-Lowianum*, *C. Wimianum*, *C. Wiganianum*, *C. Tracyanum*, *C. Holfordianum*, *C. Colmanii*, *C. Lowie-grandiflorum*, *C. Woodhamsianum*, *C. Pawlesii*, *C. Alexanderi*, and *C. Gottianum*. In the successful culture of these plants much depends on healthy roots, in fact, if the root system is in a satisfactory condition the plants are almost sure to do well. They grow best in a cool, intermediate temperature, with an abundance of fresh air and plenty of atmospheric moisture. Protection from the direct rays of the sun is necessary wherever they are grown. The small, brown scale, which infests many kinds of Orchids, is a great pest to Cymbidiums, and is difficult to eradicate if present in considerable numbers. The scale is difficult to remove with a sponge without injuring the leaves, but it may be detached easily by means of a piece of pointed stick, first wetting the plant well with some safe insecticide, and sponging the foliage carefully afterwards. In bright weather, and when the plants are in full growth, the syringe may be freely used about the foliage, a good spraying with clean, cold water being the most effectual way of keeping down insect pests generally. Cymbidiums are, for the most part, strong-growing plants, with thick, fleshy roots, and, during their season of active growth, need an abundance of water. The atmosphere also should be well saturated with moisture whilst the plants are growing freely, and especially when they are forming their growths in late autumn. After this stage considerably less moisture will be required, but at no time should the compost be really dry for any length of time, as this will result in puny spikes and flowers of a poor substance. All Cymbidiums may be propagated by division, cutting through the rhizomes in the summer just as the new growths are rooting freely, separating and repotting the severed portions the following season.

REPOTTING.—All the kinds of Cymbidiums that I have mentioned above have passed out of flower, and the present season's growth is more or less advanced. It is at this stage that any necessary repotting should be carried out. Avoid disturbing plants that are well established in good material and in pots of sufficient size for the development of the fresh season's growth, as root-bound plants always produce the best flower-spikes. If specimen plants are desired, healthy plants should be potted about once in two years. Usually, when repotting is necessary, the plants have filled their pots with roots to such an extent that it is a difficult matter to turn them out without injuring them, and in such cases the pots should be broken with a hammer. It requires great care to disentangle the roots, and when this cannot be done without injuring them, the ball should be placed intact in a pot large enough to permit a good layer of new compost being placed around it. In the case of large specimens which have become exhausted, and perhaps bare in the centre, it is best to break them up, as badly-furnished plants are never ornamental. Pot the portions separately, single young plants being much more satisfactory than specimens made up of many pieces in large pots. The pots, pans or teak tubs, used as receptacles, should be clean and of sufficient dimensions to accommodate the plants for a period of two to three years. They should be well-drained, covering the cracks with a layer of thin turf. The compost should con-

sist of good loam fibre one-half, lumpy peat one-quarter, leaf soil and chopped Sphagnum moss together one-quarter, with plenty of crushed crocks and silver sand intermixed to keep the whole porous. A thin potting stick is needed to work the materials down the sides of the old ball, as no vacant places should be allowed between the pot and the roots, but do not ram too vigorously. The plant should be arranged so that its base will be about 1 inch below the rim of the pot. Manurial assistance is not often necessary in the case of Cymbidiums, and satisfactory results may be obtained without the use of any fertiliser. A little soot water and cow manure sprinkled about under the stages at closing time will do no harm, and by generating a little ammonia in the atmosphere may do good, but I do not recommend manures of any kind in the compost.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

PEACHES AND NECTARINES.—These fruits may be thinned, with due consideration for the future welfare of the trees, as many varieties are producing undersized growths, due, in all probability, to the unripened wood of 1910.

APPLES AND PEARS.—These promise heavy crops of fruits, making it imperative to thin freely where fruit of the finest quality is required. Pears especially which have reached the thinning stage should have all the requisite attention given to them, and the fruit severely thinned, or the trees will be overtaxed, and the crops suffer in consequence. Where the presence of the Codlin moth is suspected, prompt measures should be taken to trap and destroy the pest. A simple plan is to wind a hay-band around the stem of each tree, at a short distance from the ground, examining these bands from time to time all through the season until the crop is gathered, and destroying the larvæ or chrysalids that may be found hiding underneath the hayband. Pieces of old sacking or material of a similar nature might be used instead of hay, the object being to create a place of shelter for the maggots, which shelter can be quickly and easily examined from time to time.

GENERAL WORK.—Water must still be plentifully supplied to all newly-planted trees, and particularly to those that were planted late in the spring. Considerable advantage will be derived in retaining the moisture in the ground, if the soil above the roots is well covered with half-decayed manure or even grass mowings, which may, if needful, be renewed from time to time. Trees of more than an average size that have been transplanted, or severely root-pruned, and are showing signs of distress during hot, dry weather, should have their stems bandaged as a retainer of the moisture within. This extra attention given to the trees at a critical time is more often than not attended with good results, and valuable specimens are saved that might otherwise have perished. Established trees, and especially those growing against walls, and espaliers will have made an abundance of growths. Where the work was not done in May, it will be necessary to carefully regulate the growths without delay. Trained trees require great care exercised in the selection of the growths, and should be cleared of all unnecessary shoots. All gross-growing, fore-right, or ill-placed branches should be cut off close to the stem, and, likewise, those that are produced in places where they cannot be conveniently trained, or that are not required for filling up vacant spaces. The other shoots should be spurred back, and some trained in for fruit-bearing. Cherries and Plums have set remarkably well, the weather having been exceptionally favourable. Where the fruits are too numerous, the clusters should be partly reduced, removing first any malformed fruits. Prompt attention in this matter will promote the growth of those that remain, causing them to have increased and permanent vigour. Plums are a much lighter crop, and will require but little if any thinning. Apricots, likewise, should be thinned without delay, for, by this time, most of the imperfectly fertilised fruits will have fallen. The stoning process is always a severe test of the strength and vigour of the tree, and, in the case of Apricots, it is specially necessary to thin carefully. The final thinning of the

fruit should take place immediately the stoning process is over, when the fruits may be apportioned at the desired distances apart, according to the general condition of the tree, and other circumstances, as mentioned in a former Calendar.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

PEAS.—Small sowings of Peas should be made weekly from this date till the middle of June, the last sowing being regulated according to the district, whether early or late. At Windsor the last sowing is made about the end of the second week in June, and these plants furnish a supply of pods until frost sets in; last season the daily supply was maintained until November 5. Autocrat has, in past years, been the favourite variety here for this purpose, but last season Rearguard gave such good results that this new variety is being tried side-by-side with Autocrat this year. The ground between the rows of mid-season and late Peas is mulched with rough manure in these gardens as soon as the sticks are placed in position. By this means the work of watering is considerably reduced. If the ground is dry at the time the trenches are made a good watering should be afforded on the night previous to sowing the Peas. This is a most important detail, as the moisture hastens the germination of the seeds.

TOMATOS.—Plants of Tomato intended for cultivation out-of-doors should now be ready for planting out. If wall space is available, better results may be obtained by placing the plants at a distance of 18 inches apart, and training them to single stems, than by planting in an open border. When the plants are established, liberal supplies of manure water should be given to assist them to grow freely. Tomato plants, from which supplies are being gathered, should be fed liberally with stimulants, using either water from the farmyard or some fertiliser, such as guano, sprinkled over the surface of the soil previous to watering with soft water. Fresh air should be admitted to these plants both night and day. Seeds should now be sown to produce plants for furnishing supplies of this fruit in autumn. The seedlings should be placed near to the roof-glass, in a cold pit, to obtain sturdy plants that will be ready for placing in their fruiting pots about the middle of July. The plants may afterwards be grown out of doors if the weather is favourable until the crop is set, when they may be removed to a cool, light house where air can be admitted freely. Remove the side shoots as they develop, and give liberal top dressings of bonemeal and fine loam to promote a healthy growth. When four or five trusses of fruit have set, the plants should be stopped. Another sowing may be made a month later to afford supplies through the winter months.

CELERY.—Trenches for Celery should be prepared, and the plants put out as soon as they are large enough. The principal requirements of Celery are a plentiful supply of well decomposed farmyard manure and an abundance of water at the roots. When planting out the young seedlings take them up with a good ball of soil attached to the roots so that they may not suffer from a check. Prick out young Celery plants in rich soil to produce supplies in the New Year.

MUSHROOMS.—The house from which Mushrooms are being gathered should be kept as cool and sweet as possible. Syringe the walls and floor of the house daily, or as often as the atmosphere becomes dry, and cover the bed with clean straw to prevent evaporation of moisture. Mushroom beds may now be made up behind a north wall or any place where the sun's rays do not reach, and where a covering can be applied to the beds during heavy rain without becoming unsightly. The fermenting materials should be at least 2 feet deep after being made solid in order to retain the heat for as long a time as possible after the bed has been spawned.

CUCUMBERS.—Cucumber plants in fruit will require an abundance of water at the roots and a sprinkling of artificial manure. Keep the shoots stopped and regulated, remove all unnecessary growth in order to admit the light, and avoid overcropping. Syringe the walls of the house as often as necessary to maintain a moist atmosphere.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K. T., Tjallinghame, East Lothian.

WATERING.—The watering of herbaceous plants at this season is often a serious undertaking. Some plants succeed without any watering, but there are others which do not, as, for instance, Astilbes, Spiræas, Phloxes, tall Lobelias, Pentstemons, Montbretias and Pyrethrums. If these are grouped together in liberal masses they can be watered without having to water the whole border. On the first appearance of leaf-flagging, water must be given, but it should be borne in mind that in soils of extra porous nature it is advantageous to firmly compress the soil by treading, just before applying water. It is also a fact not sufficiently recognized that clear water has a very small effect during a drought. It lessens the evil without being actively beneficial, but if some manurial agent is dissolved in the water the plants will continue to make growth and the moisture will not be so quickly used up. The advice is usually given to moisten dry soil with clear water before applying manure water, but I have never found this to be necessary, having made it a rule to apply always water containing some manure.

CLIPPING ALPINES.—Some Alpine plants, as, for instance, Aubrietias and Arabis, are greatly improved by trimming with a pair of shears immediately after the flowers are past. It preserves them in a neat and compact form, and they flower in the following spring all the better for the cutting. The shears may be used also for removing the withered flower stems of Sedums and Saxifragas; after the trimming, some fine soil should be scattered about the plants in order to induce a vigorous growth.

BIENNIAL FLOWERS.—Seedlings of biennials should be transplanted in rows at a distance of 1 foot apart each way. All the kinds grow rapidly in a rich, friable soil, which should be made firm by treading, to promote the development of fibrous roots near to the surface, and also favour a hard growth. Specimens grown in this way may be lifted with a good ball of soil attached to the roots when they are required for planting in autumn or spring.

SURPLUS BEDDING PLANTS.—It is a good plan to have a few bedding plants in reserve to take the place of any that may fail in the beds. Such annuals as Asters and African Marigolds may be transplanted when in flower. Chrysanthemums, Michaelmas Daisies, Phloxes, and many other plants may also be transplanted when in bloom. Tuberos-rooted Begonias started late in the season are especially serviceable for this purpose. Although intended to be used in an emergency the plants should not be crowded in the reserve quarters, because it is very important that a large amount of soil be lifted with the roots when they are shifted.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gannorsbury House, Acton, Middlesex.

NEPENTHES.—These curious and highly-interesting plants always attract attention in the glasshouses, and should it be decided to include some of them in the collection, the present is a suitable time to order specimens from the nurserymen. The plants are very susceptible to injury by cold, and just now there is little danger of their suffering from this cause in transit. Nepenthes revel in moisture, both in the atmosphere and about the roots, but they will grow well in an ordinary stove provided they receive the proper amount of moisture. They are best grown as basket plants, large teak-wood receptacles, such as are employed in Orchid culture, being suitable. I have, however, seen specimens growing well in ordinary flower pots, although I do not recommend their use. The teak-wood baskets need not be of an extra large size, but those plants that are growing freely and require a shift should be afforded a larger receptacle without delay. The repotting needs to be done carefully so as not to injure or disturb the roots more than is necessary. They will grow well in tough, wiry peat, such as is used for growing Orchids, and it is probable that the *Osmunda*-fibre material, now so largely employed for Orchids and other epiphytes, would also suit them. In any case the peat or Fern roots should be mixed with Sphagnum moss and pieces of charcoal about the size

of nuts. Plants that do not require repotting may need a little fresh rooting material, removing and replenishing some of the old compost from between the staves of the basket, and surfacing the top atresh with new Sphagnum moss. After this has been done the plants should be shaded somewhat, and syringed freely, but do not give too much water at the roots. Tall specimens that are ungainly may be cut down. If desired, the tops of the shoots may be used as cuttings, in which case the growth should not be cut through at once but only partly below a joint, and then bound round with moss. After a few weeks roots will form, when the cutting may be severed completely, and inserted in a thumb pot filled with moss. If placed in a close, humid atmosphere, under warm conditions, the cuttings will soon become established. A good plan is to place two of the old-fashioned handlights one above the other, placing the plants in these until well-established. Do not neglect to remove any pitchers from these young plants. Specimens consisting of one tall stem may have the top of the shoot pinched out to induce side-growths to form near the base. The following varieties and species are the most suitable for ordinary purposes:—*N. Mastersiana*, one of the best growers, producing pitchers very freely; *N. Rafflesiana*, an old variety, but still one of the best, and *N. Hookeriana*, a somewhat compact grower, and a good representative of its kind.

CYANOPHYLLUM MAGNIFICUM AND COCCOLOBA PUBESCENS.—These two handsome foliage plants are suitable for the stove. I have often employed *Cyanophyllum magnificum* in groups of fine foliage plants at exhibitions, where it always appeared to advantage. When grown somewhat hardy it may be employed out of doors, at least for a short time, and forms a very attractive subject. Nothing could be better for furnishing a white vase than a well grown specimen of this *Cyanophyllum*, specially when furnished with foliage to the pot level. I have also used it with good effect as small plants in the decoration of dwelling rooms. *Coccoloba pubescens* is a magnificent foliage plant, the thick, dark-green leathery leaves being almost unique amongst foliage. It can be made a most effective decorative plant when grown well and not over potted.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS, Aldingham House, Hertfordshire.

PEACHES AND NECTARINES IN POTS.—Trees from which the fruits have been gathered will do better during the summer if they are stood out-of-doors. Before being placed in the open, they should be prepared for the cooler conditions by lowering the temperature of the house and admitting fresh air freely. If considered advisable, the old fruiting wood may be removed now, so that little pruning will be required during the winter. Endeavour to retain the foliage in a healthy condition, and, should it be necessary, do not neglect to syringe the plants with an insecticide, placing the pot on its side, with the shoots resting on a mat, or something similar, to keep the leaves clean. The trees must be watered carefully, and it will be better to plunge the pots in the ground to keep the roots cool and moist, and reduce the labour of frequent waterings. In addition, the plants will be less exposed to damage by wind, and present a much neater appearance. Trees that are bearing fruits will need manurial assistance until the fruits commence to colour, when stimulants should be withheld. Expose the trees fully to the sunlight, also the fruits, so that the latter may assume a high colour. Ventilation should be afforded freely during the daytime, and at night whenever the weather is favourable.

VINES IN POTS.—Pot vines grown as recommended in a former calendar for furnishing purposes will need an abundance of water and plenty of stimulants. At alternate waterings apply manure water made from deer, sheep, or cow dung. In addition, a concentrated fruit manure may be used with advantage to assist the vines to carry a large number of bunches; but large berries are not essential, the principal object being to produce a decorative effect. Place a rim of turfy loam around the top of the pot to hold plenty of water, and top-dress with soil rich in artificial manure. During the time the berries are swelling, the plants will require a

similar treatment to that afforded vines in mid-season vineries, a humid atmosphere being very necessary. When the berries commence to colour, admit plenty of fresh air, and, if considered advisable, remove the plants to a cooler house. Regulate the shoots, allowing the laterals to extend, and see that the supports are secure. Pot vines grown for other purposes will need plenty of fresh air to harden the shoots; those that are required for forcing early should have the growths ripened without delay. Those still growing actively should have the laterals pinched at the second or third leaf, taking care that the roots are always moist. Well syringe the plants twice daily, wetting the under-surfaces of the leaves.

YOUNG VINES IN BORDERS.—The borders in which young vines are planted are rather limited in materials, and soon become filled with roots. It will therefore be very necessary to keep them well supplied with water. Train the leading growths, and stop the lateral shoots at the second or third leaf. Increased ventilation should be afforded, leaving the ventilators open at night; but, late in the afternoon, shut up the house, and syringe freely to promote plenty of atmospheric moisture, then, later in the evening, admit a little air at the top of the house.

THE APIARY.

By C. LORIS.

TAKING BEES TO CLOVER.—Clover produces excellent honey, and beekeepers who live in districts not rich in Clover fields should arrange to transfer some of their hives to places where large crops of this plant are grown. It must be remembered, however, that hive bees cannot gather honey from all species of *Trifolium*, as their tongues are not long enough to reach the nectar in some of the species.

PREPARING THE HIVES FOR REMOVAL.—Extra care must be taken in packing the hives if they are to be sent by rail. It is only safe to send hives fitted with securely-wired frames, which have broad shoulders or metal ends. Make a frame of stout wood, about 1½ inch square, that will fit the top of the brood chamber. Screw this down through the lugs of the frames to the part of the brood chamber on which the frames rest. Nail a piece of perforated zinc on the frame to allow the air to enter, screw down the floorboard and stop the entrance with a piece of perforated zinc. The frame should be securely fastened with cord and labelled "Live Bees." Hives sent a distance by road in a cart or wagon should be stood on a thick layer of straw to prevent jolting and unnecessary jarring. Since disease is so prevalent, the beekeeper will be wise to ascertain before he removes the bees if the district chosen has a clean bill of health.

STIMULATING FOR THE HONEY FLOW.—In most districts there is a special time when honey is most plentiful, usually lasting two or three weeks. The beekeeper should know whether it is the fruit trees, Clover, or some other crop, that furnishes the supply, and have his bees in the best condition to take every advantage of it. Some beekeepers are at a loss to know how long it will take to have the bees at the condition of greatest activity in honey-gathering. If artificial food be given very slowly and without any break, not allowing more than one hole in the feeder, the bees will be most active in about six weeks.

HELPING WEAK STOCKS.—In every apiary are found stocks, which do not progress at the same rate as their neighbours. A few may make very rapid strides, because they are headed by prolific young queens of a good strain. These latter need to be retarded, whilst the weaker hives require help. This may be done by taking a frame full of brood from each of the stronger colonies, and placing them in the weaker stocks. A frame with a full sheet of wired foundation should take the place of the brood combs that are thus removed.

PLACING SUPERS IN POSITION.—As soon as the upper cells in the brood chamber are tipped with new, white wax supers may be safely added. Although the weather may be warm at the time this is done, it is highly necessary that there is no loss of heat from the frame, nor draughts. To make certain of this the quilts should fit perfectly.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR JUNE.

- THURSDAY, JUNE 1—
Ipswich and East of England Hort. Soc. Sh. in conjunction with Suffolk Agric. Assoc. Sh. (2 days).
Linnean Soc. meet.
- SATURDAY, JUNE 3—
Soc. Français d'Hort. de Londres meet.
- TUESDAY, JUNE 6—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Prof. A. C. Seward, F.R.S., on "The Past History of Conifers.")
Scottish Hort. As-oc. meet.
- WEDNESDAY, JUNE 7—
River Thames Fl. Sh. at Tagg's Island, Hampton Court (2 days).
- THURSDAY, JUNE 8—
Soc. Nationale d'Hort. de France (Paris) Exh.
- MONDAY, JUNE 12—
United Hort. Benefit and Prov. Soc. Com. meet.
Southampton Roy. Hort. Soc. Garden Fête.
- WEDNESDAY, JUNE 14—
Yorkshire Gala at York (3 days). Roy. Cornwall Sh. at St. Austell (2 days). Roy. Meteorological Soc. meet.
- THURSDAY, JUNE 15—Linnean Soc. meet.
- TUESDAY, JUNE 20—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Rev. Prof. Geo. Henslow, M.A., on "The Origin of Monocotyledons from Aquatic Dicotyledons.")
- SATURDAY, JUNE 24—Midsummer Day. (Quarter Day).
- MONDAY, JUNE 26—
Royal Agricultural Soc. Sh. at Norwich (5 days).
- TUESDAY, JUNE 27—
Southampton Rose and General Fl. Sh. (2 days).
- WEDNESDAY, JUNE 28—
Richmond Fl. Sh. at Old Deer Park. Irish Gard. Assoc. and Benev. Soc. meet.
- THURSDAY, JUNE 29—
Isle of Wight Rose Sh. (provisional).
- FRIDAY, JUNE 30—Roy. Oxfordshire Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—57.3°.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, May 31 (6 P.M.): Max. 78°; Min. 56°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 1 (10 A.M.): Bar. 32°; Temp. 74°; Weather—Sunshine.

PROVINCES.—Wednesday, May 31: Max. 65° Cambridge; Min. 59° Ireland, S.W.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Herbaceous and Other Plants, Liliums and Hardy Bulbs, at 1; Palms, Greenhouse Plants, &c., at 3; at 67 and 68, Cheapside, E.C., by Protheroe & Morris.

The Natural History Museum.

The proposal to erect a Museum for Physical Science in near proximity with the Natural History Museum at South Kensington has evoked an emphatic protest from the biologists and lovers of natural history. They recognise that, if this maladroit scheme is persisted in, space for further expansion of the Natural History Museum will be seriously curtailed. They are undoubtedly right in this apprehension. Physical science needs, no doubt, adequate museum space, and its adepts are powerful enough to obtain it. But in making provision for a Museum of Physical Science it would

surely be the stupidest of policies to prejudice the future of what bids fair to be the finest Museum of Natural History in the world. As has been pointed out by those who wish to see the present site reserved for the extension of the Natural History Museum, biology is entering every day into closer relations with the applied sciences of horticulture, agriculture, medicine and the like. The Natural History Museum will require to enlarge its boundaries very considerably indeed if it is to make adequate provision—as it undoubtedly should—for the exhibition of specimens and the storage of material of service to investigators in these applied sciences. To render impossible this extension is as unwise as it is short-sighted, and we hope that provision will be made elsewhere for the Museum of Physical Science on a site where it, too, may extend according to growing needs and not where every stage of its growth will be a menace to the development of its sister museum of Natural History.

The Royal Botanic Gardens, Peradeniya.

It is well known to those who are in a position to form an opinion on the subject, that the staff of the Royal Botanic Gardens at Peradeniya, Ceylon, is doing excellent work, both in botanical research and in the development of tropical agriculture. The small staff which had to suffice the needs of this establishment in the days of Thwaites and Trimen has been augmented considerably of recent years, with the result that investigations, begun so ably by these distinguished past directors, have been continued and extended in many new directions by the present director and his assistants. As a consequence of this more enlightened policy on the part of the Government of Ceylon, the establishment of Peradeniya has become one of the best, if not the best, of all our Colonial botanical and agricultural stations. Hence, though the modern Englishman is perhaps somewhat prone to grumble, it was to be expected that whatever Colonial botanic gardens were challenged as to efficiency, that of Peradeniya would not only escape adverse criticism, but would rather be held up as a model for less efficient institutions to copy. Great, therefore, is our surprise to learn that Mr. Dunstan, of the Imperial Institute, has made a communication to the Government of Ceylon to the effect that no botanical research is being carried on by the staff at Peradeniya, and that the scientific reputation of this establishment is suffering. Mr. Dunstan affirms that no research work is being done. Had he turned to the pages of the journal published by the establishment at Peradeniya, he would have discovered that a good deal of research work is being done. Further, had he asked the opinion of any of the leading botanists as to the value of this work, he would have learned that these researches, which have escaped his observation, are of a very high standard of merit. Mr. Dunstan, therefore,

is wrong as to his facts: hence his inference is valueless. This inference, that the work of the staff of Peradeniya is suffering because the botanists are called upon to carry on agricultural work, is incorrect. It is good and proper that botanists should be brought more and more into contact with problems of scientific agriculture. It is good for agriculture and good for botany. The scientific staff of Peradeniya may rest assured that the value of their work in botany and agriculture is appreciated highly by their colleagues at home; and the hope may be expressed that, if the Colonial Office wishes to improve the conditions of agriculture in the British possessions, it would do well to begin in those regions which are most backward and not in Ceylon, where an energetic and capable staff is already doing admirable work.

OUR SUPPLEMENTARY ILLUSTRATION.—

When *Rhododendron irroratum* first flowered at Kew 18 years ago, it failed to do itself justice, consequently, in describing it in the *Botanical Magazine*, under tab. 7361. Sir JOSEPH HOOKER called it the "least ornamental species of the genus known to me." That plant was a very poor variety, badly grown, compared with the form here figured, which flowered in the Kew collection this year, for no one would dream of calling this a poor *Rhododendron*. The flowers were bluish-tinted when they first opened, but they changed to milk-white with age, and they were copiously spotted all over the corolla with red brown. Our artist has perhaps somewhat over-accentuated the spotting, and the truss is a little more conical in the picture than it should be. FRANCHET, who is the author of the species, described the flowers as white. The habit of the plant is that of *R. ponticum*, which it also resembles in the shape, texture, and colour of the leaves. It is hardy at Kew, but so far the conditions of the Himalayan house have proved most congenial to it. DELAVAY collected it in woods at Peetsaolo, near Lan Kong, China, at an elevation of 2,500 metres.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will take place on Tuesday the 6th inst. At 3 p.m. Professor A. C. SEWARD, F.R.S., will deliver a lecture on the "Past History of Conifers."

ROYAL GARDENERS' ORPHAN FUND.—We are informed by the secretary that, now that the accounts have been made up, the total amount collected at or in consequence of the recent dinner, at which Mr. N. N. SHERWOOD presided, is £1,600.

HERBERT SPENCER LECTURE.—The HERBERT SPENCER lecture at Oxford is to be given in 1911 by Professor W. BATESON, F.R.S., Director of the John Innes Horticultural Institution.

SPRAYING DEMONSTRATIONS IN CAMBRIDGESHIRE.—Spraying demonstrations arranged for fruit-growers by the Cambridgeshire County Council have been held recently at Cottenham, Longstanton and Willingham. The demonstrations were organised by Mr. F. T. BROOKS, M.A., Technical Adviser on Plant Diseases, who was assisted by Mr. F. G. TUTCHER. The weather conditions were good, and the demonstrations were well attended, more than 100 people being present at the Cottenham meeting. Leaflets describing the mode of preparation of various fungicides and insecticides were distributed amongst the growers, and before operations began Mr. Brooks spoke on the subject of spraying in relation to some of the commoner pests, such as Apple Scab, brown



RHODODENDRON IRRORATUM. FLOWERS WHITE WITH ROSE-COLOURED SPOTS.

rot, Gooseberry-mildew, Apple sucker and aphid which attack fruit trees. The growers then watched the preparation and application of the following fluids:—Bordeaux mixture, Bordeaux mixture with arsenate of lead, and nicotine. The Bordeaux mixture was made according to the 4 + 4 + 50 formula, and was applied to check the Apple-scab fungus. Arsenate of lead was mixed with another lot of Bordeaux mixture (both prepared separately) in order to destroy leaf-eating caterpillars as well as the scab fungus. Nicotine was applied for Psylla and Aphid, though it was clearly pointed out how much more effective it is to treat these pests at an earlier date. The necessity for regulating the character of the "spray" to the fluid employed was emphasised, Bordeaux being applied in a fine misty spray, and Nicotine being distributed in a coarse jet and with considerable force. A number of fruit growers assisted by sending machines and in various other ways. Much satisfaction was expressed at the success of the demonstrations, and hopes are entertained that such work may be extended in future.

GARDENERS AT CRICKET.—A cricket match between teams selected from the garden staffs at the Royal Gardens, Kew, and Friar Park, Henley-on-Thames, was played at Friar Park on May 25. Kew won the match by three runs with a score of 81. After tea the visitors inspected Sir FRANK CRISP's celebrated Alpine garden, which is now at its best appearance. A further addition in the shape of another large eminence is being made to this remarkable rockery.

THE USE OF CARBON BISULPHIDE.—Some time ago a Begonia, supposed to be attacked by eelworms, was brought into the Jodrell Laboratory. On washing away the soil the root presented the appearance of a spongy mass, and numerous minute white worms were present in the crannies and cavities. Similar worms were also present in yet greater numbers in the cavities in the interior of the mass. On examination the parasite proved to be *Fridericia bisetosa*, Levinsen, one of the Oligochaeta worms, several of which feed on living plants, and in some instances prove highly injurious. *F. bisetosa* often attacks Larch seedlings when about a year old; the cortical tissue of the root is gradually eaten away, leaving the central woody portion exposed. It has also been met with in flower beds containing Roses and Pansies. In the case of the Begonia, patches of the cortex of the root had been completely destroyed, and wound-tissue formed around the wounds had been in turn attacked by the worms. This alternation of destruction and replacement of the tissues resulted in the formation of a somewhat tuberous spongy mass. At this stage the leaves had commenced to wilt, and the plant was evidently slowly dying owing to the failure of root action. A second healthy Begonia was infected by placing cut-up portions of the diseased spongy mass containing worms round the root of the healthy plant, and afterwards planting it in sterilised soil. After the expiration of a month the leaves of the infected plant showed signs of wilting, and on examination the cortex of the root was found to be destroyed in places by the worms which were present in considerable numbers. After examination the plant was re-potted and the soil treated with carbon bisulphide, as THORNTON has stated that the worms are killed by this substance. One dram of carbon bisulphide was poured on to the "corks" through the drainage hole at the bottom of the pot. Three days after this treatment the lower leaves of the Begonia commenced to wilt and bleach, and at the expiration of a week all the fully-grown leaves were quite colourless and collapsed. At this stage the plant was removed and all the

worms were found to be dead. The use of carbon bisulphide having been proposed as a cure for eelworm, &c., attacking pot plants, the disastrous result of this substance on the Begonia suggested further experiments. In order to test its effect on the plants themselves, six different varieties of Pelargonium, well-established in pots of the size known to gardeners as "48's," were treated. Three pots received one dram of carbon bisulphide each, the other three pots half a dram each. At the expiration of three days the lower leaves of each of the six plants were very flaccid and almost bleached, and at the end of a week after the application of the carbon bisulphide, all the full-grown leaves on every plant were bleached and dead. The plants were not, however, killed outright. Afterwards two plants, a Begonia and a Ulex, were each treated with three drops of carbon bisulphide, and in this instance neither plant showed any sign of injury. In every experiment the carbon bisulphide was introduced into the soil through the drainage hole at the bottom of the pot by pouring it on to the "corks," so that it did not come in contact with the root of the plant in liquid form. It is usually stated that this substance is not at all injurious to plant life if the root does not come in contact with the liquid, and this statement would appear to be true if the substance is used with care and in small quantity. The above experiments suggest that it would not be wise to attempt the treatment for pot plants in vigorous growth with carbon bisulphide with the object of eradicating eelworm, &c. *Fridericia bisetosa* is snow-white, as slender as thread, equal in thickness throughout, and about $\frac{3}{4}$ inch in length. It occurs in old horse-dung, among rotten leaves, &c., and probably from such sources finds its way into the soil used by gardeners. The treatment of such leaf-soil, &c., with carbon bisulphide some time before it is used would be a wise precaution. The same remark applies to the soil introduced into Tomato-houses, &c. In dealing with carbon bisulphide it is very important to remember that it is highly inflammable, the heat from a lighted cigarette being sufficient to cause an explosion.—*G. M., in Kew Bulletin.*

MOTH-TRAPPING FLOWERS.—The part played by moths in effecting the cross-pollination of many flowers is so well known as to require no description, but the observations made recently by Mr. KÜNCKEL D'HERCULAIS on flowers which are so contrived as to serve as death-traps to the Lepidoptera which visit them in search of nectar are as new as they are astonishing. Published originally in the *Comptes Rendus*, Mr. KÜNCKEL D'HERCULAIS' observations are the subject of a brief note in the *Journal d'Horticulture de France* (February, 1911). Of the two moth-trap flowers which he describes one is an *Asclepiad*, *Araujia sericeifera*, from the Argentine, and the other *Hedychium flavum*, a Zingiberaceous plant of Southern Asia. The mechanism by which moths are impaled by their proboscides in the former flower may be readily understood by all who are familiar with the wonderful structure of the flower of *Asclepiadaceous* plants; that of *Hedychium* is yet more curious. The tubular corolla of *Hedychium flavum* is some 3 inches long and extremely narrow, about $\frac{1}{8}$ inch in diameter in the neighbourhood of stamens and stamen, and about 1-12th inch lower down. It is visited by moths, the proboscides of which are often of extraordinary length. Thus a species of *Cocytia* has a proboscis which ranges from 5 to 10 inches in length, and of such a width that it will just pass into the tube of the *Hedychium*. Hence it happens that, when it visits the flower and probes with its proboscis into the long and narrowing tube of the corolla, the deeper the proboscis enters the more firmly it is jammed, the difficulty of with-

drawal being increased by the facts that the curved petal lobes give no support to the body of the insect, and that the tube is sticky with nectar. Hence the insect is imprisoned by its proboscis, and from its strange imprisonment death alone may bring release. Mr. KÜNCKEL D'HERCULAIS having described this strange state of affairs, which benefits the flower as little as the insect, asks what becomes of the current view of the rôle of the Lepidoptera in cross-pollination. This question we should be in a better position to answer if we knew the ratio in which the number of these captures stand to those of less embarrassing visits. Nature's broad methods are not exempt from occasional contretemps, and we hesitate to believe that it is the common fate of the Lepidopterous visitors to *Hedychium flavum* to meet their death in this strange manner.

DUTTON MEMORIAL CHAIR OF ENTOMOLOGY.

—The Council of Liverpool University has appointed Mr. ROBERT NEWSTEAD, M.Sc., Lecturer in Economic Entomology and Parasitology in the Liverpool School of Tropical Medicine, to the newly-established Dutton Memorial Professorship of Entomology. Horticulturists will be specially proud of the fact that such an important appointment is filled by a man so intimately connected with gardening as is Mr. NEWSTEAD. In offering our congratulations to Mr. NEWSTEAD on his appointment, we may say that he has acted as consulting entomologist to this journal for many years, and his services have been of the utmost value to those of our readers who have sent entomological specimens for identification or who have sought advice on methods of dealing with insects pests. We understand that Mr. NEWSTEAD is about to proceed to Nyaraland for the purpose of making investigation in economic entomology.

PUBLICATIONS RECEIVED.—*The Practical Flower Garden*, by Helena Rutherford Ely. (London: Macmillan & Co.) Price 8s. 6d.—*Department of Agriculture, Jamaica*. Bulletin, by H. H. Cousins, M.A. (Kingston, Jamaica: Government Printing Office.) Price 2s.—*Department of Agriculture, Canada*. Report of the Dominion Horticulturist for the year ending March 31, 1910. (Ottawa: Government Printing Bureau.)

TREES AND SHRUBS.

HYMENANTHERA CRASSIFOLIA.

It is interesting to notice the marked differences in habit between examples of this shrub growing in the open on high ground and those on lower places and in partial shade. In the first case the branches are short and stout, and grow nearly at right angles, forming a very dense, rounded shrub, rarely more than 3 to 4 feet high. But when growing partly in shade and away from winds, the plant assumes a thin habit, and the branches are longer and nearly ascending. It is such instances as this which help one to fully realise how possible it is for a ligneous plant to become mere scrub on the wind-swept plateaux and a lofty timber tree when growing in fertile valleys. The flowers of the *Hymenanthera* are individually very small, and as they hang solitary below the branches they are apt to escape notice, but when once detected one is astonished at the great numbers of them. The blossoms are exceedingly fragrant on a warm day; their honey-like perfume is borne on the air for a good distance from the shrubs. In the late summer healthy shrubs bear quantities of small, white berries, making the plants very attractive. Although reputed to be tender, or only half-hardy, yet this New Zealand shrub will safely withstand at least 25° Fahr. of frost. The *Hymenanthera* will thrive in ordinary garden soil, provided it be not of a too heavy nature. *A. C. Bertlett.*

EXHIBITION OF RHODODENDRONS IN THE HORTICULTURAL HALL.

THE exhibitions of Rhododendrons made by Messrs. J. Waterer and Sons, Bagshot, in Regent's Park, Cabogan Square, the Thames Embankment, and other places in London have become important horticultural events. This year they extended their operations by arranging, in the Horticultural Hall, Vincent Square, on Tuesday, Wednesday and Thursday last, a grand display of Rhododendrons and other hardy plants grown in their nursery. Fellows of the Royal Horticultural Society were admitted free, but a charge of 2s. 6d. on the first day and 1s. on the

second and third days was made to non-Fellows. The hall is not quite the kind of place in which Rhododendrons can be seen to the best advantage; still, Messrs. Waterer and Sons succeeded in filling it with a display of bushes of various sizes, all beautifully in bloom and tastefully arranged in imitation of bold borders and massive beds. In addition to Rhododendrons, numerous fine specimens of Japanese Acers, Kalmias, Viburnums, Vitis and Palms were used. Most of the plants were established in pots or tubs, and these were hidden under a covering of brown wood Moss, suggesting soil. Altogether some 1,000 Rhododendrons were used, and they included about 100 varieties. Some of the plants were exceptionally

large; for example, a specimen of the variety Lady E. Cathcart was 10 feet high and bore 300 flower-heads. Special features of the exhibition were large groups of the varieties Pink Pearl, Gomer Waterer, Mrs. Stirling and Alice, a grand quartette of Bagshot origin. Other attractive varieties were Sappho, Doncaster, Lord Palmerston, Everestianum, double fastosum Mrs. Holford, Baroness Schroder, and Old Port. As one might expect, not one of the many varieties shown was without merit, and it was highly creditable to Messrs. Waterer to get such a number of them in flower at the same time. Great praise is also due to them for the condition of the plants, not one of

the other objectionable accompaniments of an exhibition hall in the heart of London are as uncongenial to them as cages are to animals. To see Rhododendrons in character one must go where they are at home. There are gardens in Surrey not many miles from Charing Cross where Rhododendrons are magnificent. The Rhododendron Dell at Kew is an ideal place for them, and they are exceptionally good there this year. In Richmond Park, too, not far from Richmond Gate there are enormous masses of Rhododendrons, chiefly ponticum, which are at the present time worth a long journey to see. Then there are the nurseries, where Rhododendrons are a speciality and grown to perfection.

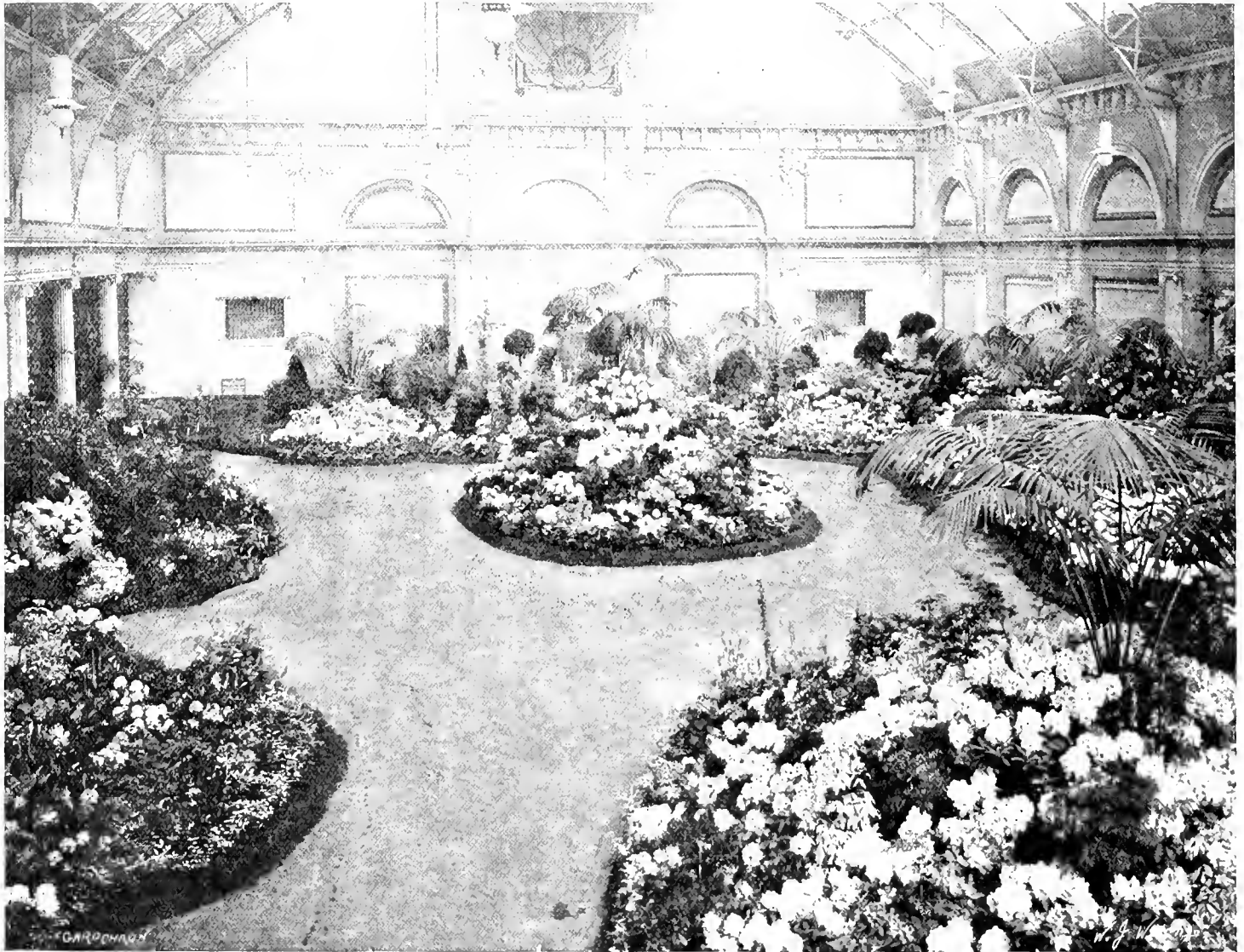


FIG. 161.—RHODODENDRON EXHIBITION IN R.H.S. HALL BY MESSRS. JOHN WATERER AND SONS.

which bore any trace of the rough handling inevitable to transporting so many large bushes in full bloom from the Bagshot nurseries to Westminster during weather which was not by any means favourable for the task. Naturally the plants had been specially prepared for the ordeal, and they were brought to London by a special train of 23 trucks. Beautiful as the exhibition was, and, no doubt, interesting and instructive to the thousands who saw it, there is a great deal more in Rhododendrons than could be set forth in a show building. For these plants are children of the mountains; they revel in moisture and mists; therefore, brick walls, a dry, stuffy atmosphere, and

Wherever the common ponticum thrives there one may plant any of the popular, or, shall we say, Waterer's Rhododendrons.

It must not be forgotten, however, that the genus is a very large and heterogenous one and that, whilst Messrs. Waterer and other breeders have confined their operations chiefly to *R. caucasicum*, *R. catawbiense*, *R. ponticum*, and *R. arboreum*, there are many other species which deserve and, we believe, are now receiving the attention of the hybridist. Many of the Sikkim species are perfectly happy out-of-doors in the south of Cornwall and similarly moist, mild parts of the British Islands. There are also the newcomers from China, which are full of promise.

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HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

DROUGHT IN NORTH WALES.—The daily Press tantalisingly chronicles heavy rains in various places, but in this locality we are suffering from drought, for no rain has fallen for the past 16 days, and although there are heavy dews by night this precipitation of moisture affords only a very temporary relief to vegetation. A drought in May is rightly considered to be little short of a calamity in gardens where the soil is at all shallow and poor. "A dripping May makes a fat harvest" is undoubtedly true, and at no season of the year are frequent showers more necessary than when growth is most active. Later on, when foliage is more abundant, and the soil is consequently more shaded, dry weather is not nearly so harmful as at the present time. In common with many other gardens in the neighbourhood we are busy watering early and late, and mulching the various borders, &c., during the hottest part of the day. Much good may be done by the frequent use of the Dutch hoe to conserve the moisture still in the soil, and in such weather as we are now experiencing the value of deep digging of the soil is clearly seen. *A. C. Bartlett, Bodnant, North Wales.*

LITHOSPERMUM AND LIME.—It may be of interest to record my experience with *Lithospermum prostratum*. The plant flourishes exceedingly well in the soil of this district, which is composed of the old red sandstone, and may be described as a fairly light loam but retentive of moisture. Young plants in pots, however, produced sickly yellowish growths: having seen this occur with specimens planted in chalk and limestone soils, the presence of lime in the potting mixture was suspected. Its presence could not be explained, however, unless it were due to the comparatively small quantity of carbonate of lime contained in the particles of shells in the potting sand. Coarse grit was used in its place, but with no better results. I believe the trouble was due to copious supplies of hard water given to the plants when in a young stage, for as the roots developed and the watering was diminished, the plants gradually grew greener, and finally made most luxuriant growth, forming excellent little bushes. I feel sure this Gromwell dislikes lime, but its large-flowered, rare, pale-blue Pyrenean cousin (*L. Gastonii*) grows well with me in soil mixed with limestone chips. The two perennial British species, *L. purpureo-cornutum* and *L. officinale*, seem certainly to prefer limestone formations; the former, however, flourishes under cultivation without any lime in the rooting medium. *Wilfred Evans, Hardy Plant Nursery, Llanishen, Glamorganshire.*

—My remarks on p. 298 should read "B., p. 266, does not state," &c. I should like to correct Mr. Bartlett's impression that I attribute his remarks to Mr. Somerville. *Frank Gunning.*

A VINE MYSTERY.—As bearing upon the notes by Mr. W. Taylor (p. 298), I remember a somewhat similar instance. It occurred in the winter of 1860-61, which, as some of your older readers will know, was a very severe one in the north, at any rate. On Christmas Eve the thermometer was 4° to 6° below zero in many districts. As was the general custom, the vines in question were planted outside, the stems being brought inside theinery through openings in the wall under the sill that carried the roof. In this case, some 2 feet of the stems was exposed before entering. By an oversight, the usual protection of a closely-twisted hayband, bound round them, had been omitted that autumn. Later on it was found the vines did not break into leaf at the usual time. On examination it was found that nearly all the rods up the roof were sapless and practically dead. The exceptions were, I think, two vines at one end of the house, where an adjacent underground flue had kept the temperature high enough to prevent injury. The others had to be cut out. There are many advantages to be gained in certain cases by planting vines for late summer and autumn crops in outside borders. All the same, care should always be taken to

have no part of the stems exposed above ground. As good Grapes were produced then, before, and since from such-planted vines, especially Black Hamburgs, as with modern methods, the taste being more thought of than the appearance. *Yorkshire Gardener.*

FORCING VINES.—Any amount of humidity can scarcely be detrimental to vines, so long as the buds are dormant, but once new growth appears an excess of atmospheric moisture results in sappy, long-jointed shoots. The consensus of opinion, as expressed by your correspondents, and supported by older authorities, accepts this principle as an essential in vine culture. I quote an eminent authority in support of Mr. Beckett's practice, and which also expresses the result of my experience. "In the early forcing of vines it is advisable to syringe them several times a day in bright weather, but much less frequently on dull days, and always early enough in the afternoon to allow them to become fairly dry before nightfall. The higher the temperature, the greater the syringing required. . . . Keeping the rods moist favours a good break." The same authority states, with regard to the humidity of the house, that "atmospheric moisture is essential to prevent excessive evaporation from the leaves, to prevent attacks of red spider and thrips, and to ensure the free swelling of the fruit." Vines may be syringed up to the time of flowering, and, so far as the foliage is concerned, syringing might be practised indefinitely, at more or less regular intervals, with good results. Only, after the fruit is set, it is generally found that water leaves a deposit on the berries, which mars their appearance, and for this reason syringing is never advocated beyond the setting period. Whenever syringing is discontinued, scrupulous care and attention become necessary in regulating the supply of fresh air and in maintaining the requisite amount of moisture in the atmosphere, as upon success in these matters depends the immunity of vines from attacks of red spider and thrip. Much of the trouble from these pests arises from inadequate measures being adopted to suppress them in the dormant season. The best dressing I have found for the canes consists of one pint of soft water, in which half an ounce of soft soap is dissolved and to which one dessertspoonful of nicotine compound is added. This specific is applied with a painter's stiff sash tool and well rubbed into the canes at the time of the annual cleansing of the house. With regard to the bending of the vines in order to secure a uniform break throughout the length of the rod, the upward flow of sap is checked by this bending, and the lateral buds and branches receive their due proportion of the ascending sap. Tying down does not always give uniform results, and it is possible that greater attention to temperature, in the earliest stages of forcing, would result in more uniform breaks, as in late houses, where vines start under more normal conditions, this trouble does not exist to any marked degree. *Thomas Smith.*

—Because I said I had used the syringe on vines as an experiment with an insecticide, two correspondents have assumed that it has to be used frequently. Were I or any one of the correspondents to state that no insects ever troubled us, doubts would be thrown on the truth of the statement. I have given some of my reasons for not lowering vines or using the syringe, and nobody has ventured to say that Grapes of the very best quality are not grown by those who follow the methods I recommend. Besides diminishing labour all round, the system possesses great advantages with those persons who cannot keep their houses exclusively for vines. Mr. C. Ruse very naturally asks what precautions are taken to combat red spider when the syringe is not employed. There seems to be a very general belief amongst gardeners that red spider breeds spontaneously in glasshouses if the latter are only kept sufficiently hot and dry. Hot, dry air is favourable for the increase of red spider, but it will not produce it where there is none. With forced vines, in houses used solely for the purpose, there is no excuse for harbouring red spider. Forced Grapes can be cut not later than August. If at that time a heavy sprinkling of sulphur is applied by means of the Malbec bellows, or the syringe, over all the surfaces of the leaves, stems, and walls, the house

being afterwards shut up on two or three sun-
afternoons, with a temperature of between 80° and 90°, not a single red spider can exist, and none will appear afterwards, unless brought there. In the case of later houses, it is not so simple a matter, because the fruit has to be kept in them till Christmas, when red spider has taken up its winter quarters and become dormant, in which state it is much more difficult to kill. Sun-heat also at that time is not sufficiently powerful to vaporise the sulphur, and sulphur itself is useless as an insecticide till it is raised to a temperature of at least 80°. My practice is to apply an abundance of it to the vine stems immediately after pruning. As much as half a pound of sulphur to a fair-sized vine rod is not too much, using it with soft soap—half a pound to a gallon of water. As much of the sulphur as possible is coated on the stem with a paint brush, and the buds in particular are covered with it. The soap has an immediate effect on all insects with which it comes in contact, but not so the sulphur, which is only effective when the temperature rises sufficiently high in the spring and summer, the sulphur vapour being given off all through the hot season. *Wm. Taylor, Bath.*

—So long as differently-constructed and heated vineries exist so long will different methods of forcing be practised, as each grower adopts that method most suited to the vineries under his care. In vineries with the hot-water main at the back, it is essential that the rods should be lowered and allowed to remain in that position until the berries are set, otherwise if tied up at the time they are started, the heat rising to the top of the vineries from the main should cause the top buds to start a considerable time in advance of the buds at the bottom: the flowering period of the vines would extend over three weeks, and the growths would be very uneven. If spraying the vines and vineries is of no material advantage to the vines, it will certainly keep in check any spider or thrip which, however careful we may be, is apt to be imported on some of the many kinds of plants that have to be accommodated in the vineries, and some vineries are so constructed that with only a very little sunheat they immediately become hot and dry. Opinions and practices also differ as regards admitting air by the front ventilators. A gardener acquaintance of mine never opens the front ventilators until his Grapes commence to colour, whilst his neighbour always admits air through the front ventilators when the external temperature is warm. His vineries are so differently constructed that if he attempted to follow his neighbour's practice of no front ventilation, his vine leaves would be scorched beyond recognition, and both these men produce excellent Grapes. Age and condition of vines are responsible for the different opinions on pruning: growers who have hitherto been staunch adherents to a particular way of pruning young vines will find it advantageous to prune quite differently if they take charge of apparently worn-out vines 40 years old, and are expected to restore them to fruitfulness and vigour. Those who practise in detail the advice given by the weekly writers may, without fear of disaster, continue to follow Mr. Beckett's advice on this subject, which at the present time is the system generally recognised. *W. W., Duddington.*

LATHYRUS PUBESCENS.—I read with special interest the note on p. 324 by *Mr. Tomalin* on *Lathyrus pubescens*. I was one of the first to flower the plant in this country in the open in my former garden by the sea in S.E. Kirkcudbrightshire, I think in 1898. Unfortunately the plant died afterwards. I do not believe that it will be a very reliable hardy flower, save in very mild gardens and districts. It is certainly not so hardy as the ordinary white Everlasting Pea, which is generally herbaceous, while *L. pubescens* is semi-shrubby or shrubby. Your contributor is fortunate indeed if his garden is mild enough to retain *L. pubescens* for a series of years, as it is one of the most charming plants of its class. I believe it is easily harmed by coddling in winter: what it requires is merely a little shelter, such as is afforded by thin branches. I have been for several years in touch with those who have been trying to grow this Pea, and the general conclusion is that it is only suitable for a warm corner in a favoured garden or for a cool glasshouse. *S. Arnott.*

* *Fruit-Grower's Guide*, by J. Wright, vol. iv., p. 295.

CORONATION TREES.—The note by W. H. Y. describes a very practical method of planting trees. There are some people, however, who would not care to allow wooden crates to rot in the soil. Perhaps there is really not the danger from decaying wood affecting healthy roots as is generally supposed, but in the case of coniferous plants I should prefer, when planting, to remove the entire crate or box from the soil. There is really no great difficulty in removing a tree from a box or tub if these are made as they should be, viz., larger at the top than at the base; many people adopt the method of a removable side, which simplifies the task. *C. Russ.*

TENTS AT FLOWER SHOWS.—It seems rather an extraordinary thing that in these otherwise enlightened days, an appreciation of the brilliancy of colour and delicacy of form of our floral displays should be so terribly handicapped by want of light in the marquees beneath which they are exhibited, to say nothing of the sufferings of the spectators due to the absence of any adequate means of ven-

tilation. Even at the Temple Show, where one would imagine the utmost would be done by the Council to insist upon the suppliers of the tent accommodation providing such necessities, complaints were universal. Flowers were presented for judging in groups arranged under old and dirty canvas which only admitted sufficient light to enable the plants to be dimly discerned, and the merits of the flowers as regards colouration could only be judged by shifting them near the opening and raising the flaps of the tents to admit a little light. In the larger marquees newer canvas was partially used, but only partially, huge strips of dark brown material intervening and cutting off the major part of the all-essential illumination. Even in the brilliant sunshine, with which the show was favoured throughout, this handicap was tremendous, while in dull weather dismal-looking tents are quite prohibitive of a proper appreciation of the exhibits. Ventilation was provided for on a minimum scale by small openings in the roof which, if necessarily small, should be multiplied; but in any

case, since much of the bad lighting is simply and solely a question of cleaner canvas, a condition should be inserted in the agreement with the contractors that any negligence in this respect should be subject to a heavy forfeit. *C. T. D.*

THE CYDER INDUSTRY.

(Continued from p. 305.)

The finest and most carefully-tended cyder orchards I have seen are those of Messrs. Whiteway & Co., Ltd., at Whimble, Exeter, who not only manufacture some of the best-known cyders, but also a non-alcoholic cyder, known as "Cydrax," which is widely appreciated. At the time of my visit these orchards were heavily laden with fruit which hung in graceful festoons along branches nearly to the ground, coloured in every hue of primrose, yellow, gold, crimson, and bronze, and in such profusion as I have never seen before. Although I am an expert in com-

machine which washed the Apples and threw out any rotten or bad fruits before the bulk passed to the grinding mills. So recently-established a concern was naturally up-to-date, and I fancy their speciality lies in "dry" cyder in bottle. The quantity in the bottling cellars was amazing, and the care and attention given to all details fully warranted the exclusive trade they have deservedly gained. Some of their noted brands, as the "Foxwhelp," reaching to champagne prices.

The Norfolk cyders of Gaymer & Son, at Attleborough, are very fine, and to the general public more acceptable than the accredited flavour esteemed by experts, as it is sweeter. They use a variety of Apples, not always of the vintage kinds, but of known repute, such as Blenheim Pippin, Ribston Pippin, and similar high-quality fruits, and they are often large purchasers at the Kent orchards sales. Their prices are within the reach of all. It is an established fact that regular cyder drinkers seldom suffer from attacks of rheumatism, gout and kindred troubles, and the old story of a workman having been seen at a "public" at eight in the morning drinking cyder and continuing his potations until when interviewed at eight at night, regretfully said he was "no forrader," shows that the cyder possesses a low percentage of alcohol (some 3 to 6 per cent.), not much more than ginger beer, so that the beverage, as now made by scientific, cleanly, up-to-date methods, is a healthy, thirst-satisfying and pleasant drink, and worthy of much wider attention than it now receives. I hope, therefore, that this little contribution may stimulate many to support these home industries, and at the same time add to their own health, comfort and economy, this latter being a matter of no small moment in these days of ever-growing expenses.

* * * *

"The Hesperides brag of golden Apples, Wee
Have equal fruit, not fenced, but dragon free.

* * * *

Vin de Paris, Vin d'Orleans, Vin Sharoon.
With all the Gallick wine are not so boone
As hearty cyder, ye strong son of wood
In fullest tydes, refines and purges blood.

* * * *

Death slowly shall life's citadel invade."

"James Badain (a cyder drinker), 105 years and upwards, was so vigorous the week before he died that he plowed most of the day in summer heat, without covering his head."—*Herefordshire Pomona.*

It is a well-known fact that cyder drinkers are long-lived. *George Bunyard, Maidstone.*

SCOTLAND.

KING EDWARD AND THE GARDENER'S CHILD.

In the new book, *King Edward as a Sportsman*, just issued by Messrs. Longmans, Green & Co., in the chapter headed "Balmoral," is related an interesting incident. It appears that on the occasion of a visit paid to a remote place in the Highlands the school children were assembled to welcome him, but the King's hostess informed him that a little girl—a gardener's child—was deeply disappointed at being prevented by illness from attending with the others. We are told that:—"In the afternoon the King went out for a stroll by himself. He found out the gardener's cottage, and called in to pay a visit to the sick child, who was alone in the house. When the mother returned she found the King sitting by her child's bedside. Before he left he gave the little girl a half-sovereign, carefully choosing one that bore his own 'image and superscription' as a memento of his visit. Nor did he neglect, when he returned some years later to the house, to go and inquire at the gardener's cottage for the little invalid." *Correspondent.*



FIG. 162.—ROCK-GARDEN DESIGNED BY MESSRS. FULHAM AND SON AT THE TEMPLE SHOW.
(See p. 326.)

mercial varieties, I could only name some three or four, one being that most widely-spread but little-known Apple Grange's Pearmain, from which Messrs. Whiteway make a special Whimble cyder. The trees in these orchards appear to be mostly seedlings, from 30 to 40 years old, a vast contrast to the ancient specimens planted 150 years back by the noted Lord Scudamore in the Holme Lacy Orchards, Hereford, which I saw fruiting freely, though the lower branches were decayed, and one had to crane one's neck to get a view of the colour of the fruits, which include the famous Normanly vintage fruits, now utilised by the enterprising firm of Bolmer & Sons, at Hereford, whose works are quite up-to-date, and where all the operations are carried on at one central establishment. When there I saw three acres of grass land covered 3 or 4 feet deep with freshly-gathered fruit, maturing for the mills.

One thing impressed me specially, namely, a

SOCIETIES.

ROYAL HORTICULTURAL TEMPLE SHOW.

EXHIBITS DISPLAYED OUT-OF-DOORS.

Messrs. J. CARTER & Co., Raynes Park, Wimbledon, designed a Japanese garden (see fig. 163), approached from their exhibit of flowering plants in the long tent. The most was made of a water scene, the pond being fed at one end from a dripping pool and crossed by a hog-backed bridge and stepping stones, the latter leading to a tea house built in the Japanese style. The outskirts were bordered by Conifers, principally *Sciadopitys verticillata*, and by large plants of *Wistaria*, with here and there a blue-flowered

Lilium, banks of tall *Eremuni*, Roses trained on rustic poles, and a selection of the choice varieties of border plants in season. In one corner, a bank of *Trollius*, mingled with tall spikes of *Watsonia Aideni* and white-flowered *Lilies*, made a delightful combination. The front of the rock-garden was undulating, the foreground being planted as a bog garden, and in one corner were colonies of hardy *Cypripediums*, *C. montanum*, *C. pubescens*, *C. Calceolus*, and *C. acule* being the more conspicuous species. At the opposite end was a cave forming the termination of a pool of water, the banks of the latter being planted with groups of *Primulas*, *Meconopsis* in variety, *Irises*, *Gunneras*, and other moisture-loving species. The summit of the rockery was crowned with a band of *Rhododendrons*, *Azaleas*, and other flowering shrubs.

colonies of *P. Bulleyana* with orange-coloured blooms, *P. sikkimensis*, *P. Cockburniana*, *P. formosa*, *P. japonica*, *P. Littoniana*, *P. Veitchii*, and many others. Some fine spikes of *Saxifraga pyramidalis* crowned the highest summit of the rock-garden.

Messrs. W. ARTINDALE & SON, Sheffield, arranged a large rockery with a bank of *Peonies* in the foreground, and a row of *Violas* of the *cornuta* and *gracilis* types. The back of the rockery had a bold bluff of a dark grey stone, down which hung great masses of *Daphne Cneorum* and *Saxifragas* of the *decipiens* type with *Ferns* in crannies. On large ledges of stone were colonies of *Saxifragas*, *Prunula Veitchii*, *Ranunculus aconitifolius*, *Polemonium reptans* and other suitable plants.

Mr. G. REUTHE, Keston, Kent, set up a rockery



FIG. 163.—MESSRS. JAMES CARTER AND CO.'S JAPANESE GARDEN AT THE TEMPLE SHOW.

Hydrangea. At appropriate spots were stone lanterns, pagodas and bronze storks. Pigmy trees in porcelain vases and bowls gave a further touch of picturesque quaintness to the scene. In one part, provision was made for a rockery, and this was not crowded with plants as is so often the case in exhibition rock-gardens.

Messrs. W. CURTISH & SON, Highgate, had the largest exhibit out-of-doors. It took the form of a rectangle, with an imposing Alpine garden and rockery at the extreme end (see fig. 164). A centre-piece, bordered all round by the pathway, consisted of a low mountain rockery, with pool of water. The sides right and left of this were representations of herbaceous borders to show colour effect. These borders were arranged with great clumps of

Messrs. T. S. WARE, LTD., Feltham, put up a large rock-garden exhibit. The back portion, approached by a circular path, was especially good. On the summit of this part was a batch of the bright, blue-flowered *Aquilegia Stuartii*, and contrasting finely with this was a colony of *Phlox Vivid*, a delightful pink variety. On either side were large bays planted with hardy *Cypripediums*, *Phlox canadensis Laphamii* (lavender), *Chimaphila maculata*, forms of *Primula japonica* and *Lewisia oppositifolia*.

Messrs. HEATH & SON, Cheltenham, were the exhibitors of a large rock-garden, having a circular path of stepping stones, which cut off a half-circular portion in the foreground. The exhibit was remarkable for the great number of *Primulas*, both species and varieties. There were

planted with rare and choice Alpines. A prominent position was afforded *Lewisia Cotyledon* which gained an Award of Merit and was illustrated in our last issue, and there were also choice specimens of *Saxifraga Brunoniana*, *S. Sanderi*, *Salix lanata*, *Salvia candidissima*, and *Saraca Kamtschatica*.

The Misses HOPKINS, Shepperton-on-Thames, put up a rock-garden as a table display with a pool of water effectively disposed and planted with *Aponogeton distachyon*. Some fine *Trolliuses* were observed in the group, also *Primula japonica*, *Symphandra Waineri*, *Viola elatior*, the fine *Aubrietia Lloyd Edwards* and *Iberis jucunda*.

Messrs. J. CHEAL & SONS, Crawley, displayed ornamental-leaved trees and shrubs with

Rhododendrons, *Magnolia Soulangiana nigra* (very finely flowered), *Cytisus Andreanus*, *Viburnum Opulus*, and other flowering subjects. A batch of *Rhododendron The Bride* was in delightful condition of bloom. Japanese Maples, and especially the varieties of *Acer dissectum*, were conspicuously good.

Messrs. JAMES VEITCH & SONS, Chelsea, staged flowering shrubs, *Primulas* in variety, including many of their new introductions: *Nemesia Blue Gem*, with flowers of a pale "Myosotis" blue; *Eremurus robustus Elwesianus* with blush flowers; *E. himalaicus*, white; *Meconopsis integrifolia*, *M. punicea*, *Rosa Hugonis* and a variety of other garden plants.

Mr. L. R. RUSSELL, Richmond, had a striking group of ornamental-leaved hardy plants, including a fine selection of gold and silver-leaved *Ivy*s. Immediately in the foreground was a bank of *Pink Pearl Rhododendron*, and in the centre a batch of *Clematis montana rubra*. Standard *Cytisuses* grouped about with ornamental-leaved Maples, golden-leaved *Aucubas* and *Eleagnuses*, with here and there a blue-flowered *Ceanothus* or white *Stellaria*, made an effective setting.

Messrs. W. FROMOW & SONS, Chiswick, had a large exhibit of Japanese Maples, the plants being admirable specimens.

Messrs. R. WALLACE & Co., Colchester, designed an interesting piece of Alpine gardening, representing successive outcrops of stone from a sloping meadow. *Phloxes*, *Heucheras*, *Gentians*, and *Morisi*s clothed the rocks, with a judicious use of dwarf Conifers. In a boggy depression to the north were hardy Ferns, *Primulas*, *Trollius*, and *Epimediums*.

Messrs. H. PULHAM & SON, Newman Street, Oxford Street, London, put up a large rock-garden near the main entrance, the stones being massive and well-arranged (see fig. 162).

THE BURTON HARDY PLANT NURSERIES, Christchurch, Hants., displayed a collection of rock plants, choice specimens of *Sedum pilosum*, *Corydalis Wilsonii*, *Lithospermum Froebelii*, *Ranuncula pyrenaica alba*, and *Lewisia rediviva* being observed.

Messrs. EGGETT & SON, Thames Ditton, arranged a small cork rockery to display the dwarf Conifers, hardy *Athyriums*, *Lastreas*, and *Poly-podiums*, in which they specialise.

Mr. R. C. NOTCUTT, Woodbridge, Suffolk, arranged a varied bank of shrubs in bloom composed mainly of *Rhododendrons*, including *Pink Pearl*, *White Pearl*, *Fortunei*, and *Duke of York*; also *Azaleas ledifolia* and *roseiflora*, *Lilacs*, *Kalmias*, and *Choisya ternata*.

Messrs. R. and G. CUTBERT, Southgate, arranged on the grass a showy group of *Tulips* in pots and vases. The best varieties were Mr. Farncombe Sanders, Inglescombe Scarlet, Mrs. Moon, Sunset, Lucifer and Galatea.

Mr. CLARENCE ELLIOTT, Six Hill Nurseries, Stevenage, designed an effective rock-garden with grey York weathered limestone and large clumps of *Daphne Cneorum*, *Oxalis enneaphylla*, *Campanula Allionii*, *Myosotis rupicola*, *Tiarella unifoliata* and other choice Alpines.

THE CRAVEN NURSERY, Clapham, Yorks., designed on a small scale one of the most ambitious of rock-garden effects. On one side was a moraine covered with granite chips and dotted with appropriate plants, and on the other a sloping Alpine meadow carpeted with close turf, from which sprang *Primula farinosa*, *Hypogaea*, *Myosotis* and *Violas*. Between and at the back were rocky outcrops furnished in the clefts with *Saxifragas*, &c. The rare *Daphne rupestris* was one of the choicer plants included. The stone employed was the grey water-worn limestone.

Mr. H. CORREVON, Floirac, Chêne-Bourg, Geneva, Switzerland, showed a collection of rare Alpines. Popular interest centred round the bee, spider and other meadow Orchids, but more valuable were the collected specimens of *Saxifragas lantoscana*, *cochlearis* and *lingulata*.



FIG. 164.—OUTDOOR EXHIBIT SHOWN BY MESSRS. W. CUTBUSH AND SON AT THE TEMPLE SHOW.

(See p. 355.)

Messrs. STUART LOW & Co., Enfield, exhibited a large number of the scarlet-flowered *Metrosideros floribunda* with pyramidal and columnar Bays at the back, and interspersed with a few specimens of blue-flowered *Hydrangeas*. Next to these was a group of pillar and dwarf *Polyantha Roses* from the same firm.

Messrs. PAUL & SON, Chessington, exhibited a group of *Rhododendrons* and *Azaleas* with boxes containing Alpine and herbaceous plants in the foreground.

Messrs. J. PIPER & SONS, Bayswater, had a considerable number of Box and Yew trees clipped into fantastic designs.

Messrs. BARR & SONS, Covent Garden, filled a large alcove with dwarfed trees in porcelain receptacles, imported from Japan.

Messrs. H. B. MAY & SONS, Edmonton, had a large group of hardy Ferns, baskets of gold and silver-leaved *Pelargoniums*, varieties of *Heliotrope*, several fine *Lobelias*, including "Waverley Blue," with flowers of clear opal blue, standard *Fuchsias*, *Coluses* in variety and some delightful varieties of *Verbena* in blue, crimson, white, pink, scarlet and other shades.

Mr. REG. PRICHARD, West Moots, near Wimborne, staged a small collection of Alpines, including *Mertensia echioides*, *Pentstemon cyananthus*, and *Gentians*.

Mr. A. J. UPTON, Guildford Hardy Plant Nursery, had a large and boldly-arranged piece of rockwork, on which were arranged fine clumps of many good plants: *Viola cucullata*, *Mertensia echioides*, *Antennaria hyperborea*, *Apuga reptans atropurpurea*, and mossy *Saxifragas* were especially good.

Mr. MAURICE PRICHARD, Christchurch, Hampshire, staged one of the most varied collections of Alpines. *Helichrysum frigidum*, *Silene Hookeri*, *Emothera ovata* (from the Rockies) and *Saxifraga Dr. Ramsey* were the choicest plants, but *Lithospermum Heavenly Blue*, *Tanaka radicans*, *Iris gracilipes*, *Omisia coccinea*, and the rose and yellow forms of *Saxifraga aizoon* were all shown well.

Messrs. WILLIAM PAUL & SON, LTD., Waltham Cross, Herts., arranged a group of flowering shrubs, including *Rhododendrons*, *Azaleas*, *Ceanothus* and *Lonicera plantierensis* and *L. flava*.

KEW GUILD.

ANNUAL MEETING AND DINNER.

MAY 24.—Last year, for the first time since 1900, the annual dinner of the past and present members of the Kew Gardens staff was allowed to lapse, but the event took place this year as usual, and proved an unqualified success. The attendance was large and enthusiastic, and it seemed as if all were determined to place the function on such a basis as to make another abandonment of the dinner impossible. The gathering was presided over by Mr. R. Hooper Pearson, and most members of the garden staff were present, including Mr. W. Watson, the Curator. It is a proud boast of the Guild that its members are to be found in every quarter of the globe, and there were present on this occasion, besides European members, Mr. R. L. Proudlock, from Bengal, Mr. R. Band, from the Gold Coast, and Mr. E. W. Davy, from East Africa.

Immediately after the loyal toast had been honoured, the business part of the proceedings was commenced, and the hon. sec., Mr. Cowley, read the report of the committee for the past year. The President moved the adoption of the report, which he described as satisfactory. The motion was seconded by Mr. Proudlock. Some discussion took place as to the liability of the Guild to its life members, and very great interest was shown in the method of presenting the accounts. Mr. Paine (Ireland) informed the meeting that an Irish branch of the Guild had been formed by old Kew men resident in Ireland, but it was the general feeling at the meeting that such a step as the formation of a branch could not be undertaken without proper authorisation, such as new rules could alone provide. After a slight alteration in the balance-sheet, the report was adopted. Following this, Mr. Paine read a statement drawn up by the Irish members, and containing a number of suggestions for the consideration of the Guild.

The business proceedings terminated with the election of officers, and afterwards the meeting gave itself up to toasts and music, the songs being contributed by Messrs. Hillier (Curator of Museums), and T. W. Briscoe (Messrs. James Veitch & Sons).

The President, Mr. R. Hooper Pearson, in giving the toast of "The Kew Guild," drew attention to some remarks made by Sir William Dyer some years ago concerning the Guild. He said that one of the principal objects of the Guild was to enable the members to renew old friendships and start new ones; also that Kew, with its unrivalled collections of plants, and, therefore, so splendidly equipped for the purpose, might be caused to have a marked influence on the training of professional horticulturists. He (the President) was quite certain that all present that night would agree with both propositions. The Guild, with its 330 members, in addition to the present staff at Kew, was a means of expressing the sympathy that united Kew men the world over, a sympathy which was the outcome of their common love for Kew, the

finest garden in the world, and, for them, a garden of memories. But after the promotion of friendship, the next duty of the Guild was that of doing everything within its power not only to raise Kew-trained men in the estimation of the public, but also to see that Kew men were deserving of the high position in practical horticulture to which they aspire. Kew, with its traditions as an institution, and its repute as a garden, had a very strong power of attraction, and this should be taken advantage of to select only the best candidates for employment there. Kew rightly insisted that candidates should first have several years' practical experience in good gardens, and the requirement might very well be increased to five or even six years. Kew, with all its advantages, should certainly be the training-ground of men destined to occupy the most responsible positions in the gardening world. But it was necessary that the practical aspects of Kew should be supplemented with the best teaching in horticultural science. There should be conferences between the directors, curators, and

W. Pettigrew, Hugh A. Pettigrew, J. Dyfri Jones, W. Aggett, H. Cowley, J. C. Newsham, and R. Hooper Pearson, making a total of £13 13s.

ROYAL PHOTOGRAPHIC.

This 56th exhibition of this society should be visited by those interested in Nature's various phenomena of sky, land, or water, for in its several sections, apart from those devoted to the humanities, we may trace many of the earth's life-stories rendered in photography.

There are, for instance, in the Natural History section, the life-histories of the "Painted Lady" Butterfly and the "Dragon Fly," by John J. Ward, and that of the "Lace Wing Fly," by Hugh Main; and they are clearly and humorously told from the egg to the moment when the perfect imago shakes its wings, eager to conquer the new world of air. We may see "the Great Diving Beetle," descending and ejecting air bubbles, as sketched by John T. Roberts. And the children as well as the

bloom, with leaves in shape like Mistletoe, by A. J. Fuller. There is also a study of "Acokanthera venenata," having a Shekik-fruit, with milky juice, used by the African bushmen in poisoning their arrows.

In the Pictorial Section are many views of trees, the Silvery Birch, the Scotch Fir, and the Horse Chestnut—the latter for its handsome foliage, and the first-named for its picturesque bark effects, proving favourites in photography. In this genre may be mentioned "Bouley Bay," by Bertram Park; a soft, dreamy view of Fir trees, "The Old Pant," by E. T. Holding, in which the delicate forms of the Chestnut leaves stand out against the evening sky above the boat; and a similar subject "Bruges Canal," by N. Brealey. "A Misty Morning," by J. Tecker, and a print of Birch trees, which is interesting as being of a colour photograph taken direct from nature in a scheme of green and mauve.

"Emblems of Summer," by Mrs. H. Parsons, in which the grouping of the Roses is good, and the Lilies in the "First Communion," by Mrs. Barton, are noticeable for merit.



FIG. 165.—MESSRS. WEBB AND SONS' EXHIBIT AT THE TEMPLE SHOW.
(See p. 317.)

committee of the Guild from time to time for the purpose of improving the teaching curriculum, and gaining the confidence and loyal cooperation of the students.

In conclusion, Mr. Pearson strongly urged the formation of a special fund for benevolent purposes, in order that the committee might be placed in a position to afford pecuniary help to members without having to trespass on the general funds.

The toast was responded to by Mr. R. A. Rolfe (Herbarium), who was anxious that the Guild should not undertake too much work. The toast of "The President" was proposed by Mr. W. Watson, A.L.S. (Curator), and, in the course of his reply, Mr. Pearson announced that the proposition to form a special benevolent fund had met with a very hearty reception. In order to establish it right away, many of his friends had promised to contribute one guinea each. The donors were Messrs. C. H. Curtis, Fritz Sander, W. Hales, H. H. Thomas, R. L. Proudlock, John Weathers, W.

scientist will delight in the "Life Adventures of a Tadpole," from the spawn till the happy moment when, a perfect frog, he lands on a Mushroom!

We see also delightful incidents in the career of a small "Long-tailed Field Mouse," by F. Pitt; and when one regards, by C. J. King, the perfect home-life in the pictured "Eyre of the Peregrine Falcon," and the "cute" little mother bird feeding its young, one could almost weep to think of its wickedness, outside of home—to other innocents of the bird world.

Studies of "Bur-weed in Flower and Fruit," by Alfred W. Dennis, and some photographs of British fungi (all taken, as growing, direct from Nature), by S. Hastings, will be intensely interesting to botanists and those who care about identifying the edible varieties. There is an admirable representation of our wild British Arum, the "Cuckoo Pint, in Flower and Fruit," and in the same section, a branch of *Cunomia censis*—one of the few indigenous trees still left on Table Mountain, having a brush-shaped

In Section II, are studies of "Grapes," black and white, by E. L. Marillier, which claim attention; also "Gooseberries," by Geo. A. Booth, and *Chrysanthemums*, by H. Light. The "Purple Hyacinth" and "Red Poppy" of R. W. Berry are interesting as an attempt to render the infinite variety of Nature in two colours on tinted paper. An excellent print of fruit, Apples and Grapes, by E. Seymour, brings us on to "Arum Lilies," by Emma Marillier, one of the best flower-pieces in the show. The simple form of both flowers and leaves is well adapted to the possibilities of the camera.

Apart from the prints, there is also in this section, by D. and L. Berlin, an ingenious "Sunshine Index," a mechanism for ascertaining the direction of the sun's rays each hour from sunrise to sunset. In another department there is a chart with explanation of the colour screens used in the three-colour process of photography. The scientific side of photography is well demonstrated by appropriate exhibits. *Mary L. Breakell.*

BRITISH GARDENERS' ASSOCIATION. (LONDON BRANCH.)

MAY 11.—The third annual meeting of the London Branch of the B.G.A. took place at Carr's Restaurant on the above date. Mr. North presided; more than 50 members were present. The committee's report showed that the past year had been a successful one, and that the membership is increasing. The balance-sheet showed the branch to be in a sound condition financially.

In moving the adoption of the report and balance sheet Mr. Hawes congratulated the members upon the progress they had made, and referred to the fact that the London Branch had been able to carry on its work without any money-grant from the Executive Council.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

APRIL 13.—At the meeting of this society, held on the above date, *Cattleya Harrisonae* alba var. *Gratrixe* was awarded a First-class Certificate, and *Odontioda Gratrixe* an Award of Merit; both were exhibited by S. GRATRIX, Esq., Whalley Range, Manchester.

Odontoglossum crispum var. *Kathleen Warburton* was shown by A. WARBURTON, Esq., Haslingden.

Odontoglossum × *Heywoodense* and *O.* × *Lambeaunum* var. *Mrs. H. Peeters* received Awards of Merit. Shown by W. R. LEE, Esq., Heywood.

A fine specimen of *Lycaste Skinneri* var. *alba*, shown by O. O. WRIGLEY, Esq., was awarded a Silver Medal.

APRIL 27.—At the meeting held on this date, Z. A. WARD, Esq., Northenden, was awarded a First-class Certificate for *Odontoglossum* × *Wilkeanum* var. *Mrs. Ward*, undoubtedly the finest form of this hybrid. *Dendrobium acuminatum* var. *superbum* received an Award of Merit. It was shown by Mr. A. J. KEELING, Westgate Hill, Bradford.

Laelio-Cattleya × *Dominiana* var. *alba*, shown by Messrs. CHARLESWORTH & Co., Haywards Heath, has white sepals and petals, with a deep crimson lip. The plant received an Award of Merit.

Odontoglossum × *percultum* var. *purpurascens*, shown by W. R. LEE, Esq., Heywood, received an Award of Merit, and a new hybrid named *O.* × *Pluto* received a First-class Certificate.

A Silver-gilt Medal was awarded to Z. A. WARD, Esq., for a fine display of *Odontoglossum*.

MAY 11.—At the meeting held on this date, R. ASHWORTH, Esq., Newchurch, received Awards of Merit for *Miltonia Phalenopsis* and *Odontoglossum* × *anabilis*, var. *Milky Way*.

NATIONAL TULIP.

MAY 24, 25.—The eighteenth annual exhibition of the National Tulip Society was held on these dates in the Temple Gardens, Thames Embankment, being the second and third days of the Temple Flower Show. Very few people beyond those directly interested were aware of the Tulip Show, and the special tent was placed none too prominently, nor was there anything to indicate that the show was being held inside it.

Competition was restricted to some half-dozen exhibitors or thereabouts, but these enthusiasts, although so few, are to be congratulated on the beautiful flowers they showed and in keeping alive the interests of the true florist's Tulip.

The first class in the schedule was for 12 dissimilar rectified Tulips, two feathered and two flamed of each class. The 1st prize was awarded to Mr. C. W. NEEDHAM. He showed George Hayward (a large bloom), Mrs. Collier, George Edward, Masterpiece, Mrs. Hepworth, Sir J. Paxton (the premier flamed flower in the show), Modesty, Stockport, Mabel, Chancellor (a fine bloom), Samuel Barlow, and Annie McGregor. The 2nd prize was awarded to Mr. J. W. BENTLEY, Middleton, Manchester; this exhibitor showed a fine bloom of Mrs. Collier in his collection, which also embraced Sir J. Paxton, Sam Barlow, Annie McGregor, Fanny, R. Heady, Garibaldi, and Bessie; 3rd, Mr. W. DUNN, Cambridge, whose best bloom was the variety Sam Barlow.

In the class for six dissimilar rectified Tulips,

one feathered and one flamed of each class, Mr. C. W. NEEDHAM, Hale, Cheshire, beat two other competitors, winning the 1st prize with George Hayward (a small but good bloom), Mrs. Collier, Stockport (a splendid specimen), Duchess of Sutherland, Sir J. Paxton, and Mabel; 2nd, Mr. J. W. BENTLEY, Middleton, Manchester, with Annie McGregor (a refined specimen), Sam Barlow (also extra good), Stockport, Wm. Annabel, and Mrs. Atkin; 3rd, Mr. W. DUNN with smaller flowers, his two finer blooms being Sir J. Paxton and Annie McGregor.

The premier exhibit of three flamed Tulips was shown by Mr. NEEDHAM, who had Annie McGregor, Talisman, and Sir Joseph Paxton; 2nd, Mr. J. W. BENTLEY, with Talisman, Mabel, and Sam Barlow; 3rd, Mr. W. DUNN.

Mr. NEEDHAM also excelled in the class for six dissimilar breeder Tulips, two of each class, the blooms of Annie McGregor, Sir J. Paxton, and Lloyd's Seedling, together with Litchurch, Talisman, and Mme. St. Arnaud constituted a fine collection; 2nd, Mr. J. W. BENTLEY, with Gerald, E. Pegg, Mme. St. Arnaud (a grand flower), Talisman, Mrs. Barlow (of exquisite rose colour), and Alfred Lloyd (a richly coloured Tulip).

Mr. BENTLEY showed the finest feathered rose Tulip in Modesty, and the best flamed rose Tulip in his bloom of Mabel.

The finest feathered Byblömen was Mr. A. D. HALL's flower of Elizabeth Pegg, whilst the best flamed Byblömen was Miss Henderson, shown by Mr. BENTLEY.

MESSRS. BARR & SONS, King Street, Covent Garden, showed the finest feathered bizarre, the variety being James Wells, and the 1st prize for a flamed bizarre was awarded to Mr. NEEDHAM for a bloom of Sir J. Paxton.

The 1st and 2nd prizes for a Byblömen breeder Tulip were won by Mr. A. D. HALL.

Stockport, shown by Mr. JAMES W. BENTLEY, was the premier bloom of a feathered rectified Tulip.

The premier bizarre breeder was Dr. Cooper, shown by Mr. NEEDHAM, who was also placed 2nd for his bloom of Sam Barlow.

Mr. R. W. HALL, Cambridge, was the only exhibitor in the classes for six dissimilar rectified Tulips, for three framed Tulips, for three dissimilar breeder Tulips, and for two rectified Tulips.

MESSRS. BARR & SONS were awarded the Gold Medal offered for the best collection of 20 vases of dissimilar garden Tulips, seven blooms of each variety in a vase, Messrs. HOGG & ROBERTSON RUSH, Co. Dublin, being their only competitor.

BATH AND WEST AND SOUTHERN COUNTIES.

MAY 31-JUNE 5.—The Bath and West and Southern Counties show is being held this year at Cardiff, and ideal weather prevailed on the first day (Wednesday). The opening ceremony, performed by the Lord Mayor of Cardiff, was attended by a large number of prominent local people. Visitors at the show are very numerous, and the exhibition promises to prove a great success.

The horticultural displays are accommodated in a single tent, but the space is not nearly large enough, and numbers of late exhibits have been refused in consequence. The groups of flowers are of a high standard of merit, and especially the Rhododendrons, Begonias, Orchids, and cut hardy flowers. Below are enumerated the principal exhibitors. Messrs. JOHN WATLER & SONS, LTD., Bagshot, Surrey, display excellent Rhododendrons, Messrs. GODFREY & SONS, Exmouth, a large collection of Pelargoniums in pots, Messrs. J. GARROWAY & Co., Clifton, Bristol, have a splendid group of their fine strain of *Schizanthus*, the individual plants being exceptionally large. Mr. WILLIAM TRESEDER, Cardiff, has a bright exhibit of hardy flowers. Roses are shown in quantities by Messrs. WALTERS & SON, Bath, the display being very pleasingly put up. Messrs. JAMES CYPHER & SON, Cheltenham, have arranged a group of Orchids on a similar plan, but not of such large dimensions as their imposing display of these flowers at the Temple Show. Messrs. PAUL & SON, Chesham, have many new varieties of Roses, and another fine display of Roses is made by Messrs. GEO. COOLING & SONS, Bath, the inclusion of Clematises giving an additional item of interest to the latter group. Begonias of

splendid quality are shown by Messrs. BLACKMORE & LANGDON, Bath. Messrs. YOUNG & CO., Cheltenham, have a beautiful exhibit of Carnations, the blooms being greatly admired by visitors. Mr. J. CROSSLING, Penarth, has a mixed group of Roses and Carnations. An extensive exhibit is presented by Messrs. ROBERT VEITCH & SON, Exeter, the plants being arranged on a rough bank, in which a waterfall is provided. The bank is planted with a great variety of flowering plants, whilst conifers and Rhododendrons serve as a background, and Alpines are arranged in the foreground of the group with splendid effect. Mr. ELLISSON, West Bromwich, has Ferns in variety. Mr. RICH, Bath, has a bright exhibit of cut flowers, whilst an assortment of bulbous-rooted species is exhibited by Mr. FRANK LILLEY, Guernsey, his *Ixia*s being remarkably good. Messrs. JARMAN & Co., Chard, show their pretty varieties of *Centaurea*, also Zonal-leaved Pelargoniums and Carnations. Mr. J. MILBURN, Bath, has a dainty display of Alpine plants. Messrs. W. CUTBUSH & SON, Highgate, have a large group of Roses and Carnations, the former including pot plants of charming varieties with numerous dwarf polyantha sorts at the base. Mr. HAROLD EVANS, Llanishen, has arranged a rockery with a wealth of seasonal subjects in bloom in the open near to the horticultural tent. W. W. P.

Obituary.

PHILIP MACMAHON.—Kewites of the early 'eighties no doubt retain a lively recollection of Mr. Philip MacMahon, who combined with a keen interest in scientific horticulture the poetic temperament, a lively imagination and a ready tongue. He was an Irishman possessed of considerable personal charm, and when he entered Kew as a journeyman gardener, in 1881, he quickly came to the front as a speaker and writer. At that time the Mutual Improvement Society at Kew was a debating body of no mean order. I have heard discussions at the society's meetings that would have done credit to societies of much greater pretensions. James Hartland, John Deacon, Bernard Shaw, William Kennedy, Augustine Brenchley, George Marchant, Frank Ross, Michael Barker, John Hall, John Fraser, Harry Witty, and Philip MacMahon were some of the promising young men of that period who made a good impression whilst at Kew, and have kept up their heads since. Whatever was in hand, work or play, business or pleasure, these men put their backs into it, and Philip MacMahon was one of the leaders. MacMahon left Kew in March, 1882, to be curator of the Botanic Gardens, Hull, and he held that post until the gardens were given up to the builders. He afterwards tried his luck in India, but, failing to find a suitable post, he proceeded to Australia. He was employed in the Botanic Gardens, Brisbane, first as curator, afterwards as director, and in 1905 he was appointed Director of Forests under the Queensland Government. He appears to have done good work in the forestry department, and was about to realise his hopes for an extension of his sphere of usefulness, when on April 14 last, whilst on an inspection visit to Fraser Island, he was taken suddenly ill, and died almost immediately. He was born in 1857. W. W.

DR. HARRY BOLUS.—South African botany has sustained a great loss by the death of Dr. Harry Bolus, of Sherwood, Kenilworth, Cape Town, on Thursday, May 25. Dr. Bolus was born in this country in 1834, but went out to South Africa when quite young, remained there ever since, making frequent visits to England and travelling often to France, Switzerland and Italy. Dr. Bolus first settled at Graaf Reinet in the very centre of Cape Colony, but about 30 years ago he removed to Cape Town. His knowledge of the plants of South Africa, especially the Orchids and Heaths, was very great, for he made many tours through both the eastern and western provinces and collected largely for his herbarium. It is understood that his large herbarium and valuable library, which contains many volumes illustrated with coloured figures of Cape plants, are bequeathed to the South African Museum. Dr. Bolus was also a liberal patron of botany, and founded and endowed the Bolus Professorship of Botany in the

South African University at Cape Town, of which the first and present occupant is Dr. H. W. Pearson, of Cambridge. The principal botanical work of Dr. Bolus was a book in two volumes, containing figures and descriptions of 200 South African Orchids, drawn and described by himself from living plants. It is pathetic to hear that the last and final proof of this work, to which he has devoted his later years, was corrected by him the day before his death. He elaborated the *Heaths for the Flora Capensis*, edited by Sir Wm. Thiselton-Dyer; in this work he was assisted by Dr. Guthrie. He also published a sketch of the botanical regions of South Africa, accompanied by a map, and in collaboration with Lieut. Wolley Dod, in 1905, a list of the flowering plants and Ferns of the Cape Peninsula, with notes on the critical species. Dr. Bolus collaborated with the late Dr. MacOwen in preparing a large fasciculus of specimens of the plants of South Africa, copies of which are in most of the large European herbaria. In all his later botanical work, Dr. Bolus was ably helped by his devoted niece, Miss Kensit, who of late years always accompanied him on his visits to Europe. His name is commemorated by the genus *Bolusia*, published by Mr. Bentham, in 1873. In the year 1875 also he became a Fellow of the Linnean Society, and a few years ago the University of South Africa conferred upon him the honorary degree of Doctor of Science in recognition of his scientific work and his liberality in endowing the professorship. Dr. Bolus landed with his niece at Southampton about a fortnight ago, and had a heart attack, from which he never rallied. He was laid to rest in the quiet country churchyard of Oxted in the Mother Country, which he loved so well, on May 27. The funeral, according to his wishes, was of a simple character, and was attended by a few relatives and by Dr. Marloth, the distinguished South African botanist, and by Dr. Otto Stapf, who represented the Royal Gardens, Kew.

LAW NOTE.

DISPUTE ABOUT GOOSEBERRY BUSHES.

In respect to the action brought against Mr. J. H. W. Best, of Suckley, Worcestershire, by Messrs. Mann & Sons, for damages on account of wrongful refusal and return of a consignment of 3,500 White Lion Gooseberry bushes, reported in our issue for April 18, p. 224, we are now informed that the case has been concluded at Brentford County Court on the arbitrator's report, who found that the bulk was quite equal to the sample submitted. Judgment has been given in Messrs. Mann & Sons' favour for damage against Mr. Best as claimed.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending May 31.

An exceptionally warm week.—All the days and nights of the past week have been warm, and during the last five days the highest readings in the thermometer screen have ranged between 75° and 78°. The last-named temperature is higher than any recorded here during the whole of last year, with the exception of two consecutive days in June, which were slightly warmer. The night temperatures, however, were as a rule not nearly so unseasonably high as those of the days. The ground is now very warm, being 4° warmer at 2 feet deep, and 6° warmer at 1 foot deep, than is seasonable. Rain fell on three days, but to the total depth of only one quarter of an inch, nearly the whole of which was deposited on May 30. In order to show that the soil has not yet become very dry it may be stated that for only the last three days has the percolation through the bare soil gauge entirely ceased. The sun shone on an average for eight hours a day, or for nearly two hours a day longer than is usual at the end of May. Calms and light airs have alone prevailed during the week. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 5 per cent. E. M., Berkhamsted, May 31, 1911.

SCHEDULES RECEIVED.

Hanley Horticultural Fete, under the auspices of the County Borough of Stoke-on-Trent, to be held on July 5, 6. The schedule embraces more than 90 classes, the prize money amounting to more than £600. A silver cup, valued at ten guineas, is offered for the best trade exhibit. Secretary, Mr. Wm. Poulson, Horticultural Fete, Town Hall, Hanley.

Atrincham and District Chrysanthemum Society's sixteenth annual show, to be held on Friday and Saturday, November 10, 11, at the Drill Hall, Hale. Secretary, Mr. Wm. Hazlehurst, 24, Finchley Road, Hale.

MARKETS.

COVENT GARDEN, May 31.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our samples. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices, including Arums, Carnations, Gardenias, Gladioli, Iris, Lilies, and Roses.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage and plants, including Agrostis, Asparagus, Carnation foliage, Croton foliage, and various ferns.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various potted plants and their prices, including Aralia Sieboldii, Asparagus plumosus, Ferns, and Pelargoniums.

Owing to Whitsuntide, it is expected that prices will fluctuate and that the demand will be greater on the Friday and Saturday preceding the holidays.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices, including Apples, Bananas, and various berries.

Fruit: Average Wholesale Prices (continued)

Table listing various fruits and their prices, including Cherries, Cranberries, Figs, Gooseberries, Grapes, Lemons, Melons, and Nectarines.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Asparagus, Beans, Beetroot, Cabbages, Carrots, Cauliflowers, Cucumbers, and various leafy greens.

REMARKS.—Australian and Tasmanian Apples are a shorter supply this week; they are meeting with a fairly good demand at lower prices. Muscat Grapes are of much better quality than those seen last week; their prices are well maintained. Supplies of Black Hamburg Grapes have increased considerably, consequently they are cheaper than last week. Peaches and Nectarines are now plentiful and selling very freely. Forced Strawberries are a heavy supply but their prices are well maintained. Fruit has commenced to arrive from France. Tomatoes are arriving in much larger quantities; there is a slight decrease in last week's prices. The first consignment of outdoor Peas from the West of England reached the market this week and the pots met with a ready sale. Trade generally remains good. E. H. R., Covent Garden, May 31, 1911.

Potatoes.

Table listing various potato varieties and their prices, including Kent's, Lincoln's, and Scotch Dates.

CATALOGUES RECEIVED.

THE GRIFFIN GAS STOVE CO., 123, New North Road, London —Gas Stoves for Greenhouses. A. J. KEELING & SONS, Bradford, Yorkshire—Orchids.

NEW INVENTIONS.

LEAD "RIBBON."

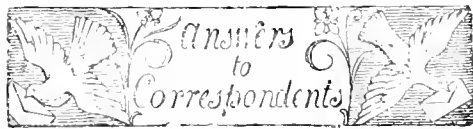
A NOVELTY in gardeners' tying material is sent us by Messrs. Lane Bros., 45a, New Church Street, Bournemouth. It consists of a narrow band of sheet lead stamped almost through into strands about the size of ordinary string. It is an easy matter to detach the strands by means of the thumb nail, and the tie can be secured easily, a twist or two being all that is needed to fasten it. The ribbon may be severed readily with a knife into any desired length. One of the samples sent us has 28 and the other 12 strands, the one of small, the other of large gauge, so that a piece, say 6 inches long, would make 28 or 12 ties respectively. Messrs. Webb are also the makers of leaden labels, in which the name of fruit or flower is easily engraved by means of a piece of pointed steel.

NEW COAT FLOWER HOLDER.

MR. J. SMITH, 46, Bedford Street, Leamington Spa, has patented a new style of holder for button-holes, in which the principal advantage is a clip for holding the flowers securely by the stalks.

ENQUIRY.

NODULES ON CLEMATIS ROOTS.—Some weeks ago I noticed some nodules on the roots of Clematis integrifolia, and these have since been pronounced by Prof. Cayers, of Southampton, to be "typical 'Leguminous' nodules." It would be interesting to know if any reader has found similar nodules on non-leguminous roots. *Harold Evans, Llanishen, Cardiff.*



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

APPLE TREE: *J. P. O'Brien, Ireland.* Apple scab fungus has caused the injury. Remove all dead shoots, and spray the trees with Bordeaux Mixture made at half the usual strength.

ASTER AND ZINNIA SEEDLINGS: *T. B.* The plants are affected with disease. No cure can be effected at this stage. In future, water the soil with a dilute solution of sulphate of potash before the seedlings are pricked out.

BEANS UNHEALTHY: *J. C. W. & Son.* No disease is present, but the roots are very imperfectly developed, and probably this is the cause of the plant's failure.

BOOKS: *A. P. B., Berkshire.* 1 (Flower Culture).—*English Flower Garden*, by W. Robinson. (London: John Murray); *Greenhouse and Store Plants*, by T. Baines. (London: John Murray); *The Culture of Vegetables and Flowers*, by Sutton & Sons, Reading. (London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd.). 2 (The Growing of Plants for Seed).—*L'Art de Semer*, par Adolphe van den Beede. (Paris Librairie and Imprimerie Horticole, 84bis, Rue de Grenelle); *Selection in Seed Growing*. (Chicago Congress Papers, Philadelphia, 1904. Atlee Burpee & Co., 10 cents); there is also a chapter on Seed Saving and Seed Sowing in *F. W. Burbridge's Cultivated Plants, Their Propagation and Improvement*. (London: W. Blackwood). 3 (Hybridisation and the Production of New Varieties of Flowers).—*Mendel's Principles of Heredity*, by W. Bateson. (Cambridge: University Press); *Plant Breeding*, by L. H. Bailey. Ed. 4. (London: Macmillan); *L'Hybridation des Plantes*, par Raphaël de Noter. (Paris: C. Amat, 11, Rue Casette); and *L'Art d'Obtenir les Variétés Nouvelles en Horticulture*, par V. Viviani-Morel. (Villenave, Rhone: V. Viviani-Morel, 66, Cours Lafayette prolongé).

4 (Complete Book on Horticulture).—*Nicholson's Dictionary of Gardening*. (London: L. Upcott Gill, 170, Strand, W.C.).

CARNATIONS UNHEALTHY: *C. Smith.* The plants are not affected with disease. The trouble has been caused by too much moisture in the soil in which they are grown.

FORCING BORDER CARNATIONS TO FLOWER IN MAY: *P. E. N.* Select such early-flowering varieties as Lady Linnithgow (pink), Lady Hermione (pink), Miss Willmett (coral red), Ellen Douglas (lavender), Sir Galahad (white), and Sam Weller (fancy), for forcing. The layers should be obtained early, and be potted as soon as they are well rooted. Start them in a house where a gentle heat is maintained in January, increasing the temperature to 55° to 60° as a minimum in a month or six weeks afterwards. Under this treatment, the plants will flower early in May.

GOOSEBERRY SHOOT FOR EXAMINATION: *W. McC.* The trouble is due to red spider. Syringe the plants with a solution of liver of sulphur at intervals of four days, and apply the specific with force.

GOOSEBERRY SHOOTS DISEASED: *W. A. Kilman.* Your Gooseberry bushes are attacked by the clustercup (Æcidial) stage of a rust fungus (*Puccinia pringsheimiana*). The other stages of this fungus are found on Sedges. Destroy the diseased leaves and fruit.

IVY-LEAVED PELARGONIUMS SPORT: *H. M. B., Essex.* Your sport from the well-known variety of Ivy-leaved Pelargonium Mme. Crousse has darker flowers than its parent, but it is no better, and probably not so good as many others already in cultivation. However, it may be advisable to propagate the variety, as the blooms may show finer qualities later, especially on well-cultivated specimens.

LELDIA FIDELIA LEAVES WITH SPOTS: *Paul W. Magdberg.* The leaves show collapse of the tissues, but there is no definite disease present. Such appearances frequently take place in Orchids under cultivation, and especially in bi-generic hybrids after some years of cultivation. Similar spotting more readily develops in plants grown in irregularly or badly-heated and imperfectly-ventilated Orchid houses, and especially when a fairly low night temperature is not observed. The badly damaged leaves, and especially the older ones, should be removed.

LILAC DISEASED: *A. C.* The fungus, *Helminthosporium syringae*, a well-known pest of the Lilac, is causing the trouble. Diseased branches should be removed and burned. Spray the trees next season before the leaf-buds expand with Bordeaux mixture, made at half the usual strength.

NAMES OF PLANTS: *Journeycman.* Ornithogalum lacteum.—*J. B.* 1, Ornithogalum nutans; 2, Claytonia perfoliata; 3, Fritteleia uniflora.—*W. J. Watson.* Haquetia Epipactis.—*W. J. B.* 1, 2, forms of Cytisus canariensis; 3, 4, Helianthemum vulgare vars.; 5, Saxifraga trifurcata; 6, Phlox subulata.—*J. P. O'D.* 1, Orchis maculata; 2, Rhododendron flavum; 3, Allium ursinum; 4, Arum italicum; 5, Lathraea Squamaria; 6, Nepeta Glehoma variegata; 7, Compositum dendratum; 8, Geranium Robertianum.—*W. O. W.* 1, Cerastium arvense; 2, Saxifraga Wallacei; 3, S. cespitosa; 4, Phlox pilosa; 5, P. subulata; 6, P. Stellaria lilacina; 7, P. reptans; 8, P. subulata atro-purpurea; 9, Veronica gentianoides; 10, garden variety of Polyanthus; 11, Maianthemum Convallaria; 12, Cytisus purpureus var.—*Hortus.* The Tulip was decayed and quite unrecognisable.—*G. H. G.* 1, Cornus capitata; 2, Elaeagnus multiflora; 3, Ribes aureum; 4, Elaeagnus umbellatus; 5, Berberis Hookeri; 6, Crataegus Pyracantha.—*T. W. G.* 1, Thymopsis montana; 2, Coronilla Emerus; 3, Lamium Orvala; 4, Valeriana pyrenaica; 5, Euphorbia carniolica; 6, Prunus japonica flore pleno.—*F. F.* 1, Habermaria viridis; 2, Ophrys aranifera; 3, O. muscifera; 4, Orchis mascula.—*R. A.* 1, Odontoglossum Lindleyanum; 2, Oncidium divaricatum; 3, Gomora cassidea; 4, Pleurothallis ornata; 4, Oncidium varicosum; 6, Maxillaria variabilis.—*J. H. K.* Furcraea gigantea, so far as can be determined without flowers.—*D. M., Sutherland.* A garden variety of *V. Andersonii* probably the form you name.—*Anxious W.* Santice profusa.

NECTARINE FRUITS SPLITTING: *E. S.* No disease is present in the fruits. The cracking is caused by an excess of moisture at the roots when the fruits were setting and afterwards.

OSTROWSKIA MAGNIFICA: *Constant Reader.* This handsome plant belongs to the Campanulaceae, and was introduced into this country from Turkestan in 1887. It is a stately, perennial plant, which grows in favourable conditions from 4 feet to 6 feet high, and produces somewhat glaucous leaves in whorls on stout stems. The flowers are of a pale mauve colour, bell shaped, and 5 inches to 6 inches in diameter. The flowers are produced at the termination of the growth, two to six on each stem according to the vigour of the plant. The roots are tuberous, and extremely brittle, so that the plant is difficult to transplant when it has been established for some time. Deep cultivation is necessary, and in selecting a place for this plant a position fully exposed to the sun should be chosen. Trench the ground to a depth of 2 feet, and place some well-decayed manure at the bottom of the hole. When planting the tubers use very sandy soil to bed them in, and plant so that the crowns are about 6 inches below the surface of the soil when it is levelled over. In exposed places protection is sometimes needed in spring from winds which damage the succulent stems and leaves. This protection may be afforded by means of a handlight or piece of thin canvas. The plants produce plenty of seeds, and they germinate readily.

PEONY FOLIAGE FOR EXAMINATION: *F. E. S. & Co.* The injury is caused by the drooping disease. Spray the plants with sulphide of potassium (liver of sulphur). Next winter remove the surface soil and replace by fresh material containing a proportion of lime.

PEACH LEAVES DISFIGURED: *C. P.* The foliage is badly attacked by the "shot hole" fungus. Spray the trees with liver of sulphur. Next season spray early before any sign of the disease is seen.

PLANE TREES: *H. P.* From your description we suspect the trees are attacked with aphid. Scrub the bark with kerosine emulsion diluted to a degree that will not injure the foliage. This is made by mixing together petroleum 2 gallons, soft soap ½ lb., and 1 gallon of boiling water.

ROSES FAILING TO FLOWER: *Miss P.* No disease is present. The buds have become soddened with moisture. The shoots are probably too dense and need to be thinned.—*T. B., Harborne.* No disease is present. The trouble is due to some defect of the root system.

STRAWBERRY LEAVES DISEASED: *G. W. W.* Strawberry mildew is present on the foliage. Spray the plants at intervals of four days with a solution of liver of sulphur, and take care to wet the under side of the leaves.

TOMATOES WITH DEFORMED GROWTHS: *H. Y.* No specific disease is present. The very soft foliage has been injured by an excess of moisture.

VINE LEAVES WITH WARTS: *A. B. R.* The warts on the leaves are the result of an outgrowth of the tissue, and usually follow when the atmosphere of theinery is kept too moist. Use less water about the house and open the ventilators on all favourable occasions.

VIOLA: *Mrs. Byng.* Your seedling Viola is pretty, but of no special value. Similar varieties are of common occurrence in large batches of plants raised from seed.

VIOLA GRACILIS VARIETY: *H. E.* The plant is probably of hybrid origin, as there is no record of a cream-coloured variety of *V. gracilis*. *V. gracilis* var. *Valderia* is a smaller growing variety with pale violet-coloured flowers. As, however, there are white or pale-flowered forms of many of the Viola species, there is no apparent reason why there should not be similar variations in the case of *V. gracilis*.

Communications Received.—*W. H. W.*—*J. P. T.*—*C. T. D.*—*C. H. P.*—*R. K. N.*—*I. W. E.*—*W. H. C.*—*A. P. B.*—*F. J. K.*—*A. D.*—*F. P. A.*—*E. M.*—*M. B.*—*Java.*—*W. E. B.*—*F. G.*—*South Africa.*—*W. T. D.*—*G. Brussels.*—*A. P. J. Meek.*—*G. W. J. C. P. B.*—*J. G.*—*P. S. K.*—*Bombay.*—*W. M. S.*—*A. H. R.*—*R. S.*—*R. A. M.*—*W. T.*—*Hampton.*—*F. T. B.*—*J. W. B.*—*H. F.*—*Peoria.*—*H. H. F. J. T.*—*E. D.*—*J. U. H. S.*—*D. M.*—*J. H. K.*—*Anxious W.*—*W. O. W.*—*Antrim* (Thanks for donation of 2s. for the R.G.O.F. box.)—*H. W. & Co.*—*G. F. G. P.*—*A. W.*—*Woking.*—*K. & Son.*—*R. N.*—*J. R. H.*—*Secretary, Hardy Plant Society.*

THE

Gardeners' Chronicle

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CONTENTS.

Begonia Gloire de Sceaux ...	573	Orchid notes and gleanings—	
Blueberry, taming the wild ...	367	J. Charlesworth & Co.'s nursery ...	363
Boiler, which is the best	350	Odontoglossum illustrissimum "Queen Mary" ...	363
Bomarea patacensis, fruits of ...	372	Orchid sales during Temple Show week	363
Books, notices of—		Plants, new or noteworthy—	
Popular Garden Flowers ...	373	Iris chrysographes ...	362
The Evolution of Plants ...	376	Plum trees, an uncommon disease of ...	374
The Herb Garden ...	374	Potato disease ...	374
Botanical expedition to Lower Siam, a ...	361	Primulas of the European Alps, the	364
Brussels State Botanical Garden ...	366	Rainfall, the measuring of ...	372
Chinese trees and shrubs, seeds of ...	371	R.H.S. Committees and East Burnham Park	371
Drought and fruit setting, the ...	367	Rosary, the ...	364
"Fairchild lecture," the	372	Rubber exhibition ...	371
Florence International Horticultural Exhibition ...	376	Scotland, notes from ...	367
Flower pictures at Westminster, an exhibition of ...	371	Societies—	
Gardeners, young, and travelling ...	374	Bath and West and Southern Counties' Dutch Bulb Growers' Ipswich and East Suffolk Horticultural ...	378
Gooseberry, the best market variety of ...	374	National Hardy Plant Royal Horticultural ...	378
Insurance Bill, the, a. the U. H. B. & P. Society ...	374	Royal Meteorological Royal Scottish Arboreal ...	377
Iris "Luna" ...	365	Thiselton-Dyer, Sir William ...	371
King's cup for the International Show ...	371	Trees and shrubs—	
Law note ...	380	Umbellularia californica ...	366
Nodules, root ...	371	Weeds in relation to soil	370
Obituary—		Week's work, the 367, 368, 369	
Herrin, Charles, Sen. ...	378		

ILLUSTRATIONS.

Begonia Gloire de Sceaux, specimen plants of ...	373
Bomarea patacensis, fruits of ...	372
Brussels Botanical Garden, view in the (Supplementary Illustration)	
Grevillea robusta compacta ...	375
Iris "Luna" ...	365
Map illustrating a botanical expedition to Lower Siam	362
Odontoglossum illustrissimum "Queen Mary" ...	363

BOTANICAL EXPEDITION TO LOWER SIAM.

THE kingdom of Siam may be said to consist of two portions, the larger of which, or Siam proper, lies north and west of Cambodia and south of Laos and the Shan States. Its western border marches with the isthmus of Tenasserim, a narrow neck of land connecting Burmah with the Malay Peninsula. The western half, as far south as Victoria Point, is Tenasserim. The eastern half, and the whole isthmus south of that to the Malay Peninsula, forms the region that I have called Lower Siam. Looking northwards from the island of Penang on a clear day, one can perceive on the horizon the beautiful archipelago of limestone islands known as the Laukawi Islands. The flora of Laukawi has been well investigated by Mr. C. Curtis, who made several visits to the islands. The plants which have been collected there show that the affinity of the flora is not with that of the southern Malay Peninsula, but with that of Tenasserim. The researches of Curtis, Kunster, and others on the mainland north of these islands, at Trang and Tonka (formerly known as Junk Ceylon), have confirmed the facts that the Tenasserim flora descends far into Lower Siam, and that the Malay flora entirely disappears at some point north of Penang.

In 1893 I visited and explored the mountain known as Gunong Jerai by the Malays, and as Kedah Peak by the Europeans: a granite mountain, of 4,000 feet elevation. There I expected to find traces, at least, of the Tenasserim flora. The plants, however, were all of Malayan types, so that it was clear that the boundary line between the two floras was further north.

In order to discover definitely where the two floras meet, I started on an expedition to Kedah, and thence northwards to Perlis and Setul at the end of February of 1910.

I went from Singapore to Penang by steamer, and proceeded north to Alorstar, the capital of Kedah, on February 23, in the small steamer "Liuchiu," and arrived at about mid-day. The little town lies some distance up the river, which traverses a flat country of considerable extent, the most conspicuous hills being Gunong Geriang and the distant Kedah Peak. The river bank is fringed with the usual tidal mud plants, Avicennia, in the form of grey-green bushes, covering a considerable extent of ground. The most interesting plant here is the tidal river Date Palm (*Phoenix paludosa*), which is common in all the rivers in this region, but, further south, occurs only in Province Wellesley and the Dindings, its most southern limit.

At Alorstar, the adviser to Government, Mr. Maxwell, and Mrs. Maxwell received me into their house, where I stopped for a few days to investigate the surrounding flora.

The country all round is sandy and flat, consisting mostly of Rice fields, the crops of which had recently been cut. Here and there in the fields stood clumps of trees and bushes, but the whole region has been so long under cultivation that little remains of the original forest flora. After lunch, I started out with my Malay plant collector, Mat, to collect what was to be found, and soon observed that the flora here was unlike anything in the southern Malay Peninsula. The most abundant Palm was a species of *Corypha*, a genus occurring only in India, Siam, and North Borneo, and absent from the Malay Peninsula. Thorny bushes of two species of *Capparis* next attracted our attention. One had moderate-sized, white flowers, with a yellow blotch on the two lower petals, which turned soon to a deep purple-pink colour (*C. micracantha*). The other had smaller, pure-white flowers (*C. sepiaria*). These and other shrubs formed thickets like Bramble bushes at home.

Many of the small Rice-field herbs were already dried up, for it had been very hot; but we gathered enough to see that these weeds were quite different from those found in the Perak and Malacca Rice fields. Among them we found the little yellow Vetch (*Geissaspis*), with its extraordinary, circular, bristly bracts: a typical Indian and Burmese plant. In the roadside hedges was the samentose Composite (*Vernonia elaeagnifolia*), bearing abundantly its pale lavender tufts of flowers. The only place at which I had

previously found this plant wild was on the river bank at Pekan, on the east of Pahang.

Behind the house ran a small tidal stream, and, somewhat to my surprise, I found it full of the beautiful *Crinum Northianum*. This plant was originally described from a drawing by Miss North of a *Crinum* from tidal streams at Kuching, in Sarawak, whence, some years ago, I introduced it into cultivation. It resembles closely the common seashore *C. asiaticum*, but has longer and narrower leaves, and very much larger fruit and seeds. Though there are plenty of tidal rivers all over the Malay Peninsula quite suited for it, it appears to be entirely absent from the latter region.

I was especially anxious to visit the great limestone hill known popularly as Elephant Hill, from its shape, and by the Malays as Gunong Geriang, probably meaning "Vulture Hill" ("eriang" being a vulture). This is the most southern of the limestone hills in this direction. It is a huge, isolated block in a flat plain of Rice fields, and was undoubtedly an island in the sea at no great distance of time. So early one morning Mat and I started in a gharry, with two collecting books and other paraphernalia for a big day's work. After a drive of about two miles, we found a boat awaiting us, and were rowed up a small river, which rises from this hill. The river was fringed with trees, except at the spots where villages or isolated houses edged the bank; but there was little of interest botanically, except a great abundance of *Leea rubra*, which I had not found as a tidal mud plant before. Its bright-red flowers make it quite attractive.

On arrival at the base of the hill, we commenced the ascent of the limestone rocks, which were very dry. A track, made practicable, where necessary, by ladders of sticks, leads sinuously to a spot which is being used as a quarry, and continues through caves for about two miles, coming out eventually on the seashore. Time did not allow us to follow it, but we met a party of Malays who were on their way through the mountain by this track.

The flora of this hill resembled most closely that of the Laukawi Islands, and it would probably have produced more plants of that region at a wetter time of the year; but many of the plants were quite dried up now. The little, waxy, white aroid *Hapaline Brownei* was in full flower in the damper, shaded spots, and *Kaempferia elegans* was just pushing up its pretty leaves from cracks in the rock in which its tubers were concealed. *Eulophia Keithii*, with its green petals and veined, white lip, was flowering, its pseudo-bulbs embedded in clefts of the rock, and closely fixed by long, white roots. Of *Gesneraceae*, only two were found, the pretty little *Chirita Viola*, with its blue Violet-like flowers, and *Lepadanthus*. This latter was a plant which I was most anxious to find. The species was described by me from a single, indifferently specimen brought from this hill some two years ago. We came upon it in the damp mouth of a high cave, growing on the rock so high

that we had some difficulty in securing a specimen: but, with the aid of a long Bamboo found growing near by, we triumphantly poked it off the cliff, and it fell at our feet. A few minutes after we found our labour had been unnecessary, for, on going round a corner of the cliff, I found an abundance in full flower and of large size, within easy reach. It is a rather coarse, hairy herb, with flowers more like those of one of the Scrophulariaceæ, white, with blue lobes to the perianth. It seems absolutely confined to this hill, and is one of the few endemic genera of this region. By the time we

specimens. There were two species in this district, the *E. indica* and a more dwarf species, with almost black-red flowers, collected in the Laukawi Islands and around Alorstar, and, apparently, undescribed. A handsome vine (*Vitis indica*), with large leaves, grew near the *Erythrina*s, and is a typical Burmese plant.

The plant books being almost overfilled, and the long cloth bag, which we also carry for the reception of bulbs, tubers of *Amorphophallus*, &c., Orchids, and other plants for cultivation, being also by this time weighty, we started to walk across the dry Rice fields to the boat, for,

NEW OR NOTEWORTHY PLANTS.

IRIS CHRYSOGRAPHES n. sp.*

THIS new Chinese species is a member of the *sibirica* group and very closely allied to *I. Forrestii*, which was described and illustrated in the columns of the *Gardeners' Chronicle*, June 25, 1910, p. 418, fig. 190. It differs from the latter in habit and in flower-colour, the tufts of leaves being much less closely set, and also in the fact that it flowers a week or more in advance of *Forrestii*. The flower of *I. chryso-graphes* is of the richest dark red-purple, very velvety in texture, and set off by the central and broken flanking lines of gold, which suggested the name of the species. The falls are very large and long (3 inches), and the blade, which is twice as long as the haft, droops almost perpendicularly. The haft is flanked at the base by the curious flanges which are so characteristic of the *sibirica* group, and is faintly marked with gold on a red-purple ground.

The style branches are much arched to bring the triangular tongue of the stigma down on to the haft, and are also arched laterally and sharply keeled.

The standards are long and narrow, poised at an angle of about 45°, and point outwards as in *I. Clarkei* and *I. Delavayi*.

The stem is about 15-18 inches long, and bears one or two reduced leaves. It is not as hollow as are the stems of *I. sibirica* or *I. Delavayi*; on the other hand, it is not wholly filled with pith, but has a distinct channel running down the centre. The stem does not appear to branch, and bears only the terminal head of one or two flowers, borne on long pedicels in long, narrow green spathes, 3 inches or more in length.

The tube is short and thick, with many ribs arranged in the way that is peculiar to the flower of the *sibirica* group.

The leaves are linear, about 1/2 inch or rather less in width, and about 15-18 inches in height. They are not, however, rigid, but curve gracefully outwards, so that the flowers rise well above them.

This Iris was discovered by Wilson in 1908 in China, growing in thickets to the West of Kuan Hsien in West Szechuan, at a height of from 7-11,000 feet. Herbarium specimens bear the number 1,304.

My plants were raised from some seedlings given to me by Miss Willmott about two years ago, and do not show any marked variation except in the amount of golden veins and dashes on the blade of the fall. In some examples these are numerous, but in others they are reduced to little more than the conspicuous central golden line. Dried herbarium specimens are seldom safe guides to the colour of Irises, but, from some of the specimens collected by Wilson, there is reason to believe that there are some forms of this species in which the groundwork of the falls is of a paler colour much blotched with a darker shade. It is doubtful, however, whether any colour-form of this sort could surpass in richness the brilliance of the deep purple type. It is one of the most richly-coloured Irises that we possess, and gives promise of proving an excellent garden plant.

It is, moreover, very floriferous, for several of the plants that are now flowering for the first time bear four or six flower-stems. This number is not often exceeded in seedling Irises, though one large pink flowered seedling of *I. bracteata* has produced 11 stems at its first flowering, while a dwarf *Pogoniris* from the Balkans created a record by producing no fewer than 13 flower-spikes within 15 months of the time when the seed germinated.

* *IRIS CHRYSOGRAPHES*, n. sp.—*Rhizoma gracile*; folia lineari-ensiformia, acuta, glauca, 1/2 poll. lata; caulis simplex, sesquipedalis, fuscus, substulosus; spathe 1-2 floræ, valvis viridibus, acutis, 2-3 poll. longis; pedicellus 1-1 1/2 poll. longus; ovarium trigonum, lateribus concavis; tubus latus, 1/2 poll. longus; segmenta omnia late atropurpurea; exteriora obovato-unguicularia, præter unguem dependantia, lineis aureis truncis picta; interiora anguste oblanceolata, oblique erecta.

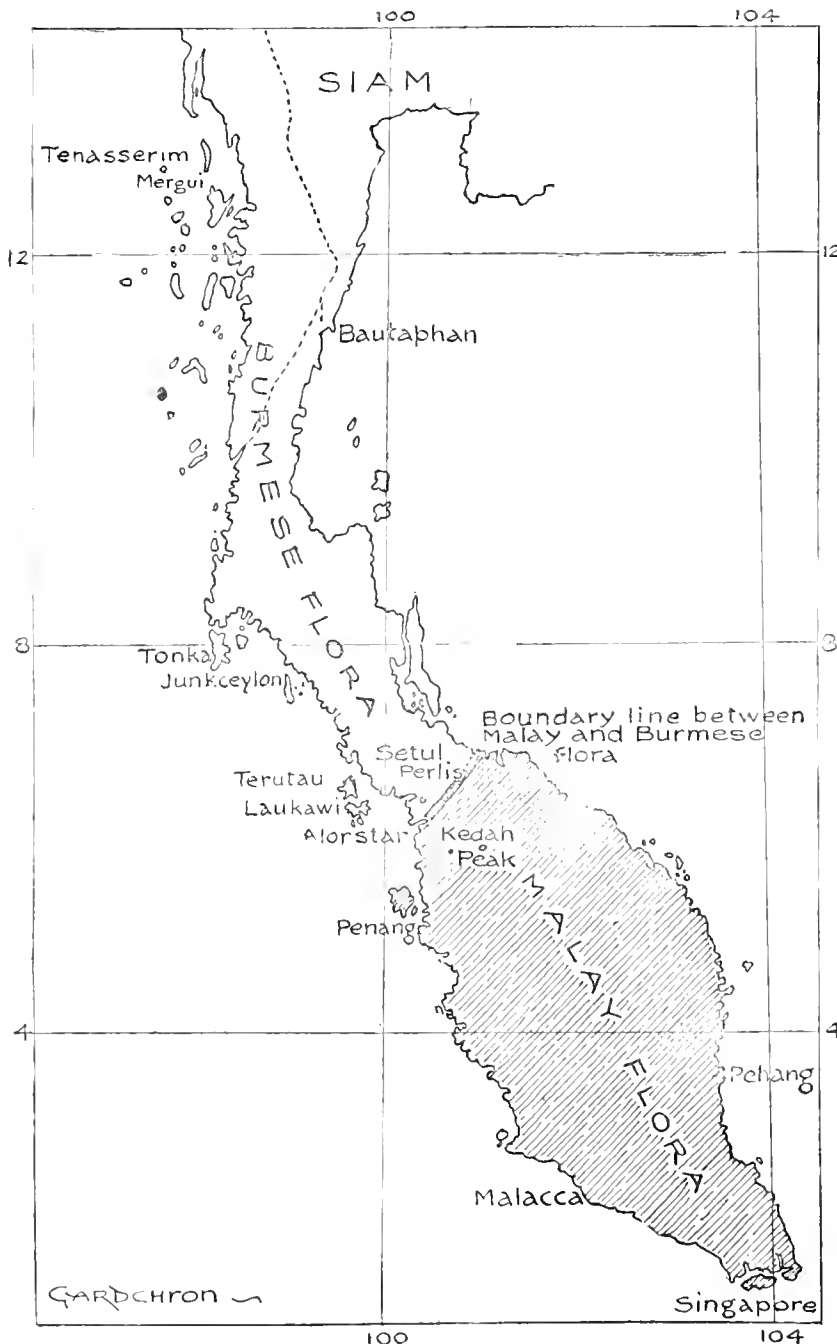


FIG. 166.—FLORISTIC MAP OF MALAYA.
See "Botanical Expedition to Lower Siam."

got down again and had had lunch, one collecting book was well filled, and we then went round the wooded base of the hill to fill the other. Here the grandest thing we saw was a number of trees of *Erythrina indica*, a blaze of scarlet. *Erythrina*s, though cultivated more or less successfully inland, are nearly all, properly speaking, seashore trees. Although several species are recorded as wild in King's *Materials for the Flora of the Malay Peninsula*, I have seen but one tree in the whole peninsula that could be reckoned as a wild plant; the rest are all garden

as the tide had fallen, we had had to send the boat down river to await us in deep enough water. The heat was tremendous, and there was no shade, nor a breath of wind, and though our guides said it was only two miles, it seemed more like six. At last we came to a small village, where "lemonade" was to be bought at a penny a bottle. It appeared to consist of soda water sweetened with brown sugar only, but it was very welcome. We returned by the boat, and reached home by sundown H. N. Ridley.

(To be continued.)

There are still other Irises in China and the regions immediately to the West that are not yet in cultivation, and it is devoutly to be hoped that collectors will make more efforts to obtain seeds instead of merely tantalising us by tearing up specimens for herbarium purposes. *W. R. Dykes, Charterhouse, Godalming.*

ORCHID NOTES AND GLEANINGS.

ORCHID SALES IN TEMPLE SHOW WEEK.

On three days during the Temple Show, Messrs. Protheroe & Morris, at their Central Auction Rooms, Cheapside, London, held sales of rare Orchids which were very successful, and

the very showy hybrid for which William Thompson, Esq., Walton Grange, Stone, Stafford (gr. Mr. W. Stevens), was awarded a First-class Certificate at the Royal Horticultural Society on May 9 last, is of complex parentage, and of that class which, while producing progeny of ordinary merit in the bulk, yet give occasional excellent variations, which amply compensate for the other disappointments experienced, and such plants are of exceptional value, seeing that they must always be uncommon. Mr. Thompson's new hybrid is remarkably showy, the reverse side, which is heavily tinged with claret colour, having a white to light-rose star-like arrangement of tints following the mid-ribs of the segments and making the back of the flower almost as attractive as the face. The surface of the sepals and petals is of a deep, various purple, with slight

flowering hybrid *Odontoglossums* for the first time, the hot-water pipes are arranged as near to the ground level as possible. The close staging employed for diffusing the heat and maintaining moisture consists of trays of fresh loam running midway between the ground and the upper openwork staging, a foot or so lower than the latter, that is to say, lower than usual, and only about two-thirds as wide as the upper staging. This arrangement is in accordance with the advice given in the recently-published little book on *Orchids* by James O'Brien. The shading of this house also is on a new plan, being designed so as to dispense with the thin permanent gauze shading often used in addition to the movable lath blinds on houses in which *Odontoglossums* are cultivated. Special lath blinds, with the laths much closer together

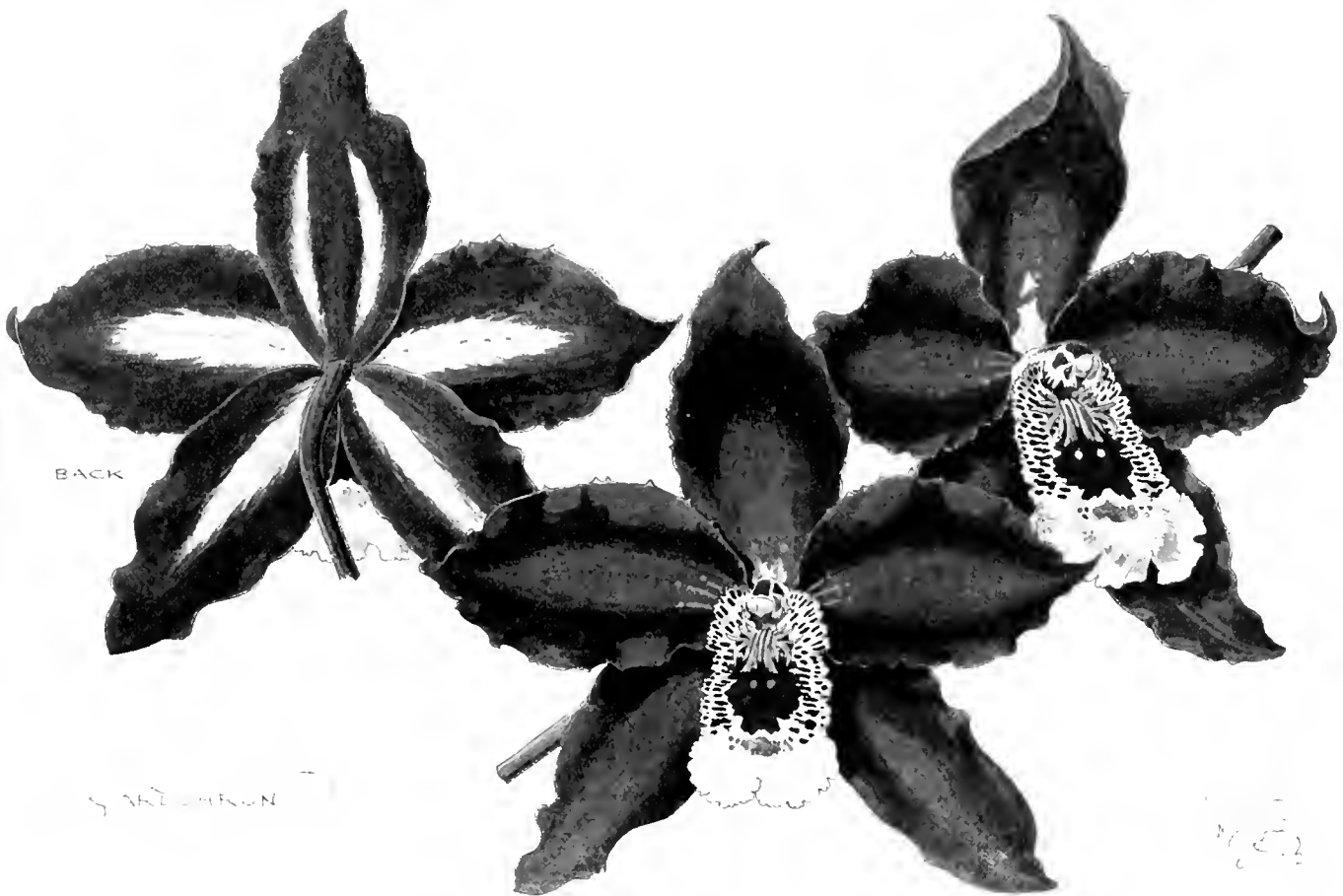


FIG. 167.—ODONTOGLOSSUM ILLUSTRISSIMUM "QUEEN MARY."

disclosed quite a revival of general interest in good things, though no remarkably high prices were obtained. On Tuesday, May 23, Messrs. Sander & Sons sent 184 lots of select Orchids, which sold well. *Cypripedium* Mrs. F. Sander realising 30 gs., *C. Dreadnought* 40 gs., *C. Alcibiades Illustrious* 36 gs., *Odontoglossum crispum Solum* 80 gs., *O. Magali Sander* 40 gs., and others proportionate prices. On Wednesday, May 24, 220 lots of rare Orchids in fine health from the Oakwood collection were equally satisfactory. *Odontoglossum crispum Pittianum* 80 gs. and *O. c. Harold* 45 gs., and *O. c. Leonard Perfect* 40 gs., being the best prices.

On Thursday various properties sold equally well at moderate prices.

ODONTOGLOSSUM ILLUSTRISSIMUM VAR. QUEEN MARY (see fig. 167).

DERIVED from *O. Lambeauianum* (crispum blotched variety × *O. Rolfeæ*), × *O. ardentissimum* (crispum blotched variety × *Pescatorei*),

white markings at the base and the margin. The lip is white, with purple blotches in front of the yellow crest. It is a triumph of good selection in the parents used, and a very worthy production.

MESSRS. CHARLESWORTH & CO.'S NURSERY.

A DETAILED account of Messrs. Charlesworth & Co.'s new Orchid establishment at Haywards Heath was published in the *Gardeners' Chronicle*, June 12, 1909, with a perspective view of the nursery and glasshouses. Particulars of some of the special features in the latter were given, and the advantages which these provide were seen on the occasion of a recent visit, especially in those used for hybrid-raising purposes, a branch of the business which Mr. Charlesworth personally supervises. Improvements have been carried out in each successively erected structure, and in the latest house, one specially designed for

than usual, are used, and it is expected that these will provide the necessary shade without the aid of a thin fixed blind, which is not good for the plants in dull weather. Some distinct novelties in hybrid *Odontoglossums* were observed and many points of interest noted, especially amongst secondary hybrids. Some of these sport considerably, and whilst they are obtained from crosses from which little might be expected, an occasional fine novelty results, whereas combinations from which good results might be anticipated sometimes prove disappointing. Among those in flower, the various forms of *Odontoglossum Jasper* (crispum *Victoria Regina* × *amabile*) are always bright and distinct; *O. Lambeauianum* (*Rolfeæ* × *crispum*) is of fine shape and colour, and makes a reliable parent, as may be seen from its progeny now in flower; *O. eximium* (*ardentissimum* × *crispum*) gives a rich body colour of purple and red; *O. ardentissimum* of Messrs. Charlesworth's strain varies from forms equal to the best spotted *O. crispum* to the pure

white variety; the many hybrids of *Odontoglossum Edwardii* are all of graceful habit, though with much similarity in the deep claret markings of the flowers. A batch of seedling *Odontoglossums* from *O. crispum* "F. W. Sander" crossed with another blotched variety, has proved remarkable in that some of the offspring have flowers of a richer colouring, and most of them of a better shape than either parent. Passing through the main block of glasshouses running right and left of a lofty central corridor, the collections of showy species, fine forms of coloured species, and a large number of albinos almost equal the hybrids in importance. Another interesting point is that home-raised batches of species tend to give better forms than the imported plants. This is well shown in a fine lot of home-raised plants of *Miltonia vexillaria*, in which the deep magenta-rose tint of the flowers and their large size and shape surpass those of the imported forms. In the same house some large specimens of *Miltonia Bleuana* and its varieties *nobilior* and *virginale* were finely in flower; a plant of *M. vexillaria leucoglossa* bore 19 spikes, whilst amongst a large batch of the pure-white *Trichopilia Backhousiana* one specimen had 23 fragrant flowers. With it were several specimens of *Trichopilia suavis alba*, several *Bolleas* and *Pescatoreas*, some *Maxillarias*, one, with large white and pale-violet-coloured flowers, being intermediate between *M. Sanderiana* and *M. grandiflora*, some fine forms of *Odontoglossum Harryanum*, *Sophronitis* and *Masdevallias*. The next house contained *Cypripediums*, *C. caudatum* and its form *Lindenii* being placed at intervals and elevated to allow room for the long petals to develop. The best example in a batch of *C. bellatulum* was the charming variety *Queen of Spain*, which has waxlike white flowers with soft rose blotches; others specially noteworthy were *C. Lawrenceanum* *Hyeannum*, *C. Maudie*, *C. callosum Sanderæ*, *C. Gowerianum magnificum*, *C. Beckmannii*, *C. Felicity* and *C. Maria* (*taureum* *Surprise* × *insigne* *Sanderæ*), a pretty white and yellow hybrid, though not of good shape. The third house had a show of *Odontoglossums*, *Lælia purpurata*, brightly coloured *Masdevallia Harryana*, and other *Masdevallias*; several plants of the major form of *Brassia brachiata*, an effective batch of white *Dendrobium infundibulum* and *D. Jamesianum*; some grand specimens of the singular *Epidendrum* (*Nanodes*) *Meduse*, the pure white *Cattleya Dusseldorfei* *Undine*, *Cymbidium tigrinum*, and some hybrid *Cymbidium*s, a batch of *Oncidium sarcodes*, and *O. Marshallianum*. The fourth house contained hybrid *Odontoglossums*, a number of *O. Thompsonianum*, with several of *O. Ashworthianum* (*Edwardii* × *Ossulstom*) being in bloom together; there were also some very fine forms of *O. ardentissimum*, resembling a good typical *O. crispum*, a singular variation. In the fifth house was a collection of *Bulbophyllums*, *Cirrhopetalums* and *Megacaliniums*, some of the plants being in bloom; also a batch of *Oncidium Kramerii* and *O. Papilio* with a plant of the new *O. Sanderæ* which is very distinct from the others of its section. *Anguloa Ruckeri*, *A. Clowesii*, *A. eburnea*, *Cologyne pandurata*, a batch of *Miltonia Roezlii*, several of the pure white *Calanthe veratrifolia*, and some interesting *Catasetums* were also in flower. The sixth house was devoted to species and hybrids of *Lycaste*, *Epidendrum*s, &c., a number of violet lipped *Zygo-colax Charlesworthii* and a batch of the early-flowering *Epidendrum vitellinum* being amongst those in bloom. A house was filled with cool-growing species, *Cochlidia Noezliana* (many in bloom), various *Oncidium*s, *Dusa sagittalis*, *Satyrion coriifolium*, and other African terrestrial *Orchids*, including a fine specimen of *Ilabenaria Bonatea* in bloom; also *Aspasia epidendroides* and *Pleurothallis*. The eighth house was chiefly filled with a collection of varieties of *Lælia anceps*, the plants being in a grand condition of health. Here also was a group of various forms of *Odontiodas* in flower, *O. Bradshawii*, *O. Cooksoniæ*, *O. Vuylstekeæ*,

O. Lutelia, and others, showed great variation, the best forms being very handsome varieties. In this particular the dozen or so plants of the true *Odontioda Charlesworthii* (*C. Noezliana* × *O. Harryanum*) showed the excellent quality of the flowers, their deep blood-red tint having been maintained throughout. In growth and in flower this variety may be said to be the best *Odontioda*. Next was a large house containing hybrid *Cattleyas* and *Lælio-Cattleyas*, a selection including *L.-C. Fascinator*, *L.-C. callistoglossa*, *L.-C. Domimiana*, *L.-C. Canhamiana*, and *Cattleya Empress Frederick*. In another large glasshouse were *Brasso-Cattleyas* with flowers, varying from soft-rose with a yellow disc to pure white, *Queen Alexandra* being the finest albino. Here also were housed hybrids of *Sophronitis grandiflora* in all stages of growth, *Sophr.-Lælio-Cattleya Marathon* and a few others being in bloom. At one end of the house *Vanda teres* and all its known hybrids were thriving well. A large house of the showy species of large-flowered *Cattleyas* was next inspected, *Cattleya Schroderæ*, *C. Mossiæ*, and *C. Mendelii* making a good display. Suspended overhead was a specimen of the rare and handsome *Gongora leucocila* with two flower-spikes. In the *Vanda* house was a large number of *V. cœrulea* and a general selection, together with *Angræcums*, *Saccolabiums*, *Aerides*, &c., whilst the glass-house devoted to *Phalanopsis* contained healthy examples of *P. Schilleriana*, *P. Rimestadiana*, *P. Aphrodite*, *P. amabilis*, and examples of most of the less showy species, a few specimens being in bloom. The large block of houses devoted to the seeding, raising, and perfecting of the many hybrid combinations, which are all duly recorded, include house after house of hybrids in all stages. *Odontoglossums* are perhaps more in evidence than any other kind, and some of great promise are flowering for the first time. *Cochlidia Noezliana* is a favourite parent for crossing, and combinations with this and other genera, such as *Oncidium* and *Miltonia*, are either proved, or soon to be flowered. Secondary and complex combinations of *Cattleya* and *Lælia* seem to give the largest percentage of disappointments, though among the indifferent forms an occasional sterling novelty appears. One such is now in bloom, a variety of *Lælio-Cattleya Dora* (*C. Schroderæ* and *L.-C. Hippolyta Phœbe*), the present form being a fine large flower of the *C. Schroderæ* type of a pale golden ground colour tinged with salmon-pink and with purple lines in front of the orange disc of the lip. *Odontoglossum Rossii rubescens* has already produced the handsome *O. Smithii* and one or two other remarkable hybrids, and other combinations have been attempted, but the development of such crosses are more difficult than some others. The fine condition of all the plants and the profusion of flowers they produce bear witness to the suitability of this part of Sussex for *Orchid* growing.

THE ROSARY.

ROSE BEAUTÉ DE LYON.

WHEN the raiser, Mr. Pernet-Ducher, distributed the variety *Beauté de Lyon*, he gave us a distinct novelty, which is quite worth its name. It belongs to the hybrid briar class (*R. Pernetiana*), and the growth and foliage strongly show the "*Soleil d'Or*" parentage. The flowers are globular, but not split through the centre, which taut is characteristic of several varieties in this class. The colour is superb coral red shaded with yellow. To my knowledge there is no other Rose which has such lovely shades. Although it cannot be called a perpetual blooming variety, it will be a good garden Rose, and should be used for planting in small groups in front of shrubberies. Some buds were worked last year on a few Standards in pots: these are now in full bloom, and each blossom is a perfect specimen. *M. Krause*.

ROSA RUBRIFOLIA.

I was pleased to see the reference on p. 321 to *Rosa rubrifolia* in the article on "Roses for Foliage." *White Rose* gave an excellent description of the colour of the foliage of this species, and those who wish to possess a Rose with highly ornamental branches and leaves should not fail to plant *R. rubrifolia*. The flowers, as your contributor states, are very small, and add nothing, in my estimation, to the decorative value of the plant. I have a specimen about 9 feet high, which is considerably taller than the "5 feet or more" mentioned by *White Rose*. I believe that *R. rubrifolia* prefers rather cool situations; I have seen it appear unhappy against a sunny, warm wall. My best specimen is on a wall facing north-west, where it is largely shaded from the mid-day sun. *S. Arnott, Sunnymead, Dumfries.*

THE PRIMULAS OF THE EUROPEAN ALPS.

(Continued from page 345.)

SUBSECTION 2.—*Brevibracteata*.—Note: Leaves fleshy, toothed, or nearly entire; bracts broad and short; short calyx.

The three species that make up this group are well known, of very easy culture, and remarkably beautiful. Two of them are certainly saxatile in their preferences, but *P. carniolica* I have not yet collected.

P. marginata (Curtis).—This plant has enormous pendent, woody rhizomes, which love to fall in a dense curtain down the face of a rock. These fibrous trunks retain their farina, which, on the leaves, is most conspicuous in their early stages. The leaves, when fully developed, have a smooth and leathery grey surface devoid of powder, which, however, always remains in a vivid marginal line round their edge. They are broadly oval, and jagged with a deep, regular dentation. The powdered flower-stem can carry as many as 13 large, wide-open flowers, which are of so unmistakable and lovely a lilac-lavender that *P. marginata* needs no further description.

This species has a limited range, within which it is very abundant. Beginning in the Graian Alps (Mont Cenis), it ranges down through the Cottians (Chiabotta) to the Maritimes, where it is equally profuse on limestone or on granite, in sun or shade (but with a preference for shade), from end to end of the chain (Valdieri, St. Martin Vesubie, Boréon, Grammondo, Tenda). In cultivation *P. marginata* offers no difficulties; but it is too usually grown as a level-ground plant, whereas by nature it is a hanging one. Consequently, its rhizomes grow stulkily up out of the border, in their effort to hang down; and if the full beauty of *P. marginata* is to be enjoyed, the plant should always be placed in some high ledge from which it can shower down in a pendent mass, according to its nature.

P. carniolica (Jacq.).—A noble species, wholly powderless and glossy; large bright green leaves, long and oval, fleshy in texture; almost always quite glabrous and entire, narrowing to a marked petiole at their base, sometimes a little waved, but very rarely (and, even so, very feebly) uneven at the edge, which has a margin of membrane, and occasionally some glandular hairs. The reddish, smooth flower-scape rises high above the leaves; its bracts (as in all this section) are broad and very short; the blossoms are several to a stem, large, rose-pink and splendid, with a clear white eye. The tube of the corolla greatly exceeds the calyx in length. The size of the plant, its complete lack of powder, the fleshiness of its leaves, their pronounced petiole, the length of the corolla tube, the short, broad bracts, all make it very easy to differentiate *P. carniolica* from the smaller species of the next subsection. *P. carniolica* multiceps of catalogues is merely Duby's name for *P. carniolica*, and this species is also *P. integrifolia*, of Scopoli.

P. carniolica is a limited species of the Eastern ranges—Julian Alps, Ternovner Wald, and the district round Idria. It is apparently as saxatile in its preferences as the two other species of this section. I suspect the genuine *P. carniolica* of being very uncommon in cultivation, and much more must be said of its beautiful albino, on which few have been fortunate enough to set eyes.

P. viscosa.—This name, so long associated with the common moorland Primula of the central ranges, must now be restored to its rightful owner, the magnificent rock-Primula which has hitherto been known as *P. latifolia* or *P.*

a dusky-green colouring, thanks to their dense vesture of colourless glands, which emit a rancid and hircine odour. The glandular flower-scape rises high above the foliage, and carries a number of blossoms in a serried bunch, nodding all to one side. The crowded flowers are large, but not by comparison with the plant, and rather squeezed and cylindrical in outline. Their corolla tubes greatly exceed their calyx-lobes in length, and their colour is of a vinous violet, verging sometimes on blue.

P. viscosa is a species of very wide distribution, ranging from the Pyrenees, through the Graian, Cottian, Maritime, and Rhaetian Alps. It takes,

P. viscosa cynoglossifolia (Widmer).—Smaller leaves, oval, entire, or slightly toothed; many flowered umbels. This is the prevalent form of the Valais, the Graian, Cottian, and Maritime Alps: Mont Cenis, Combes de Barant, Valdieri, Bordon (with *P. marginata*). This plant seems, in my experience, usually to insist on possessing rocky places, cliffs, and crevices. It readily acquiesces and luxuriates in a shady aspect, as also does *P. marginata*.

P. viscosa graveolens (Pax) = *P. graveolens* (Hegetschw. and Heer).—The form belonging to the Western Rhaetian Alps. Smaller leaves, oblong or lanceolate, narrowing straightly to their base, and more or less toothed from their middle to their point; many flowered umbels. This form belongs essentially to the Engadine, though reported from as far south as the Bergamask Alps (Widmer) and as Paznaun in West Tyrol (Engadine: above Samaden; Piz Languard). As I know it this variety prefers to form very wide masses in full open soil and in full sun.

This species proves fertile with several other Primulas, so that the Engadine is a centre for hybrids which have *P. viscosa* for one parent. Yet, though *P. viscosa* shares so wide a district with *P. marginata*, there is as yet, to my knowledge, no record of any mule between them—a fact which is the more curious in that *P. marginata*, apparently unwilling to breed with any of its close neighbours and kindred, *P. pedemontana*, *P. cotta*, *P. viscosa*, yet strays so far beyond probability in its affections as to hybridise with *P. farinosa*, by which union it produces the very rare *P. Bonatii* (Petitmengin) of the Cottian Alps. *R. Ginald Farrer.*

(To be continued.)

IRIS LUNA.

AMONGST a selection of Reglio-cyclus Irises sent us by Mr. C. G. van Tubergen, Junr., Harlem, is a fine new variety named Luna (see fig. 168), the result of crossing *I. Konolowin* with a bluish-tinged form of *I. atrofusca*. The Reglio-cyclus Irises combine the luxuriant growth and flowering of the Regelia varieties, with the beautiful colours of those of the Oncocyclus section. Mr. Tubergen informs us that he lifts the plants annually about the middle of July, when their growth is completed, and that the rhizomes are kept perfectly dry until they are planted about the middle of October. These Irises grow best in a rich, sandy soil containing lime or marl. The ground should be manured some time previous to planting, as fresh manure is harmful to them.

THE DROUGHT AND FRUIT SETTING.—All previous estimates of fruit yield, and particularly those of Plums, Apples, and Strawberries, have been falsified by the persistence of the hot weather and drought. In this locality we have had less than a quarter of an inch of rain in five weeks, and the drought has been equally severe throughout the most important fruit districts of England, all of which the thunderstorms appear to have missed. About three out of four of the Plums which had set have failed to swell, have turned yellow, and are dropping off the trees. Victoria, which was praised in my recent notes, being now as bad as any variety in this respect. I have seen similar reports from Kent, Evesham, and Cambridgeshire, and the general outlook seems to be one of not over three-fourths of an average yield of Plums. The apparent promise of Apples has proved almost equally disappointing. The proportion of entire trusses of blossom which have proved abortive is extraordinary, and the number of fruits as big as Hazel Nuts which came off at a touch is nearly as large as it was last year. If we get an average crop of Apples we shall be fortunate, and I fear we shall not get so much unless rain falls speedily and abundantly. As for Strawberries, my plants are half-scorched already, although the soil is not at all light. Both Red and Black Currants must suffer from lack of moisture. *Southern Grower, Sussex.*



FIG. 168.—IRIS "LUNA," A PRETTILY-VEINED VARIETY OF THE REGLIO-CYCLUS SECTION.

graveolens. Let all catalogues, then, and all their readers, take care to remember that *P. viscosa* henceforward means what used to be *P. latifolia*, and that the common Alpine Primula is now to be known as *P. hirsuta*.

P. viscosa (All.) = *P. latifolia* (Lapeyr) and *P. graveolens* (Hegetschw.).—This plant is large, robust, and leafy, wholly devoid of powder in all its parts, except for scanty traces in the throat of the flower. The plant forms compact masses, with very thick root stocks. The leaves are elongate-oval, attaining some 6 inches in length or more, are flabby in texture, petioled, devoid of marginal membrane, entire or toothed, and of

accordingly, several well-marked geographical forms, linked up by intermediates. The species is invariably calcifuge in all its districts, though in the garden it seems to grow no less comfortably in calcareous soil than in any other. As the local varieties are too often accorded specific rank in catalogues, to the confounding of the incautious, it may be as well to differentiate them carefully.

P. viscosa pyrenaica (Pax).—This is evidently the finest form. Larger, broader leaves than those of the other types, coarsely toothed; a multitude of flowers to the umbel; Eastern Pyrenees.

THE STATE BOTANICAL GARDEN, BRUSSELS.

(See Supplementary Illustration.)

THE Botanical Garden at Brussels has recently been made the subject of a lively discussion in the Belgian daily Press, owing to a fear that it might be necessary to sacrifice the garden for the purpose of carrying out the junction now being made between the stations of Bruxelles-Nord and Bruxelles-Midi. We are glad to know, however, that, according to the latest information from the Belgian Minister of Agriculture, that the fear is groundless.

The first botanical garden in Brussels was formed, in the year 1797, on the site of the garden belonging to the Palace of the Governors-General of the Austrian Low-Countries, a site which is now occupied by the Royal Library. At first it was attached to the central school of the Dyle department, and was planted partly by Count Van der Stegen de Putte, Professor of Natural History at this institution, and by Adrien Dekin, one of the authors of the *Florula Bruxellensis*, who succeeded him. The garden was next attached to the School of Medicine, and it was finally abolished about the year 1825, in the course of the alterations which took place in Brussels consequent on the destruction of the fortifications.

The present garden was formed by a society. The founders were the Baron Van Volden de Lombeke, J.-B. Meens, Drapiez, and the Abbé Van Geel. This society, founded in 1826, adopted the title of "Royal Horticultural Society of the Low Countries," and this was altered in 1837 to that of "Royal Horticultural Society of Belgium."

In March, 1826, the society acquired, for the sum of 43,537 frs. (£1,814) a large tract of land comprising more than 6 hectares, situated between the ports of Laeken and Schaerbeek. A competition was announced for plans of construction, and on October 27 the design submitted by Gineste (decorator of the Theatre Royal of La Monnaie) was accepted, with the condition that the amount spent on construction was not to exceed 136,000 frs.

The work was put in hand at once, and on September 8, 1827, the buildings were practically completed, and presented the magnificent effect which is their characteristic. At the same time, the large pond was dug, according to the designs of Petershem, and, during the same year, Breziers, the head gardener, began the planting.

At first the work of the society went splendidly, but the year 1830 (of glorious memory) was fatal for the garden. The Dutch troops, quartered in the greenhouses, committed acts of vandalism, and the patriots certainly did not spare the glass in their efforts to dislodge the enemy.

For several years afterwards the shareholders received no interest on their capital, and in 1840 the society was deeply in debt. The following year, however, their fortunes were revived by a fortunate chance. The garden extended in those days as far as the middle of the present Place des Nations, and the Government (which was at that time constructing the Gare du Nord) acquired a piece of land which ran at the end of the garden, which was thus circumscribed within its present limits. With the money thus obtained the debts were paid, but it was quite evident that the garden could hope to pay its way unaided. On the demand of the administrative commission, the annual subsidy paid by the Government was fixed at 24,000 frs., but the society had to undertake not to dissolve itself without the consent of the Government. Thus matters remained until 1864: in this year a fresh commission was

appointed, and a mandate issued to make an effort to sell the undertaking.

At this time the Government representative of the society was Barthélemy Dumortier. He was an eminent botanist and a respected member of the House of Representatives, and no one could have been better qualified to undertake the business. It was he, therefore, who was chosen to arrange the conveyance of the garden to the State.

The preliminary negotiations were extremely difficult. Some of the shareholders wanted to sell the garden for building land, but, fortunately, the contract of 1841 prevented this disaster.

On January 23, 1870, a convention was arranged between the Belgian Government (represented by M. E. Pirmez, Minister of the Interior), the Communal Administration of Brussels (represented by M. Auspach), and the Horticultural Society. The terms of this convention were, in short, that the society should sell to the Belgian State the Botanical Garden, with all its contents (houses, library, collections, tools, etc.) for a single payment, on the day of possession, of the sum of one million francs. The town of Brussels was to cede all its rights to the State, and agreed to continue the payment of an annual subsidy of 13,000 frs. This convention had to be ratified by the shareholders and the two Chambers, and a general meeting of shareholders took place on February 15, 1870. It had, however, been rumoured that the Government was buying the garden with the intention of completely altering its nature, and of constructing within its confines a Palace of Fine Arts, and the convention was rejected; but, happily, there were not enough members present at the meeting to form a quorum. A fresh meeting was called for February 26, and this time—Dumortier having been able, in the name of the Government, to give formal assurance that the beautiful edifice formed by the large greenhouses would be preserved, and that the Botanical Garden would not only retain its character, but that the collections would be augmented by the valuable herbarium of the Bavarian botanist, Martius, which the Government had just acquired—the convention was passed by a majority of six.

On April 7, 1870, M. E. Pirmez submitted to the Chamber of Representatives the project for the acquisition of the Botanical Garden. Dumortier seconded, and it was passed on April 18 by the Chamber, and on May 16 by the Senate.

The State entered into possession of the garden on July 1, 1870. Since this date the garden, instead of being exclusively a horticultural establishment, has taken rank among the scientific institutions devoting themselves to botany. Vast improvements have taken place, and the collections have been much enlarged, partly by means of gifts (the herbaria of Decaisne, Dieu-donné, and Crépin, and the Cactus collection of Dumoulin, &c.), and partly by purchase. In 1878 it was found practicable to place the institution on the same footing as the Royal Natural History Museum, and at the present time the Botanical Garden may be classed with the finest establishments of a similar nature in Europe.

The garden, under the expert supervision of Dr. Th. Durand, is divided into two scientific sections:—(1) Herbaria, under the direction of the curator, M. E. de Wildeman; (2) museums and scientific open-ground collections, in the charge of M. Ch. Bommer.

All the plants, both out-of-doors and in the greenhouses, are under the supervision of M. Louis Gentil, who is the chief horticulturist and a valued correspondent of the *Gardeners' Chronicle*.

The herbarium section contains, among other collections, that made in Brazil by Von Martius, and also the unique Roses of the late F. Crépin.

The collection of Roses is the most complete collection devoted to a single genus, comprising as it does more than 600 specimens of Roses, rigorously classed, and accompanied by manuscript notes of great value.

The Congo herbarium also deserves a special mention. It has developed to a remarkable degree, for, whereas, in 1896 there were only a dozen specimens, it contains at the present time over 1,500. It has served as a guide for numerous public works carried out by the late "Independent State" and by the Colonial Minister of the present day.

In the Museum section there is, on the one hand, the fine museum of forestry, and, on the other, the scientific open-ground collections, and especially the ethnological schools. This section also comprises a very valuable collection of fossilised plants, though these are unfortunately not on view for lack of space.

The collection of hothouse and Colonial plants contains, as shown by the very complete list published, by M. L. Gentil in 1907, 1,000 genera, 3,200 species, and about 370 garden varieties of plants.

The cold houses, which in 1905 contained 1,800 species and varieties, now hold over 2,100. In other parts of the garden the lack of space prevents further development of the collections of living plants. It is to be hoped that, on the completion of the works in connection with the railway junction, it will be found possible to provide more greenhouses, that will enable M. Gentil to give the collection more room.

The library contains a rich collection of volumes and manuscripts. The first portion of a catalogue, devoted to the subject of periodicals, and prepared by M. P. Van Aerdschodt, has just been published.

TREES AND SHRUBS.

UMBELLULARIA CALIFORNICA.

NURSERYMEN who catalogue this half-hardy tree usually do so under the name of *Tetranthera californica*. Although there are very few places in our islands where it could be successfully grown to anything approaching the height—from 80 to 100 feet—which it attains in the fertile valleys of south-west Oregon, yet there are many gardens in which it can be easily grown as a wall-plant, or as a shrub in a sheltered corner. From a garden point of view, the chief interest of the Californian Spice-tree lies in its aromatic evergreen leaves. When the leaves are stirred by warm breezes, they perfume the air most pleasantly. The perfume is somewhat elusive; at first one is reminded of Bay leaves, but there seems to be something else, for the odour suggests Cloves, then camphor, but the Bay leaf smell predominates. If a leaf is crushed and held to the nostrils it emits an overpowering smell like that given off by the commercial oil of Eucalyptus. The crushed leaves give so powerful an odour that one is not surprised to learn that they are distilled and yield a pungent volatile oil. Professor Sargent states that a fat containing umbellic acid has been obtained from the fruit, and that the wood is heavy, hard, strong, close-grained, light, rich brown in colour, and constitutes the most valuable timber produced in the forests of Pacific North America for the interior decoration of houses and for the making of furniture. The flowers are rather inconspicuous, and consist of a few greenish-yellow blossoms springing from the base of the leaf-stalks. The tree is amenable to the same culture as is afforded to most plants of the Laurel family, but it needs planting in a warm and sheltered position. *A. C. Baillett.*

TAMING THE WILD BLUEBERRY.

AN interesting article, illustrated by photographs and wood-cuts, with the above heading, is published in *The National Geographic Magazine* (vol. 22, p. 137, February, 1911, Washington). It may not be known to the readers of the *Gardeners' Chronicle*, but it contains some interesting and somewhat important information about the cultivation of "peat" plants.

The plant is called the "High-bush Blueberry" (*Vaccinium corymbosum*), as it grows from 4 to 7 feet high. It produces an abundance of berries three-quarters of an inch or more in diameter, and of an especially good flavour. The wild Blueberries are everywhere utilised for pies and jam, the value of the crop being estimated roughly at millions of dollars.

The object of the article, which is written by the experimenter, Mr. F. V. Coville, is to show how the bush can be cultivated; though many attempts have been made, with a general failure, in any kind of ordinary well-prepared or even richly-manured soil. The reason of failure was because—like all peat-plants—the plant requires an acid soil. The nitrifying bacteria of ordinary soils are destroyed by acidity, hence arose the failures.

After observing how many physiologically-allied plants, as *Drosera*, *Sarracenia*, &c., get their nitrogen from insects, Mr. Coville calls attention to the fact that this plant, as well as other members of the heath family, "are provided with a fungus which grows partly outside and partly inside the epidermal cells of the roots. The fungus is exceedingly minute, the threads of which it is composed having a diameter of 0.00006 to 0.00012 of an inch. The fungus occurs in great abundance on the roots of vigorous plants. . . . There is no indication that the fungus is in any way obnoxious to the plant. On the contrary, the uniformity with which it has been found to occur on healthy plants, and its frequent absence from or scarcity on sickly plants, are at once suggestive of a mutually-beneficial relationship."

The conclusion has been arrived at that the root fungus, like fungi in general, extracts nitrogenous food from the non-nitrified, acid organic matters with which it comes in contact, and changes it into some chemical form, in which the Blueberry can make use of it. The writer's experiments extended over four years, with a great variety of soil mixtures, nutrient solutions, methods of potting, &c. Except with an acid soil, all failed. Though lime is an important ingredient in all garden soils, it is very injurious to the Blueberry, just as *Rhododendrons* are very shy of it. An interesting result of his experiments with the use of lime has a wider significance, and will be important to all cultivators of peat-plants, so that a more continuous quotation is desirable. It was found that lime was injurious only when in sufficient amount to neutralise the acidity of the soil, 1 per cent being usually adequate. The following experiment made by Mr. Coville is instructive. He placed a few milligrams of air-slaked lime on the surface of the soil in 2-inch pots, containing small Blueberry plants. No effect was produced. A large surface application of carbonate of lime was then made, a gram to each pot, and the lime was washed down with water. The limed plants grew as luxuriantly as their unlimed neighbours.

In a second similar experiment, for more than seven months the plants continued to grow in a normal manner. The lime appeared to have no deterrent effect whatever on their growth. An analysis proved that the soil contained 8 per cent. of lime, equalling 25 tons per acre!

The Blueberry plants ought to have been dead long before. As a matter of fact, they were making excellent growth.

A careful examination of the soil revealed the cause. "The surface of the soil was found to be covered with a hard, grey crust of lime. Im-

mediately underneath, for a depth of about half an inch, the soil was black, and contained no live Blueberry roots. Beneath this the peaty soil was dark brown and filled with growing, healthy roots. The lime appeared to have penetrated only into the superficial portions of the soil. A chemical test confirmed this, showing that the black, rootless upper layer was densely impregnated with lime, while the brown, peaty portion, containing the growing roots, still gave the acid reaction that was characteristic of the whole potful of soil before the lime-water applications began."

Mr. Coville adds:—"This experiment has a very important bearing on the method of applying lime to acid soils in ordinary agricultural practice. A surface application of lime would have no appreciable effect in neutralising the acidity of a soil, unless the soil were so sandy or gravelly or otherwise open that the rainwater containing the dissolved lime could run down through it practically without obstruction. A surface dressing of lime would have little effect in neutralizing the acidity of an old meadow or pasture." *George Henslow.*

SCOTLAND.

WAVERLEY MARKET, EDINBURGH.

For a considerable time the business in fruit, flowers, and vegetables has been hindered by the occasional crowded state of the Waverley Market, Edinburgh, during business hours, and a movement has been made to endeavour to secure facilities for the traders as distinct from the general public. The crowded condition of the market arises largely from persons who are only occasional purchasers or sight-seers. A proposal is made that the traders should be given a ticket, admitting them 15 minutes before the general public for two days a week, a charge of 10s. 6d. being made for the ticket available for the season. The proposal was brought before a recent meeting of the Markets Committee of the Town Council by deputations from the Edinburgh and Leith Fruit, Flower, and Vegetable Trade Association, the Edinburgh Market Gardeners' Association, and members of the wholesale trade. The committee has remitted the subject to the Town Clerk to enquire into the question, as legal questions are involved.

INSTRUCTION IN FORESTRY.

THE opening lecture of a short course of instruction in forestry was given under the auspices of the Edinburgh and East of Scotland College of Agriculture on the 22nd ult. In addition to instruction in the different branches of silviculture and forest botany, there will be occasional excursions to forests, nurseries, and other places where information can be gained by observation.

The initial lecture was delivered by Dr. A. W. Borthwick, who pointed out the need for increased attention in matters pertaining to forestry and to the need for planting undeveloped land in this country. It was suggested that a survey for the purpose of ascertaining what land was suitable for forestry should be taken, and that a suitable forest garden and model forest should be provided.

THE CRUICKSHANK BOTANIC GARDENS, ABERDEEN.

THE new ground adjoining the Cruickshank Botanic Gardens, Aberdeen, recently purchased by the Cruickshank trustees, has been trenched and sown out in crops, preparatory to its being laid out next year as part of the botanical gardens. This new development has been brought about in view of the changes to take place in the gardens next year, when the section of the gardens now held on lease will be given up, and the plants transferred to the newly-acquired site. The whole of the area comprising the gardens will thus become the absolute property of the Cruickshank Trustees. The curator is Dr. James W. H. Trail, professor of botany in Aberdeen University. *Correspondent.*



The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

HOLLYHOCKS.—Stout stakes standing some 4 feet out of the ground should be placed to Hollyhocks for support. This is a much better method than employing longer stakes, which, for a considerable time, are unsightly objects in the border; furthermore, the plants do not need to be supported along the whole of their length, indeed, the spike may be stopped when it can be ascertained that the later flowers will not open properly. Seeds of Hollyhock may be sown now to produce plants for planting in October. They resist ordinary winters, and, if they survive the cold, are much better specimens than those raised in the spring, or even those that are wintered in pots. The variety *Rose Queen* is one of the finest of all Hollyhocks for garden decoration, and *Double White* variety is also to be recommended. The single varieties, although very pretty, are less effective than the double sorts.

PLANTING DAHLIAS.—The planting of Dahlias should be no longer delayed. It is usual before planting to place a stout stake at each station to support the rapidly-growing shoots. It is my practice, in the case of novelties, to cultivate them in pots for the first season, not that they do better under this system, but that it ensures the preservation of the plants over the winter. The pots should not be less than 5 or 6 inches in diameter, and should be plunged deeply in the soil in order that roots may extend beyond the pots. Old tubers planted in April are very early in growth this season, and the shoots are ready to be pegged to the soil. This method of growing Dahlias does away with the necessity for stakes, keeps the plants dwarf, and the ground covered with the shoots and foliage.

SWEET PEAS.—These plants are making great progress, and it will be necessary to train the leading shoots, so that they will grow in the right direction. Where the soil is dry, watering must be resorted to, but it must be remembered that excess of water will result in a too vigorous growth and coarse flowers. If soot was not freely incorporated with the surface soil previous to planting, a thick dressing of this material should be placed around the plants now. Soot is rather slow in its manurial effect; its chief value is in imparting cleanness and brilliancy to the colours of the flowers, but its application must not be overdone, because it produces a gross habit in the plants.

SPRING BEDDING.—Arrangements must be made for next year's stock of spring bedding plants. The custom of allowing late-blooming Tulips to remain in the beds with the summer and autumn-flowering plants is gaining ground, though probably the system is not suitable for all districts.

HERBACEOUS BORDER.—Most of the plants in the herbaceous borders are now in their full beauty of flowering, such subjects as *Hemerocallis*, both species and hybrids, *Geums*, *Trolliuses*, *Lupins*, *Poppies*, *Heucheras*, *Acomtes*, large-flowering *Irises*, and many others giving a gay effect. Every effort should be made to maintain the borders in a tidy and attractive condition by removing any dead foliage, especially from early-flowering bulbous plants. It is specially necessary to remove the old flower-heads of these latter plants, as the formation of seeds weakens the bulbs. Coarse-growing subjects will need to be restricted to their proper bounds. Where the hoe can be used without injuring the plants, it will be an advantage to stir the soil, as much for the purpose of conserving the moisture in the ground as for destroying weeds. This operation is best carried out on a dull day after rain.

LAWNS.—Where the grass has been allowed to grow uncut for any reason, it should be mown with a scythe as soon as convenient. It is a disadvantage to allow grass to flower and seed before cutting it, as the old spikes make the turf unsightly for some time afterwards. It is a good plan to use the lawn mower after the

grass has been cut with a scythe, allowing an interval of three or four days to elapse. Where Daffodils or other bulbous plants are planted in the grass, the spots where they are growing should be passed over for the present, so that the plants may be allowed to mature.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Guanersbury House, Acton, Middlesex.

HIPPEASTRUM; TREATMENT AFTER FLOWERING.—There is sometimes a disposition to neglect these plants for a time after they have produced their flowers, but this should not be permitted. It is an excellent plan to plunge the pots containing the bulbs in a cold frame containing light loam or cocoa-fibre refuse, leaving them there until the leaves fade away. Such a frame should now be vacant, since the bedding plants have been removed out-of-doors. We plunge the pots until the rims are buried, and occasional waterings suffice afterwards. In the autumn it will be found that numbers of roots have gone over the sides of the pots in search of food. A watch must be kept against such insect pests as thrips. Hippeastrums must not be coddled, but the frames may be closed at night for a few weeks, leaving a little air on after that time. Seedlings raised last summer may be planted out if room in the houses is limited. In this case, however, use good, fibrous loam and sand, planting them in this somewhat firmly. If a pit is chosen with a water pipe running around it, the small amount of heat will be useful as the bulbs need to be grown on; then it is possible to flower the stronger ones next season.

GARDENIA.—If Gardenias are cultivated on the planting-out system, the plants may now require a liberal pruning and a thorough cleansing. If these matters are attended to now, a late crop of flowers may be secured upon such species as *Gardenia intermedia* and *G. florida*. Should the plants be old ones, it is better to root them out and replace them by younger stock. In doing this, if pipes are not arranged for, provide some fermenting material to afford bottom heat, and select the best possible soil, consisting of turfy loam and leaf-mould, or, failing the latter, some light, fibrous peat. Gardenias in pots, after having yielded a good crop of flower, may need re-potting or top-dressing. At the same time, it will be well to prune them into shape and allow the plants to make fresh growth during the summer months. When pruning is being attended to, some of the most promising shoots may be made to serve as cuttings. Do not select single shoots, but clusters of three or more. Insert them in thumb-pots, and a slight bottom heat, when they will strike almost like weeds.

CODIÆUM (CROTON).—If Crotons have been grown in full sunlight the plants will have made a good growth and developed the particular colour to each variety. It may be found that red spider has attacked the leaves, in which case the syringe must be used more freely, and, if the pest is still persistent, mix some flowers of sulphur with the water and let this remain for a few days on the foliage. There is another minute insect which attacks the points of Croton shoots, thus causing the leaves to fall whilst still very small and the points of the shoots to assume a rusty appearance, growth being stopped. The best remedy is to syringe the plants with water impregnated with soot. Get pure soot and place about a quart in the leg of an old stocking and secure it there. Then sink it into the tank or into a tub with about 50 gallons of rain water. Do not disturb it in the least: all that is needed is to see that the water is tinged a pale brownish colour. It is a common mistake that is made, when using soot water, to think that it must assume a blackish colour. This is going too far. I never found the bag-of-soot remedy to fail.

THE HARDY FRUIT GARDEN.

By W. HIDEA WARREN, Aston Clinton Gardens, Buckinghamshire.

WATERING FRUIT TREES.—This is the season of most active growth, and the trees need a plentiful supply of moisture at the roots. The fruits also are swelling, and a lack of moisture at this stage would be very harmful. Wall trees especially need to be watered in dry weather, because, as I have remarked in a former Calendar, the soil at the foot of walls soon becomes

dry, under which conditions the trees are unable to obtain a free circulation of sap, and suffer from attacks of insect pests and mildew. The top soil should contain the greatest number of feeding roots, but if the ground is dry at the surface, the roots descend in search of moisture, favouring the production of strong, sappy shoots. It is, therefore, most important, not only for the present needs of the trees, but also for their future welfare and fruitfulness, that an adequate supply of moisture is maintained at the roots. Liquid manure may be applied with benefit provided the soil is moist, and, if dry, the borders should be first soaked with clear water, in order that the fullest advantages of the liquid manure, or other stimulant, may be gained. It must be remembered that liquid stimulants should only be applied in the case of trees in bearing, or those that are weakly.

GOOSEBERRIES.—These are usually thinned sufficiently by gathering green berries for cooking purposes. If, however, large fruits are required, a certain number of bushes should have the berries thinned for the purpose, taking care to see that the crop is distributed equally over the whole of the bush.

PROTECTING FRUIT FROM BIRDS.—Cherry trees should be netted to protect the fruits from the birds. In the case of trees growing against walls the nets should be arranged at some distance from the walls, as recommended when the question of protecting the blossoms was dealt with. Standard specimens may be protected by covering the top of the tree with a large net, securing it at the bottom, or around the stem of the tree. In many gardens the fruit quarters are enclosed by high wire fences, the mesh being fine enough to keep out small birds. The tops of such enclosures are covered with large, movable nets, which are elevated on poles and wires. Between the taller trees rows of Currants, Gooseberries, and Strawberries are usually planted, and the fruits, being adequately protected, remain in a good condition for a much longer time than those of a similar kind growing in the open garden. Strawberries will also need protecting from birds. Keep the nets quite clear of the foliage, and arrange them in such a manner that they may be taken off and replaced easily. During damp weather a careful watch must be kept for slugs, which, if allowed to go unchecked, will soon spoil the crops.

GENERAL REMARKS.—Late Strawberries should be plentifully supplied with moisture at the roots, and every inducement given to promote a rapid and healthy growth of the fruits. Continue to thin, when required, Pears, Apples and Plums. Pinch off, or stop to a few buds, all useless shoots on trained fruit trees, leaving intact only those that are required to fill vacant places. Keep down insect pests of all kinds, using the syringe or garden engine freely on all favourable occasions. In dry weather water copiously all newly-planted trees in order to keep the soil and mulching materials moist.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchard Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

MEXICAN LÆLIAS.—The present is the best time to ensure the production of flowering growths upon such members of this group as *L. anceps*, *L. albida*, *L. Gouldiana*, and *L. autumnalis*. By this time the roots will have obtained a good hold in the new compost which was afforded early in the present year. If the sturdy young growths that are now developing are well exposed to the sunlight from the commencement, they will benefit later by all the light, air, and sun-heat that can possibly be given them. These *Lælias* dislike artificial heat or a close atmosphere, but they enjoy light and sun-heat, with ample atmospheric moisture and an abundance of fresh air both night and day. Under these conditions they will make strong, hard pseudo-bulbs, and thick leaves of a desirable leathery texture. Syringings with water overhead both morning and evening whenever the weather is favourable is highly beneficial, as the foliage and rooting materials dry quickly under the conditions I have advised. The plants will also need to be examined frequently, to see that they are not dry at the roots; later on, when the pseudo-bulbs are thickening, a liberal supply of water will be needed. This treatment I have found most conducive to these Orchids flowering regu-

larly, and most of the trouble experienced in their non-flowering is due to an insufficiency of light and air. These remarks apply particularly to *L. majalis*, a beautiful species, and one easily dealt with so far as growing is concerned, but one of the shyest-blooming of all the Mexican *Lælias*. That the trouble is more often a matter of a deficiency of light than any other cause is, I consider, proved by plants flowering well from growths perfected under the brilliant sunshine of the preceding summer. Plants of this species succeed best when grown in pans, baskets, or on rafts suspended from the roof rafters close to the ventilator. If grown in baskets or pans, these must not be large specimens, as they dislike too much compost about their roots. The plants should be well elevated to the light, and good drainage is essential to their well-doing. This *Lælia* is just now commencing to grow, but there is little root action at present, therefore a little water only will be needed until the flower-buds appear; at that stage frequent supplies of moisture are needed. After the flowering is over, an abundant supply of water at the roots will be necessary until early autumn, when the pseudo-bulbs will be fully developed. This species dislikes root disturbance, and when re-potting becomes absolutely necessary it should be done when the new roots are developing from the young pseudo-bulbs. The best rooting material is pure *Osmunda* fibre, which should be pressed firmly about the roots. During its long season of rest, infrequent watering will suffice to keep the growths plump and healthy.

COMPARETTIA.—The members of this small genus are pretty little Orchids, and have long been in cultivation. The plants are best grown in the shallow pans that are frequently used for dwarf-growing Orchids. These should, however, be of a sufficient size only to allow of a very narrow margin of material about the plants. The pans should be filled two-thirds of their depth with material for drainage, and above this place a compost consisting of equal parts half-decayed Oak leaves, *Osmunda* fibre, and chopped Sphagnum-moss, with a good quantity of coarse silver sand. A liberal supply of water should be afforded the plants in their growing season; in fact, they should never be allowed to become dry at the roots, but during the winter season water must be applied judiciously. The plants are subject to attacks of thrips and red spider, therefore care should be taken to keep the young shoots clear of these pests.

FRUITS UNDER GLASS.

By E. BECKFETI, Gardener to the Hon. VICARY GIBBS, Aldenham House, Hertfordshire.

EARLY VINERIES.—Houses containing ripe Grapes which are being cut as required, should be ventilated rather freely, and during the daytime, in the present warm weather, abundance of air should be admitted both through the top and front ventilators. Black Grapes are apt to lose colour, and should they have to hang for a long time they will keep better if a light shading is placed on the roof, either a couple of thicknesses of fish netting, thin tiffany, or stippling the glass with whitening. Damp the surface of the border and the paths once on dull days, but more frequently in hot weather. During the daytime no fire heat is necessary; the valves may be closed or, if the fires are stopped very early in the day, the valves will not need interference. Now that the fruit is finished the sub-lateral growths may be allowed to extend. After the removal of the fruit give the foliage a thorough syringing with clear water, as red spider may be present; the water may be applied with a good force by means of a hose pipe.

OUTSIDE BORDERS.—These should be covered with a light mulching, preferably of long, strawy litter. Before applying the mulching it may be necessary to give a thorough good soaking of water. If the natural drainage is good and the soil light these borders will require liberal supplies of water in hot weather, and the Grapes will be much assisted if a little artificial manure is scattered over the border before the watering is applied.

MID-SEASON VINES.—Attend to the watering of the borders, and afford varying stimulants to encourage the development of large berries, and especially where the rods are well cropped. Plenty of atmospheric moisture will now be required, and also a free circulation of air, otherwise the foliage will be apt to become

scorched, and especially is this liable in more modern houses where the panes of glass are large and the laps close. These conditions, together with long roofs and large houses, quickly causes the temperature to rise, and I would err on the side of admitting rather more than less air. The closing of the houses will now need to be deferred until later in the afternoon, damping every available space, as walls, floors and borders, to provide humidity. Later in the evening, admit air by the top ventilators, and allow them to remain open all night. Increase the amount early in the morning so as to prevent scalding of the foliage and berries.

LATE VINES.—The later vineries containing such varieties as Gros Colmar, Lady Hutt, and Lady Downes, should be sufficiently far advanced now for thinning. If these late ripening varieties are not so far advanced as this they may fail to colour well, and their keeping qualities will be impaired. Thinning should be commenced as soon as possible and the earliest bunches relieved, as at this season, if neglected, the berries quickly swell and are soon spoilt. With late-keeping Grapes it is most essential that the berries be removed from the interior of the bunches. Do not thin the shoulders too severely or the bunches will fail to fill up well. Use great care not to prick or rub the berries. Black Alicante needs careful treatment, as the bunches are often inconveniently placed for thinning. Allow sufficient room, according to the variety, for the remaining berries to swell. Avoid treading on the borders any more than is necessary. Much work can be saved and untidiness prevented by placing one or two Archangel mats over the border where working. After the thinning is completed, lightly prick over the border and give a good watering with farmyard manure, or a quick-acting artificial fertiliser, and mulch the border if not already done with well decayed farmyard manure or decomposed horse droppings, such as are prepared for the formation of Mushroom beds.

THE FRENCH GARDEN.

By PAUL AQUATIAS.

CROPS ON MANURE BEDS.—The earliest Cauliflowers are now ready for cutting. It is essential to have a quick market for this crop, as the inflorescences are spoiled if they are left one or two days over after they are ready. A storm or a heavy rain will favour the bursting of the curd, and mean often a loss to the grower unprepared for a quick sale. The carrots grown on the cloche beds are now marketed, and the ground will be hoed and raked as soon as convenient. The Cauliflowers forming the last crop to be planted on these beds are generally ready in succession to those that were planted on the unheated beds at the middle of March.

MELONS.—The fine weather has been favourable to this crop, especially where the watering was done at the proper time. Ventilation should be given freely from 8 a.m. till 5 p.m. on bright days, to promote a healthy and vigorous growth of both roots and foliage, thus enabling the plants to withstand better the vagaries of the weather. The fruits on the first batch of plants will now commence to swell quickly, and on no account should the roots be allowed to become dry. Three gallons of water daily per light when the weather is warm is a reasonable allowance in the case of those growing in sandy soils, but the cultivator must not work by rule of thumb and suspend the watering if necessary. The pruning of the side shoots must be attended to at least every week. The laterals are stopped at the second leaf, and those bearing fruit at the leaf next to it. It can now be ascertained which fruits are the best to retain; select one on each side of the plant, and see that they are of an even size, and perfectly regular in shape. They should be selected as far from the collar of the plants as possible. The size of the fruits will depend largely upon the attention given to watering, ventilating, and stopping.

CUCUMBERS.—The planting of the last batch of Cucumbers in frames must be done without delay. The plants will need little attention during their early stages, besides shading and watering occasionally.

TOMATOS.—Tomato plants grown in eold frames are now showing a truss of flowers on each of the five side shoots left after the stopping of the main stem. The shoots growing at the base of the leaves must be removed carefully.

Ventilation should be provided both day and night. Two cans of water weekly will be sufficient till the trusses of fruit are well set. The planting of Tomatos in the open should be completed. Ventilation is given to those grown under the cloches, as the glasses will be removed within eight or ten days from this date.

NURSERY BEDS.—Seedling Cauliflowers and Celery must be kept damp at the roots, in order to produce strong plants by the time they are needed for setting in their final quarters. Where there is a constant demand for Cos and Cabbage Lettuces, seeds should be inserted to have plants ready as an inter-crop set between Cauliflowers or Celery, on the old manure beds, in July.

CROPS IN THE OPEN GROUND.—The main work in this department will now consist in watering in rotation all the crops, so as to promote a quick growth. The system of irrigation provided in a French garden gives a great advantage over the ordinary system of gardening, for a constant supply of moisture is always available.

THE KITCHEN GARDEN.

By JOHN DESS, Kitchen Garden Foreman, Royal Gardens, Windsor.

RUNNER BEANS.—A second sowing of Runner Beans should be made about the middle of this month, in order to keep up a supply as far into the autumn as possible. A site which is sheltered from the west wind should be chosen for planting, because rough winds in October damage the plants and spoil the crop. When the young plants are well through the ground, place strong sticks in position, so that the growths may have a good support from the commencement. When the shoots reach the top of the sticks, pinch out the tops, in order to promote the growth of side branches which will furnish extra pods. A sowing of climbing French Beans may also be made in the same manner.

PARSLEY.—Parsley for winter supplies may be sown at the present time on a border which is sheltered from north-east winds, and where some protection may be afforded during rough, winter weather without appearing unsightly. As soon as the plants have made sufficient progress in September, they may be cut close to the ground, in order to promote fresh, stocky growth, as Parsley treated in this manner is better able to withstand the cold of winter than plants that are not so treated.

GREEN VEGETABLES.—Colewort should be sown now for early winter supplies. The ground for this crop should not be too rich, as the plants require to be grown as hardy and short jointed as possible. A sowing of Christmas Drumhead Cabbage may also be made now. This is a valuable winter Cabbage, and the plants should be set out in rows made 18 inches apart, allowing 1 foot from plant to plant in the row. Continue to plant out, as opportunity arises, such crops as Brussels Sprouts, late Cauliflowers, and early winter Broccoli. If the weather is dry at the time of planting, drills should be drawn several inches deep, and thoroughly saturated with clear water the night previous to planting.

TURNIPS.—Frequent sowings of Turnips should be made, choosing a part of the garden which is sheltered from strong sunshine. Turnips require liberal supplies of water during dry weather, to promote a quick growth. Red Globe is one of the best varieties for this sowing. Young Turnips sown a month ago should be carefully thinned to 9 inches apart; if aphid is troublesome, dust the plants lightly with soot in the early morning while the foliage is still damp with the dew.

CARROTS.—A good sowing of stump-rooted Carrots may be made now to afford supplies through the winter months. Model is one of the best varieties for this sowing, although seeds of early varieties of Carrot may be inserted as late as the middle of July on a warm border which has been prepared for the purpose and which may have been previously occupied by Lettuce. Early Scarlet Horn is a suitable variety for a late sowing. If the Carrot fly should prove troublesome, frequent dustings of soot should be applied to make the plants as distasteful to the insects as possible, or liberal waterings of soot water may be given with equally good results.

LETTUCES.—Choose a border which is somewhat sheltered from strong sunshine for making frequent sowings of Lettuce, which will succeed better if sown thinly where the plants may

develop without disturbing them than if transplanted. Give the plants liberal supplies of water during dry weather, so that they may grow freely without a check. Iceberg and Continuity are good Cabbage Lettuces for planting in hot weather, whilst Balloon Cos is an indispensable variety for growing throughout the summer months.

THE APIARY.

ISLE OF WIGHT BEE DISEASE.*—For some years past an epidemic disease has attacked bees in the Isle of Wight, and has since reached the mainland, where it appears to be spreading. The epidemic has been under investigation by the Board of Agriculture and Fisheries, but though a good deal of information has been accumulated and some progress made with the study of the disease, it is not yet possible to say definitely what is the originating cause of the disease, or how it may be checked, or even prevented. The investigation is being continued, and it is hoped that eventually a remedy will be found.

In the meantime it is important that beekeepers should watch their bees, and on the appearance of the symptoms described below proceed to—

- (1) Destroy the diseased colonies, and all combs, stores and quilts.
- (2) Paint the hive and all woodwork twice, at intervals of 24 hours, with a solution of one part strong carbolic acid and two parts hot water, and then expose the inside of the hive to light and air for several days. Alternatively the woodwork may be burnt by means of a painter's spirit lamp.
- (3) Collect and burn the dead bees found on the ground. The ground should then be sprayed with some strong disinfectant such as 8 ounces carbolic acid to a gallon of water, or it may be covered with quicklime.

SYMPTOMS.

1. The first symptom usually noticed is a disinclination of the bees to work. They fly about aimlessly and do not gather stores.

2. A little later they lose their power of flight, and are unable to travel more than a few yards without alighting.

3. As the disease progresses the bees are unable to fly more than a few feet, when they drop and crawl about the ground. They may be seen crawling up grass stems or other upright objects such as the supports of the hive, but they soon fall down and die. Towards night some may be gathered in groups, but these usually die before morning.

4. The abdomen or hinder part of the body is often swollen, and the extreme segments or rings droop and are bent underneath the rest of the body.

5. The wings often appear to be disconnected, the upper wings lying flat above the body, while the lower wings stand out from the body as in flight. Sometimes the legs seem affected and the bees stagger along in their attempts to walk.

6. Finally the whole colony of workers is found massed together in front of the hive or on the ground, except a few which are found crowded round the queen.

7. The foragers are always the first affected. The queen and the brood are not attacked, though "chilled brood" often appears subsequently, owing to there being insufficient bees to keep the hive warm.

8. In winter and early spring, when bees are often attacked, the walls, combs and alighting board are frequently soiled by the bees. This seldom, if ever, takes place in the summer.

Although it is not certain what is the direct cause of this disease, it can be distinguished from some of the other diseases to which bees are liable. Thus, in cases of bee paralysis, the hinder part (abdomen) of the bees is discoloured and blackish. The bees tremble and the wings are bent up in a way that is not the same as the distortion visible in Isle of Wight Disease. In cases of "May Pest," both young and old bees are affected, and their bodies are covered with a light grey dust. In cases of dysentery the bees soil the combs as in Isle of Wight disease, but the droppings are dark and muddy and not of the yellow colour that is usual in the present disease. A course of treatment for all these diseases is given in the text-books on beekeeping.

* Leaflet No. 253. Board of Agriculture and Fisheries.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JUNE 12—United Hort. Benefit and Prov. Soc. Com. meet. Southampton Roy. Hort. Soc. Garden Fête.

WEDNESDAY, JUNE 14—Yorkshire Gala at York (3 days). Roy. Cornwall Sh. at St. Austell (2 days). Roy. Meteorological Soc. meet.

THURSDAY, JUNE 15—Linnean Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—58°6'.

ACTUAL TEMPERATURES:—

LONDON.—(Wednesday, June 7 (6 P.M.): Max. 72°; Min. 52°.

Gardeners' Chronicle Office, 41, Wellington Street Covent Garden, London—Thursday, June 8 (10 A.M.): Bar. 30.4°; Temp. 69°; Weather—Sunshine.

PROVINCES.—(Wednesday, June 7: Max. 73° Yorkshire; Min. 60° England, S.E.

SALES FOR THE ENSUING WEEK.

FRIDAY—

Special Sale of a Splendid Collection of Dwarf Japanese Trees and Flowering Plants, Japanese Garden Haze, Tree Fern Stems; at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.

Consignments of *Miltonia vexillaria*, *Cattleya Mossiae*, *Cattleya Dowiana*, and others; also Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Freehold Property, Stanstead Park Nurseries, Forest Hill, S.E., with Residence, Shop and Warehouse, 21 Greenhouses, Piping, &c., at The Mart, Tokenhouse Yard, E.C., by Protheroe & Morris, at 2.

The Evolution of Plants.

It is but a short time ago that the Syndics of the Cambridge University Press undertook, with commendable enterprise, the publication of a series of excellent manuals of science and literature. Whilst this series is issuing from the press, the announcement is made of the publication of another admirable series of volumes, entitled the Home University Library, and edited by Mr. Herbert Fisher, Professors Gilbert Murray and J. A. Thomson. To both these enterprises we extend the most cordial welcome, and may say that we can, from experience, recommend the volumes to those of our readers who care to keep abreast of the progress of modern thought. It is an encouraging sign that the manuals and the Home University Library are to be found on the railway bookstalls, and that the price of each volume is so low one shilling as to be within the means of most of us.

In the first 10 volumes of the Home University Library, science is worthily represented by Dr. Scott's story of the *Evolution of Plants*². Inasmuch as no

²The *Evolution of Plants*, by Dr. D. H. Scott, Home University Library of Modern Knowledge. (London: Williams & Norgate.) 1s. net.

living botanist has made more important contributions to this subject than Dr. Scott himself, the reader may rest assured that the information which the book provides is as trustworthy as first-hand knowledge can make it.

Though a study of the evolution of plants introduces the reader, perforce, to a strange world, where the plants are strikingly dissimilar from those with which the modern gardener is familiar, yet Dr. Scott's candid and simple style makes the difficult subject both fascinating and easy.

After a very brief and, as we think, not very convincing defence of natural selection as an active agent in the origin of species, Dr. Scott proceeds to deal with the evolutionary history of the true flowering plants. He demonstrates in the most graphic way the commanding position held by flowering plants among the vegetation of the present day, and, in this connection, he makes effective use of the "census of vegetation" which was prepared by Professor Vines some 10 years ago. According to this census, the total number of species of plants of all kinds now living on the earth, and in "the waters under the earth," is 176,000. Of this imposing number of species, the flowering plants account for no fewer than 103,000. Thus, nearly 60 per cent. of the total plant population of the globe consists of flowering plants. Second only to the latter are the fungi and bacteria, which are estimated at 40,000 species. Last in the list, and ominous of extinction, are the Ferns (including Fern allies), with 3,500 species, and the Conifers (with their allies), with no more than 2,500 species. Nor is the pre-eminence of flowering plants to be reckoned by numbers of species alone. Their supremacy stands unchallenged if tested by density of population, or by the versatility they display in fitting themselves to the most varied chances and changes of this mortal life. Here, in this temperate region, they constitute almost exclusively the vegetation of field and prairie. There, in the burning deserts of central Africa and America, they and they alone are represented by the Cactus and the Giant Euphorbias. The plant which climbs highest up the mountainside in the Bernese Oberland is a flowering plant, *Ranunculus glacialis*, which is found 14,000 feet above the sea, in solitary possession of the eternal snows. The present-day supremacy of the flowering plants demonstrated, Dr. Scott shows next that this is a modern triumph, and that, in far-off times, the dominant kinds of plants which covered the earth, and, it may be, showed no less versatility, were of a totally different type from the lords of vegetation of to-day.

Thus the problem proposes itself. What are the ancestors of the flowering plants?

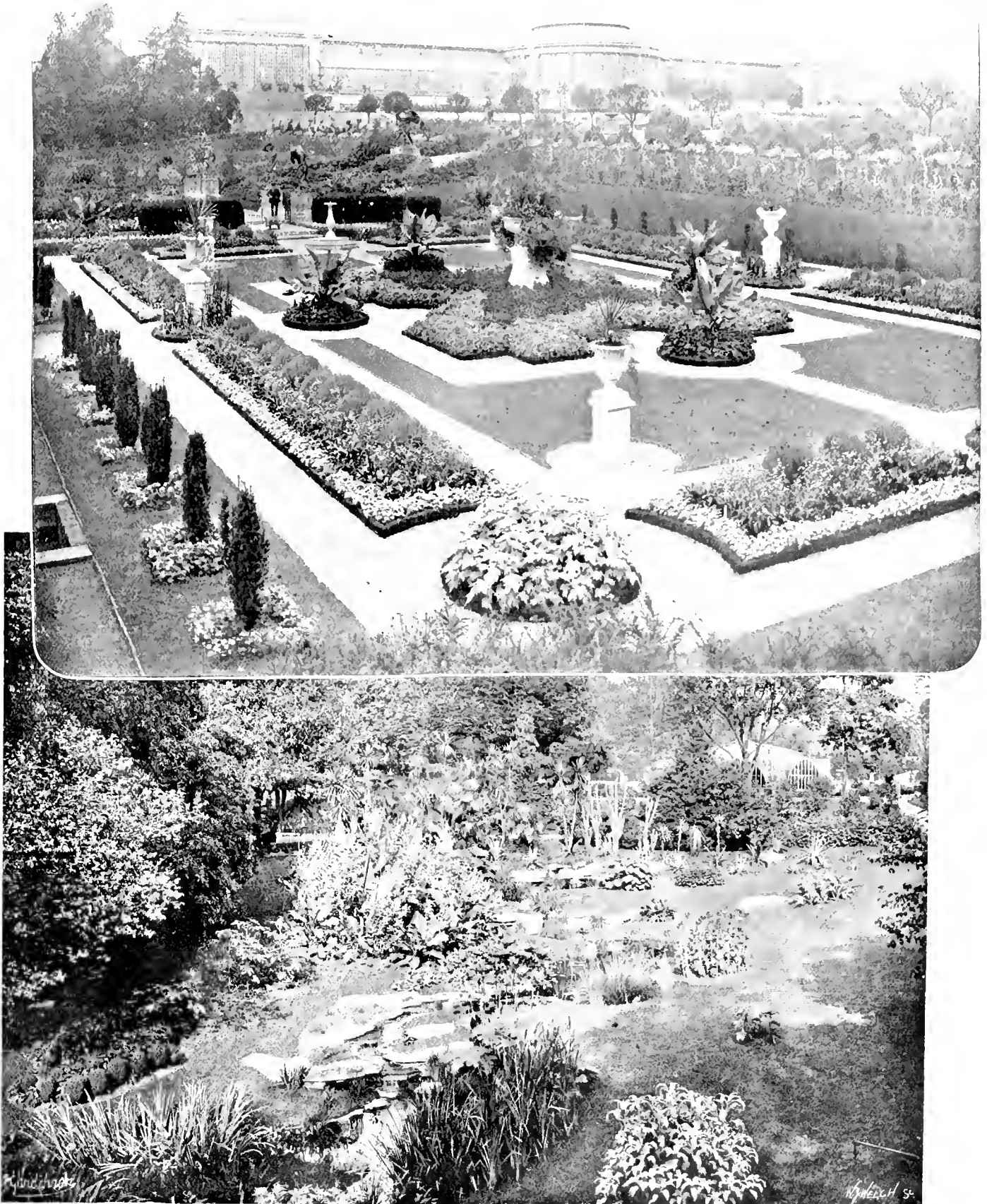
The claims of Conifers to this distinction are dismissed curtly and finally; but a strong case is made in favour of the Cycads, a group known to gardeners by its present-day representatives such as *Cycas*, *Stangeria*, *Macrozamia*, &c., which are cultivated so splendidly at Kew.

The primitive nature of the Cycads is demonstrated, and the all-important fact is established that the mode of fertilisation which obtains among the members of this group is what may be called the cryptogamic method, in contradistinction with the mode exhibited by the flowering plants. The essential feature of the cryptogamic method of fertilisation is the active progression of the male cell to the female or egg cell: the characteristic feature of the method of fertilisation now in use among flowering plants is the passive progression of the male cell—carried by a growing pollen-tube—to the egg cell.

Appealing to the geologic record, Dr. Scott shows that the Cycads of to-day are not what they used to be. They have come down in the world, and have exchanged the dominating prominence of long ago for present obscurity. In far-off times, when Cycads were at their zenith, every one plant in three was a member of this group. Not only were they vastly more numerous, but those Cycads of the past (Cycadophytes) were far more widespread and varied in type. Thus, the "crows' nests" turned out by the workmen in the quarries at Portland are fossil remains of Cycadean plants. Now, as Dr. Scott demonstrates by a series of striking illustrations, these ancestral Cycads had this in common with the present-day flowering plants, that they bore seeds and fruits, and that the former contained dicotyledonous embryos. From all the evidence, of which we have summarised only the chief heads, Dr. Scott concludes that the flowering plants are descended from the Mesozoic Cycadophytes.

This is but part of the interesting story which Dr. Scott tells with so much skill; but it will, we hope, suffice to indicate the attractive nature of this excellent contribution to the Home University Library.

WEEDS IN RELATION TO SOIL.—An investigation which promises to yield valuable results has been commenced by Miss W. E. BRENCHLEY, of Rothamsted, on the relation between weeds and soil in arable land. The work so far undertaken deals with the land between Harpenden and Bedford, where chalk, gault, lower greensand and Oxford clay appear in well-marked succession within a range of 20 miles. The results of these observations, which are published in the *Journal* of the Board of Agriculture (April, 1911) may be briefly summarised thus: 150 fields yielded in one season 107 species of weeds, representing 74 genera; of these, 30 species belonging to 28 genera were seen only once. Light, arable lands are characterised by a large number of weed species, clays and heavy loams by a small number of species, though in point of actual numbers of weeds there is nothing to choose between the light and heavy types of soil. The only weeds confined to clay soils were Red Bartsia (*Bartsia Odontites*) and Field Mint (*Mentha arvensis*). Other weeds, however, though not confined to clay, are very prominent thereon, for example, Charlock (*Brassica Sinapis*), Fat Hen (*Chenopodium album*), Mayweed (*Matricaria inodora*), Buttercup (*Ranunculus arvensis*), Knot-grass, Black Bindweed, and Ivy-leaved Speedwell. The chalk is characterised by the absence of several calcifuge weeds, which are otherwise generally distributed in the area, and also by the presence



BRUSSELS STATE BOTANICAL GARDENS.

of chalk-indicating plants, such as Brome grass, Small Crane's-bill (*Geranium pusillum*), Field Scabious, and Wild Madder (*Sherardia arvensis*). Other weeds very characteristic of chalky soils are White Mustard, Fumitory, and Dove's Foot Crane's-bill (*Geranium molle*). Of the weeds confined to sandy soils, the following are mentioned: Corn Marigold, Sheep's Sorrel, and Spurrey. In contrast with such weeds, which confine themselves to certain soils, others are indifferent to soil conditions, and occur indiscriminately throughout the area. To this group belong Shepherd's Purse, Mouse-ear (Chickweed, Bindweed, Horsetail (*Equisetum arvense*), Dock, Groundsel, Colt's-foot, Thistles, and several others. With one well-marked exception, the character of the crop counts for little in determining the weed-flora; the exception being the seed crops. Clover Lucerne or other leguminous plants. Few weeds can—as it appears—hold their own against the leguminous plants which cover the ground so closely as to choke out all their competitors except Geraniums, Mouse-ear Chickweed, and Wild Madder, which, as is pointed out, are introduced probably with the seed. The confusion of common names by country folk is well illustrated by the fact that even within this small area either Twitch or Couch is the name applied indiscriminately to no fewer than six grasses, including the true Couch grass (*Triticum repens*). Lastly, it may be remarked that Spurrey (*Spergula arvensis*) is distinctly symptomatic of acid soils, and disappears after an application of lime, which reduces soil-acidity.

THE R.H.S. COMMITTEES AND EAST BURNHAM PARK.—Both the Fruit and Floral Committees, at their sittings on Tuesday last, jointly came to the conclusion that Friday, the 30th inst., would be a more convenient date for the acceptance of Mr. and Mrs. HARRY J. VEITCH'S kind invitation to the Committees to pay their annual visit to East Burnham Park. The date previously agreed upon was July 13, but on that date many members could not be present. These visits have always afforded so much interest and pleasure, it is most desirable to fix a date when a large number of members may enjoy the outing.

KING'S CUP FOR THE INTERNATIONAL SHOW.—The KING has intimated his intention to offer a cup, valued at 100 guineas, for the best exhibit at the International Horticultural Exhibition to be held next May in the grounds attached to the Royal Hospital, Chelsea. Many other valuable cups, medals, and awards will be included in the vast number of prizes contained in the schedule. This schedule is about to be distributed.

AN EXHIBITION OF FLOWER PICTURES AT WESTMINSTER.—Miss ALICE VON HEDDEGHEM is holding her annual exhibition at her studio, No. 12, Cowley Street, that delightful, old-world nook of London, behind Westminster Abbey. As the visitor turns in under the archway from Victoria Street, leaving behind all the hum of traffic and the babble of the ever-passing multitudes, he can scarcely imagine that he is within a stone's throw of the busy builders and carpenters at their scaffolding and seat-raising for the Coronation. Dean's Yard at this time of year is looking its best, and Cowley Street not far behind it, for the crumbling stones of the old-grey buildings hereabout are now enlivened with the verdure and colour of June. Flowers—real flowers bloom in the balconies outside, and ideal flowers—in paint—bloom perennially within that little studio at the corner of Cowley Street. Hither on Whit Monday, writes a correspondent, I turned my footsteps, and on entering the

quaint Queen Anne dwelling I found myself truly in a bower of Roses—Roses of La France and Bonle de Neige—Roses red and Roses white, Roses pink and even orange—witness the tiny flowers of William Allen Richardson—and Roses of the deepest, darkest, richest, maroon tinting, appropriately dedicated in designation to the Sultan of Zanzibar. It is in the painting of this particular variety of Rose that Miss HEDDEGHEM excels, and, relieved by the delicate bloom on its outer petals, this dark Rose serves as a capital foil and set-off to the flowers of the more delicate or normal pink-rose colouring. It gives strength and backbone to several of her compositions, and thereby suggests that all colour has its use and value in the scheme of created things—that racial colour and character in due proportion with the rest make up a world of variety, which, though not perfect, would be less pleasing if all the races and the Roses were of one colour or tinting and character. Though the Queen of Flowers predominates in Miss HEDDEGHEM'S collection, yet examples of less regal blossoms are to be seen. Here, appropriately, is a charming bunch of "Whitsun Snowballs" tossing among their glossy, dark leaves from side to side of the frame which encloses them—"Guelder Roses" they are rightly called after all. Here is a fresh pink and white spray of Apple blossom. Here, again, a modest cheery bunch of meadow Cowslips, and not far away a large group of Sweet Peas in all the variety of their recent rainbow developments, and a bunch of homely Wallflowers. But Miss HEDDEGHEM always returns to her Liège flower, and now she sets forth to view some large panels some 6 feet high in "Marechal Niel" Roses, designed to decorate the centre of the walls of a boudoir, which in this scheme one day may be a dream of beauty to some happy owner. The Lily and the Rose are rivals in some folk's affections—here the former is conspicuous by its absence; there is, however, an admirable delineation of a bunch of Lilies of the Valley, which was presented (the real flowers) by Queen MARY to the artist, who thereupon perpetuated the Royal gift in this charming canvas. Her Majesty, by the way, has been a constant patron of the artist for several years, and has acquired several of her pictures. The exhibition remains open until the 20th inst.

SIR WILLIAM THISELTON-DYER.—Among the names of distinguished men on whom it is proposed to confer honorary degrees at Oxford on June 28, we are glad to note that of Sir WILLIAM T. THISELTON-DYER, K.C.M.G. In conferring the degree of D.Sc. on Sir WILLIAM, Oxford is not only honouring one of her own sons, but is also recognising the distinguished services which he has rendered to botanical and horticultural science.

RUBBER EXHIBITION.—An International Rubber and Allied Trades Exhibition will be held from June 24 to July 14 in the Royal Agricultural Hall, Islington. On July 3 a conference will take place on questions dealing with the rubber industry.

BRITISH LICHENS.*—The first part of a monograph of the British Lichens was published some years ago by the British Museum. Owing, however, to the long illness and subsequent death of the author, the Rev. James Crombie, the preparation of the second part was entrusted to Miss A. L. Smith. This part is now issued, and provides students with an admirable and copiously illustrated guide to this group of plants.

* A Monograph of the British Lichens, Part II, by A. L. Smith, 23s. (Printed by order of the Trustees of the British Museum, London.)

SEEDS OF CHINESE TREES AND SHRUBS.—

According to the *New Bulletin*, Kew has lately received through Mr. J. C. WILLIAMS and Mr. A. K. BULLEY, a quantity of seeds collected in South-Western China by Mr. FORREST. The plant collector's work has always been attended with perils—sometimes of climatic, sometimes of human origin—but from what has been recounted in the public Press of Mr. FORREST'S adventures, we may judge that few indeed of the long line of plant collectors, which began with FRANCIS MASSON in 1772, have encountered more hardships and perils from both these agencies than Mr. FORREST. The country traversed by this intrepid collector is considerably to the south of that explored by HENRY and WILSON, and the respective floras, whilst presenting much the same general features, are, no doubt, in many ways distinct. That of Mr. FORREST'S country had in part been revealed by the work of some of the earlier Jesuit missionaries, notably by Abbé DELAVAY. Among Mr. FORREST'S seeds (of most of which the genus only is known) there is a considerable number of Rhododendrons, ranging from low matted shrubs to trees 30 feet high. One of the latter, described as having large, pale yellow, fragrant flowers, is of exceptional interest. Will it provide us with the long-desired, yellow-flowered, hardy Rhododendron with large leaves and trusses? All the yellow species we cultivate at present, with the exception of *R. campylocarpum*, are of a small Alpine type, and, although very pretty in their way, they are not robust and their charms are of a modest kind. Mr. FORREST describes this new one as growing in the Rhododendron forest on the Tali range of mountains at 12 000-13 000 feet altitude. On the same range, at somewhat lower altitudes, he obtained seed of two other yellow Rhododendrons; these he describes as from 2 to 4 feet high, one with "bright yellow," the other with "deep yellow" flowers. Of the remainder of the seeds the most interesting are two Spruces, two Firs, a Larch and a Cedar. Mr. FORREST seems somewhat doubtful as to the generic identity of the Cedar, but we may hope that his estimate is correct. A new Cedar would be a great acquisition, and, with the Deodar growing on the Himalayan ranges, the existence of one on the mountains northward seems at least probable. Maples and Cotoneasters are also in the collection. Unlike the cedars, of which we have still only three (or at most four) species, our gardens are already well stocked with these. All the Conifers were collected by Mr. FORREST on the Lichiang range of mountains.

PUBLICATIONS RECEIVED.—*Beautiful Gardens, Large and Small*, compiled by J. L. Edginton. (London: The Proprietors of *The Weekly Telegraph*.) Price 1s.—*Michigan Agricultural College*, Experiment Station, Division of Chemistry. Circulars: Manufacture and Storage of the Lime-sulphur Spray, by Andrew J. Patten; and Lime-sulphur Spray, by Jas. E. Harris. (East Lansing, Michigan: Michigan Agricultural College.)—*Horticultural Societies of Ontario*. Fifth annual report for the year 1910. (Toronto: The Ontario Department of Agriculture.)—*Ontario Agricultural College and Experimental Farm*. 1910. Thirty-sixth annual report. (Toronto: The Ontario Department of Agriculture.)—*Board of Agriculture and Fisheries*. Annual Report of the Intelligence Division. Part I. (London: Wyman & Sons, Ltd.) Price 6d.—*The Garden Sundial and Ovingdean*, by Alfred H. Cashmore. (The Reigate Press, Ltd.) Price 1s. net.—*Lessons on Soil*, by E. J. Russell. (Cambridge: University Press.) Price 1s. 6d.—*The Tropical Agriculturist and Magazine of the Ceylon Agricultural Society*, by J. C. Willis. (Colombo: A. M. & J. Ferguson.)—*Festival of Empire*. Official Plan of Buildings and Grounds. (London: Bemrose & Sons, Ltd.) Price 2s.—*The Agricultural Journal of the Union of South Africa*. April. (Pretoria: The Government Printing and Stationery Office. Price 2s. per annum.

HOW TO MEASURE THE RAINFALL.

To the man with a little leisure for scientific study the measuring of rainfall should appeal, as it affords an amount of interest to the observer, and, further, his records, if preserved, are of great value to the meteorological societies. The study is by no means of recent introduction, but of late it has been steadily encouraged, with the result that, at the present time, there are hundreds of observers all over the country. Two of the features of this science, which have brought about its popularity, are the simplicity of the apparatus employed and the facility with which the readings are taken.

All rain gauges are made of metal—copper has been found to answer best because it is capable of withstanding the weather. They are of various types, viz., Symon's, Snowdon's, Glaisher, and British Association. All of these gauges are cylindrical in shape, and have a receiving surface of either 5 or 8 inches in diameter. The cost of an instrument varies according to the type; a satisfactory gauge should not cost more than 15s. or 20s.

Now as to the method of using them. The most important point is the selection of a suitable site for setting up the instrument. The place selected should be away from any building, structure, or bush, and the gauge must be set up in such a manner that it will not be blown over by a high wind. Some of the gauges are provided with slots and wooden staves. Such instruments should be placed on—not in—the ground, and the staves, when driven into the earth, will hold them in position. Those gauges not so provided require to be sunk to within 8 inches of the top. Having set up the gauge, the next thing is the actual observing.

The tops of the instruments are made in the form of a funnel, down which the water passes into a receiving vessel. This vessel can be removed, after lifting off the top of the gauge, and the contents poured into the graduated glass jar which is supplied with every rain gauge. The amount of rainfall can then be read off in hundredths of an inch.

The reading should be taken every day at 9 a.m., which is the hour recommended by the British Rainfall Organization, and the amount entered to the previous day. True we do not, fortunately for us, have rain every day, but melted snow, dew, mist and hail are all measured as rainfall.

Such is the hobby derided by Carter in the *Dolly Dialogues*; but there are many men like Dolly's husband who find much interest in measuring the rainfall. *Ernest P. Pearce, 1, Vincent Road, Higham's Park, N.E.*

BOMAREA PATACOCENSIS.

In the issue of April 15, p. 227, a fine inflorescence of this plant was illustrated from a photograph taken in the Cambridge Botanic Garden. The fruit has not perhaps been illustrated, and fruit is not frequently ripened. The mass shown by the illustration at fig. 169 is believed to have formed from the inflorescence illustrated on April 15. It is shown at about half natural size. The fruit is remarkably ornamental, especially when, as here shown, the capsules dehisce and expose the orange-coloured seeds. The photograph was taken to show the shape of the fruit as well as the dehiscence and seeds, but since it was taken the capsules have still further opened, exposing a large number of the orange-coloured seeds, which apparently do not soon fall. The whole is likely to last in condition a considerable time. The fruit of the genus is described as tuberculate; in this species the surface is remarkably rugged, and the colour is a blackish green. The seeds in colour are almost precisely like those of the *Gladwin*, *Iris foetidissima*, when the fruit first opens. *R. Irwin Lynch.*

THE "FAIRCHILD" LECTURE.

THE annual "Fairchild" lecture was delivered by the Bishop of Stepney on Tuesday, June 6, at Shoreditch Church.

This announcement, made in the daily Press, will evoke a long train of reflections in the minds of horticulturists with a love for the history of their profession. They will remember that the Fairchild lecture, which was established in 1830, commemorates one of the earliest and most enterprising of British horticulturists. Born in 1667, the son of a husbandman in the county of Wiltshire, Fairchild was apprenticed to a cloth-worker, but, having "served his time" at his master's trade, he determined, on reaching manhood, to devote himself to the profession of gardening. Fairchild settled at Hoxton, where he carried on a large business as nurseryman and florist, and established one of the largest vineyards in the country. Dying in 1729, he left the sum of £25, the interest of which (£1) was to be devoted to provide for a sermon in the parish of St. Leonard, Shoreditch "in the afternoon of the Tuesday in Whitsun week in each year" on "The Wonderful Works of God in the Crea-



FIG. 169.—FRUITS OF BOMAREA PATACOCENSIS.

tion" or on "The Certainty of the Resurrection of the Dead proved by the certain changes of the animal and vegetable parts of the Creation." Some years after Fairchild's death his bequest was increased by £100 raised by public subscription. The appointment of the Fairchild lecture remained in the hands of the Royal Society till 1873, when it was transferred to the Churchwardens of Shoreditch parish church.

Fairchild's services to horticulture are well known. He wrote the first standard book on town gardening under the comprehensive title of *The City Gardener*, containing the most experienced method of cultivating and ordering such evergreens, fruit trees, flowering shrubs, flowers, exotic plants, &c., as will be ornamental and thrive best in the London gardens.

A man of wide sympathies, he co-operated with Philip Miller and other of the leading horticulturists of the time in founding the Society of Gardeners. His interests were by no means confined to the commercial sides of horticulture, for we find him experimenting on plants, and bringing the results of his investigations and reflections before the Royal Society. Influenced

doubtless by the discovery of the circulation of the blood by Harvey, who also was a yeoman's son, Fairchild presented to the Royal Society in 1724 "An account of some new experiments to prove the continued circulation of the sap in plants and trees." He also devised experiments to demonstrate the truth of the recently discovered sexuality of plants. Fairchild's greatest claim to lasting fame rests, however, on the fact that he was the first man to place on record the raising of an artificially produced hybrid. The history of Fairchild's hybrid between the Sweet William and the Carnation is recounted by Richard Bradley in a work entitled *New Improvements of Planting and Gardening, both Philosophical and Practical*, published in 1717. The passage in question which follows on an account of the fertilisation of plants runs as follows:—

"Moreover, a curious person may by this knowledge produce such rare kinds of plants as have not yet been heard of by making choice of two plants for this purpose, as are near alike in their parts, but chiefly in their flowers or seed vessels; for example, the Carnation and Sweet William are in some respects alike; the farina of the one will impregnate the other, and the seed so enlivened will produce a plant differing from either, as may now be seen in the garden of Mr. Thomas Fairchild, of Hoxton, a plant neither Sweet William nor Carnation, but resembling both equally, which was raised from the seed of a Carnation that had been impregnated by the farina of the Sweet William."

The Worshipful Company of Gardeners has done well to claim, as it does in a report read recently by the Clerk, Mr. E. A. Ebbelwhite, to the Court, that it should be associated officially with the annual "Fairchild lecture," for Fairchild, who was a liveryman of the Gardeners' Company, was certainly one of its most distinguished adornments.

THE DOUBLE-FLOWERED ERICA MACKAIL.

This pretty Erica is identical with the plant known as *E. Crawfordii*, or Crawford's Heath, from its having been found by Mr. F. C. Crawford, of Edinburgh, at Craigg More, in West Galway, in 1891. Mr. Crawford's plant was, until recently, supposed to be the only specimen found wild, but Mr. Praeger informs me that a dried example of this double-flowered heath has been found among the late Mr. A. G. More's collection of *E. Mackailii*, in the herbarium of the Dublin National Museum. These specimens were collected nearly 50 years ago, so that the author of *Cybele Hibernica* first found the plant.

It is an extremely difficult matter to detect the plant in a wild state, and it is necessary to search carefully to see that the flowers are double. The corolla is urn-shaped, undivided like that of the type plant, but wider at the mouth, the inside being closely packed with petals. The essential organs are absent, so that the doubling whilst not disfiguring the flowers enables them to last for a longer time. The plant is suitable for planting in the rock garden, and needs to be grown in a peaty soil. At Glasnevin it forms a spreading tuft about 18 inches across and 6 inches high. The flowers are pink on the sides exposed to the sun, and blush or white where unexposed. Although now considered to be a species or subspecies, *E. Mackailii* has been classed as a variety of *E. tetralix*, while Linton considered it to be a hybrid of *E. cinerea* and *E. tetralix*, which is improbable. In Galway it has two main stations, one around Craigg More Lake, where it extends for a mile east and west, and on Urrihsbeg and near Carna. A pretty illustration of Mackay's Heath appears in Praeger's *West of Ireland Flora*, where it is seen growing in company with *Calluna*, *Erica cinerea*, *Myrica Gale* (Sweet Gale) and *Osmunda palustris*. *C. F. Ball, Glasnevin Botanic Garden, Dublin.*

BEGONIA GLOIRE DE SCEAUX.

ALTHOUGH this beautiful Begonia is extensively cultivated in gardens as a winter and spring blooming stove or intermediate-house plant it is seldom that such fine specimens are seen as those represented in fig. 170. These were cultivated by Mr. J. Jaques in Bryanston Gardens, Blandford, from cuttings rooted in March, 1910. The plants were flowered in 9-inch pots, and the tallest specimen, that in the centre, measured 7 feet in height and

NOTICES OF BOOKS.

POPULAR GARDEN FLOWERS.*

MR. WRIGHT introduces this book as the last of a trilogy on Garden Flowers. So much has been written of recent years on this phase of gardening that little if anything novel can be expected; but the amateurs, for whom this volume appears to have been produced, may safely depend on the truly practical nature of Mr.

tended notices than others, while few that might have been included have been overlooked, the most noticeable omission being perhaps the Montbretia, a flower of first-class importance.

In addition to the cultural notes, with accompanying lists of species and varieties, Mr. Wright has introduced some interesting supplementary matter relating to names, dates, pronunciation and literary and other allusions in connection with the various plants.

Mr. Wright wonders how it is that so many



FIG. 170.—BEGONIA GLOIRE DE SCEAUX IN VISCOUNT PORTMAN'S GARDENS. THE TALLEST PLANT IS 7 FEET HIGH.

[Photograph by T. Nesbit, Blandford.]

3 feet 6 inches in diameter at the base. Mr. Jaques informs us that one of the plants lasted in bloom in the dwelling-house for nearly two months. B. Gloire de Sceaux is a first-rate flowering plant for use in the dwelling-house as a warm, dry atmosphere suits it when in bloom. The foliage is attractive, the bronzy, metallic sheen of the leaves contrasting well with the rose-pink of the flowers.

Wright's pages. Among the flowers included are Roses, Begonias, Irises, Dahlias, Carnations, Sweet Peas, Lilies, Pelargoniums, Hyacinths, Tulips, and a great number of other less or more popular kinds. Some plants, such as Roses, Chrysanthemums and Carnations, get more ex-

* By Walter P. Wright, with six illustrations in colour and 48 reproductions from photographs. (London: Grant Richards, Ltd.) Price 6s.

plants are said to have been introduced to cultivation in 1596. The sole reason is that Aiton found the earliest notice of such plants in Gerard's *Catalogus arborum fruticum ac plantarum*, and others, following Aiton, have perpetuated what, in many instances, is a wrong date. But Mr. Wright has made a slip in dates himself, for the Dahlia was not introduced successfully until 20 years later than the year he

mentions. There is much interesting information regarding the more recent plants, such as Begonias and Chrysanthemums, but the matter referring to very old plants is less satisfactory; Sops-in-Wine, for example, was not a Carnation, nor was the latter introduced into wines as a flavouring agent. The "July flower Wine" quoted is a false interpretation of "Vini gariophilati," or wine of *Gemm urbanum*, which was much esteemed. I quite agree with Mr. Wright that the Flower-de-luce of Shakespeare is an Iris and not *Lilium candidum*, the fact that Perdita wished she might have some "flowers of the spring" being sufficient to dispose of the claim of the *Lilium*. It needs only to add that in this, as in all his books, Mr. Wright has succeeded in providing a volume well calculated to afford much enjoyment to those fond of gardening and garden literature. *R. P. Brotherton.*

THE HERB GARDEN.

CERTAIN articles of an ephemeral kind have appeared on the subject of Herb gardens, and of books there has been made at least a beginning. Herbs, as we know them, apart altogether from their physical properties, possess an interest born of the mists of antiquity in which imagination has enshrouded them. Folklore and the poets have done their share, and were it not for the latter, the author of *The Pystyl of Sucte Susan*, "Piers Plowman," Chaucer and others, our knowledge of the Herbs, enlightened though it is by means of vocabularies, would be less even than it is. It is, therefore, not to be wondered at that the authoress of this volume, obviously loving her subject, should wish to add a garden devoted solely to Herbs to those gardens within gardens which have become so common of late. But it is not improbable that the style of garden that she recommends might be improved. The very old gardens were laid out in rectangular, narrow beds, which, in the 16th century, were partly superseded by others of more geometrical pattern. Draughts of these are given in the *Gardeners' Labyrinth*, the *Countrie Farme*, *Hortus Floridus*, *Profitable Arte of Gardening*, and the *Countrie Housewife's Garden*.

At Tynninghame, an old-fashioned garden of that period was laid out about 20 years ago, and it contains many old and uncommon plants, some of them not even mentioned by Mrs. Bardswell. The Mandrake, which she accounts excessively rare, was recently in flower, and if it matures its fruits she will be most welcome to seeds whereby to stock her Herb garden. We have also Bloodwort, Spignel, Gromwell, Pellitory, Fleur-de-Luce, Green Primroses, Asarabacca and others overlooked by the authoress; Sweet Cicely, Patience, Fenmel, Tansy—double Tansy is the better—and some others are too tall for the small beds of the Herb garden; according to Lawson they used to be planted by themselves. The present volume is not an exhaustive treatise, but rather a pleasantly-written appeal, garnished with allusions to bygone customs, bits of old ballads, and culinary hints that make it very enjoyable reading. Some of the references need correction, e.g., that to "gilded" Rosemary, to the clown and Perdita, and to "Vervain the parent of our delightful garden Verbenas." Nor is it always possible to identify the plants noted. *Valeriana officinalis*, for instance, is said to bear crimson flowers, sometimes white ones, which seems to describe rather *Centranthus ruber*, only the "Persian cat goes wild over it." *Costmary* is said to bear white flowers, and the reference to *Salvia Sclarea* rather fits *S. Verbenas*, but it may be either or both. *R. P. Brotherton.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

POTATO DISEASE.—In reference to A.D.'s note on this subject (p. 316), allow me to give what I regard as evidence to the effect that the common Potato disease (*Phytophthora infestans*) does not arise from resting spores in the soil. A few years ago I grew three acres of out-door Tomatos, which were almost entirely destroyed by this disease. The diseased Tomatos and much of the haulm were littered all over the ground, and were ploughed in. Potatos were grown in the following season, and proved perfectly free from disease. Similar evidence is afforded by the experience of growers who do not take any trouble to remove the diseased haulm of a Potato crop from the land, simply burning any inconvenient portion which is in the way of cultivating the land, and yet get a sound crop in the same field in the following season. By far the most diseased crop I ever grew was produced in a field which I reclaimed from waste, and which probably had never been cultivated before. Certainly it had been a waste from time immemorial. The seed tubers came from Ireland. *Potato Grower.*

AN UNCOMMON DISEASE OF PLUM TREES.—A number of Rivers' Early Plum trees have recently been killed by the fungus *Dermatella prunastri* in a fruit plantation in Cambridgeshire. In this district hitherto I have observed this fungus living as a parasite only on the smaller branches of Greengage trees, in which it occasionally causes a kind of die-back. In the Rivers Plums referred to above, the larger branches and even the trunks of the trees have been attacked. From a casual examination of the diseased trees, it would appear that the fungus is a wound parasite. *Dermatella prunastri* attacks chiefly the bark, which it discolors. The fructifications of the fungus are very characteristic. Small aggregations of black hyphae break through the bark of the dead branches at various places, and give rise to fruit-bodies of two kinds, apothecia and pycnidia. The apothecia are black, saucer-like structures about $\frac{1}{8}$ inch across, and are borne on short stalks; they are gelatinous when moist. The pycnidia, on the other hand, are conical in shape, and are sharply pointed; they are usually more numerous than the apothecia. The spores produced in the apothecia are either colourless or slightly brown, and, though at first undivided, they later become septate. This fungus has been described by various Continental writers as occurring occasionally as a parasite of Plum trees, and Ludwig mentions it as being parasitic also on the Apricot. It should be stated that the fungus is sometimes known by the name *Cenangium prunastri*. *F. T. Brooks.*

SHOULD YOUNG GARDENERS TRAVEL?

Whilst agreeing that Continental travelling is of distinct benefit to observant young gardeners, I fail to see the necessity or advisability of the ordinary British journeymen working abroad. From the professional point of view, it is questionable whether his time could be spent to better advantage than in the British Isles, where he is continually learning methods and performing operations best adapted to the conditions he will be required to understand in riper years. Surely the man who has had a good experience of the profession in these Isles, using his spare time—which would otherwise be devoted to learning the foreign language—for theoretical study and self-improvement, is the man to be placed in charge of the best gardens. Exception must be made to those engaged wholly in the botanical section, which demands a wide knowledge of the entire flora. The Briton believes that his profession is the means and not the sole object of his existence. Welcoming as friends his neighbours from across the sea and delighting, when possible, to visit them in their own lands, he ever loves his country as his birthright; he loves his Sunday, and does not feel inclined to exchange its character for something he regards as less real and less valuable. Let us adopt all that tends to perfect our profession, and at the same time encourage the younger men to develop their talent of originality, and, above all, to use that originality at home. *B. Mollis, Botanic Gardens, Cambridge.*

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY AND THE NATIONAL INSURANCE BILL.—Legislation is now under consideration which very materially affects this and similar societies and calls for special and immediate attention. The committee, in the report for 1910 (issued with the balance-sheet) says, under the heading of "State Insurance," a keen watch has been kept on all statements and reports in the Press in regard to the tentative proposals of State insurance against sickness, and the committee has been in communication with the Chancellor of the Exchequer twice on this matter. A report and balance-sheet for 1909 was also forwarded to the Chancellor with a request that the committee be kept informed of any developments. Judging by the Bill, the communication appears to have been fruitless, and the time for keeping "a keen watch" or waiting to "be kept informed" has passed. A crisis has arrived, which calls for the attention of all members to the unfavourable position of the society under the Bill, which, as at present drafted, is expressly excluded from the State benefits on account of a less membership than 10,000, although otherwise eligible. Established in 1865, the society has a contributory membership of 1,524, is solvent, and conforms to all the provisions of Section 18 of the Bill, except membership limit. The benefits are in many respects more ample than the Government scheme. As a class, gardeners are underpaid, and to be called upon to contribute another 4d. per week towards a general scheme of insurance is a serious item. Members of the U.H.B. and P. Society are so widely distributed throughout the United Kingdom that it might have some effect if each addressed his particular Parliamentary representative, pointing out the hardship and asking him to support an amendment in committee on the Bill, that this society may be dealt with at least as equitably as others eligible for State benefits. *Mark Webster, Kelsey Park Gardens, Berkenham.*

NUDULES ON CLEMATIS ROOTS.—With reference to the occurrence of nodules or swellings on the roots of *Clematis integrifolia*, as mentioned on p. 360, I may state that 13 years ago I noticed nodules or swellings on the roots of *Clematis stans* and *Clerodendron foetidum*, both plants being in my department at the Cambridge Botanic Garden. I have just looked up the note on this subject, made in a book kept for the purpose of recording anything unusual which came under my notice. Here is the note referred to: "Root nodules.—Leguminous plants are noted for the tubercles or nodules, which occur on their roots. Is this phenomenon confined to the Leguminosae? I have observed tubercles on the roots of both *Clematis stans* and *Clerodendron foetidum*, April 22, 1893." Whether these nodules are of a similar nature or play any part in the economy in the life of the plant as in the case of leguminous plants I leave scientists to decide. *A. Hosking, Instructor in Horticulture, The West of Scotland Agricultural College.*

—There are many non-leguminous plants which, when grown on land following a crop of leguminous plants, or in pots containing soil in which leguminous plants have been cultivated, will form nodules on their roots. Such plants include Maize and Wheat (see *Agricultural Botany*, by John Percival, Chapter 50, Bacteria; their work, nitrification, &c.). *John Smith, County Council Lecturer and Instructor in Horticulture.*

THE BEST MARKET GOOSEBERRY.—Which is the best market Gooseberry for culinary purposes? A year ago I should have said May Duke, as it comes to a good size very early, and is of a bright green colour—the two most important points in marketing. Moreover, it bore well last year and in the preceding season. This year, however, it is nearly a failure in fruiting, apparently because it is peculiarly susceptible to frost. Victoria, another early and large-berried Gooseberry, growing beside May Duke, bears a great crop, the frost having hardly touched it. But the berries are not marketable as early as those of May Duke, and their colour is darkish, like that of Whinham's Industry. Keepsake, otherwise known as Berry's Early Kent, has a good colour, but is very little earlier than Whinham's Industry, and bears berries large enough for market later than Victoria. *Southern Grower.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 6.—The usual fortnightly meeting was held on Tuesday last, in the Society's Hall, Westminster. There were not many novelties in the exhibition, and the attendance was remarkably small, few people being present beyond the exhibitors and their attendants. The meagre patronage should serve to convince the Council of the inadvisability of arranging these shows on Tuesdays following Bank Holidays. Orchids and border flowers were the principal subjects exhibited.

At the 3 o'clock meeting in the Lecture Room, an address on "The Past History of Conifers" was delivered by Professor A. C. Seward.

Floral Committee.

Present: Messrs. W. Marshall and Henry B. May (Chairmen); and Messrs. Chas. T. Drury, W. J. Bean, John Green, Wm. Howe, J. F. McLeod, Charles Dixon, J. T. Bennett Poe, Chas. E. Pearson, W. P. Thomson, J. W. Barr, W. B. Cranfield, E. H. Jenkins, R. Wallace, J. Dickson, J. Jennings, and R. C. Reginald Nevill.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr. Mr. James Hudson), showed varieties of scented-leaved Pelargoniums, the varieties including Pretty Polly (rose-pink, blotched with carmine, Little Gem (mauve pink), and Little Pet (a red variety). (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, showed batches of blue, white, and red-flowered *Primula obconica*, the blue variety being exceptionally choice. (Bronze Banksian Medal.)

Mr. CHARLES BLICK, Warren Nurseries, Hayes, Kent, staged border Carnations of splendid quality. (Silver Flora Medal.)

Messrs. STUART LOW & Co., Enfield, showed varieties of *Hydrangea hortensis*, and epergnes of Perpetual-flowering Carnations. (Silver Banksian Medal.)

Messrs. W. CUTBUSH & SON, Highgate, displayed magnificent blooms of Carnations. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, Edmonton, showed varieties of Coleuses, the gorgeous-flowered *Allamanda grandiflora*, standard plants of Heliotropes and Fuchsias, and varieties of *Lobelia compacta*. (Silver Flora Medal.)

Messrs. JOHN PEED & SON, West Norwood, showed well-flowered Gloxinias in a groundwork of Ferns and *Asparagus plumosus*. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, exhibited splendidly-flowered plants of show Pelargoniums. (Silver Banksian Medal.)

Messrs. CARTER PAGE & Co., 52 and 53, London Wall, exhibited Dahlias, Pelargoniums, and a selection of annuals. (Bronze Banksian Medal.)

Messrs. BEN. R. CANT & SONS, Colchester, made a feature of White Dorothy Rambler in a collection of Roses. They had also a seedling from Gruss an Teplitz, of a brighter crimson and rather more double than the parent. (Silver Banksian Medal.)

Messrs. GEO. MOUNT & SONS, LTD., Canterbury, again showed Roses of superb quality. (Silver Flora Medal.)

Messrs. G. & A. CLARK, LTD., Dover, filled a table measuring 100 feet run with an assortment of hardy flowers. (Silver Flora Medal.)

Messrs. DOBBIE & Co., Edinburgh and Mark's Tey, exhibited their excellent strain of long-spurred Aquilegias, also a few varieties of Sweet Peas and the beautiful orange-shaded *Antirrhinum* named Dobbie's Moonlight. (Silver Banksian Medal.)

Messrs. KELWAY & SON, Langport, Somerset, showed varieties of Paeonies and Pyrethrums. Amongst the Paeonies was a fine new pink variety named Kelway's Exquisite. (Silver Banksian Medal.)

Messrs. BATH, LTD., Wisbech, made a large display with varieties of Paeonies, the flowers being remarkably fresh and bright. (Silver Flora Medal.)

Mr. JAMES BOX, Lindfield, Sussex, had some excellent cut blooms of varieties of *Ranunculus* amongst a general collection of border flowers. (Silver Flora Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, showed varieties of tall, bearded Irises,

the most attractive being Rhein Nixe, with purple falls and white standards.

Messrs. GEO. PUNYARD & Co., LTD., Maidstone, showed large numbers of border flowers of good quality. (Silver Flora Medal.)

Messrs. W. & J. BROWN, Peterborough, showed border flowers against a dark cloth background, their Lilliums being a feature. (Bronze Banksian Medal.)

Linum arboreum, *Lithospermum petraeum* and *Campanula garganica villosa* being prominently in flower. (Bronze Flora Medal.)

Messrs. T. S. WARE, LTD., Feltham, were the exhibitors of border flowers and Alpines. (Bronze Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, showed Alpines and flowering shrubs. Amongst rare and interesting plants were *Pyxidantha barbata*,



(Photograph by John Gregor.)

FIG. 171.—GREVILLEA ROBUSTA COMPACTA.

(R.H.S. Award of Merit on Tuesday last.)

(See p. 376.)

Messrs. GEO. JACKMAN & SONS, Woking, Surrey, were also the exhibitors of border flowers. (Bronze Banksian Medal.)

Messrs. BAKER, Codsall, showed an assortment of Oriental Poppies, the finest being Oriental King, a scarlet variety. This firm also showed Lupins and bearded Irises. (Silver Banksian Medal.)

Mr. R. UPTON, Guildford Hardy Plant Nursery, showed border flowers, the yellow-flowered

Phyteuma comosum and *Lathyrus pubescens*. (Bronze Banksian Medal.)

Mr. AMOS PENNY, Enfield, showed 150 varieties of bearded Irises. The finest was the variety Oriflamme, with large, pale-blue standards and purple-coloured falls. (Silver Flora Medal.)

Messrs. WHITEEGG & PAGE, Chislehurst, showed Alpine and border flowers, including a fine form of *Geum coccineum*. (Silver Banksian Medal.)

The Misses HOPKINS, Shepperton, showed a rock-garden planted with Alpines and border flowers. (Bronze Banksian Medal.)

Mr. ERNST BENARY, Erfurt, Germany, showed a batch of a white winter-flowering Stock.

AWARDS OF MERIT.

Hebebra sanguinea "Nancy Perry."—A seedling variety, having pretty pink flowers tipped with coral. The plant is extremely free in flowering and grows about 1½ foot high.

Iris variegata "Miss Eardley."—A striking flower with golden-yellow standards and maroon-purple falls, set off by a broad band of yellow and white reticulations at the bases. The beard is orange-coloured. Both these novelties were shown by Mr. AMOS PERRY.

Grevillea robusta compacta (see fig. 171).—A variety of denser growth than the type, and more handsome foliage. Shown by Mr. R. B. LEECH, Dulwich.

Primula pulcherrima "Hidecot strain."—A rose-pink form of this fine garden Primula, with a carmine zone bordering a yellow "eye," as in the "Duchess" variety of *P. sinensis*. Shown by Mr. LAWRENCE JOHNSTON, Hidecot, Campden, Gloucestershire.

Crinum Johnstonii.—Sir TREVOR LAWRENCE (gr. Mr. Bain) showed a remarkably fine inflorescence of this well-known species from tropical Africa, the plant having been grown at the foot of a south wall out-of-doors. There were 20 fully-developed flowers beside many unopened buds. The perianth segments are white, flushed with rose along the median lines.

CULTURAL COMMENDATION.

Mr. J. T. BENNETT-POE, Chesnut, was awarded a Cultural Commendation for a splendidly-flowered plant of *Utricularia montana*.

Fruit and Vegetable Committee.

Present: C. G. A. NIX, Esq. (in the Chair); and Messrs. A. DEAN, J. WILLARD, W. POUPART, G. WYTHES, J. JAGUES, A. W. METCALFE, J. DAVIS, H. SOMERS RIVERS, and W. E. HUMPHREYS.

Mr. S. MORTIMER, Rowledge, Surrey, showed three seedling Cucumbers.

Miss C. M. DIXON, Elmcroft Nursery, Chichester, exhibited 20 well-coloured and netted fruits of Melon Elmcroft Beauty. (Bronze Banksian Medal.)

Some 18 handsome fruits of Melon Marchioness of Tweeddale were shown by the Misses Le LACHEUR and SHERRIS, Henfield, Sussex. (Bronze Banksian Medal.)

Messrs. STUART LOW & Co., Bush Hill Park Nurseries, Middlesex, staged a group of Fig trees in pots, all admirably fruited, although the Figs were unripe.

Orchid Committee.

Present: J. GURNEY FOWLER, Esq. (in the Chair); and Messrs. JAS. O'BRIEN (hon. sec.), de B. CRAWSHAY, W. BOLTON, GURNEY WILSON, W. H. WHITE, C. H. CURTIS, H. G. ALEXANDER, J. CHARLESWORTH, J. E. SHILL, W. COBB, T. ARMSTRONG, A. A. McBEAN, F. J. HAMBURY, F. SANDER, and Sir Jeremiah Colman, Bart.

J. GURNEY FOWLER, Esq., Gledbelds, South Woodford (gr. Mr. J. Davis), showed *Odontioda Bradshawiae* Cookson's variety with a stout spike of 15 large flowers. These were yellowish scarlet on the inner parts of the segments, and cream white, tinged with rose, on the outer halves.

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed *Laelio-Cattleya* × *Fascinator*-*Mossiae*, a very handsome hybrid with white sepals and petals, the latter tipped with purple, the lip being deep violet-crimson with a yellowish base; and *Cattleya Mossiae aureola*, a large bluish-white variety with much yellow in the lip. (See Awards.)

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), sent *Laelio-Cattleya* *Fantantia* (*L. purpurata* × *L. C. Pallas*), a showy, deep-rose flower with a large, claret-purple coloured lip; also, *Cattleya Mossiae* King Emperor, a grand flower.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed his new *Odontioda* rosefieldensis (*O. Noezhana* × *O. triumphans*) in grand form, the flowers (¾ inches across) being equal to a good *O. triumphans* in size, reddish scarlet on yellow ground; also a noble white

form of *Odontoglossum crispum*: *O. illustre* (*Vuyt-teki* × *ardentissimum*), blotched with light purple; *O. Ganymede* (*elegans* × *Edwardii*); *O. waltomensis*; *O. Astarte* and *O. Lambeauiana*. (Bronze Banksian Medal.)

SAMUEL LARKIN, Esq., The Ridgways, Haslemere (gr. Mr. Hales), was awarded a Silver Banksian Medal for an effective group of *Laelia purpurata*, varieties of *Cattleya Mendelii*, *C. Mossiae*, *Laelio-Cattleya Aphrodite*, *L. C. Fascinator*, *L. C. Canhamiana*, &c., arranged with scarlet *Renanthera Imshoottiana*, white *Phalenopsis*, *Anguloa Ruckeri*, *Saccolabium ampullaceum*, and hybrid *Odontoglossums*.

Messrs. CHARLESWORTH & Co., Haywards Heath, were awarded a Silver Flora Medal for a group. At the front were several profusely-flowered white *Trichopilia* *Backhousiana*, *Laelio-Cattleyas* *Canhamiana*, *Aphrodite*, *Fascinator*, *luminosa*, eximia of a very fine type, and other *Laelio-Cattleyas*. The pretty *Odontoglossums* *Jasper* in several varieties, *O. ardentissimum*, *O. Lambeauiana*, and other hybrid *Odontoglossums* were well represented; also good forms of *O. crispum* and *O. Pescatorei*, one very extraordinary variety of *O. Pescatorei* having the base of the lip and wings of the column deep claret colour, and with some claret blotches on the lip, which should give a new feature for hybridising. Others noted were *Odontoglossum Williamsianum*, the purple *Bletia* *Shepherdii*, *Miltonia vexillaria* H. E. Milner, and *M. v. gigantea*; good *M. Bleuana* and, among new hybrids, the pretty *Oncidioida Cybele*. (See Awards.)

Messrs. SANDER & SONS, St. Albans, secured a Silver Flora Medal for a group, in which the forms of *Laelio-Cattleya Canhamiana* were excellent, the dark-coloured varieties being arranged at the back whilst the middle area had the forms of *L. C. Canhamiana* *Rex*, with white sepals and petals, and very richly-coloured lip. With them were the new hybrid *L. C. purpurata* *Rex* (*L. purpurata* × *L. C. Canhamiana* *Rex*), with white sepals and petals and violet-purple lip with a light apex and margin and dark lines from the base. Others noted were *Aerides Houlletianum* with two fine spikes, the pretty little *Masdevallia O'Brieniana*, and other *Masdevallias*; *Ornithocephalus grandiflorus* with four spikes of white and green flowers, the brownish *Ornithochilus fuscus*, *Cattleya intermedia* alba raised true from seeds, *Cypripedium imperiale* (*Bothschildianum* × *Stonei*), *Brassia Lawrenceana* longissima, the green *Liparis Pantlingii*, and *Microstylis Khassiana* and *Phaius Cooksonia*.

Messrs. J. & A. A. McBEAN, Cocksbridge, were awarded a Silver Flora Medal for a splendidly-flowered selection of fine forms of *Odontoglossum crispum* and some hybrids, various *Laelio-Cattleyas*, the finest of which was *L. C. Canhamiana* *Lady Wigan* "McBean's variety," a charming light-coloured flower with purplish lines on the lip; varieties of *Cattleya Mendelii*, *C. Mossiae*, *Miltonia Bleuana*, *Odontiodas* and *Cochlioda Noezhiana* were also included.

Messrs. HASSALL & Co., Southgate, were voted a Silver Flora Medal for a group composed principally of their fine strain of *Cattleya Mossiae*, the centre being of white varieties, including the clear white *C. M. Wageneri*, and several other nearly white varieties, together with several good *C. M. Bemeckiana* and the bluish-white *C. M. Arnoldiana*.

Messrs. STUART LOW & Co., Bush Hill Park, were awarded a Silver Flora Medal for a fine group of *Cattleyas*, *Laelio-Cattleyas*, *Odontoglossums*, &c. In this group *Odontioda Charlesworthii* and other *Odontiodas*, *Renanthera Imshoottiana*, *Epidendrum vitellinum*, and other scarlet Orchids were effective, and *Bulbophyllum Reinwardtii*, *B. Godseffianum*, and other interesting species were staged.

Mr. E. V. LOW, Vale Bridge, Haywards Heath, secured a Silver Banksian Medal for a neat group, in which were several distinct forms of *Laelia purpurata*; some remarkably good *Odontoglossums*, the white *Cattleya Dusseldorfii* *Undine*, *Cologyne pandurata*, and other interesting plants, including *Bulbophyllum Collettii*, *B. barlozeum*, *Brassia Cattleya Corona* (*B. Digbyana* × *C. Schilleriana*); *Laelio-Cattleya Gladys* var. *Princess Louise*, and other showy Orchids.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, staged an effective group of *Laelio-Cattleyas*; their *L. C. Aphrodite* *Orchidhurst* variety being exceptionally fine. These were

arranged with good *Odontoglossums*, *Cattleyas*, *Pescatorea cernia*, hybrids of *Brassavola Digbyana*, including *Brasso-Laelia Digbyano-purpurata* and *Brasso-Cattleya Digbyano-Mossiae*, *Masdevallia Harryana* *Leyswood* variety of very fine colour; *Oncidium pulchellum*, some excellent *Odontoglossums*, *Cypripedium glaucophyllum*, *Cologyne pandurata* and *Renanthera Imshoottiana*.

From TRACY'S NURSERY, Twickenham, came *Cattleya Mossiae* *Floryæ*, a very good, pure-white flower of excellent shape, with a slight pink shade on the lip, and which should in *C. Mossiae* represent the type of White *Cattleya* known as *C. Trianae* *Amesiana* and *C. labiata* *Amesiana* in their sections.

THE LIVERPOOL ORCHID NURSERY CO. (COWAN'S), Gateacre, Liverpool, showed *Laelio-Cattleya* *Cowanii* (*L. cinnabrosa* × *C. Mossiae*), a good golden-yellow flower tinged with a bronzy hue, and with a rose-purple lip.

Mr. JOHN ROBINSON, Altrincham, sent three very handsome hybrid *Odontoglossums*.

AWARDS OF MERIT.

Cattleya Mossiae aureola, from Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White).—A very remarkable and beautiful form, with large bluish-white flowers, the broad, crimped labellum having the central area tinged and veined with chrome-yellow and with an occasional purplish marking.

Oncidioida Cybele (*Oncidium sarcodes* × *Cochlioda Noezhiana*), from Messrs. CHARLESWORTH & Co., Haywards Heath.—A very singular and pretty bi-generic hybrid with a branched inflorescence of flowers, equal in size and approaching in form those of *Oncidium sarcodes* in colour, light scarlet on a yellow ground, the labellum showing the yellow between the blotches.

THE INTERNATIONAL HORTICULTURAL EXHIBITION AT FLORENCE.

The great international exhibition of horticulture and allied industries which was held at Florence during last month, to celebrate the 56th year of Italian independence, brought together a very fine display. The schedule comprised over 450 classes, divided into 10 groups, including flowering and foliage plants, fruits, seeds and bulbs, horticultural arts and industries, literature, instruction, &c., many having both national and international divisions. The jury consisted of over 150 members of Italian, French, German, Belgian, Dutch, and British nationalities, the latter including Mr. R. A. Rolfe, president of the Orchid section, and Mr. Stuart H. Low. The exhibits were equally cosmopolitan in character, though the great majority were naturally of native origin, the British contributions consisting of two magnificent collections of Orchids, which bore their journey of over 500 miles remarkably well, and were greatly admired, a large Gold Medal being awarded in each case. The exhibition was opened by their Majesties, the King and Queen of Italy, on May 7, though an otherwise brilliant event was somewhat marred by a downpour of rain, which continued for the most part during the following day, and which, we understand, was quite exceptional for the season.

The following notes include some of the more important features of the exhibition: it is impossible to give more, for the official list of awards shows that prizes were awarded in 235 competitive classes, besides 55 awards for groups staged "Not for Competition," and some 26 Prizes of Honour awarded by the Executive Committee and by the Committee of the *R. Società Toscana d'Orticoltura*.

The section for new plants, or those of recent introduction, is becoming increasingly difficult to fill, always excepting the hybrids or garden varieties; and here we found 52 classes, but awards were only made in 31 of them, these including *Anthuriums*, *Crotons*, *Caladiums*, *Dracenas*, *Cacti*, *Amaryllis*, *Clivia*, *Azalea*, *Rhododendron*, *Roses*, *Carnations*, *Iris*, *Pelargoniums*, *Bromeliads*, and herbaceous plants. In the case of *Carnations* and *Dracenas*, there was a decided competition, the latter producing a beautiful exhibit, and resulting as follows:—1st, R. SCUOLA DI POMOLOGIA, Florence (Gold Medal); 2nd, RAFFAELLO MERCATELLI, Florence (Silver-gilt Medal); 3rd, RAFFAELLO LINARI, Florence (Silver Medal). The 1st prize group was

a very beautiful exhibit, a large, red-leaved form being represented by numerous beautiful examples, in a space of about 5 yards long. The SCUOLA DI POMOLOGIA, Florence, also gained the Gold Medals for new hybrid Anthuriums, a new variety of Anthurium Scherzerianum, and for new varieties of Croton and Caladium, their exhibits generally being of a high order of merit. The six classes devoted to Orchids in this section were practically blank, there being but a single exhibit in that for a new *Cypripedium*, a fine seedling from *C. Lawrenceanum* × *Rothschildianum* being exhibited by Signor FERNANDO SCARLATTI; but the Gold Medal offered had to be withheld, on the ground that the plant was already in commerce under the name of *C. Mahleræ*. The classes for a new species, a new hybrid, a new *Cattleya*, *Laelia*, or *Laelio-Cattleya*, and for a new *Odontoglossum* did not produce a single exhibit.

The next section was for Orchids, and contained 13 classes, five only of which produced exhibits. The Gold Medal offered for 100 different species and varieties was won by Messrs. THEODORE PAUWELS & Co., Meirelbeke, Ghent, with a very fine group, in which *Cattleyas* and *Lælias*, *Dendrobiums*, *Cypripediums*, *Odontoglossums* (species and hybrids), *Miltonia vexillaria*, *Renanthera Imshooftiana*, and others were well represented. The 1st prize for 50 different species and varieties went to Signor RAFFAELLO MERCATELLI, Florence, for a good group, consisting chiefly of warm house species, in which we noticed several good *Cattleyas*, *Lælia cinnabrosa*, *Dendrobiums*, *Cypripediums*, *Angraecum sesquipedale*, *Vanda Parishii* *Marriottiana*, *Anguloa Clowesii*, *Lycaste Skinneri*, *Odontoglossum citrosum*, *O. Pescatorei*, and *O. luteo-purpureum*, a number of *Cypripediums*, &c.

For 25 distinct kinds there were three local entries, the Gold Medal being won by the R. SCUOLA DI POMOLOGIA, Florence, for a group of well-grown plants, in which we noted a series of seven good varieties of *Lælia purpurata*, some good *Vanda tricolor* and *V. suavis*, *Dendrobium superbum*, *Sobralia macrantha*, *Phalenopsis amabilis*, *Cattleya Trianae*, *Trichopilia crispata*, *Dendrochilum latifolium*, *Cypripedium villosum*, &c. The 2nd prize, a Silver-gilt Medal, went to the Marquis CARLO RIDOLEI, Melegnano, for a more varied group of smaller plants, in which we noted good examples of *Brassavola fragrans*, *Lycaste gigantea*, with three flowers, *Phalenopsis Lueddemanniana*, *Maxillaria luteo-alba*, with seven flowers, *Odontoglossum citrosum album*, *Andersonianum* and *Ruckerianum*, *Angraecum Sanderianum*, *Chysis bracteata*, *Bifrenaria Harrisoniae*, *Cypripediums*, &c. A few excellent plants were exhibited by Signor RAFFAELLO LINARI, Florence, including *Ceologyne pandurata*, with eight flowers, a fine *Cattleya Lawrenceana*, *C. intermedia*, *Lycaste Skinneri*, *Lælia purpurata*, *Cymbidium Lowianum*, *Selenipedium grande* and *Schroderea*, *Vanda suavis*, *Cypripedium villosum*, *C. bellatulum*, *C. vernixium* and *C. Chamberlainianum*; but some of them were in duplicate. In the class for a collection of *Cypripediums* and *Selenipediums*, there was only a single exhibit, by Signor F. SCARLATTI, which included examples of *C. glaucophyllum*, *C. niveum*, *C. Cybele*, *C. Hookeræ*, *C. tonsum*, *C. Cybele Rossianum*, a fine plant of *C. barbatum*, and several *Selenipediums*, the 2nd prize, a Silver-gilt Medal, being awarded. For a *Vanilla* in flower or fruit, the 1st prize, a Silver-gilt Medal, was awarded to the Marquis CARLO TORRIGIANI, for a fine plant with six racemes, mostly passing into fruit. A large plant was exhibited by the ISTITUTO AGRICOLA COLONIALE ITALIANO, Florence, but, being out of flower, the 2nd prize was not awarded.

Aroids were much better represented, eight of the eleven classes being filled, and the groups of *Anthurium Scherzerianum* and *A. Andreanum* which won the Gold Medals offered were magnificent, the former going to Signor F. SCARLATTI, the latter to the SCUOLA DI POMOLOGIA, Florence. For a single specimen of the former, Count UGO CAHEN, Alleronia, secured the 1st prize, a Silver-gilt Medal, with a fine plant bearing 12 magnificent spathes. For a group of 50 *Caladiums*, the SCUOLA DI POMOLOGIA, Florence, was again 1st, with a splendidly-grown group; also for a group of Aroids, not including those previously mentioned. They were 2nd for a specimen of *Philodendron*, remarkable for good culture, being beaten by the R. ORTO BOTANICO, Rome.

Palms formed a large section of 35 classes, of

which 26 were filled, many of the exhibits being of excellent character. To enumerate them would require too much space. Suffice it to say that the R. ORTO BOTANICO, Florence, secured the large Gold Medal offered for a collection of 30 species, with a magnificent group; while Signor R. MERCATELLI was 2nd. The competition for a group of *Kentias* was keen, and a 4th prize had to be given, the order being: 1st, R. MERCATELLI; 2nd, G. TURRI; 3rd, P. CAPECHI; and 4th, G. LUIGI, all of Florence. For an example of *Latania borbonica* the R. ORTO BOTANICO, Florence, won the Silver Medal, with a magnificent specimen, carrying three bunches of fruits. We also noted a very beautiful plant of *Astrocaryum mexicanum*, for which Signor GATTAL, Florence, was awarded a Silver-gilt Medal. In five cases all the three prizes offered were awarded, and the Palms were generally excellent.

The section devoted to hothouse plants was not international, but produced a very fine display, 24 out of 40 classes being filled, and in the class for a collection of Ferns and Lycopods two additional prizes had to be awarded, making five in all, the 1st prize going to the firm of GAETANO BONFIGLIOLI E FIGLIO, for a very rich group of the highest quality; but all the groups were fine, and contained many examples of good culture. For 30 hothouse plants there was a good competition, which resulted as follows: 1st, R. SCUOLA DI POMOLOGIA; 2nd, the Marquis CARLO TORRIGIANI; and 3rd, Baron DE GUNDERRODE, all of Florence, the premier group especially being excellent, as was also the group of 50 *Draenas* (species and varieties) from the same exhibitors, which again carried off the Gold Medal, while the large specimen of *Acalypha hispida* which they exhibited was a picture of grace and beauty. The same exhibitors were also 1st for a collection of *Araliaceæ*, for 50 *Crotons*, for a collection of *Bromeliaceæ*, for *Francisceas*, for a group of *Begonia Gloire de Lorraine*, for *Cyanophyllum magnificum*, and for a specimen *Pandanus*, all of which were up to the high standard of culture they have set. They were, however, beaten by Signor R. MERCATELLI for a collection of 40 ornamental-leaved *Begonias*. *Gloxinias* were well exhibited by the R. SOCIETA TOSCANA D'ORTICULTURE, Florence, and by Baron DE GUNDERRODE, being adjudged in the order mentioned, the last named exhibitor being 1st for a very fine specimen of *Medimilla magnifica*, while the group of *Streptocarpus* shown by the Marquis CARLO RIDOLEI, was awarded the Silver Medal with felicitations.

The section devoted to greenhouse plants contained 41 classes, none of them international, only 12 of which were either blank or the prizes not awarded, one of them, curiously enough, being for a group of *Fuchsias*. Eight classes were devoted to *Pelargoniums*, and resulted in a keen competition, these plants being grown to perfection in this bright, sunny climate. In three classes an additional prize was given, and in one of them two additional ones. *Heliotropiums* and several other groups produced a very fine display, while *Cordyline australis* and *Aspidistra elatior* were shown in fine condition. A collection of 30 species and varieties of *Citrus*, exhibited by the R. SCUOLA DI POMOLOGIA, Florence, which gained the Gold Medal, was a remarkable exhibit, immense plants in tubs, and loaded with fruit, while the group of Lemons of Signor GIUSEPPE PICHERMOLLI, Florence, which gained a Silver-gilt Medal, was also excellent. We noted that in both cases the trees are pruned and trained in cup-shaped fashion, so as to admit a maximum of light and air, a method of pruning which seems to be almost universally adopted in the case of the Olive, so much grown on the hillsides in the neighbourhood of Florence.

In the section devoted to Conifers, trees and shrubs there were 35 classes, only eight of which were blank, while the *Azaleas* and *Rhododendrons* made a magnificent display, and the *Hydrangeas* were very fine. Neither this nor the next section, *Roses*, was international in character. There were 11 *Rose* classes, in nine of which awards were made, the display being very fine and the competition keen. We are unable to go into details; suffice it to say that in the group for fifty *Roses* in bloom of a single variety five awards were made, and in a similar class for twenty-five, four awards.

Then came a section of 57 classes devoted to herbaceous plants and bulbs, which included a

rather large number of blanks, awards being made in only 29 of them. Here the *Carnation* made a very fine display, while *Petunias*, *Mignonette*, *Sweet Peas*, *Cinerarias*, *Calceolarias*, *Coleus*, *Primula obconica*, and *Tuberous Begonias* were also shown in fine condition. These classes were not open to international competition.

The remaining divisions were devoted to fruits, fresh and preserved, fruit trees, vegetables and legumes, seeds and bulbs, cut flowers and decorations, artificial flowers, horticultural arts and industries, horticultural implements and appliances, literature, photographs, and horticultural instruction, many of the classes being International, but we can only pass over them lightly, for awards were made in nearly one hundred additional classes. There were some good collections of fruits and vegetables, fresh and preserved, among which those of the *Citrus* family were very prominent, a few fruit trees in pots, a magnificent series of cut flowers and floral decorations, in which *Roses*, *Carnations* and many other flowers, with foliage plants, were used to great advantage. The artificial flowers made a remarkable display, and some were so life-like that close inspection was necessary to distinguish them, and even smelling them was sometimes brought into requisition as a final test.

In the section devoted to horticultural appliances a large Gold Medal was offered for an Orchid house built for utility and economy, which was won by Messrs. HOUTSCH & Co., Dresden, with a light and well-arranged structure.

EXHIBITS FROM ENGLAND.

Among the awards made to groups staged "Not for Competition," we must mention two large Gold Medals, value 200 lire, for the splendid groups of Orchids staged by Messrs. CHARLES-WORTH & Co., Haywards Heath, and by Messrs. STUART LOW & Co., Enfield, which were rich in *Odontoglossum*, *Odontiodas*, and a few other cool Orchids which are scarcely grown in Italy, largely for climatal reasons. They also included numerous *Cattleyas*, *Lælias*, *Laelio-Cattleyas*, *Dendrobiums*, *Miltonia vexillaria*, *Renanthera Imshooftiana*, a few good *Brasso-Cattleyas*, and many others, and were greatly admired. One fine, white *Brasso-Cattleya* in Messrs. CHARLES-WORTH'S group, derived from *Brasso-Cattleya Veitchii* and *Cattleya Trianae alba*, was named *Brasso-Cattleya Queen Elena*, in honour of Her Majesty the Queen of Italy, who, as well as the King, graciously acknowledged the favour by shaking hands with Mr. Bohndorf, Messrs. Charlesworth's Continental representative.

The executive committee must be congratulated on the success which has attended their efforts to produce an exhibition worthy of the City of Flowers. It was a fine show, and the only unfortunate incident was that the first two days were so wet, a circumstance that must have made an enormous difference to the attendance. There were several important functions in connection with the event, and the members of the jury and others who had the good fortune to be present will long remember the visit with pleasure.

ROYAL METEOROLOGICAL.

MAY 17.—The first afternoon meeting of this society for the present session was held on the above date, at 70, Victoria Street, Westminster. Dr. H. N. Dickson, president, occupied the chair.

Dr. H. R. Mill and Mr. C. Salter read a joint paper on "The Frequency and Grouping of Wet Days in London." The purpose of this paper is to place on record certain facts, derived from long homogeneous records of rainfall kept at Camden Square, bearing on a recent scheme for insurance against rain risks.

Mr. E. Mawley also read his "Report on the Phenological Observations for 1910." The most noteworthy features of the phenological year ending November, 1910, as affecting vegetation, were the continuous and heavy rainfall in February, a sudden change from cold to warm weather in the middle of May, the great dryness of September, and the heavy rains and low night temperatures in November. During the greater part of the year wild plants came into blossom later than their usual time, the departures from the average being greatest at the end of April and the beginning of May. Such early spring migrants as the swallow, cuckoo, and nightingale

made their appearance at about their usual dates. The only deficient farm crops were Wheat, Barley, and Peas. The yield of Oats, Beans, Potatoes, Turnips, Mangolds, and Hay were above the average, and more especially Beans, Turnips, and Hay. The crops of Apples, Pears, Plums, and small fruits, with the exception of Strawberries, were rather under the average yield.

ROYAL SCOTTISH ARBORICULTURAL.

MAY 20.—The quarterly meeting of the Aberdeen branch of the society was held in Aberdeen on the above date, when visits were made to various places of business connected with the timber trade.

The first place visited was the box and barrel factory of Messrs. William Fiddes & Son, Torry, a suburb of Aberdeen. Sir John Fleming's works at the Albert Sawmills, Footdee, were next visited. Sir John Fleming conducted the party over the yard, and gave interesting details about the methods of treating the different woods for various purposes.

The party then lunched in the Imperial Hotel, Aberdeen, after which a meeting of the branch was held, Mr. Gammell presiding. The party then drove to the Aberdeen University (Marischal College), and visited the botanical and zoological departments.

NATIONAL HARDY PLANT.

MAY 24.—A meeting of the National Hardy Plant Society was held at Anderson's Hotel, Fleet Street, on this date. Mr. A. J. Macseli occupied the chair. Members were present from Scotland, Ireland, the North, South, and Midlands of England.

Saturday, July 8, was fixed as the date of the visit of the members to Friar Park, Henley-on-Thames. It was decided to send a deputation to the North of England Horticultural Society's Show at Harrogate, on August 15, also to renew the offer of prizes and medals offered for the June show which had been postponed. Delegates were appointed to attend the York, Cardiff, and Leamington flower shows. A discussion took place on the society's schedule, and the matter was deferred to a future meeting. Mr. E. H. Jenkins was appointed a member of the Publications Committee.

Dr. MACWATT exhibited a seedling white-flowered *Viola* of the *Violetta* type. Mr. Hawes, of the Royal Botanic Garden, Regent's Park, undertook to conduct a trial of these flowers under the auspices of the society. Mrs. H. L. SCOTT, Cadeby Hall, showed a pure white form of *Smilacina racemosa*. Messrs. ARTINDALE & Co., Sheffield, staged a collection of *Violas* and Pansies.

It was decided to offer medals at several flower shows in 1911, and the chairman and secretary were asked to arrange particulars.

BATH AND WEST AND SOUTHERN COUNTIES.

MAY 31-JUNE 5.—We were enabled in the last issue to publish a list of the principal exhibitors in the horticultural section at this show, which was held at Cardiff on these dates, and we now give the following further particulars:—The delightful weather experienced on the opening day continued until the end of the show. Although the weather was so beautiful, the attendance was not so large as on some former occasions, being affected by the unfortunate industrial war at present going on in the coal industry of South Wales.

In addition to the horticultural exhibits already mentioned, the Marquis of BUTE (gr. Mr. H. Farmer) set up a large group of stove and greenhouse foliage and flowering plants, which made a very pleasing feature in the horticultural tent.

In another part of the show grounds Messrs. WEBB & SONS, Stourbridge, displayed a great variety of agricultural and horticultural seeds, also flowering plants, such as *Gloxinias*, *Begonias*, *Cinerarias*, and *Calceolarias*.

Messrs. FOOTCOOP & SONS, Southampton, had a very similar display to that shown by Messrs. WEBB.

In the forestry section were interesting exhibits of different kinds of timber shown in longi-

tudinal and cross sections. Specimens of many of the diseases and pests to which timber trees are subject in this country were also shown in different stages of development. Photographs of woods, specimen trees, and microscopic sections of timber, formed an interesting feature in this department, and aroused much interest even among the casual visitors. Among the principal exhibitors were Miss E. C. TALBOT, Margam Park, the Duke of WELLINGTON, Hants., the Marquis of BUTE, Cardiff, Earl STANHOPE, Sevenoaks, and the Earl of PLYMOUTH, St. Fagans. The Director of Kew showed specimens of about 20 different kinds of timber, together with 40 photographs, illustrating the method adopted at the Royal Gardens, Kew, to remove large trees.

In an adjoining tent devoted to Arts and Nature Study subjects, the University College of South Wales made a most instructive exhibit of living specimens of British plants which are injurious to cattle.

DUTCH BULB GROWERS'.

THE following awards have been granted at recent meetings of this Society at Haarlem by the *Narcissus* Committee:—

FIRST-CLASS CERTIFICATES.

Narcissus King George V. (Engelhardtii).—A flower of fine form, with broad, white perianth; the cup is flat and large, of a citron-yellow colour bordered with orange.

N. Mrs. Lizzie Krelage.—An improved *Mme. de Graaff*. The perianth and trumpet are white, the latter having a finely-curved edge.

AWARDS OF MERIT.

N. Ajax Moengmaker.—The seed parent was *N. principis maximum*; the new variety may be regarded as an improved *N. principis*.

N. Seide.—A white variety with a drooping trumpet that is not curved.

N. Mrs. Cato Hoog.—The perianth and trumpet are both white. The flowers are somewhat drooping, finely curved, and have a rather short trumpet.

N. Jacob Maris.—An *Incomparabilis* variety, with broad, white perianth, and cup of light yellowish-orange, bordered with yellow.

N. Richard Strauss.—A bicolor variety, with a soft yellow-coloured trumpet and white perianth. The flower has a somewhat drooping form.

N. incomparabilis plenis Queen of Phœnix.—The flowers of this variety are white, with pale-yellow centres.

IPSWICH AND EAST SUFFOLK HORTICULTURAL.

LORD KITCHENER'S WHEAT.

JUNE 1, 2.—This East Anglian society held its annual summer show six weeks or so earlier than usual this year, in order that it might take place concurrently with the exhibition of the Suffolk Agricultural Society. The County Agricultural Society ranks high amongst societies of this nature, and its shows attract vast crowds from the agricultural districts of Suffolk and the adjoining counties, in addition to the visitors from Ipswich itself. Both shows were in Christchurch Park, but an extra charge was made for inspecting the horticultural display. On the opening day a large assembly gathered at a public luncheon, and speeches were made by several gentlemen connected with the societies and the Borough of Ipswich. Amongst them was Lord Kitchener, High Steward of the Borough, who related an interesting story respecting the introduction of Thibetan Wheat to South Africa. Lord Kitchener is a grandson of Dr. Chevallier, of Aspell, near Ipswich, who introduced the famous Chevallier Barley, and the story which Lord Kitchener relates points to the probability that the name of Kitchener will be connected with a Wheat as is the name of his ancestor with a race of Barley. It appears that several years ago some Boer friends wrote to Lord Kitchener to the effect that the Wheat in South Africa was suffering from rust. They had heard that Thibetan Wheat was more or less immune from attacks of this fungous pest, and they re-

quested Lord Kitchener to assist them in getting seeds from Thibet. During the expedition to Thibet Lord Kitchener was able to get several bags of Wheat, which he sent to South Africa. "In March last," said Lord Kitchener, "I was at Nairobi, in East Africa, which is a grand country, with a magnificent climate, now entering the number of the Wheat-exporting countries of the world. I naturally visited the Government agricultural farm, and was there shown a small plot of growing Corn, and told that this was 'Kitchener' Wheat, and that it possessed the satisfactory peculiarity of being unaffected by 'rust,' and was being successfully used to blend with other samples of Wheat in East Africa. It transpired that this Wheat had been procured from South Africa, some 2,000 miles away, and was a product of blending by my Boer friends of the Wheat I had sent them with their own Wheat, to which without my knowledge they had given my name."

THE HORTICULTURAL EXHIBITS.

The alteration of date already referred to had the effect of changing the character of the Ipswich Show to a very appreciable extent. Instead of the excellent show of Roses, which is a usual feature, there were many fine exhibits from trade firms, such as the Ipswich Show has never before attracted. Roses there were, but they were indoor productions, some of the best being those from Messrs. B. R. CANT & SONS, and Messrs. FRANK CANT & Co., both of Colchester, who staged groups of much excellence, and which showed some of the Rambler and Wichuraiana varieties at their best.

The feature of the show was an exhibit by Messrs. WALLACE & Co., Kilnfield Gardens, Colchester, who arranged a rock-garden with flag-covered paths and Iris borders—indeed, an exhibit similar to those shown by the same firm at the Temple and Holland House exhibitions, but rather less in extent. The grouping of the plants and cut flowers was excellent.

Mr. R. C. NOTCUTT, of the Woodbridge Nurseries, made a large contribution of miscellaneous plants, rock-garden plants, dwarf shrubs in flower, Roses, hardy herbaceous species and including plants of the new *Rhododendron subatlanticum*, illustrated in these pages last week.

Messrs. SUTTON & SONS, Reading, staged a very fine collection of vegetables and Melons and Cucumbers, etc.; Messrs. THOMPSON & MORGAN, Ipswich, had a very fine group of hardy cut flowers; Messrs. W. CUTBUSH & SONS, Highgate, London, had a pretty group of hardy flowers and dwarf shrubs, hardy Orchids, &c.; Messrs. MAY & SONS, Upper Edmonton, staged an interesting group of Ferns; Messrs. KING & Co., Coggeshall, a collection of Sweet Peas; and Mr. G. W. MILLETT, Wisbech, varieties of *Pyrethrum roseum*.

An interesting feature in the competitive classes was the awarding of the prizes for the decorated dinner tables by popular suffrage. Every visitor to the show was given a voting card for this class, and the tables which obtained the highest number of votes were awarded the 1st, 2nd and 3rd prizes respectively. The winner of the 1st prize was Mrs. HETHERINGTON.

The arrangements made by the secretary, Mr. Harold Smith, worked smoothly and well.

GRANGE-OVER-SANDS HORTICULTURAL.

JUNE 1.—At the meeting of the above association held on this date, Mr. A. W. Proudlock, The Gardens, Hall Garth, Carnforth, delivered a lecture on "Ornamental and Flowering Trees and Shrubs." The meeting was held in the public park, adjoining the railway station, Grange-over-Sands. The lecturer dealt with a large number of subjects suitable for the district, and suggested ways and means of adding to the attractions of the charming park.

Obituary.

CHARLES HERRIN, SENIOR.—We have to record the death, on the 22nd ult., of Mr. Charles Herrin, for 50 years gardener to the late S. Fox, Esq., Linden House, Wellington, Somersetshire. Deceased was in his 87th year.

MARKETS.

COVENT GARDEN, June 7.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices, including Arums, Carnations, Gypsophila, Ixia, Liliun anatum, etc.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage and their prices, including Agrostis, Asparagus plumosus, etc.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various plants in pots and their prices, including Aralia Sieboldii, Araucaria excelsa, etc.

Fruit: Average Wholesale Prices (continued).

Table listing various fruits and their prices, including Cherries, Cranberries, Figs, Gooseberries, Grapes, etc.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Asparagus, Beans, Broccoli, etc.

REMARKS.—Three large consignments of Australian Apples are due this week; these fruits are not selling quite so freely. Cherries from France are an increased supply. Selected fruits packed in boxes are arriving in a very unsatisfactory condition. Australian Pears are a shorter supply. English hothouse Peaches and Nectarines are very plentiful, and the colour and general condition of the fruits are all that can be desired. Strawberries from the Southampton district are arriving in very large quantities and meeting with a ready sale. Strawberries from Kent are expected next week. Grapes are very plentiful, meeting, as is usual at this period of the year (especially during the Strawberry season), with a very limited trade. Figs, both English and Channel Island grown, are very plentiful, and selling for very low prices. English Tomatoes are more plentiful, but their prices are well maintained. The vegetable trade all round is fairly good, considering the time of year. Trade generally has been unsatisfactory owing to the holidays. E.H.K., Covent Garden, June 7, 1911.

Table listing various potatoes and their prices, including Kents, Lincolns, etc.

REMARKS.—The trade in old tubers is rather slow, but their prices remain firm. The arrivals are very light, and the stocks in London small. Edward J. Newborn, Covent Garden and St. Pancras, June 7, 1911.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 3, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—The general condition was very fine and bright, but after the early days of the week thunderstorms occurred in places in all parts of the kingdom. On May 30 they were reported at Hillington and Wokingham, on May 31 and June 1 in a great many localities, and on the two days following at several scattered places in England and Ireland.

The temperature.—The general condition was considerably above the average in all districts. In Scotland W. the excess amounted to nearly 10°, and in Scotland N., England N.W., and S.W. to about 8°. The highest of the maxima were recorded at most stations about the middle of the week, and ranged from 83° in Scotland N. and E. and England N.W., and 81° or 80° in many other parts of the kingdom to 76° in the English Channel. The lowest of the minima, which occurred generally on May 24, varied from 34° in Ireland N. and 35° in Scotland E. to 48° in England S.W., and to 50° in the English Channel. The lowest readings on the grass were 28° at Markree Castle, 29° at Crathes, 30° at Armagh and 32° at Balmoral.

The mean temperature of the sea.—On the S.W. coast of England the water was colder than during the corresponding week of last year, but elsewhere it was warmer—as much as 6° at Scarborough. The means for the week ranged from above 59° at Margate and Seafield to about 49° at Lerwick and Berwick, and to 48° at Aberdeen.

The rainfall was very heavy locally with some of the thunderstorms, but much less than the average over the kingdom generally. On May 31 0.92 inch fell at Rothamsted and 1.0 inch at Greenwich; while at Epsom as much as 2.86 inch was experienced, of which 2.44 fell between 5.20 p.m. and 6.10 p.m. In all parts of the kingdom there were stations which failed during the week to record any measurable quantity of rain.

The bright sunshine was much in excess of the average, especially in the north and north west of the kingdom. The percentage of the possible duration ranged from 79 in England N.W. and 76 in Ireland N. to 67 in the midland counties, and to 65 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending June 7.

A very hot week.—The last 12 days have been very warm, the highest readings in the thermometer screen ranging on 11 of them from 75° to 82°. The last named temperature is the highest experienced here since the middle of August, 1909. The nights, however, during the present dry period were as a rule only moderately warm, and on one night the exposed thermometer fell to 39°. The ground is at the present time very warm for so early in June, being 5° warmer at 2 feet deep, and as much as 8° warmer at 1 foot deep, than is reasonable. Some rain fell during a thunderstorm on the first day of the week (May 31), but to the depth of only about one-tenth of an inch. Since then the weather has been dry. The ground has also become dry, as there has been no percolation through either of the soil gauges for 10 days. The sun shone on an average for 10 hours a day, or for 3½ hours a day longer than is usual at this period in June. Calms and light airs have again prevailed throughout the week. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a reasonable quantity for that hour by as much as 12 per cent. A large bush of the wild Dog Rose (Rosa canina) in my garden came first into flower on the 3rd inst., or two days earlier than its average date for the previous 25 years, and on the same date as last year.

MAY.

Remarkably warm and calm.—This was, with one exception (1893), the warmest May I have yet recorded here. The days were, as a rule, much more unseasonably warm than the nights. There was but one cold period during the whole month, and that only lasted three days. On the hottest day the temperature in the thermometer screen rose to 78°, and on the coldest night the exposed thermometer showed 5° of frost. Both of these extremes are high for the month, but not remarkably so. Rain fell on 10 days, to the total depth of two inches, which is only about one-tenth of an inch below the May average. The sun shone on an average for 6½ hours a day, or for a quarter of an hour above the mean daily duration for the month. During the last 25 years there has been only one other May as calm. In the windiest hour the mean velocity was 17 miles-direction S.S.W. There was a seasonable amount of moisture in the air at 3 p.m.

THE SPRING.

A warm and dry season.—In March and April the temperature was about average, but in May the weather proved very warm. All three months were rather dry. March was a dull month, but during April and May there was rather more than the average duration of sunshine. E. M., Berkhamsted, June 7, 1911.

CATALOGUES RECEIVED.

MESSINGER & Co., Ltd., Loughborough, Leicestershire, and 122, Victoria Street, Westminster—Wood Lath Blinds and Garden Seats. DOBBIE & Co., Edinburgh—Pansies and Violas.

FOREIGN.

G. J. ALBERTS & Co., Boskoop, Holland—Nursery Stock (wholesale list).

LAW NOTE.

A GARDENER'S NOTICE.

At the Suffolk County Court on May 24 Frederick Stocker, a gardener, of Swinton, sued his late employer for £4 7s., being three weeks' wages, in lieu of proper notice. Mr. Cunningham, for the plaintiff, maintained that gardeners were entitled to one month's notice, and his client was given but one week.

For the defendant, Mr. Burgess contended that inasmuch as the plaintiff did not reside at a house on his employer's estate, he was only entitled to one week's notice.

His Honour Judge Mellor decided in favour of the gardener, and gave judgment for the amount claimed, with costs.

GARDENING APPOINTMENTS.

(Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.)

Mr. JAMES MOIR, for the last 8 years Gardener to the late Sir ALFRED MUIR MACKENZIE, Bart., of Delynie, Perthshire, as Gardener to CHAS. G. OGBURN, Esq., at the same place. (Thanks for donation of 2s. for R.G.O.F. box.—Eds.)

Mr. ANDREW LAIT, for the past 18 months Foreman at Sandrum Gardens, Ayrshire, and previously Foreman for 5 years at Delynie Gardens, Perthshire, as Gardener to J. RICHMOND, Esq., Kippenrose, Dunblane, Perthshire.

Mr. J. F. TIDBRIGHT, for the past 5 years General Foreman in the gardens, Knoyle House, Salisbury, as Gardener to C. W. ANSELL, Esq., Bromley Park, Romsey, Hampshire. (Thanks for donation of 1s. for R.G.O.F. box.—Eds.)

Mr. H. DEAL, for nearly 4 years Foreman in the gardens of Lord LOREBUCK, Kingsdown House, near Deal, as Gardener to Lady DE BAINE, Regal Lodge, near Newmarket.

Mr. F. MAIDMENT, for the past 3 years Foreman at Stourhead, Zeals, Wilts., as Gardener to G. N. TEMPLE, Esq., Bishop-trow House, Wootton Bassett, Wilts.

Mr. T. C. GRINHAM, for the past 43 years Gardener to Mrs. A. STORAFI, White Cross, Wallingford, Berkshire, as Gardener to E. P. STEPHENS, Esq., The Priory, Taplow, Buckinghamshire. (Thanks for 1s. for R.G.O.F. box.—Eds.)

Mr. WALTER WAINWRIGHT, for nearly 8 years Gardener to the late RICHARD HOBSON, Esq., The Maltings, Bromborough, Cheshire, as Gardener to Sir OWEN ROBERTS, Henley Park, near Guildford, Surrey. (Thanks for 2s. sent for R.G.O.F. box.—Eds.)

DEBATING SOCIETIES.

CROYDON & DISTRICT HORTICULTURAL.

At the final meeting of the session, discussions took place on subjects relating to horticulture. At each meeting since January of this year a question box has been placed on the table, and the queries contained therein provided the subjects for debate. During the summer months visits will be made to gardens in the district.

BRISTOL AND DISTRICT GARDENERS'.

The first meeting of the new session was held on May 25, at St. John's Parish Rooms. Major Tagart, D.S.O., presided. Professor Priestly, Bristol University, gave a lecture, illustrated with lantern slides, on "Recent Work on Soil Sterilisation." The lecturer stated that toluene was a valuable antiseptic for soil sterilisation, and gave almost as good results as nitrate.

ALTRINGHAM AND DISTRICT GARDENERS'.

The first of the summer visits to gardens arranged by this society took place on Saturday, May 27, when about 100 members and friends visited the gardens at Dunham House, Bowdon, the residence of Mr. J. Sington.

SCHEDULES RECEIVED.

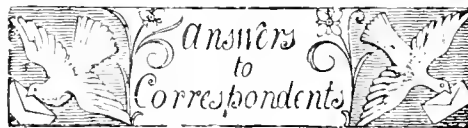
Women's Agricultural and Horticultural International Union's annual show and sale of farm and garden produce to be held on Thursday, June 15, in the gardens of the Royal Botanic Society, Regent's Park. Opening ceremony at 2.30 p.m. by H.K.H. Princess Louise, Duchess of Argyll, President of the Union.

Southampton Royal Horticultural Society's annual Rose show and miscellaneous exhibition to be held in the County Ground on Tuesday and Wednesday, June 27, 28. The Society's Carnation and Sweet Pea show will be held on the Royal Pier, Southampton, on Friday, July 25. Secretary, Mr. C. S. Fudge, 7, Silverdale Road, Southampton.

Portsmouth Horticultural Society's summer show, to be held on the South Parade Pier, Southsea, on Tuesday and Wednesday, July 18, 19, and the autumn show, to be held in the Town Hall, Portsmouth, on Wednesday, Thursday, and Friday, November 1, 2, 3. Hon. secretary, Mr. W. E. Gill, Osborne Road, Southsea.

ENQUIRY.

WHICH IS THE BEST BOILER?—Can any reader of the *Gardeners' Chronicle* give his experience as to the most efficient and economical boiler for heating with hot water? Here we have two large upright boilers (coupled), heating at times 2,200 feet of 4-inch piping. Just now, there is not above 1,030 feet in use, and later on in summer and in autumn we may not have above 500 feet in use, yet our bill for coke runs up to about £80 a year. The coke costs about 14s. per ton from the gas works, not including cartage. One of the boilers is leaking a little, and we may have to replace it by another shortly, and I have thought that it would possibly be cheaper to put in a different type of boiler altogether, and one which would be capable of heating the whole of the piping without the aid of another boiler. I should feel indebted if anyone could give the information I desire. It is a subject of first-class importance for market-gardeners and private gardeners alike. J. C.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

APPLE SHOOTS WITH "BLIGHT": G. M. Apple mildew is present on the leaves. Cut off the affected shoots and burn them as the disease will appear year by year and prevent the growth of new wood. Spray when the leaf-buds are breaking next spring with Bordeaux mixture made at half the usual strength.

CARNATIONS: E. A. W. If the plants are already affected with stem eelworms, it is impossible to apply anything that will save them. The best thing to do is to take away each plant as it develops symptoms of attack and destroy it by burning.

CARNATIONS UNHEALTHY: L. S., Dumfries. No disease is present. The trouble is due to excessive moisture. Maintain dry conditions about the plants, and ventilate the house freely.

CODIUM (CROTON): H. J. In order to get Crotons to develop a good colour it is essential to have them in an average stove temperature, and provide them with abundant atmospheric moisture. They must also be kept fully exposed to the sun's rays, and as near to the glass as possible. If blinds are in use take care that they do not shade the Crotons. This can be easily done by grouping the plants together, and if needs be removing one or more strips of canvas from the blinds where the Crotons stand. Guard against over-luxuriant growth, such as that occasioned by rich soil or over-potting. (See also the *Calendar* on the culture of "Plants under Glass," p. 368).

GOOSEBERRY SHOOTS FOR EXAMINATION: Mrs. H. The trouble is due to red-spider. Spray the bushes with clear water, and dust the leaves when wet with flowers of sulphur.

IRISES DISEASED: H. S. The plants are affected with a bacterial disease. Remove the diseased portions and mix the soil with superphosphate or some other acid manure. Lime and other alkaline substances favour the disease.

MEDICAL ATTENDANCE IN BOTHIES: H. A., Blackburn. An employer is not obliged to supply medical attendance to a gardener living in a bothy. If, however, the employer calls a doctor to attend the gardener, then the doctor would be entitled to look to the employer for his fees.

MUSCAT OF ALEXANDRIA GRAPE: T. H. The unhealthy condition of the vine and bunches of Grapes is due to *Botrytis cinerea*. Spray the vines with liver of sulphur at a strength of 1 ounce to three gallons of water, and freely ventilate the vinery in which they are growing.

NAMES OF PLANTS: Angerton. 1. *Cerastium latifolium*; 2. *Saxifraga crustata*; 3. *Potentilla nitida*; 4. *Saxifraga Wallacei*; 5. *Androsace sarmentosa*; 6. *Saxifraga aizoon*; 7. *Achillea umbellata*; 8. *Phlox ilicinea*.—C. W. B. 1. *Geranium Robertianum*; 2. *Reseda luteola*; 3. *Vicia sepium*; 4. *Veronica Chamædrys*; 5. *Chelidonium majus*; 6. *Cerastium Biebersteinii*.—J. U. *Luzula maxima*.—Anxious. *Embothrium coccineum*, known in gardens as the Chilian Flame Tree.—H. F., Penryn. The specimen sent was broken and very poor. It appears to be *Fuchsia excorticata*.—J. C. L. 1. *Zingiber officinale* (Ginger plant); 2. *Martynia Makoyana*; 3. *Diplacus (Mimulus) glutinosus*; 4. *Asplenium Nidus*; 5. *Pteris longifolia*; 6. ticket no number, probably a species of *Cymbidium*.—H. H. 1. *Caragana arborescens*; 2. *Pyrus salicifolia*; 4. *Acer Pseudo-platanus variegatus*; 5. probably *Pyrus Sorbus*; 6. *Piptanthus nepalensis*; 7. *Ligustrum lucidum*; 9. *Ulmus montana pendula*; 10. *Sambucus racemosus laciniatus*; 11. *Amelanchier canadensis*; 12. *Coronilla Emerns*; 13. *Olearia macrodonta*; 14. *Salix purpurea*; 15. *S. Caprea pendula*; 3 and 8, please send when in flower.—B. B. *Crinum giganteum*.—F. A. H. 1. *Oncidium pulchellum*; 2. *Oncidium triquetrum*; 3. *Brassia maculata*; 4. *Rodriguezia secunda*.—R. O. 1. *Begonia boliviensis*; 2. *Boronia serrulata*; 3. *Adiantum hispidulum*; 4. *Pteris geraniifolia*.—J. H. F. 1. *Peperomia arifolia*; 2. *Nerium Oleander*; 3. *Oncidium flexuosum*; 4. *Begonia Weltoniensis*; 5. *Alcæ verrucosa*; 6. *Celsia cretica*.

PEACHES DROPPING: W. S. No disease is present. The trouble is due to some check, and probably may be traced to a wrong condition of the border, especially in the matter of watering.

ROSE: W. D. This is the Yellow Banksian Rose. It was introduced by the Royal Horticultural Society in 1824.

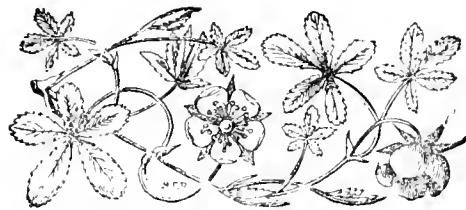
ROSE WILLIAM ALLEN RICHARDSON: H. E. B. From the description you give of the standard planted last autumn, it would appear that the plant is incapable of making roots, owing to some reason that we can only surmise. It may be that the roots were allowed to become very dry before they were planted. In any case we do not understand why you should syringe the plant with quassia extract as there are no leaves on the plant and no aphides present. If the Rose is still alive you might syringe it occasionally with clear water and shade it from bright sunshine in order to encourage it to break into growth if this is still possible.

SHRUBS AT SHOWS: Edward S. It is very likely that those who drew up the schedule in question did not anticipate that any exhibitor would include *Chrysanthemum lutescens* in the exhibits for this class, which was specially designed for flowering trees, shrubs, and climbers. At the same time, the judges can only be guided by the printed directions, and we do not quite see how they found it possible to disqualify your exhibit owing to the presence of the *Marguerite*. We should have thought that the *Marguerite* might best be described as a tender shrub, for the stems are not herbaceous after they are one year or more old. Our ideas on the vexed question of deciding what are herbaceous plants for show purposes were given in the issues for January 18 and March 7, 1908.

TOMATOS DISEASED: H. J. P. The plants are affected with a bacterial disease which is conveyed by insects visiting the flowers. The only known remedy is to remove all diseased fruits, and destroy them by burning.

VINES: H. J. Nitrate of soda cannot be recommended for Vines at any stage of their growth. It is a first-rate manure for green vegetables, but it may be taken as a general rule that this nitrate is not beneficial to plants that possess woody tissue.

Communications Received.—W. T., Hampton—A. P. B.—W. H. C.—S. C.—W. K.—D. R. W.—A. H. C.—C. H. C.—W. F., South Devon—W. R. D.—F. W. C.—J. O'B.—H. N. R., Singapore—C. T. D.—F. J. C.—W. B. H.—A. D. S.—C. R. H.—W. I.—H. C.—A. W.—K. & Son—C. R. B.—G. P.—G. F., Lasswade—H. E., Cardiff—W. H. J. R. H.—W. B.—W. C., Ramsgate—C. A. B.—W. B., Burton-on-Trent—B. & Sons, F. R.—Salisbury—E. K.—W. C., Chichester—A. J.—E. D.—F. R. S.



THE
Gardeners' Chronicle

No. 1,277.—SATURDAY, June 17, 1911.

CONTENTS.

Arnold Arboretum, the	391	Pinks, propagating	394
Birds and fruit-nets	394	Poppies, Shirley	394
Boiler, the best	400	Primulas of the Euro-	
Books, notices of—		pean Alps	385
Practical Plant Physi-		Reading University	
ology	384	College	391
The Vegetation of		Red spider attacking	
Mt. Fuji	390	vines	394
Botanical expedition to		Rhododendrons at Ash-	
Lower Siam	383	ton Court, Bourn-	
Bulb garden, the—		mouth	392
<i>Gladiolus tristis</i>	386	Rosary, the—	
Charlock, the destruc-		Rose "Juliet"	382
tion of	394, 400	Scotland, notes from	391
Cultural memoranda—		Singapore, notes from	386
Wallflowers	387	Societies—	
Festival of Empire, gar-		Birmingham Botani-	
dening award at the	390	cal and Hort.	395
Florists' flowers—		Lincoln	390
New Carnations, 1911	393	National Chrysanth.	390
Flowers in season	390	River Thames Flower	
Gardening, South		Show	395
African	391	Royal	398
Ghent Quinquennial Ex-		Royal Horticultural	390
hibition, 1913	391	(Scientific Committee)	394
Hensley, Mr. W. Bot-		Scottish Horticultural	394
ting, honour for	391	Surveyors' Institution	390
Honours for horticul-		United Hort. Benefit	
turalists	391	and Provident	395
Iris excursion, an	381	Yorkshire Gala	396
Law note		Solandra Hartwegii	383
Gardener or odd man?	399	Sutton Place, Guildford	386
Legacy to a gardener	390	Swanley Horticultural	
Market gardening—		College	391
Pyrethrum "Queen		Tombac Show, crowding	
Mary"	391	at the	394
Moth-trapping flowers	394	Tobacco for agricultural	
Mushroom beds, out-		purposes	382
door, for amateurs	392	Tropaeolum speciosum	394
Nursery notes—		Tulipa Batalinii	382
Six Hills Nursery,		Vegetation, census of	391
Stevenage	393	Week's work, the—	
Obituary		Apiary, the	389
Brydges, C. E.	400	Flower garden, the	388
Cheales, Rev. A.	400	Fruits under glass	389
Mathison, Fred. R.	400	Hardy fruit garden	389
Van Hal, Florent	400	Kitchen garden, the	388
Onion smut, the pre-		Orchid houses, the	388
vention of	391	Plants under glass	388

ILLUSTRATIONS.

Rhododendrons at Ashton Court, Bournemouth	392
Solandra Hartwegii	383
Sutton Place, Guildford (Supplementary Illustration);	
views in the gardens at	385, 386, 387
Tulipa Batalinii in a garden	382

AN IRIS EXCURSION.

ONE of the most serious drawbacks to the cultivation of many Irises is that there is no time in the year when there is not something to see or attend to in the garden. Narcissus, Tulip, and even Rose enthusiasts can take holidays, and yet not feel that they are missing something in their garden, or not doing their best in the matter of cultivating some other treasure. To the Iris grower no such period ever seems to come, and it was with many misgivings that I tore myself away in the last week in April for a week's Iris hunting in the South of France.

The morning after my departure found me at Tarascon, after sundry fleeting visions of various forms of *Iris germanica* in cottage gardens as the train rushed down by the Rhone. Tarascon itself proved, as a French friend warned me would be the case, "an dessous de tout," which we might render "beneath contempt," if we were not afraid of further offending the worthy townsfolk, whose self-conceit has suffered so sadly from

Daudet's caricature. Once at Tarascon, one can hardly refrain from crossing the suspension bridge to Beaucaire, and this proved to be well worth while, for the hill on which stand the ruins of the Chateau of St. Louis is covered by thousands of red-purple and white Irises, which proved to be *germanica atropurpurea* and a white form of *germanica*. This was exceedingly interesting, for one of the points on which I hoped to find information was precisely the relationship and identity of the several white Irises, the nomenclature of these being sadly confusing.

It was an easy matter to compare the white and purple forms in such a spot, and the growth and the shape of the segments proved to be identical, except, perhaps, that the spathes of the side branches were more apt to be two-flowered in the white than in the purple variety. Another difference was that the hairs on the inside of the haft of the standards were much more numerous on the white than on the purple form. In the latter, indeed, they were sometimes almost entirely absent, though in some flowers they would be quite conspicuous on one standard and almost absent from the others. The affinity of the two forms seemed also to be confirmed by the frequent occurrence of purple tinges and even stripes in the pure white of the albino form.

From Tarascon I went to Arles, and found that the white Iris in the public gardens there was not this white *germanica* nor *florentina*, but *albicans*, of which more will be said later. From Arles it is but a short excursion to Mont Majour, which provided a good instance of the effect of environment on the growth of Irises. At the base of the hill, among the bushes, I found a yellow-flowered form of *I. Chamæiris*, with a stem rather more than a foot in height; while a hundred feet higher, on the open limestone rocks, the same Iris was dwarfed to little more than 3-4 inches in height.

The next morning found me setting out early, by a slow train, across the apex of the Camargue, on the way to Montpellier and Cette. It was interesting to see that nearly every wayside station had long rows of *Iris germanica*, often of more than one form, in endless slight variations of colour between blue- and red-purple. It seems as though this Iris is more willing to set seed there than it appears to be in England, and these varying forms may well be seedlings.

My errand at Cette was to spend a few days with a French friend and fellow Iris enthusiast who lives in the neighbourhood and has a wonderful garden full of interesting plants: a veritable sun trap and rejoicing in a limestone soil. This means, of course, that the *Pogoniris*, as a whole, do better than the *Apogons*; indeed, there are few other gardens where *Onocycclus* species and hybrids succeed so well, or where the same plants of *Iris iberica* have been grown for 15 years.

My friend is also fortunate in that the huge and rare *I. Ricardii* flourishes with him, and has given him, when crossed with pollen of various *pogoniris*, numbers of magnificent hybrids. These are charac-

terised by stout stems, which, even in England, grow to about 4 feet in height. *Ricardii* itself is near to *I. Cypriana*, and came originally from Jerusalem, though we do not know that it is native there.

The hills in the neighbourhood of Cette are of rough, loose limestone, on some of which *Iris Chamæiris* can be found; but, even apart from Irises, they are a veritable joy to botanists. Orchids abound amid the dwarf *Cochineal* Oak (*Quercus coccifera*), a creeping shrub, not more than 18 inches high, and looking more like a dwarf Holly than an Oak. The air is scented with wild Rosemary and Lavender, and *Cistus monspeliensis* and *albidus*. The name of the latter was given in reference to the glaucous leaves, and appears, at first sight, somewhat misleading applied to a plant with pink purple flowers, growing side by side with the white-flowered *monspeliensis*. In some places the hillsides were white with thousands of large, white *Asphodels*, probably *Asphodelus ramosus*.

From Cette, a most interesting excursion was to Les Onglouses, which name is said to mean Irises in the local dialect (ongle being the botanical name for the claws of the segments of an Iris). The railway runs within a mile of the Mediterranean, and as the train drew up there were millions of white Irises to be seen on all sides, mingled with occasional patches of *germanica atropurpurea*. The soil is a deep sand, so loose that straw and reeds from the marshes have to be ploughed in between the vines to prevent its being blown away. The water is not far below the surface, which is drained by cutting deep, narrow lanes between the vineyards. All the banks swarm with the white Irises, which even have to be hoed up as weeds among the vines. In local floras, the name is always given as *I. florentina*, but this is a mistake, for they are all *albicans*. Indeed, I nowhere saw the true *florentina*, except in a garden at Ilyères, whither it had been imported from Hol-

Iris albicans was first described as a species by Lange, from specimens which he obtained from the neighbourhood of Almeria; but as it is also found in quantities all through Southern France, Italy, Greece, and even far away into Asia, its precise origin has been in doubt. No real proof of the following theory is yet forthcoming; but no one who compares *albicans* with *I. Madonna* will doubt, I think, that we have here the blue and the white forms of the same thing. *I. Madonna* was first discovered, together with a white-flowered form, by Botta, in 1837, on Mount Saber, in the Yemen, in Arabia, and these specimens exist in the Paris Herbarium. It was not, however, described until 1892 (*cf. Bull. Soc. Tosc.ortic. XVII., 1892, 130*), and has only recently been introduced into cultivation by an Italian firm, who also obtained the white form. This, however, seems to have been rare, and to have been lost or, possibly, if the theory is right, transplanted among other plants of *albicans* already growing in the garden. The attractiveness of the theory lies in the fact that, if *Madonna* and *albicans* are the blue and white forms of an Arabian Iris, it is only natural that this white Iris should be found, as is indeed the case, in Mahommedan cemeteries, from Spain in

the west, into Persia and even further east. In no other way can we easily account for its very wide distribution, though there are some equally puzzling questions suggested by the fact that the large form of *Iris germanica*, which Foster received from Kharput, is also the commonest form in Srinagar, in Kashmir; while the *Iris nepalensis* of Wallich, the commonest *Iris* in Khatmandu, in Nepal, is simply the form that is commonly grown here as *Iris germanica atropurpurea*.

Before returning home, I went east as far as Hyères, and found *Iris spuria*, only in bud, unfortunately, growing in the stiff clay in the marshes between the town and the sea, but failed to find the *I. obbiensis* of Hénon on the *Domaine du Ceinturon*. It still existed there some three or four years ago, for I have some plants collected then. Unfortunately, they are all specimens of the dingy yellow form, and not of the clear yellow or deep purple varieties. However, in spite of their poor colour, they have been enough to show that *I. obbiensis* is only a form of *I. Chamairis*.

Another interest was provided for me on the tramp back to Hyères from the sea by the changing forms of *Iris pseudacorus* along a wayside stream. There was constant variation—within a few yards even—in the amount and distinctness of the brown veinings on the falls, in the shape of the standards, and even in the colour of the anthers.

A hurried visit to the Paris Herbarium, at the *Jardin des Plantes*, which is particularly rich in Chinese specimens, was the last incident of an *Iris* excursion, which proved to be exceedingly interesting. *W. R. Dykes, Charterhouse, Godalming.*

TULIPA BATALINII REGEL.

This is one of the most precious of the smaller species of Tulips for the rock garden. First for its peculiar butter-yellow colour, next for its thorough hardiness and good constitution, for in a sunny, well-drained position it increases more steadily than other species, and yet again I value it for its interest—its rather doubtful position in the family—for it does not fit easily into present classifications, being intermediate between the *Sylvestres* and *Eriofolii* groups of Mr. Baker's monograph. It has also a tendency to vary in colour that connects it very closely with its near relation *T. Maximowiczii*.

The group shown in fig. 172 has been for some 10 years or more in the same corner of my rock garden and in some seasons the plants seed rather freely. Most of the seedlings resemble the typical form in colour, but I have picked out three shades of warmer colouring. One is an orange-buff, very pretty when first open, but fading after two days to a dull buff. The next in depth of colour is the form which was shown by Messrs. Hogg & Robertson at the Temple Show in 1901, and gained an Award of Merit under the varietal name of *Sunrise*. It is of a mixture of shades hard to describe, salmon and yellow blending into one another in a singularly delightful manner, and a slatey blue eye gives a charming finish to an expanded blossom. This season a seedling has appeared, which is almost as scarlet as *T. linifolia* or *T. Maximowiczii*, and has a dark blue base. When in Holland this spring I saw similar varieties in a large bed of *T. Batalinii* in Messrs. Van Tubergen's Nurseries, at Haarlem. This opens up the question whether *Batalinii* and *Maximowiczii* may not be only extreme colour forms of one species. At any rate, I think it would be an interesting experiment to hybridise these two, and I feel certain the seedlings would give some beautiful shades of colour. *E. Augustus Bowles, Waltham Cross.*

TOBACCO FOR AGRICULTURAL USE.

MR. HOBHOUSE, M.P., Financial Secretary to the Treasury, received at the House of Commons recently a deputation from the Central Chamber of Agriculture, the National Fruit Growers' Association, and the Wye Agricultural College with reference to the restrictions imposed on the use of tobacco for agricultural purposes. The deputation was introduced by Mr. Wheeler, M.P. Mr. Laurence Hardy, M.P., on behalf of the Central Chamber of Agriculture, asked for the withdrawal of the Order of 1892 prohibiting the importation of tobacco extract, and for some relaxation of the severe restrictions on the manufacture of nicotine in this country. Mr. Dunstan, of the Wye Agricultural College, urged the importance of a cheap supply of nicotine to the Hop grower. He asked that Hop growers and fruit growers should be allowed to grow Tobacco themselves duty free, and to make Tobacco extract. The tobacco they wished to grow was, he said, only Tobacco by courtesy. He

time at a reasonable price he would be glad to look into the matter in order to remove those restrictions to the best of his ability, but he was informed that the cause of this industry being so small was that a sufficient quantity of stalk and offal could not be obtained. With regard to the importation of Tobacco extract, he saw no reason why it should not be allowed, provided that the revenue was protected by a satisfactory process of denaturing. He assured the deputation also on the question of home-grown Tobacco free of duty, that if regulations were suggested which would protect the revenue from fraud, and it was shown that no financial loss would ensue, he would see what could be done.

THE ROSARY.

THE VARIETY "JULIET."

HAVING been with the raisers of this beautiful Rose at the time of its distribution, I have had every opportunity of observing its habits



[Photograph by J. James.]

FIG. 172.—TULIPA BATALINII IN MR. BOWLES'S GARDEN.

did not think the hardest smoker in the country would care for a second pipe of it, even if he finished the first. It could be denatured by sulphur, and there would be no question of its use for other than agricultural purposes. The present price of nicotine was prohibitive. Mr. Martin, Chairman of the National Fruit Growers' Association, and Mr. Lovejoy, Chairman of the Market Gardeners' Committee of the Chamber of Agriculture also spoke.

Mr. Hobhouse, in reply, said the revenue from Tobacco amounted to £17,000,000, and it was his first duty to safeguard the national income. So long as the growth of Tobacco in this country was confined to a few localities and to a few individuals well known to the Inland Revenue, it was perfectly easy to grant indulgences and to make regulations, but it would be impossible to control an industry scattered all over the country. If, however, it could be shown that the restrictions imposed on the manufacturers of nicotine pressed unfairly and prevented the sale of nico-

and blooming qualities. The dull weather of last summer seemed to bring its fine colour combination to perfection, and indeed it is one of the best "wet-weather" Roses I have yet seen. Juliet is one of the most distinct Roses sent out of late years, and possesses a coloration not seen in any other Rose in cultivation. It is best grown as a large specimen bush, or as a standard or half-standard. As a standard it makes a most symmetrical head. The amateur should be very careful not to carry pruning to excess, but only cut out dead wood and weak shoots. The parentage of the Rose is *Soleil d'Or* and *Captain Hayward*, and it possesses the good points of both. North country gardeners who want a good reliable "frost-proof" Rose could not do better than give "Juliet" a fair trial. Several plants, budded on the seedling briar last summer, look very promising, and we are looking forward to their blooming season, as here in Perthshire, "Juliet" has not been seen by the local gardeners. *C. H. Parker, Perthshire, N.B.*

SOLANDRA HARTWEGII.

SOLANDRA HARTWEGII was introduced from Mexico by a gentleman named Noxan, and afterwards passed into the possession of Mr. Daubuz, of Killiow, Truro, in whose garden it was noticed by the late Miss Crocker, a former lady gardener of Glasnevin. Miss Crocker brought cuttings to the Glasnevin Botanic Gardens, and when the plants raised from them flowered, the Director of the gardens, Mr. Moore, noted points in which they differed from *S. guttata*. Eventually, early this year, the plant was named by the Kew authorities *S. Hartwegii* (after Hartweg, who first discovered it). Originally this *Solandra* was placed by Bentham under *S. grandiflora*, but it is alto-

The corolla is thick and fleshy, and two days after it has expanded, it falls with the stamens attached to it. The long style has three segments: the peduncle is very short and half an inch thick. The stamens are declinate above the middle and are exerted. The flower-bud is balloon-shaped, with five deep depressions marking the places where the segments join the tube of the corolla. The leaves are lustrous green, smooth, similar in shape and texture to those of *S. grandiflora*, but usually the apices are more acuminate.

The flower of *S. Hartwegii* most nearly resembles that of *S. guttata*, but the blooms of the latter species are spotted with purple (not five



FIG. 173.—*SOLANDRA HARTWEGII*: FLOWERS YELLOW.

gether distinct from that species, which has a different shaped, creamy-white flower.

The flowers of *S. Hartwegii* are sweetly scented, large and handsome, of a rich yellow when opening, but changing to orange as they fade. The corolla is funnel-shaped, with a greenish tube 5 inches long, the upper part of the flower being broadly campanulate. The outside of the corolla is yellow, like the yolk of an egg. The expanded blooms measure 6 to 8 inches across the mouth, the five segments being frilled beautifully and turned back towards the tube. The larger flowers, when spread out flat, measure 11 inches across. Five prominent green ribs mark the tube on the outside; inside, these veins are of a brownish-purple shade, and, as they pass into the corolla segments, the veins branch and become fainter.

purplish stripes). The leaves also differ, being glabrous in *S. Hartwegii*, whilst those of *S. guttata* are downy on the under surfaces and of a paler shade of green and with more prominent veins. The plant at Glasnevin Botanic Gardens is growing in a border under glass, being trained up the roof of a Cactus house, in which a temperature of about 45° is maintained in winter. Last season the plant produced shoots 2 feet long, but since last autumn it has received very little water, and flowers have opened, a few at a time, since January. The plant flowers well in a pot. Propagation can be readily effected by means of cuttings.

The fugitive nature of the flowers is a defect from a garden point of view, and the plant requires much space when grown as a climber in a greenhouse. *C. F. Ball, Glasnevin.*

BOTANICAL EXPEDITION TO LOWER SIAM.

(Continued from p. 352.)

NEXT day Mat and I drove about 8 miles north to the foot of a wooded hill called Bukit Pinang, where there still exists some of the original woodland flora of this district. Leaving the gharry at the village, after telephoning for the lunch which had been left behind, we walked to the hill, which is composed of sandstone, and was being quarried for road metal. The day was intensely hot, and the sunshine brilliant. The *Angsana* trees (*Pterocarpus indicus*) along the road were gloriously in flower. The air was fragrant with the blossoms, and the Malay children were gathering and carrying off great bunches of the boughs to decorate their homes. The flowers last but one day, and the golden petals rain down till the road and the ground around are paved with gold.

Another tree in its full beauty was *Lagerstromia floribunda*, very common all over this region, brilliant with its spikes of large, mauve flowers.

On the way to the hill I saw a tree of the curious Bignoniaceous plant *Heterophragma adenophyllum*, only previously recorded from Burmah. As it was in a garden, I thought it might have been planted, but later on I found it indisputably wild at Perlis. The hill itself was covered with a wood of no very great size and rather dry. The ground in parts was densely covered with a mat of *Carex indica*; the pretty, white flowered, *Gardenia*-scented *Prismatomeris* formed straggling bushes, and was very abundant. It occurs all over the peninsula in dry spots, but is commonest in the north. A large, golden flowered tree, almost leafless, proved to be the *Dillenia grandifolia* Wall., only known from leaf specimens, said to have been collected by Wallich in Penang, but never collected by anyone else. In a ravine stream bed, quite dry now, we saw the dung and tracks of a tapir, which probably had sought damper spots when the dry weather came on. On the further side of the hill was a valley, with native houses and cultivated fields, and here we first found *Sphenodesme ferruginea*, a scandent shrub, with great masses of creamy flowers and more conspicuous winged fruit of the same colour. A more unfortunate specific name could not have been given to a plant, which has nothing ferruginous about it, unless it is badly dried.

The flora of this hill, so utterly unlike anything in the Malay Peninsula, confirmed the fact that we had already passed out of the Malay flora into a Northern Burmese one.

Two days later we set out for the province of Perlis, a drive of 35 miles northwards to the little town of Kanga. We started at 7 a.m., and, changing ponies twice, drove into Kanga at 3 p.m. After passing the Bukit Pinang Hills, we traversed flat plains and open heathy pastures, with far-distant hills only in sight, except for a line of four extraordinary blocks of red sandstone, some 300 or 400 feet tall, and clad with trees. On nearing Kanga, we could see the great range of limestone hills which extends from the sea coast northwards as far as the eye can reach, while over the plain were scattered, like islands, as, indeed, they formerly were, huge blocks of limestone cliffs.

We took up our abode in the house of the English resident there, Mr. Meadows Frost, who kindly entertained us during our stay. On the day of our arrival he was away with the Boundary Commission, which was deciding the boundary of the new territory acquired by treaty, but he returned next day. There was great excitement among the natives—Malays—to know on which side of the line their village was, and the village which found itself on the English side of the line immediately

commemorated the fact by the slaughter of buffaloes and a great feast.

Owing, perhaps, to the proximity of the hills, there was rain nearly every day at Kanga, and the vegetation was much less dried up than it was at Alorstar. Our first walk, on the afternoon of our arrival, was to a fine block of limestone, about half a mile across the river, which runs through the town. Wide, grassy meadows extend to the foot of the rocks, and here we found the pretty, bluish-white *Gentian*, *Exacum tetragonum*, a genus absent from the peninsula. *Cyanotis axillaris* was gay with its red stems and bright blue flowers, and the blue stars of *Hydrolea* were most attractive. Blue flowers are scarce in the Malay Peninsula, but they are quite abundant here, and, indeed, all over this northern region. It soon became dusk, and we retraced our steps homewards.

Next day, having employed a native to act as guide and to carry an extra plant book, we started early to ascend the limestone hill which we had visited on the previous evening. The hill is called Bukit Lagi, and is about 900 feet in height, precipitous in parts on the side we ascended, and on the further side, as we found on reaching the top, absolutely vertical from top to bottom. It is covered with trees, many of which were leafless at the time of our visit, and bushes, climbers, &c., formed the undergrowth. After about two hours' climb, we reached the top, which is a ridge so narrow that one can just stand; indeed, it is less than 2 feet across in some parts. This part of the ridge is covered with a mass of the Fern *Drynaria*, with *Euphorbia antiquorum* and *Cycas siamensis*. A pinkish-white *Haya*, a new species of *Dischidia*, and other plants rewarded our climb. The view from the top over an extensive flat plain, with the great ridge of hills in the distance, and the isolated blocks of limestone scattered over the plain, is very striking and picturesque. *Orchids* were few. We found, however, *Calanthe rubens* in flower, both white and pink, the pseudo-bulbs growing in cracks in the rocks; and *Eulophia Keithii* and some *Bulbophyllums*. The Ferns were all xerophytic in character, *Doryopteris ludens*, *Asplenium caudatum*, and *Adiantum caudatum*, and the *Drynaria*. The ornamental vine *Cissus discolor* scrambles over the limestone rocks on all these hills, but was not in flower; and another interesting plant was a large-flowered blue and white *Balsam*. A stiff scramble down the hill brought us back to the fields at the base, and so home.

The following day Mat and I went to a spot recommended to us as being a bit of lowland forest, of which there is little left hereabouts. It is a pass between two blocks of hills known as Guiting Kabok. A drive of two miles and a tramp across the Rice fields, where we found many small herbs in flower, brought us to a kind of heath, sandy and covered with bushes and small trees. A stream, now dried up, had made an excellent sandy track through this heath. Spur-winged plovers, like the English lapwing, but more brightly coloured, flew and ran about on the grassy spots.

Here we first came to the beautiful *Holarhena*s, which we found abundant all over this region. There were two species here; a third we found later at Chupeng. They are rather wiry, erect shrublets, about 2 feet tall, with narrow, dark-green leaves, and solitary or several pure-white fragrant flowers, like those of an *Oleander*. All were new to science. The genus, which is Indian and African, is absent from the Malay Peninsula. *H. antidysenterica*, an Indian plant, is recorded from Malacca by a Captain Wight, but was certainly introduced there if the locality given is correct. The curious, thorny *Harrisonia*, with red and yellow flowers, was abundant here (another Burmese type), and a large-leaved tree, *Oelma*, reminded us that we were out of Malaya. A large-flowered *Melastoma*, remarkable for the longitudinal dehiscence of its fruit—a new species—was collected here,

and near a Malay house we found a tree bright with the orange-flowered *Saccolabium miniatum* var. *citrinum* in full bloom. At the Malay house we rested and refreshed ourselves with Cocoanuts, and, it being now past mid-day, we started homewards, collecting as we went.

The most conspicuous tree dotted all over the Rice fields is *Dolichandrone Rheedii*. This tree, of the order *Bignoniaceae*, one is usually accustomed to see as a low, much-branched, bushy tree in the tidal rivers; but here it was erect and tall, looking like a rather shabby Poplar, for it is not very leafy. Its flowers, long-tubed and pure white, are very fragrant, scenting the air all round the tree. They appear to open after dark—as I never saw them fully open, even in the dusk—and fall before 7 a.m. It is strictly a tidal river plant elsewhere, and was evidently remaining in the Rice fields, a relic of the days when this region was still under the influence of the sea, and when the great limestone rocks were islands.

On some of these trees we found huge plants of *Vanda gigantea* in full bloom. The plant attains quite a large size in this northern Siamese region. On some of the trees, too, *Aërides odoratum* was abundant, and the snowy, fragrant Pigeon Orchid (*Dendrobium crumenatum*), common here as everywhere in the Malay region, dotted the trees with a white sheet of blossoms on its flowering day. As is well known, this beautiful plant has the peculiarity of flowering simultaneously over a whole area, so that, on its flowering day—for the flowers fall at night—the trees on which it grows often in great abundance, appear suddenly in the morning covered with myriads of its white flowers. Those who have only seen it flowering in a hothouse have no idea of the exquisite beauty of a tree covered with it on its flowering day, which occurs about once in nine weeks.

After a day or two's collecting in the wooded hills in the Rice fields, we started off one morning to Tebing Tuggi, a village three miles from Kanga, on the bank of a tidal river. The village lies under the shadow of the immense limestone ridge which runs from the seacoast far away to the north, a mountain chain, hardly yet explored, rising in parts to about 1,800 feet. The cliffs stand up precipitously behind the village and reach a great height. In some parts they are bare vertical precipices, in others more broken, draped with climbers, and clad with forest wherever a tree can grow. Here grow two specially striking plants—*Cycas siamensis* and *Impatiens mirabilis*.

The *Cycad* lives very high up near the top of the cliffs, often on otherwise bare spots. Its thick, white stems hanging down, curved upwards at the ends, often curiously and irregularly bent, and as much as 15 feet in length, have the appearance of some weird and huge snake hanging from the precipice.

The *Balsam* was originally discovered in the island of Terntau, in the Lankawi group, by Mr. Curtis. We rediscovered it in abundance on most of the limestone hills of Perlis, just coming into flower. It possesses brown stems, sometimes branched, swollen at the base, of the most irregular forms, adapting itself, it would appear, in the most plastic way to the rock on which it happens to be growing. The stems are from 1 to 4 or 5 feet tall, and as soft as a boiled Carrot, so that they have to be handled very gingerly to get them home alive. On the top, except in the dry season, are four or five large, thin, green leaves, from the axils of which are produced racemes, not rarely branched, of large, yellow flowers, a most unusual arrangement in the genus. This *Balsam* was just commencing to flower at the time of our visit.

We scrambled along the base of the cliffs, through tangled masses of creepers, and thickets of thorny plants, till both plant books were full, and we had as many specimens as we could carry. *H. N. Ridley.*

(To be continued.)

NOTICES OF BOOKS.

PLANT PHYSIOLOGY.*

THE science of the physiology of plants had its origin in horticulture and agriculture, but at first it was purely a human phenomenon, an attempt by man to explain to his own satisfaction results that he did not understand, but which he, and his forefathers for ages, had brought about successfully in cultivating plants. Manures and rotation of crops, glasshouses and forcing, grafting and pruning—all these things are of great antiquity, but the interpretation of them is modern and still incomplete. Gradually, however, the knowledge obtained begins to bestow upon man new powers and to react upon the practice of cultivating plants. In this aspect of the physiology of plants some may see its only justification; others, whose utilitarianism is of a wider sweep, tolerate the pursuit of knowledge for its own sake.

On the other hand, as an element in a general scientific education which helps to fit a citizen to understand his position as a biological unit in a biological setting, the physiology of plants is beginning to take a high place. And this because the organization of plants is simpler and looser than that of animals, so that problems of function can be worked out experimentally in them with much greater clearness and detachment.

To those interested in this last aspect of the subject we commend heartily Professor Keeble's new book. To it he has written a very interesting preface, in which he explains precisely what part this course of experimental work is intended to occupy in a general scientific education. The earliest stage of this education is to be nature study, not the overdone nature study which would attempt to teach biological principles and force the reasoning faculty, but simply a study which should furnish the child's mind with biological material and interest by an acquaintance with the living things in nature. This should be followed by a school course on the principles of physics and chemistry, a course eminently adapted to train the reason and exercise scientific imagination. After this, with the guidance of a teacher, the student is ready for such first hand biological work as is comprised in this book.

This book steers between two extreme types of "practical" books. It is neither a disconnected series of experiments, each complete in itself, nor a formal exposition of the subject merely illustrated by experiments. It aims at educating the student by leading on from one experiment to another, along the natural line of evolution of the subject whereby the answer to one experimental problem suggests a new problem to be solved, and so on again. So high an ideal is difficult to realise fully, but the writers have certainly achieved a very considerable measure of success.

The authors have wisely made a great use of the problem presented by seeds and germination as exercises in scientific method, and this part is followed by chapters on the soil, on transpiration and on nutrition: the sensitiveness of plants occupies a comparatively small space. The careful appendices will be found of very great value to anyone organising work on these lines as they contain full lists of (a) reagents with methods of preparation; (b) apparatus required, with notes, and (c) all the plants to be used in the course of the work.

Those who have read Professor Keeble's fascinating book on "Plant Animals" will know that it is not as a preacher only that he expounds scientific method in Biology. *F. P. Blackman.*

* *Practical Plant Physiology*. By Frederick Keeble, Sc.D., Professor of Botany, University College, Reading, assisted by Miss M. C. Rayner; pp. 250, with 30 figures. (G. Bell & Sons, 1911.) Price 3s. 6d.

THE PRIMULAS OF THE EUROPEAN ALPS.

(Continued from page 365.)

SUBSECTION 3.—*Arthritica*.—Note: Leaves absolutely entire, leathery, smooth, membrane-edged; bracts long and narrow; calyx long.

In the subsequent classes no *Primula*, with the exception of *P. deorum*, rivals those of the first two sections in size. These, of the *Arthritica* group, hold a middle place; they are not so large as the *Euauriculæ* and the *Brevibracteata*, but not so small as the plants in the next subsections. Nor do the *Arthritica* demand rocks: this group forms clumps and dense masses in the high Alpine turf, especially rejoicing, as the texture of their leaves indicates, in exposure to the full sunheat of the south: for these leaves are not fleshy as in the foregoing sections, but hard and leathery. The *Primulas* of this class are sometimes confused with each other; but from all other sections are at once known by their matted habit, their pointed leaves, invariably entire, glabrous, glossy, edged with membrane, and always lacking a

most easily recognisable of all *Primulas*. The leaves are fairly stiff, broadly rhomboidal, pointed, quite entire, bright green, shining, rather viscid, and with a wide edge of membrane. They are broader than those of the other *Arthritica*, lighter in colour, and tend to roll back at their tip in such a way as to dissemble their point, and look even more rounded than they are. But, among all other European *Primulas*, *P. spectabilis* stands easily and conspicuously distinct in the following peculiarity: the leaves are densely pitted with countless half-transparent holes in their surface, which give the entire leaf the look and feel of a green skin, elastic with pores. This pitting is peculiar to *P. spectabilis*, and only appears sparingly in its hybrids. As many as seven flowers may be carried on a stem that equals or overtops the foliage; these are large and brilliant, of a rich rosy-mauve, most glorious.

Alps of Judicaria and Verona; Val Vestino, Monte Baldo. This splendid species is, as I say, rare in cultivation, and has been rarer. It is of

(Duby) is a stout, noble plant of the Bergamask Alps, which has often gone out from nurseries under the specific name of *P. calycina*. The lesser variety, *P. gl. longobarda* (Porta) is found in Judicaria, but does not seem to have come into cultivation. In addition to these, there is a *P. intermedia* (Hegetschw. and Heer), which is an obscure name, and may stand either for *P. glaucescens* (being quoted from Como) or for *P. Clusiana*. The point only needs mentioning because of a *P. intermedia* formerly sent out by the Tottenham Nurseries, which I believe to be pure *P. glaucescens*. The true *P. intermedia* is a hybrid, at the consideration of which we shall, I hope, in time arrive. Meanwhile, *P. Caruelii* (Widmer) calls for a bare mention. It is a mule, from near Brescia, between *P. gl. longobarda* and *P. spectabilis*, intermediate between its parents, but with narrower foliage than *P. spectabilis*, and a scantier allowance of the characteristic diaphanous pockmarks. *P. glaucescens* is of the easiest culture in all its forms.

Primula Wulfeniana (Schott).—This plant has carried many confusing names, but is recognisable as being smaller in habit than the last. The leaves are about 2 inches long, not in the least viscid, intensely rigid, glaucous and glossy, dark green. They have a very characteristic tendency to roll inward along their edge, are narrow-elliptic and pointed, bordered with a wide band of membrane, which, unlike the margin of *P. glaucescens*, is minutely glandular at the rim. The 2-inch flower-scape does not carry more than three flowers, and on the reddish stem there are occasionally to be found traces of powder. It is very especially to be noted that the calyx-lobes are broadish and obtuse, and not equal to half the length of the calyx; whereas, in *P. glaucescens* they equal or exceed half the length of the calyx, and are oblong-lanceolate, acute or nearly so. The flowers of *P. Wulfeniana* are white-throated, and of a brilliant rosy-mauve.

This invaluable species is so beautiful that it moves even the official monographist of *Primulaceæ* to enthusiasm over its "lordly pink tufts." It forms dense, matted meadows and ridges on the stony Alps of the Carnic, Julian and Venetian hills, being often associated there with *Gentiana Froelichii*, even as *P. spectabilis* shares Mte. Baldo with *G. Clusii*. *P. Wulfeniana* is as easy in cultivation as all the *Primulas* of this robust and deep-rooting section. It even thrives under saxatile treatment; one of the oldest plants on my cliff is a three years' mass of *P. Wulfeniana*, inserted as a single, rootless crown into a crevice, and now a spreading cushion of glossy foliage, which produced in March three scapes of brilliant blossom.

Primula Clusiana (Tausch).—This glorious plant is, to my thinking, almost the finest of the section. Its leaves attain to 4 inches in length, are of a lightish green, hardly viscid, fairly stiff, more or less glossy. They are also more or less broadly oval, pointed, quite glabrous, and entire. They have, in fact, a general resemblance to those of *P. spectabilis* rather than to those of *P. glaucescens*. But their marginal band of membrane is narrow, they have a glandular ciliation at the edge, and, of course, have no traces of "pitting." The scape is usually about 3 inches high, carrying four to six flowers, whose corolla-tube equals or barely surpasses the length of the calyx. The flowers are very large indeed, and of a rich and refulgent rose, the lobes of the corolla being deeply cloven. The capsule, as in all this section, is included in the calyx.

P. Clusiana represents the *Arthritica* throughout the limestone ranges of Austria, as far east as Vienna, and as far west as Salzburg. Quotations of it from Transylvania rest on the authority of Kotschy, who seems to have beguiled his leisure by reporting rare plants from ranges on which they never set root. He attributes many species to the Carpathians and Transylvania which are not to be seen there; conspicuous by their absence especially are all the *Arthritica Primulas*,



[Photograph by H. N. King.]

FIG. 174.—SUTTON PLACE: VIEW IN THE WILD GARDEN.
(See p. 386.)

definite petiole; as well as by the elongate, narrow bracts below the flower-pedicels. *P. integrifolia* has a rough resemblance to the *Arthritica*, but is easily recognised as being smaller, as forming a lawn rather than a series of close clumps, and as entirely lacking any membranaceous margin to the leaves. The *Arthritica Primulas* are very abundant, but in a limited range; *P. Clusiana* possesses the upper Austrian, and *P. spectabilis* the Lombard limestones; *P. Wulfeniana* ranges through the Venetian and Carnic Chains, while *P. glaucescens* replaces it to the west (after a break filled by *P. spectabilis*) in the Bergamask and Judicarian Alps.

Primula spectabilis (Tratt).—This distinct species has been called *P. calycina* (Reichb.), *P. carniolica* (Pollini), *P. integrifolia* (Tausch), and *P. glaucescens* (Reichb.). Having thus boxed the compass of nomenclature, the genuine *P. spectabilis* may well be rare in cultivation, and a stranger to many of the nurseries that advertise its name. Yet this beautiful plant is one of the

easy and vigorous growth, very deep rooting, in almost any rich soil and clean situation. It seems indifferent whether it has a hot or cool exposure; and, though I should instinctively have prescribed a light mixture of peat, loam and sand, I find that the plant thrives robustly in common heavy kitchen garden soil.

Primula glaucescens.—Leaves attaining to 4 inches in length, slightly glaucous and stiff, lucent, dark green, and not viscid, lanceolate or narrow-oval, pointed, very broadly margined with membrane. The whole plant absolutely powderless and glabrous. Scape 4.5 inches high, carrying two-six flowers; bracts long, narrow and reddish; flowers large, pale rose-purple; the corolla-tube (as in all this section) exceeding the calyx in length, but not to any such great degree as, for instance, in *P. carniolica*.

P. glaucescens belongs almost entirely to the Alps of Bergamo and Judicaria. It is in stature a variable species, and takes two main local developments, of which the larger, *P. gl. calycina*

without exception. *P. Chusiana* grows rapidly with us, and increases well in all reasonable conditions. It may be treated either as a saxatile or as an open-ground plant, as it dwells naturally on rock as well as on the high stony Alps, and seems equally happy on a northerly or southerly exposure. It thrives robustly in moraine, like all this group. In nature it has given some lovely hybrids, and might be thus employed in the garden. *Reginald Farrer.*

(To be continued.)

THE BULB GARDEN.

GLADIOLUS TRISTIS.

THIS beautiful *Gladiolus* is especially valuable on account of its early flowering, it being the first of its race to bloom by some weeks, coming into full blossom in Devon and Cornwall about the middle of April in ordinary seasons, though this year, owing to the severe weather experienced, it did not commence to bloom until the end of the month. Its flowering period is far in advance of that of *The Bride* and other varieties of the so-called early section. It is said to be a native of Natal, but, although it is a denizen of South Africa, it proves perfectly hardy in the south-west, even when planted only 3 inches deep and entirely unprotected by moulding. The subject of this note does not in the least agree with the description of *Gladiolus tristis* given in Nicholson's *Dictionary of Horticulture*, where the three upper segments of the flower are said to be spotted with minute, reddish-brown dots, and where the height is given as 1 foot. I have never met with this form of *G. tristis*, but one that I do know has a broad band of purplish-black stretching up the centre of the three upper petals. I have recommended many friends to obtain this *Gladiolus*, but when they have ordered it, they have always been supplied by nurserymen with the form which has the three upper petals marked with purple bands, whereas the best form is entirely of a clear, sulphur colour, and may be termed *G. tristis concolor* or *sulphureus*. A coloured plate of this *Gladiolus* was published by *The Garden*, but the picture scarcely did it justice, as it showed only two flowers on a scape, whereas four or five blossoms, all of which are expanded simultaneously, and which measure $3\frac{1}{2}$ inches across, are often carried on strong scapes. According to Nicholson's *Dictionary*, *G. sulphureus* is a synonym for *Babiana stricta sulphurea*, a plant which is only 9 inches in height, whereas in Devon the strongest scapes attain a height of 3 feet 6 inches or more. In heavy soil in the late Mr. Archer-Hind's garden they were often 4 feet high, and in a certain garden in the neighbourhood of Truro I have seen them approaching 5 feet in height. Mr. Watson, in an article on the plant, says: "*G. tristis* is very variable. It is said to vary in the colour of its flowers from pure white to almost wholly purple." However, none of the forms can possibly surpass in beauty the lovely pale-sulphur concolor or sulphureus. The blossoms are odourless during the day, but as twilight approaches they become deliciously fragrant, a clump of 30 or more flower-spikes emitting a Magnolia-like perfume. *G. tristis* increases very rapidly by bulbets and also by seed, and in Mr. Archer-Hind's garden I saw seedlings springing up in quantity around the parent clumps. Up to that time I had invariably cut the flower-spikes as soon as the blooms had faded, but the following year they were left and over 200 seeds obtained. This form of *Gladiolus tristis* is a very rare plant, except in Devon and Cornwall, and, apparently, cannot be obtained from nurserymen. It seemingly succeeds better in somewhat heavy and deep soil than in a light and sandy staple, as it never grows so strongly with me as in other gardens, where the soil is deeper and heavier. The leaves are

rush-like, and show a section cross-like in form when cut horizontally, and are often about 3 feet in length. The three large clumps in this garden have been a beautiful sight for close on a month, and their scent at night has been surpassingly sweet. *Wyntham Fitzherbert.*

SINGAPORE.

WILLIAM GRIFFITH.

I READ with pleasure the article in the *Gardeners' Chronicle* (see p. 252) on Professor Lang's lecture on William Griffith, one of our first botanists in the Malay Peninsula. It is sad to think how the great pioneers in the east are often forgotten in a very few years by those who benefit by their work, and it is good to remind the modern man how much he owes to them.

About 20 years ago, I met an old man in Singapore in charge of the granite quarries, who had accompanied Griffith on his expedition to collect plants on Mount Ophir, and had been his assistant in collecting. In those days an expedition to Ophir was a stiff job, as there were few roads or tracks, and the country

SUTTON PLACE, GUILDFORD.

(See figs. 174, 175, 176, and Supplementary Illustration.)

THE history of Sutton Place, near Guildford, in Surrey, can be traced for nearly four centuries, and yet it was never a garden of great repute until within the short period of the last decade: since, in fact, Lord and Lady Northcliffe assumed possession nine years ago. There had been many noble tenants before, and the house was surrounded with gardens and grounds, but no one with the fine gardening instincts possessed by Lady Northcliffe had ever devoted such time and liberality to make the place one of outstanding importance.

In the writing of descriptive articles on English gardens, it has come to be the rule to refer first to the architecture of the mansion house and later to wander through the devious paths of the garden, but rules are made to be broken, and it is my intention to break one now by telling of the gardens first and the mansion afterwards. I lay no claim to be a judge of architectural works, but I can admire every garden plant and scene, every glade and the plant-clad



[Photograph by H. N. King.]

FIG. 175.—SUTTON PLACE: VIEW IN THE KITCHEN GARDEN.

was still in that part of Malacca heavily afforested. Nowadays it is a very easy trip to make. The opening up of the land for Rubber planting has abolished the old collecting grounds of Griffith, and reduced them to flourishing Rubber estates, and many, I fear, of the plants collected by him in those early days are gone, never more to be seen. I have in vain sought to find in Malacca the place where Griffith was buried; I can find no trace of his grave there, either in the old cemetery on the chapel hill or the more modern one, neither could any record of his death be found in the registry of deaths in Malacca Church. It is just possible that he died on board ship and was buried at sea, but such accounts of his death as I have read do not seem to endorse this.

I had thought it would be well to put up a brass or other tablet to his memory in Malacca, if only to remind those that come after of the great men who worked for them so long ago. Perhaps this idea might find favour with our botanists of to-day. *Henry N. Ridley, Botanic Gardens, Singapore.*

bank of every stream. Thus, to my mind the garden, as compared with the house, is of foremost importance.

Before making a fair start let it be said that Sutton Place has no garden of set geometrical design, that flower-beds with regulation bedding find no space; on the contrary, it is a garden of clever unconventionality in which the visitor finds surprises at every turn, and where he is perfectly ignorant as to when the most charming feature will be reached. I have visited this "wild" garden several times, and must confess that I am as far as ever from knowing which particular spot I most appreciate, or where the most delightful plant will be flourishing at the moment, because the scene has changed each time and the effects seem ever to grow in beauty.

There is, in a sense, no beginning and no ending to this garden. Go from the fields beyond the stream, from the fields abutting on the lawns, from the terrace, or from the Rose garden, and it will be found that all roads lead into it, and, as a natural matter of consequence, lead out of it, too, but these latter one is in no hurry to

traverse. The entire conception of the place is admirable, for there never arises any sense of restricted area or limitation in the variety of the scenery. The disposition of the thousands of varied plants is happily contrived for brilliance of effect, and the success which has been achieved must be a rich reward for the efforts which have been made. Those who come to see with eyes and heart open to appreciate all the infinite beauties that unfold themselves, think that they, too, could have a similar garden, even though it might have to be on a much smaller scale, and arranged with fewer natural advantages of situation, for this garden is formed on the slopes of a gentle hill with magnificent trees and a lovely stream, along whose course the kingfisher may often be seen winging his flight. These advantages were Lady Northcliffe's, and it remained for her to develop them into something perfectly in keeping and yet out of the ordinary, and it has been done. There is no garden just like it; there is no garden more delightful, and still I maintain that it is a garden of the simpler type which could be made by anyone of sufficiently bold ideas to keep right away from the paths of convention.

of flower or magnificent of leafage, just as clearly as I could when I wended my delighted way round the garden at Sutton Place. I was then, and am now, in full agreement with the friend who said, "there must be something beautiful here every week throughout the year; how I should delight to be able to come daily to see." It is beyond my capacities, just as it is beyond the space in all the pages of the *Gardeners' Chronicle*, to tell the names and attractions of all the plants that are here grown; far better is it that readers should seek permission to go to see for themselves. Lord and Lady Northcliffe love their beautiful garden, and they are willing that its delights should contribute to the pleasure of others. It grows in charm as year succeeds year; those, therefore, who cannot go this season may be able to do so next. As long as it remains in its present possessors' hands it will never be too late to make the journey.

It has been said that there is no formal garden, that beds of regulation design and filled with ordinary plants do not enter into the scheme of arrangement, but one of the accompanying illustrations (fig. 176) gives a glimpse of the Rose garden, in which each bed is devoted to one variety.

grasses: the effect is at once striking and in some degree bizarre, until one learns that planted in the long grass there are millions of Daffodils, selected in such varieties as will afford as long a succession of bloom as it is possible to secure, and that it is for the special benefit of the bulbs that the grass is left uncut. That is an excellent reason, but one cannot refrain from thinking what a superb Rose garden—one that would be, like the wild garden, among the noblest of its kind—could be formed there.

The reader may have assumed from the foregoing paragraphs that no attention whatever is directed towards the more utilitarian side of gardening at Sutton Place, that fruits, vegetables, and that indoor flowers were absolutely unknown there, but such is not the case. The whole of the garden is under the experienced management of Mr. James Goatley, and his plant houses reflect upon him, as upon his employers, the utmost credit. The collection of plants is as comprehensive as anyone need desire, and all kinds alike are admirably grown. Fruit in and out-of-doors and vegetables receive intelligent management, and splendid crops are produced season after season.

A few words about the mansion and I must conclude. Of it Mr. Robert Dell, writing in the *Burlington Magazine*, says: "It must have been the creation of an individual genius. . . . We do indeed know that the house was built by Sir Richard Weston, Knight of the Bath, Privy Councillor, and a statesman of no little importance in his day, who, in 1521, received from Henry VIII. the grant of the royal manor of Sutton by Guildford, but whether Sir Richard was or was not his own architect we cannot tell. If he was, he deserves a high place in the annals of English art, for such a combination of daring originality with taste and restraint, as is shown in Sutton Place, is rare. . . . Strong as is the influence of the Italian renaissance. . . . yet this building is entirely suited to its environment. . . . It could be nothing but an English manor house, and would be as much out of place in any other country as is a pseudo-classical temple of the eighteenth century in an English park." I could not improve upon this description, therefore let it suffice. H. J. W.

CULTURAL MEMORANDA.

WALLFLOWERS

THE great improvement seen in the form and shades of the flowers of this old-fashioned, spring-flowering plant, places it in the front rank as a subject for spring bedding, whilst its fragrance is a delight to all. The striking appearance produced by the brilliant and attractive colours of red, yellow, purple, apricot, crimson, primrose, salmon-pink, mahogany, brown, orange, and white makes the Wallflower valuable for planting in beds of distinct colours, although in borders I prefer to see them mixed. Where it is the practice to plunge plants in the grass during summer, the same places may be occupied with good effect by Wallflowers in the spring, and few other plants give such a wealth of flowers. The proper time for sowing the seeds is a matter of opinion, I prefer a late sowing, say in June. Sow in an open site in firm soil, and transplant the seedlings as soon as they are large enough to handle in a moderately rich, firm soil. The plants need to be kept growing steadily, so as to have them regular in height and hardy to withstand a very cold winter. Compact plants are less likely to be laid down by heavy showers when in flower, and have a much neater appearance in beds. When transplanting, trim the tap roots, as this generally results in a more fibrous root-growth and sturdier plants that will be more likely to transplant well in the autumn. I am rather partial to those that are known as annual Wallflowers, as this type produces flowers freely during autumn, winter and early spring from seeds sown at the usual time. W. Fyfe.



FIG. 176.—SUTTON PLACE: THE ROSE GARDEN.

Upon the occasion of my latest visit I could scarcely take my eyes from the glorious masses of *Primula japonica* showing from many points of vantage between the trees, and presenting themselves here and there as beds of superb blossoms rising in stately array out of leafage in such rude health, that one said at once "these plants are at home." Those who did not know might think from this one feature alone that the garden had been established and planted for a generation or two; but no, it has grown in less than 10 years. On a previous pilgrimage, millions of Narcissi, from the dainty Angel's Tears to the stately Emperor, greeted the eye, and nodded on every hand in beds and borders, in grassy banks, and with their feet almost within the stream. On a third visit masses of Azaleas shone golden, yellow and orange beneath the trees, while between the stones on many banks of rock were gems of the Alpine flora, whose charms, if less conspicuous, are none the less real. I can see, as I sit writing, beautiful groups of plants, either stately or lowly, gorgeous or subdued, handsome

and pillars and chains, with weeping standards break down any slight sense of formality which might be produced. There are, too, water gardens with plants in the water and on the banks, all luxuriating as plants will luxuriate when the conditions favourable to their comfort and requirements are provided. In a cosy corner near the mansion is another pleasurable surprise in a small garden of special colours and perfumes, and adjacent to it is a grand old wall of brick clothed with splendid climbers, whilst at the foot of this wall is a broad border full of handsome plants, such as are usually to be found in herbaceous borders, with a few that are not less beautiful, though they may be far more rarely seen. Near here, also, is a small rockery on which charming plants vie the one with the other to attract to itself the attention of the visitor.

Standing with one's back to the garden front of the mansion (see Supplementary Illustration) the eye roams over a wide expanse of level grass with broad margins in the foreground mown closely as lawn, and acres beyond in waving

The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHERSTON, Gardener to the Earl of HADDINGTON, K.T., Tynninghame, East Lothian.

CLIMBING PLANTS.—The exceptionally fine weather has resulted in a luxuriant growth on all climbers, and the shoots will need regulating earlier than usual. The flowerless growths of *Polygonum Baldschuanicum* should be shortened to within a few inches of their bases, in order to induce the production of flowers later in the season, whilst the shoots that are needed for extending the plants should be trained before they become entangled one with another. The Banksian Roses will require to be pruned, and it is my experience that hard, wiry shoots yield many more flowers than those which are stouter and, to all appearances, much finer for the purpose. I also find that plants that are trained to walls having a west aspect are more floriferous than those growing on south walls. All that is needed in pruning is to remove the older growths and to thin the remaining ones, leaving sufficient only to prevent overcrowding. Hedges formed of Sweet Briar will need to be pruned a second time, if the work has not already been done. The labour of repeatedly clipping this sweetly-perfumed plant is a great drawback when employing it for hedges.

VIOLA.—Where Violas are employed with other subjects for bedding, the flowers will need to be removed until the other plants are also in bloom. The Viola is greatly benefited by mulchings; even a layer not more than a quarter of an inch thick of fine soil has a good effect, especially if the ground has been moistened immediately before applying the mulching.

IVY.—The present is a suitable time to trim Ivy growing against walls or other places. It will not matter how severely the plants are cut at this date, as new leaves will be produced with freedom, presenting a fresh and trim appearance all through the season.

SPECIAL METHOD OF PROPAGATING.—There are certain hardy plants that are rather difficult to increase, although, if taken at the right time, they are amenable to a special treatment. I refer to the double-flowered Racket (*Hesperis*), double-flowered *Lychnis vespertina*, *L. chalconica*, varieties of Hollyhocks, and a few others which flower soon. The flower stems need to be cut into short lengths with one or two "eyes" on each portion. Insert the cuttings in a prepared bed of soil in a frame. If they are kept well moistened and the frames closed, shutting out the light from the glass, roots will form and shoots develop. They should be inured gradually to fresh air and light until, when fully exposed, they may be transplanted out-of-doors.

NARCISSUS.—The fine dry weather has ripened all but the latest varieties of Narcissi, and those that it is intended to remove had better be lifted at once before rains moisten the soil and the roots commence to grow afresh. After the plants are graded, they may be replanted at once, or, if desired, stored in a cool place until later in the year. It is not advisable to expose the bulbs to the sunshine, which I have observed shrivels them very considerably.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

PEAS.—Culinary Peas will be benefited greatly if a mulching of farmyard manure is placed between the rows, and a liberal supply of water applied afterwards. This crop occupies such an important place in the daily supply of vegetables that every effort should be made to keep the plants growing freely. The worst obstacle to success is mildew, and to avoid this we sow all our late Peas in trenches, which have been prepared specially for them by digging a good quantity of manure into the bottom of each trench, and, if the ground is dry, soaking thoroughly the soil with clear water the day previous to sowing.

CHICORY.—Seeds of Chicory may yet be sown to produce roots for forcing next spring. When the seedlings are large enough to handle they may be thinned to 6 inches apart in the row. Chicory is an important winter salad plant, and should be grown in every garden where a supply of winter salad is required. The early batch of seedlings will now be ready for thinning, and should be allowed plenty of room to develop into strong plants. A distance of 9 inches should be allowed between the plants of the early batch.

GLOBE ARTICHOKE.—These plants should be afforded liberal supplies of liquid manure at the roots during the growing season, especially if dry weather continues. Remove the old flower stalks as soon as the crop has been cut, severing them to within a few inches of the ground. New plantations of Globe Artichokes will require careful attention: they need to be watered freely during dry weather, as they will be required to furnish heads after the established plants are over. The surface of the bed should be hoed frequently to destroy weeds and keep the soil from cracking, this practice being the next best thing to mulching in dry weather.

ASPARAGUS.—The cutting of Asparagus should be discontinued as early in the season as circumstances will permit, and a liberal dressing of agricultural salt may be applied. If dry weather continues, and the beds are raised above the ground level, the plants will benefit by a liberal supply of water at the roots. If manure water from the farmyard is available, this should be given in weak doses, but in a sufficient quantity to reach the roots.

ENDIVE.—A small sowing of Batavian Endive should be made now, to afford supplies during the autumn. The seeds should be sown in a somewhat shaded situation and transplanted as soon as they are large enough to handle. Allow a distance of 15 inches each way between the plants.

LEEKS.—Early-planted Leeks should be watered frequently with liquid manure, and the soil between the plants stirred with a Dutch hoe to promote a free growth. Continue to plant Leeks for winter and spring supplies, and give liberal supplies of clear water to settle the soil amongst the roots.

BEET.—A sowing of Egyptian Beet may be made now in drills drawn one foot apart to produce a supply of tender roots for use during the winter and spring.

GREEN VEGETABLES.—A sowing of Colewort may be made at the present time, to produce a supply of this vegetable throughout the winter and spring. Christmas Cabbage, which is very hardy and will stand the cold of winter well, may also be sown now. Cabbages raised from late sowing may be planted 1 foot apart. Young plants of Cauliflower in seed beds should not be allowed to become too dry at the roots or the crop may prove disappointing later in the season. When planting Cauliflowers for a succession, give a liberal supply of clear water at the roots so that the check received in transplanting may be as slight as possible.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

GREENHOUSE PLANTS.—The greenhouse proper is likely to be still well filled with plants of various kinds, especially where the conservatory has to be constantly furnished, and flowering plants are in request in the dwelling-house. These demands often tax the resources of this department severely, and many plants used for the purpose are often injured beyond recovery because of the unsuitable conditions in conservatories and dwelling-rooms. It is a good plan at this season to place out-of-doors all greenhouse plants that may safely be allowed out-door treatment. Many of the hardwooded Cape and New Holland plants may be stood in warm, sunny positions in the open, where they will be far less liable to attacks of such insect pests as red spider and scale. Watch for any symptoms of mildew in Ericas that are placed outside, especially *E. Cavendishii*, which is subject to attacks of this disease. Directly the fungus is detected, syringe the plants at once with sulphur well mixed with water, or, if the plants are small, a dusting of sulphur in powder form may suffice. Specimen plants of Azaleas should be subjected to a close,

growing atmosphere for a few weeks to favour the growth of the shoots; later they may be placed out-of-doors and exposed gradually to the sunshine. In all districts, except the extreme north, this treatment answers well. *Pimelias* will soon become leggy if not pruned back. These are really May-flowering plants, and may now be moderately pruned if the flower trusses have faded. Endeavour to procure compact, sturdy specimens that will not require to have their growths supported by stakes. The same advice also applies to *Boronia elatior* and *B. megastigma* which are often seen as "leggy" specimens. For a few weeks *Pimelias*, *Polygalas*, and *Boronias* should be afforded frequent syringings to encourage a free growth, afterwards affording drier conditions with exposure to sunlight and air to favour the ripening of the wood. The more exposure these and kindred plants receive after midsummer the better will be the flowering another season. Therefore avoid shade as much as possible, and also drip from trees.

FUCHSIA AND BRUGMANSIA.—Plants that are growing freely should not receive a check. It happens sometimes at this season that the sawfly or other insect pest cripples the young leaves and causes the points of the shoots to turn "blind." Some insecticide such as will destroy aphid will keep these pests in check, the best time for spraying being as evening approaches. The same pest will also attack the ends of the shoots of *Brugmansia arborea* and *B. Knightii*. For these I prefer to use a somewhat strong insecticide. The *Brugmansia* is an excellent conservatory plant for the summer and early autumn, and it has also the advantage of requiring but little room in winter.

ORANGE TREES.—Oranges are handsome subjects either for conservatory decoration or terraces out-of-doors. It will be quite safe at this date to stand them outside in warm, sunny positions, preferably with a warm wall at the back of them, to screen them from keen winds. Oranges under glass should not be shaded, otherwise the shoots will grow too elongated. Before placing them out-of-doors they should be well hardened. Any plants that need larger receptacles may be repotted. I prefer to employ tubs, as they suit large specimens much better than pots. Scale insect is one of the worst enemies of the Orange, but this pest may be kept down by occasional sprayings. As a rooting medium, I prefer to employ good fibrous loam of a calcareous nature, mixed with well-pounded mortar rubble. Pot firmly, as in the case of all plants that are intended to remain for a season or more without disturbance at the roots.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

VANDA TERES.—This species, though of peculiar habit, is a charming Orchid for flowering at the present season. The blossoms possess good lasting qualities, provided the plants are accommodated in a warm, well-ventilated house during the flowering period, protected from sunshine and kept moist at the roots. The growing season begins as soon as the flowering period is over, when the work of repotting or re-surfacing should receive attention. It is a good practice to grow *Vanda teres* fastened to teak wood stakes to which the young clinging roots will attach themselves. Stakes of sufficient length to allow for 1 foot or 18 inches of growth may have one or two stems tied to them, and these can either be placed singly in pots or a number put together to make up a specimen. When the latter method is desired, allow sufficient space between the stems to admit the sunlight. The stakes may be fixed firmly with crocksheds, packing them in edgewise, filling two-thirds of the pot with clean drainage, and the remainder with clean, chopped Sphagnum-moss. If necessary, the height of the plants may be reduced to suit the position they occupy in the house by cutting away the lower portion of the stem, and lowering the plant to the desired extent. *Vanda teres* will stand as much sun-heat, light, and moisture both at the root and in the atmosphere as any Orchid known to me, hence the position chosen for the plants should be one where they can be fully exposed to the sun's rays, and be close up to the glass in a house that can be closed sufficiently early in the afternoon to raise the temperature to 90° or 100°. It is quite an aerial rooting species, as in

some instances the roots in the compost are quite dead, while those twisted in and out amongst the stakes are fresh and vigorous, therefore on bright days the plants should be frequently syringed overhead. After growth is completed, the temperature should be reduced gradually, and only a little water given from time to time, so as not to allow the leaves to suffer. During winter, the plants are best rested in the Cattleya house or one of similar temperature. The species *V. Hookeriana* and its hybrid *Miss Joaquim* requiring similar treatment, thrive well near to the *V. teres*.

ONCIDIUM AMPLIATUM.—Plants of this species, with its stronger-growing and larger-flowering variety *maius* and the pure, clear yellow form *citrinum*, are now passing out of flower. It is one of the brightest of *Oncidiums*, and the plants enjoy a high temperature and a moderately moist atmosphere whilst growing. They should be grown on blocks or in shallow baskets in *Osmunda* fibre and *Sphagnum*-moss, but in all cases care must be taken to ensure a free passage of water, keeping the plants up and fixing them firmly. Large, heavy specimens must, perforce, be grown on the stage, but smaller ones should be suspended. In either case, the plants should not be too far from the roof glass, and the position they enjoy is one where plenty of light may reach them in the afternoon.

O. PAPILIO AND O. KRAMERIANUM.—These are both very remarkable species, and they may be bracketed as far as treatment is concerned. The flowers, which are produced all through the summer and early autumn, last a considerable time, although only one bloom is open on the stem at one time. The frequent flowering ultimately weakens the spikes, as shown by the smaller blossoms produced, and, when this is observed, it is best to remove the old spikes, allowing fresh and vigorous ones to form. The plants thrive best in a strong, moist heat, and require very little compost about their roots. Plenty of moisture is needed during the growing season, and the foliage should be syringed on fine days.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

THE ORCHARD HOUSE.—Pot trees of Apple, Pear, Plum, and other kinds that are carrying crops of swelling fruits will need an abundant supply of water at this season. The pots are generally filled with roots, and stimulants applied frequently will greatly assist the trees. Endeavour to keep the foliage in a healthy condition by syringing thoroughly with clear water twice daily. The first syringing should be done early in the morning, and the second in the afternoon. Damp the surfaces of the house thoroughly, and support the growths and fruits as required. Admit an abundance of fresh air when the weather is fine and warm, leaving the ventilators open more or less at night according to the weather conditions. Should thrip or aphid make an appearance fumigate the house with the *NL-All* compound. Cherry trees in pots, from which the fruits have been gathered, may now be removed out-of-doors.

STRAWBERRIES.—The layering of plants to furnish runners for early forcing should be commenced as soon as possible in order to obtain well-matured crowns. I prefer 60-sized pots for this purpose. The receptacles should be well cleansed, suitably drained, and filled with a compost consisting principally of loam. Some growers place the layers direct in the fruiting pots and obtain excellent results, but I do not advocate this method. If these larger pots are used they should be well provided with crocks for drainage purposes, and filled firmly with a rich compost of loam and leaf-mould, to which a sprinkling each of lime-rubble, soot, and bone-meal is added. Watering must be done carefully, for, with a considerable bulk of soil, excessive moisture is liable to cause sourness of the materials, and especially when heavy rains prevail. There is also a risk of worms entering the pots and causing a good deal of trouble. Smaller pots are more easily conveyed to and placed in position on the beds. Select the best layers, rejecting those that have rooted into the bed, and, if possible, layer only the strongest one on each runner. The pots may be partly plunged in the ground to prevent the soil in them drying too quickly. Peg the young plants firmly in the

pots; there are many systems of pegging, but the method I consider best is to employ thin willow growths cut last winter. These should be soaked in a tank of water, after which they may be bent quite easily in the centre without the least fear of breaking them. Water the plants well after layering, and damp them afterwards night and morning by means of a rose can. When the pots are filled with roots, sever the stems connecting the runners with the parent plants a day or two previous to removing the layers from the beds, and pot them in their fruiting pots. In some establishments the earliest supplies of plants for forcing purposes are obtained by layering in small pots in the usual way a little later on, the pots being afterwards plunged in a bed of ashes and allowed to remain until the following season, when they are potted into 6-inch pots. Royal Sovereign may be considered one of the very finest varieties for early forcing, and generally finds favour for the purpose. New varieties should be tested for forcing by layering a small batch by way of experiment. The fruiting pots should be sound, well cleansed, and suitably drained. Cover the crocks well with a rough compost and pot firmly, standing the plants in a sunny position on an ash bottom or on battens. Water carefully until the new compost becomes filled with roots, when copious supplies of moisture will be required. Keep the surface of the soil free from weeds and remove runners at intervals.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

PLUMS AND SWEET CHERRIES.—Trees of Plum and Sweet Cherry are producing a considerable number of side-shoots, which require to be shortened when the lower leaves have attained their maximum size. Cut the growths at about the third leaf from the base; the remaining part will, in course of time, bear fruit-buds. The wood of both the Plum and Cherry requires plenty of light and air to ripen it properly, and it is of the highest importance that all lateral or sub-lateral branches should be removed in their early stages. The leading shoots should not be shortened, as the retention of these will serve to carry the sap past the lower buds of the tree, thus preventing them from starting into premature growth. Vacant spaces may be filled with suitable young growths; these, as a rule, becoming fruitful during their second year. Morello Cherries require to be pruned and trained differently from the sweet varieties: the advice given in a former calendar on Peaches and Nectarines will apply equally well to this type of Cherry. Briefly stated, the grower should aim at retaining all desirable shoots their entire lengths, tying or nailing these to the wires or walls at a not less distance apart than 3 or 4 inches. The Morello Cherry is a less vigorous growing kind than the Sweet Cherry, consequently the pinching of the young side growths may be liberally practised at a very early stage, thus obviating much pruning with the knife. The abnormally hot weather of the past few weeks has necessitated a frequent use of the syringe, applications of insecticides, in order to keep black aphid and red spider in check, and liberal doses of moisture at the roots. In gardens where these precautions have been neglected the trees are in a deplorable condition, and the crop of fruit practically ruined. Manure water made from cow dung is an excellent stimulant for fruit trees, and may be given frequently during the hottest weather without the least fear of doing damage to the roots.

PEARS AND APPLES.—Wall-trees of Pear and Apple that were partially disbudded, are now becoming overcrowded with useless growths to the detriment of the present and future welfare of the tree. These should therefore be thinned without delay, retaining those growths only that are required for the furnishing of the trees, so that these may have the benefit of all the light and air possible. When commencing the summer pruning, deal with the growths on the upper parts of the trees first, gradually working down to the lower shoots. Growths that are weakly, as those at the lower parts of the tree often are, may be left for a time, in order to gain strength. Young trees, both fan-trained and cordons, should not have the leading growths shortened; every encouragement should be given these to fill the space

allotted to them. On cold soils, the summer pruning of Apples should be done last, as stopping them too early in the season may result in the lower buds starting into growth, and this must, at all costs, be avoided. Trees carrying crops of fruit should be so dealt with that an abundance of light and air may reach the swelling fruits and spurs; this will materially aid in their development and strengthen the foliage against the attacks of insect and fungous pests.

PEACHES AND NECTARINES.—Where the disbudding of these trees has been carried out as advised in a previous calendar, training of the young shoots as they advance in growth will, for some time to come, meet all their requirements.

THE APIARY.

By CHLORIS.

SWARMS.—The weather we have experienced of late is rather conducive to swarming; those who do not wish swarms should adopt the preventive methods advocated in the issue of May 20, but even then swarming may take place; consequently, hives should be kept under close observation, especially between the hours of 9 a.m. and 5 or 4 p.m. To prevent a swarm decamping, it is prudent to have a pail of water always handy and a syringe. For although swarms settle on bushes near at hand in the majority of cases, yet too often they do not attempt to do so. When this is the case, a few well-directed sprays from the syringe will soon cause them to change their minds and commence clustering. First swarms are not given to decamping usually without first settling, but after swarms, or casts, will often do so. These should be prevented by removing all the queen cells save one after the first swarm has issued.

TO HIVE A SWARM.—Generally the young beekeeper is in too great a hurry to hive the swarm by attempting to do so before all the bees have quite settled. When all the bees have clustered, we may easily make them tighten their grip and contract their bulk by slightly sprinkling the cluster with a syringe. Then take the skep, mouth upward, holding it firmly in one hand underneath the swarm, and, with the free hand, give the bough on which the bees have clustered a good sharp shake to dislodge the clustered bees. Often it is wisest to spread a cloth below the swarm to receive any bees that do not fall into the skep when the branch is shaken. Next overturn the skep on the sheet, raising the edge with a stone or brick so that the stragglers may easily gain access. The bees on the wing will again cluster on the old spot, but these are best dislodged by the aid of the syringe, and to cool the skep give that a slight sprinkling with water. Should the bees have settled on a thin bough of no value it may be cut, then shaken on the sheet and the hive carefully placed over or near them, but well raised as before with a stone or brick. Should the swarm have chosen a thick hedge, then place the skep on the top of the hedge above them and drive the bees up with smoke. A trunk of a tree is sometimes selected, and there is then a temptation to use a brush to get the bees into the skep, but this is the surest way to arouse their keenest anger; a dust pan or scoop is best for the purpose. The process is perhaps a tedious one, but is by far the safest, and the stragglers may be dislodged with the syringe as before. This method should be adopted when the bees settle on a wall.

HIVING.—Do not remove the bees until after 6 p.m. Have the hive quite ready, and one of two methods may be chosen, take off the quilts and empty the bees on the frames, then use a little smoke to drive them all down, or open the entrance to its full extent, place the roof or a board in front of the alighting board, and cover the two with a cloth, emptying the bees in front of the entrance on the cloth. When the latter method is adopted bees will often cluster under the porch, and remain there all night if not made to move. This is easily done either with the help of the smoker or, better still, by using a goosequill for the purpose. When all are hived, place on the super, and if drawn-out combs are used, the bees will at once set to work storing honey in them because there will be no drawn-out comb in the brood chamber which can be utilised for the purpose. Cover up the supers closely with quilts, for draughty supers will not attract bees.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JUNE 20—

Roy. Hort. Soc. Com. meet. (Lecture at 3 p.m. by Rev. Prof. Geo. Henslow, M.A., on "The Origin of Monocotyledons from Aquatic Dicotyledons.")

SAURDAY, JUNE 24—Midsummer Day. Quarter Day.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—60.2°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 14 (6 P.M.): Max. 63°; Min. 43°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, June 15 (10 A.M.): Bar. 30.2°; Temp. 62°; Weather—Sunshine.

PROVINCES.—Wednesday, June 14: Max. 59° Cambridge; Min. 52° Lancashire.

The
Vegetation
of
Fuji-yama.*

Dr. Hayata, who lately paid a visit to England, where he made many friends, has just published in Tokyo an interesting book on the vegetation of the most celebrated mountain in Japan, which is commonly known as Fuji-yama or Mt. Fuji. This book is written in excellent English, is well printed, and is charmingly illustrated with numerous plates and figures, which are reproductions mostly of sketches and photographs by the author. There is also, in a convenient pocket in the cover, a large map, coloured to show the different floral regions of the mountain and the surrounding country. This book is primarily of interest to botanists; but it will prove useful to foresters, and doubtless will become an indispensable handbook to tourists in Japan who contemplate enjoying the wonderful scenery of this beautiful peak. Mt. Fuji is well known by name and from drawings and photographs, but up to the present we have had no special treatise on its botanical features. It is an extinct volcano, and as the rocks on the summit register a temperature of 50° C., it is evident that it has only at a very recent period ceased to be active. The altitude, 12,365 feet, is easily remembered. With this great elevation, there are remarkable differences in the climate and vegetation of the six zones, into which the mountain is divided. These zones are not similar in extent all round the mountain, for a great difference exists in the climate of the north-west and south-east slopes,

which causes a corresponding difference in the vegetation. The coniferous forests are most extensive on the former, the deciduous broad-leaved trees on the latter slope.

The lowest of the six zones is the prairie region around the base, which owes its present condition, according to Dr. Hayata, to the action of man, who by constant felling of trees and by destructive fires, has destroyed the primeval forest.

Above the prairie region is the second zone, that of deciduous broad-leaved trees. Widest on the southern slopes, it is scarcely represented on the north-east side. It consists mainly of Beech, various species of Oak, and Zelkova, with scattered trees of Walnut, Birch, several Maples, two kinds of Ash, and a few other species; the undergrowth is extremely rich in shrubs and herbs.

The third zone, that of evergreen conifers, lies mainly between 5,000 and 7,500 feet altitude, descending much lower on the north-east side, and consists of two or three species of Abies, three species of Picea, two species of Pinus, and two of Tsuga. The undergrowth scarcely differs from that of the second zone.

Above 7,500 feet occurs the fourth zone, characterised by constant, strong, dry, cold winds, which put a stop to the growth of all evergreen conifers. This is occupied by bent, twisted, and wind-swept Larix leptolepis, which, being bare of leaves in winter, is tolerant of both extreme dryness and severe cold.

Above 8,300 feet only shrubby growth is possible, constituting the fifth zone, of species of Betula, Salix, and Alnus. Above this there is a small zone of alpine herbs. This zone is remarkably poor in species, owing to the short time that has elapsed since the mountain has become habitable for plants. Higher up, above 10,700 feet, only a few Mosses and Lichens are able to live.

The flora of Fuji comprises about 900 species, and is much less rich than that of other mountains in Japan. This poverty of species is due to the recent formation of the flora, sufficient time not having elapsed since the volcano ceased to be active for migration of all the species which exist on the neighbouring mountains. Dr. Hayata calls attention to the absence on Fuji of Pinus pumila, an alpine species common in Japan at high altitudes, and says that none of the neighbouring mountains to the south-west are high enough to support this species, and in consequence Fuji had no chance to receive the seeds of *P. pumila* by the prevailing wind, which is south-westerly. The seeds of this Pine are wingless, large, and edible, and it is difficult to imagine how they could be expected to arrive by being blown by the wind.

We have not attempted to discuss the elaborate tables of the climatic factors of the different zones, and their sub-divisions, which have been compiled by Dr. Hayata; but there is much in this part of the work that will interest the student of ecology. The discussion of the different aspects of the mountain is well done; but much remains to be elucidated, such as the soil-conditions prevailing in different parts

which have, as hinted by the author, a considerable influence on the nature of the existing vegetation. No explanation is given of the special requirements of the various species of Abies, Tsuga, and Picea, which co-exist apparently in the same zone, but which doubtless are distributed according to factors not yet investigated.

We must, however, congratulate Dr. Hayata on this pioneer work in a most interesting region, and recommend his book to botanists at home and to students of Nature who may have the good fortune to visit Japan.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees of this Society will take place on June 20, in the Vincent Square Hall. In the afternoon the Rev. Prof. G. HENSLAW will deliver a lecture on "The Origin of Monocotyledons from Aquatic Dicotyledons."

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual outing of the members of the National Chrysanthemum Society will take place on Monday, July 17, when a visit will be paid to Cliveden. Taplow, the residence of Mr. W. W. ASTOR. The party will travel by train from Paddington to Windsor, and thence by steam launch "His Majesty" from Windsor to Cookham and Cliveden. Applications for tickets, price 10s. 6d. each, inclusive of railway fares, steam launch, lunch, and tea, should be sent to the secretary, Mr. RICHARD A. WITTY, 72, Savernake Road, Gospel Oak, London.

LINNEAN SOCIETY.—At the general meeting held on June 1, the president, Dr. D. H. SCOTT, announced that he had appointed the following gentlemen as vice-presidents for the ensuing session:—SIR FRANK CRISP, Mr. HORACE W. MONCTON, Professor E. B. POULTON, and Dr. A. B. RENDLE.

SURVEYORS' INSTITUTION.—A special meeting of the Surveyors' Institution will be held in the Lecture Hall, on Monday, June 19, at 8 p.m., when Mr. J. H. SABIN will open a discussion on "The position of tenant farmers in England and Wales on the occasion of any change in the ownership of their holdings, whether by reason of the death of the landlord, the sale of the land, or otherwise."

FLOWERS IN SEASON.—Dr. DUKINFIELD H. SCOTT, East Oakley House, Hampshire, has forwarded some splendidly-bloomed shoots of *Clanthus puniceus* gathered from out-of-doors. Mr. F. R. SLADDEN, the gardener, informs us that the plant has been afforded a slight protection only. It was planted in loam and leaf-mould three years ago at the foot of a wall. The shoots were cut down by frost the first two winters, as no protection was given, but the specimen now covers a wall space of about 9 feet square.

FESTIVAL OF EMPIRE GARDENING AWARD.—The Council of the Festival of Empire at the Crystal Palace has awarded a silver cup, valued at 25 guineas, to Messrs. J. CHEAL & SONS, for the designing and laying-out of the gardens around the Terrace Club, comprising enclosed flower gardens, paved terrace walks, pergola, rock banks, terrace walls, and garden houses.

LEGACY TO A GARDENER.—Under the terms of the will of the late WALTER SAVILL, of Lindfield, Sussex, and of Hove, a director of the Shaw-Savill Steamship Line, a sum of £200 is bequeathed to his gardener.

* The Vegetation of Mt. Fuji, by Dr. B. Hayata, pp. 126, 26 plates, 26 figures in the text, and a coloured botanical map. (Tokyo: The Maruzen-Kabushiki-Kaisha. 1911.)

HONOURS FOR HORTICULTURISTS.—On the occasion of the Paris Spring Show held by the National Horticultural Society of France the following appointments were made:—M. PHILIPPE DE VILMORIN, to be Knight of the Mérite Agricole; M. GEO. GIBAUT, librarian of the society, to be Officier de l'Instruction Publique. We notice also that M. VICTOR DU PRÉ, president of the Royal Society of Flora of Brussels, has been nominated a Chevalier of the Order of the Crown of Belgium. Their friends in England will join with us in offering hearty congratulations.

GHEENT QUINQUENNIAL, 1913.—Our Belgian friends take time by the forelock. A fortnight ago the executive committee of the Ghent Quinquennial for 1913 was received by the King of the Belgians, with the view of obtaining his Majesty's consent to act as patron of the exhibition. In reply to the committee, his Majesty said he was happy to grant its desire, for the city of Ghent was known throughout the wide world for its industry, its floral exhibitions and its historic monuments. He wished the committee every success, and conversed with each of its members. Plans of the exhibition were exhibited for his Majesty's inspection.

UNIVERSITY COLLEGE, READING. — NEW HOSTEL FOR WOMEN STUDENTS.—The horticultural and other students of University College, Reading, have reason to be grateful to the generous benefactors who have provided that institution with halls of residence which are undoubtedly the finest to be seen in this country outside the colleges of the ancient universities. Not so long ago Lady WANTAGE built and endowed the fine Wantage Hall, which is now fully occupied by men students. Now, through the generosity of Mr. ALFRED PALMER, the chairman of the College Council, a new hall of residence, St. Andrew's Hall, has been provided for women students. The opening of the hall on Saturday, June 10, was the occasion of a simple but charmingly appropriate ceremony. At 3 o'clock, Mrs. ALFRED PALMER declared the hall open, and in the course of a brief speech explained that the object of Mr. ALFRED PALMER and herself was to provide a real and, as she hoped, a happy home for the women students in residence in University College, Reading. After appropriate speeches from the President, the Principal and Treasurer of the College, Mr. ALFRED PALMER, the Mayor of Reading, and Miss BOLAM, the Warden of St. Andrew's Hall, a garden party was held in the delightful grounds attached to the Hall. The numerous visitors availed themselves of the opportunity of inspecting the building, which has accommodation for about 80 students. They were then able to see for themselves the admirable arrangements which have been made for the comfort of the students, arrangements which are due, not only to the generosity, but also to the forethought and close attention to details of construction which Mr. ALFRED PALMER has lavished on the building. The architect, Mr. C. S. SMITH, who was also the architect of Wantage Hall, received warm congratulations on the success with which he has carried out his difficult task.

SOUTH AFRICAN GARDENING.—We notice with pleasure the foundation of a journal, *South African Gardening and Agriculture*, which has for its object, as its title indicates, the fostering of horticulture in South Africa. An indication of the peculiar conditions under which gardening in South Africa is carried on is afforded by an article advocating the building of shade-houses instead of greenhouses. The writer of the article recommends a structure with a wooden frame sunk in iron pipes stopped with cement to prevent the ingress of ants, and roofed with laths fixed $\frac{1}{2}$ -1

inch apart, the sides to consist of reeds tied to the framework with tarred twine. It is recommended either to fill the shade-house with ferns and flowering plants—Azaleas, Rhododendrons, Begonias, Allamandas, Palms, Gardenias, &c.—or to build a rockery in the interior.

THE PREVENTION OF ONION SMUT.—The *American Florist*, May 27, draws attention to a leaflet issued by the Ohio Experiment Station on modes of prevention of Onion Smut. The spores of the fungus responsible for this disease occur in the ground and, germinating at the same time as the Onion seed, infect the young seedling. Seed sown in clean soil produces healthy seedlings. It is claimed that by dropping a solution of formaline (1 lb. formaline to 25-33 gallons of water) along the drill as the seeds are planted the disease is prevented. A drip attachment may be easily made from a tin can, rubber cork, rubber tubing, glass tubing, and pinch clamp. Any device whereby the sown seed is moistened by a few drops of the formaline solution will serve.

CENSUS OF VEGETATION.—The following brief historical sketch of the growth of our knowledge of the members of the vegetable kingdom, abstracted from a recent number of *Prometheus*, will be of interest to readers who are statistically-minded. Three hundred years before the Christian era, about 500 species of plants were known. DISCORIDES, however, who flourished at the beginning of our era, was familiar with only 100. BAUHIN, in 1650, enumerated 5,300 species. In the middle of the 18th century, LINNÆUS increased this number to 8,500. Since the time of LINNÆUS the progress of discovery has been extraordinarily rapid. LINDLEY, the great editor of this journal, estimated the number of species known in his time (1845) at 80,000. Still later, DECHARTRE reckoned them at 100,000. SACCARDO, in our own time, puts the number of known species at 174,000, and, finally, Professor BESSEY, of the University of Nebraska, states that no fewer than 210,000 species are known, and ventures on the prediction that something like 400,000 species are actually in existence at the present time. If this latter estimate is well founded, it is evident that systematic botanists and explorers have still plenty of work before them in the discovery and descriptions of the 190,000 species which are "missing" from our collections.

THE ARNOLD ARBORETUM.—The excellent practice of issuing occasional short bulletins on subjects of interest in the famous gardens has recently been adopted by the staff of the Arnold Arboretum. Bulletin No. 4, which has just been issued, gives descriptions of the five Magnolias of the East United States which are contained in the arboretum. Attention is drawn also in the bulletin to other plants in flower in the gardens, and particularly to the species of *Lonicera*. *L. Morrowii*, which, introduced from North Japan, flourishes even better in the home of its adoption than in its native place, and is being planted largely in Boston parks; *L. amoena* and *L. a. Arnoldiana*—the latter raised in the arboretum—are garden hybrids of the Tartarian Honeysuckle, and *L. Korolkowii*, a species from Central Asia. These graceful hybrids are shrubs with silvery-grey foliage and slender pink flowers. They are of real value for the decoration of gardens. Among the other Honeysuckles in bloom are *L. bella* (*L. Morrowii* × Tartarian Honeysuckle), and *L. munitiflora*, which bears brilliantly-coloured fruits. The earliest of the Weigelas (*Diervillas*) are two Asiatic species, of which the more beautiful is *D. florida*, a small shrub with pale pink flowers, introduced some years ago from Korea by Mr. JACK. As the bul-

letin points out, *D. florida* has played probably a part in the production of garden hybrids, but is more desirable as a garden plant than any of its progeny. Those who have had the advantage of seeing this splendid collection of trees and shrubs can imagine without difficulty the fine effect produced by these flowering shrubs, an effect heightened by the groups of Rhododendrons which line the broad and finely-curved road through the arboretum. There, and also on the Azalea path, the beautiful native Rhododendron (*Azalea*) *canescens* was recently in flower.

HONOUR FOR MR. W. BOTTING HEMSLEY.—The Royal Society of New South Wales has elected Mr. W. BOTTING HEMSLEY an honorary member. In conferring this mark of appreciation, a rare event in the proceedings of the society, the Australian Society honours itself no less than a distinguished botanist.

SWANLEY HORTICULTURAL COLLEGE.—The annual report of this institution, now devoted solely to the training of lady students in horticulture and allied subjects, states that steady progress has been made during the past year. A summer holiday course in Nature Study for teachers last August was attended by 66 pupils, and it is now proposed to hold a year's course in this subject, starting in September next. Several changes have taken place in the permanent staff of the college. Old pupils will learn with regret of the resignation of Mrs. WATSON, the popular lady superintendent of the women's branch, Mr. R. J. TABOR, lecturer in botany, and Mr. LAWSON, the head gardener. There is an increase in the number of students compared with the year 1909. In the spring term there were 66, in the summer 81, and in the autumn 63 pupils.

PUBLICATIONS RECEIVED.—*The Culture and Exhibition of Large Chrysanthemum Blooms* (and special reports). (The National Chrysanthemum Society. Secretary, Richard A. Witty, 72, Savernake Road, Gospel Oak, N.W.) Price to non-members 6d.—*The Book of the English Oak*, by Charles Hurst. (London: Lynwood & Co., Ltd.) Price 5s. net.—*Knowledge*. (June.) (Knowledge Publishing Co., Ltd., 42, Bloomsbury Square, W.C.) Price 1s. net.—*Journal of Genetics*. (March.) (Cambridge: University Press.) Price 10s.—*Guide to the Income Tax*, by F. B. Leeming. (London: Effingham Wilson.) Price 2s. 6d. net.

SCOTLAND.

TRAIN ARRANGEMENTS FOR PERTHSHIRE FRUIT-GROWERS.

As the result of a conference between the leading officials of the Caledonian Railway Co. and the principal fruit-growers in the Blairgowrie and Rattray districts of Perthshire, facilities for fruit conveyance will be provided similar to those of last year. Special express fruit trains will leave Blairgowrie for the English traffic at 5 and 6.50 p.m. A train for the Scottish traffic will leave at 7.30, and when a certain guaranteed quantity of fruit is to be despatched a special fruit train will run direct to London.

MARKET GARDENING.

PYRETHRUM "QUEEN MARY."

This variety is a most valuable one for furnishing cut blooms for market purposes, there being none other to equal it. Two seasons ago we planted a large quarter of ground with this beautiful flower, and the plants are now a fine sight in bloom. Those that were planted last year are also flowering well, and from these we obtained the earliest flowers. The dry season has not affected the plants very adversely. The variety is naturally an early-flowering one, the blooming being contemporaneous with that of the single varieties and Chrysanthemums of the Marguerite type. *Stephen Castle, Walpole St. Andrew's, Wisbech.*

RHODODENDRONS AT ASHTON COURT, BOURNEMOUTH.

In the neighbourhood of Bournemouth and the New Forest Rhododendrons are grown to great advantage. Everywhere there is a loamy soil, with peat close at hand, and an entire absence of lime. The difficulty in favourable localities is to prevent the plants growing too quickly and smothering each other. There are some fine masses of *R. ponticum*, just now in full bloom, in and around Lyndhurst, at Heron Court and in the parks and avenues at Bournemouth. As regards gardens it is difficult to discriminate between them, but a very attractive display of some of the best Rhododendrons is to be seen at Ashton Court, the residence of Mr. John J. Norton, J.P. (see fig. 177). Mr. Norton is a keen

the Duchess of Bedford and The Gem. Among other notable varieties are the attractive Princess Mary of Cambridge, white flowers with a purple-rosy edging; Lady Eleanor Cathcart, bright, clear-rose with crimson spots; Sappho, white, with a heavy dark-purple spot; Lady Mosley, a delicate pink with a light centre; Everestianum, rosy-lilac spotted with yellow-ochre; Countess of Normanton, pale, almost white, with a beautiful dark margin; Cynthia, a good rosy-crimson; the semi-double, light-lilac Fastosum; and the very distinct Mme. Albert Moser, with large, pale-mauve flowers patched with gold. Mr. Norton is fully alive to the necessity of arranging the colours in bold groups and not scattering them in indefinite mixtures. On the lawn, the incomparable Pink Pearl is assigned the place of honour, and a large plant grown indoors,

OUT-DOOR MUSHROOM BEDS FOR AMATEURS.

THERE is no better time than June for the making of a Mushroom bed in the open air, for, although it is possible to grow Mushrooms at any time of the year, even out-of-doors, the amateur with limited appliances at his disposal will be wiser to wait till the arrival of genial weather makes his chances of success more certain than they might be if an earlier start were made. With plenty of covering material ready to hand, one can guard against the possibility of the bed becoming chilled at a critical time; but when this commodity happens to be scarce, it is unwise to court failure by making up the bed before the nights are reasonably warm.

Too much heat, however, is as bad as too



FIG. 177.—RHODODENDRONS AT ASHTON COURT, BOURNEMOUTH, THE RESIDENCE OF MR. JOHN J. NORTON.

and enthusiastic horticulturist, and knows his plants intimately. The area of the garden is not large, but the site has been skillfully laid out, and the plants arranged in bold groups, giving a singularly striking character to the place. During the current season the "land-scape of blossom," with grouped masses of deep red, pink and crimson and white Rhododendrons has rendered Ashton Court one of the most attractive spots in the sunny south. George Hardy is probably Mr. Norton's favourite amongst the white varieties, followed closely by Mrs. John Clutton, Perspicuum, The Bride, Helene Schiffner, and the slightly spotted Marie van Houtte. In contrast with these are masses of bright-red sorts, characteristic of such favourites as Doncaster and John Walter, and the blush-rose of The Queen,

literally one mass of flowers, presented a magnificent sight. The Azaleas, both as bushes and standards, are seen in considerable numbers, presenting dazzling masses of pink, orange and yellow. The difficulty is to arrange them so that their beauty is not brought into too violent contrast with those of the Rhododendrons and other plants. There is, unfortunately, no room to provide an effective background, so that whilst the plants are extremely well grown, it is impossible to show them all to the best advantage.

Mr. Norton is enabled to secure a series of beautiful effects to precede as well as follow the Rhododendrons and Azaleas, hence his garden is a perennial source of delight to him and a centre of attraction to all lovers of flowers. D. Morris.

little, and for that reason a Mushroom bed in the open is more likely to prove successful if some spot can be chosen where extremes can be avoided. A situation immediately beneath trees is not advisable, because of the drip in wet weather; but there is no objection to making up the bed where it will be partially shaded by trees during the day. The ideal situation for an outdoor Mushroom bed is at the back of a north wall, where the rays of the sun will only strike for a short period morning and evening, at which times a little extra heat will be beneficial. In such a site, protection from cold winds may be needed, and this is best supplied by a few old mats or sacks hung upon posts driven in around the bed.

Having chosen one's site, the next thing to do

is to collect the material, which, in summer, usually requires less turning than in winter. Many a Mushroom bed is spoiled at the very beginning through too frequent turning of the material, and in summer the requisite degree of sweetness and dryness is more quickly arrived at than in winter, when the manure is turned under cover. If the manure is quite fresh, as it ought always to be, three turnings should suffice, the first being given after the material has had a couple of days to ferment. It should be put in a shady place, if possible, so that the heat of the sun may not cause it to ferment too quickly, and if rain is probable, something should be ready to throw over it. The less, in fact, the manure is exposed to any extreme action of the weather, the more likely is it to retain its valuable qualities.

There is no need to be constantly using a thermometer to ascertain the heat of the manure either before or after the bed is made up. It is ready to be made into a bed when the rank smell has gone off and the hand can be comfortably held in it after it has lain in a heap for two days since the last turning. At the same time, the degree of moisture should be such that, when a handful of the material is squeezed hard, it clings together but exudes no perceptible moisture.

In making-up the bed, it is a mistake to discard all the long material, for a bed in which about half the latter has been retained will keep its heat longer than one made entirely of short stuff. But the longer manure should be placed in the centre of the bed, the finest of all being kept for the top and outsides. As each layer is put on, the manure should be stamped down as hard as possible, and the sides of the heap, which is best made in conical form, beaten hard with the back of the spade. After all is made firm, a dozen sticks should be thrust into the bed at various parts to give some idea of the heat within. When any of these sticks is withdrawn and feels a little warmer than the hand, then the bed is in right condition for spawning. A week may elapse after the bed is made up before it is in this condition, and it is far better to let the heat fall rather low than spawn while it is at all violent. There are some people who do not spawn their beds till the heat has fallen to below 70° Fahr., but they grow Mushrooms just as well as those who spawn at 80° or 85°. To spawn above the latter figure is to court almost certain failure.

Mushroom spawn is best inserted in pieces of good size, as, should the bed be too hot or too wet, there is then less likelihood of the whole piece of spawn being spoiled. Each cake of spawn should be broken into six or eight pieces, the latter being inserted about an inch below the surface of the manure. At this time the temperature of the bed must be carefully watched, and if there is any sign of overheating within, ventilation holes should be driven down from the ridge with an iron bar and left open for a day or two. The soiling of the bed may be proceeded with if the heat appears to be steady, good, fresh loam being used for the purpose. This should be laid on about 2 inches thick and beaten quite firm.

A light covering of straw is now all that is needed, but some protection from excessive wet should be provided; a few old bags laid on the straw during heavy rain will be quite sufficient. Warm showers, however, will be beneficial, provided they are not frequent enough to make the surface of the bed sodden. If dry weather should prevail for any length of time, watering will be necessary, but so long as the surface of the bed appears moist, it is safer to refrain. Mushrooms should begin to appear at any time from six to ten weeks, and, if the bed was well made and the spawn good, it is quite likely that the bearing period may continue until well into the autumn. *P. B.*

NURSERY NOTES.

SIX HILLS NURSERY, STEVENAGE.

The Six Hills Nursery, belonging to Mr. Clarence Elliott, takes its name from six curious tumuli, supposed to be of Danish origin, which adjoin the Great North Road on the south of the picturesque village of Stevenage, which chiefly consists of one long, broad street, flanked by houses of various styles and dates. Stevenage itself is the first station south of Hitchin, on the G.N. line to London.

The soil at the nursery is a good red, sandy loam, which seems to suit the great majority of the rare and interesting hardy plants to be seen there; and at the same time the natural sand of the district is an excellent material in which to plunge the pots in open frames, &c. It keeps the plants cool in hot weather, and the tone harmonises with that of many of the flowers.

On entering the nursery the eye is at once attracted by the brilliant colouring of the flowers on a rockery and bank near the gate. There is a fine clump of *Hypericum Kotschyannum*, with the merest suggestion of salmon in its yellow blossoms, which yellow is quite distinct from that of the well-known *Onosma echinoides* close by, but both go well with the rich blue of the *Lithospermum granatifolium*. Not far off is a plant of the yellow *L. hirtum*, raised from North American seed, a species little known in this country or on the Continent. The bright pink *Ethionema grandiflorum*, the paler shrubby *Alyssum spinosum roseum*, the white *Panacraetium illyricum* from Corsica, and the beautiful pale-blue *Campanula Stevenii* are also conspicuous. *Veronica fruticulosa* does well here, and it is satisfactory to see this plant established in an English garden, for, though more local than rare in the Alps, it is not well known in England. It resembles *V. saxatilis* in many respects, but the flowers are a delicate pink, with veins of a darker shade. Close to it is a bed of a pretty *Viola*, labelled *bosniaca*, having a white eye on almost crimson ground. One of the handsomest Corsican plants which Mr. Elliott brought from that island was *Helleborus corsicus*, which, in its prickly leaves, at once reminds one of *H. caucasicus*. It was interesting also to see Corsican specimens of the red biennial *Echium creticum*, a showy species sometimes seen adorning banks in the foot hills of the Riviera.

Mr. Elliott has travelled far in search of rare plants, and judging from the clean and healthy state of everything I saw, this seems the most satisfactory way of getting nursery stock if one can find the time and money it entails, and is prepared to work hard. From the remote Falkland Islands he brought back a splendid supply of tubers of the pure white *Oxalis enneaphylla*, and I also observed from those isles the curious, stunted *Caltha sagittata* in fruit, the endemic *Sisyrinchium filifolium*—white, with chocolate-purple veins—an unique specimen of the rare *Myrtus nummularia*, a small prostrate shrub, not half-an-inch in height, and a small member of the *Campanula* family, known as *Pratia repens*, with its pale-mauve petals occupying only half the floral circle.

Last year the owner of this interesting garden was collecting in the Maritime and Austrian Alps, and there is abundant evidence at Stevenage that good use was made of the opportunity. Excepting the *Anemone alpina*, roots of which are never worth the great trouble of collecting, the spoil is getting well established. *Saxifraga lingulata* and *S. lantoscana*, about which we have heard so much, and of which Mr. Sprague gave a good account in the *Kew Bulletin* for May, are doing well; and I actually saw 100 small plants of the rare little *S. diapensioides*, all of which had been separated from one single plant pulled out of a rock crevice in the Maritime Alps. Would that this little gem lavished its blossoms among the few spots it frequents in

Switzerland as it appears to do here and there further south! In some of the frames made of creosoted wood—an excellent idea—are healthy young stocks of *Saxifraga Burseriana*, *S. retusa*, *Ranunculus glacialis*, *R. alpestris* and the much-rarer *R. crenatus* from the Tyrol; *Primula auricula alba marginata*, *P. pedemontana*, and *P. Allionii*, which is so difficult to establish. *Matthiola valesiaca*, only known in three or four localities, and *M. pedemontana*, *Erodium corsicum* of soft, rosy-pink, *Erigeron aurantiacus*, *Saxifraga aizoon rosea* and *S. aizoon lutea*, together with *Dianthus alpinus* were among the rarities observed.

The journey to Corsica was made partly to get a good supply of *Morisia hypogaea*, of which this nursery now has the finest stock in England. Probably this plant was over-propagated in this country, and, coming from a few plants only, it became weak, but now a fresh vigorous stock has been introduced. A greater speciality is *Campanula pusilla* "Miss Willmott," which was originally collected in the Rhone glacier by the lady whose name it bears; the flowers are soft porcelain-blue, and they are larger and broader than in the true species.

A feature of the nursery is a small "moraine," which, though only made last year, already contains many good plants and various seedlings. Among them are the rare Corsican *Helichrysum frigidum*, resembling a silvery *Paronychia* in habit, the beautiful *Dianthus neglectus*, *D. alpinus*, *Potentilla nitida*, *Campanula Allionii* and *C. cenisia*, two typical moraine plants; *Geum reptans*, *Linaria alpina rosea*, *Empetrum Lucilliae*, and the very rare *Menziesii Douglasii* from N. America, with oval, serrated, leathery leaves, and large deep-rose flowers.

Among the herbaceous plants in the lower part of the ground is a good stock of the handsome blue and white *Aquilegia glandulosa* from Siberia, a useful dwarf Columbine, only about a foot high. Mr. Elliott is fortunate in having as foreman a man, trained at Kew, who not only takes the same keen interest in his plants as his employer, but who is a most successful propagator and grower of many Alpine and other hardy plants not often seen in quantity in a healthy state of cultivation in this or any other country. *H. Stuart Thompson.*

FLORISTS' FLOWERS.

NEW CARNATIONS, 1911.

WE are informed by the hon. secretary of the Perpetual Flowering Carnation Society, Mr. Hayward Mathias, that the following varieties have been registered by their society during the present year:—*Mouwen*, pink ground overlaid with mauve (W. J. Smith); *Cheltona*, "Liberty" red (Young & Co.); *Coronation*, a soft, light pink (Bertie E. Bell); *Hon. Lady Audrey Neeld*, rich carmine, with white margin (Young & Co.); *Judith*, white (Bertie E. Bell); *Lady Fuller*, warm salmon (C. Wall); *Mrs. F. C. Harwood*, purple (F. C. Harwood); *Mrs. C. F. Raphael*, cherry-red on soft coral red (H. Burnett); *Mrs. Greswolde-Williams*, pink on opening, gradually develops to a soft mauve (Young & Co.); *Pluto*, brilliant velvety-crimson (H. Burnett); *Princess*, pure glistening white, lightly striped pink (C. Wall); *Queen*, yellow ground, light pink markings (Young & Co.); *Queen Mary*, pale pink (A. Smith); *Sultan*, crimson (H. Burnett); *White Chief*, white (H. Burnett).

The American Carnation Society reports registration of the undernoted varieties:—*Delhi*, red; *Elsie Gray*, flesh pink, splashed with deep pink; *Vassar*, white ground with pink; *May Day*, pure pink; *Brooklyn*, bright deep pink; *Pink Supreme*, flesh pink; *Miss Dimple Widener*, scarlet; *Howard Gould*, clear dark pink; *Pennsylvania*, cerise, lighter than *Lawson*; *E. G. Gillett*, scarlet; *Mumehaba*, deep cerise pink; *Neshaminy*, white, mottled with pink.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE TEMPLE SHOW.—No one will deny that in spite of the increased charge for admission at the recent show, the tents and grounds were uncomfortably crowded, but among the attendance there was only a small proportion of the elite of the land which used to visit this exhibition. This is due to the fact that it is impossible even with a struggle to obtain a fair view of the varied exhibits, and the crush of the crowd of visitors is unbearable to many. Would not this crush be avoided in a large measure if the show were opened earlier? The tents are cleared of exhibitors at 10 a.m., but for the next two hours the exhibits are losing most of their beauty owing to the heat. Thus precious time is wasted, mainly for the purpose of numerous small groups of learned men awarding medals, which awards, in most instances, are far from satisfactory and but little appreciated by the exhibitors. I am, of course, referring to the awards of less value than the gold medal or silver cup. The main object of the exhibitor is business, and the awards are intended as an advertisement. Much more business would result if the show were opened the first day at 10.20 or 10.30 o'clock and more satisfaction would be given to all concerned. Why the medal awards are unsatisfactory need not for the moment be discussed. The additional time which would be saved if the earlier hours were adopted could be reserved for subscribers to the R.H.S. of not less than two guineas. Others might be charged a guinea for admission. *W. J. Godfrey, Exmouth.*

SHIRLEY POPPIES.—If seeds sown now or at the beginning of July, according to locality, the plants of Shirley Poppy will grow very rapidly, and form much neater specimens than those raised from earlier sowings. They will provide bloom from early autumn until cut down by the frosts. It should be remembered that each plant covers a considerable area with its leaves, and if half-a-dozen seeds are sown on each 2 feet of ground sufficient plants will be produced to allow for casualties, and thinning will be needed. *R. P. B.*

THE DESTRUCTION OF CHARLOCK.—Since reading the note on this subject in the issue for May 27, p. 329, I have seen scores of fields of Corn where Charlock appeared to be the prevailing crop. I have not yet heard of anyone successfully eradicating Charlock by spraying; large numbers of plants escape destruction, and the plant being a prolific seeder it soon produces another crop. The labour involved and the injury to the blades of Corn caused by the spraying have no doubt deterred farmers from following up the method of spraying for the destruction of Charlock. Oats and other grain crops of recent years have not been very remunerative with even ordinary expenses, the produce of scores of acres having been carted in a semi-rotten condition to the manure yard. One method of eradicating Charlock is to plough and harrow the land, leave it fallow, then mow the weed before the seed matures, afterwards ploughing and harrowing again; any plants that appear after this treatment may be left to the frost to destroy. Another method is to sow Vetches with a sprinkling of Rye grass, cutting the crop before the Charlock matures its seed, and carting it elsewhere to be consumed. Such a mixture grown within a reasonable distance from a town should secure a ready sale and prove a remunerative crop. I knew a person residing 15 miles from London who used to make a good trade in such a mixture, having regular customers in the London season. *W. P. R., From Haul, Holwell.*

RED SPIDER ATTACKING VINES.—I read with interest the note by Mr. Rose on red spider attacking vines (see p. 284). I agree with him that in some vineries owing to their construction, the Grapes are more subject to this pest than others. But given a modern vinery, no one need be troubled greatly with this pest. I consider that most gardeners keep their vineries too warm and too dry during the vine's season of flowering. The vines benefit at this stage by

damping the house about twice each day when hot weather prevails, and the ventilators are open, but the latter must be closed early. The conditions this treatment would result in would, I am sure, be a preventive against red spider, and also aid the fertilisation of the berries. Even Muscat of Alexandria Grapes do not require so high a temperature as some persons consider necessary. I have no faith in sulphuring the pipes as a preventive against red spider. I have not seen any good results therefrom, but the reverse. Many years ago when I lived at Treutham, the late Mr. Stevens was a great advocate for sulphuring all the vineries. He would paint all the pipes with milk and sulphur, make them quite hot, and fill the houses with the fumes. This was generally done during the evening, but never once did I observe that it had killed all the red spider, but the harm done to the foliage was considerable. Next day, if sunny, we had to shade the vines with mats or canvas. I also approve of damping vineries when the Grapes are colouring, as I consider it favours a better colour, especially in black varieties, and keeps red spider in check. I am also a firm believer in plenty of ventilation during favourable weather, commencing early in the morning, and admitting fresh air gradually. *J. A. Cox, Haverling Park Gardens, Romford.*

MOTH-TRAPPING FLOWERS.—The notice on page 351 of Mr. Kürckel d'Hercule's observations on this subject reminds me of a visit I paid to Menabilly 12 or 13 years ago. Whilst inspecting that unusually interesting garden, Mr. Bennett, the then head gardener, showed me a fine plant of *Araujia sericea* (*Physanthus albens*) growing against a wall out-of-doors. The plant had flowered profusely, but it was a horrible sight, for nearly every flower held captive a moth or a fly; many were dead, and others were making frantic but vain endeavours to escape. I do not know how many different kinds of insects were imprisoned, but we found satisfaction in noting that the blue-bottle fly predominated. *A. C. Bartlett.*

TROPEOLUM SPECIOSUM.—Of all climbers few are more beautiful than the scarlet-flowered *Tropeolum speciosum*, or "Flame Flower," with its small Nasturtium like blossoms and pale green leaves, but few climbers are more difficult to grow. While one gardener can grow it like a weed, another will try every means he can think of and fail. Situation appears to be the cause of success or failure, but what situation does the plant need? Some say that the southern counties are too hot, and that the cooler air of Scotland is what it needs, but this can hardly be the case, since it grows luxuriantly in the hot atmosphere of Devon and Cornwall. It is said that a damp, peaty soil and shady situation are essential, and at the gardens of the R.H.S. at Wisley it certainly does grow well under these conditions, and greatly beautifies the northern side of a large Holly over which it grows luxuriantly. Yet these conditions are not the primary cause of success, for the plant will fail in London, given everything in this way, and yet grow freely in Scotland in a flint road and sunny situation. If the essential condition is not warmth, cold, damp soil, or dry soil, or sun and shade, surely pure air must be the essential factor. Where pure air is unobtainable, then a northern shady aspect and peaty soil will usually assist the plant in its endeavours to battle against adversity. It is better to give it a bush to grow on than to attempt to train it more artificially. *Leslie Greening.*

PROPAGATING PINKS.—Both the laced and the garden Pinks, such as Her Majesty, may be propagated at this time from pipings, as the shoots used for the purpose are termed. The manner of procuring the pipings is as follows:—Hold the basal part of the selected shoot firmly with one hand, and then with a slight jerk pull out the upper part. If the detachment of the shoot has been properly carried out, the piping will need no other preparation before it is inserted. In warm, dry weather it will be necessary to place the pipings in a vessel of water as soon as they are obtained, for they will not form roots readily if they are once allowed to become dry. I have rooted these Pink shoots successfully by simply dibbling them into the ground by the side of a wall. But, on the whole,

it will be less trouble to use a bell-glass, hand-light or frame, as they will then be more under control. As soon as sufficient are inserted, the soil should be thoroughly soaked with water and the bell-glass or other covering placed over them. Beyond shading them to ensure a cool atmosphere they will need no further attention until they are rooted, which may be expected to take place in three or four weeks after planting. Many other hardy plants may be rooted at this season from cuttings made in the ordinary way, but treated otherwise in the same manner as Pinks. *Florist.*

BIROS AND FRUIT-NETS.—Will you allow me to suggest to the bird-lovers among your readers that during the summer season they should make a point of periodically visiting their fruit nets to prevent such of our little songsters as may have been caught in them dying a slow death from hunger and thirst? It is quite a common thing to find the dead body of a bird entangled in the meshes of a Strawberry net, and one does not like to think of the lingering death by which the little thief has atoned for his very natural greediness. During dry weather birds experience a difficulty in finding food and water, many of them suffering keenly from the want of it, and I beg that their tin of water and allowance of "scraps" may be given them through summer droughts as well as during winter frosts. *Quinta.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JUNE 6.—*Present:* Mr. E. A. Bowles, M.A., F.L.S. (in the Chair); Messrs. Worsdell, O'Brien, Wilson, Bennett-Poe, Pearson, Hales, Sutton, and Chittenden (hon. sec.).

Rosa hemisphaerica.—The Rev. Canon ELLACOMBE sent flowers of the sweetly-scented *Rosa hemisphaerica* from a plant growing on a wall in his garden. This yellow Rose, which is very rare in gardens, is said to flower only in very dry seasons.

Iris diseased.—A rhizome of *Iris pumila* attacked by "rhizome rot" was received. This disease is due to a bacillus, and is very difficult to cure. The parts of the rhizome affected should be removed and burnt as soon as the disease appears.

SCOTTISH HORTICULTURAL.

JUNE 6.—The monthly meeting of the above association was held in the Goid Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. Massie, the president, was in the chair, and there was an attendance of 75 members.

The evening was devoted to debate on the following questions by members:—(1) Has Mendel's law been applied to any plant of the Compositae, and with what results? (2) What is the best way to combat the *Chrysanthemum* leaf-mining maggot, and (3) the Vine Weevil? (4) How did the Americans get their stock of Apples? (5) What is the most profitable crop to grow under glass? (6) Would not fruit and vegetable culture form a necessary adjunct in the management of the small holding of the future? And would not this means of production be an important factor in land and labour problems in the rural districts of Scotland?

In reply to the first question, Mr. Cuthbertson stated that Mendel made numerous experiments with *Hieracium* (Hawkweed), but he found a difficulty owing to the delicacy of the flowers and the minuteness of the details. Experiments had also been made in hybridising *Gerberas*, and there it was found that red colour was dominant to others. The second and third questions caused an interesting discussion. There was a consensus of opinion that the best preventive measure in the case of the *Chrysanthemum* leaf-mining maggot was spraying with quassia extract and soft soap, and in connection with this Mr. Berry pointed out that the very concentrated quassia preparation known as "Cirengol," a 6d. tube of which was sufficient for 20 gallons of water, was much to be preferred to the ordinary extract. Picking off and destroying infested leaves was also recommended. Mr. Nicoll, Rosie,

stated that his plants had been singularly immune from attack, a circumstance which he ascribed to dipping the cuttings in "X.L. All" liquid insecticide before inserting them in the pots, and to the two or three sprays which he gave the plants with this specific before setting them outside. He considered the "Paris Daisy," *Chrysanthemum frutescens*, was a likely source of the pest, and he had seen plants of Japanese *Chrysanthemum*s very badly affected when grown beside the Marguerite.

There was general agreement that the best way to combat the Vine Weevil was to spread sheets of white paper under the plants, and, when all was quiet and the weevils were feeding, give the plant a sufficiently hard tip to cause them to drop, when they could be collected and destroyed. Mr. Kirk, Alloa, gave the following as a good preparation for coating vine stems:—Clay 5 parts, gas tar 1 part, add boiling water to bring to the consistency of paint, and apply with an ordinary paint brush. He also stated that, as the weevil preferred a dry hiding place, vine borders should not be allowed to become dust dry in winter. Mr. Berry stated that clay-coloured weevils were doing much harm to the Raspberry crop, eating the tips of the unopened flowers, and the result was malformed fruits. As a preventive, he recommended spraying with arsenate of lead solution as soon as the young shoots appear, and he also thought this would be an excellent spray for vines against attack by the ordinary black weevil. As regards the best-paying crop to grow under glass, Mr. King, nurseryman, Murrayfield, thought that it did not depend so much on the kind of crop as on the way in which it was grown. A well-grown crop would always sell well, but a badly-grown crop of the same produce would not. No time was available to discuss the last question.

The exhibits were:—Sweet Peas, including new and recent varieties, from Messrs. DOBBIE & Co., Edinburgh (awarded a Cultural Certificate); new Hydrangeas and Statice Dickensonii, from Mr. JOHN DOWNIE, Edinburgh; Hydrangeas, *Solanum Wendlandii*, and *Laburnum Adamii* (showing the three kinds of flowers), from Mr. R. H. COCKBURN, Gartmore, Perthshire (awarded a Cultural Certificate for the Hydrangeas); *Clarkia elegans* "Firefly," from Mr. J. ALEXANDER, Niddrie, Midlothian; Sweet Peas from Mr. J. STAWARD, St. Fort, Newport, Fife; late *Chrysanthemum*s "Niveum" and "Western King," and Sweet Pea (sport from Countess Spencer), from Mr. P. SLATER, Labrae, Galashiels; new *Pyrethrum* "Steinhouse Beauty," seedling *Pyrethrum*s, and Ox-eye Daisy Early Queen, from Mr. F. BAILLIE, Steinhouse, Liberton; *Rhododendron cinnabarinum*, from Mr. W. WILLIAMSON, Edinburgh; *Rhododendron* "Pink Pearl," from Mr. J. K. BROWN, Kirkealdy; Tree Peonies, from Mr. J. FRASER, Bonally Tower, Colinton; *Phyllocactus Ackermannii*, from Mr. A. JOHNSTONE, Hay Lodge, Edinburgh; *Viola gracilis purpurea*, from Messrs. TODD & Co., Edinburgh; and *Calceolarias*, from Mr. A. SMIBERT, Leith.

At the meeting on July 4, the secretary will read a paper entitled "Some recent additions to our knowledge of Trees." Eleven new members were elected.

RIVER THAMES FLOWER SHOW.

A NOVEL DISPLAY ON TAGG'S ISLAND, HAMPTON COURT.

JUNE 7, 8.—A flower show and dramatic fête promoted by a local committee in aid of the funds of the League of Mercy, an institution for assisting hospitals, was held on the picturesque Tagg's Island, Hampton Court, on these dates. The show was favoured by glorious weather, and a large company gathered on the afternoon of the first day to greet Her Royal Highness the Duchess of Albany who had come over from Claremont to open the show.

The several tents were well packed with flowers, though mostly in the form of stiff, formal displays. Should the show become an annual event a greater effort should be made to create a more effective and picturesque arrangement. Competitive classes were few, and not all were filled. One of the most striking classes was that for nurserymen only, the schedule requiring an exhibit of plants or cut flowers filling an area of 200 square feet. There were several com-

petitors, and the finest display was made by Mr. W. H. PAGE, Hampton, his group including standard and pillar Rambler Roses, fine bunches of cut Carnations, clusters of *Lilium auratum*, *L. longiflorum* and *Astilbes* (*Spiraeas*), the whole prettily decorated with *Smilax* and white Sweet Peas. Mr. C. ENGLEMAN, Saffron Walden, was placed 2nd for a large and superb group of Carnations blooms; Mr. GEORGE MOUNT, of Canterbury, being 3rd, with a beautiful group of Roses, both as flowering plants and cut blooms, of which large clusters of the varieties Mrs. John Laing, Mr. George Shawyer, Ulrich Brunner, and Richmond were conspicuous features.

The finest groups of cut Carnations in a class for these flowers was shown by Mr. H. BURNETT, Guernsey, the varieties included Mrs. C. E. Raphael, R. F. Felton, Marmion, Mikado, Mrs. H. Burnett, and Mayday; Mr. C. E. WATERS, Balcombe, Sussex, was placed 2nd.

In the class for six vases of Carnations, distinct, Mr. BERTIE E. BELL, Guernsey, was placed 1st, having *Britannia*, *Rose Doré*, *Enchantress*, *Mayday*, *Winsor*, and *Judith*; 2nd, Mr. A. F. DUTTON, Iver, Buckinghamshire.

Mr. G. MOUNT showed the best group of cut Roses; Mr. J. H. HAWKINS, Strawberry Hill, who was placed 2nd, had but one variety, *Prince de Bulgarie*.

Mr. C. W. BREADMORE, Winchester showed the best exhibit of Sweet Peas in vases, the varieties including *Dazzler*, *Etta Dyke*, Mrs. C. W. Breadmore, *Edrom Beauty*, *Lavender*, *George Herbert*, *Countess Spencer*, *Elsie Herbert*, and Mrs. A. Ireland; Mr. W. E. ELSÉN, Denmead, Hants., was placed 2nd; and Messrs. BIDE & SONS, Farnham, 3rd.

Mr. C. GIBSON, Leeming Bar, Yorkshire, was the only exhibitor of a group of hardy cut flowers, and was awarded the 1st prize. The blooms were of excellent quality, but they were far too closely packed to produce the best effect.

Messrs. HAYWOOD, Fife Road, Kingston, were placed 1st in the decorative classes for (1) a bouquet, (2) a basket of Carnations, and (3) a vase of 36 blooms of Carnations. There were some pretty epergnes and baskets filled with Sweet Peas.

Honorary exhibits were a great feature of the show. Messrs. JAS. VEITCH & SONS, LTD., Chelsea, staged a large group of beautiful plants; Messrs. KELWAY & SONS, Langport, showed *Paeonies*, *Pyrethrum*s, and *Delphiniums*; Mr. A. LANGE, Hampton, exhibited choice Carnations; Mr. AMOS PERRY, Enfield, arranged a small water garden, and he also showed varieties of Oriental Poppies and other hardy flowers; Messrs. BARR & SONS, Long Ditton, exhibited *Paeonies*, *Lupins*, *Irises*, and piny trees in cluna receptacles; Mr. T. PAGE, Hampton, showed pot Roses, *Astilbes*, *Lilies*, and Sweet Peas; Messrs. H. CANNELL & SONS, Swanley, Kent, made a brilliant display with *Cannas*; Mr. W. J. UNSWIN, Histon, Cambridge, and Miss HEMUS, Upton-on-Severn, had attractive displays of Sweet Peas; Messrs. JARMAN & Co., of Chard, showed their beautiful varieties of *Centaurea*; Messrs. BATH & Co., Wisbech, were the exhibitors of *Paeonies*, whilst Mr. GODFREY, Exmouth, Messrs. J. PEED & SONS, Norwood, Messrs. J. JACKMAN & SONS, Woking, and Messrs. YOUNG & Co., Cheltenham, each showed border flowers in a great variety.

BIRMINGHAM BOTANICAL AND HORTICULTURAL.

JUNE 8.—A successful show of Orchids and early summer flowers was held at the Botanical Gardens, Edgbaston, on the above date. A collection of Orchids from W. WATERS BUTLER, Esq., was pronounced the finest exhibit of these flowers ever seen at Birmingham.

Mr. E. V. LOW, Haywards Heath, Sussex, also exhibited a choice group of Orchids. The centre piece consisted of a large, well-flowered specimen of *Laelia purpurata*, surrounded by *Brassia-Cattleya corona*, *Laelio-Cattleya Gladys*, *L.-C. albena* and *Cattleya Dusseldorfii* *Undine*, the last-named with large, shapely, pure-white flowers. *Odontoglossum amabile*, *O. crispum* Raymond Crawshay, *Cirrhopetalum Amesianum* and *Bulbophyllum barbigerum* were meritorious. (Silver Medal.)

Messrs. SANDER & SONS, St. Albans, had a collection of Orchids, in which were good examples of *Laelio-Cattleya Canhamiana* and its variety *Rex*; *Dendrobium sulcatum* bearing pendulous racemes of yellow flowers; *Maxillaria Sanderiana*, *Cattleya Mossiae celestis*, *Cypripedium Gowerianum magnificum*, *Stelis muscosa* and *Masdevallia coriacea*. Messrs. SANDER also showed plants of *Marguerite* Mrs. F. Sander and a profusely-flowered specimen of *Utricularia montana*. (Silver Medal.)

The most extensive and best-arranged group of Orchids came from W. WATERS BUTLER, Esq., Southfield, Edgbaston (gr. Mr. R. H. Jones). The centre of this superb group, which occupied a space of 180 square feet, was composed of *Cymbidium Sanderi*, with long, strong spikes of shapely flowers mingled with large, well-flowered specimens of *C. Lowianum concolor*, *Calanthe veratrifolia*, *Laelia purpurata Lewisii*, *L. p. Queen Alexandra* and a host of rare and very beautiful varieties of *Cattleya Mossiae* and *C. Mendelii*. A large plant of *Masdevallia Harryana* Bull's Blood was remarkable for its richly-coloured flowers, whilst examples of *Laelio-Cattleya Canhamiana*, *L.-C. Hippolyta*, *Dendrobium*s, *Lycastes*, *Oncidium*s and *Cypripedium*s were unusually good. Plants of *Miltonia vexillaria* and *M. Bleuana* were covered with flowers of great size and substance. *Odontoglossum*s in great variety and of excellent quality were intermingled in the group with good taste. (Gold Medal.)

Messrs. JAMES CYRUS & SONS, Cheltenham, had a bright exhibit of Orchids, in which a plant of *Cattleya Mossiae magnifica* stood out prominently. Other good plants noted were *Cattleya Mendelii splendens*, *Miltonia vexillaria*, *Cypripedium callosum Sanderæ*, *Masdevallia Veitchii grandiflora*, *Laelio-Cattleya Canhamiana* and *Thunias*. (Silver Medal.)

GODFREY NETTLEOLD, Esq., Southbank, Edgbaston (gr. Mr. J. Higley) contributed a small collection of Sweet Peas. The flowers were large, of good size, and finely coloured.

Messrs. J. BASTOCK & SON, Moseley, had an effectively-arranged group of *Violas* of good quality. (Bronze Medal.)

Messrs. GUNN & SONS, Olton, Birmingham, exhibited a large number of pot Roses of such varieties as *Lady Gay*, *Harwatha* and *Blush Rambler*. These were arranged in three groups on the floor down the centre of the exhibition hall, and created a pleasing effect. In another part of the hall Messrs. GUNN had a beautiful collection of Oriental Poppies, *Paeonies*, *Violas*, an assortment of rock-garden plants, and about 20 varieties of Sweet Peas. (Silver-gilt Medal.)

Messrs. H. B. MAY & SONS, Upper Edmonten, showed a large group of Ferns, in which *Polypodium Knightiae*, *P. Mayi*, *Nothochlana sinuata*, *Dryas quercifolia*, *Platyloma rotundifolia*, *Platycerium* and a handsome batch of *Nephrolepis Marshallii compacta* were conspicuous. (Silver-gilt Medal.)

Mr. GEORGE PRINCE, Longworth, Berks., showed Roses in vases and Bamboo stands. Two of the best varieties were the *Tea Rambler* and the *Persian yellow*. Other good varieties were *Purity*, *Electra*, *Souvenir de S. A. Prince*, *Lyon Rose* and *Madame Jules Gravereaux*. (Silver Medal.)

GEORGE CADBURY, Esq., Northfield, Birmingham (gr. Miss G. Cope) sent a fruiting specimen of the *Cocoba* plant (*Theobroma Cacao*).

Mr. G. W. MILLER, Wisbech, exhibited flowers of a new *Pyrethrum* named *Queen Mary*. The double flowers are large, pale pink and borne on long, stiff stems. Mr. MILLER also showed flowers of *Iceland Poppies* and *Viola cornuta purpurea*. (Bronze Medal.)

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

JUNE 12.—At the monthly meeting of this society, it was proposed that, on as early a date as possible, a deputation consisting of Messrs. Curtis, Hudson, Collins, Dick, Thomson, and Bilney should seek an interview with the Chancellor of the Exchequer in regard to the position of the society in relation to the National Insurance Bill.

GRAND YORKSHIRE GALA.

June 14, 15 and 16.

THE 53rd annual exhibition was opened in Bootham Park on Wednesday, the weather being rather treacherous, though little rain fell on the first day. The gathering was as large as ever, and though there are slight changes in the schedule each year, the general effect of the exhibition remains about the same. Groups of plants were on the present occasion magnificent as well, where popular hardy and Alpine plants were used, as in those classes for stove and greenhouse plants. Roses were shown more extensively than usual, and the average of quality was remarkably high. The blooms showed the effects of boisterous weather, but they were superb in size, substance and colour. Carnations, too, were of conspicuous excellence, and the same may be said of Orchids. Specimen plants and trained Pelargoniums, for which York used to be so famous, have fallen somewhat from their high estate. A deputation from the National Hardy Plant Society visited the show and gave a First-Class Certificate to Heuchera Lady Greenhall, from Messrs. BAKERS, and Awards of Merit to Delphinium Lady Faire, from Messrs. KELWAY & SON; Peony Lena Ashwell, from Messrs. KELWAY & SON; Iris Asia, from Mr. G. YELD, and Verbascum Salmon Queen, from Mr. F. BOUSKELL. All the arrangements of the show were admirably carried out by Mr. Fred. Arey.

GROUPS OF PLANTS.

For many years past the superb groups of plants have made the York exhibition famous, and they show no signs of deterioration either in numbers or artistic excellence of arrangement. The principal class, in which six prizes of the total value of £70 are offered, demands a group of miscellaneous plants, in or out of bloom, arranged for effect, and occupying a space not exceeding 300 square feet. These groups were disposed down the centre of a tent, and showed one frontage to the judges. The premier position was secured by Mr. J. PICKERSGILL, Bardon Hill, Westwood, Leeds (gr. J. Donoghue), who had a superb display. Magnificently-grown foliage plants such as Palms, Caladiums, Crotons and Dracenas were most cleverly utilised to display the beauty of Roses, Odontoglossums, Cattleyas, Clerodendron fallax, Carnations and other flowers. The whole arrangement was light, bright and artistic. Mr. W. A. HOLMES, West End Nurseries, Chesterfield, was 2nd. His group was artistically arranged, considerable reliance being placed on the superbly-coloured Crotons. The 3rd prize was given to Messrs. R. SIMPSON & SONS, Brook Street, Selby. Mr. W. VAUSE, Leamington, was 4th; and Mr. GLEBHILL COTTAM, Alma Gardens, Cottingham, Hull, 5th.

Four prizes were offered in a similar class for a group arranged on a space of 200 square feet, and the competitors numbered four, of whom Mr. W. A. HOLMES was 1st, with a beautiful arrangement of splendidly-grown plants. The scheme was light and artistic. The 2nd position was secured by Mr. J. PICKERSGILL, with a handsome group; the 3rd by Mr. W. VAUSE; and the 4th by Messrs. W. SIMPSON & SON.

A most attractive class was that for a group of hardy plants and flowers, with a background of decorative plants, with a pool of water and plants arranged for natural effect on the ground level; the space allowed had not to exceed 30 feet by 12 feet. Exhibitors were permitted to include cut flowers. There were four competitors, of whom Messrs. J. BACKHOUSE & SON, LTD., were placed 1st, with an admirably-conceived and charmingly-carried-out arrangement. In the foreground was a bold rock scheme with handsome clumps of many suitable plants, such as Saxifragas, Lychnis, Azaleas, Erigerons, Ramondias, Primulas, and a few hardy Orchids. In the background Roses, Rhododendrons, and Bamboos were skilfully disposed and, in the pools water plants luxuriated. Messrs. W. ARTINDALE & SON, Sheffield, obtained 2nd place with a very beautiful exhibit. The general plan was somewhat similar in character to that of the premier exhibit, but different plants had been pressed into service for furnishing. The 3rd prize was

won by Mr. G. PICKERING, Rosslyn Street, Clifton, York, for an exhibit which was remarkably good considering that the competitor is an artisan. Mr. GLEBHILL COTTAM, Cottingham, Hull, was 4th.

In the class for a display of hardy plants, in or out of bloom, and cut flowers arranged for effect on a ground space not exceeding 200 square feet, the place of honour was secured by Messrs. ARTINDALE & SON, LTD. The class was a new one, and its object was to show the value of hardy flowers for artistic arrangement. The leading collection was of conspicuous excellence, and justified the departure. The flowers were those of the herbaceous border, so skilfully disposed as to create an effect at once charming and ornate. The 2nd position was secured by Messrs. HARKNESS & SONS, Bedale; they had beautiful flowers, but a weaker conception of the artistic possibilities of the class. The 3rd prize went to Mr. GLEBHILL COTTAM.

Mr. W. A. HOLMES was 1st in the class for a collection of plants, in or out of bloom, and cut flowers, arranged for effect on a table space 12 feet long by 6 feet wide. The display was lightly and artistically composed of excellently-grown plants. Mrs. WHITEHEAD, Deighton Grove, York (gr. G. W. Richardson), was a creditable 2nd, and Mr. F. H. WARD, Scarcroft Nursery, York, a good 3rd.

For a collection of stove and greenhouse plants in bloom, arranged in a space of 20 feet by 10 feet, the premier position was splendidly taken by Messrs. J. CYPHER & SONS, Cheltenham, who had magnificently-grown plants in variety. Mr. W. VAUSE was 2nd.

Mr. W. VAUSE was the only exhibitor of three stove or greenhouse plants in bloom, exclusive of Orchids, and received the 1st prize.

In the class for six ornamental fine foliage plants, to include two Crotons, Messrs. J. CYPHER & SONS were deservedly placed 1st, and Messrs. W. SIMPSON & SON 3rd. For three plants, to include one Croton, the same exhibitors were placed in similar order.

An interesting class was for 20 Alpine and herbaceous plants, not more than two of any one variety. Mr. WALTER PYBUS, Monkton Moor, Leeds, was 1st with a very handsome group shown out of doors. Mr. S. PICKERING, Clifton, York, was 2nd, and Mr. J. NICHOLSON, White Cross Road, York, 3rd.

Mr. JAS. ARCHER, Faversham Crescent, York, was a splendid 1st for six hardy Ferns distinct. His plants were magnificent specimens. Mr. J. T. HEPPELL, Horner Street, York, was 2nd, and Messrs. R. SIMPSON & SON 3rd.

ORCHIDS.

These constitute a most effective section of the York Show, and the display was particularly handsome. In the class for a table of Orchids, 12 feet by 5 feet, arranged for effect, there were two competitors, of whom Messrs. J. CYPHER & SONS, Cheltenham, and Messrs. MANSSELL & HATCHER were given equal 1st prizes.

For ten Orchids in bloom Messrs. J. CYPHER & SONS were 1st with grandly-grown specimens of Cattleya Mendelii, C. gigas, C. Mossie, Oncidium macranthum and Miltonia vexillaria among others. Mr. W. P. BURKINSHAW, West Hill, Hesse, Hull (gr. J. Barker), was a very creditable 2nd, and Mr. JAS. SUNLEY, South Milford, a good 3rd.

Messrs. J. CYPHER & SONS were again 1st in the class for six Orchids in flower with beautifully-grown plants of Cattleya Mossie, C. Mendelii, C. gigas, Laelio Cattleya Cambamiana, L. C. Aphrodite splendens, and Miltonia vexillaria. Mr. W. P. BURKINSHAW was placed 2nd with well-grown specimens.

In the class for three Orchids, Messrs. J. CYPHER & SONS, W. P. BURKINSHAW, and J. SUNLEY secured the prizes in the order in which their names are here given. The winners staged Laelio Cattleya Pecunia, L. C. Cambamiana, and Cattleya gigas. For one Orchid Mr. W. P. BURKINSHAW took the lead with Cattleya Warneri alba, Messrs. J. CYPHER & SONS following with Laelio Cattleya Aphrodite purpurea.

PELARGONIUMS.

For many years there has been no horticultural exhibition more renowned for Pelargoniums than York, but, although noteworthy, these plants are not now staged as they used to be some years ago. In the class for a group of show varieties in flower, arranged for effect with foliage plants or Ferns on a space of 8 feet by 5 feet, Mr. H. E. LEETHAM took the lead with a bright group of finely-flowered plants. Messrs. GODFREY & SON, Exmouth, were 2nd, and Captain WALKER 3rd.

For six show varieties distinct Mr. W. F. CROWTHER, Wigginton Terrace, York, was given the premier prize, and was the only exhibitor in the class. His varieties were Tommy Dodd, Thébaud, Mrs. Pett, E. Perkins, Countess of Warwick, and Duchess of Teck.

Mr. HENRY PYBUS was 1st for 12 zonal nose-gay or hybrid nosegay varieties distinct, with splendidly-grown and trained plants. The 2nd prize went to Mr. J. SUNLEY, South Milford, who also staged creditably. For six plants distinct Messrs. H. PYBUS, J. SUNLEY, and J. W. CLARKE, Clifton, York, were 1st, 2nd, and 3rd respectively, while for three distinct varieties the prizes went to the same exhibitors in precisely the same order.

In the class for six double varieties, distinct, Mr. J. W. CLARKE was a magnificent 1st with grand plants. Mr. W. F. CROWTHER was 2nd, and Mr. H. PYBUS 3rd. For three double-flowered Ivy-leaf varieties, distinct, Mr. W. F. CROWTHER was easily in front, followed by Mr. H. PYBUS.

MISCELLANEOUS GREENHOUSE PLANTS.

The Duke of NEWCASTLE, Clumber, Worksop (gr. S. Barker) had the finest group of Carnations in bloom, arranged in a space 12 feet by 6 feet; decorative plants, Ferns and Moss were permissible. The plants were grandly grown and flowered, and the arrangement was effective. Mr. J. PICKERSGILL was 2nd, and Mr. W. LANGSTAETE 3rd.

For a group of Gloxinias, arranged for effect on a space not exceeding 8 feet by 5 feet, Mrs. CRAVEN, Moorlyn, The Mount, York (gr. W. Wallis), was 1st. Mr. J. ROWNTREE, Rose Cottage, Clifton, York (gr. H. Dean), 2nd, and Captain WALKER, Mill Mount House, York (gr. H. W. Clark) 3rd.

The first prize for eight Gloxinias in bloom was awarded to Mrs. WHITEHEAD, York, for magnificently-flowered plants. Mrs. CRAVEN was 2nd, and Mr. T. H. WOOD 3rd.

In the class for a group of tuberous-rooted Begonias, arranged for effect on a space 12 feet by 5 feet, there were four contestants, of whom Miss BARSTOW, Garrow Hill, York (gr. T. Douthwaite), was 1st with a fine exhibit. Mr. S. LEETHAM, Elm Bank, York (gr. G. Skill), 2nd, and Captain WALKER 3rd. For eight, distinct-named, tuberous-rooted Begonias Mr. J. ROWNTREE was a splendid 1st. Messrs. T. WINS, Ratcliffe Street, York, and Colonel KING, Fulford Croft, York, followed in the order named.

A space 12 feet by 5 feet was allowed for a group of Calceolarias, arranged for effect, and the leading position was assigned to Mr. J. ROWNTREE. Mr. P. STANCLIFFE, Solberge, Northalton (gr. G. Jarvis), was 2nd, and Mr. S. LEETHAM 3rd. For eight Calceolarias Mr. H. E. LEETHAM, Aldersyde, York, was 1st, Dr. MACDONALD 2nd, and Rev. Canon ARGLES, York, 3rd.

HARDY CUT FLOWERS.

A splendid class was that for a collection of hardy cut flowers, arranged on a space not exceeding 15 feet by 6 feet, and a brilliant display was made. Mr. F. M. BRADLEY, Peterborough, was put in the place of honour, with handsome bunches of Roses, Delphiniums, Irises, Pyrethrums and Scabions. The 2nd prize was secured by Messrs. GIBSON & Co., Leeming Bar, who had a handsome bank of grandly-grown flowers; 3rd, Messrs. HARKNESS & SONS.

In the class for 24 bunches of hardy flowers, it was stipulated that there should be not fewer than 12 distinct kinds, that all stems should reach the water, in vases not exceeding 3 inches in diameter at the top, and that the arrangement should be on a space of 10 feet in four tiers. Messrs. G. LONGSTER & SONS, Malton, were a splendid 1st, with bunches of Gaillardias, Inulas, Poppies, Pyrethrums and other flowers. Messrs. HARKNESS & SONS were 2nd, and Messrs. GIBSON & Co. 3rd.

ROSES.

These were shown extensively and excellently. In the class for a collection of Roses in bloom, in pots arranged for effect on a space not exceeding 15 feet by 7 feet, there were three competitors, of whom Mr. J. E. SKAIFE, Clarence Street, York, was a splendid 1st with admirably-grown plants artistically displayed. The 2nd position was taken by Mr. LANGSTAFFE, Garth Terrace, York; and the 3rd by Mr. W. TODD, Vynar Street, York.

In the class for not fewer than 20 Roses in bloom in pots, it was permissible to introduce decorative plants or Ferns for effect, and the place of honour was secured by Mr. J. E. SKAIFE, Clarence Street, York, with a very bright collection of Roses edged with Ferns; exhibition and Rambling Roses being cleverly utilised. Mr. W. LANGSTAFFE, Garth Terrace, York, was an excellent 2nd; and Mr. HENRY PYBUS, Wormald Green, Leeds, was 3rd.

The principal class for cut Roses demanded 72 single trusses in not fewer than 36 varieties. The 1st prize was won by Messrs. BEN. CANT & SONS, Colchester, who staged a superb set, rich in colour, fine in size, and splendid in form. Some of the best were Colcestra, Mrs. John Laing, Bessie Brown, Lady Helen Vincent, Mrs. W. J. Grant, Lobengrin, Lyon, C. J. Grahame, Sallie, and Lady Ashtown. Messrs. HARKNESS & Co., Hitchin, came an excellent 2nd; and Messrs. D. PRIOR & SONS, Colchester, 3rd. There were six competitors.

For 48 single blooms, in not fewer than 24 varieties, there were 10 contestants, of whom Messrs. R. HARKNESS & Co. were placed 1st with fine blooms of Caroline Testout, Florence Pemberton, Frau Karl Druschki, White Lady, Liberty, Lady Ashtown, J. B. Clark and Kaiserin Augusta Victoria. The 2nd prize was taken by Messrs. J. BURRELL & Co., Howe House Nurseries, Cambridge, with a bright set. Mr. GEORGE PRINCE, Longworth, Berks., was third.

In the class for 36 single trusses, not fewer than 18 distinct varieties, Mr. HENRY DREW, Longworth, was 1st. His best varieties were Mme. Cusin, Bessie Brown, Mme. Jules Gravereaux, Dean Hole, Alice Lindsell, Bridesmaid, Queen of Spain, and J. B. Clark. Messrs. R. HARKNESS & Co. were 2nd; and Messrs. W. & J. BROWN 3rd. There were no fewer than 11 competitors.

Messrs. BEN. CANT & SONS were 1st for 24 distinct blooms, among about a dozen competitors. The best blooms were Joseph Hill, Lady Ashtown, Queen of Spain, Nadia, Dean Hole, Lady Helen Vincent, Bessie Brown, Kilarney, Mildred Grant and Colcestra. The 2nd prize was won by Messrs. R. HARKNESS & Co. with a very bright set. Messrs. D. PRIOR & SONS were a good 3rd.

For 18 blooms, distinct, there were 10 contestants, and the premier position was handsomely secured by Mr. H. DREW, whose best varieties were Bessie Brown, Golden Gate, Comtesse de Nadaillac, G. C. Waud, Queen of Spain, Mme. Cusin, and Chas. J. Grahame. The 2nd prize was awarded to Messrs. G. & W. H. BURCH, Peterborough; and the 3rd to Mr. E. J. HICKS.

In the class for a stand of 12 white and yellow Roses, not fewer than six varieties, Mr. H. DREW, won the premier award with a very refined set, among which The Bride, Mrs. Foley Hobbs, Souvenir de S. A. Prince, Comtesse de Nadaillac, Frau Karl Druschki, and Melanie Soupert were fine. Messrs. PERKINS & SONS were 2nd, and Messrs. D. PRIOR & SONS, 3rd. There were six competitors.

In the amateurs' class for 18 distinct single trusses, Mr. T. PARK, Bedale, was 1st; Mr. WM. HUTCHINSON, Kirbymoorside, 2nd; and Mr. F. A. GEORGE, Red Hill, Worcester, 3rd. For 12 distinct varieties, restricted to amateurs, Mr. W. HUTCHINSON was 1st; Mr. TOM PARK, 2nd; and Mr. F. A. GEORGE, 3rd.

FLORAL ARRANGEMENTS.

Beauty of arrangement and good effect were the tests of merit in a class for a group of flowers arranged in a vase or epergne, and Mr. A. A. ELLIOTT was placed 1st, with a graceful display of Roses, Sweet Peas, Heucheras, and other flowers. Mr. J. E. THACKERAY, York Place, Knarsborough, was 2nd, and Mr. F. H. WARD, 3rd.

For a hand basket of flowers, Messrs. PERKINS & SONS were easily 1st, with an exquisite arrangement of Orchids. Mr. F. H. WARD was 2nd, and Mr. A. A. ELLIOTT, York, 3rd. A

similar class, from which Orchids were excluded, was won by Messrs. C. E. SIMPSON, LTD.

In the class for a basket of Roses, Mrs. H. B. VON BEVERHOUDT, Elvington Hall, York, was 1st; Mr. F. M. BRADLEY, 2nd; and Mr. F. H. WARD, 3rd. Messrs. PERKINS & SONS were 1st for two bridal bouquets, with an exquisite exhibit, for two ball bouquets, for two hand bouquets, for one bouquet, and for one shower bouquet of Roses.

FRUITS AND VEGETABLES.

The principal class in the fruit section was for a decorated table of ripe fruit, 10 feet by 4 feet 6 inches. There could not be more than 14 or fewer than 10 dishes, and not more than two varieties of a kind. The judges were instructed to take into consideration quality of fruits and plants, beauty of flowers and foliage, harmonious blending of colours, and general arrangement for effect in making their awards, which were to be by points. There were only two competitors, and the premier position was given to the Duke of PORTLAND, Welbeck Abbey, Worksop (gr. Mr. Jas. Gibson), who secured no fewer than 106 marks. In the graceful decorations reliance was placed on pink and bluish Carnations, and the effect was excellent. The fruits were Early Rivers and Lord Napier Nectarines, Black Hamburg and Buckland Sweetwater Grapes, Bellegarde and Hale's Early Peaches, Lady Sudeley Apple, Brunswick and Brown Turkey Figs, Golden Gem and Duchess of Portland Melons, Early Rivers Cherry, Kirke's Plum, and Bedford Champion Strawberry. The Marquis of NORTHAMPTON, Castle Ashby (gr. A. Searle), was 2nd, with a total of 97 marks, his whole collection being decidedly meritorious.

In the class for a collection of ten dishes of fruit, to include two bunches each of two varieties of Grapes, the Duke of NEWCASTLE, Clumber, Worksop (gr. A. Barker), was a splendid 1st with Buckland Sweetwater and Black Hamburg Grapes in very fine condition; the Early Transparent Gage Plums were also excellent. Mr. J. E. HATHAWAY, Baldersby Park, Thirsk (gr. J. Brennan), was 2nd, and Mr. W. D. CLIFF, Meanwood Towers, Leeds (gr. M. Hague), 3rd. There were three exhibitors.

For a collection of six kinds the Duke of PORTLAND was handsomely 1st with Black Hamburg and Foster's Seedling Grapes, Royal Sovereign Melon, Early Rivers Nectarine, Hale's Early Peach, and Brown Turkey Fig. Baron DE FOREST, Londesborough Park, Market Weighton (gr. J. C. MacPherson), was 2nd, and Mr. J. E. HATHAWAY 3rd. The Duke of PORTLAND was again 1st in the class for four kinds, Baron DE FOREST being 2nd, and the Marquis of NORTHAMPTON 3rd.

For two bunches of Black Hamburg Grapes the Duke of PORTLAND was 1st with splendidly-finished fruit. Lady HAWKE, Wighill, York (gr. H. S. Bray), was 2nd, and the Hon. Lady BEAUMONT, Carlton Towers, Selby (gr. W. Nicholl), 3rd.

For two bunches of White Grapes, any variety, Baron DE FOREST won with Muscat of Alexandria, Mr. W. D. CLIFF being 2nd, and the Duke of PORTLAND 3rd, both showing Buckland Sweetwater.

In the class for six Peaches, the 1st prize went to the Marquis of RIPON, Studley Royal, Ripon (gr. E. Thomas), who showed Hale's Early. For six Nectarines the Duke of PORTLAND was 1st with Lord Napier. Melons were principally shown by Messrs. BRENNAND, DEW & PATTISON.

For six Figs the Marquis of NORTHAMPTON led with Brown Turkey, while for a dish of Cherries Mr. J. E. HATHAWAY won with a good dish of White Heart. For a dish of Strawberries Messrs. E. THOMAS and A. SEARLE were 1st and 2nd with Royal Sovereign.

Messrs. SUTTON & SONS offered prizes in a class for a collection of vegetables, six distinct kinds, the 1st prizewinner being the Duke of PORTLAND. Mr. GIBSON staging in his usual splendid style. The dishes were Ideal Potato, Favourite Carrot, Centenary Pea, Perfection Tomato, Magnum Bonum Cauliflower, and Canadian Wonder Dwarf Beans. The Marquis of NORTHAMPTON was 2nd, and the Hon. Lady BEAUMONT 3rd.

Messrs. WEBB & SON, gave the prizes in a class for a collection of six distinct kinds of vegetables, with Asparagus and Globe Artichokes excluded.

The leading position was secured by the Marquis of NORTHAMPTON. The dishes were Early Mammoth Cauliflower, Colonist Potato, Supreme Dwarf Bean, Stourbridge Marrow Pea, Viceroy Tomato and Defiance Carrot. The Hon. Lady BEAUMONT was 2nd; and Mr. W. D. CLIFF 3rd.

NON-COMPETITIVE EXHIBITS.

Messrs. ALDERSEY & M. JONES, Tilston, Malpas, staged a bright collection of Sweet Peas, among which Tortoiseshell, Ruby, Moonstone, Flamingo and Topaz were good.

Messrs. J. F. RASHLEY & Co., Malton, arranged a small group of herbaceous flowers and Pinks, with several pots of a fine Lobelia named Waverley.

Messrs. ROBERT SYDENHAM LIMITED, Tenby Street, Birmingham, showed Sweet Peas in silvered rustic table ornaments: the flowers were of excellent quality and the arrangement artistic.

Messrs. G. MASSEY & SONS, Spalding, had a handsome miscellaneous group, in which Pæonies were the most conspicuous feature. Some good varieties were Mons. Chas. Leveque, Duchesse de Nemours, and Lady Bramwell. Spanish Irises were also included.

Messrs. GILBERT & SON, Dyke, Bourne, had an effective exhibit of Sweet Peas arranged in blocks of distinct colours. Some of the best varieties were Cherry Ripe, Lady Florence Willoughby, Safrano, Countess Spencer, Albert Gilbert, Hyacinth, Countess of Auster and Mrs. Wilcox.

A magnificent group of Pæonies, Delphiniums and Gaillardias was contributed by Messrs. KELWAY & SONS, Langport. Handsome Pæonies were Queen of the West, King of England, Electric, Freedom, Queen of Roses, White Lady, Hallam, Sir Spencer Ponsonby Fane, Masterpiece and Graveye. Among the Delphiniums, Hon. Mrs. Lumley, Wellington, Phyllis Kelway, Lady Fair, Remarkable and Summer Sky were conspicuous.

Messrs. R. H. BATH, LTD., Wisbech, had a varied collection, in which Pæonies, Delphiniums, Carnations, Sweet Peas and Spanish Irises all played important parts. The colours were effectively arranged.

A splendid display of Violas was shown by Messrs. W. ARTINDALE & SON, Sheffield. Among the varieties were Peace, Fancy, Jennie Houston, Girle, Mrs. A. Herve, Alexandra, Chocolate, Agnes Kay, A. J. Bastock, G. C. Murray, Lady Musgrave, and Ajax. A decorative arrangement of Carnations formed the centrepiece of the stand. Messrs. W. & J. BROWN, Stamford, arranged a handsome collection of Roses, with a few herbaceous plants. Good varieties were Mme. Melanie Soupert, Mrs. P. Blair, Mme. Ravary, and Mrs. W. J. Grant. Mr. E. J. HICKS, Hurst, Berks., sent beautiful bunches of garden Roses, with exhibition varieties in single trusses in boxes; practically all the best varieties were represented in good form.

Messrs. YOUNG & Co., Hatherley, Cheltenham, had a charming group of Carnations; the blooms were of fine quality and admirably displayed. Excellent varieties were Cheltonia, Mayday, Carola, Mikado, Winsor, Britannia, Rose Dore, Alvina, Mrs. Greswolde Williams, and Rose Enchantress. Messrs. JARMAN & Co., Chard, staged a collection of Centaureas, which were fragrant and beautiful. The same firm sent also a bright collection of Zonal Pelargoniums. Mr. W. J. GODFREY, Exmouth, staged hybrid Poppies in various artistic shades, Antirrhinums, and magnificent Canterbury Bells in many colours. Messrs. J. BACKHOUSE & SON, LTD., York, were represented by a miscellaneous collection of splendidly-grown plants handsomely arranged. There were groups of Carnations, Hydrangeas, Begonias, with Roses on pillars as a background. Messrs. BACKHOUSE & SON also sent artistic floral decorations. Messrs. SEAGRAVE & Co., Sheffield, showed a stand of Violas. The blooms were large, of good form and bright in colour. Some of the best were Lawmuir, Thos. Cullen, Mrs. J. Gray, Lady Knox, G. C. Murray, Helen Smellie, William Hunter, and Countess of Eglinton. This firm also sent Pelargoniums.

Mr. C. W. BREADMORE, Winchester, had a magnificent exhibit of Sweet Peas, the blooms being large and of fine shape and substance. Conspicuous varieties were Dazzler, Marjory Linzee, George Herbert, Lavender George Herbert, Ella Dyke, Stirling Stent, Princess Juliana, Senator Spencer, Maud Holmes, Charlie Irving, Tennant

Spencer, and Countess Spencer. Mr. G. ENGELMANN, Saffron Walden, staged an attractive group of Carnations, including such varieties as Electra, Governor Deveen, Pink Delight, Superior, Rose Enchantress, Mikado, Britannia, Winsor, Aristocrat, and White Enchantress. Mr. G. PRINCE, Oxford, had most beautiful bunches of all the best decorative Roses. Mr. C. F. WATERS, Balcombe, Sussex, had a splendid group of Carnations, including O. P. Bassett, Edith Waters, Calypso, Ruby, Ceres, A. E. Manders, Carola, Rose Doné, Aurora, and Rose Pink Enchantress.

In the centre of Messrs. BAKERS' group, from Wolverhampton, was a water garden, with beautiful Nymphæas in full bloom. At one end was a collection of Delphiniums, while at the other end Spanish Irises associated with herbaceous flowers constituted the chief feature.

Messrs. WELB & SON, Woudsley, Stourbridge, arranged a particularly effective exhibit of flowers and vegetables. Among the former were Sweet Peas in variety, Gloxinias, Clarkias, Delphiniums and Liliums, while the finest vegetables were Tomatos, Peas, Carrots, Beans, Cucumbers, Globe Artichokes, Beet, Asparagus and Turnips.

Mr. M. PRITCHARD, Christchurch, Hants., had a beautiful group of herbaceous and Alpine plants, Delphiniums, Irises, Pæonies, Heucheras and Campanulas were especially noticeable.

Messrs. DOBBIE & CO., Edinburgh, were represented by the most charming flowers of Sweet Peas; perfect in colour, form and substance. Among the best were May Campbell, Marion, Red Star, Melba, Mrs. Hugh Dickson, White King, Masterpiece, Etta Dyke, Mrs. Cuthbertson, Isabel Malcolm, Elfrida Pearson, Betty, Dobbie's Cream and Edrom Beauty.

Messrs. W. CUTBUSH & SON, Highgate, arranged a magnificent and varied collection of plants and cut flowers. Carnations, both in pots and vases, were conspicuously excellent, especially Rose Dore, Carola, Mikado, Fortuna, Scarlet Glow, Frank Galsworthy, White Enchantress, The President and Mrs. Fortescue.

Messrs. DICKSONS, LTD., Chester, contributed a bright and attractive collection of herbaceous flowers, including Pæonies, Delphiniums, Campanulas, Liliums and Spanish Irises.

Messrs. SUTTON & SONS, Reading, had a grand exhibit of vegetables and flowers. Excellent culture and admirable arrangement were conspicuous. Among the vegetables were Globe Artichokes, Tomatos, Potatos, Vegetable Marrows, Asparagus, Peas, Mushrooms, Cauliflowers, Lettuces, Beet, Carrots, Cucumbers, Sweet Corn, Calabash Gourd and Egg Plants. The most beautiful flowers were Sweet Peas, Campanulas and Delphiniums.

Messrs. H. B. MAY & SONS, Upper Edmonton, had a superb group of Ferns representing many distinct species and varieties.

Messrs. KENT & BRYDON, Darlington, arranged a rock-garden furnished with suitable plants, and also a miscellaneous group, comprising Rhododendrons, Roses, Hydrangeas, Liliums, Carnations, and other plants, all in excellent condition. Messrs. LAXTON BROS., Bedford, showed a splendid collection of Strawberries, including Maincrop, Rival, Reward, Royal Sovereign, Bedford Champion, The Laxton, Trafalgar, Progress, The Bedford, and Profit. Messrs. E. J. BATCHELOR & SONS, Harrogate, had a handsome group of Ferns, among which Nephrolepis were most conspicuous.

Messrs. F. SANDER & SONS, St. Albans, had grandly-flowered plants of the new Marguerite, Mrs. F. Sander, and a brilliant group of Orchids, among which Cattleyas were superb. Messrs. MANSELL & HATCHER, LTD., Rawdon, sent a beautiful group of miscellaneous Orchids, including Cattleyas, Cypripediums, Lælias, Odontoglossums, and others. Messrs. CHARLESWORTH & CO., Haywards Heath, contributed a small, but superb collection of Orchids, comprising Cattleyas, Miltonias, Odontoglossums, Odontioda Charlesworthii and O. Bradshawii. Mr. G. YELD, York, sent hybrid Irises and Hemerocallis.

Mr. CLARENCE ELLIOTT, Six Hills Nursery, Stevenage, arranged a small rock-garden with plants effectively placed. Mr. J. E. SABLER, Newbury, contributed a group of Ferns and flowers. Mr. J. WOOD, Boston Spa, arranged a massive rock-garden exhibit.

Messrs. PIPER'S, Bayswater, showed clipped trees.

MEDAL AWARDS.

Premier Prize, presented by Lord Middleton, for the most meritorious exhibit in the show was won by Messrs. Mansell & Hatcher, for a group of Orchids. This exhibit secured also the special Gold Medal for a collection of Orchids. The special Gold Medal for stove and greenhouse plants was given to Messrs. J. Backhouse & Sons, and that for decorative plants and flowers to Messrs. W. Cutbush & Sons.

Large Gold.—Messrs. Sutton & Sons, Webb & Sons, J. Backhouse & Son, Ltd., W. Cutbush & Son, and Kent & Brydon.

Gold.—Messrs. W. Artindale & Sons, Mansell & Hatcher, and W. and J. Brown.

Large Silver-gilt.—Messrs. Charlesworth & Co., J. Piper & Son, R. H. Bath, Ltd., H. B. May & Sons, Clarence Elliott, E. J. Hicks, and Laxton Bros.

Silver-gilt.—Messrs. C. F. Waters, J. Backhouse & Son, Ltd., G. Yeld, Dicksons, Ltd., Bakers, Dobbie & Co., Batchelor & Sons, J. Wood, and Sander & Sons.

Large Silver.—Messrs. C. W. Breadmore, C. Engelmann, Young & Co., Kelway & Son, M. Prichard, and Godfrey & Son.

Silver.—J. Backhouse & Son, Ltd., Seagrave & Co., G. Massey & Sons, J. E. Sadler, and George Prince.

ROYAL SOCIETY'S CONVERSAZIONE.

JUNE 14.—The Conversazione of the Royal Society was held at Burlington House on the above date. Among the exhibits were many of interest to botanists and horticulturists, and of these the following were specially noted:—

ROTHAMSTEAD SOIL EXPERIMENTS.

Drs. Russell and Hutchinson, of the Rothamstead Experimental Station, made a very interesting exhibition of photographs and apparatus illustrating the effects of partial sterilisation of soil on plant growth. The methods which they use for partially sterilising the soil are either heating the soil to from 55°-100° C. for one hour, or by exposing it for two days to toluene (25.4 per cent.).

In either case the general effect produced by these antiseptic agents consists in an initial diminution of the number of bacteria in the soil; but, after three or four days, the number of bacteria in the soil increases at a very rapid rate, and may rise from 6 millions to 50 millions in the course of two or three weeks. Parallel with this increase in the number of bacteria is an increase of ammonia in the soil, and also, according to the more recent experiments, an increase of other plant foods, particularly of potash and phosphates. The enhanced fertility of the soil induced by partial sterilisation, which was illustrated by a number of striking photographs, is to be attributed to the increase of ammonia and other plant foods as described above. The effects of partial sterilisation are not to be regarded as due to the destruction of harmful soil-bacteria, for, as Messrs. Russell and Hutchinson have shown, if bacteria from untreated soils are added to soils which have been subjected to partial sterilisation, a yet further increase in the fertility of that soil is observed. If, on the other hand, small quantities of untreated soil are added to the partially sterilised soil the bacteria increase for a short period, but then show a decided decrease. Whence it follows that ordinary soils contain some agents which put a check on the natural increase of the bacteria of the soil. These limiting factors or agents, Messrs. Russell and Hutchinson have shown to be minute unicellular animals (protozoa) which occur naturally in the soil and prey upon bacteria. The further results of these experiments, in which the attempt is being made to discover which classes of the protozoa living in the soil are responsible for keeping down the number of bacteria, will be awaited with interest.

STERILISATION OF GREENHOUSE SOILS.

The same authors' yet unpublished results on the effects of antiseptic agents on greenhouse soil bids fair to yield results of even greater importance to horticulture. As far as these experiments have gone at present, they appear to show that heating of soils to 100° C. has for its first effect the checking of plant growth, in any case as far as seedlings are concerned. This is in conformity with the results already obtained by

Mr. Spencer Pickering. Heating to 55° C. also produces a check on the growth of plants grown subsequently in such soils. In both cases, however, this depressing effect is transitory, and is followed by enhanced fertility. This more rapid growth is specially marked in soils which have been heated to 100° C.

MR. SPENCER PICKERING'S EXPERIMENTS WITH SOILS.

Mr. Spencer Pickering exhibited a series of germination-stages of seeds grown in soils heated to temperatures ranging from 30° to 150° C., which showed the checking effect on germination when seeds are planted in soils previously heated to high temperatures. He also showed photographs indicating the relative rates of growth of Tomato and Tobacco plants, which had been grown in soils previously heated to known temperatures. The most rapid growth was reached by the plants grown in soils which had been heated to about 80° C. A curious result, however, is to be observed in his later experiments, namely, that, if the soil is kept a month or two and a second crop is taken, the most vigorous growth is shown by the plants planted in the soils which were heated to the highest temperatures (from 125° to 150° C.).

THE ACTION OF STIMULANTS IN PROMOTING DIGESTION.

Professor H. E. Armstrong and Dr. E. F. Armstrong made an important exhibit, illustrating their investigations on the effects of various chemical substances on plant and animal tissues. In previous researches they had shown that certain plants may be used to indicate whether a given substance is or is not able to pass into their cells. Thus, leaves of *Aucuba japonica* serve admirably for this purpose. For, when an exciting substance passes into the cells of the leaf, hydrogen cyanide is liberated by the plant, and sets up certain chemical changes in other substances contained in the tissues, with the result that the leaf turns black. By this and similar methods Messrs. Armstrong have shown that the use of condiments, such as Onions, Horse-radish, and "mixed pickles," is to be defended on physiological grounds. By exposing leaves of *Aucuba* to these condiments they find that their blackening is produced. This means that the active principles of Onions, &c., penetrate through the living wall of protoplasm which lines the cells of the leaf, and, carried in the cells, stimulate them to secrete hydrocyanic acid. Professor and Dr. Armstrong argue, if these substances can pass the protoplasmic barriers of the leaf-cells, they can pass into the cells of the stomach; and if they can cause the secretion of hydrocyanic acid, they can stimulate the cells of the stomach to secrete the juices on which the digestion of food depends. We have thus an elegant method of discovering whether an operating or "digestive"—a liqueur, for example—is or is not worthy of physiological sanction.

KEW EXHIBIT.

Lieut.-Col. Prain, Director of Kew, exhibited a number of succulent plants in pairs; the individual of each pair, though belonging to widely-separated orders showing a similar appearance which was quite remarkable. Thus *Euphorbia Schimperiana* is almost identical in appearance with the *Asclepiad Ceropegia fusca*. Among other pairs exhibiting a like similarity are *Euphorbia stapelioides* and *Stapelia micrantha*.

The remarkable tree-like *Euphorbia Intisy*, a native of Madagascar, which is being exploited for the purpose of rubber manufacture, was also exhibited.

GARDENING APPOINTMENTS.

(Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.)

Mr. JOHN BLUCK, for 18 years Gardener and Bailiff to Sir OWEN ROBERTS, Henley Park, Guildford, Surrey, and previously Gardener to the late Lord FERRIBRIGHT at the same address, as Agent to the Lady FERRIBRIGHT. (Thanks for 2s. for the R.G.O.F. box.—Eds.)

Mr. J. L. WRIGHT, Gardener at "Mimborya," Drewry's Bluff, Virginia, U.S.A., and previously Gardener to E. D. MORGAN, Westbury, Long Island, U.S.A., and also at Mole Park, Maidstone, Kent, as Manager to J. S. SCOTT-PARRISH, Esq., Mimborya and River Farm Estates.

LAW NOTE.

GARDENER OR ODD MAN?

At Chelmsford on the 9th inst., Mr. Percy Preston, described as of Runwell, was summoned for employing a male servant without a licence on April 29. The local taxation officer said that the defendant, who generally lived in London, had a house at Runwell, where he sometimes spent week-ends. A man named Wood was employed there to look after the garden, clean the windows, and do other work. In addition, when Mr. and Mrs. Preston were away, Wood acted as caretaker. He was paid 18s. a week. The prosecution submitted that the man was substantially employed as a gardener, but the defendant submitted that the man was only a labourer. P.C. Chapman deposed to the facts, and stated that the previous year Mr. Preston had a licence for this man. Mr. Percy added that the defendant claimed his money back that he had paid for the licence, and he (Mr. Percy) was sent over to make inquiries. He went over to the defendant's house, and subsequently advised the committee not to refund the money, and this advice was followed.

Mr. Preston, in the witness-box, said that his house and grounds occupied about 1 1/2 acres, and about an acre of it was paddock. Wood did odd jobs, but understood nothing about flowers, and was not really a gardener. Whenever any skilled labour was required in the garden witness had to employ one from a nursery.

The case was dismissed.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD OF THE weather throughout the British Islands, for the week ending June 10, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—The general condition was dry and very fine. Thunderstorms were experienced, however, in many parts of Great Britain on the 4th, at Portsmouth on the 5th, and at several stations in the south-west of England and the Channel Islands on the 8th. At some localities in Guernsey the storm was very severe.

The temperature was above the average, the excess being as much as 6° in England S.W. and between 4° or 5° in many other parts of the Kingdom. At most places the highest of the maxima were registered between the 5th and 8th. In England N.E. the thermometer rose to 84°, and in several other districts to 83° or 82°. In Scotland N., however, there was no higher reading than 72°. A sudden fall occurred on Thursday evening and the range of temperature during the week was very large. The lowest of the minima, which were recorded generally on the 10th, varied from 34° in England S.W., 35° in England N.W. and Scotland N., and 36° in some other districts to 40° in Ireland S., and to 52° in the English Channel. The lowest gas readings were 25° at Llangamarch Wells and Burnley, 27° at Southport and Wisley, and 30° at Buxton, Crathes, and Markree Castle.

The mean temperature of the sea.—At nearly all the stations the water was warmer than during the corresponding week of last year, the difference being considerable; at Cronarty it was more than 6°. The means for the week ranged from 61° at Margate, 60° at Eastbourne, Newquay, and Seaheld, and 59° at Teelin to 51° at Wick, and to 43° at Lerwick.

The rainfall exceeded the average in the English Channel, owing to the thunderstorm on the 8th, but was scarcely appreciable over the kingdom generally. At very many stations the week was rainless. At Guernsey the thunderstorm yielded between 1 1/2 inch and 1 7/8 inch.

The bright sunshine was above the normal in all districts, the excess being large except in Scotland N. The percentage of the possible duration ranged from 76 in England S.E. and S.W. and 73 in England N.W. and Scotland W. to 58 in Scotland E., 57 in Ireland N., and to 35 in Scotland N.

THE WEATHER IN WEST HERTS.

Week ending June 14.

Five degrees of frost.—The recent very warm period lasted from May 27 to the 9th of the present month, or for exactly a fortnight. During that time the shade temperature rose to, or above, 75° on 12 days, and on two of them exceeded 80°. The first two days of the past week were very warm, but since then the weather has been as a rule very cold for the time of year. In order to show the completeness of the change it may be stated that on the warmest day the highest reading in the thermometer screen was 76°, and on the coldest day 60°. On three nights the exposed thermometer registered respectively 3°, 2°, and 5° of frost. In the last 25 years the same thermometer has on only two previous occasions registered as low a reading in June. The ground is at the present time 2° warmer than is seasonable at 2 feet deep, but at about an average temperature at 1 foot deep. No rain has now fallen for 13 days, if we except a very insignificant quantity deposited on the 3rd inst. There has been no percolation at all through either of the soil gauges for over a fortnight. The sun shone on an average during the week for 9 1/2 hours a day, or for three hours a day longer than is usual in the middle of June. On one day the sun was shining brightly for 14 hours 49 minutes. Only once before in June have I recorded such a long duration on any single day. Light airs and calms have alone prevailed, and the direction of these light airs has been principally some point between north and east. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by seven per cent. E. M., Berkhamsted, June 14, 1911.

MARKETS.

COVENT GARDEN, June 14.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices, including Arums, Carnations, Pinks, and Roses.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage and plants, including Adiantum Fern, Agrostis, and Asparagus.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various potted plants and their prices, including Aralia Sieboldii, Araucaria excelsa, and Asparagus plumosus.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices, including Apples, Apricots, Bananas, and Cherries.

Fruit: Average Wholesale Prices (continued).

Table listing various fruits and their prices, including Cherries, Figs, Gooseberries, Grapes, Lemons, and Melons.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Asparagus, Beans, Beetroot, Cabbages, Carrots, Cauliflowers, and Cucumbers.

REMARKS.—Australian and Tasmanian Apples are arriving in excellent condition, but they have not sold quite so freely, which may be attributed to the commencement of the soft fruit season. Peas from the same source are now a limited supply. Supplies of hothouse Grapes exceed the demand. Strawberries are a very heavy supply from both Southampton and Kent. French Cherries have been very abundant. English Cherries are arriving from Kent in a satisfactory condition, but only a moderate crop is anticipated. A few Raspberries were to be purchased this week at 4s. per lb., which may be described as a record price. Selected fruits of Peaches and Nectarines have been scarce, but those of a medium quality have been fairly plentiful. Of Figs, the market is over supplied, their prices ruling low. Tomatoes are abundant from all sources, and are meeting with ready sales at lower rates. Trade generally is quiet. E.H.R. Covent Garden, June 14, 1911.

Potatoes.

Table listing various potato varieties and their prices, including Lincolns, King Edward VII, Northern Star, Evergood, and Maincrop.

New Potatoes.

Table listing various new potato varieties and their prices, including Jerseys, St. Malo, and Cherbourg.

REMARKS.—Trade in old tubers still remains firm, and the season promises to finish better than was expected. Arrivals are very light, and stocks on hand in London are also light. New Potatoes are much cheaper. E.H.R. Newbarn, Covent Garden and St. Pancras, June 14, 1911.

Obituary.

REV. ALAN CHEALES.—The death of the Rev. Alan Cheales, a well-known amateur rosarian, occurred on June 3, at Edinburgh. Mr. Cheales, who was 83 years of age, was for 34 years vicar of Brockham, in Surrey. He established a Rose Society in Brockham as far back as 1868, and on his removal to Reading founded a similar society in that town.

FRED. R. MATHISON.—The death of Mr. Fred. R. Mathison, market nurseryman, of Clematis Brook, U.S.A., occurred on May 21. An obituary notice in *Horticulture* speaks of Mr. Mathison as "one of the finest men who ever adorned the florist trade in America." Born at Codsall Wood, Staffordshire, he emigrated to America 43 years ago, and, like many other English gardeners in that country, soon made a name for himself as a successful cultivator. After a time he entered into business as partner with one of his fellow employees at the establishment of Mr. C. J. Power. The partnership was dissolved, and he entered into a similar business with Mr. Charles Evans, at Watertown, Massachusetts. Finally, he set up in business on his own account, and specialised in Roses.

C. E. BRYDGES.—The death of C. E. Brydges, in his 76th year, occurred at his home at Los Angeles, on March 20. He emigrated to Canada from this country early in his career, and followed his calling as an estate agent. But he was a born florist, and soon abandoned estate work to engage in plant cultivation. In 1896 he purchased a tract of land, and commenced growing Roses for commercial purposes, working them on the Manetti stock. The business of Rose-growing flourished, and he also grew a great variety of other plants. He was especially keen on securing novelties, and, says the *Florists' Exchange*, "saw the beauty in a new plant before he saw the dollar."

FLORENT VAN HAL.—We learn from our contemporary, the *Revue de l'Horticulture Belge*, of the death of Mr. Florent Van Hal at Turnhout. Mr. Van Hal, who was 56 years of age, enjoyed a wide reputation as a successful cultivator and exhibitor of Chrysanthemums, of which plants he had in his garden upwards of 200 varieties.

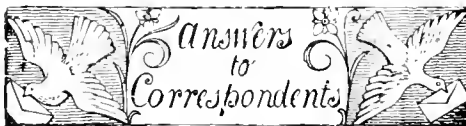
ENQUIRIES AND REPLIES.

WHICH IS THE BEST BOILER?—*J. C.* enquires on p. 380 for information regarding an efficient and economical boiler for heating 2,200 feet of 4-inch pipes with hot water. I have a block of four Cucumber houses, each 140 feet long, which is heated by a Thames Bank No. 2 horizontal tubular "Champion" boiler. This boiler is 9 feet 6 inches in length, 2 feet 9 inches in width, and the same in height. It has eleven pipes on the top, and four at the side; to these is attached 2,356 feet of 4-inch piping, which the boiler heats in the most efficient and economical manner possible. This boiler has been in use four years. Another Thames Bank horizontal tubular boiler, No. 1 pattern, has only nine pipes on the top and three pipes at the side, and is 9 feet 6 inches long, 2 feet 4 inches in width, and the same in height. This boiler has been in use nearly 15 years, and heats 2,000 feet of 4-inch piping. The "Robin Hood" boilers are praised by friends who have had them in use for some time, and, like the horizontal tubular boilers, are made to heat from 575 feet up to 3,000 feet run of 4-inch piping. No. 10 Robin Hood boiler will heat 2,450 feet of 4-inch piping, equivalent to the capacity of *J. C.*'s present two boilers. The Robin Hood is said to be an efficient and economical type of boiler. *H. W. Ward, Rugby.*

SCHEDULES RECEIVED.

Windsor, Eton and District Rose and Horticultural Society's eightieth annual show, to be held in the slopes of Windsor Castle on Wednesday, June 28. Hon. secretaries, Rev. E. G. Reid, The Clusters, Windsor Castle, and Mr. C. A. H. Dunn, London & County Bank, Ltd., Westminster.

Falling Horticultural Society's forty-seventh annual summer exhibition, to be held in Gunnerbury Park, Acton, on Wednesday, July 5. Secretary, Mr. Geo. Cannon, Cannon's Nursery, Mattock Lane, Ealing.



* * * The Editors will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for reproduction in this Journal.

ACORN PRODUCING TWO PLANTS: *E. D.* This is a case of the seed producing two embryos, both of which grow into equally strongly-developed seedlings. You are mistaken in your statement that one seedling has only one cotyledon; both have two cotyledons, but in one seedling one of them is smaller than the other. Similar cases have been noticed frequently.

BIRCH TREE LOSING ITS FOLIAGE: *W. B.* No disease is present. Fumes containing oxides of sulphur have probably caused the defoliation.

BLACK SPOTS ON GRAPE: *Salisbury.* The black spots are the spore cases of a minute fungus—*Pilobolus*, which grows abundantly on manure. The spore cases are shot upwards, and, being viscid, adhere to anything with which they come in contact. Sprinkle sawdust or cut grass over the border.

CARNATIONS DYING: *A. H. D.* No disease is present. Some constitutional defect in the variety may be responsible for the trouble, or the treatment afforded the plants may have been unsuitable. The roots have rotted, and this points to the need for great care in watering.

DELPHINIUM LEAVES TURNING BROWN: *C. H.* There is no disease in the leaves of your Delphinium plants. Unsuitable cultural conditions are responsible for the trouble.

EMPLOYMENT AT KEW: *C. B. B., Borough Green.* If you write to the Director of the Royal Botanic Gardens, Kew, he will send you a memorandum of conditions of employment as gardener, together with a form of application. This must be returned to the Director, accompanied by a letter in the applicant's own handwriting, with testimonials in English from employers or head gardeners. Applicants must be unmarried, between 19 and 24 years of age, and must have been employed not less than four years in good gardens or nurseries. They must be healthy, free from physical defect, and not below average height. Gardeners whilst at Kew receive an allowance of 21s. per week to meet the cost of subsistence. Those who are selected to serve as sub-foremen receive 27s. per week. Extra allowances are granted for Sunday duty, a certain amount of which is compulsory.

ERADICATION OF CHARLOCK BY SULPHATE OF IRON: *A. D. S.* In reply to your request for further information respecting the spraying of Charlock, printed in our issue for May 27, p. 329, we give the following details:—The strength is 22 per cent., and the amount 600 litres per hectare. This was sprayed on to the Oats on June 3. (600 litres are equal to 152 gallons, and one hectare equals about 2½ English acres). A 22 per cent. solution means 22 grams per 100 cubic centimetre. This works out at about 2 lbs. of sulphate of iron per one gallon of water, and about 50 gallons of this solution per acre. The sulphate of iron is best used in powder form, and the solution should be made up immediately before use and applied in the form of a fine spray.

FERNS DYING: *E. P. D. & Sons.* The injury is caused by the Fern edworm. Sprinkle tobacco dust or flowers of sulphur on the soil, and also dust the same on the stems when moist.

FIGS DISEASED: *C. A. B.* The fruits are affected by Fig rot, caused by *Botrytis*. This disease is due to the presence of too much water, both in the soil and in the atmosphere. Abundant ventilation is necessary to check the spread of the disease.

LILYUM CANDIDUM ROTTING: *C. H.* The Lily disease, caused by *Botrytis*, has attacked the stem. Spray the plants with liver of sulphur—1 ounce in 3 gallons of water.

NAMES OF PLANTS: *E. P. & Son.* *Iris orientalis* (syn. *I. ochroleuca*).—*Anrius.* Rose "Conrad Ferdinand Meyer," a hybrid from *R. rugosa*, introduced by Froebel in 1900.—*E. K.* 1, *Cytisus hirsutus*; 2, *Ranunculus aconitifolius*; var. fl. pl.; 3, *Muscari comosum* var. *monstrosum*; 4, *Euphorbia Cyparissias*; 5, *Anchusa sempervirens*; 6, *Iris orientalis*; 7, *Vesicaria utriculata*; 8, *Euonymus japonicus* var.; 9, specimen too scrappy to name; 10, *Helianthemum vulgare* var. *cupreum*.—*J. B. Wall.* 1, *Veronica incisa*; 2, *Diervilla rosea* var. "Eva Rathke"; 3, *Saponaria multiflora*; 4, *Ceanothus azureus*; 5, a species of *Cistus*; 6, *Veronica decumbens*.—*C. R.* 1, *Euphorbia pilosa*; 2, *Asphodeline liburnica*.—*C. H.* *Cattleya Amethystoglossa*, a malformed flower.—*Seurab.* *Odontoglossum mulus*.—*F. T.* 1, *Pteris tremula*; 2, *Adiantum formosum*; 3, *Polypodium aureum*; 4, *Davallia bullata*; 5, *Blechnum occidentale*; 6, *Adiantum decorum*.—*O. H. T.* 1, *Cochlioda vulcanica*; 2, *Odontoglossum blandum*; 3, *Oncidium pubes*; 4, *Calanthe veratrifolia*.—*W. C. S.* 1, *Iris graminea*; 2, *Cyrtanthus obliquus*; 3, *C. Huttonii*.—*E. G. L.*; and *J. B. Stratford.* *Muscari comosum* var. *monstrosum*.

PREPARING AN ASPARAGUS BED: *J. B.* There is no reason why you should not be able to cultivate Asparagus successfully in a garden in the Manchester dist. The plant is not fastidious as regards soil, but needs an exposed site. The ground should be well drained, enriched with manure, and, if heavy, lightened by adding suitable materials. The present is a favourable time for raising a batch of plants for planting out next April. Sow three or four seeds each in 3-inch pots containing an ordinary compost of loam and leaf-mould, stand the pots in a shady place and afterwards remove all but one plant. As the winter approaches, plunge the pots in ashes to preserve them from damage by frost. Plant the seedlings in their permanent quarters next spring.

PROPAGATION BY LEAVES: *Miss Chandler.* *Hoya carnea* will root and grow from leaves quite readily. If leaves are planted in sandy peat and plunged in a strong bottom heat early in February, shoots will appear in from 8 to 10 weeks, and these will make growths 10 feet long the first season.

RED SPIDER ON VINES: *Jno. R. H.* If the specific has proved so valuable we will gladly print a letter describing the ingredients and mode of preparation. But, in the event of your desiring to keep the character of the preparation a secret, the only method of gaining publicity open to you is that of advertising.

STRAWBERRIES UNSATISFACTORY: *J. A.* No disease is present. The injury to the roots is due probably to the action of some fertiliser.—*W. C., Winchester.* The plants are affected with Strawberry-mildew, a disease which is favoured by a damp atmosphere. Spray the plants with a pale, rose-red solution of permanganate of potash.

STRAWBERRY: *G. F. P., Teneriffe.* The Strawberry is most probably *Fragaria chiloensis*.

WISTARIA: *J. Shields.* If the plant of *Wistaria* has covered all the space it is designed to fill you should treat the long, slender shoots as Grape vines are treated, that is, stop them when they have made a few joints of young wood and are, say, from 6 inches to 12 inches long. You do not state whether your plants are trained on walls or are grown as pot plants, but the treatment as regards pruning is the same in either case. The second shortening of the shoots should be done as soon as the flowers are over and they may then be "spurred." If your plants are in pots, they should be plunged to the rim, and fed with manure water. If planted out in good soil, manure is only necessary when the plants show any signs of decreasing vigour, and water only during times of exceptional drought.

Communications Received.—*Ajax.* We cannot undertake to reply to questions through the post, but will do our best to help you in matters that can be briefly treated upon in "Answers to Correspondents."—*G. V. P., Teneriffe.* *E. L. Ledgerline.* *A. S.* Old Subscriber.—*J. B.* Mrs. H. M. L. *J. C.* *G. R.* *E. A.* *E. G.* *C.* *J. P.* *Kildare.* *Mrs. S.* *Croydon.* *S. C.* *J. McN.* *W. E.* *F. W.* *M. C.* *B. J.* *S. H.* *S. T.* *G. R.* *J. T. W.* *C. R.* *H. W.* *E. A.* *H. H.* *C. E.* *F. W.* *J. T. W.* *W. H. W.* *J. D.* *R. P.* *B. J.* *H. W. B. H.* *H. C. & Son.*—*K. & Son.* *Sir J. T. D.* *L. S. R. H. M.* *Sir Frank C.*

THE

Gardeners' Chronicle

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CONTENTS.

Bio-chemists at Rothamsted	410	Plants, new or noteworthy—	
Books, notices of—		Cypripedium luteum	402
Lessons on Soil	405	and C. tibeticum	402
The Seminarium	412	Primulas of the European Alps	413
The Studio	405	Rhododendron "Cynthia"	406
Vocabulaire Forestier	405	Rhododendron hybrids, hardy	416
Botanical expedition to Lower Siam	406	R.H.S. medal awards	418
Cattleya Warscewiczii alba	412	Rosa hemispherica	418
Dianthus neglectus	414	Rosary, the—	
Festival of Empire Exhibition, award at the Freem memorial prize	411	William Allen Richardson	417
Gardeners' Company, presentation by the	412	Royal Cornwall Show, St. Anstell	412
Gower and Chaucer, the flowers of	401	Royal International Horticultural Exhibition, 1912	415
Gumbleton, Mr. W. E., the late	412	Scotland, notes from	415
Hippeastrums, the culture of	419	Societies—	
Hydrangea hortensis, new French and German varieties of	412	National Vegetable	419
Hydrangeas, how to produce blue	412	Royal Horticultural	412
Kew and the Coronation holidays	411	Royal Meteorological	420
Mackenzie, Mr. Donald, presentation to	412	Spring flowers in the South-west	404
Mosquito bites, a remedy for	412	Tree planting on links	415
Obituary—		Tropaeolum speciosum	418
Pringle, Dr. Cyrus G.	420	Vines, the forcing of	418
Eurothera ovata	418	Ward, Professor Marshall	411
Oncidioda Cybele	404	Weather in North Wales	418
Orphan Fund, Royal Gardeners', origin of the	418	Week's work, the—	
Oxalis enneaphylla	414	Apiary, the	409
		Flower garden, the	408
		French garden, the	409
		Fruits under glass	408
		Hardy fruit garden	408
		Kitchen garden, the	409
		Orchid houses, the	407
		Plants under glass	408

ILLUSTRATIONS.

Cup presented by Messrs. Clay & Son	411
Cypripedium luteum	402
Cypripedium tibeticum, 403; in its Chinese habitat (Supplementary Illustration)	
Dianthus neglectus in Mr. Reginald Malby's garden	415
Eurothera ovata	418
Oncidioda Cybele	404
Oxalis enneaphylla in Mr. Reginald Malby's garden	414
Rhododendron "Cynthia," a well-flowered specimen of	406
Rhododendron Smirnowii	417
Tomato plants showing the effects of soil sterilisation	410
Utricularia montana, a finely-flowered plant of	405
Worshipful Company of Gardeners, presentation by the	412

THE FLOWERS OF GOWER AND CHAUCER.

IN the following papers I propose to deal with the flowers of Gower and Chaucer in the same way in which I dealt with the flowers of Spenser (see *Gardeners' Chronicle*, 1908, vols. xliii. and xliv.). I shall quote every passage in which flowers are mentioned as shortly as I can consistently with giving a fair sense of the passage, and shall add short notes where I think that some explanation will be useful. The two poets may very well be taken together. They were so nearly contemporary that they may be taken as good representatives of the English literature of the 14th century. They were friends, with occasional breaks in their friendship, and they had a mutual respect for each other. Chaucer spoke of Gower as "the moral Gower," and in the "Confessio Amantis," Gower introduces Venus praising Chaucer as "her disciple and Poete." I begin with Gower. His list of flowers is meagre, and there is very little of description of them, but I think they are worth noting.

THE FLOWERS OF GOWER.

John Gower was born about the year 1325 and died in 1405. He may have travelled abroad, but not much, and he was

a wealthy man with extensive property in the country, but his life seems to have been passed chiefly in London, and his poems reflect very little of his country life. He was buried in the Church of S. Saviour, Southwark, to which he had been a liberal contributor.

His only English work is the "Confessio Amantis," but he published other poems in French and Latin. My quotations are from the edition in three volumes edited by Professor H. Morley from the text of Dr. Reinhold Pauli, 1857.

ANABULLA.

His herbe is anabulla named,
Which is of great vertue proclaimed.
III. 129.

"Anabulla—anglice Spurge." Wright's *Vocabularies*, col. 563. "Anabulla major Spurge. Mezerion . . . gallice et anglice. Spurge." Alphita, 15th Cent.

BALDMONEY.

Loke how a seke man for his hele
Taketh baldemoin with canele. *I. 59.*

Baldmoney is *Meum athamanticum*, a British plant.

BEAN.

For where he shall ought yive or lene,
He woll ayeinward take a bene,
There he hath lent the smalle pese.
II. 275.

CANELE.—See Baldmoney.

Canele is Cinnamon.

CELANDINE.

Celidoine freshe and grene. *III. 131.*

Celandine or Swallow-wort is one of the earliest of our spring flowers.

CHICORY.

Thilke herbe also, which him befallth,
Cicorea the beke him calleth. *III. 132.*

COCKLE.

To sowe cockel with the corn,
So that the tilthe is nigh forlorn. *II. 190.*
A common proverb.

FENNEL.

And eke his herbe in speciall
The vertuous fenel it is. *III. 129.*

FELDWOOD.

Tho take she feldwode and verveine,
Of herbes ben nought better tweine.
II. 262.

A plant of high repute from very early times, the name seems to have been given to the gentian and to the mullein.

FILBERT. See Nut.

HAWTHORN. See May.

HEBENON.

Of hebenus that slepy tre
The bordes all aboute be. *II. 103.*

It is now very generally agreed that the Ebenus or Hebenus of Gower and other old writers, including Shakespeare's "Cursed Hebenon," is the Yew.

HELLEBORE.

His herbe, which is him betake,
Is hote eleborum the blacke. *III. 130.*

LAUREL.

This Daphne into a lorer tre
Was turned which is ever grene.
Gower's laurel is the Bay.

LAPACIA.

To whom Lapacia the gret
Is herbe, but of no beyete. *III. 131.*
Probably *Lapathum*, i.e., Sorrel.

LILIES.

In the gardin as they gone
The lile croppes one and one,
Where that they weren sprongen out,
He smote of, as they stood about.
III. 249.

In this passage "lillies" is generic for "flowers."

LIME.

And as he rode under a linde
Beside a roche. *I. 119.*

MARJORAM.

Of majoran his herbe is grounded.
III. 133.

MARRUBIUM.

Marrubium his herbe also. *III. 130.*
Marrubium is Horehound.

MARIGOLD.

But Phebus, for the reverence
Of that she hadde be his love,
Hath wrought through his power above,
That she sprong up out of the molde
Into a flour, was named golde,
Which stant governed of the sonne.
II. 356.

MAY.

Lich unto the freshe May,
Whan passed ben the colde shoures,
Right so recovreth he his floures.
II. 267.

NARCISSUS.

The account is given of the death of Narcissus:

And than out of his sepulture
There spronge anon peraventure
Of floures suche a wonder sight,
That men ensample take might
Upon the dedes which he dede.
And tho was sene in thilke stede,
For in the winter fresh and faire
The floures ben, which is contraire
To kinde, and so was the folie
Which felle of his surquedrie. *I. 121*

The Daffodil.

NUT.

Phillis in the same throwe
Was shape into a nutte-tre,
That alle men it mighte se,
And after Phillis philliberd
This tre was cleped in the yerd,
And yet for Demophon to shame
Into this day it bereth the name. *II. 30.*

The story of Phyllis and Demophon, with the origin of the word filbert, was very popular with the mediæval writers. See also in the *Flowers of Chaucer*.

OLIVE.

In that caldron to-gider as blive
She nut and toke than of olive
A drie braunche. *II. 266.*

PEA. See Bean.

POPPY.

All aboute round
There is growend upon the ground
Popy, which bereth the sede of slepe.
II. 102.

PRIMROSE.

1. The frosti colde Janiver of his dole
He yfith the firste primerole. *III. 125.*
2. His stone and herbe as saith the seole
Ben achates and primerole. *III. 100.*

PLANTAIN.

His stone is jaspe and of plantaine
He hath his herbe soveraine. III. 151.

ROSE.

For sodeinlich right as a rose
So sodeinliche down he felle. I. 218.

ROSEMARY.

His herbe propre is rosmarine,
Which shapen is for his covine. III. 152.

Gower's spelling retains the true derivation of the name, ros marinus.

time. See under Sage in the Flowers of Chaucer.

SAVORY.

His herbe is claped saturie,
So as those olde bokes saie. III. 122.

VERVAIN.

The toke she fellwode and verveine,
Of herbes ben nought better tweine. II. 262.

Vervain is now restricted to the wild Verbena. In Gower's time it meant any

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM LUTEUM* AND C. TIBETICUM†

(See figs. 178, 179, and Supplementary Illustration.)

HARDY Cypripediums have recently been increased by the addition of two noteworthy species from Western China as a result of the writer's collecting work in that country. One of these, *C. tibeticum*, reached this country in April, 1905, and flowered in the following June in Messrs. Veitch's Coombe Wood Nurseries. In 1906 it flowered again, and was exhibited at the Temple Show, May 29, receiving a First-class Certificate. Very few roots were introduced, and the plant has in consequence never become general in gardens. On the Arnold Arboretum second expedition just concluded (the writer's fourth in all) a considerable number of roots of *C. tibeticum* and an even larger quantity of a new and yellow-flowered species (*C. luteum*) have been successfully introduced to cultivation. The roots were received at the Arnold Arboretum, Boston, U.S.A., on April 12 last, and a few plants were potted and kept in a greenhouse. On May 6, *C. luteum* opened its flowers for the first time under cultivation, and the photograph reproduced in fig. 178 was taken. The flowers are represented less than one-third natural size in the photograph, but the originals were only about half their usual dimensions on account of their having been forced.

The roots were dug up in October, 1910, transported some eighteen hundred miles by porters, boat, and steamer, and finally shipped from Shanghai on March 14, 1911. Although the roots were a full six months from the time of collecting to that of planting, they travelled very well, and hundreds are growing away freely in the nurseries of the Arnold Arboretum. This augurs well for their vitality and indicates that their acclimatisation should not be a difficult matter. Their hardiness, as judged from the altitude at which they occur in their native state, and from plants growing in association with them, is assured. Both species are sturdy, vigorous growers.

C. luteum is an erect-growing species, 20-45 cm. high. The flowers are solitary, with sepals and petals deep, clear yellow, the pouch, though occasionally quite yellow, has usually a few spots or blotches of orange-brown on its face. The stem is stout, covered with a short, curly, brownish pubescence. This pubescence is more pronounced immediately below the flowers, when it is more or less glandular. In addition to the usual tubular sheaths at the base, the stem bears five to six ovate, acuminate, subsessile leaves, 6-20 cm. long, 3-8 cm. broad. These leaves have very prominent nerves and are pubescent. The bract is similar to the leaves but smaller. Flowers, 6-9 cm. across; dorsal sepal, 3½-4½ cm., ovate, slightly arching forward; petals, 3-3½ cm., ovate, spreading, and slightly reflexed; pouch, 3½-5 cm., and 2½-3 cm. across.

This yellow-flowered Cypripedium was originally discovered by Père David, in June, 1869, in the petty state of Mupin, situate in the extreme west of China. It was collected a few years later by Père Delavay, who records it as being abundant around Tali, Yunnan Province, at an altitude of 3,000 metres. The present writer first collected it in north-western Hupeh, where it is extremely rare. Later, he met with it in greater

* *Cypripedium luteum*, Franch., in *Pl. David*, part 2, p. 126.

† *Cypripedium tibeticum*, King vide Rolfe in *Journ. Linn. Soc.*, vol. xxix. (1902), p. 320. *Orchid Rev.*, 1905, p. 194. *Bot. Mag.*, tab. 8070. *Gard. Chron.*, vol. xxxix. (1906), p. 348, with fig. *Orchids of Sikkim Himalaya*, tab. 447. Syn = *Cypripedium corrugatum*, Franch., in *Journ. de Bot.*, 1891, p. 251.



FIG. 178.—CYPRIPEDIUM LUTEUM, A NEW, HARDY SPECIES FROM WESTERN CHINA; FLOWERS YELLOW.

SAVIN.

There is an herbe, which men calleth
Savine, and that beloveth nede
To him, that wolle his purpos spede. III. 150.

The Savin is our wild Juniper.

SAGE.

Saulge is his herbe appurtenaunt
Aboven all the remenaunt. III. 151.

Saulge is the Salvia or Sage, a plant of the highest reputation in Gower's

herb of supposed magical power. By the Latin Poets the word "seems to have been applied to any kind of herbs or to the boughs and leaves of any kind of trees gathered from a pure or sacred place." *Smith's Diet.*

The Vervain ends the Flowers of Gower. I now go to the richer collection of Chaucer. H. N. Ellacombe, *Bitton Vicarage*.

(To be continued.)

quantities in various localities in the Sino-Tibetan borderland.

Its habitat is the margin of thin woods and thickets. It also occurs on scrub-clad boulders stranded in bogs. Around Sungpan, in the extreme north-west corner of Szechuan, it is abundant in thin woods of Spruce and Silver Fir, growing near the margin of certain glacial torrents, which are surcharged with petrifying limestone. Nevertheless, having seen it growing in a variety of soils one would hesitate to say that a cal-

colour; pouch usually dark maroon-purple, rarely paler. Leaves, 3 rarely 4, ovate, or nearly so, acute, 5-13 cm. long, 2-7 cm. broad, bright green, nearly glabrous, ciliate and sessile. Flowers 9-15 cm. across; dorsal sepal 5-6 cm. long, ovate, acute, arching over towards pouch and forming a hood; petals more or less elliptical, acuminate, 4-6 cm. long, sometimes partly spreading, but usually drooping, and extended more or less parallel to the pouch; pouch 3-8 cm. with semi-circular mouth.

has seen the two (*C. tibeticum* and *C. macranthon*) growing wild or under cultivation would never regard them as one and the same species.

The specimens in the Kew Herbarium from the Indian side (Chumbi Valley) are all taller than those from the Chinese side, otherwise they agree perfectly. Possibly the Chumbi specimens were growing among shrubs or tall herbs.

C. tibeticum is widely spread along the Sino-Tibetan borderland and on the Alpine meadows at an altitude of 3-4000 metres, and is



FIG. 174.—*CYPRIPEDIUM TIBETICUM*.

(See also Supplementary Illustration.)

careous soil is necessary. A cool situation and plenty of leaf soil, would seem the essentials. This plant, in habit, vigour and general appearance, closely resembles the North-American *C. spectabile*, and where that species thrives *C. luteum* should succeed.

C. TIBETICUM.—This species, as known to the writer, is a dwarf-growing plant, 8-20 cm. high, but those from the Chumbi Valley attain a height of 35 cm. The flowers are solitary, very large, with sepals and lateral petals striped and reticulated with reddish-purple on a paler ground-

This Tibetan *Cypripedium* was originally discovered in the Chumbi Valley in 1879, and received the manuscript name of "*tibeticum*" from Sir George King. Subsequently, it was regarded as a variety of the Siberian *C. macranthon*, until recognised by Rolfe in 1892 as distinct. The late Monsieur Franchet named Père Delavay's specimens of this plant *C. macranthon*, var. *corrugatum*, and later, in 1894, raised it to specific rank under the name of *C. corrugatum*. The Siberian *C. macranthon* is widely spread and admittedly variable, but anyone who

one of the commonest plants. It occurs in countless thousands, as the Supplementary Illustration, which is reproduced from a photograph taken at the end of June, 1908, indicates. It is possibly one of the finest of all red-flowered hardy *Cypripediums*.

In addition to the two species I have named, the Arnold Arboretum is in possession of a third, introduced with them from the same regions. This may or may not be the widely-spread *C. macranthon*. Mr. Rolfe hopes to investigate the matter and decide its identity. *E. H. Wilson.*

SPRING FLOWERS IN THE SOUTH-WEST.

THE first two months of the year—January and February—were very warm and equable, and it seemed as if an early season was in prospect. At the end of February the buds on *Jasminum primulinum* appeared to be on the point of expansion, but in March bitter weather was experienced and vegetation suffered a severe check. The wind blew continually from the north or east, and there was a marked absence of sun; hence, at the time of my departure for Falmouth on March 24, not a single flower had opened on *Jasminum primulinum*. However, the weather during the winter had been very mild, 2° of frost being the utmost registered up to the end of March. On arrival at Falmouth I found it very cold, with a searching east wind blowing and frequent snow showers. Sharp frosts were experienced, 8° being registered at Carlew and Tregothnan. This hard frost so far to the south-west led me to fear that on my return I should find that 10° or 12° of frost had been recorded, but on reaching home after a month's absence I found that only 3° of frost had been recorded. This I attribute to the fact that Kingswear is absolutely protected from the north and east, and this spring the cold winds undoubtedly, did more harm than the frosts. In December, *Crocus Imperati*, in a large group, was a lovely sight, and *Iris stylosa* provided a welcome gathering of scented flowers, though not in such quantity as in former seasons, owing, no doubt, to last year's dull summer. The charming little annual, *Ionopsidium acule*, carpeting the ground among dwarf bulbous Irises, was as beautiful as ever and comes up year after year from self-sown seed. A large colony of the rare and delightful *Romulea pyra* with satin-white, Crocus-like flowers having golden throats, was a pretty picture when in full bloom, and *R. nivalis*, white-feathered with blue and rather larger flowers, was very attractive. The blue Chilean Crocus, *Tecophilæa cyanocrocus*, was a lovely sight when bearing its deep, Gentian-blue blossoms, but it is not as happy here as it is in certain gardens, where it increases from self-sown seed; with me it has to be procured afresh about every two years. *Hardenbergia monophylla alba*, which flowered last year for the first time, had nearly expanded its flowers at the end of February, but the inclement weather of March had such an adverse effect upon the blossoms that they fell short of perfection. *Euryops virgineus*, on the other hand, which came into flower early in March, seemed quite indifferent to the weather, and by the end of the month was an unbroken sheet of gold, composed of countless tiny yellow flowers. Now, at the end of May, it is still in good bloom, so that it has been effective for three months. This South African shrub appears to be fairly hardy, as it has experienced 10° of frost without being injured and has reproduced itself from self-sown seedlings. *Daphne indica* produced its sweetly-scented flowers all through the winter, but the three-weeks drought we have just experienced has seriously injured the shrub and it may not recover. A splendid specimen of *Veronica Hulkeana*, which has been illustrated in these columns and was 7 feet high and 8 feet across, died last autumn from no apparent cause. It has now been replaced by another plant about 3 feet in height, but it will be many years before the new specimen attains the size of its predecessor. Last May, *Leptospermum scoparium* was a sheet of white with its innumerable small flowers, but this year, owing to the lateness of the season, it is only in bud at the present time. In April, *Jasminum primulinum*, against a south wall, was a curtain of bright yellow, and now, at the end of May, it is still flowering well. The big plant of *Buddleia Colvilei*, over 10 feet in height, died last year as the result of its shift to another garden, and its successor is only about 4 feet high, and, as this species does not flower until it reaches large proportions, some years will probably elapse

before it blooms. The yellow Californian Tree Poppy (*Dendromecon rigidum*) is a perpetual bloomer and has carried flowers every month for the last year, though never in profusion. The Freesias have been good under a south wall in the open, but instead of expanding, like last year, at the middle of April, they did not open their first blooms until May. Sparaxis have been very fine, especially that splendid variety Fire King, with bright-crimson, yellow-centred blossoms, a large patch of which has been a most glorious sight. The Erythroniums flowered fairly well, but were far inferior to the plants in a certain garden in the neighbourhood of Truro, alluded to recently in these columns, where they grow in enormous masses and throw up hundreds of tall flower-heads. My plants are grown in pure leaf-mould, as are those in the garden in question, but mine lack the vigour of their Cornish sisters. The Snake's-head Iris (*I. tuberosa*) bore its satin-black and apple-green flowers in profusion in the month of March, and *Iris tingitana*, though not providing the sensational display it did last year, bloomed fairly well and afforded many flowers for indoor decoration. The beautiful *Iris setosa* is now in full flower and is bearing numerous branching flower-scapes about 2 feet in height, set with bright purple blossoms about 3 inches across. It is not often seen in gardens, but is well worth growing. The German Irises are now at their best. Black Prince, Golden Fleece, Celeste, Madame Chereau, Queen of the May and Princess of Wales are



FIG. 180.—ONCIDIODA CYBELE.

among the finest, though the last-named variety has a poor constitution. *Deutzia Kalmiflora* is certainly the most beautiful of its family, and a good shrub in full bloom is universally admired. The single, soft-pink flowers are very lovely. That curious shrub *Neviusa alabamensis* bore a profusion of its quaint petal-less flowers, composed merely of clusters of white anthers. *Cianthus puniceus* is covered with blossom, and the attractive *Clematis indivisa lobata* has been in flower for the last month on warm walls, making a lovely picture where it spreads a veil of snowy blossoms over the coping. One of the sweetest flowers in the garden is the Musk Hyacinth (*Muscari moschatum major*). Its yellowish flowers are rather dingy in colouring, but they more than make up for this by their scent, which is the most delicious that can be imagined. It blooms in March, and its flowers are welcomed in the house, where a few blossoms will scent a room. *Semele (Ruscus) androgyna*, that annually sends up two strong shoots which attain a length of about 15 feet, is an extremely handsome foliage plant. It is late this year, as the tiny green buds along the edges of the leaves—or rather cladodes—are as yet unexpanded, whereas last year they were fully open at this date. *Onrisia coccinea*, though growing in a rather dry border, has bloomed excellently. All through the dry weather it has been copiously

watered every evening and has shown its appreciation of this treatment by remaining in vigorous health. A strong plant of *Cyripedium pubescens* did not flower last year, but this year it is blooming splendidly, carrying 12 flowers and looking the picture of health. A colony of *Cyripedium spectabile* is more backward, but is looking healthy. *Viola gracilis* started to bloom in March and is still in full flower. *Homeria collina* has made a cloud of orange-buff with its starry flowers carried on long footstalks, and *Correa cardinalis* has been in bloom since Christmas. *Iris tectorum alba* is bearing its beautiful white flowers and the little *Oxalis braziliensis* is carrying dozens of its bright, cherry-coloured blooms. It is a great spreader and has come up all over the border. *Gladiolus tristis* (syn. *concolor*) has been very beautiful, and a large colony of *Iris (Morcea) pavonia* is still very charming with its dozens of lavender-white, purple-eyed flowers. *Ixiolirion montanum* has bloomed well, and a little-known *Gladiolus*, *G. atro-vioacea*, has borne violet-purple flower-scapes. *Campanula (Edraianthus) serpyllifolia* has produced dozens of its large violet flowers on the top of a wall, and *Æthionema persica* is a mass of flower, while other *Æthionemas* will follow later. A large bush of *Calceolaria violacea* is smothered with its small, helmet-shaped blossoms with yellow, spotted throats, and is a pretty sight. A plant of *Sutherlandia frutescens* against a wall is a sheet of scarlet, and *Chorizema flava* is covered with yellow blossoms. *Solanum aviculare*, which came up as a self-sown seedling last year, is now 8 feet high and is commencing to expand its purple, golden-centred flowers. Though rather tender, it came through the past mild winter unhurt. *Brachysema acuminata* is covered with its scarlet flowers, *Eriostemon buxifolius* is bearing its small, starry blossoms with their pink reverse, *Callistemon salignus* has perfected the first of its crimson bottle-brushes, *Diosma ericoides* is a cloud of tiny white blooms, a small bush of *Candollea tetrandra* is bearing yellow flowers about an inch across, *Drimys Winteri* is in full bloom, *Lathyrus Sibthorpii*, the first of the everlasting Peas, is bearing its blossoms, *Olearia nitida* is in flower, but this is only a small plant put in last year to take the place of an enormous specimen 8 feet high and as much through that died after the shift. I cannot find the name of *Hermannia candicans* in any of my horticultural dictionaries, but I have a little shrub, given me last year, which is now bearing bright yellow flowers. When I was at Falmouth I was looking at a large bush of *Clethra arborea* at Tregye, and the Hon. John Boscawen pointed out that the centre of each shoot was killed by the frost. On my return home I looked at my specimen and found it uninjured, and have to-day counted over 150 flower-spikes already formed, so it should be a fine sight in August. Many things have been ruined through the drought. *Wyndham Fitzherbert, June 4.*

ONCIDIODA CYBELE.

IN our notice of Messrs. Charlesworth & Co.'s Orchid establishment (June 10, p. 363), we remarked on the many bigeneric crosses maturing in that nursery. One of these, *Oncidioda Cybele*, (see fig. 180) from a cross between *Oncidium sarcodes* and *Cochlidia Noezliana*, was shown at the Royal Horticultural Society's meeting on June 6, and it gained an Award of Merit. As with many other wide crosses, it will be seen that the features of one of the parents is stamped very pronouncedly on the progeny, in this case *Oncidium sarcodes* predominating. The inflorescence is branched, the flowers in a great degree approaching *O. sarcodes*, and having a similar yellow ground colour, but the markings are of a reddish hue, the brown colour of *O. sarcodes* being toned by the scarlet of *C. Noezliana*.

NOTICES OF BOOKS.

THE SOIL.*

THIS little book, the first volume of a Nature Study series, deserves unqualified praise. It is true that the subject of the soil lends itself to simple experimental treatment; but it is equally true that nothing is more difficult than to make a series of experiments tell a scientific tale intelligently and connectedly. Yet this is precisely what Dr. Russell's book achieves. It is significant that this admirable book is written, not by a professional maker of books, but by a researcher whose investigations of soil-phenomena are contributing facts of the greatest practical importance to our knowledge of the "living earth." Herein lies a vindication of the oft-repeated statement which is being recognised but slowly in this country, that the only good teacher

garden will provide them daily with equally good and fundamentally similar illustrations of the physics of the soil, which the experiments in the book serve to elucidate. If the young gardener will use the book in this manner, he will be able to grasp the meaning of many of the every-day soil phenomena which confront him, and he will learn the explanation of many interesting facts which previously may have seemed altogether mysterious, but which find their significance in the properties of various kinds of soil. Why, for example, villages are often situated at the junction of sandy and clay soils! Why, as shown in the map of the region round about Wye, the roads are mainly on the chalk and sand! Many of the experiments which Dr. Russell uses to elucidate the properties of the soil and the relation of soil to plant life are new and ingenious. All are simple and require the most homely of apparatus.

Charles Holme, gives us in the text "Types of Gardens," which is followed by Mr. A. L. Baldry's notes on the illustrations, a matter of 37 pages. The remainder of the work is purely pictorial, and consists of eight illustrations in colour of such subjects as Levens Hall, Bramham Park, Yorks.; Shrublands, Westmoreland; and Speke Hall, Lancashire, by the following artists:—E. Arthur Rowe, George S. Elgood, Arthur Severn, and Ernest A. Chadwick.

The photographic reproductions complete the work, and number 156 in all. These are for the most part well chosen and beautifully executed. Amongst so many it would appear almost to be fastidious to make a selection, but we were particularly charmed with the following:—Grass Walk at Windlestone Hall; a Rock Border at Thornton Manor; the Terrace Garden at Rydal Hall; Gateway at Grimston Park, the Dutch Garden at Bromborough Hall; the Orangery at



FIG. 181.—MR. J. T. BENNETT-POË'S PLANT OF UTRICULARIA MONTANA, FOR WHICH A CULTURAL COMMENDATION WAS AWARDED AT THE R.H.S. MEETING ON JUNE 6. FLOWERS, WHITE, WITH CENTRAL YELLOW BLOTCH.

(See p. 376.)

is he who has first-hand knowledge of his subject. Dr. Russell, however, has not been content to write his book from the remoteness of a research laboratory. He has taken his knowledge to the elementary school, and tested its pedagogic value by conducting practical classes with the children, who, as we know, thoroughly enjoyed the experience.

Though designed for use in elementary and secondary schools, Dr. Russell's book will be found of great interest by all young gardeners who are keen to discover the why and wherefore of horticultural things.

It is true that they may have no opportunity to repeat the experiments, but their work in the

In short, the book will prove of the greatest assistance to the teacher and scholar in helping them to acquire a sound scientific knowledge of this branch of Nature Study. It will also, if we mistake not, be read with pleasure by scholars of older growth who take pleasure in seeing a fascinating subject well handled, and who, though their schooldays are passed, are not too old to learn.

THE GARDENS OF ENGLAND IN THE NORTHERN COUNTIES.*

WE have already had occasion to notice the special spring issues of *The Studio* devoted to the gardens of England in certain counties. The publication now under notice is in every respect on similar lines, and is got up in as good a style as its predecessors. The editor, Mr.

Byram Hall, and A Garden Gateway at Castle Howard.

VOCABULARY OF FORESTRY.*

A PATHETIC interest attaches to the present (5th) edition of this excellent dictionary of forestry-terms. As indicated on the title page, Professor Fisher had undertaken to cooperate with Mr. Gerschel in its preparation, but died during the time the work was in preparation. The work is of the greatest service to those who require to know the French and German equivalents of the technical terms used in forestry, and it should find a place in the library of every botanical laboratory, as well as on the shelves of all foresters.

* *Lessons on Soil*, by E. J. Russell, D.Sc.; 1s. 6d., pp. 122, with 58 figures, being vol. 1, of the Cambridge Nature Study Series. Edited by Hugh Richardson. (Cambridge: The University Press.) 1911.

* *Vocabulaire Forestier*, French-English-German, by J. Gerschel, revised by W. R. Fisher, 5th edition, 5s. net. (Oxford: Clarendon Press.)

* *The Studio*, Ltd., London.

RHODODENDRON "CYNTHIA."

THE plant of *Rhododendron Cynthia*, illustrated in fig. 182, is growing in Irlam Nurseries, near Manchester, and when the photograph was taken had more than 800 trusses of bloom. Mr. E. Bent, to whom we are indebted for the photograph, informs us that the bush is 6 feet high and 36 feet in circumference, presenting a grand spectacle in flower. *Cynthia* is one of the older hybrid *Rhododendrons*, and has always been a very popular variety in gardens. It possesses a good habit, is a strong grower, and develops into a neat, round bush, the diameter of which is equal to its height. The foliage is handsome, the leaves being from 4 inches to 6 inches in length, ovate in shape, flattened, and of a bright, cheerful green colour. The flowers are borne in erect, well-shaped

BOTANICAL EXPEDITION TO LOWER SIAM.

(Concluded from p. 384.)

THE next day we drove to a fine limestone hill about seven miles away, called Chupeng, a huge, oblong block of limestone, with vertical precipices all round, and about 600 feet or more high. A rocky path led to a cave, through which a gradual ascent rose to an opening high up on the cliff, affording a grand view of the whole country. This cave, as well as others more inaccessible, once contained immense masses of seabird guano, which is being exploited by a company. This guano must have been deposited when the hill stood an island in the sea, and when seabirds were much more abundant than they are now in this part of the world. Standing in the mouth of this opening in the cliff, I espied a bright green patch on a damp spot on

The following day we walked to another limestone block, covered with dense forest, a mile or so behind the Kanga village. This wooded hill rejoiced in the name of Bukit Telor Jambu, or the hill of the pigeon's egg, but why so called no one could explain. We marched through the wet paddy fields, up to our knees often in water, and came to a grassy, open bay in the rocks. Here we saw a vulture on its nest in a high tree, and close by a number of weaver birds had made their grass nests hanging from the leaf of a Betel Nut Palm. One bird, more original than the others, had twisted up a leaflet of the Palm, and had made a ball-shaped nest on the end of it. We saw it enter by a hole at the side. The first striking plant we saw here was a stout-stemmed, erect Rattan (*Calamus arborescens*), so unlike any Rattans that we were accustomed to that Mat affirmed it was a *Bacris* (a genus

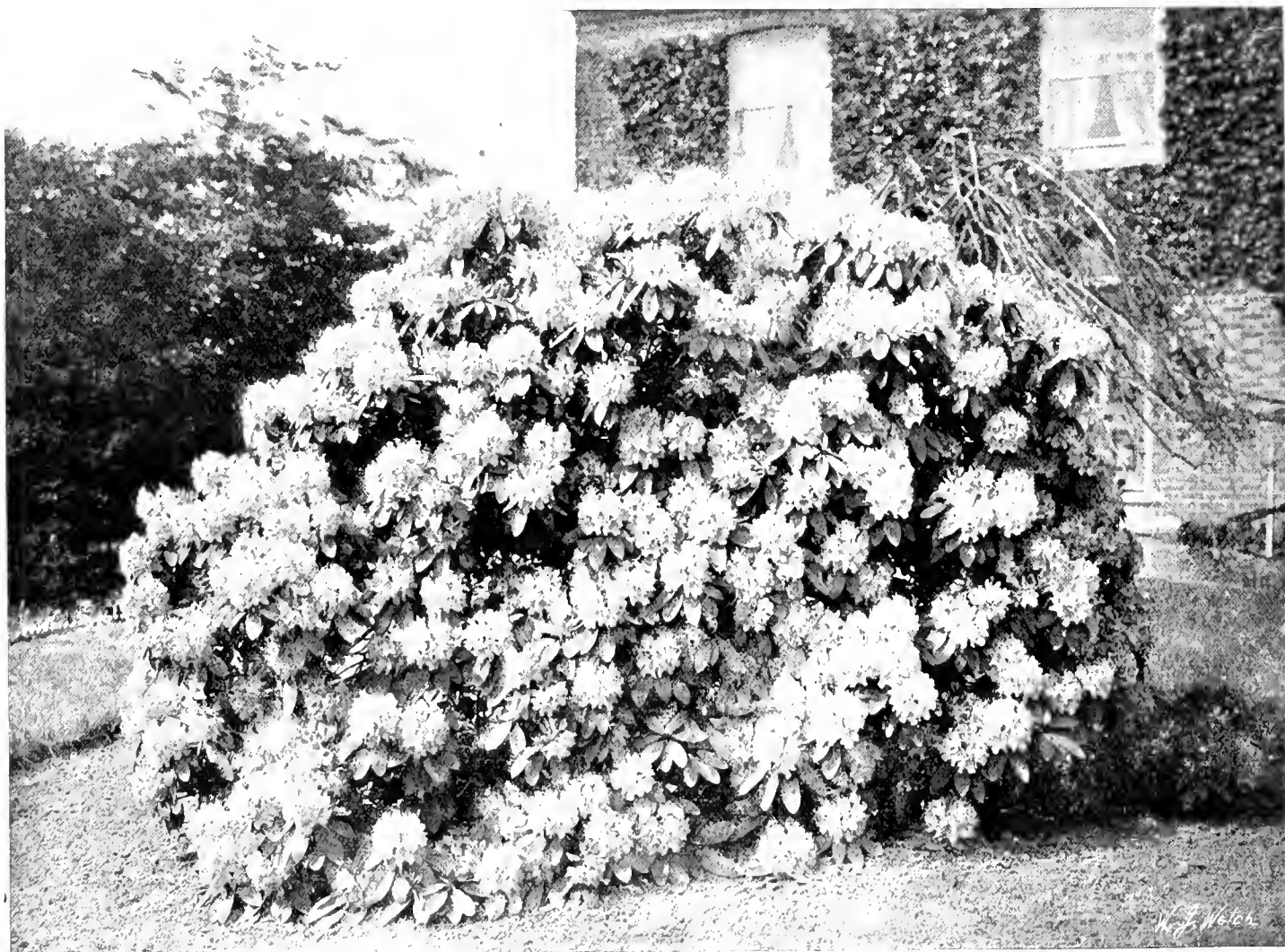


FIG. 182.—RHODODENDRON "CYNTHIA" IN THE IRLAM NURSERIES.

trusses, and are of a pleasing rosy-crimson colour, a shade rather difficult to describe. The blossoms open about the middle of May, and are freely produced every year. The parentage of this hybrid is unknown, but the size and shape of the leaves, and the large, bold flowers and trusses suggest the influence of *R. Griffithianum* (*Aucklandii*) as one of its progenitors.

FREAM MEMORIAL PRIZE—The Board of Agriculture and Fisheries has awarded a Fream Memorial Prize of the value of £7 1s. 8d. to Mr. Frederick Keith Jackson, 127 West Cliff Mount, Harrogate, a student of Leeds University, who obtained the highest marks at the examination held in April last for the National Diploma in Agriculture.

the rock facing the light. Mat scrambled up the side to it, and found it to consist of an exquisite little dwarf Fern, hardly 3 inches tall, which the late Col. Beddome stated to be a new species of *Lastræa* (*L. chupengensis*), allied to a Tenasserim species. In the mouth of this cave, and, indeed, all round the base of this hill, was a slender, pink-flowered plant, with very stout, woody roots, which proved to be *Boerhaavia repanda*, a sea-shore plant, which seems to have remained here after the sea had gone far away from it. After leaving the cave, we went round the cliffs on both sides, and obtained a very large number of additions to our collections, so much so that we not only filled the plant books, but the gharry also, till there was hardly room for us inside. It took us nearly all the next day to put this collection in the presses.

which we had represented in the Botanic Gardens, where he had seen it). However, we discovered an inflorescence, and soon recognised it as a *Calamus*. A very pretty *Ixora* grew here, with white, tassel-like cymes, which I have named *I. plumea*, from its feathery appearance. Further on, in a grassy spot, was *Amorphophallus rex* in flower, too bulky to carry home. On our way back across the paddy fields we came across four fine black and white storks (*Xenorhynchus asiaticus*). These noble birds were striding about in the water, seeking for crabs and small fish, and were so tame that they allowed us to approach to within a dozen yards, and then only moved a few yards away.

After a few more days' collecting, we started for Setul, north of Perlis. A little steamer left Tebing Tinggi at half-past nine in the morning,

and arrived about mid-day at the wharf in the river, about 2 miles from Setul. We had telegraphed to the Siamese authorities for gharries to meet us at the wharf, but as it was a Malay feast-day, and the officials, though possessing Siamese names, were all Malays, and were out picnicking, our telegrams did not reach anyone. However, we telephoned to the village, and soon had a supply of gharries on the spot. Meantime we had an opportunity of admiring *Acanthus ilicifolius* in full flower in the Mangrove swamp which fringed the road for some way. This plant is often confused in books with *A. ebracteatus*, which is very common in the south, and, indeed, all over the peninsula. In the herbarium they do look rather alike, but, alive and in flower, no one could confuse them. *A. ilicifolius* has flowers at least twice the size of *ebracteatus*, and of a lovely bright blue, while the latter has smaller flowers and fruits, generally white, but occasionally pale blue. The dark green, holly-like leaves are the same in both species. *Ilicifolius* is rare in the Malay Peninsula, and quite absent from the south.

Setul possesses an excellent rest-house, with a billiard-room annexe, much in favour with the young Siamese, who ride up on the latest thing in bicycles, and in gay raiment, to spend the afternoon with the cue. The furniture of the rest-house was stored for protection in a house some two miles away. However, the caretaker, an old Malay, very soon got some, unearthed a cook, and made me comfortable. I stopped here for some days exploring the neighbourhood.

The country is quite different from that of Perlis, though there are limestone hills resembling those near Kanga. Behind the village is an extensive heath, the soil of which is sandy, with damp, peaty spots here and there. This locality produced many charming plants. Two Sundews were common. One, *Drosera Burmannii*, reminds one of *D. rotundifolia* of the English heaths, closely resembling it; the other, *D. indica*, has a short, erect stem, and larger, rose-pink flowers. Grasses and sedges, small Scrophulariaceae, yellow-flowered *Xyris*, *Utricularias*, and blue-flowered *Ancilemas* were abundant.

Our best finds here were a new species of *Thysanotus*, a Liliaceous genus, confined to Australia, except for one Philippine and Chinese species; a beautiful, crimson, shrubby Mallow (*Decaschistia*), an Indian and Cambodian genus; a leafless Orchid, with nodding, pink flowers (*Pachystoma*); and the scarce, pale, rosy *Labenaria roseata*. In the damper spots near the river was abundance of the Cajuput Oil Tree (*Melaleuca leucadendron*). This Australian type is abundant in such spots as Malacca; but, it has been commonly said, was introduced by the Dutch from the Malaccas. It is, however, sufficiently clear from its abundance here that it is truly indigenous in this part of the world.

The flora is distinctly Burmese, like that of Perlis, and contains but a little of the Malayan element. There are, however, a number of Australian types. Some of these occur, too, in the Malay Peninsula and Borneo, and have doubtless migrated from Australia by way of the Malay Islands; but some, like the *Thysanotus*, are entirely absent from the Malay region, and there can be little doubt that they have come through the Philippines and Cambodia. There has, in fact, been a double line of Australian migrations westward.

Besides the sandy heaths and pastures, there were several of the large blocks of limestone, which we explored. They were generally surrounded by swamps, and the rivers ran so close to them that getting at them was often difficult, and entailed wading through grassy swamps, up to the knees in water and mud. It was seldom possible to get to the top of them, as the sides were usually precipitous; while at the base were caves full of water pools, in which lived the great lizards (*Varanus*). The block we explored most thoroughly was known as Bukit Rajah Wang. One afternoon we found a way to the top of this, and ascended, scrambling up the rocks. Here we found a yellow-flowered *Saccolabium*, and a rose-pink *Cirrhopetalum* in full flower: both undescribed species. A tree *Dracena*, with very small flowers, short-tubed, and apparently *D. yuccaefolia*, grew here also, and we secured flowers and fruit. Another day we walked round the base—a somewhat difficult walk, as the rocks in places came down to the edge of the deep river, and are very difficult

to surmount. After some hours of walking, wading and scrambling, we came to a precipice, through a hole in which I could perceive daylight and green foliage. A low tunnel, formed by a stream, led us into an open space surrounded by vertical walls, and full of trees, growing among the fallen rocks. Huge slabs of rock were completely covered with a mat of the beautiful foliage Orchid, *Plamaria discolor*, giving a bright-red colouring to the whole scene. I never saw any Orchid of the group so abundant. Mat scrambled up the fallen rocks to the top at one point, and affirmed that it was possible to descend the cliff on that side to the heath country below; but as we were very heavily loaded with plants, I decided not to try to descend precipices with our heavy spoils. Our bag, jungle choppers, and the iron hook with which we gathered plants out of reach, created some sensation in the village, where the children believed that we were collecting children's heads, cutting them off with the hook, and carrying them away in the bag. The small boys fled shrieking at our appearance, the bigger ones gazed with awe at the bag distended with *Amorphophallus* tubers.

The fauna of this region includes many birds and animals not seen commonly further south. Vultures of two kinds were very abundant, owing no doubt to the fact that there had been so bad an outbreak of rinderpest that nearly all the cattle were dead or dying. These birds may be seen as far south as Province Wellesley, but, except for a stray wanderer, are never met with further south. The hoopoe we saw here also—a bird quite absent from the Malay Peninsula south of this. Wild pigs are common, and the screw is said to occur on all the larger limestone rock masses. It is trapped by the natives, being valued highly as a medicine by the Chinese. This black mountain goat is, however, never to be seen, except by the merest chance, as it is shy, and escapes quickly over the rocks when alarmed. The remaining big game of the peninsula seems to be very scarce over this region.

After some days at Setul, we returned to Penang, direct by a small steamer, which was timed to start at 10 p.m., but did not leave till 2 a.m. There is a sand bar at the mouth of each of the rivers, impassable except at low tide, so that, when we had crossed the one at the mouth of the Setul river, we had to wait from 7 a.m. till 11 on the open sea before we could enter the Perlis river, where the boat called. It then went on to the Laukawi Islands, where we landed for an hour, and arrived at Penang at 6 o'clock the following morning. The weather was fine, except for one rainstorm at night, and though the boat had no accommodation for bathing, eating, or sleeping, and was very cramped for room, we managed to make ourselves pretty comfortable on the way.

I have prepared a full account of the flora of the whole of this region, from Tenasserim to Aorstar, from the collections we made, and those obtained by Curtis, Fox, and others, from Jungk Ceylon (Tongkah), the Laukawi Islands, and from Bangtaphan, on the east coast, by Dr. Keith, some years ago. It includes no fewer than 40 genera, entirely absent from the Malay flora, nearly all of which are Burmese and Indian genera, one or two Siamese and Cambodian only, and one or two Australian probably, occurring also in the Cambodian region. There are only three (monotypic) endemic genera. The number of Malayan genera missing is very large, and includes such characteristic and common genera as *Urophyllum*, those of the *Durioideae*, *Pentaphragma*, *Cyrtandra*, and most of the *Dipterocarpeae*. Many or most of these occur on Kedah Peak, and, apparently, no further.

The story of this distribution seems to be that, at no great distance of time, the Malay Peninsula, from Kedah Peak southwards, was cut off by a broad tract of sea in which the limestone rocks, like Chupeng, stood out as islands, just as the Laukawi archipelago does at present. Gradually the sea silted up, connecting Tenasserim with the Malay Peninsula, and this land was invaded by the Burmese flora from the north. A few Malay plants pushed up northwards from the south, but the climate and soil was more suited for the Burmese plants, which now occupy the whole area. The boundary line between the two floras is unusually distinct, and lies at or about the town of Aorstar in Kedah. H. N. Ridley, Singapore.



The Week's Work.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. HOLLIFORD, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

EPIDENDRUM.—The species *E. radicans*, with its hybrids *E. O'Brienianum* and *E. Boundii*, are splendid Orchids for supplying flowers for cutting. The plants flower in the late spring and early summer, and it is astonishing the length of time the individual spikes will continue in perfection, for as fast as the lower blossoms fade fresh flowers appear at the top. These reed-like *Epidendrums* are easily grown if afforded a cool intermediate temperature where the plants have plenty of light and air at all times, and if they are frequently syringed during bright weather in summer. They make desirable specimens when the stems are planted in well-drained pots with a coating of *Osmunda* fibre and *Sphagnum*-moss in equal proportions as a rooting medium, training the stems round neat stakes. Propagation can be carried out by means of the aerial growths, which should be cut off and planted. The present is the best time for doing this, as it is for repotting or top-dressing.

E. PRISMATOCARPUM.—This is an exceedingly pretty species, especially when well-flowered specimens are seen. It is a robust-growing plant, and it is remarkable for the lasting quality of its flowers. The temperature for this species may be similar to that afforded to *Cattleyas*, and the plants succeed well in the same house. Large, heavy specimens are best grown on the central stages of light span-roofed structures in a position where the air plays freely about the foliage. It cannot stand a close heat without a proper circulation of air; therefore, a place where plenty of light and air and shade from bright sunshine are assured, should be selected for the plants. This *Epidendrum* dislikes having its roots disturbed frequently, but when a new material has to be supplied this should be done directly the plants cease flowering, care being taken to avoid causing injury to leaves or pseudo-bulbs. After removing all decayed roots, bulbs or rhizomes and sour compost, replace the plants into larger or smaller pots, according whether they are vigorous or not. The usual mixture of *Osmunda* fibre, Oak leaves or *Polypodium* fibre, and *Sphagnum*-moss used in a very rough condition, with a liberal addition of course, silver sand will suit this species well. The pots must be well supplied with drainage, so that the water can pass away freely. Being a strictly evergreen plant, water must be afforded to the roots as long as growth is active, and even when resting the rooting material should be kept just moist, but during the early stages of growth and to newly-potted plants, less water must be given than at any other time.

E. VITELLINUM VAR. MAJUS.—Being of dwarf habit, this exceedingly bright Orchid succeeds well in shallow pans suspended near the roof-glass, and close to a ventilator, as the plants delight in an abundance of light and air. They usually flower during the summer months, and they last in bloom for a very long time. The cultural requirements are similar to *E. prismatocarpum*, except that it should be afforded a cool, moist temperature all the year round, where it will be found to grow freely.

E. FRAGRANS.—The blooms of this species are not very showy, but they are very fragrant. The plants produce their flowers from the developing growths during the summer and autumn months. They are easily cultivated if grown in shallow pans suspended from the rafters in the warm part of the intermediate house. Being in full growth, they require plenty of moisture at the root, but when growth is completed and the plants are resting, a very small quantity of moisture will suffice to keep the bulbs plump and the roots healthy. The best time to give this and the last-named species new rooting material is shortly after flowering, when new roots are being produced from the recent growths, but on no account should they be disturbed at the root if it be not really necessary.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

GOOSEBERRIES AND CURRANTS.—These fruits, whether growing in exposed situations or against walls, are decidedly benefited by being summer pruned, as thereby light and air are admitted to the fruit, and afford the trees a better chance of ripening the current year's wood. All the side shoots should be shortened to three or four leaves or on what is generally termed the spur system. As the fruit of Black Currants is borne almost entirely on the young wood, the bushes should not be pruned, beyond removing any exhausted or unhealthy branches; a judicious selection should be made of shoots growing from the base of the bushes in order that they may be used for furnishing the trees in subsequent seasons.

LATE STRAWBERRIES.—Late Strawberries which are not yet mulched should have the material applied forthwith; any material which will afford a clean bed for the fruit to rest on may be used, the object being, at so late a period, not so much to afford nutriment to the roots as to give shade to them and keep the fruits clean, for, if unsupported in any way, the ripening fruit would become gritty from contact with the soil, to say nothing of the ravages of ground vermin.

RASPBERRIES.—These may be mulched by giving the ground a good dressing of rich manure, which, with the advent of rain or the application of water, will greatly help the fruit at this stage. Remove all useless suckers, retaining those only that are required for the production of the crop next season. All weeds that may be growing between the stools should be kept down; if allowed to remain, they quickly exhaust the surface soil of moisture and nutriment to the detriment of the growing crop and their surface roots.

MULCHING.—The mulching of fruit trees during the early summer months is of great benefit: it prevents rapid evaporation of moisture from the soil, and thus renders frequent waterings less necessary. In the case of newly-planted trees the mulch is usually laid over the roots immediately after they are planted, and allowed to remain there for the remainder of the season, but where trees are growing in cold, wet, or otherwise unfavourable soils, the mulching is more usually applied in the spring or early summer months. Borders of this description are very liable to crack during hot, dry seasons, and it is therefore advantageous to have recourse to the practice of summer mulching, which prevents the soil from cracking and thus injuring the surface roots. Half-decayed manure, or the remains of a hot bed of the previous seasons are excellent materials to use as a mulch. If it is too littersy, the mulching material is apt to be blown away from the neighbourhood of the trees during a high wind, unless kept in place by a few spadeful of earth, which may perhaps be considered too tedious an operation at a time of year when other work is so pressing.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. Vicary Gibbs, Aldenham House, Hertfordshire.

MELONS IN FRAMES.—During the past fortnight there has been a decided change in the weather, and on more than one occasion the temperature has fallen to within 2° of freezing point. This sudden cold has been adverse to the cultivation of plants in frames or near to the glass in houses. A circulation of heat should be maintained in the water pipes at night and in dull weather syringing should not be performed late in the afternoon. Those plants that are setting their fruits must be kept on the dry side, otherwise the flowers will fail to set. Attend to the pollination of these daily, and when the crop is assured, stop the growths at one leaf beyond the fruit and give the plants a good watering. As the young fruits commence to swell, place them on a small square of glass raised upon an inverted pot, which will not only keep them free from dirt, but also make them less susceptible to the attacks of insects. Syringe the plants quite early in the morning and again early in the afternoon, closing the lights. When the fruits are swelling freely, apply sprinklings of artificial manure to

the roots, and liquid manure water at alternate watering. Do not permit the growths to become overcrowded, but remove laterals at the first leaf, and keep a sharp look-out for red spider. Should this pest make its appearance, sponge the affected leaves with an insecticide or remove them entirely if liable to become a nuisance.

TOMATOS.—Plants which have set their first trusses of fruits may now be assisted at intervals with some form of stimulant, either liquid manure water or some good fertiliser. The house containing these plants will need free ventilation to encourage a strong sturdy growth. Plants that are being fruited in large pots and that were made firm, as previously advised, should not be overwatered, otherwise the ripening fruits are liable to split, which considerably detracts from their appearance. Give them a top-dressing of good rich soil, ramming this firmly, and gather the fruits as they become ripe. Attend to the removal of side growths, and if the foliage is too strong, remove a portion of the leaves to admit plenty of light to the fruits.

FIGS.—Trees which are ripening their fruits should not be syringed, but provide an increased amount of ventilation. Young trees that are being grown on for forming fruiting plants for another season will in all probability require a shift into larger pots. The latter ought to be well-drained and some good turfy loam placed over the drainage material. Use a good compost consisting of fibrous loam, lime-rubble and spent Mushroom-bed manure, with an additional sprinkling of artificial manure. Ram the fresh compost fairly hard, keep the plants growing on steadily in a warm and humid atmosphere, and apply water carefully with a rose can until the roots have taken a firm hold of the new compost. Trees swelling crops of fruit require abundance of water and plenty of stimulants. Syringe the growths vigorously twice daily and damp the houses late in the evening with manure water. Earliest forced trees in pots may be removed out-of-doors. Attend to the proper watering of these and keep the foliage free from insect pests.

PINEAPPLES.—On warm nights Pineapples will not need so much artificial heat as formerly; as the fruits ripen increase the amount of ventilation and decrease the supply of water. On hot days a thin shading will be beneficial. Plants in pots with the fruits fast approaching ripeness will in many cases be better if removed to a cooler and drier structure. Give occasional application of artificial manure water to growing plants, and syringe them over lightly in the afternoon. Damp the surfaces in the house and close the ventilators before the sun's rays are off the glass.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

ROSES IN POTS AND TUBS.—The various types of Rambler Roses which are now so popular in gardens are never seen to more advantage than when grown as plants in pots. Such Roses which have flowered already this season should now be placed out-of-doors in a sunny position and the pots plunged over the rims in order to protect the roots against drought and to induce them to grow. If root action is thus stimulated the result will be seen in the production of long shoots, which are so characteristic of this type of Rose, and which yield such lavish displays of flowers. Occasional applications of stimulating manures will also be beneficial, and amongst manures may be mentioned dried blood, which, if finely granulated, is an excellent manure for Roses in pots. Thin out any weakly shoots which do not appear capable of affording good results next year. Syringe the plants both morning and evening in warm weather and keep a sharp look-out for the first appearance of mildew. If this fungous pest is observed, it must be combated at once with applications of sulphur. Take measures to protect the plants from being blown about by high winds. It will be found a good plan to place a few stout stakes outside the pots, and in the plunging material, which should be ashes in preference to any other medium. The ashes may be watered occasionally with liquid manure. Plants that are now in very small pots may be repotted at once with distinct advantage, but others can be deferred until later.

OTHER TYPES OF ROSES IN POTS.—Such Roses as Teas, Hybrid Teas, and Hybrid Perpetuals, that were forced early in this year should now have their pots plunged out-of-doors, but not over the rims of the pots, as in the case of the Ramblers, because it is much easier to overwater the Teas and Hybrid Teas than the Ramblers. At the same time, it will be advantageous to apply a thin top-dressing of thoroughly decomposed farmyard manure. Thin out any scrubby or weakly growths and try to obtain new shoots for next season, rather than the production of further flowers during the present summer or autumn. Take care to afford stakes to any that require protection from wind.

ROSES PLANTED OUT UNDER GLASS.—These Roses will need almost constant attention to save them from such pests as red spider and aphides amongst insects and against mildew. For red spider and mildew the sulphur remedy is the best obtainable, and aphides may be easily destroyed by fumigation. Such strong-growing Roses as Marechal Niel and Climbing Niphetos should be examined carefully and any weakly growths removed. Encourage the production of strong shoots as much as possible, for it is such shoots that will produce the finer flowers next year. From observations I have made in Continental nurseries I am inclined to think that English cultivators do not adopt this plan as frequently as they might do. Continental cultivators thin out the shoots somewhat severely; in fact, some growers cut away almost all the wood that has produced flowers this season, and depend mainly upon the strong shoots which afterwards grow.

ROSES ON BENCHES.—In these Roses also growth should be encouraged rather than the production of flowers at the present time and onwards. If any stock is seen to be exhausted, do not retain the plants, but clear them out and replant afresh. Spring-struck cuttings would answer well for this system of cultivation in the case of many of the best and most popular sorts.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of HADDINGTON, K.T., Tynninghame, East Lothian.

REGULATION OF HEIGHT AND FLOWERING PERIOD.—Some varieties of Helianthus grow so tall that their usefulness as decorative plants is impaired thereby. The height of the plants can be lessened by two methods, first by lifting and replanting the roots annually in spring, and secondly, by stopping the growths, but this latter system somewhat retards the period of blooming. It requires some experience to know just how much to cut off and the proper time to do the cutting. In practice, I find it is better to cut a few of the more forward growths and a little later to cut others and so on as necessity arises. Asters of the more robust habit also may be dwarfed by cutting them back, but the very latest sorts cannot be treated safely in this manner, as the risk of their not flowering is too great. Pyrethrums, if not allowed to flower too long, will produce a second crop in the autumn.

HERBACEOUS PÆONIES.—These plants have nearly finished their flowering, and in cases where the clumps are getting too large the plants can now be safely broken up and replanted. Plants which have growths measuring something like 20 feet in circumference and 5 feet or 6 feet in height are less floriferous than smaller plants, and the individual flowers smaller, at least in a dry season. For this reason division for replanting is imperative. I find that for large plants which possess an abundance of roots such as these, it is better to loosen, and finally wash away all the soil from the roots of the plants in a bath of water. Division is then a simple matter. The moisture, too, keeps the foliage from flagging, and, therefore, if there is no undue delay in replanting, they are little the worse for the ordeal. It is necessary to plant them deeper than they were growing previously, as Pæonies, like many other plants, have a tendency to grow out of the ground. Frequent waterings must be applied until the plants have become re-established.

STAKING.—Stock flowered Larkspurs, tall and intermediate Antirrhinums, and some other plants have now attained to such heights as to need supports. The Larkspurs and Lavatera rosea need stout Bamboo canes 5 feet or perhaps

6 feet long. The *Antirrhinums* do not need the flowering spikes to be supported, but only the body as it were of the plant, so that stakes which are standing 9 inches out of the ground are sufficient for intermediate strains, and 18 inches for taller sorts. Where the taller *Celsias* are grown, *C. coromandelina* must be staked, but not *C. cretica* nor *C. pontica*, which are both robust enough to support themselves. The flowering stems of *Agapanthus* need short stakes to each, the lower part only to be tied to keep the flower-head in position. The pretty pink-flowering *Montbretia rosea* needs to be treated in the same way, but instead of placing a stake to each flower-stem, a single stake should do for four or six stems. The good gardener should be careful not to tie up plants that can do very well without such aid. *Lobelia cardinalis* and *Campanula pyramidalis*, for instance, do not require stakes, and where stakes have to be used, they should not be exposed to observation for a longer time than can be avoided. There is another method of supporting the plants, and I referred to it only a week or so ago, namely, that of pegging down.

METHODS OF PEGGING-DOWN.—At Tynninghame all the Dahlias have their growths pegged down to the ground, and they need no further support. For the very first time I am now pegging-down *Godetia Schaminii* and its varieties. Formerly, the plants were staked, but I imagine there will be a greater profusion of flowers from pegged plants. Variegated *Koniga* for carpeting should be pegged, and subsequently should be trimmed level with a pair of sheep shears. *Verbenas* also should have the shoots arranged and pegged down, and many other plants should be treated in similar fashion.

THE SEASON.—So far, the present season has been the hottest and driest in the recollection of most of us. Even in the north of Scotland the temperature for days together has been 80°, and, on the whole it has been trying weather for flowers. I took the precaution to plant rather deeper than usual, to water everything three times successively, and then to cover with the unmoistened surface soil, making the soil as firm as possible; the plants have made good progress, although they have not been watered subsequently. Stocks and *Calceolarias* are, however, exceptions; they are not happy.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

FRENCH BEANS.—Small sowings of French Beans should be made each week from the present time until the middle of July, but the latest sowing needs to be made on a south border where the plants can be protected from early autumn frosts. It is a much better practice to make frequent small sowings than to depend on plants which have become partially exhausted, the produce from young plants being much more tender. Sow the seeds in drills drawn at 2 feet apart. If the weather is dry when the plants are a few inches high, mulch the ground between the rows with horse droppings or farmyard manure, and then apply a liberal watering. Plants now yielding supplies should be syringed every evening in order to promote clean, healthy growth. For present sowings such varieties as *Progress*, *The Belfast*, and *Canadian Wonder* are good and reliable.

SCARLET RUNNERS.—If seeds of Scarlet Runners were sown early in May the plants will now be growing freely. They should be mulched between the rows with long stable litter, after which a good watering with clear water may be given. Stop the plants as soon as they have reached the top of the sticks in order to induce the formation of side shoots. The plants will also benefit by syringing in the evening if dry weather continues.

SPRING ONIONS.—The dry weather of the last few weeks has delayed the thinning of this crop. Thinning should only be carried out where the plants are very thick, and then it should be done only after a liberal supply of water has been applied. If Onions of medium size only are desired, the plants may be left as thickly as 2 inches apart. Onions of moderate size usually keep better than the larger varieties, and they are just as good from a culinary point of view.

Bulbs which are cultivated for exhibition should be encouraged as much as possible by giving them frequent waterings of liquid manure and dustings of soot and guano. The ground between the rows may be stirred lightly with a Dutch hoe to keep it from cracking, and, if dry weather continues, a light mulching with horse droppings may be applied with advantage.

LEEKS.—To obtain large Leeks it will be necessary to afford the plants frequent waterings of liquid manure for the remainder of the season. Stir the soil between the plants with a hand fork or hoe, and, as growth advances, place the soil carefully round the stems in order to secure long, well-blanching specimens.

CELERY.—The main crop of Celery may be planted in trenches as soon as the plants are large enough and before the roots have taken full possession of the bed in which they are growing. Before lifting the plants from the nursery bed a liberal watering should be given them in order to keep them as fresh as possible. Celery plants should never be allowed to suffer from want of water at the root, and, during the dry weather, the foliage should be syringed every evening until the roots have taken possession of the new bed. Plants for late supplies should be pricked out at 6 inches apart so as to keep them from becoming drawn.

LETTUCES.—Seeds of Lettuces may now be sown on a border with an eastern aspect. The seeds should be sown thinly in order that it may not be necessary to transplant the seedlings, for during hot, dry weather it is difficult to keep soft, young Lettuces from becoming shrivelled up when transplanted. Mammoth, White Cos, Iceberg, and All-the-Year-Round are good, reliable varieties for present sowing.

THE FRENCH GARDEN.

By PAUL AQUILLAS.

MANURE BEDS.—The Cauliflowers having been marketed, the beds are now ready for the autumn crops. One path out of every two is broken up so as to make two beds into one bed of full size (11 feet wide). Where a good pressure of water allows it, four beds can be made into one, as the old decayed manure is free from weeds and necessitates no attention besides watering. The main autumn crops are Celery and Cauliflowers, and the Celery can be planted as soon as the ground has been got ready, putting the plants 1 foot apart each way. As Cauliflowers require considerable space, Endive or Cos Lettuces are used as an inter-crop; it is, however, necessary to set the inter-crop a fortnight to three weeks before the Cauliflowers, or these latter would cover the whole ground before the Endive or Lettuces were marketable. The Cauliflowers from the cold frames are now ready; this batch will be cleared by the end of the month, and the ground will be used for Red Celery which was raised early in April.

MELONS.—This season has been very favourable for Melons; the constant sunshine has produced healthy growth and fine fruits. While the stopping of the side shoots to the second leaf must be continued in the late hatches, the thinning of the leaves is now necessary in the first batches, to obtain early and big fruits. The fruits must be turned over every week at least, to get them to ripen evenly. Some growers lay the fruits on slates with great advantage, but this process is not resorted to where large quantities of Melons are cultivated. Ventilation is given all day, and in calm weather air may be left on at night, increasing it gradually till full air is left day and night by July 15.

CUCUMBERS.—These will require watering, and the side shoots stopped to one leaf twice weekly. The female flowers are thinned out as soon as the ovary is 1 inch long and none is left on the leader. The growth of the young fruits must be carefully watched, as the slightest obstruction often damages them.

TOMATOS.—This crop promises exceedingly well; the batch grown inside are now nearing the ripening stage, and fruits will be ready by July 15. Those grown outside are setting well; they have been staked, and all side shoots are constantly removed. The plants are now sprayed with Bordeaux Mixture, as a preventive against disease in the autumn.

STRAWBERRIES.—The necessary compost is now prepared by mixing three parts of good loam and one part of decayed manure. It is turned over once a week till it is wanted at the end of July, for potting plants one year old for forcing next season.

OPEN-AIR CROPS.—The Carrots and Cauliflowers in the open garden require frequent waterings; they have suffered through the constant drought, and the Turnips have been an utter failure this season. The Chicory Witloof is now thinned out to 4 or 5 inches apart. When they have been sown in a nursery bed, their final quarter must be ready within a few days. The pricking-out must be carefully done, so that the roots may be kept straight.

THE APIARY.

By CHLORIS.

THE WAX-MOTH.—Much ignorance prevails regarding the work of this troublesome pest, many bee-keepers being of the opinion that the wax-moth actually destroys the bees. This is not the case. In the evening, during the summer, the moths may be seen flying about the entrances of hives, seeking admission to those hives where the colonies are weak, and therefore not sufficiently watchful. When the female gains admittance she deposits her eggs on unused combs, or among the debris, found in abundance in the hives of the careless bee-keeper who neglects the annual "spring cleaning." The eggs are often laid in the crevices, that are found in plenty, in ill-constructed hives. Here the larvae find plenty of food for their earliest needs. Pieces of comb littered about in the vicinity of the hives form a good nursery, and the grubs crawl until they reach the hives, and creep in where the colonies are not strong. Where the frames fit badly, a good hiding-place is provided for the grubs, which bore through the wood of the frame and cause much injury to the combs. In this fact can be found a means of successfully combating the pest, for it is simple to provide hives that will accurately take "standard" frames. In a few days the eggs hatch, and a very tiny grub emerges; the grub eats ravenously, grows rapidly, gnawing a burrow and spinning a very tough, silken film as it passes on its way. The grub reaches its full size in about three weeks, when it is about an inch long. It is then ready to build its cocoon, and for this purpose seeks a crevice, or other suitable place, which may be just above the frames under the quilts, in the saw-cut of the frames, or in cracks. Shortly afterwards the perfect winged insect emerges. Apart from the silken galleries, the presence of the wax grub may be detected by the small portions of wax on the floor-board, mixed with the excrement, which is not unlike grains of gunpowder. It may be taken as an axiom that strong colonies will be able to keep themselves free of this troublesome pest, whilst of all kinds of bees, Italians and hybrids are the best for successfully resisting the intruders; it is surprising how rapidly they drag out the bee-moth larvae. When the grubs are working in their burrows, their gnawing can be distinctly heard, but should they be disturbed the noise ceases entirely, for they are easily frightened, wriggling rapidly into the inmost recesses of their burrows.

HOW TO RID HIVES OF THE PEST.—When a hive is attacked, give a little smoke at the entrance, and as the quilts are removed, examine every portion of them for the cocoons, which are straw-coloured and tough. Next take the frames singly, examining carefully the saw-cut, and use a sharp-pointed knife to dislodge the intruders. Next examine the combs, and dislodge any cocoons detected in the same manner; afterwards examine the sides and bottom of every frame. As the frames are examined, place them in their natural position upon a stand, then take the body-box off the stand, cleansing both thoroughly over a fire, for if the grubs are simply brushed on the ground, they will crawl back to the hive. If the stock be a weak one, let the bees have no more frames than they will cover thickly, adding other frames about every seven or eight days afterwards. At this time of the year never leave surplus hives fitted up with combs and without bees, or the wax will soon be destroyed by the grub of the wax-moth, and the whole form a source of infection.

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APPOINTMENTS FOR THE ENSUING WEEK.

- SATURDAY, JUNE 24—Midsummer Day. Quarter Day.
- MONDAY, JUNE 26—Royal Agricultural Soc. Sh. at Norwich (5 days).
- TUESDAY, JUNE 27—Southampton Rose and General Fl. Sh. (2 days).
- WEDNESDAY, JUNE 28—Richmond Fl. Sh. at Old Deer Park. Irish Gard. Assoc. and Benev. Soc. meet.
- FRIDAY, JUNE 30—Roy. Oxfordshire Fl. Sh.
- SATURDAY, JULY 1—Sutton Rose Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—61.5°.

ACTUAL TEMPERATURES:—

LONDON.—Monday, June 19 (6 P.M.): Max. 62°; Min. 55°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Tuesday, June 20 (10 A.M.): Bar. 29°; Temp. 62°; Weather—Sunshine.

PROVINCES.—Monday, June 19: Max 57° Cambridge; Min. 55° Ireland, N.W.

SALES FOR THE ENSUING WEEK.

FRIDAY—Imported Cattleyas in variety. Established Orchids, &c., at 67 and 68, Cheapside, E.C., by Pitheroe & Morris, at 12.45.

Biochemists at Rothamsted.

The Biochemical Club is an association of chemists, botanists, physiologists and others engaged in studying the complex and difficult problems centring round the living cell, and it meets periodically in order that its members may discuss and criticise each other's work. The third meeting was held at Rothamsted on June 10, and fully demonstrated both the need for such an association and the value of the work that it is doing.

The grass plots were looking at their best, and the differences in herbage and the character of the turf caused by varying methods of manuring showed up in a particularly remarkable manner. It was a little early for the cereal plots, but nevertheless some useful lessons were drawn as to the effects produced on plants by artificial manures.

After the plots had been inspected, papers were read dealing with various aspects of plant nutrition. Miss Brenchley showed a number of water cultures in which plants were fed on a complete mixture of food stuffs, but received also small quantities of poisonous metallic salts. It is an old idea that any poison will act as a stimulant if used in sufficiently small quantities, but Miss Brenchley shows that this is not so. For example, copper sulphate,

the ordinary bluestone of commerce, is very poisonous to plants, and is, indeed, used as a spray for killing charlock, yet it has never been observed to stimulate plant growth. Nor is it clear that arsenates, the constituents of certain weed-killers, ever become stimulants. On the other

be significant. The most probable reason for the presence of Calluna is that other plants cannot grow, in other words, there is no competition, and the problem therefore, is to find why these particular patches should be unsuited to the growth of grasses, etc. Lack of lime and absence of



FIG. 183.—PARTIAL STERILISATION OF TOMATO-SICK SOIL.

Showing the difference in growth of plants cultivated in soils which were heated to 55° C. and 100° C. The plant marked "U" was grown in untreated soil.

hand, small quantities of manganese salts do increase plant growth, while large quantities are poisonous: this effect, however, may well be one of nutrition, and not a true stimulus. Borates behave in the same manner.

Mr. W. Neilson-Jones described an in-

soluble mineral matter are two possible causes, and attention was also directed to the fact that the lime-magnesia ratio is low. Experiments in the United States, Japan, etc., lead to the conclusion that plants do better when this ratio is high than when it is low, in other words, that



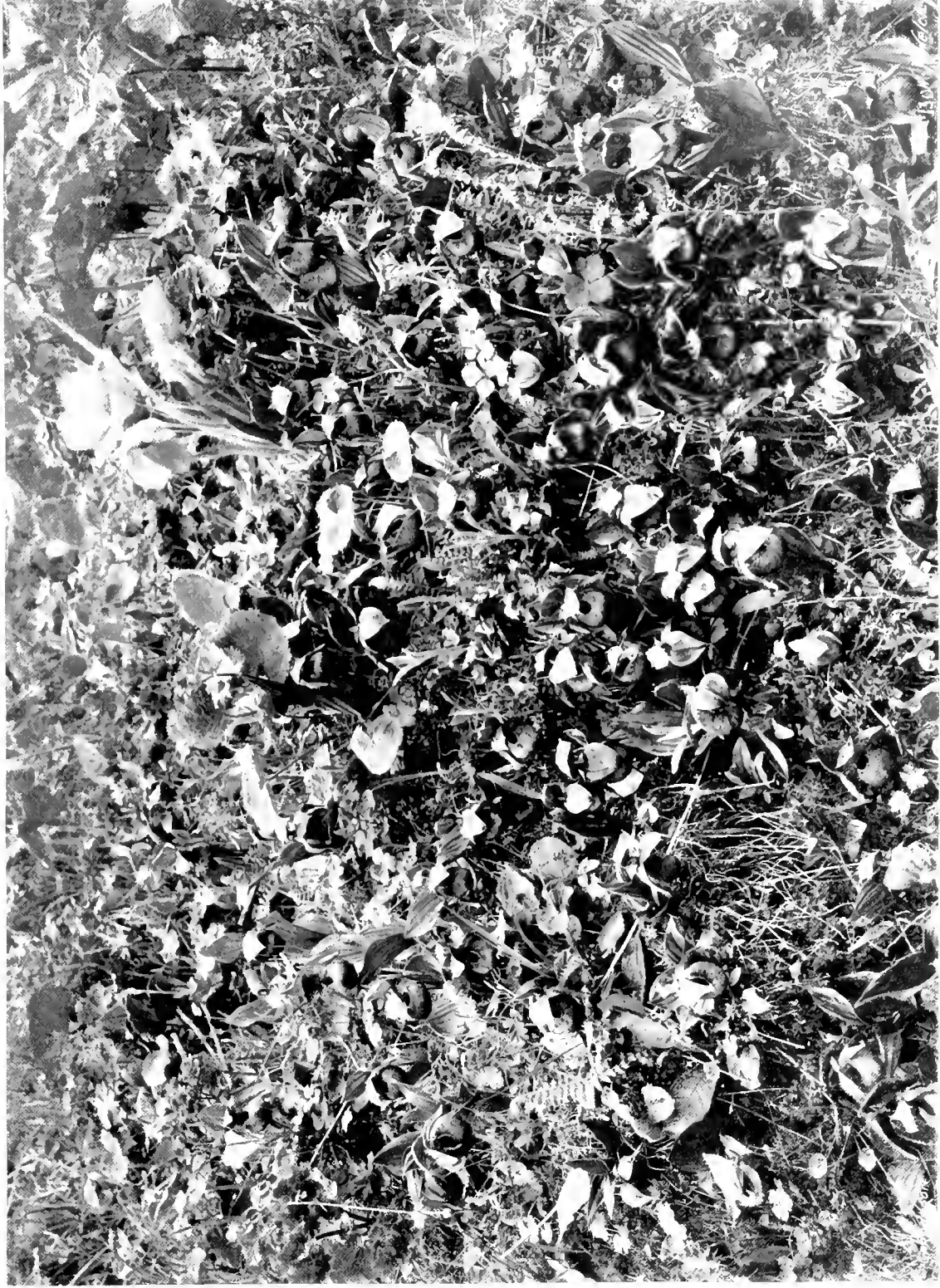
FIG. 184.—PARTIAL STERILISATION OF TOMATO-SICK SOIL.

Showing the growth in untreated soil "U," and in soil heated to 100° C.

vestigation made by Miss M. C. Rayner and himself on the distribution of Calluna over soils lying on the chalk. It was found that certain patches of soil will carry Calluna, while others not obviously different will not, but closer examination of the soil revealed certain differences which may

abundance of calcium compounds in the soil will counteract any harmful effect of a large amount of magnesium.

A paper by Dr. H. B. Hutchinson followed, in which it was shown that other nitrogen compounds besides nitrates can serve as plant nutrients. Not only can



Reproduced by permission of Professor Sargent.

Photograph by E. H. Wilson.

CYPRIPEDIUM TIBETICUM

GROWING IN ASSOCIATION WITH MECONOPSIS AND OTHER PLANTS IN CHINA (ALT., 10,000--13,000 FEET).

ammonium salts be assimilated, but various complex organic compounds as well, although in the cases examined these did not prove so efficient as the simpler bodies. The assimilation is greater when calcium carbonate is present. Great experimental difficulties are experienced in carrying out the trials, especially in keeping out all bacteria. If germs obtain access to the sand or water in which the plants grow, a chemical decomposition is set up, which gives rise to ammonia, or, if the right germs are present, to nitrates. This, of course, is what happens in the soil where nitrates are the usual food of plants. Methods were described by which bacteria can, for experimental purposes, be excluded.

Dr. Russell gave an account of certain grass fields in Romney Marsh which will fatten sheep, whilst others round them will only carry store sheep. Botanical analysis of the herbage of the two kinds of fields shows no sufficient difference to explain these facts, nor does chemical analysis. The explanation is not yet found.

In a second paper, Dr. Russell gave an account of the work which he and Mr. Petherbridge have been doing on the partial sterilisation of Tomato-sick and Cucumber-sick soils. The productiveness of the sick soils can be much enhanced by heating to anything between 55° C. (130° F.) and 100° C. (212° F.), or by treatment with toluol, but certain secondary effects are produced in the early stages of the plant's life. Germination of the seed, i.e., the bursting of the seed and extrusion of the radicle, is often hastened, although when the soil has been heated to 212° F. there may be a retardation. The young plant not infrequently shows a retardation, but it may also show an acceleration of growth: indeed, acceleration and retardation appear to go very closely together, and, in what appear to be uniform conditions, one set of plants may be accelerated and another retarded. At this stage it seems as if there is some substance present which in small quantities helps the plant, and in larger quantities injures it. Later on, the plants in the partially-sterilised soils make better growth than the others, because they have more food: if the soil has been heated to 212° F., the plants become very compact and short-jointed.

Mr. A. D. Hall described experiments on the sugars of the mangold leaf, which, if confirmed, will somewhat modify our view as to the course of carbohydrate synthesis. It appears that reducing sugars are first formed before the cane sugar. The latter then changes into starch, which soon gives rise to maltose. Owing to the difficulties of analysis, the experiments were cautiously regarded as preliminary only.

In another paper, Mr. Hall gave an account of work done by Miss Underwood, which showed that, contrary to their expectation, plants make better growth in strong than in dilute solution. The remarkable feature appeared to be, however, that the plants did equally well, whether the solution was presented as such to the roots,

or had first to diffuse through porous pots into sand: considerable mobility thus seems to be attached to the food solution. This investigation is also regarded as preliminary only, and is part of a larger piece of work designed to trace the movements of water and food solution in the soil.

**Professor
Marshall
Ward.**

Sir William Thiselton-Dyer's biographical notice of the late Professor Marshall Ward, which is published in the *Proceedings of the Royal Society*, is a fine and touching tribute to the memory of a man who devoted his life to botanical research. It is more than this: a prose elegy by the teacher to the former pupil, by the elder to the younger man, whose career he has watched with solicitude and generous appreciation, and whose early death the elder feels like that of a son.

It is rare indeed for a man of science to possess the literary gift which distinguishes Sir William: and rarer yet for it to be employed with such scientific precision



FIG. 185.—SILVER CUP PRESENTED BY MESSRS. CLAY AND SON AT THE FESTIVAL OF EMPIRE EXHIBITION AT THE CRYSTAL PALACE.

that a reader, careless of literary form, might see in the printed page nothing but a plain and straightforward account of the career of a well-known scientific investigator. Professor Ward's researches into the life-histories of fungi and bacteria are too well known to be more than mentioned here. His first important work was the discovery that the "coffee disease," which ruined the planters in Ceylon and brought distress on that island, was due to a rust fungus *Hemileia vastatrix*. Researches on other fungous pests followed, particularly on the "late blight" fungus *Phytophthora infestans* and on the fungus which causes disease in Lilies. It was in the course of the latter investigation that Professor Ward discovered that the fungus hypha gains access to the tissues of the plant by secreting a cellulose-dissolving enzyme, which breaks down the cell wall.

Again, Ward's contribution to the

nodule-forming organism of the Leguminosae was no inconsiderable one; for he demonstrated that this organism invades the roots of leguminous plants by way of its root hairs.

Other researches in the mode of life of various parasitic and saprophytic organisms were followed by a laborious and important investigation of the bacterial flora of Thames water, which led him to the conclusion, of great practical importance, that sunlight plays a predominant part in "disinfecting" water, and thus in rendering river water potable. As Sir William says, "it can hardly be doubted that the upshot of Ward's laborious investigations has had a powerful influence in deciding the policy of the future water supply of London. If we hear nothing now of obtaining it from Wales, it is because we know that even polluted flood-water, if exposed in large reservoirs, will rid itself of its bacterial contamination partly, as was known already, by subsidence, but most effectually, as shown by Ward, by the destruction of its most deleterious constituents by the direct action of sunlight.

Marshall Ward became professor of botany at Cambridge in 1895, and it was during his tenure of office that the splendid botany school was built. Among his later contributions to science must be mentioned the demonstration that Eriksson's mycoplasma—the supposed mingling of the protoplasm of rust with that of the host-plant—has no real existence, and that what led Eriksson to formulate this famous theory was the appearance presented by the hyphae of the rust fungus pushing their way each as a thin tube, into the cell of the host's tissues, and, having entered the cells, expanding to form a large visible mass. Ward's latest work consisted in the discovery that plant parasites, which are usually unable to attack certain species, may become capable of doing so if they pass a probationary period on some other "bridging" species.

A prodigious worker, Ward remained active almost to the last. In 1904 his health failed suddenly, and he died in 1906.

"FESTIVAL OF EMPIRE" AT THE CRYSTAL PALACE: THE "CLAY" CUP.—The judging in the horticultural section at the "Festival of Empire" exhibition took place on the 3rd inst., resulting in the premier honour being awarded by the Council to the King's Acre Nurseries, Ltd., Hereford. The award—a Silver Coronation Cup (see fig. 185), valued at 25 guineas—is the work of Messrs. ELKINGTON & Co., of Regent Street. It is a three-handled cup, being a reproduction of an ancient vessel discovered at Ardagh, in Ireland, and was presented to the "Festival of Empire" by Messrs. CLAY & SON for the most deserving exhibit displayed by nursery firms. The King's Acre Nurseries exhibit comprised an artistically laid-out garden, including a large and well-designed orchard house, erected by Messrs. DUNCAN TRUCKER & SON, and a model orchard in the Country Life Section, illustrating the cultivation of standard and bush fruits.

KEW AND THE CORONATION HOLIDAYS.—We are informed by Mr. WATSON, Curator of the Royal Botanic Gardens, Kew, that these gardens will be closed to the public on Coronation Day, but that they will be open again as usual on the following day, Friday.

ROYAL HORTICULTURAL SOCIETY: THE SPRING SHOWS NEXT YEAR TO LAST FOR TWO DAYS.—In view of the large and increasing numbers of visitors to the Royal Horticultural Society's fortnightly flower shows, it has been decided by the President and Council to extend them over two days in the months of March, April, May, and June, 1912. Next year, therefore, the shows will open on the Tuesday at the usual hour (Fellows 1 p.m.; the public 2 p.m.) and close at 6 p.m., re-opening on the Wednesday at 10 a.m. and closing at 6 p.m. Plants shown for certificates will be allowed to be removed at 6 p.m. on the Tuesday. W. Wilks, Secretary.

ROYAL CORNWALL SHOW, ST. AUSTELL.—At this show, which was held on the 14th and 15th inst., the Four Oaks Spraying Machine Co., of Sutton Coldfield, were awarded the Silver Medal for their new Potato and Charlock sprayer. This new machine, which can be used for Potatos or Charlock, will spray six to eight rows of Potatos at a time. It can be attached to any ordinary farm cart, and is so constructed that it can pass through the narrowest gateway.

PRESENTATION BY THE GARDENERS' COMPANY.—On the 14th inst., at the Mansion House, The Worshipful Company of Gardeners made their annual presentation of flowers, vegetables, and herbs to the LORD MAYOR of London. The gift was instituted some four years ago in remembrance of the warrant granted by the Recorder of London in 1632, protecting the members of the Company from unqualified persons. The accompanying illustration (see fig. 186) shows the basket of garden produce on a table, and the LADY MAYORESS, LADY VESEY STRONG, receiving a bouquet of Orchids from the Master of the Company, Mr. CHAS. BAYER. Others present at the ceremony included Sir TREVOR LAWRENCE, Bart., Mr. N. N. SHERWOOD, and the Clerk of the Company, Mr. E. A. EBELWHITE.

THE LATE MR. GUMBLETON.—We have received information that the late Mr. GUMBLETON has left his botanical library to the Royal Botanical Garden, Glasnevin. Any books that are not required for the garden library are to be handed over to the trustees of the Lindley Library, which is maintained in the Royal Horticultural Society's Hall, Vincent Square, Westminster. He leaves certain books to the Bodleian Library, and his collection of china and curios, with £100 to defray cost of packing and moving same, to the National Museum, Dublin, the same to be known as the "Gumbleton" collection. His pictures are bequeathed to the National Gallery in Dublin, with the exception of a celebrated picture by FORDE, which will go to the School of Science at Cork. Mr. GUMBLETON further bequeaths his books of foreign languages to the Taylorian Institute of Oxford.

CATTLEYA WARSCEWICZII ALBA.—We are informed that the fine "white gigas," illustrated from a photograph of the plant in the possession of Messrs. LAGER & HURRELL, Rutherford, N.J., U.S.A., in the *Gardeners' Chronicle* of July 16, 1910, p. 34, and which secured the Gold Medal of the Massachusetts Horticultural Society at Boston last year, has passed into the possession of Messrs. STUART LOW & CO., Bush Hill Park, Enfield. It is reassuring to those interested in British horticulture that the flow of the "Old Masters" to "The States" is being reversed in the case of this rare albino.

NEW FRENCH AND GERMAN VARIETIES OF HYDRANGEA HORTENSIS.—The most promising of recently-introduced varieties of *Hydrangea* is the subject of a symposium in No. 23 (June 10) of Moller's *Deutsche Gärtner-Zeitung*. Of the

large number of novelties to which the writers in our contemporary draw attention we may mention the following:—Best white, Mme. Emile Moullière (see fig. in *Gard. Chron.*, April 1, p. 204) fading to delicate rose; bears giant heads of flower; petals delicately fringed. La Perle, larger and lighter flower heads and petals, yet more fringed. Rose-coloured, Souvenir de Mme. E. Chautard. Good market sorts included are Lemoine's Le Lorraine and Bouquet Rose. Dentille (rose) is striking because of its very regularly-fringed and large flowers. A variety introduced by Messrs. E. NEUBERT, and named Beauté Vendômoise (bright lilac) is striking, by reason of the fact that its large sterile flowers are distributed uniformly over the flower-head. Among the new German-raised varieties are Fran N. Lambert and Saarbrücken (Monstrosa × Souvenir de Claire), the latter strong-growing, com-

Chautard and Souvenir de Mme. Victor Raoult. The shoots of the plants were placed in warm water 95° F. for 12 hours, and blossomed 10 days earlier than untreated plants. Etherisation (64 grains of ether to 1 cubic metre of space) produced a like result.

"THE SEMINARIUM."—We have received the first number of *The Seminarium*, a small periodical, which has been established by Herr T. O. WEIGEL, of Leipzig, to serve as a medium for announcements concerning seeds offered or required for scientific purposes. We understand that *The Seminarium* will be sent free of cost to all who are concerned with the procuring or distribution of seeds for which there is no demand in commerce, but which may be of value for scientific purposes. Such a medium should prove of great service to investigators who not



FIG. 186.—THE WORSHIPFUL COMPANY OF GARDENERS.

Presentation of garden produce to the Lord Mayor.

plant, with large, rose-coloured flowers and good foliage; the former with individual flowers 2 inches across.

TO PRODUCE BLUE HYDRANGEAS.—The most serviceable substance to induce a blue coloration in the flowers of *Hydrangea hortensis* is ammonia alum. The fact that some gardeners have obtained unsatisfactory results is, perhaps, due to not applying this substance in a proper manner. Writing in Moller's *Deutsche Gärtner-Zeitung* (No. 23, 1911), Mr. W. TITZE, who claims to have produced uniformly good results, recommends watering the plants copiously twice a week with a solution of ammonia alum at the strength of $\frac{1}{2}$ ounce to one gallon of water. The plants must not be grown in full sun, or the blue colour, though deeper, is apt to be blotchy. It is desirable to water with this solution in autumn until the plants pass into the resting stage.

WARM WATER TREATMENT OF HYDRANGEAS.—Mr. LOUIS MOULLIERE gives an interesting account in Moller's *Deutsche Gärtner-Zeitung* of forcing *Hydrangeas* by the warm-water method and also by etherisation. The varieties used were: Earliest (white), Mme. Emile Moullière, Avalanche, &c.; (rose) Souvenir de Mme. E.

infrequently require seeds of plants not in the ordinary lists. By sending word of their requirements to the publisher, an announcement can be made in the ensuing number and the nature of the requirement brought to the notice of all who are in receipt of *The Seminarium*.

REMEDIES FOR MOSQUITO BITES.—Mr. L. O. HOWARD, Chief of the Bureau of Entomology, U.S. Department of Agriculture, recommends in a recent issue of the *Farmers' Bulletin*, the following remedy for mosquito bites:—Wet the end of a piece of ordinary tablet soap, and rub it gently on the puncture; the irritation will soon pass away. The Rev. R. W. ANDERSON states that he has found that, by holding his head to a hot lamp chimney, the irritation of mosquito bites is relieved instantly.

PRESENTATION TO MR. DONALD MACKENZIE.—On the 15th inst., in the Royal British Hotel, Edinburgh, Mr. DONALD MACKENZIE, the popular secretary of the Royal Caledonian Horticultural Society, was presented with a purse of sovereigns, subscribed by friends in the Royal Caledonian and Scottish Horticultural Societies, on the occasion of his wedding. The presentation was made on behalf of the subscribers by Mr. MCHATTIE.

THE PRIMULAS OF THE EUROPEAN ALPS.

(Continued from page 386.)

SUBSECTION 4.—*Erythrodosum*.—Note: Bracts short; leaves fleshy, toothed, powderless, clothed in glandular hairs of reddish colouring.

This section may be very easily distinguished from all others by the dense vesture of russet fur that clothes each member of it. Unfortunately, however, the species are not so easy to distinguish one from another. Their distribution, indeed, is so strange and local as to suggest that all, with the exception of *P. pedemontana*, are local developments of some very ancient original: of this the Apennines have evolved *P. apennina*, the Cottians *P. cottia*, the Noric Alps *P. villosa*, the Rhaetians *P. œnensis*, while the main Penine chain is occupied by *P. hirsuta*. And locality is thus a great help in differentiating the species: a furred Primula from the Apennines could only be *P. apennina*, and one from Carinthia, *P. villosa*. These beautiful small Primulas are best known to gardeners through their most robust representative, *P. hirsuta*, that which has so long been falsely known and grown as *P. viscosa* (with innumerable named varieties, which, as often as not, are really hybrids, coming under the catholic name of *P. pubescens*). They inhabit the high, stony Alpine ridges and rocks, and, when they descend to lower levels, fringe the shady side of vast boulders. They form long, white, insatiable roots, comparatively few in number, and, I fancy, are not always found in southern gardens, so permanent and robust as the species of foregoing sections. As they all seem to me impatient of excessive moistures, and dependent on perfect drainage, my personal feeling would be to treat them all as saxatile plants, entrusting them only to crevices of sound rock or wall. In the moraine I have not yet given them a fair trial. Unlike the foregoing sections, the *Erythrodosum* are all, in nature, calcifuge by choice, though apparently indifferent to lime in the garden.

P. pedemontana (Thomas).—This species stands out from the section, and is always easy to recognise, for the surface of its leaves is glabrous or nearly so, and the typical red fur of the group is only to be seen at the edge, where it is brilliantly conspicuous, dense and short. The plant is brilliant in all ways: it has a much taller flower-scape than its fellows, attaining to 6 inches, and carrying many flowers, wide and large, white-eyed, and of a very rich rose-pink. The leaves have a gradual petiole, are narrow-oval, pointed, entire or toothed.

This lovely Primula belongs only to the Western Alps, Graians and Cottians, growing in rocks and on high, moorish ridges in that decomposed peat which makes up the soil at those elevations. Little Mont Cenis! On my cliff it seems quite ready to thrive in the crevices.

P. apennina (Widmer).—This is a rare, obscure plant from the Northern Apennines. Leaves broadly ovate, about 2 inches long, obtuse, entire or feebly toothed towards their tip, densely clothed in coarse, short glandular fur of dim and dusky colour, which deepens ultimately towards brown. Flower-scape twice the height of the leaves or more, carrying as many as eight flowers, which are of a bright pink. It is the nearest to *P. pedemontana*, and thrives no less well on my cold, limestone cliff.

P. œnensis (Thomas).—Confusion has obscured this plant. Catalogues often advertise *P. daonenensis* and *P. cadinensis*. These names, the one Leybold's and the other Porta's, both belong to the true *P. œnensis*. The plant is thickly coated in long russet hair, and is very viscid. The leaves are oblong-wedge-shaped, drawing more or less abruptly to a definite petiole; their anterior half is either serrate or dentate, and they are never entire. The flower-scape rises almost invariably well above the foliage to the height of 3 or 4 inches, carrying as many as half-a-dozen blossoms, large, white-throated, of a soft rose-mauve.

West Rhaetian Alps, Ortler and Adamello. Not, apparently, very common in cultivation, although on my cliff among the most thriving of its group. (*P. seriana* (Widmer) is a Bergamask hybrid between *P. hirsuta* and *P. œnensis*.)

P. villosa (Jacq.).—Another species masked from notice by its name's unlucky resemblance to the specific "viscosa" so fatally attributed to its close relation, *P. hirsuta*. Too often is *P. villosa* advertised and treated as a synonym of the false *P. viscosa*. Leaves very viscid, from 1 to 6 inches long, oblong-obovate or oblong-lanceolate, drawing usually to a gradual petiole, often almost entire or merely a little toothed towards their tip. All the plant is clothed in long, coarse, darkish hair; the flower-scape rises above the leaves: it can attain 6 inches and carry as many as 12 brilliant flowers.

This species ranges through the Noric and Carinthian Alps, always on gneiss, granite or schist. In Styria, on porphyry, it develops the form known as *P. commutata* (Schott), which has thinner, larger, longer leaves, drawing to a more elongate petiole and usually coarsely toothed.

P. cottia.—This very rare plant stands closer to *P. villosa* and *P. apennina* than to the others of the section. In these three species the hair is coarse, long and, at first sight, blackish. Only at certain angles and in certain lights can one discern a rufous tinge, especially on the younger leaves. *P. cottia* is a smallish plant as a rule; its leaves attain 2 or 3 inches, are oblong-lanceolate, sometimes entire, sometimes dentate from their base, but most usually from the middle. At the tip they are more or less obtuse, and at the base draw gradually (as a rule) to their petiole. The scape rises to some 4 inches, and carries two to ten large, white-eyed flowers of a rich rose.

P. cottia is restricted to a few localities in the Cottian Alps. (Above Bobbio Pellice.) It seems to have a curious love of very hot and exposed granite rocks facing due south. And yet, on my northerly cliff of limestone, it is thriving in the crevices as vigorously as the calcicole *P. Allionii*. In nature I have seen it inhabiting ledges so torrid that all the plants were wilted and browned with the heat.

P. hirsuta (All.).—The arch-breeder of confusion in gardens, this very valuable little mountain Primula has for years usurped the name of *P. viscosa*. It is a variable species, and not only have varieties been accorded specific rank, but synonyms have been multiplied and advertised with reckless prodigality. The following names must henceforward be discarded absolutely from all serious lists and catalogues:—*P. ciliata* (Schrank) (the parent of two colour forms, *P. ciliata coccinea* and *P. c. purpurea*, both mere varieties of *P. hirsuta*), *P. pubescens* (Loiseleur), *P. decora* (Sims), *P. confinis* (Schott), *P. decipiens* (Stem). All these appear too often in catalogues, and all are to be reduced to the single name of *P. hirsuta*. The species is easily recognisable by its very broadly-ovate or rhomboidal leaves, always obtuse, always more or less dentate, always narrowing sharply to a longer or shorter petiole, and clothed in yellow, tawny or golden fur, which very seldom deepens to red. The plant is viscid, and the flower-scape rarely rises at all, and never rises much, above the leaves. The height of the whole plant is from 2 to 3 inches at the most. The umbels are many-flowered, the corolla-tube long, the blossoms bright pink or mauve, occasionally white.

This plant has been for centuries in cultivation, is the most robust of the section, and the widest in distribution. It occasionally occurs on limestone, but prefers granitic formations, and ranges through all the central Alpine chain, on rocks and moorland ridges, from the Pyrenees, through the Graian, Bernese, Valaisan, Rhaetian, South Tyrolean, Austrian and Dolomite Alps. Its varieties are not to be clearly distinguished: *P. hirsuta angustata* hails from the Maloja, and has narrower leaves; *exscapa* is stemless; *nivea* is an albino, but has no reference to "*P. nivalis*," *P.*

helvetica alba, *P. pubescens alba*, *P. ciliata alba* of gardens, all of which are albino hybrids, coming under *P. pubescens* (Jacq., not Loiseleur). I do not know if the genuine *P. hirsuta nivea* is now obtainable; and the many plants sold under the name of *P. "viscosa"* are very often under the name of mixed parentage. *P. "viscosa"* Mrs. J. H. Wilson, a beautiful, vigorous and very free-blooming plant with rich purple-lilac flowers, seems to be certainly not pure *P. hirsuta*, and the same must be said of the lurid-scarlet and dark-violet forms, *P. hirsuta (ciliata) coccinea* and *purpurea*, as well. I think, as *P. hirsuta purpurea* and *eximia*, &c., and many another named colour-variety. But *P. hirsuta* is so free a seed bearer, in fact, and so prolific a parent that a large percentage of its children in nature, as in the garden, show a greater or a less degree of alien blood.

SUBSECTION 5.—*Rhopsidion*.—Note: Bracts elongate; colourless glands.

This section stands close to the last in habit, constitution and requirements, but can always be distinguished by the longer bracts and the lack of any coloured matter in its glandular exudations. The two smaller species in this group are among the most precious jewels of the whole race, rigidly saxatile plants, of diminutive stature, immense blossoms and exquisite beauty.

P. kitaibeliana (Schott).—This species hails from the Far Eastern European ranges—Serbia, Croatia, Bosnia and the Herzegovina. It is, I fancy, very rare in cultivation; a few collectors offer it, but fail to supply it when asked. It may readily be known by the very glandular, sticky foliage, which emits a powerful smell. It is a small species, its flower-scape attaining only to about 2½ inches, never rising above the foliage, and never producing more than two large, white-throated, rosy-mauve blossoms. The whole plant is glandular; the leaves are from 1 to 3 inches long and about 1 inch broad, rather glaucous, elliptic or oblong-lanceolate, entire or a little waved towards the tip, acute or obtuse, and drawing gradually down to a long petiole.

I have not much experience of *P. kitaibeliana*; it appears to be a limestone plant by choice, from riven rock and stone slopes, and is said to like a rather shaded, moist exposure.

P. integrifolia (L.) = *P. candolleana* (Reichb.).—Rather smaller than the last in habit, leaves glossy, narrow, elliptic-oblong, subacute (or obtuse), and almost sessile, without any petiole or leaf-stalk. They have no membranaceous margin, are quite entire, ciliated, and acutely set with minute pellucid glands, but scarcely, if at all, viscid. The glandular scape rises to 2 inches or so, never carrying more than three large, rosy-lilac flowers, and, most usually, only two.

This species makes an important part in the high moors of the Rhaetian Alps, forming a dense lawn of single tufts, rather than the matted masses produced by the close-clustering Arthritic Primulas. It is purely a granitic plant, and ranges from the Pyrenees through the Bernese Oberland to the Voralberg and Eugadine, where it is the reigning Primula of the Upper Alps, as *P. hirsuta* is in the Valaisan chain (Muottas Muraigl! Piz Ot!). In cultivation it may be treated like the Arthritic group, though, as a northerner, perhaps not quite so patient of full sun-heat.

P. tyrolensis (Schott).—Leaves so very broadly ovate as to seem almost round, minutely but sharply toothed and jagged. They are bright green, not fully glossy, rather odorous, and set with colourless, sticky glands. They draw abruptly to a very short petiole, and in time the tiny plant develops a long rhizome, clothed in the membranaceous dried leaves of bygone years. The leaves are about an inch, at the most, in length and breadth (more usually half an inch), the flower-scape little more, the flowers produced in ones or twos. The blossoms are very large, bright soft pink with a white eye.

This species, and the following, represent, presumably, different local developments (though very distinct) of one original. Exquisite little *P. tyrolensis* is restricted entirely to the Dolomitic limestone of South Tyrol, where it specially haunts cool and northerly cliffs, dwelling in crannies and under the lower margin of the grass along ledges, instead of in the cunning, secret caves most usually chosen by *P. Allionii* (Sorapiss!). Nevertheless, although I have found *P. tyrolensis* quite easy and satisfactory in pots, and only a little less so on the cliff (I fancy that I chose it caverns on the cliff too elaborately sheltered to suit its wishes), it has not yet shown with me the extraordinary and wholly unexpected robustness of *P. Allionii*, which every reason would combine to make one believe a really difficult plant to grow.

P. Allionii (Loiseleur).—This plant is the rarest of all European Primulas, possessing only in the whole world some ten or a dozen stations, within a very small radius of a few miles. It forms in time vast pendent masses (far larger than the largest of *P. tyrolensis*), a yard across or more of long trunks, clothed in the dead, dried foliage

there; hence, of course, the startling hypertrophy of this plant's thirst-averting apparatus. None the less, despite these peculiarities, this species has a remarkable adaptability in nature. It sows itself freely in exposed chinks, and may even be found thriving incidentally in pans of loose silt at the foot of the precipice. At the same time, it is remarkably local; abundant as it may be along a given line of rock, there will always be wide tracts of the cliff on which not a sign of the Primula can be seen. Nor does it ever stray off the limestone, nor, by choice, desert the face of the hardest and soundest rock in the range.

Considering, then, its rarity, its peculiarities of dwelling and development, and its ominous coating of glands, it is with very great surprise that I find *P. Allionii* entitled to take rank, not as the most difficult, but as almost the easiest of all the mountain Primulas. In fact, this species has a rare robustness of constitution; my collected pieces suffered heavily from heat in transit (because of their stickiness), nor can the plant ever be gathered from the solid cliff with roots as perfect as one could wish. Yet I found that each particle of Primula was only anxious to root anew, and fresh rosettes were thrown out in a month

And, as a southern plant, it ought certainly, like the *Arthritica*, to appreciate the sun's warmth in the south of England. *Reginald Farrer.*

(To be continued.)

THE ALPINE GARDEN.

OXALIS ENNEAPHYLLA.

AMONG the members of the Oxalis family there is probably none which combines grace of foliage and beauty of flower to such an extent as may be seen in *O. enneaphylla*, unless, indeed it be the very rare and as very expensive *O. adenophylla*. When we bear in mind that, given suitable conditions, it thrives wonderfully well in the rock garden, it is curious that it is not more frequently seen. This lovely plant, though frequently called the nine-leaved Shamrock, has glaucous leaves, divided into from 10 to 14 segments, each, being supported on ruddy stems, some 4 inches high, give the plant a charmingly graceful and attractive appearance. These leaf-stems rise direct from a scaly, bulbous root, which, by the way, should not be placed more than half an inch under the soil. The best position seems to be one protected from the fierce heat of the mid-day sun, but otherwise the plant should be fully exposed, and, while growing more freely in a shady place, it produces a greater abundance of flowers if the sun, except at mid-day, has free access to it. It is probable that if some arrangement could be made to provide the plant with a copious water supply during its growing season, it would thrive and flower best of all in full exposure, though as yet I have not tried it in such conditions. The soil it likes is moist, sandy loam, with a little leaf-mould added, while the surface of the bed in which it is planted should have a decided fall, so as to throw off excessive moisture in winter, and, where the conditions require it, a piece of glass placed over the plant during the wet season will greatly help in this direction. The flowers, which appear at the end of May or early in June, are generally pure white, but there is sometimes just a suggestion of a faint purple flush over the petals.

DIANTHUS NEGLECTUS.

IN such a large family as that of *Dianthus*, it is difficult to decide which of its members is the most beautiful. When constitution is added to beauty, however, *D. neglectus* is easily among the best two or three, even if we do not give it first place. One strong point in its favour is the comparative absence of that tendency to die from no apparent cause, which is found in so many Alpine Pinks. What can be more lovely or more truly Alpine than a tuft of this lovely little glacier Pink, with its compact mat of narrow, wiry leaves, nestling closely over some sunny stone, and, in June, producing with the greatest profusion stalks 3 to 4 inches long, bearing lovely carmine flowers, the under-sides of which are of the clearest buff. As the flowers close each evening, this buff underside makes a striking contrast to the rich carmine colour of the surface. The plant delights in gritty loam, to which old mortar has been added, and the position selected should be an open one, where the fullest amount of sunlight can reach it. As with many species of *Dianthus*, it is better to err on the side of poor soil than to give it too rich a compost, as the latter usually results in much growth and but little flower. Nothing is easier than to raise this plant from seed. Care should be taken to secure the purest seed possible (by netting one's own flowers, if necessary), as most species of *Dianthus* cross readily, though, as far as my experience goes, *D. neglectus* is rather less liable to do so than some others. *Reginald A. Malby.*

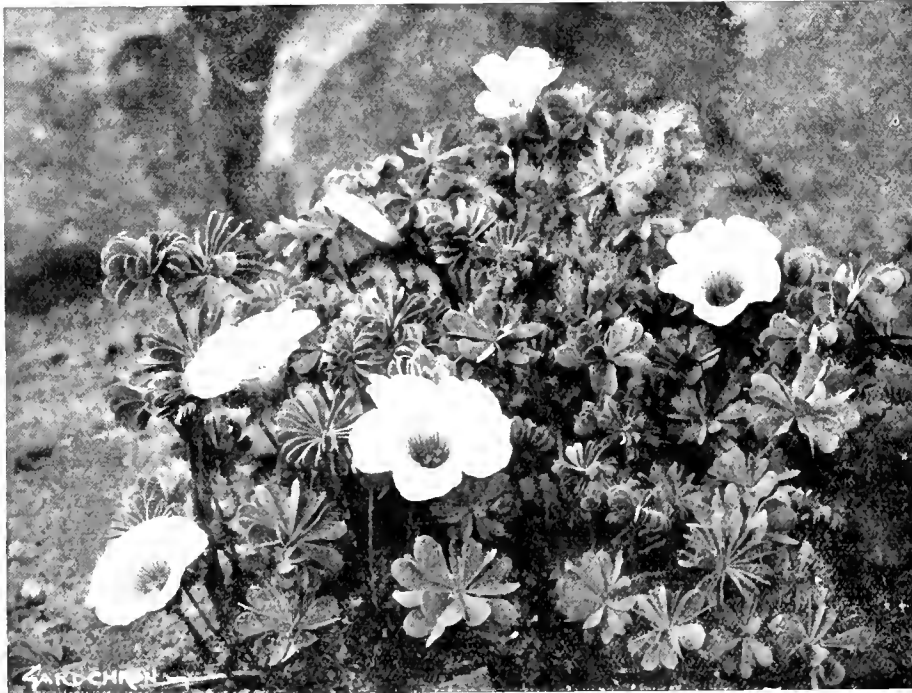


FIG. 187.—OXALIS ENNEAPHYLLA IN MR. REGINALD MALBY'S GARDEN.

and capsules of former seasons. The leaves are about $1\frac{1}{2}$ to 2 inches in length, usually narrow-oblong (or rounded), drawing more or less gradually to their petiole, and almost always entire, though they occasionally show a little feeble jagging or waving. They are very distinct indeed, thick and fleshy in substance, and so densely set with viscid glands that their surface presents a glistening grey-green effect to the eye, and to the touch so intense a gumminess as can only be got rid of by much washing. There is practically no apparent flower-scape; the umbel can produce from one to six flowers (most usually two opening in succession), which are of enormous size, of melting crystalline texture, and of a soft, clear pink, fading towards the white throat.

This wonderful little plant has developed its peculiarities as a result of the places it has chosen to dwell in. For it is found only in a few caverns and cliffs of limestone at comparatively low elevations of the Maritime Alps. Though it occurs freely on open precipices near its chosen grottoes, it is always in those caverns that it forms its largest and most splendid masses. In these caves rain and sun never penetrate, and the heat is such that *Adiantum Capillus-veneris* also thrives

or two from each sprig of what had seemed a mass of mildewed deadness on arrival. Collected pieces beginning to push out roots were then inserted abundantly into crevices of the cliff in September, barely six weeks after arrival. Out of 30 odd fragments thus poked into every sort of cranny two only failed to take hold and grow on with vigour. Every aspect and exposure seem as one to *P. Allionii*; in the case of one small piece I was seized by fear when I saw that its chink was very cold and open, exposed to all the wind and all the rain of our northern autumn and winter. Accordingly I tried to move it, and when the plant refused to budge and broke off sharp below the collar I gave it up in despair for dead. That piece has now three crowns and is growing on as strongly as any of the others, many of which produced their glorious great flowers throughout the wild gales of March. I conclude, in fact, that *P. Allionii*, given limestone, good drainage, and confinement at the root (significantly, both *P. Allionii* and *P. tyrolensis* are far more patient of pot culture than any other European Primulas, which almost invariably begin to resent the imprisonment after the first season) offers no difficulty to the careful cultivator.

ROYAL INTERNATIONAL HORTICULTURAL EXHIBITION, 1912.

We have pleasure in reproducing the letter of invitation written by his Grace the Duke of Portland, K.G., and issued with the attractive pamphlet which has been published to officially announce the general arrangements which have been made with respect to the 1912 exhibition:—

“ Welbeck Abbey, Worksop, Notts.

“ As President of the Royal International Horticultural Exhibition to be held in London from May 22-30, 1912, and which will, I believe, be the largest Horticultural Exhibition ever held, I take this opportunity of personally inviting the practical sympathy and support of everyone—their name must be legion—in all parts of the country, interested in this popular subject, so that the desired object may be successfully obtained.

“ PORTLAND.

“ June, 1911.”

EXTRACT FROM THE OFFICIAL PAMPHLET:—

“ Forty-four years have elapsed since the last International Horticultural Exhibition was held in London. During that period many courts :

ing out of the project, the Royal Horticultural Society has given its hearty and sympathetic approval to it. In evidence of this the Society has agreed to forego in 1912 in favour of proposed International Horticultural Exhibition, its annual Spring Show usually held in the Temple Gardens.

“ The exhibition held in 1866 resulted in a net profit of £3,440, part of which sum was devoted to the purchase of the Lindley Horticultural Library, and the balance was given to the Gardeners' Royal Benevolent Institution.

“ Horticulture has become vastly more popular since 1866, as is manifested by the fact that, whereas in 1866 the Fellows of the Royal Horticultural Society only numbered 3,389, they now number over 12,000, whilst the science and study of horticulture have advanced enormously. There ought, therefore, to be no doubt but that the proposed exhibition should result in a considerable profit, which would, as before, be devoted to scientific, philanthropic, charitable or other public purposes connected with horticulture.

“ The whole of the directors are volunteering their services. None of them will receive any remuneration whatsoever.

treasurer); Lady Colman; J. Gurney Fowler, Esq. (chairman); Sir Trevor Lawrence, Bart., K.C.V.O. (two cups); Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E.; Baron Bruno Schröder; N. N. Sherwood, Esq., V.M.H.; Monsieur Lambeau, Belgium; The Worshipful Company of Gardeners; The Worshipful Company of Fruiterers; Veitch Memorial Trustees (two cups); the Proprietors of the *Gardeners' Chronicle*; Messrs. J. J. Guillemans & Sons, Holland; Messrs. Sutton & Sons; Messrs. Sander & Sons; Messrs. Charlesworth & Co.; Messrs. George Bunyard & Co., Ltd.; Messrs. Barr & Sons; Messrs. Dobbie & Co.; King's Acre Nursery Co., Ltd.; Messrs. W. Bull & Sons. The preliminary list of subscriptions and guarantees shows that the sums promised already amount to:—Subscriptions upwards of £2,500 and guarantees upwards of £11,000.

SCOTLAND.

TREE PLANTING ON LINKS.

A REPORT which should prove interesting to local authorities and others having charge of those stretches of waste land, or, as we call them, links, which in many districts fringe the sea coasts, has been prepared for the Aberdeen Town Council by Mr. William Dawson, Lecturer on Forestry in the Aberdeen and North of Scotland College of Agriculture. The Report deals with tree growing on links, and in the course of it Mr. Dawson says that the conditions prevailing at Aberdeen Links are particularly unfavourable to the growth of trees and shrubs. In the first instance, there are the continuous, salt-laden winds, which exercise an adverse influence on the growth of most trees. This difficulty can be overcome to some extent by planting in large blocks so that the trees shelter one another, but at Aberdeen Links, where the blocks can never be large enough, each individual tree stands exposed, and gets no shelter from those neighbouring it. Further, the trees which are influenced in the least degree by the salt winds are the Conifers, Mountain Ash, Corsican Pine, and White American Spruce, but these trees are the least able to withstand the second hostile influence, namely the smoke and fumes coming from the factories bordering the links. Then there is the likelihood of damage by children. This damage is all the more real because to give the trees a chance to establish themselves in the unfavourable conditions, only young material should be planted. The ordinary type of street tree, with a big top and a small root, is unsuitable, being exposed in the greatest possible degree to all the natural dangers. The type of trees best adapted for the purpose is the young, small-topped tree, with a specially large and well-developed root-system. Such a tree can grow up adapting itself to its circumstances. It would, however, be impossible to grow such trees till the areas were fenced in such a way that people were excluded, and that for a period of from 10 to 12 years. It is thus clear that tree-planting on the links presents difficulties and gives no certain promise of success, as it is impossible to predict how far the smoke of factories in the neighbourhood will affect the growth. Low-growing shrubs, like the creeping variety of the Mountain Pine (*Pinus montana* var. *Pumilio*) would grow on the slopes, and would not interfere with the general character of the links. The sides of embankments facing the sea would be greatly improved if sown with Grasses better adapted to seaside conditions. At present the Grass which is sown on the slopes is largely Rye Grass, which is short-lived, and has not the binding qualities so necessary in these circumstances. Sheep's Fescue, Crested Dog's-tail, and Bent Grass (*Agrostis vulgaris*) would do much better. Those banks facing the sea might also be improved by growing creeping shrubs. The Mountain Pine, already mentioned, might do in some districts. Other hardy shrubs of this kind are *Juniperus nana* and *Salix repens*. *Juniperus nana* grows flat on the



FIG. 188.—DIANTHUS NEGLECTUS IN MR. REGINALD MALBY'S GARDEN. (See p. 314)

have from time to time been shown to British horticulturists by various foreign countries, and the time has now certainly arrived when those courtesies should be in some measure returned. It is, therefore, proposed to hold another International Horticultural Exhibition in London in 1912, and to organise it on a larger scale than has ever yet been attempted; for which purpose an association, consisting of leading amateur and professional British horticulturists, has been registered.

“ Their Majesties King George V. and Queen Mary, with other members of the Royal Family, have most graciously consented to become patrons of the exhibition, and it is hoped that nothing may prevent their Majesties from being able to open it in person.

“ The Lords Commissioners of the Royal Hospital, Chelsea, have consented to allow about 20 acres of land to be used for the purpose, and in view of the substantial support which has already been promised, it is confidently anticipated that the exhibition will be held on that site on May 22 to 30, inclusive, 1912.

“ Though in no way responsible for the carry-

“ The prices of admission to the exhibition will be: 1st day, £2 2s.; 2nd day, £1 1s.; 3rd day, 10s.; 4th day, 5s.; 5th day, 2s. 6d.; and subsequent days, 1s.

“ The Royal Horticultural Society has contributed the sum of £1,000 towards the initial expenses, and has agreed to join in the guarantee fund to the extent of £4,000. Special privileges are offered to subscribers and guarantors.

“ Your sympathy and support in the promotion of the exhibition are most earnestly solicited, and as an evidence thereof the executive would be obliged if you would be so good as to fill up and sign the form on the last page [not reproduced] and return it in the enclosed envelope at your earliest convenience.

“ J. GURNEY FOWLER, Chairman.

“ June, 1911.”

CONTRIBUTORS OF CUPS.

Valuable special cups have already been generously offered for competition by the following:—His Majesty the King (patron); his Grace the Duke of Portland, K.G. (president); Sir Jeremiah Colman, Bart., D.L., J.P., V.M.H. (hon.

ground, and is accustomed to grow in a salt-laden atmosphere. It is found on the rocky shores of Aberdeenshire at Slain's Castle. *Salix repens* is also to be found wild locally. It grows flat on the ground, and would bind and protect the slopes. Sufficient supplies of these, together with the creeping Mountain Pine, can easily be secured in time for planting this season.

CLAIM FOR A GARDENER'S DEATH.

THE appeal of the widow of the late Robert Reid against the decision of the Hawick Sheriff Court, in the case referred to on p. 75, recently came before the Court of Session. It will be remembered that deceased was a gardener in the employment of Mr. C. J. Wilson, manufacturer, Deanfield, Hawick, and his death, it was alleged, was due to tetanus, caused by Reid tearing his thumb by a lacing hook. The Sheriff Substitute held that it was a reasonable inference that the tetanus bacillus might have been received from the soil in his employer's garden, but that it was not proved that the accident did arise out of, and in the course of, his employment, therefore the widow could not recover. The Lord Justice Clerk, who gave the decision of the Court of Session, was of opinion that the Sheriff's view that it was not the only reasonable inference that the bacillus had become attached to the deceased whilst doing his employer's work was a correct one, and that, as Reid had been working in his own garden the day before the accident, it was just as reasonable to hold that the bacillus was contracted then as at any other time.

PUBLIC PARK FOR TRANENT.

THE public park presented to Tranent by the late Mrs. Polson, of Paisley, was opened on May 24 by Major Shanks, of Johnstone, brother of the donor, the title deeds being handed to Provost Young. The park, which embraces about 11 acres, is beautifully situated, and has been well designed.

APPOINTMENT OF PROFESSOR SIR R. PATRICK WRIGHT.

PROFESSOR SIR R. PATRICK WRIGHT, Principal of the Glasgow and West of Scotland College of Agriculture, has been appointed by the Lords of the Committee of Council on Education in Scotland as Agricultural Adviser to the Scotch Education Department, and his name appears amongst the new knights in the list of Coronation honours. Professor Wright has taken considerable interest in the horticultural work of the college, which is under the direction of Mr. A. Hoskings.

THE WISTARIA IN SOUTH-WEST SCOTLAND.

IT is well known that the Wistaria is not so free in its flowering in the south-west of Scotland as in England, and possibly the late spring frosts are the cause, and a considerable number of people in Scotland, having despaired of flowering the Wistaria in the open, have planted specimens in conservatories. But the out-door plants are blooming rather better this year, which may be due to the comparatively genial spring and an absence of severe frosts.

THE FRUIT CROPS IN PERTSHIRE.

CONTINUED drought in the Perthshire district has injured the Strawberry crop, especially of the early varieties, at the first sales of the season the berries realising £25 per ton. Other fruit crops, with the exception of Gooseberries, are far from promising, owing to the drought, and much of the fruit is dropping prematurely.

DRY WEATHER IN SCOTLAND.

THE dry weather experienced over the greater part of Scotland, in common with other parts of Great Britain, is causing considerable anxiety and trouble to horticulturists. The fruit prospects

are not so promising as they were at one time, and other crops are suffering considerably. In the fruit-growing districts it is feared that Raspberries will not be such a good crop as was anticipated, and the growth of the young canes that will furnish next year's crop is very slow. Strawberries are affected greatly by the drought, and the berries will be small. Black Currants also are being spoiled for want of rain, whilst many vegetables and flowers are doing badly.

FORESTRY EXHIBIT AT THE GLASGOW EXHIBITION.

THE exhibit of the Royal Scottish Arboricultural Society at the Scottish National Exhibition in Glasgow attracted much favourable comment from visitors. The exhibits proved very popular, and large crowds of people inspected them with great interest.

PRESENTATION TO A NURSERY EMPLOYÉ.

A GOLD Albert, subscribed by the members and employés of the firm of Messrs. Bruce & Co., seedsmen, Aberdeen, has been presented to their colleague, Mr. James Lickley, who has obtained an appointment in the seed trade in Toronto, Canada. *Correspondent.*

HARDY RHODODENDRON HYBRIDS.

PROBABLY no class of plant is more showy or more popular during its season of flowering than the Rhododendron, and its popularity is not surprising when we consider the wide range of colours to be found in these plants. From pure white to the deepest crimsons and purples through every intermediate shade of rose, pink, mauve, and lilac, there is a variety of colour to suit every taste, while the season of flowering extends from the beginning of April to the middle of June, even if we except those early kinds which bloom during the first three months of the year.

In the raising of hybrid Rhododendrons the three points aimed at are: (1) Flowers of a clear and distinct colour borne in upright, conical trusses with the individual blooms compactly arranged; (2) a good habit of growth, free, without being straggly, and (3) hardiness. The combining of these characteristics in one plant is not such an easy matter as may appear at first sight, as many hybrids have been named that are hardly worth growing, from the fact that too much notice has been taken of the flower and not enough of the habit, foliage, and hardiness of the plant. Good habit and foliage are essential, as these plants are simply evergreens for a great part of the year, and if not of shapely habit and clothed with healthy leaves, are liable to become an eyesore.

The varied range of colour found in hybrid Rhododendrons is the result of crossing and inter-crossing, with a comparatively small number of species as a starting point.

The species are Rhododendron arboreum, R. caucasicum, R. campanulatum, R. catawbiense, R. Fortunei, R. Griffithianum, R. maximum, R. ponticum, R. Smirnowii, and R. Thomsonii.

R. arboreum.—This is a native of the Himalayan region, and is not hardy, except in favoured localities of the south and west. The type bears blood-red flowers, loosely arranged in rather small trusses. The leaves are somewhat rugose, and covered beneath with a thick brown or silvery-brown tomentum. There are varieties of this species bearing rose, pink and white flowers, but the type-plant is the one that was used years ago in the production of hybrids. Some of these hybrids are *Blanche Superbe*, *Baron Osy*, *Marquis de Ceaux*, and *Smithii album*, white; *Nobleanum*, *altaclerense*, *blandianum*, *Russellianum*, and *Sun of Austerlitz*, red; but most of hybrid red Rhododendrons owe their colour to *R. arboreum*, though they cannot be identified by their foliage.

R. caucasicum.—This is a native of the Cau-

casus, and is a dwarf-growing species with white flowers marked with straw-coloured spots. It blooms rather later than the general run of Rhododendrons, July being its usual time of flowering. The hybrids from this species, however, are characterised by rather early-blooming habits, probably the result of this plant having been crossed with *R. arboreum*, which opens earlier in the year. Some of the hybrids are *Handsworth Early White*, *Boule de Neige*, white; *Prince Camille de Rohan*, pink; and *Jacksonii*, red. Besides these, however, there are many unnamed hybrids in the United Kingdom, mostly large, old plants, which are probably the discarded seedlings of the results of crossing this species with *R. arboreum*. They are mostly various shades of red in colour, but one sometimes meets with pinks and whites. They open between mid-April and the middle of May, and when they escape spring frosts, are a desirable feature in the garden. Probably some of them received names in their day, but they have dropped out of cultivation as they were superseded by better varieties. I have found in an old Rhododendron book we have here such names as *Philotis*, *Genesic*, *Tamerlane*, *Agamemnon*, *Archimedes*, *Stephanitum*, *Renidescens*, *Gemma-tum*, &c., and many other high-sounding mythological and Latin names, which were bestowed on some of these old hybrids.

R. campanulatum.—This is a Himalayan species, hardy in the London district, but requiring shelter farther north. The lilac flowers are borne in loose trusses opening in April and May. The species has not been used much for hybridising, the three hybrids that show the type most being *campanulatum pictum*, *Jean Stearn*, and *Fleur de Roi*.

R. catawbiense.—This species is a native of North America, being found on the mountains from Virginia to Georgia. To this plant we owe the vigour, hardiness, freedom of growth, and floriferousness of those hybrids that come into flower during the end of May and beginning of June. The type has flowers of a lilac to purple colour, but it is a variable species, and seedlings will produce flowers of various shades from pale lilac to magenta, or occasionally crimson. The leaves are comparatively broad, smooth, mostly shining, and turned downwards at the edges. There is a whole host of hybrids in which its influence can be traced, a few of which are *album elegans*, *album triumphans*, *Gloriosum*, and *Mme. Carvalho*, white; *Lady Hillingdon*, *Lady Grey Egerton*, and *Delicatissimum*, blush; *Everestianum* and *Fastuosum*, lilac; *Caractacus*, *Charles Dickens*, *Lady Armstrong*, *C. S. Sargent*, and *H. W. Sargent*, pink and red.

R. Fortunei is a native of China, and is hardy in most parts of this country, but, owing to its starting early into growth, it is liable to injury by spring frosts. The flowers open in May, and are white suffused with pink. They have a sweet scent reminiscent of the old *Crimson Clove Carnation*. The oblong leaves are flat, bright green above, and paler, almost glaucous, beneath. It has given rise to a distinct race of hybrid Rhododendrons, of which Mrs. Thiselton-Dyer, *George Thiselton-Dyer*, *H. M. Arderne* and *Duke of York* are good examples.

R. Griffithianum (Aucklandii).—This is a tender species from the Himalayan region, and is one of the largest-flowered Rhododendrons in cultivation. The sweet-scented flowers are pure white when fully expanded, and are borne in loose trusses of six or eight. The leaves are 8 inches or so long, shining green above, and paler beneath. The hybrids are few in number, and bloom from a week to a fortnight before the general run of Rhododendrons. They are *Manglesii* and *kewense*, white; *Pink Pearl*, *Alice and Strategist*, pink; *Cynthia*, rosy-crimson; and *Mrs. E. C. Sterling*, pinky lilac.

R. maximum.—An American species, *R. maximum* is a large-growing plant, attaining a height of 30 feet or more. It is said to be the hardest

of all the Rhododendrons. The flowers are small, and are rose or whitish spotted with yellow or red. They open in late June or July. It has been used for hybridising; but it is difficult to trace it in any hybrid, the chief character derived from this species being hardness.

R. ponticum.—The common Rhododendron of the woodlands throughout the country. *R. ponticum* makes a brave show when covered with

tinguished by the soft, white felt on the under-sides of the leaves, and which is also present on the petioles and upper surfaces to a certain extent as well. The flowers open in April and May, and are of a pleasing rosy-lilac colour. There are no named hybrids of this species, as far as I am aware, but those hybrids I have seen are distinguished by a compact habit and thorough hardness.

THE ROSARY.

WILLIAM ALLEN RICHARDSON.

It is some 33 years since this charming Rose was raised and its colouring is still absolutely unrivalled; indeed, I know of no other Rose of the same intense shade of orange-yellow. Although a general favourite, it has proved disappointing in a few instances, for William Allen

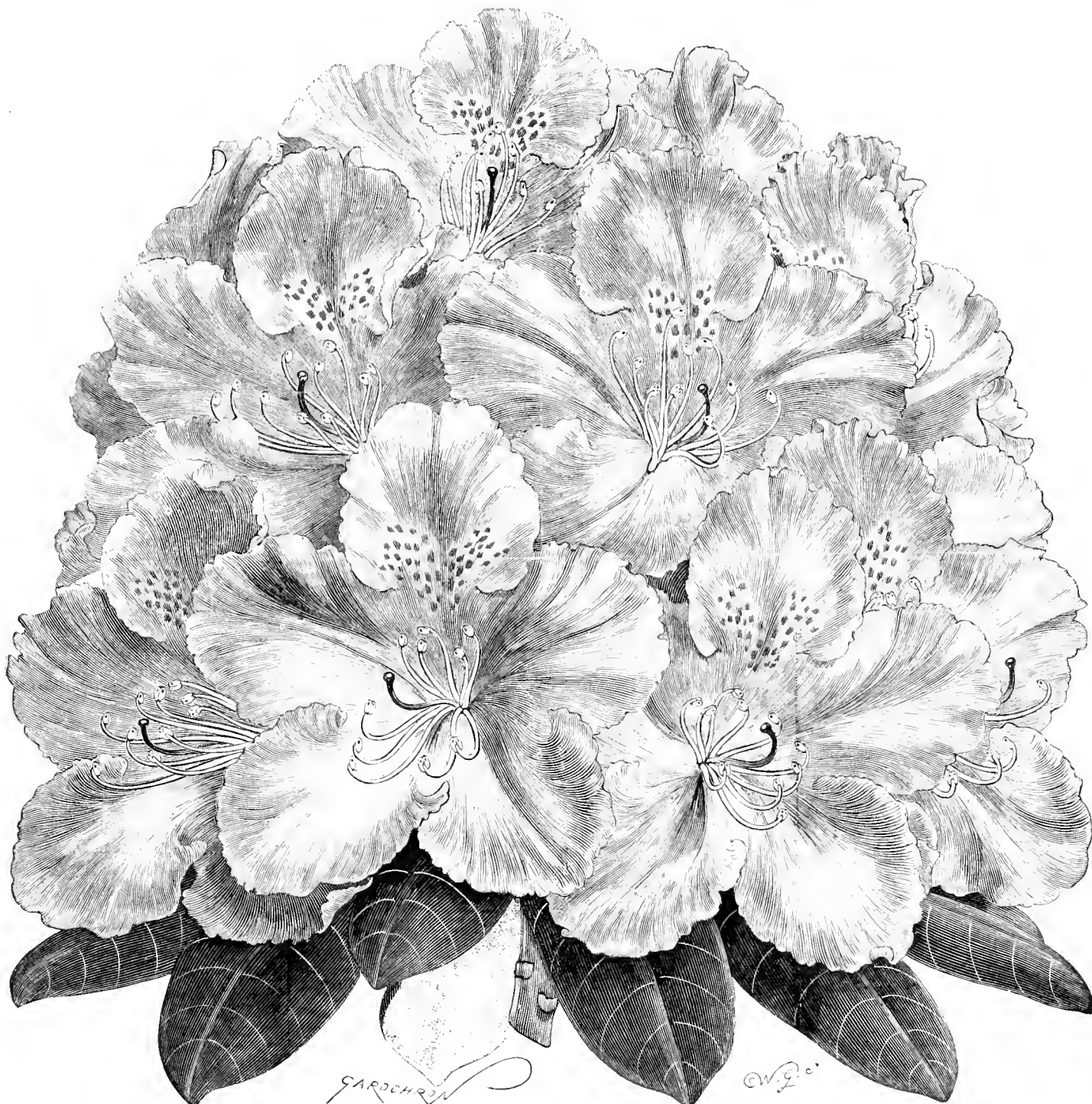


FIG. 189.—RHODODENDRON SMIRNOWII: FLOWERS ROSY-LILAC.

its lilac or purple flowers. It is a native of Portugal and Asia Minor, being found nowhere between, but may be said to have naturalised itself in many parts of this country, as it seeds and comes up freely in many old woods, where it is undisturbed. It has been largely used for hybridising a few of its progeny being Chionoides, Mme. Masson, Exquisite and Mrs. Tom Agnew, white; and Michael Waterer and Viscount Powerscroft, red

R. Smirnowii (see fig. 189).—A dwarf-growing plant, native of the Caucasus, *R. Smirnowii* is dis-

R. Thomsonii.—This is one of those species from the Himalayan region that can be grown to perfection in favoured localities, but is not hardy enough to be grown outdoors in most districts. The blood-red, tubular, fleshy flowers open in May and June, and are borne in loose trusses. The chief hybrids of this are Ascot Brilliant, with bright scarlet flowers resembling the type in size and shape, and Luscombei, a cross between *R. Thomsonii* and *R. Fortunei*, bearing rosy-red flowers in April. *J. Clark, Bayshot, Surrey.*

Richardson possesses many of the characteristics found in that favourite yellow Noisette, *Marchal Niel*. Both are especially liable to canker, and are also erratic in the colour of their flowers. William Allen Richardson will sometimes produce flowers that are of no deeper a yellow than is seen in *Lamarque*, and when the first few flowers upon a newly-planted specimen appear in this very pale form, the purchaser often complains that he has been supplied with another variety.

Wide variations in the tone may be found even

in blooms upon the same truss, but the majority of the flowers are a deep orange-yellow, with a slight falling off towards the edges of the bloom. It is an exquisitely-formed little Rose in the bud stage, and few varieties surpass it for coat decoration. Even when expanded, the blooms last well, and the plant is a continuous bloomer.

The variety William Allen Richardson belongs to the small number of Roses that cannot be put to a wrong purpose. There is no better orange-yellow variety for planting against a wall, or as a standard or a dwarf specimen. It is grand on pillars, arches, and pergolas, while it rivals Marechal Niel under glass. It needs no special pruning, except under glass as a pot plant. I find it succeeds best if cut back similar to Marechal Niel, for although this prevents the development of the few good flowers that sometimes come during the autumn, the spring flowers are more numerous on long, well-matured shoots of maiden growth.

In the case of specimens on walls, I do not advise hard pruning, and it is a good plan to cross some of the best summer laterals over barer and older wood, taking the first opportunity to cut out the older wood after these have flowered. There is not the same objection to crossing the shoots of Roses as with fruit trees, for undesirable wood can be removed at the first suitable opportunity. *A. Piper.*

GENOTHERA OVATA.

This new species was exhibited at the Royal Horticultural Society's show in the Temple Gardens by Mr. Prichard, of the Christchurch Nurseries. It is a very attractive plant, and produces a rosette of prostrate leaves about 1 foot in diameter. The rich orange-yellow flowers, each 1 inch to 1½ inch across, occur very freely in May and promise to continue during the summer months. The species is a native of California, and is said to be a common plant on the grassy hills near the Pacific coast. Belonging to the caespitosa section of the genus, it is closely allied to the well-known *O. taraxacifolia*, but the leaves, instead of being coarsely toothed, as in that species, are almost entire, with sinuate margins, and a few irregular lobes on some of the leaves. The plant is also more compact in growth, with smaller flowers. As a pot plant it is very charming for the Alpine house. The illustration in fig. 190 is from a photograph of a plant in the Alpine house at Kew, received this spring from Mr. Carl Purdy, California. For the rock-garden its merit lies in its compact habit, while it will do well in any sunny position. *W. I.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

ORIGIN OF THE ROYAL GARDENERS' ORPHAN FUND.—As my name was mentioned by Mr. Sherwood at the recent annual dinner as having something to do with the origin of the Royal Gardeners' Orphan Fund, perhaps you may allow me to state a few facts bearing up on Mr. Donald McDonald's letter (p. 316). In the early part of the year 1837, a discussion was going on in your "Home Correspondence" as to the best way for horticulturists to show their gratitude for the then forthcoming Jubilee of Queen Victoria. As one or more gardeners, now in good positions, who at that time were employed with me at Grimston Park, will know I had previously said that there was need for an orphanage or some such organisation in addition to the Gardeners' Royal Benevolent Institution. On February 6, 1837, I read in a daily paper of the accidental death of a well-known gardener's widow through one of her children giving her the wrong medicine in the night-time; I at once put my thoughts on paper and sent them to you by the next day's post. You published them on February 13 under the signature of *H. J. C.* I have a note from you saying you would do so. On the 11th I read in the *Journal of Horticulture* a letter from the late Mr. Penny advocating a similar idea, and at once wrote him, giving my name, and saying how glad I was to see his note, but got no reply. Later on I was told on good authority it was written by a gentleman connected with the firm of Messrs. James Carter & Co., who got Mr. Penny to sign it, as being a

Royal Gardener. Those who care to look up the matter may see my note in the issue for the date already given, followed by Mr. Penny's note. A singular thing is that almost the same words are used, and yet neither of us had ever met or corresponded. Further, when I read over to my late wife my notes, I remarked, I have a good mind to copy them out and send them to each of the leading gardening papers. The reply was, "Send it to the *Chronicle* only." Mr. Penny, or those who acted with him, did send it to them all, hence its appearance in the *Journal of Horticulture*, which is published on Thursday, February 11. However, the main point is the amount of human misery the fund has alleviated in the years that have elapsed. Let us hope and trust it may continue to do so more and more as time goes on, and that Mr. McDonald and horticulturists generally may do their best by subscriptions and influence to increase its funds. As inferred in my first note, there may be some amongst us hypercritical enough to find fault with the giving of pensions to aged people, yet surely none can refuse help to young children left alone in the world. I hope my gardening friends will not blame me for being egotistical in penning these notes. I neither had nor have any personal interest in the matter. *Henry J. Clayton, Uleskelf, York.*

ROSA HEMISPHERICA.—The notice of this Rose on p. 394, under the R.H.S. Scientific Com-

is as dry as sawdust, and garden crops (fruit especially), I am afraid, will be below the average. Watering and mulching are the most important operations, and these entail a lot of extra work. On the morning of the 15th inst. we had 5° of frost, which has cut down all Begonias in the beds and other bedding plants. Vegetable Marrows, Runner Beans, Potatoes, &c., are all injured. I have never known frosts so late as the above date, which is most disheartening to those concerned. In this district the frost has been experienced along the Dee Valley. *J. S. Higgins, Rûg Gardens, Corwen, N. Wales, June 18.*

TROPÆOLUM SPECIOSUM (see p. 394).—This plant grows well here. One inhabitant trains it on thin bamboos, his garden being a sandy soil; another person employs a trellis; whilst my plants are allowed to climb up strings against north walls, but the soil in my garden and where the trellis is used is not favourable, being a stiff clay. *G. Henslow, Drayton House, Leamington.*

THE R.H.S. MEDAL AWARDS.—Although it would be improper to assume that the letter issued by the Council to the Chairmen of the respective Committees on the subject of awarding medals is to be regarded as a reprimand for past liberality, yet it must be regarded as a warning to be more stringent in the future. But, it may be asked, is it worth granting medals at all to



FIG. 190.—GENOTHERA OVATA: COLOUR OF FLOWERS, ORANGE-YELLOW.

mitter, is somewhat misleading. I consider it requires sunshine and warmth to bring it to perfection in this country, instead of "dry weather," as there stated. It is often called Burghley Yellow, from having grown there a great many years. My old friend, the late R. Gilbert, found it there when he took charge in 1868, and it is uncertain how long it had been there previously. In habit of growth it much resembles the Austrian Briars, but does not throw up suckers so freely as they do; the best way to propagate it is by layers; some standards on the brier once grew at Burghley, but they soon died. It grew better in the light sandy loam at Burghley than it does in our cold clay. It always shows plenty of flower buds here, the only fault of which is the formation of hard green eyes in dull or cold seasons. This year they promise to be good; the first one has opened to-day (June 17). No other Rose has such a beautiful golden-yellow colour. It is probably one of our oldest varieties, as Nicholson says it was introduced from the Orient in 1629. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

THE WEATHER IN NORTH WALES.—The drought in this part of the country is of a very serious nature, and crops are suffering badly. One hears complaints on every side—from farmers and gardeners alike. It is impossible to plant anything out here: the ground

honorary exhibits? The majority of the exhibits at the fortnightly meetings are shown by traders, and it may be assumed that, whilst the securing of one or two medals may be gratifying at first, yet to receive them show after show must not merely become monotonous, but a nuisance. Business or advertisement is the reward the trader seeks, and in all such cases a card of thanks and appreciation is ample recognition. But private growers, who have no business anticipations, may look for some tangible acknowledgment in the shape of a medal or a certificate. High-class culture should certainly merit a medal or other acknowledgment. No doubt, were the regular exhibitors at the meetings consulted, they would agree readily to dispense with medals. The Council is right in stating that these awards have become too common. *D.*

FORCING VINES.—I have been much interested in the correspondence on the forcing of vines, and whether the tying of young vines in a horizontal position close to or over the front hot-water pipes in the vinery preparatory to the vines being started, and the maintaining of a close and somewhat moist atmospheric temperature in the vineries are good practices. By tying the vines closely together, as indicated above, not only is a check given to the flow of sap, but the vine rods can be more thoroughly and easily syringed. When the buds begin to push into

growth over the entire length of the individual vines, the syringing of the rods should be discontinued, moisture being distributed over pathways, floor and houses generally instead. At this stage the vines should be tied in their proper positions to the trellises, care being exercised not to knock off any of the young growths in doing so. A long experience in the culture of vines and Grapes convinces me that the method of procedure indicated is thoroughly sound in practice and in theory, and the results obtained thereby satisfactory in every way. In the case of young, robust-growing vines that are subjected to gentle forcing soon after they have shed their leaves in late autumn, it is an absolute necessity to check the flow of sap in the manner described above, no matter how well the wood may have been ripened. Otherwise the buds on the upper portion of the individual rods would undoubtedly push into growth first, and the result would be irregular development of the branches. The combined action of checking the flow of sap in the vines in the manner described above, and the observing of a humid and fairly warm atmospheric temperature in theinery will result in a more uniform and satisfactory growth along the entire length of the individual vines. Mr. Jefferies asks (p. 235) what check to the flow of sap occurs when the vines are tied in a horizontal position, adding that "he thinks the check is more imaginary than real." But the temporary check which the tying of the vines in a curved or horizontal position prior to forcing them into growth gives to the flowing of the sap results in the even development of the buds. Regarding the syringing of the vine rods to induce them to break freely and evenly into growth, the same correspondent says, at p. 170, that he never "syringes his vines when starting them into growth," adding "that the atmosphere has been kept moist by frequently damping the paths and syringing what plants happen to be put in the vineries, and he finds that the buds break into growth as well as when the vine rods are syringed two or three times a day." Adding "that as soon as the leaves on the shoots begin to grow they are then lightly syringed." This is reversing the usual order of treatment observed by expert Grape growers. Mr. Jefferies does not say at what time of the year he begins to force his vines. Vines growing in comparatively cool houses in which bedding plants are kept during the winter and spring months are not in any way excited into growth. They break naturally, and, therefore, do not require to be either tied in a horizontal position or syringed to promote a regular growth. Mr. Jefferies' real reason for not syringing his vines when starting them would appear to be his fear of washing off the winter dressing of clay, soot, &c., used as an insecticide. Perhaps had his vines been syringed with tepid water in the ordinary way when starting them into growth, he might not have had occasion to dress them with an insecticide. Anything Mr. W. Taylor has to say on the culture of vines and Grapes is worthy of consideration, as he is a well-known expert in the art of Grape growing. The vines which Mr. Taylor planted in the borders and big vinery at Longleat, made and erected under his immediate supervision many years ago, have for years borne ample evidence of his skill as a cultivator. The vines in the big vinery at Longleat were planted and grown on the extension system. Four vines, "Muscats," if I remember rightly, filled one large section of the vinery in question, the supernumeraries being removed in due time to make room for the permanent vines. The vines were planted one in each corner of the house, and the main growths trained horizontally along the bottom of the trellis, subsequently training rods from these at about 5 feet apart up under the roof. Vines thus trained, almost needless to say, do not require to be tied horizontally to induce them to break regularly, inasmuch as the flow of sap from the main stems is amply checked by the method of training adopted. Mr. Taylor says (p. 203) that "there is no such thing as a rush of sap to the top of a vine at starting time." This statement is right to a certain extent in the case of old vines, but experience teaches me that the statement does not apply to young, strong-growing vines. Mr. Taylor is correct in stating that the "material for forming the shoot is already in the bud, and only needs a supply of water through the roots made in previous years and a suitable temperature to cause it to start into growth. Quite so, but the top buds would

undoubtedly push into growth first if means were not taken to check the flow of sap, the result being irregular breaks and badly-furnished rods. Mr. Jefferies suggests the pinching of the growths at the top of vines as a means of inducing the buds lower down the rods to push into growth, unmindful of the fact that he could not very well do this before the said shoots had made five or six joints of growth unless he be willing to sacrifice the bunches of Grapes on such shoots. H. W. Ward.

—I am pleased to know that Mr. Beckett admits (see p. 265) that a warm, moist atmosphere has "something to do with" the buds starting into growth. No one has yet stated otherwise, but this warm, moist atmosphere can be brought about quite easily without syringing the vine rods. That vine rods will start into growth without their being wetted I have for several years proved by actual experiment. I remember many years ago being instructed to tie moss around the eyes of dormant buds on young rods, and this was kept moist but I never once saw that this aided them to start. Do not 99 per cent. of head-gardeners at the present time have their vine rods syringed at starting time simply because in their "salad" days they had to do it themselves? What a terror "rush" of sap seems to be to some gardeners. How does this "rush" come about? Surely, in its mad career, the sap must permeate the cells in the lower parts of the vines before it reaches the top. If not, how does the sap stay at the top after the supposed "rush" upwards? Mr. Figgis has ably shown in the case he mentions that there is no "rush" of sap. On looking at a young vine when breaking on an outside wall I found ample proof of this, as the growths on the lower half were in a much more advanced stage than those at the top. This, too, was very noticeable on some Beech trees, the lower branches on these being in full leaf when the top parts of these trees were only bursting their buds. Reverting to my first note, I plainly stated that I was not criticising the excellent cultural details given by Mr. Beckett, but that I differed with him in the necessity of syringing vines three times a day at a period of the year when the weather is cold and sunless. Mr. Ellis backs up Mr. Beckett by saying it is absolutely necessary to syringe three and four times daily. H. H. Worthing, goes further, and says the non-use of the syringe would keep back vines (which are started in November) at least three weeks. Surely this statement is erroneous. How does H. H. justify it? New methods are always interesting, and sometimes good. As several gardeners have written to me saying that they are going to try the non-syringing method, we may expect next year further light on this most interesting subject. A. Jefferies.

CULTURE OF HIPPEASTRUMS.—Mr. James Hudson, in his remarks on "Plants under Glass" in the weekly Calendar for June 10, advises the placing of Hippeastrums in a cold frame after they have flowered. But the secret of success with these plants lies in the proper treatment they receive after they have finished flowering. Were I to treat my plants of Hippeastrums in the way he advises, I should not expect them to grow, much less to flower, the following year. They are natives of warm countries, and a cold frame is not a suitable place to grow them in. Too much care cannot be exercised with Hippeastrums after they have flowered, so as to get back into the bulb the vitality that is lost during the flowering period. If they are in small pots and in a good condition of health, it is impossible to overfeed them during the growing season, but the feeding should be gradually discontinued before they go to rest at the end of August, and in some cases later. I always endeavour to keep them growing for as long a time as possible, as three months I consider an ample period for rest, and even when in the dormant stage I would never place them in a cold frame. To cultivate Hippeastrums to perfection a tan pit in a stove is desirable, where they may be plunged up to the pot rims in a bottom heat of 70° to 80°, with a top heat of anything above 70°, and a moisture-laden atmosphere. No harm is done if the thermometer registers 100° at closing time. I have not the convenience of a tan pit, but accommodate my plants in a Melon house, where I never like the tem-

perature to fall much below 80°. But they grow like weeds, 99 per cent. flowering annually. I aim at securing bulbs as hard as possible, with high shoulders like an Ailsa Craig Onion. When they have finished their growth they are very gradually dried off in a greenhouse, and finally laid on their sides in a house having a temperature of 50° to 55° until the time arrives for starting them again. L. Small.

SOCIETIES.

NATIONAL VEGETABLE.

PRELIMINARY REPORT OF TRIALS FOR THE YEAR 1911.

THE trials are now being conducted at Sutton Green, Surrey, at the *Times* Experimental Station. On the occasion of my visit early in June, I found that Mr. Harry Foster, the son of Mr. Charles Foster, who is now in charge of the trials, had prepared them with ability and care.

The Carrot trials comprise 61 stocks from 20 seedsmen. Each stock was represented by two rows, each about 30 feet long. In scarcely a single instance was there other than a good plant, and at the time of my visit men were engaged in thinning the rows. Generally the plants were about 2 inches in height. The entire breadth was very clean. I look for a specially-important trial of Carrots in due course.

Following the Carrots came the Beets, sown in two rows to each stock, of which there were 52. Of these there were 10 round or globe Beets, the rest being long-rooted. The plants were in every case good, about 1½ inches in height, and all very clean. The rows in both cases were about 15 inches apart. Again, a very valuable trial of stocks should be in due course provided.

Of Early Peas there were 50 stocks, but in numerous cases varieties expected to be dwarf in habit, and staked accordingly, proved to be tall growers, being then from 24 to 30 inches in height and promising to go much higher. The greater portion of the stocks were well in bloom. Relatively but few were quite dwarf. In spite of the possible difficulty presented by this dwarf staking of tall growers, there is every prospect of a most excellent trial.

With respect to Cauliflowers, of which there were no fewer than 98 stocks; many were necessarily the same. The autumn-sown trial was unsatisfactory. The sowing of the seed for that trial was made on September 24 last, the plants having been wintered in frames, and planted out this spring. A considerable number of the stocks gave blind plants, thus showing that the varieties were unsuited for autumn sowing, as also were the first Early Snowball, early-forcing or Matchless type, several heading in whilst small. Just a few proved to be fairly good in growth.

The spring-sown trial of Cauliflowers is, I am pleased to say, full of promise. Of the plants there is quite a huge breadth, and they should in due course present a trial of the greatest interest and value. The plants were put out on May 10, hence, when I saw them, they had been planted about 16 days. The ground throughout was very clean.

Whilst it may be possible to examine the autumn-sown trial of Cauliflowers when inspecting the Peas, I asked Mr. Harry Foster to kindly make notes in his trial book of those blind or those with small heads or other defects, which we could later have for guidance. Still, I think for purposes of publication most weight should attach to the spring-sown trial. I need hardly say that it may be needful to pay some three or four visits to Sutton Green to see the trials, and it may be needful also to ask members of the committee to make some sacrifices to enable that to be done.

An additional trial of Beets is being conducted from the same stocks by Mr. W. Pompart, Marsh Farm, Twickenham, and an extra one of all the Carrot stocks on stiff soil by Mr. George Wythes, V.M.H., at Bevington, Hemel Hempstead, Herts.

Full particulars of the society can be obtained from Mr. E. G. Quick, hon. secretary, Kelmiscott, Harrow View. Alex. Dean, Chairman of Committee.

ROYAL METEOROLOGICAL.

JUNE 14.—The second afternoon meeting of this society for the present session was held at 70, Victoria Street, Westminster, Dr. H. N. Dickson, president, in the chair.

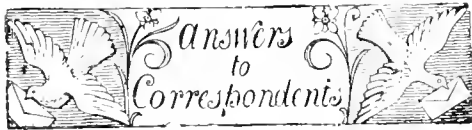
Dr. C. Chree, F.R.S., read a paper giving the results of a discussion of the barograph records kept by the late Mr. R. Bell at Castle O'er, Dumfriesshire, during the seven years 1902 to 1908.

Mr. Spencer C. Russell gave an account of a number of interesting experiments which he had carried out at Epsom during the last two years, in order to obtain a permanent record of the variations in the size of rain-drops as, and when, they occurred. The first method employed was the exposure of a number of ruled slates divided into $\frac{1}{4}$ inch sections and gently brushed over with an even coating of oil. This was not altogether satisfactory, as during heavy rain the drops impinged upon the slate with such force as to become broken up into a series of drops composed of one large and a number of small ones. The most satisfactory results, however, have been given by the use of plaster of Paris. Mr. Russell exhibited to the meeting a number of these rain-drop models. He stated that the sizes of the drops which he had already collected were:—7 of 6 mm., 44 of 5 mm., 73 of 4 mm., 222 of 3 mm., 257 of 2 mm., 175 of 1 mm., and 107 of less than 1 mm.

PUBLICATIONS RECEIVED.—*Apples and Pears*, by George Bunyard. (Present-Day Gardening Series, edited by R. Hooper Pearson) (Edinburgh: T. C. & E. C. Jack.) Price 1s. 6d.—*The Sweet Potato*. Contributions from the Botanical Laboratory of the University of Pennsylvania, No. 1, Vol. IV., by B. H. A. Groth, A.B., Ph.D. (New York: D. Appleton & Co.)—*Een Eeuw Bloembollenteelt, 1811-1911* (a century of Bulb growing), by Ernst H. Krelage. (Haarlem: E. H. Krelage & Son)—*Lilies*, by A. Grove, F.L.S., with Preface by H. J. Elwes, F.R.S. (Present-Day Gardening Series, edited by R. Hooper Pearson.) (Edinburgh: T. C. and E. C. Jack.) Price 1s. 6d.

Obituary.

DR. CYRUS G. PRINGLE.—The American papers report the death, at the age of 74, of Dr. Cyrus G. Pringle, botanical collector to Harvard University. Dr. Pringle was best known for his exploration of the flora of Old Mexico. Before collecting for Harvard, the late explorer was engaged in similar work for the American Museum of Natural History in New York.



*** The meeting of the Royal Horticultural Society on the 20th inst. was held subsequent to these pages going to press. A report will be given in our next issue.

ALPINE PLANTS, &c.—*H. F.* The species of *Aubrieta* are natives of South Europe and Asia Minor, and are found in some cases growing on mountains of considerable elevation. At the same time, they cannot be termed strictly Alpine plants, although they are usually classed with them. They grow well in subtropical countries, and it is not unusual for varieties of *Aubrieta* to do well in South Africa. *Cornilla varia* is usually considered to possess purgative and even poisonous properties. It forms a low, straggling bush, and likes to grow amongst low shrubs, which support the stems. *Pentas carnea* may be obtained from Messrs. Veitch, Ltd., of Chelsea, and they would probably supply *Timca aethiopia* also.

APPLE LEAVES DISEASED.—*C. B.* Apple scab is present on the foliage. Spray the trees with Bordeaux mixture made at half the usual strength. Cut out all dead shoots during the winter, and spray the trees with Bordeaux mixture next spring, commencing when the leaf buds are unfolding.

BLUE-FLOWERED HYDRANGEAS.—*G. C.* A note on this subject is given on p. 412.

CREOSOTED WOOD IN GREENHOUSE.—*Anxious.* It is not advisable to use creosoted timber for a greenhouse before it has had a month's exposure to the weather. When the house is finished, and before the plants are introduced, apply artificial heat for a couple of days, and open the doors. A correspondent, writing in our issue for April 29 last, p. 266, says that a house which was erected nearly 30 years ago still smells strongly of creosote, and that during the first years after its erection the fumes killed many valuable plants. The plants were taken out for over 12 months after the building of the house, but it was not considered safe for housing plants during the first seven years. The house is still in a good condition of repair, although it is used for Orchids and is always kept damp.

FIGS UNSATISFACTORY.—*A. S.* The injury is caused by a fungus (*Botrytis*). Excess of fertilisers and moisture causes a sugary secretion to ooze from the pore at the apex of the fruit. This is first attacked by the fungus, which afterwards enters and destroys the fruit.

GOOSEBERRY.—*A. H.* The plants are badly injured by red spider and green fly. Spray with a solution of liver of sulphur at the rate of 1 ounce in 3 gallons of water.

HYBRID DENDROBIUMS.—*J. E.* The Royal Horticultural Society's lists of certificated plants give carefully-revised records of the parentage of those hybrids which have received Awards from the Orchid Committee, but, necessarily, many hybrids of lesser merit are not included. Messrs. Sander & Sons publish a good list of hybrids, and the *Orchid Stud Book* gives the required information up to the date of its publication. But in the *Stud Book* some of the names common in gardens, given, in the first place, without consideration as to whether the crosses had already received names or not, are placed as synonyms under the original names given to the cross.

INSECT FOR IDENTIFICATION.—*A. J.* The creature had escaped from the box; send another specimen. In the meantime, spray the plants with some poisonous specific, such as Paris Green or lead arsenate, which may be obtained ready for use from the sundriesmen.

LATE VINES.—*Reader.* Where the foliage is very abundant, the growths should be thinned, for although this is best done at an earlier stage, it can be accomplished with safety now. It would be unwise to remove any of the leaves on the main canes.

LILIUM AURATUM.—*J. Thomson.* The plants are probably affected with disease. Send a specimen of the stem for examination.

NAMES OF PLANTS.—*Reader.* 1, *Cornus capitata*; 2, *Trachelospermum jasminoides*; 3, *Polygonum cuspidatum*; 4, *Spiraea canescens*.—*A. C. K.* 1, *Sedum Aizoon*; 2, *Polygonum bistorta*.—*A. C. Levie.* 1, *Eccremocarpus scaber*; 2, *Escallonia rubra*; 3, *Linum arboreum*; 4, *Helianthemum polifolium*; 5, *Geranium macrorrhizum*; 6, *G. ibericum*.—*A. Williams.* 1, *Osmanthus aquifolium*; 2, *Picea excelsa*; 3, *Verbascum phonicum* var.; 4, *Asplenium filix-foemina nodosum*; 5, *A. l. f. grandiceps*.—*M. J.* *Astrantia major*; *Thalictrum minus*.—*A. B. C.* 1, *Crataegus pyracantha*; 2, *Geranium ibericum*; 3, *Hieracium Sphondylium*; 4, *Lindelia spectabilis*; 5, *Melissa officinalis variegata*; 6, *Robinia Pseud-acacia*; 7, *Tradescantia virginica*.—*P. B.* *Onithogalum lacteum*.—*R. A. Y.* 1, *Aspidistra elatior*; 2, *Brassica caudata*; 3, *Brassica pennina*; 4, *Disa sagittalis*.—*J. V.* *Sisyrinchium bermudianum*.—*O. H.* 1, *Pteris longifolia*; 2, *Cheilanthes elegans*; 3, *Gymnogramme chrysophylla*; 4, *Adiantum emarginatum*.—*G. H. S.* 1, *Pernettya mucronata*; 2, *Philadelphus coronarius*; 3, *Lonicera involucrata*; 4, *Spiraea arguta*; 5, *S. canescens*; 6, *Berberis vulgaris*.—*J. R. W.* 1, *Lilium dauricum*; 2, *Carya porcina*; 3, *Fagus sylvatica heterophylla*; 4, *Thalictrum aquilegifolium*; 5, *Lilium Martagon*; 6, *Campanula persicifolia* var.—*St. Peters.* 1, *Ceanothus azureus*; 2, *Auricularia Liliago*; 3, *Polemonium coruleum*; 4, *Hemerocallis flava*.—*Bookery.* You have sent considerably more than the proper number. A small donation to the R.G.O.F. would be appropriate. 1, *Veronica perfoliata*; 2, *V. Allionii*; 3, *Arabis alba fl. pl.*; 4, *Veronica carnosula*; 5, *Polygonum vacciniifolium*; 6, *Saxifraga Walleyi*; 7, *Sedum oppositifolium*; 8, *Aubrieta*

deltoides greca; 9, *Iberis Garrethiana*; 10, not recognised; 11, *Lithospermum prostratum*; 12, *Potentilla fruticosa*; 13, *Alyssum saxatile*; 14, *Aubrieta*, garden var.; 15, *Olearia stellulata*. The remaining names will be published in our next issue.

NEW YORK NURSERYMEN.—*W. F.* A list of nursery firms in New York and the neighbourhood will be found in the horticultural directories.

You would do better to write to some American gardening paper rather than to a nurseryman. **PEACH FOR NAMING.**—*G. V. P.* The Peach you send is a Blood Peach. Two varieties, the Sanguine and the Sanguinole, originated in Switzerland at Buren (Berno canton), whence they were introduced into France in the beginning of the 17th century. These Peaches are great bearers, but they require a warm, dry climate, and the quality is third-rate and fit for cooking only. Sanguine ripens early in September; Sanguinole, which the fruit sent most nearly resembles, ripens six weeks later.

PEACHES WITH WHITE SPOTS.—*Humus.* The fruits are affected with "Peach" mildew. Spray the trees at intervals of four days with liver of sulphur in solution, at a strength of 1 ounce in three gallons of water. Spray the trees also next spring with the same specific when the leaves are unfolding.

PEARS WITH MAGGOTS.—*F. R.* The injury is caused by the Pear blossom sucker. Spray the trees with Quassia extract, made with 30 lbs. of soft soap, 4 lbs. of Quassia, and 50 gallons of water. Spray with petroleum emulsion in September and October.

RASPBERRY FOR EXAMINATION.—*J. P.* The Raspberry blossoms have been eaten by the Raspberry weevil (*Otiorynchus picipes*). Shake the canes over tarred boards at night, and dress the ground with soot, well working it in during the winter.

ROSE SHOOTS.—*K. B. G.* The shoots are infested with the "Rose borer," which has tunneled through the centre of the stem. Cut the tips of the shoots off below the affected parts and burn them. Spray the plants with some distasteful substance, such as Quassia Extract, and again next spring just before the leaves expand.

SEEDLINGS OF LILIUM GIGANTEUM.—*G. P.* The following paragraph is extracted from a recently-issued book upon Lilies, by A. Grove, from the Present Day Gardening Series:—"Lilium giganteum ripens seed freely, and if sown in November, seedlings will usually make their appearance in the following spring; they are best kept in reserve till the bulbs are about the size of a walnut, and then they may be planted out at no great depth, a covering of leaves being put over them in winter. Though one can hardly feed *L. giganteum* too highly in the garden, it grows splendidly in woods, and may even be seen growing in stony, unlikely-looking places, provided there is moisture for the roots in summer."

TOMATO BLACK ROT.—*Old Subscriber.* The Tomatos sent us are attacked with the "Black Rot" (*Macrosporium Tomato*). The disease is sometimes caused by extremes in respect to the affording of water. The use of green manure, or anything that is likely to cause the fruits to crack, should be guarded against. Fruits that show signs of the disease should be removed and burned, and the plants sprayed occasionally with potassium sulphide, more particularly as they set their fruits. Avoid having too much moisture in the atmosphere, and open the ventilators to renew the air when the weather is favourable. Avoid taking soil from the Tomato house to use for cultivating Potatos, or soil in which Potatos have grown for the cultivation of Tomatos, because this fungus belongs to the same species that causes leaf-curl in Potatos (*Macrosporium Solani*).

TOMATOS DISEASED.—*Lodgerline.* The plants are affected with "sleepy" disease. Drench the soil with a solution of sulphate of potash (1 ounce in 1½ gallon of water) twice a week until the plants recover.

Communications Received.—*E. W. & Sons*—*G. W.*—*E. E. B. P.*—*Chepstow*—*W. A. C.*—*W. A. H.*—*M. H.*—*G. J. P.*—*G. C.*—*H. C.*—*T. W.*—*F. R.*—*S. C.*—*R. A. M.*—*A. D.*—*F. B.*—*W. C.*—*G. J. J.*—*D. J.*—*France*—*H. M.*—*E. L.*—*F. W. S.*—*W. B. H.*—*W. T. C.*—*H. H. M. B.*—*Java*—*E. P.*—*H. F.*—*W. H. R.*—*G. C.*—*Canada*—*D. R. W.*—*S. A.*—*W. P. R.*—*A. W.*—*Woking*—*J. S.*—*C. J. R.*—*J. W. I.*—*J. A. F.*—*S. C.*—*T. D.*—*A. M. C. & Co.*—*J. B. H.*—*Rawdon*—*C. E. S.*—*Sir H. M.*—*Sir J. T. D. L.*

THE
Gardeners' Chronicle

No. 1,279.—SATURDAY, July 1, 1911.

CONTENTS.

Atmospheric impurities and vegetation ... 426	Orphan Fund, Royal Gardeners', origin of the ... 428
Benevolent Institution, Gardeners' Royal ... 427	Pine Shoo' Tortrix ... 432
"Coronation" bouquet, the ... 427	Rhododendron "Pensaer" ... 427
Dilke, Sir Charles, the late ... 427	R.H.S. Spring Shows ... 428
Dobbs, Mr. T. B. ... 427	Roses, Queen Mary's basket of ... 423
Festival of Empire Exhibition, award at the Hippodrome, the culture of ... 428	Roses, the effect of sun on the colour of ... 421
International Horticultural Exhibition, 1912 ... 428	Societies—
Kingswear, South Devon, weather at ... 428	National Gladiolus ... 427
Lambay Island, weather at ... 428	National Rose ... 427
Obituary—	National Sweet Pea ... 427
Walker, James ... 432	Royal Agricultural ... 430
Wilson, Thomas C. ... 432	Royal Horticultural ... 428
Olympia flower show, the R.H.S. ... 427	Vegetables—
Orchid notes and gleanings—	Trial of Cabbages at Reading ... 423
Dendrobium aurantiacum ... 422	Vines at the Mid-Kent nurseries ... 428
Laelio-Cattleya Fascinator-Mossie ... 422	Week's work, the—
	Alfary, the ... 425
	Flower garden, the ... 424
	Fruits under glass ... 425
	Hardy fruit garden ... 425
	Kitchen garden, the ... 425
	Orchid houses, the ... 424
	Plants under glass ... 424
Carnations, a basket of, presented to Queen Mary ... 427	
Laelio-Cattleya Fascinator-Mossie ... 422	
Rhododendron Pensaer (Supplementary Illustration).	
Roses, National Rose Society's gift of, to Queen Mary ... 423	

ILLUSTRATIONS.

THE EFFECT OF SUN ON THE COLOUR OF ROSES.

IT is some time since Roses have opened in large numbers early in the season in such full sunshine as prevailed in the early part of June this year, and it is therefore interesting to notice the effect of the sunshine on the colours of the flowers.

Sixteen years ago the late Mr. Foster-Melliar wrote:—"Exposure to the sun undoubtedly takes the depth of tint from almost all Teas, making them paler," and his editors, in the last edition of his book, say, "the effect of unshaded sun upon the colours of Roses seems peculiar—undoubtedly it gradually absorbs or weakens the yellow tint, which may not only be preserved but also increased by close shading or covering; but a very hot sun will sometimes bring a second red flush on some, such as Marie van Houtte and Princess of Wales, and I have seen such a flush come on old blooms of Maréchal Niel on a south wall in a very hot time. On the other hand all red H.P.'s certainly come much brighter in colour on a dull, cool day after a hot time," while both Foster-Melliar and his editors agree that shading has little effect in preventing the "burning or browning" of the petals of the dark varieties. Now, this year, our Roses were decidedly late in starting into growth, and were forced rapidly into bloom by the gloriously hot sun of May and early June, with the result that some came into flower a week earlier than in the past two years, others a fortnight, and a few three weeks earlier. The flowers have been wonderfully bright and clean, and though some have been small, many have been of very good quality. But what has struck me particularly about them has been the predominance of pink colours in the flowers, and that often in Roses where one would not usually expect this tone. For instance, Mme. Melanie Souper

has developed flowers of a pale pink or blush tint, with little more than a trace of the "old gold" colour one is accustomed to associate with the flowers of this Rose, and the Lyons Rose has come a full pink, almost as deep as Gladys Harkness, the yellow at the base of the petals being only found on bending them back, while Antoine Rivoire and Rénée Wilmart Urban have given me blush-coloured flowers with a pale-pink centre. In Paul Lédé, generally described as apricot, shaded rose, the pink colouring has dominated the flower at the expense of the yellow in a way that has made it scarcely recognisable. The sun has given me some particularly beautiful flowers of Irish Elegance of a decidedly brighter and pinker colour than usual, and Theresa, which matches Irish Elegance so well in colouring, has not failed to follow it in the same direction, while Mrs. W. H. Cutbush has never before been so bright and beautiful in my garden as it is at the moment of writing.

Turning to the Tea Roses; Medea has produced, much earlier than in the past few years, some perfectly-shaped flowers solidly built and nearly white, with a mere tinge of the lemon-yellow that usually characterises this flower, and in Comtesse de Nadaillac the peach-pink tint has developed at the expense of the apricot-colour, making a beautiful but not very characteristic flower. Mme. Vermorel, a fine-weather Rose, if ever there was one, is pinker than usual, a great improvement in this case because the pink seems to come at the expense of the rather dull buff-yellow which dominates the flower in rainy weather. I have noticed also a similar improvement in W. R. Smith, which has produced this year some beautiful blush-coloured flowers, well shaped, if not very large. I was glad to see these, because the wet summer of last year had given me Roses of this variety with a rather buff or brownish-pink tint, which had been somewhat disappointing. There is at least one Rose which seems, at first sight, to be an exception to the general rule that sun weakens or subdues the yellow and apricot tints, and that is Lady Roberts. The colouring of the early flowers this year has been simply magnificent, the dark tint of the petals near the centre of the flower in some cases approaching very close to that of the Austrian Copper. I have noticed in previous years that plenty of sun seems necessary for the best results with this Rose, and that it is chiefly in the summer, with its long day of sunlight, that Lady Roberts produces its fine colouring. When the autumn is on us and the daylight lessens, the flowers, though freely produced until stopped by frost, become decreasingly interesting in colour, and at last are almost a pale yellow. I am not clear, however, that this is really an exception to Mr. Foster-Melliar's rule. Lady Roberts is a sport from Anna Olivier, and here we see an obvious mixture of pink and buff-yellow in the colouring of the flower, and it may be that if we knew a little more of the several pigments that give rise to the colours of our Roses,

we might find a large proportion of pink pigment in the coppery-apricot which suffuses the deep-coloured petals of Lady Roberts.

The effect of the sun on the Cochet has been to deepen considerably the pink of Maman Cochet, while White Maman Cochet, which often has a pink tinge or edge in its outer petals, has, in some cases, given me flowers in which the two outer rows of petals have come pink or edged with that colour. Mme. Cusin also is a deeper pink. On the other hand, in the case of some few of the pink Teas (e.g., Mme. Lambard), though they have come a good bright tint, I have noticed no great change from the normal colour. The pure whites, such as Molly Sharman Crawford and Comtesse de Saxe, have been good, as one would expect, but call for no special remark. Innocente Pirola, generally rather a favourite of mine, has developed, in place of the usual creamy-white, a blush tint which is by no means becoming. The last Tea Rose I shall mention is Hugo Roller, described as lemon-yellow-edged and suffused rose—a fairly accurate description. This year the rose-edging has developed in extent, and become a brilliant cherry-red, which has been most effective. I wonder if any of my readers have noticed the lasting qualities of this little Rose when picked and put in water. I generally regard four days as about the limit of the life of a good lasting Rose in water, but we have had a flower of Hugo Roller in the drawing room looking well nearly a week after it was cut.

It is not a little curious that when we come to the red Roses we find the effect of the sun has been, apparently, not to intensify, but to diminish the colouring. Whether it be that the red colouring matter will only come to its best with slow development, or that in bright light pink shades are manufactured at the expense of crimson, the sun seems to have made red Roses, fully exposed to its influence, somewhat more rose-colour and less crimson than usual, and less crimson also than those which have been artificially shaded. It is, of course, too early for most of the H.P.s, but in the red H.T.s this is very noticeable. I have had some fine flowers of J. B. Clark, particularly on pegged-down plants, but it is only flowers that have been carefully shaded that have come a good tint with the particular plum-coloured bloom on them which, when we get it, is almost the making of the flower. Unshaded flowers have, for the most part, come rather poor in form, too light in colour, and very often with that streak of white in the petal which spoils the Rose.

So, with Chateau de Clos Vougeot, although I do not grow my plants of this Rose in a very sunny position, and they get shade during part of the day, I have only had that wonderful deep-ruby velvet in the petals, which is the special charm in this Rose, in the case of a flower that was heavily shaded. The few flowers of Capt. Hayward again, which have opened, are perhaps too early to be of first-rate quality, but they are certainly too light in tint to be considered a good colour. On the other hand, Richmond has kept its

colour well, and I notice little if any change in Laurent Carle, or General M'Arthur. Now, Richmond is a Rose that stands forcing well, and it may be that the poor quality of the colouring of the unshaded red Roses is due less directly to the action of the sun than to the development of the blossom being unduly hastened.

It is proverbially dangerous to generalize from a single instance, and it is probable that other

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA FASCINATOR-MOSSIE.

FIG. 191 represents the beautiful hybrid Lælio-Cattleya Fascinator-Mossie, shown by Sir Trevor Lawrence, Bart., K.C.V.O. (gr. Mr. W. H. White), at the Royal Horticultural Society, June 6. It is the result of crossing L.C. Fascinator (C. Schröderæ × L. purpurata) with C.

DENDROBIUM AURANTIACUM.

THE Orchid houses at Friar Park, Henley-on-Thames, the residence of Sir Frank Crisp, Bart. (gr. Mr. Knowles), like the rest of this remarkable garden, contains many interesting plants, including the pretty and rare *Dendrobium aurantiacum*, which is now in bloom. The species was described by the late Professor Reichbach in the *Gardeners' Chronicle*, July 23,



FIG. 191.—LÆLIO-CATTLEYA FASCINATOR-MOSSIE.
(L.C. Fascinator (C. Schröderæ × L. purpurata) × C. Mossie.)

factors besides sunlight ought to be considered in relation to the early Roses of this and other bright summers, but "saying all just exceptions and reservations," the evidence seems to point to sunlight as a prime factor in the development of pink and blush tints, at the expense of the yellows, and possibly also at the expense of the reds in Rose petals. *White Rose*, June 24.

Mossie, and the happy combination has resulted in several unexpected features, notably the effective decoration of the white petals with crimson markings on the tips, and the intense purplish-crimson of the front of the lip, the base of which is yellowish with dark rose lines. The sepals are white with a faint rose tint at the back, and the whole flower is most attractive.

1887, p. 99, the author stating that he had material from various correspondents for about 30 years previously. The peculiar character of the species, which at first sight suggests the section "fasciculata," but which belongs to "calostachyæ," caused the delay in recording it. In the *Gardeners' Chronicle*, February 23, 1888, p. 233, Mr. R. A. Rolfe described *Dendrobium*

chryseum from a specimen supplied by Messrs. Jas. J. Veitch & Sons, imported from Assam, the same locality whence Reichenbach's specimen, collected by Gustav Mann, was obtained, and there is no doubt but that they are identical species. *D. aurantiacum* has been recorded from other localities in the Himalayas, and is evidently widely distributed. In the present case, there is a suggestion that the plant came from Japan, but if this is true, it is probably not indigenous in that country. Its nearest affinity appears to be *D. clavatum*, which it resembles in its clear light-orange flowers, though in *D. aurantiacum* each spike bears from one to three flowers, and each flower is furnished with a conspicuous purple-spotted sheath. The plant is from 12 inches to 18 inches high, rather slender, and less robust than *D. clavatum*; indeed, it is quite distinct from any other species. *D. chryseum* would have been an appropriate name, as *Dendrobium aurantiacum*, F. Muell., had been already given to the plant now known as *Bulbophyllum aurantiacum*.

bagas, as also are the varieties St. John's Day (23 out of 30), Winningstult (15 out of 30), Early York (almost all bolted), Sugar Loaf, and Summer Drumhead, these varieties are not suited for sowing in the autumn. None of the plants of Harbinger and Flower of Spring showed any signs of flowering, and others that were good in this respect were April, Ellams, Offenham

varieties such as Harbinger, April, and Flower of Spring. Harbinger is by far the earliest-hearting, not merely of these two, but of all Cabbages. Its precocity was recently abundantly manifested at Wisley Gardens. In Messrs. Sutton's nursery its earliness was most marked, as an ordinary observer could tell to a row where Harbinger finished and April began. Flower of

NATIONAL ROSE SOCIETY'S GIFT TO QUEEN MARY.

A MAGNIFICENT basket of Roses (see fig. 192) was presented to Queen Mary on the occasion of her Coronation by the members of the National Rose Society. Members were invited to contribute blooms, and, in response to the invitation, flowers were sent from all parts of the British Isles. They were arranged in a basket to a height of 8 feet, nearly 3,000 blooms being employed. The principal varieties utilised were Rayon d'Or, Edward Mawley, Dame (probably the first time these three new varieties have been used in a decoration of this kind), Juliet, Lady Hillingdon, Lyon Rose, Mrs. A. Waddell, and Goldfinch. On a card was written, "As a mark of loyal gratitude from rosarians of the British Isles." A somewhat similar basket was also presented by the National Rose Society to Queen Alexandra. The work of arranging the flowers was entrusted to Mr. R. F. Felton, of Messrs. Felton & Sons, Florists, Hanover Square, whose abilities as floral artists are well known to our readers. So many Roses were contributed that Mr. Felton was able to send several hundreds of blooms to the various London hospitals.

VEGETABLES.

SPRING CABBAGES AT READING.

I RECENTLY inspected a trial of Cabbages conducted by Messrs. Sutton & Sons at their seed farm at Reading, the plants having been raised from seeds sown on August 10 of last year. In order to make the trial an equal one, the plants were put out at practically the same date, a large staff being employed in the operation. The ground was simply ploughed, the Cabbages following a crop of Potatoes, for which the land had been manured, but no manure was added for the Cabbages. The culture was thus of the open field type. One remarkable feature of the trial was the large number of varieties which "bolted," thus proving that they were absolutely unsuited for autumn sowing. Of those which ran to flower prematurely out of 60 plants, Improved Nonpareil showed 21, Old Nonpareil 39, Little Gem 20, and Little Pixie 25 "bolters" respectively. The variety known as "Earliest," one of the most precocious of summer Cabbages when sown in March, Market King, Hardy Green Colewort, and a French variety produced all "bolters." This proves that, notwithstanding that the Coleworts are first-class autumn Cab-



FIG. 192.—BASKET OF ROSES PRESENTED TO QUEEN MARY BY THE NATIONAL ROSE SOCIETY.

Favourite, Imperial, Rainham, Beaconsfield, and Pioneer. It is thus seen that, whilst some varieties are suited only for spring-sowing, there are many others that are best for autumn-sowing and spring-hearting. The trial included 45 diversely-named varieties. In addition to the trial proper there were large plantings of specially early

Spring is both larger and later than Harbinger and April, and is a great favourite with market growers. The two last-named varieties would be offered for sale in shops by the middle of April, whereas Spring Cabbages sent to market even a month later than that time are usually little less than outside leaves. *D.*



The Week's Work.

THE FLOWER GARDEN.

By R. P. BROTHERTON, Gardener to the Earl of Haddington, K.T., Tynninghame, East Lothian.

HUMEA ELEGANS.—No time should be lost in sowing seeds of *Humea elegans* to produce plants for flowering next year. The seeds need scarcely to be covered with soil, and, at this time of the year, they will germinate well in a cool pit. Directly the seedlings have developed their first leaves, they should be pricked out into another receptacle in fresh soil and regularly potted on afterwards. They will increase in size very rapidly in the later months of their growth, but watering must not be neglected, for they soon show the effects of dryness at the root. *Humeas* are, unfortunately, addicted to dying after planting out in beds, no matter how careful the management.

FLOWERING SHRUBS.—The Mock Oranges (*Philadelphus*) are now a pleasing feature in shrubberies, and in addition to the species *coronarius*, *Gordonianus* and *grandiflorus*, all of which have been long cultivated in gardens, there is a bewildering selection of hybrids available. One of the earliest and best of these is *Lemoinei erectus*, whilst of those of more recent introductions *roseiflorus* and *purpureo-maculatus* are very fine. The plants do not remain for a long time in bloom, and, especially with the close-growing sorts derived from *P. microphyllus*, a general thinning of the older growths should follow the passing of the flowers. *Weigelas* also are passing out of bloom, and these, too, if time permits, should be pruned at this stage. The necessary pruning consists in cutting out the long shoots which have borne flowers, to allow space for a new crop of shoots, which in turn will flower another year. When treated in this manner very long shoots are formed, and these develop flowers throughout their whole length. *Crategus Carrieri*, one of the latest of the Thorns, is in full bloom, the very fine *C. Aronia* being just a little earlier. The season has suited these shrubs, the common *C. oxycantha* in its many varieties having been particularly floriferous. *C. salicifolius* is a very distinct species and one that few people seem to recognise as a Thorn, its willow-like appearance being deceptive. The plant grows as tall as the better-known *C. Douglasii*, and is one of the smaller-flowering trees that should not be overlooked. *Viburnum tomentosum* (*plicatum*) is perhaps the handsomest of all summer flowering shrubs, but *V. Lentago* is a not unworthy companion and flowers contemporaneously with *V. tomentosum*. *Hypericum calycinum* is planted rather extensively in these gardens. At present the plants are furnished with an abundance of buds and flowers, and will continue to bloom till the end of the autumn. *H. Moserianum* is not so valuable a garden plant. *H. elatum* and *H. patulum* are both good shrubby plants, the former being covered in autumn with black seed vessels. Neither of these species is quite hardy. *Cytisus nigricans*, of which there are several forms, is also of much value on account of the plant's extended period of flowering, whilst of *Gemistas* yet to flower mention may be made of the curious *G. aethnensis*. The splendid *Spartium junceum* must not be omitted. Bushes of certain Roses, such as *Penzance Briers*, *Fellenberg*, the common monthly Rose, *Pennsylvanica*, *R. alpina* (for its hips), *Lucida*, *Madame Plantier*, *Stanwick Perpetual*, *alba rubrifolia* and climbers allowed to ramble through the larger shrubs, all add much to the pleasure of shrubberies from now onwards: the plants need to be merely thinned occasionally. Some of the evergreen shrubs have suffered considerably from the drought, and in consequence the ground is covered with prematurely fallen leaves. The long shoots of the coarser-growing Laurels need to be trimmed to ensure neatness.

FLOWER-GARDENING.—Since the last Calendar was written an inch of rain has fallen, not continuously, but in showers at intervals. The rains were insufficient to quite moisten the very dry soil, and they have been followed by applications of water to special plants that need much water

at the roots. Most of the hardy herbaceous plants have also been watered, and though it may appear a waste of labour to apply water after rain, it is by no means wasteful, because, at the very lowest estimate of its value, it supplements and renders of greater utility the natural rainfall. Moreover herbaceous plants remain longer in a presentable condition when occasionally soaked with water. The opportunity has been taken here to finish any arrears of planting.

PLANTS UNDER GLASS.

By JAMES HUDSON, Gardener to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, Middlesex.

THE GREENHOUSE.—*Rochea coccinea*, which is also known as *Kalosinthes coccinea*, and sometimes as *Crassula coccinea*, will develop a much deeper shade in the flowers if the plants are exposed fully to light and air. The practice adopted by experienced cultivators is to place the plants out-of-doors in full sunshine. At this stage the plants will require a considerable supply of water at the roots and some weak manurial stimulant occasionally. After the plants are fully developed they should be brought under glass again. Look after the stock for next season's flowering and encourage a free growth in the plants. Possibly some of them may require additional rooting space, and any that need such attention should be seen to at once. A little mortar rubble mixed with the compost will benefit the plants and help to keep the soil open. As soon as those now coming into flower have ceased to be attractive, keep them dry at the roots for a time and afterwards cut them down. Stand them on a layer of ashes out-of-doors; their subsequent treatment should be similar to that afforded to *Show Pelargoniums*. Cuttings may, at the same time, be inserted three or four in a pot, placed in a cold frame and kept moderately dry. *Rochea falcata* is a most useful autumnal-flowering plant and pays for careful culture. It is easily accommodated upon a shelf and does well in such a position. Plants that are leggy may be cut down now and the thick, solid shoots inserted singly as cuttings in small pots filled with a sandy soil. Specimens that promise to flower in September should have special attention paid to them. Where the stems are drawn, a stick will be needed to keep them erect. Any plants now in small pots should be potted on. Propagation may also be effected by inserting entire leaves in the same way as is done with *Echeverias*. Plants raised by this means will flower usually in two years.

ECHEVERIA RETUSA.—In consequence of the demand for more showy plants this useful old species has, by some, been neglected. It is an extremely useful subject for flowering in the spring, and is suitable for planting in vases. Cuttings from old plants should now be inserted three in a 4½-inch pot; these will have become established by the autumn. The best method is to raise a batch of plants from cuttings annually. A cold frame will suit them well, and they thrive in a mixture of loam and leaf soil.

EPIPHYLLUM TRUNCATUM.—This species is best grown as dwarf standards. For this purpose the *Pereskia* is generally used as a stock for grafting purposes, but I prefer to employ well-established shoots of *Cereus speciosissimus*, which has a self-supporting stem, whereas the *Pereskia* has not. Single shoots of either of these plants should now be looked after and prepared for spring grafting. Established plants of *Epiphyllum truncatum* should be allowed all the light and air possible.

EUPHORBIA (POINSETTIA) PULCHERRIMA.—The present is a suitable time for propagating a stock of dwarf plants of *Poinsettia*, the shoots of old stock plants that have not been cut down being the best for the purpose. Old plants, if laid on their sides, will soon push forth a multitude of shoots which will strike quickly in a brisk bottom heat if inserted in a sandy soil. At this season it will be better to place the cuttings singly in thumb pots, shifting them when well rooted into 4½-inch pots, in which they may be allowed to flower. Plants that were rooted earlier in the season should be placed in 6-inch pots in order that they may develop greater strength and larger bracts. When well rooted, use no shade and aim at developing stocky, short-jointed growths. Endeavour to retain the leaves down to the pot level.

EUPHORBIA JACQUINIÆFLORA.—This plant should be treated like *E. pulcherrima* for the production of small plants and also in the case of these struck earlier in the season.

THE ORCHID HOUSES.

By H. G. ALEXANDER, Orchid Grower to Lt.-Col. Sir G. L. Holford, K.C.V.O., C.I.E., Westonbirt, Gloucestershire.

CATTLEYS.—The flowers of *Cattleyas* are amongst the most beautiful of all Orchids, and the species *C. gigas*, *C. Gaskelliana*, *C. superba*, *C. Warneri*, *C. Leopoldii*, *C. granulosa*, *C. Harrisonae*, and the hybrids derived from them, include some of the most attractive members of the genus. All these are summer-flowering kinds and the plants are now growing freely in preparation for flowering. The blossoms are produced upon the current year's growth as the pseudo-bulbs thicken. When the flowers are opened fully, the plants may be placed together in the same house; afford shade so long as the blooms are present, but afterwards expose the plants to the light and air. All those I have enumerated, in common with most members of the genus, delight in considerable heat and moisture whilst growing, but these conditions have no advantage in bringing about the consolidation of the growths. The aim of most cultivators is to produce large pseudo-bulbs, and these, no doubt, are an advantage, but the plants should be exposed to the summer light and abundant air currents until they are properly matured. Specimens neglected in these respects never have the power to break strongly in the spring, and they are the first to shrivel during the winter rest. These Orchids require to be watered very carefully during the early stages of forming their growths, but now that this period is passed and root action is free a good supply of water is necessary; nevertheless, on no account should the soil be overcharged with moisture, as this may result in the rooting materials becoming sour. The plants are apt to produce secondary growths, and these should, if possible, be prevented from forming by affording the proper atmospheric conditions. Some plants, in spite of every precaution, will break afresh, but this need cause no fear, and no difference should be made in their treatment. Any plants that were not repotted when commencing to grow in the spring, and are now in need of fresh rooting materials, should be given attention in this respect soon after they have passed out of flower. At that stage new roots develop freely from the bases of the newly-formed pseudo-bulbs and at once become established in the new compost.

SPRING AND EARLY SUMMER-FLOWERING LÆLIA, CATTLEYS, AND THEIR HYBRIDS.—*Lælia purpurata*, *L. cinnabarina*, *L. tenebrosa*, *Cattleya Mossiae*, *C. Mendelii*, *C. Lawrenceana*, *C. Skinneri*, *C. Schroderae*, and the numerous hybrid *Cattleyas*, *Lælio-Cattleyas*, and *Brasso-Cattleyas* that produce their flowers during the late spring and early summer seasons are now showing signs of renewed activity of growth. The plants should be examined, and those in need of fresh rooting material attended to immediately. The method of repotting and the compost employed should be the same as advised for *Cattleyas* in the Calendar for April I. Certain of the plants are often somewhat late in perfecting their growths, and any that are backward in this respect should be afforded a light and warm position before the sun loses its power in the autumn.

SEEDLINGS.—Young, vigorous plants of these kinds mentioned above are always more or less active from the time they complete their first small pseudo-bulbs up to their flowering stage. The majority of them root freely, and soon need larger receptacles. With these, as with older plants, it is best to anticipate, if possible, the emission of roots from the newly-formed pseudo-bulbs, as the plants benefit immediately by new rooting material afforded at that stage. After potting, the usual precautions should be taken in affording water. Plants that promise to produce flowers should have treatment and accommodation similar to that given to those that have passed the flowering stage, while the smaller specimens will make better progress if kept in a house to themselves with denser shade. A warm, moist atmosphere should be maintained at all times, and the house closed early in the afternoon to conserve the sun's heat.

FRUITS UNDER GLASS.

By E. BECKETT, Gardener to the Hon. VICARY GIBBS,
Aldenharn House, Hertfordshire.

EARLY VINERIES.—Permanent vines that will furnish a supply of Grapes for some considerable time to come, will need shading lightly in order to retain the colour in the dark-berried varieties, such as Black Hamburgh and Madresfield Court. The shading may consist of any light covering, such as tiffany, a double layer of fish-netting, or stippling the glass lightly. A circulation of air should be allowed at all times, more or less, according to the weather conditions. On damp evenings it will be an advantage to heat the hot-water pipes slightly, as the dry air will keep the berries free from condensed moisture. Vines from which the Grapes have been cut should, if necessary, be well soaked with water at the roots. Give the foliage a thorough syringing to destroy any red-spider that may be present. Continue to ventilate the house freely to favour the development of the foliage and ripened wood. During fine weather, too much fresh air cannot be admitted, and even the doors may be widely opened; when the weather conditions are unfavourable I prefer to reduce the amount of air accordingly.

"MUSCAT" VINES.—Muscat of Alexandria Grapes, when ripening, must not be shaded with the foliage, otherwise the berries will not develop the desirable amber colour. Remove any surplus laterals that may be causing shade, and, if further exposure of the bunches is required, place the foliage on one side in preference to removing the leaves entirely. Increase the amount of ventilation as the berries approach the ripening stage, and also gradually lessen the amount of water employed in damping the house, though damping must not be entirely neglected. It will be necessary, in order to finish the berries perfectly to circulate a little heat in the hot-water pipes, and ventilation must be given with great care until the Grapes are quite ripe.

LATER VINES.—Later crops of "Muscat" Grapes will require attention in watering. Where the borders are known to be perfectly or well drained, the application of water must not be neglected and plenty of manurial assistance should be given in addition to the waterings. Borders that are improperly constructed or in which the drainage is at all sluggish must not be overwatered, otherwise there will be a great risk of failure, and shanking of the berries may result. Ventilate the houses freely as the sun increases in power, and damp all bare surfaces in the vinery several times daily during hot weather, and especially in the afternoon when closing the house. On hot days the closing of the ventilators should be deferred for an hour or so. Open the ventilators at the top of the house again in the evening and allow them to remain open all night. Maintain a night temperature of 70-75°, with sufficient fire heat to prevent the atmosphere of the house from becoming cold and clammy between sunset and sunrise. Attend to the removal of lateral growths before these become large.

THE KITCHEN GARDEN.

By JOHN DUNN, Kitchen Garden Foreman, Royal Gardens, Windsor.

CARROTS.—A sowing of stump-rooted Carrots may be made at the present time to produce a supply of roots for winter use. A border from which a crop of early Lettuce has been cut may be selected for this sowing; the soil should be stirred lightly with a digging fork, allowed to remain for a few days and then made level with a wooden rake. Sow the seeds thinly in drills 14 inches apart, and about 1 inch deep, and as soon as the young plants are large enough thin them to 6 inches apart. At Frogmore the principal sowing of Carrots is made now, the plants being thinned freely as soon as they are large enough to handle. The varieties selected are Model and Scarlet Horn, both of which retain their colour well. Carrots sown a month ago will now require thinning; a distance of 3 inches apart will suffice as the roots may be required for pulling before they have grown to their full size. While showery weather lasts the plants may receive frequent light dustings of soot.

EGYPTIAN BEET.—If a warm border is available, a sowing of Egyptian Beet may be made now. Our choicest roots of this vegetable are

generally obtained from sowings made in the first week of July. A warm situation is necessary.

ENDIVE.—The transplanting of Endive sown a month ago should be done as soon as the plants are large enough to handle or they may become drawn and of little value. A sowing of round-leaved Batavian Endive should be made now in order to produce plants for the winter supply. The seedlings should be transplanted as soon as they are large enough for shifting to some part of the garden where they can be protected from frost by box frames or spare lights.

WINTER CROPS.—Proceed with the planting of Savoys and other winter vegetables as ground becomes vacant. Allow a distance of 2 feet between the rows of Savoys. Dwarf Curled Savoy is a good reliable kind for early winter supplies, but for late use Latest of All and Omega should be selected. The last-named variety is of recent introduction. We had good plants of this sort up to the middle of April, when the Spring Cabbage was ready.

BROCCOLI.—Early Broccoli should be planted without delay. The ground for the plants should be moderately rich, and sufficient space should be allowed between the rows to keep the plants from becoming drawn. Late varieties of Broccoli may be planted ten days later in ground which is not too rich, in order to promote the growth of hardy plants to withstand the winter. If the weather is dry at the time of planting a good soaking of water should be given to each plant separately.

VEGETABLE MARROWS.—The plants of Vegetable Marrow should be watered frequently with liquid manure and all spindly growth removed. Cut the fruits before the skins become hard. Further plantings of Marrows may be made in some sheltered spot in order to keep up a supply of young Marrows as late in the season as possible.

LATE PEAS. Peas that were sown a month ago should now be large enough to earth up and have the sticks placed in position. New sticks should, if possible, be chosen for this crop, in order to withstand the rough autumn winds. Do not allow the plants to suffer from want of water at the roots; rather begin watering before they show signs of distress. If a good watering is given weekly in dry weather, it may be the means of keeping up an unbroken supply of pods throughout the autumn.

THE HARDY FRUIT GARDEN.

By W. HEDLEY WARREN, Aston Clinton Gardens, Buckinghamshire.

WALL TREES.—Continue to stop, thin, and regulate the young shoots as directed in a previous Calendar. Care should be taken not to retain more than are necessary, as when laid in too closely they do not ripen properly.

FIGS.—The young shoots of Figs should now be well thinned out, and the remaining growths may, with advantage, be allowed to hang loosely from the wall. Some growers make it a rule to allow them to remain in that position until the autumn, so that the embryo Figs do not get too largely developed before winter. Should mildew make its appearance on any of the Peach trees, apply an approved remedy at once, or dust the affected parts with sulphur immediately it is perceived. Some varieties, as the Royal George, are specially subject to mildew, but if sulphur is immediately applied, it will usually effect a cure.

STANDARD AND BUSH TREES.—These are feeling the good effects of the recent rains, and are pretty well cleansed of insects and filth, obviating the necessity of much syringing for the remainder of the season. Continue to go over the trees occasionally, stopping or removing all superfluous shoots. Young growths on pyramid and bush trees should be given special attention.

BUSH FRUIT.—Bush fruits should be adequately protected from birds. Where they are planted in squares and are not permanently protected with wire netting, it is a good plan to fix upright stakes all around and across, about 6 feet high, having long poles or cord to fasten all together at such a distance that the net will not bag too much, covering it all in with netting. This method gives easy access to the fruit, and the net will also dry quicker after rains than it would if bundled around the bushes. Where press of work has hitherto hindered the cutting

away of useless shoots, as formerly advised, it should be done before netting the bushes.

GOOSEBERRIES AND CURRANTS.—These fruits growing against walls will now require attention. Where these have already filled the space allotted to them, and the main branches are healthy, thinning out the shoots and shortening the stronger is all that is required. Black Currants could be grown on north borders in this way, as well as other spots in the garden where other things would not do well; some of the finest fruits I have ever seen were grown in this situation, and a distinct advantage gained is that of prolonging the supply of fruit by several weeks. Regulate the shoots so as to save those only which will be tied in either now, or after those which are bearing are cut away. Under no circumstances should they be drawn closely together, to the detriment of the ripening fruit. The object should be to leave as much young wood as is necessary to furnish the trellis from the bottom to the top for next year's supply of fruit, as Black Currants bear best on young wood laid or tied in during the previous season; Red and White Currants, on the contrary, bear best on spurs. Much of the work in the fruit garden may have been neglected, owing to the work connected with "bedding out"; prompt measures should therefore now be taken to bring the work up to date.

THE APIARY.

By CHLORIS.

SELLING HONEY.—Thus far, we have had an excellent season for the production of fine honey, and a word of warning is needed for those who are over-anxious to exchange the produce of their hives for the current coin of the realm. Every year beekeepers rush their honey on a market that is overstocked, with the result that low prices prevail. Honey is an appetising food of high nutritive value that loses little, if anything, by being carefully stored. This being so, do not glut the market, for, although foreign or colonial honey be imported, there is nothing in all the world that can equal fine English Clover honey; therefore do not sell unless reasonable prices can be obtained. Let this year's harvest be what it may, there will be a great shortage, for so many countries have lost their thousand or more hives through the "Isle of Wight" disease. This must seriously affect the year's output, and assist very materially in keeping up prices. A little while ago a lady beekeeper remarked: "When I kept bees, I sold honey of high quality at 4d. and 6d. per lb., but when I want to purchase some, now I have no bees, I have to pay 10d. and 1s." Examples of this type could be multiplied by the hundred. When Christmas is drawing near, there will be an increased demand, and the glutted market will be an unknown factor. If those beekeepers who are in a great hurry to dispose of their stock, and have no home market, fail to sell at remunerative prices, let them find out a brother beekeeper who has a ready sale for even more than he can produce, and try to make a deal with him; or, failing him, try the wholesale dealer. In some counties the Beekeepers' Associations are giving valuable assistance to their members by aiding them to find good markets for the sale of their produce. For this reason beekeepers would be wise to join the local association.

SOME USES OF HONEY.—Since honey is conducive to health, why not make more use of it at home? It is easily digested, because it is sugar in the very best form, free from adulteration, not liable to set up decay of the teeth, nor cause the putting-on of adipose tissue, as ordinary sugar does. Of late years honey has taken the place of sugar in North America for sweetening tea, coffee, and cocoa, and those who have not tried it in these beverages will find, after using it a few times, that they prefer it to sugar. There is no doubt that those who are troubled with dyspepsia will find it invaluable if they will only give it a long trial. Not only may honey be used in place of sugar for sweetening the common beverages, and summer drinks, such as lemonade, but cakes are made more nutritious, and keep moist longer, when honey is used in place of sugar. Some doctors are of the opinion that consumptives derive great benefit from the continued use of honey, because it is so easily assimilated, has a gentle laxative property, and is not distasteful, like cod liver oil.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens of plants for naming, should be addressed to the EDITORS, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.

Local News.—Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens or of remarkable plants, flowers, trees, &c., but they cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.

APPOINTMENTS FOR JULY.

SATURDAY, JULY 1—Sutton Rose Sh. Reigate Rose and Sweet Pea Sh. Soc. Française d'Hort. de Londres meet.

TUESDAY, JULY 4—Roy. Hort. Soc. Summer Sh. at Olympia, Addison Road, Kensington (3 days). Gloucestershire Rose and Sweet Pea Soc. Sh. at Gloucester. Scottish Hort. Assoc. meet.

WEDNESDAY, JULY 5—Hanley Hort Fête (2 days). Dover Sweet Pea and Rose Sh. Ealing Fl. Sh.

THURSDAY, JULY 6—Newmarket Fl. Sh.

FRIDAY, JULY 7—Nat. Rose Soc. Sh. at Botanic Gardens, Regent's Park.

SATURDAY, JULY 8—Haverhill Sweet Pea and Rose Sh.

MONDAY, JULY 10—United Hort. Benefit and Prov. Soc. Com. meet.

TUESDAY, JULY 11—Nat. Sweet Pea Soc. Exh. in R.H.S. Hall, Westminster (2 days). Wolverhampton Floral Fête (3 days). Saltaire and Shipley Rose Sh. Brighton Fl. Sh. (2 days).

WEDNESDAY, JULY 12—Bath Rose Sh. (2 days). Hereford and West of England Rose Sh. Ilminster and Boreham Wood Hort. Soc. Sh. Croydon Fl. Sh. Woodbridge Fl. Sh. Guildford Fl. Sh. Hemel Hempstead Rose and Sweet Pea Sh.

THURSDAY, JULY 13—Soc. Nationale d'Hort. de France (Paris) Exh. Bury St. Edmund's and West Suffolk Sweet Pea and Rose Sh. Leighton Buzzard Sweet Pea and Rose Sh. Potters Bar and Northaw Fl. Sh. Nat. Sweet Pea Soc. outing to Sutton Place, Guildford.

FRIDAY, JULY 14—West of Scotland Rose Sh. Nat. Sweet Pea Soc. outing to Wisbech Nurseries.

SATURDAY, JULY 15—Wood Green Fl. Sh. Edgware and Little Stanmore Fl. Sh.

TUESDAY, JULY 18—Roy. Hort. Soc. Com. meet. (Lecture at 3 p.m. by Mr. W. Rickatson Dyke, M.A., on "Irises"). Highland and Agric. Soc. Sh. at Inverness (4 days). Portsmouth Fl. Sh. (2 days). Nat. Gladiolus Soc. Sh. at R.H.S. Hall.

WEDNESDAY, JULY 19—Ulverston Rose Sh. in conjunction with Nat. Rose Soc. Newcastle-upon-Tyne Fl. Sh. (3 days). Nottingham Fl. Sh. Liverpool Hort. Assoc. Sh. Uxbridge and District Fl. Sh.

THURSDAY, JULY 20—Roehampton Fl. Sh.

FRIDAY, JULY 21—Hants. Orth Fl. Sh. (2 days).

SATURDAY, JULY 22—Paisley Florist Soc. Sh.

TUESDAY, JULY 25—Nat. Carnation and Picotee Soc. Exh. at R.H.S. Hall.

WEDNESDAY, JULY 26—Cardiff and County Hort. Soc. Sh. at Sophia Gardens (2 days). Bishop's Waltham Fl. Sh. Irish Gard. Assoc. meet. Chesterfield Fl. Sh. Leamington Fl. Sh. (2 days). Haywards Heath Fl. Sh.

THURSDAY, JULY 27—St. Ives Fl. Sh. Yorkshire Agric. and Hort. Sh. at Rotherham (3 days).

FRIDAY, JULY 28—Southampton Carnation and Sweet Pea Sh.

AVERAGE MEAN TEMPERATURE for the finishing week deduced from observations during the last fifty years at Greenwich—62.1°.

ACTUAL TEMPERATURES.—LONDON.—*Wednesday, June 28 (6 P.M.)*: Max. 72°; Min. 54°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London—Thursday, June 29 (10 A.M.): Bar. 30.3; Temp. 66°; Weather—Sunshine.

PROVINCES.—*Wednesday, June 28*: Max. 61° Yorkshire; Min. 55° Ireland, N.W.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—Special Sale of Choice Established Orchids, at 67 & 68, Chiswick, E.C., by Protheroe & Morris, at 1

Atmospheric Impurities and Vegetation.

The general adverse effects of a polluted atmosphere on vegetation are visible to everyone. In comparison with the healthy vigour of plants and particularly of trees growing in the country, the stunted appearance and evanescent foliage of town-grown trees and shrubs are pitifully apparent. Each year in spring the trees which pursue their tortured existence along the roadways of our great manufacturing towns make, as it were, one more effort to ignore the troubles of their existence. They put forth their leaves of tender green as beautifully as their fellows of the country, but within a week or two their green is smirched and the trees relapse to hopelessly bedraggled dirtiness.

Though this is commonplace enough to all who have an eye for contrast, the extent to which vegetation is damaged by the smoke and grime of cities has not till recently been the subject of careful and continuous investigation. The observations made by Messrs. Crowther and Ruston on "The Nature, Distribution, and Effects upon Vegetation of Atmospheric Impurities in and near an Industrial Town" (*Journal of Agricultural Science*, IV., 1, May, 1911) are therefore both valuable and opportune. As a first step to any systematic attempt to cope with the problem of ameliorating the conditions which obtain in our great manufacturing cities, the discovery of the bare and brutal facts is essential. Messrs. Crowther and Ruston give us the facts with respect to Leeds, and we are now in a position to form a quantitative estimate of the damage done to vegetation by the "smoke nuisance."

There exist, fortunately, the invaluable records of Rothamsted with respect to the atmospheric impurities of a rural district to serve as a basis for comparison. Let us, therefore, summarise briefly, and as far as possible comparatively, the results obtained by Messrs. Crowther and Ruston.

Of the sulphur which falls in rain, Leeds enjoys some 95 pounds (reckoned as sulphuric oxide) per acre per annum, or five times as much as falls at Rothamsted. The rain at Leeds distributes annually of free acid the equivalent of 20 lbs. of sulphuric acid per acre, and of nitrogen as ammonia and nitric acid Leeds receives from the gentle trouble of the rain 10 lbs. per acre per annum, or some three times that vouchsafed to Rothamsted. These, however, are not the only impurities tending to damage and destroy vegetation in our towns and their immediate neighbourhood. The rain of a manufacturing city is not only a solution of highly deleterious chemicals, but contains also extraordinarily large quantities of dirt in suspension.

Thus the writers whom we are quoting have determined the amount of matter in suspension in the rain falling in different parts of Leeds. Whereas the quantity of matter in suspension in a suburban district of Leeds reaches the very considerable total of 90 lbs. per acre per annum, this is nothing to the amount with which the central area is favoured. In the

heart of the city there falls annually and per acre no less than 1,900 lbs. of solid matter; that is, 20 times the amount which the suburban districts receive. Further, much of this matter in suspension is of a tarry nature, and calculated to form a sticky coating on the leaves of plants; much of it is also, of course, sooty in character, and by the minuteness of its particles is deplorably effective in blocking the stomata of the leaves, and thereby choking them.

By merely wiping off some of the dirt from the leaves of town-grown plants, Messrs. Crowther and Ruston were able to demonstrate that the assimilatory powers of the "clean" leaves increased by nearly 100 per cent. On many grounds it is to be concluded that the aerial filth which the rain smears on our plants, or which, in fine weather, fills our lungs, is produced mainly during the combustion of coal. Thus, though the manufacturer is a liberal contributor to the aerial pollution of his town, the grates of the private person are collectively responsible for a yet heavier amount of air-dirt production. As every housewife knows, dirt is the most insidious of enemies, and hence it is not surprising that aerial dirt should in yet another manner cause grievous harm to vegetation. Year in year out we do not suffer from excess of sunshine, and yet our towns manufacture thick screens to hide their doings from the eye of the sun. Messrs. Crowther and Ruston have determined by careful experiment that in one of their more central Leeds stations no less than 40 per cent. of the sunshine vouchsafed by our capricious climate is cut off by an atmospheric pall of local manufacture; and they find, moreover, that, from the same cause, the number of hours of sunshine in Leeds is reduced from 1,402, which number obtains four miles north of Leeds, to 1,167 per annum. That is to say, the citizen of Leeds enjoys 235 fewer hours of sunshine than he might if his sky could cast off the dirty mantle which his industrial system and his household weave.

No wonder that vegetation is stunted, that trees, and in particular coniferous trees, suffer, or that the length of life of the leaves of the Ash is reduced by a month or more.

Add to this that the winds drift the dirt over wide areas of agricultural land in the vicinity of the town, and that the poisonous and greasy mess falls like blight on the crops; to this add the indubitable fact that men, women and children, as well as trees and other plants, suffer from this eternal dirt, and we are bound to ask whether this state of affairs is irremediable. Whether, indeed, human ingenuity has as yet asserted itself to overcome these defects inherent in an industrial and social system dependent on coal, and whether, when full and exact knowledge, such as that provided by the authors whom we have quoted, is available, individuals and municipalities may not be induced to turn their attention seriously to the problem of reducing or suppressing aerial dirt. We could wish that the editors of the *Journal of Agricultural Science*



RHODODENDRON PENGAER; FLOWERS, RICH RED.

A HYBRID RAISED BY SIR JOHN T. D. LLEWELYN, BT., FROM A CROSS BETWEEN R. THOMSONII AND R. GRIFFITHIANUM.

would send a copy of the paper by Messrs. Crowther and Ruston to every town- and borough-council in the country. For though the author's very properly content themselves with the statement of the facts without pointing the obvious moral, it is right that that moral should be drawn. That moral is that no effort should be spared to reduce the smoke evil which is inimical alike to vegetable and to human life.

OUR SUPPLEMENTARY ILLUSTRATION.—With respect to *Rhododendron* "Pengaer," which forms the subject of our Supplementary Illustration, Sir JOHN DILLWYN LLEWELYN writes us as follows:—"Rhododendron 'Pengaer' may not be a very euphonious name, but it represents a shortened form of the name of the place in Wales which is its home, namely, 'Penllergaer,' which has a Celtic significance. It was raised some 30 years ago from the seed of a Himalayan

Although the grounds at Holland House are not available for the show this year, Olympia, situated in Addison Road, Kensington, only a short distance from Holland House, provides an excellent site for the holding of a flower show, and everything points to this year's exhibition being equal to the best of the series. The show opens on the 4th inst., and will continue for three days. The main hall, the annexe, and the balcony will be filled with exhibits arranged on a fixed plan; the annexe will be devoted to Rock and Rose gardens, whilst an amphitheatre of tiered groups, 15 ft. high, composed of stove, greenhouse, and hardy plants will encircle table groups in the arena. On July 4 the show will be open from 12 noon to 10 p.m.; on July 5 from 9 a.m. to 10 p.m.; and on the 6th from 9 a.m. to 6 p.m. The public will be admitted to the show on the evenings of the first two days at a charge of 1s. To commemorate the Coronation year, a 60 guinea challenge cup is offered for the best exhibit in the show. Some 30 other silver-gilt and silver cups will also be awarded in addition

tents are provided, will be staged in one large canvas structure having a boarded floor. Roses are exceptionally forward this season, and the show is likely to be a more representative and larger one than usual. Refreshments will be obtainable in the gardens. The exhibition will open at noon and close at 7 p.m.

NATIONAL SWEET PEA SOCIETY'S OUTINGS AND SHOW.—The society's trials of Sweet Peas at The *Times* Experimental Station, Sutton Green, near Guildford, will be inspected by members of the Society and officials on Thursday, July 13. The inspection will be followed by a visit to the grounds and gardens of Sutton Place, the residence of Lord and Lady NORTHCLIFFE. On Friday, July 14, an outing is arranged to Messrs. R. H. BATH & Co.'s Nurseries at Wisbech, Cambs. Members who intend to accompany either or both of the inspection parties should notify the hon. secretary, Mr. CHARLES H. CURTISS, Adelaide Road, Brentford, Middlesex, on or before Monday, July 3. The Society's 11th exhibition will be held in the Royal Horticultural Hall, Westminster, on Tuesday and Wednesday, July 11 and 12.

NATIONAL GLADIOLUS SOCIETY.—The first summer show of the recently formed National Gladiolus Society will be held on 18th inst., at the Royal Horticultural Hall, Vincent Square, Westminster. The schedule embraces nine classes, six of them for nurserymen and the others open to all. Particulars may be obtained from the Secretary, Mr. K. ATKINSON, The Flagstaff, Locks Heath, Southampton.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Mr. C. W. DYSON PERRINS, vice-president of the Worcester Auxiliary of this gardening charity, admitted the public to view his gardens at Davenham on Thursday, June 15, the proceeds of admission being devoted to the institution. A large number of persons availed themselves of the opportunity of inspecting these beautiful gardens and pleasure grounds.

AWARD AT THE FESTIVAL OF EMPIRE AND IMPERIAL EXHIBITION.—The Council of the Festival of Empire and Imperial Exhibition at the Crystal Palace have awarded Mr. H. HEMSLEY, Crawley, a silver cup for the premier rock and water garden display at the exhibition and a gold medal for another group, comprising mainly a Fernery.

MR. T. B. DOBBS.—The many friends of Mr. THOMAS B. DOBBS, of the late firm of T. B. DOBBS & Co., Wolverhampton, will be interested to learn that he is sailing by the s.s. "Osterley" on the 7th inst. for Melbourne, accompanied by his late foreman, Mr. T. BANNER, formerly of Wrottesley Hall Gardens. Visitors to the Shrewsbury shows will miss the model gardens and Rosaries which Mr. Dobbs arranged with such excellent taste, but he will no doubt find plenty of scope for his abilities in the land of his adoption. Mr. ALFRED DOBBS, the senior partner of the late firm, is remaining in Wolverhampton.

THE "CORONATION BOUQUET."

The "Coronation" bouquet presented to Queen Mary by the Worshipful Company of Gardeners consisted of Carnations of the variety *Hermione*. The flowers used in the "Coronation" bouquet, and also in the other, which was presented to her Majesty for the State Procession, were magnificent specimens, excellently arranged by Messrs. Piper's, florists, Bayswater. Queen Mary was also pleased to accept from the Company of Gardeners a basket of Carnations (see fig. 195), which consisted of white and pink seedling varieties raised by Mr. Charles Blick, Hayes Nurseries. Her Majesty bestowed her own name on the pink seedling and that of King George on the white variety. The gold basket, modelled from that which figures in the Arms of the Company, was made by Messrs. Elkington.



FIG. 193.—CARNATIONS "KING GEORGE" AND "QUEEN MARY."
Presented to Her Majesty Queen Mary by the Worshipful Company of Gardeners.

species we used to call *R. argenteum*, a plant which is now known as *R. Griffithianum*, fertilised with the pollen of *R. Thomsoni*, with the aim of getting some of the colour of the latter species into the larger corolla and free habit of the seed-bearing plant. It is not always easy to protect the flowers of so large a plant as the *Rhododendron* against the intrusion of insect agency, and the busy bee is up early in the morning to interfere with the efforts of the hybridist. However, several of the sister plants in the same batch as *Pengaer* show the cross to have been a highly interesting one. In some of my seedlings I see but little trace of the influence of the pollen parent, but crosses I have made between *R. barbatum* and *R. Thomsoni* gave intermediate forms which resemble the variety called *Shilsonii* raised in Cornwall."

R.H.S. SUMMER SHOW AT OLYMPIA.—The summer show of the R.H.S. is now looked upon as one of the Society's most important fixtures.

to medals. The band of the Royal Artillery has been engaged to play during each afternoon and evening of the show. Many railway companies will run excursion trains to London on the dates of the exhibition.

THE LATE SIR CHARLES DILKE.—It is proposed to publish a biography of the late Sir CHARLES DILKE, and Miss TUCKWELL, his niece and literary executor, will be grateful if friends who possess letters or reminiscences of her uncle will communicate with her at 52, Westminster Mansions, S.W. Any letters that are sent will be carefully copied and returned. Mr. JOHN MURRAY is to be the publisher of the biography.

NATIONAL ROSE SOCIETY'S SHOW.—The great summer exhibition of the National Rose Society will be held on Friday, July 7 in the gardens of the Royal Botanic Society, Regent's Park. All but the decorative classes open to ladies, and the exhibits of seedling Roses, for which separate

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

R.H.S. SPRING SHOWS.—You were kind enough in your last issue to insert a paragraph saying that the Council had decided to make the shows in March, April, May, and June next year two-day shows. I have now to ask you to be so good as to announce that, at the last Council meeting, it was resolved to reconsider that decision immediately the Olympia Show is over. *W. Wilks, Secretary.*

ROYAL INTERNATIONAL EXHIBITION: A BRITISH GARDENERS' PRIZE.—It has occurred to me that it would be very interesting for gardeners to subscribe, say £50, less or more, to be offered as a prize or prizes at the exhibition to be held next year, the winners to be limited to gardeners only. For what objects the prizes should be offered may fitly be left open until the money is secured. Subscriptions to be 2s. 6d. maximum with a minimum of 6d. from any one gardener. The writer will give his shilling. Is it too much to expect 999 other gardeners on the average to do the same? The *Gardeners' Chronicle* might be asked to act as treasurer. There would be no need to publish any list of donors. *A County Honorary Secretary, June 20.*

ORIGIN OF THE ROYAL GARDENERS' ORPHAN FUND.—Being an old member of the gardening profession, the remarks made by Mr. Clayton on the above institution (page 418) and especially his reference to the accidental death of a well-known gardener's widow, stirred my feelings, or, in the words of the late Reynolds Hole, Dean of Rochester, "it moved the blood in this old man's veins and made his pulses fly," as this could be none other than the late Mrs. Stevens, of Trentham. My first informant was my late employer, Sir Henry W. Peck, Bart. We were returning from Devonshire, and, as usual, I handed him the evening papers at Salisbury. In a moment he remarked: "Your old friend Mrs. Stevens is dead." I replied: "Is it possible?" I had a letter from her on Friday, and posted one to her yesterday; but alas! it was too true. Here were three children, the youngest not seven years old, who had lost father and mother in a few months, the mother's relatives being all in Germany and their father's relatives not in a position to make homes for them. The following morning I told Sir Henry Peck we had made up our minds to make a home for the youngest, with his consent, as she was an invalid and not expected to live, to which he at once consented. I called on Mr. Veitch, one of the trustees, and discussed the matter, and ultimately fetched the child from Trentham. Under the care of our doctor she soon began to improve, made good progress in her education and afterwards in learning her business. She now stands 6 feet 1½ inches high, was married from this house last year, and is in business, doing well, and as proud of those under whose fostering hands she grew up as we are of her. Her father was the hardest taskmaster I ever had; but he was also one of the best friends to those that deserved his friendship; hence my attachment to him and to his children. Unfortunately, every gardener could not have acted as I did, as the majority of gardeners have very limited means and many have families of their own, but all can support the Royal Gardeners' Orphan Fund and the Gardeners' Royal Benevolent Institution. One of the first to receive the benefits of the Royal Gardeners' Orphan Fund was George Smith, whose father died, leaving a wife and three children; George was then four years old, and is now an official of the Marylebone Council. *J. Otterhead, Wimbledon.*

THE MID-KENT NURSERIES.—Here, at the Mid-Kent Nurseries, we have a very large vinery (100 feet by 18 feet) in which are planted 72 vines of Black Hamburg, Foster's Seedling and Gros Maroc. The vines bear an average crop of nine bunches of fair size. On taking charge in January last, I found the borders were in a very impoverished state. I was informed that last season the vines were neglected in thinning and were badly affected with mildew. The borders have since been entirely renovated throughout, and this season the vines broke into

growth strongly and they have produced plenty of fruit and fine leathery foliage, but they still show slight traces of the effects of mildew last season. The vinery is a most excellent light span-roofed house, supported inside by iron piping all along the centre, and in spring, when the laterals were a foot in length, they were literally dripping in the morning with condensed moisture. Little fire-heat was employed, as we did not wish to hasten the vines on account of the roots being impoverished last season, and what we are now doing in our endeavour to check the pest is to dust flowers of sulphur very lightly amongst the foliage. Another remedy which I have often used, consists in dusting powdery lime all over the borders, which rises as dust. I may state that the mildew is not showing on the leaves. We are maintaining a gentle heat in the hot-water pipes during the night-time, and ventilation is afforded carefully. *J. W. Irvine, Mid-Kent Nurseries, West Wickham.*

THE WEATHER AT KINGSWEAR, SOUTH DEVON.—South Devon is generally credited with being a decidedly wet district, but, as a matter of fact, in almost every summer, periods of drought are experienced. The dryness of this season, however, has been remarkable and quite unprecedented. From May 3 until June 16 not a drop of rain fell. Such a long-continued drought as 44 days has never before been known in this district. Copious rains fell all round, even as near as a distance of four miles, but not a drop fell at Kingswear. For the first five months of the year 9.94 inches of rain were recorded, the average for the past ten years being 14.9 inches, so that we are, up to the present, nearly 5 inches below the average. Watering for two hours every evening has been assiduously practised for the past five weeks, but many things had, perforce, to be left unwatered, and are dead or dying in consequence. *Daphne indica* is dead, the *Libertias* are entirely brown, and may not recover. *Mimulus cardinalis*, which should be 3 feet high and in full bloom now, has a height of barely 9 inches, and is almost dead, and many other plants which have not been watered are in a like condition. About the only exception to the debility exhibited by the majority of subjects is *Delphinium vestitum*, a fine species from the Himalayas, with deep violet-purple flowers; that is stronger this year than it has ever been before, and is now 4 feet 9 inches in height, though it is growing in a steeply-sloping border, and has not had a drop of water during the whole of the drought. During the past four days we have, fortunately, had rain, and rather over 1 inch has fallen, but it has not gone down to any depth yet, and more is required. *Wyndham Fitzherbert.*

WEATHER AT LAMBAY ISLAND.—For a period of 30 days this district was without rain, but on Thursday, June 15, we registered .13 inch; Friday, 16, .64 inch, and Saturday, 17, .17 inch of rain. The rain was accompanied by thunder and lightning. The hay crop is a very light one, and garden crops have suffered considerably from the drought. *C. Ruse, Lambay Island, Rush, Co. Dublin.*

CULTURE OF HIPPEASTRUMS (see p. 368).—Mr. L. Small's criticism of Mr. Hudson's remarks in his weekly Calendar on the culture of Hippeastrums would convey the impression that these beautiful and interesting plants cannot be grown successfully in a lower minimum temperature than 70°. I have cultivated Hippeastrums for many years, and I think I may fairly claim to have grown them successfully, yet, except in hot weather, when it is impossible to keep the temperature down, we always aim at maintaining a minimum of 60° while the plants are in full growth. When the bulbs have completed their growth they are placed in a cold pit, and, as the foliage dies off, water is gradually withheld. During the winter, when the bulbs are at rest, the pit is only heated sufficiently to exclude frost. I have no doubt but that Mr. Small grows Hippeastrums thoroughly well; my object in offering these remarks is to show that these plants can also be grown successfully under much cooler conditions than those recommended by him. *C. R. Fielder.*

—If Mr. Small will adopt the treatment recommended for Hippeastrums by Mr. Hudson

he will find that the plants will not only grow but flower well. For the past three or four seasons, when the summer bedding is finished, I have had these plants transferred from a vinery to a cold pit, closing the pit at about 3.30 p.m., so long as the foliage remained green. After the foliage is ripened fresh air is gradually admitted until late in the evening, and by the end of August air is left on all night. At the end of September the plants are transferred to the potting-shed shelf, under a glass roof, where the thermometer often falls to 35° in the winter. I find it does not harm the bulbs so long as they are quite dry and dormant. Early in March they are brought into a vinery having a temperature of 55° to 60°, and by the middle of April they have developed numerous fine spikes, and some of the bulbs, two spikes. In many gardens room for Hippeastrums cannot be found in the Melon house or stove, and it may interest readers to know that the plants do not require a high temperature to flower them. *A. Barker, The Whittorn, Kington, Hereford.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 20.—The fortnightly meeting was held on the above date in the Society's Hall, Vincent Square, Westminster. Notwithstanding the crowded condition of London the attendance was scarcely up to the average. The most imposing groups were of Delphiniums, Paeonies, Roses and Carnations. Orchids were poorly represented. The ORCHID COMMITTEE granted one First-class Certificate and one Award of Merit.

The FLORAL COMMITTEE recommended one First-class Certificate and five Awards of Merit.

The chief exhibit before the notice of the FRUIT AND VEGETABLE COMMITTEE was a comprehensive collection of early vegetables exhibited by Messrs. J. VEITCH & SONS. This Committee granted three Awards of Merit.

At the 3 o'clock meeting in the Lecture Room, the Rev. Prof. Geo. Henslow gave an address on "The Origin of Monocotyledons from Aquatic Dicotyledons."

Floral Committee.

Present: Messrs. W. Marshall and H. B. May (Chairmen); and Messrs. W. Cuthbertson, C. E. Shea, John Green, G. Reutte, W. J. Bean, C. R. Fielder, J. Jennings, C. Blick, R. C. Reginald Nevill, Chas. Dixon, John Dickson, Chas. E. Pearson, W. P. Thomson, W. J. James, W. B. Cranfield, A. A. Dorrien Smith, V. F. McLeod, R. C. Notcutt, Herbert J. Cutbush, and R. W. Wallace.

Mr. JAS. MACDONALD, Turf Specialist, Harpenden, Herts., showed a collection of dried grasses, with mounted specimens of many common species in flower, and mixed seeds of grasses for special purposes. (Silver-gilt Banksian Medal.)

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, displayed a group of cut shrubs and trees, interesting now for their flowers or coloured foliage. *Amphirhapis albescens*, the dark "late Dutch" Honeysuckle, *Cytisus Schipkensis*, *Deutzia Pride of Rochester* and species of *Prunus*, *Tamarix*, *Acer*, and *Corylus* were included in this exhibit. (Silver Flora Medal.)

Messrs. JAS. VEITCH & SONS, LTD., Chelsea, in addition to groups of *Cannas* and *Carnations* which were a little overcrowded, showed standard *Fuchsias* (the variety *Scarcity* being particularly attractive), *Achimenes Rose Queen*, and *Begonias*, including *B. kewensis* and *B. Pink President Carnot*. (Silver Flora Medal.)

Messrs. H. B. MAY & SONS, Dyson's Lane Nurseries, Edmonton, staged flowering plants of *Allamanda grandiflora* and *Fuchsia fulgens hybrida*, with collections of *Nephrolepis*, *Codiaeum* (*Croton*), and *Scolopendrium*. The hardy Ferns included the varieties *Robinsonii*, *robustum*, *grande* and *Bowdeni* of *Scolopendrium crispum*, also *Woodwardia americana*. (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, in a variegated group of hardy shrubs, included *Clematis*, *Vitis Henryana*, *Abelia floribunda*, *Metrosideros*, and *Erythrina*. (Silver Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, showed a varied group of bedding plants. Salmon

Paul Crampel Pelargonium was effective below a bank of *Hydrangea paniculata grandiflora*. Triumph of the North is a free-flowering bedding *Calceolaria*. The *Cannas* included President Meyer, Black Warrior, J. B. van der Schoot, and Monte Rosa. (Bronze Banksian Medal.)

Messrs. CARTER PAGE & Co., London Wall, E.C.1, showed a collection of bedding Pelargoniums and Cactus and Peony-flowered Dahlias, of which the bright colours were relieved by *Kochia* and *Asparagus*. (Bronze Banksian Medal.)

Mr. A. A. FABIGS, Redlands Nursery, Emsworth, staged a number of fine young plants of his new Fern (*Adiantum Glory of Meordrecht*) interspersed with a few white Roses.

ROSES.

Messrs. W. & J. BROWN, Peterborough, had a large collection of Roses bounded by masses of *Gaillardia Lady Rolleston* and *Lilium Szovitzianum*, which provided the clear yellow that the Roses lacked. Notable Roses were Mrs. Peter Blair, General McArthur, Mildred Grant, Harry Kirk, and Melanie Sompert; the group was tastefully edged with dwarf Polyantha varieties. (Silver-gilt Banksian Medal.)

Messrs. GEO. JACKMAN & SON, Woking Nurseries, Surrey, made a bold display with Roses, in which the varieties *Gottfried Keller*, *Prince de Bulgarie*, *Liberty*, and *Le Progrès* were noted as being specially good. A considerable collection of miscellaneous hardy herbaceous flowers was also shown by this firm. (Silver-gilt Banksian Medal.)

Mr. ELISHA J. HICKS, Hurst, Twyford, Berkshire, staged an interesting group of Roses, in which the ramblers *Seagull*, *Rubin* and *Mesclata alba* were prominent, *Lyon Rose*, *Lyon Rambler*, and *Mme. Segond Weber* were also noticeable. (Silver Flora Medal.)

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, showed a collection of rambling Roses, *Ariel*, *Una*, *Paul's Single White*, *Leuchstern*, *Carmine Pillar*, and *Wallflower* were all good. We fear that the new multiflora seedling *Sweet Lavender* will not become popular, in spite of its pretty name. *Peonies*, *Heucheras*, *Potentillas*, and other herbaceous plants were also shown by this firm. (Silver Flora Medal.)

Messrs. B. R. CANT & SONS, Colchester, exhibited a large group of Roses, in which a centrepiece of the brilliant bodder *Rose du Barri* excited general comment. The new pink variety *Elizabeth* was well shown, as also were *Claudius*, *Hugo Roller*, *Petty*, and many older sorts. (Silver Banksian Medal.)

Messrs. FRANK CANT & Co., Braiswick Rose Gardens, Colchester, made a good display with Roses. Bamboo stands filled with blooms of *Lyon Rose* and *Melanie Sompert*, together with vases containing the beautiful singles *Lady Curzon* and *Morgenroth*, were conspicuous. (Silver Banksian Medal.)

Messrs. WM. PAUL, Waltham Cross, showed a number of good Roses. *Lady Gay* and *Blush Rambler* were effective at the back, and *Le Progrès* and *Lyon Rose* displayed on stands. *Juliet* has so frequently been beautifully shown in free arrangements that it was a little disappointing to see only a few blooms on a show board. The variety *Bianca* (cream colour faintly suffused with pink) was pretty. (Silver Banksian Medal.)

Messrs. W. SPOONER & SON, Arthur's Bridge Nursery, Woking, had, amongst many other fine Roses, especially good blooms of Mrs. Aaron Ward, Harry Kirk, Richmond, General McArthur, and *Melanie Sompert*. The singles *Simplicity* and *Irish Elegance* were very pretty. (Silver Banksian Medal.)

Messrs. G. MOUNT & SONS, The Nurseries, Canterbury, in a group of a few sterling varieties of Roses showed how effectively the foliage and shoots of the plants, often very beautiful in themselves, add to the attractiveness of an exhibit, in which overcrowding is carefully avoided. Blooms of the varieties *Lady Hillingdon*, Mrs. Geo. Sawyer, and *Richmond* were especially good. (Bronze Flora Medal.)

Mr. W. EASLEA, Daneport Nursery, Eastwood, Essex, included, in a small group of Roses, the new scarlet crimson monthly *Charlotte Klemm*, *Aimée Vibert à fleur jaune*, and some pretty flowers of *Hugo Roller* and *Marquise de Siney*.

CARNATIONS.

Messrs. STUART LOW & Co., Bush Hill Park, Middlesex, occupying the floor space running the whole length of the north end of the hall, made one of the most effective decorative displays of *Souvenir de la Malmaison* and perpetual flowering varieties of Carnations that the hall has seen. The varieties *J. W. Riley* and *Royal Purple* associate well. *King Arthur*, *Princess of Wales*, *C. P. Little*, *Lady Rose*, and most of the standard sorts were shown well on a groundwork of moss and relieved by *Adiantum*, *Nephrolepis*, and *Palms*. (Silver-gilt Banksian Medal.)

Mr. CHAS. BLICK, The Warren Nurseries, Hayes, Kent, showed, in addition to perpetual flowering varieties of Carnations, many pretty home-raised border varieties. *Sea Swallow*, *Prince Charming*, and *Solferino* were amongst the most distinct kinds. (Silver Flora Medal.)

Mr. H. BURNETT, Guernsey, staged well-grown Carnations. The varieties *R. F. Felton*, *Marmion*, Mrs. W. B. Clode, *Mikado*, and *Sultan*, being conspicuous in the group. (Silver Banksian Medal.)

Messrs. W. CUTBUSH & SON, Highgate, N., staged a group of Carnations, in which *Alma Ward*, Mrs. W. Ward, *Carola*, *F. Galsworthy*, and *My Maryland* were the leading varieties. (Bronze Banksian Medal.)

Mr. C. F. WATERS, Deauland Nursery, Balcombe, made a good display with Carnations, prominent varieties being *Edith Waters*, *Carola*, *Rose Pink*, *Enchantress*, *Britannia*, and *Yaller Gal*.

Messrs. WELLS & Co., Merstham, Surrey, arranged early *Phlox* and *Pentstemon* about a fine centrepiece of the *Carnation White House*.

SWEET PEAS.

Mr. W. E. ALSEN, Dunning, Hants, showed very finely-grown Sweet Peas; for substance of stem and clearness of colour the following were outstanding varieties:—*Money-maker*, *King Alfonso*, Mrs. A. Ireland, *Evelyn Hemus*, *Geo. Herbert*, *Earl Spencer*, and *Helen Lewis*. (Silver Flora Medal.)

Messrs. JONES & SONS, Coton Hill Nurseries, Shrewsbury, staged a group of standard varieties of Sweet Peas, *Queen Mary*, *Marquis*, Mrs. Foster, and *Blush Spurrell* being amongst the best varieties. (Silver Banksian Medal.)

Mr. ROBERT BOLTON, Sweet Pea Specialist, Carnforth, showed a small group of choice varieties of Sweet Peas, such as *Stirling Stent*, *Charles Foster*, *Clara Curtis*, and *Elsie Herbert*. A prominent place was given to the new variety *R. F. Felton*, which secured an Award.

Mr. JAMES BOX, Lindfield, staged a good collection of Sweet Peas, the group being a little overdone perhaps with miscellaneous foliage, which sometimes obscured the flowers. The *Marquis*, *Colleen*, *Earl Spencer*, *Scarlet Monarch*, *Paradise*, *Ivory*, and the pink *Mrs. Gibbs Box* were all good varieties.

Messrs. DOBBIE & Co., Edinburgh, exhibited a group of their Sweet Pea novelties, including *Lady Knox* (cream, edged with buff), *May Campbell* (cream, marbled with carmine), *Melba* (pale salmon), *Mrs. Heslington* (lavender), *Red Star* (crimson-scarlet), and *Mrs. Cuthbertson* (rose-pink and white). The selfs were distinctly the most effective.

HARDY PLANTS.

Mr. AMOS PERRY, Hardy Plant Farms, Enfield, made an imposing display with *Delphiniums* in a large group on the ground, facing the entrance. The deep blue *Lamartin*, the bright *Julia*, the pale *Persimmon* and still paler black-eyed *Felicité* were among the most distinct varieties. *Funkias* and hardy Ferns gave a finish to the group. (Silver-gilt Flora Medal.)

Mr. JAMES BOX, Lindfield, Sussex, arranged a large group on the ground, in which *Spanish Iris*, early *Gladiolus* and *Papaver Mrs. Perry* were well represented. *Gladiolus The Bride* and the pale blue *Delphinium L. van Veen* made a pretty combination. (Silver-gilt Banksian Medal.)

Messrs. G. BUNYARD & Co., Royal Nurseries, Maidstone, exhibited collections of *Delphinium*, *Campanula* and *Heuchera* with a number of rarer plants, such as *Trifolium pannonicum*, *Morina longifolia*, *Morphixia longiflora*, and a batch of double-flowered *Hesperis*. (Silver Flora Medal.)

G. FERGUSON, Esq., The Hollies, Weybridge

(gr. Mr. F. W. Smith), showed a number of specimen spikes of *Delphiniums* raised at The Hollies. The white forms were a feature of the group, but single spikes of a large number of different varieties naturally lacked the bold effect produced by masses of one colour. Two of the novelties secured Awards of Merit. (Silver Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hampshire, arranged a varied collection of border plants. A batch of *Delphiniums* gave most colour, but the interesting plants included *Campanula latifolia Maurice Prichard*, with blue base to the white bell, and the *Hansonii-Martagon* hybrid *Lilies G. F. Wilson* and *Miss Willmott*, distinct, but not superior garden plants to the species. (Silver Flora Medal.)

Mr. G. REUTHE, Keston, Kent, staged a varied collection of rare hardy and half-hardy plants. *Psoralea glandulosa*, *Occhis hircinum*, *Mitrasia coccinea*, *Philesia buxifolia*, *Beschorneria vucoides* and the late-flowering *Rhododendron cinnabarium superbum* were some of the choicer plants. (Silver Flora Medal.)

Lord HILLINGDON, Hillingdon Court, Uxbridge (gr. Mr. W. Allan) displayed trays of *Nymphaeas sulphurea*, *atropurpurea*, *chromatella*, *Gladstoniana*, *Marliacea carnea* and *albida*, and *Wm. Doogue*, but they were not expanded fully and thus much of their beauty was lost. (Silver Banksian Medal.)

Messrs. BARR & SONS, Covent Garden, W.C., made a good display with *Delphiniums*, early *Phlox* and other herbaceous plants. *Lilies* included *L. tenuifolium*, *L. pomponium*, *L. Martagon* and *L. Martagon album*; there were also *Iris*s, *Dorothy Foster*, *Snowflake*, *ochrausea* and others. (Bronze Flora Medal.)

Messrs. R. H. BATH, LTD., Wisbech, staged a good collection of *Peonies* and *Delphiniums*, in standard varieties. The lack of substance in the former showed the effects of the recent drought, but the deep-blue *Larkspurs Humboldtii* and *Mrs. Creighton* were especially good. (Bronze Flora Medal.)

Messrs. W. BULL & SONS, King's Road, Chelsea, showed a collection of English *Iris*s. (Bronze Flora Medal.)

Messrs. GODFREY & SONS, Exmouth, Devonshire, showed a fine strain of *Campanula Medium* of the *Calycanthema* type. The shades included deep and pale-blue, pink and white. (Bronze Flora Medal.)

Messrs. PHILLIPS & TAYLOR, Lily Hill Nurseries, Bracknell, Berkshire, arranged on the floor a collection of *Delphiniums* and a group of water and bog plants. The best of the *Nymphaeas*, *Wm. Falconer* and *Gladstoniana*, were associated with *Gumera*, *Butomus umbellatus*, *Typha latifolia*, *T. minima*, and *Primulas Littoriana* and *Bulleyana*. (Bronze Flora Medal.)

Messrs. T. S. WARE, LTD., Feltham, showed *Campanulas*, *Delphiniums*, and *Phloxes*. (Bronze Flora Medal.)

Messrs. G. & A. Clark, Dover, arranged a small group of miscellaneous plants, including *Lathyrus grandiflorus*, and *Romneya Coulteri* were showy.

Mr. CLARENCE ELLIOTT, Six Hills Nursery, Stevenage, arranged a rock-garden exhibit. *Campanula pulla*, *C. pusilla* *Miss Willmott*, and *Nierenbergia rivularis* were very well flowered. *Saxifraga aizoides atro-rubens* and *S. a. aurantiaca* were in cresting. *Aster sub-cornutus* made a bold centrepiece.

Mr. A. R. UPTON, Guildford Hardy Plant Nursery, showed *Crimin capense*, *Kniphofia caulescens*, *Primula Littoriana*, *Campanula alliarifolia*, and a pretty collection of *Potentillas*.

Mr. A. J. HARWOOD, St. Peter's Nursery, Colchester, staged *Delphiniums*, *Campanulas*, *Galegas*, and other hardy plants.

The Misses HOPKINS, Mere Gardens, Shepperton, made their usual display of rock plants. *Pinks* and *Campanulas* were shown well.

Mr. H. C. PULHAM, Elsenham, Stansted, Essex, staged a small group of hardy plants, in which the genera *Dianthus* and *Campanula* were best represented.

Messrs. A. A. WALTERS & SON, Kensington Nurseries, Bath, made a group of the magnificent *Delphinium Rev. E. Lascelles* (deep blues with white centre).

Messrs. WHITELEGG & PAGE, Chislehurst, displayed a batch of *Violas* prettily arranged in bowls, but they were almost lost in a field of white paper and overwhelmed by the immense growths of the *Phloxes* and *Berry*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Philadelphus hybridus Lemoinci virginal.—None of the other Mock Oranges approaches this new hybrid in beauty. The flowers are large, nearly 2 inches in diameter, very double, pure white, and borne freely in trusses of seven to nine flowers. Shown by Sir TREVOR LAWRENCE, Bart., Burford, Dorking (gr. Mr. Bain).

AWARDS OF MERIT.

Carnation Charlotte Brontë.—A border variety of deep, old-rose colour, with large flowers, not very full in substance, nor fine in form, but particularly sweet in perfume. Shown by Mr. CHAS. BLICK, The Warren Nurseries, Hayes, Kent.

Carnation F. W. Goodfellow.—A fancy border variety, of which the pale yellow ground has a medium edge of light pink. The flowers are neat and pretty, but lack much substance, and had no scent that could be detected. Also shown by Mr. BLICK.

Delphinium Primrose Queen.—A cream-coloured variety, with primrose-yellow eye; neat, compact truss. Valuable as being the nearest approach so far to a yellow Delphinium. Shown by G. FERGUSON, Esq., The Hollies, Weybridge (gr. Mr. F. W. Smith).

Delphinium Mauri Queen.—Flowers pale mauve, semi-double, produced on well-branched closely-flowered spikes. Also shown by Mr. FERGUSON.

Sweet Pea R. F. Felton.—The flowers of this new variety are sometimes four, but generally three, to a stem, and occasionally doubled; they are large, possess waved standards, and are of a beautiful soft mauve colour. Shown by Mr. ROB BOLTON, Carnforth.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, R. Brooman White, W. Bolton, de B. Crawshay, J. S. Moss, J. Wilson Potter, Gurney Wilson, W. H. White, W. P. Bound, C. H. Curtis, J. Charlesworth, J. E. Shill, T. Armstrong, F. J. Hanbury, F. Sander, W. Cobb, W. H. Hatcher, C. J. Lucas, and Sir Jeremiah Colman, Bart.

E. R. ASHTON, Esq., Broadlands, Tunbridge Wells (gr. Mr. Young), was awarded a Silver Banksian Medal for a small group of well-grown Orchids, comprising *Odontoglossum Williamsianum* with two fine spikes, *Masdevallia Harryana* Leyswood variety of a bright magenta-crimson colour, various *Laelio-Cattleyas*, including L. C. Martinetti, L. C. Hippolyta, and other orange and crimson *Laelio-Cattleyas*, *Odontoglossum Fascinator*, *Epidendrum vitellinum*, and other showy species.

MESSRS. SANDER & SONS, St. Albans, were awarded a Silver Banksian Medal for a group of showy *Laelio-Cattleyas*, *Cattleyas*, and *Odontoglossums*. Among those noted were fine forms of *Cattleya Mossiae*, including some clear white C. M. Wageneri and C. M. Reineckiana, some pretty hybrid *Odontoglossums*, *Anguloa uniflora* and its variety *eburnea*, a remarkable plant of *Cycnoches* with four pendulous racemes, bearing together 136 flowers, *Bulbophyllum leopardium* and *B. saurocephalum*, *Odontioda Bradshawiae* and other *Odontiodas*, *Maxillaria Sanderiana*, *Lycaste Peruviana*, *Brassia Lawrenceana aurata*, *Masdevallia coriacea* with other *Masdevallias*, *Habenaria Susanna*, and, among the *Cypripediums*, a good example of *C. bellatulum* Princess Clementine, a charming cream-white variety with soft rose-coloured markings.

MESSRS. STUART LOW & Co., Bush Hill Park, staged a very effective group, for which a Silver Banksian Medal was awarded. In the back were fine examples of *Oncidium macranthum*, *O. Wentworthianum*, and with them a finely-branched *Odontoglossum Pescatorei*, several good *O. amabile* and *O. mirum*, *Renanthera Insechotanum*, *Dendrobium Jamesianum*, *Cattleya Mossiae* and its variety *Wageneri*, *Masdevallia calura*, *Phenothallis stenopetala*, *Sopbro-Cattleya Saxa*, *Epidendrum prismaticum*, *Dendrobium virgale*, and other *Dendrobiums*.

MESSRS. CHARLESWORTH & Co., Haywards Heath, staged an excellent group of rare Orchids, including a fine plant of the pure white *Trichopilia Backhouseana* with 12 flowers,

Mormodes pardinum unicolor, clear yellow with a purple tint on the backs of the sepals, *Chondrorhyncha Chestertonii*, *Aspasia epidendroides*, a pretty plant of *Odontonia Laressee* with a branched inflorescence, *Angraecum Chailluanum*, some *Masdevallias*, and hybrid *Odontoglossums*.

Messrs. J. and A. A. McBEAN, Cooksbridge, staged a small group, in which were some excellent forms of white *Odontoglossum crispum*, *Miltonia Blenana Doris*, a fine flower, milk-white with a pale purple mask and light rose flush on the petals, several *Cattleya Mossiae Reineckiana*, one very handsome dark form of C. Mossiae, good *Cattleya Warszewiczii*, and a fine form of *Odontoglossum Harryanum*.

Mr. E. V. Low, Yale Bridge, Haywards Heath, staged a small group, which included *Cattleya Mossiae Reineckiana Frou Frou*, white with purplish veining on the lip, C. M. Wageneri with six flowers, a pale blue tinted form of C. Mossiae, *Coccyne pandurata* with two fine spikes; *Cypripedium Maudiae*, C. calosum Sander, and the white *Cattleya Myra Peeters*.

The Baroness VON ERNSTHAUSEN, Manor House, Ditton Hill, Surrey (gr. Mr. James), showed a plant of *Brassia verrucosa* with three spikes.

MESSRS. ARMSTRONG & BROWN, Tunbridge Wells, showed a very fine specimen of a bright magenta-crimson form of *Masdevallia Harryana splendens*.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a good example of his large-flowered type of *Odontoglossum Queen Alexandra* (*Harryanum* × *triumphans*), another hybrid *Odontoglossum*, and *Odontioda rosefieldensis Crawshayanum*. (See Awards.)

Sir JEREMIAH COLMAN, Bart., V.M.H., Gatten Park (gr. Mr. Collier), showed a good specimen of the pale yellow *Sobralia Colmanae*, *Anguloa Cliftonii*, and *Catasetum Cliftonii*.

Sir TREVOR LAWRENCE, Bart. (gr. Mr. W. H. White), showed *Catasetum Cliftonii*.

From TRACY'S NURSERY, Amyand Park Road, Twickenham, came the plant of *Dendrobium ochreatum* var. *luteum*, described in the *Gardeners' Chronicle*, July 9, 1910, p. 14. The pseudo-bulbs are more slender than in the type, the flowers lemon-yellow with a purple blotch at the base of the lip.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Europa (caruleum × crispum F. K. Sander), from J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis).—A most beautiful hybrid, and one of the finest coloured *Odontoglossums* yet raised. The flowers have all the segments equally broad, the sepals and petals being of a deep shade of reddish-violet with narrow white margins and tips, a little white showing also at the bases. The lip has a central violet blotch and some smaller markings, the upper sides of the base and the apical part being white.

AWARD OF MERIT.

Odontioda rosefieldensis Crawshayanum (O. triumphans × O. Noezliana), from DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables).—A larger form of the fine hybrid which secured an Award of Merit on May 9 last. The flowers clearly indicate that a very fine form of *O. triumphans* was used in the production, the hybrid approaching it closely in form, and in the thick substance of the flowers, which are yellow tinged over the greater part of the surface with red-brown; the ridged callus at the base of the lip is coloured yellow.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (in the Chair); and Messrs. A. H. Pearson, C. G. A. Nix, H. Somers Rivers, G. Wythes, W. Poupard, H. Hooper, J. Davis, P. C. M. Veitch, E. Beckett, A. R. Allan, J. Willard, W. Pope, J. Jaques, O. Thomas, W. Bates, and A. Dean.

Mr. G. MORTIMER, Rowledge, Farnham, showed eight handsome, long fruits each of Cucumbers *Cynure*, *Coronation*, and *Unrivalled*. (Silver Banksian Medal.)

Mr. HARWOOD, Colchester, exhibited a bundle of choice Asparagus, for which a Bronze Banksian Medal was awarded.

MESSRS. WHITELEGG & PAGE, Chislehurst, showed gathered fruits and long, heavily-fruited

growths from under glass of their fine Bramble-berry Phenomenal, the result of crossing the Loganberry with Superlative Raspberry. A Cultural Commendation was awarded, and the exhibitor was asked to submit examples of fruit from out-of-doors later in the season.

MESSRS. JAMES VEITCH & SONS, Chelsea, arranged, on a long table, a superb collection of 80 dishes of vegetables, all tastefully arranged and presenting a singularly attractive feature. Pyramids of Cauliflowers included the varieties Snowball, Pearl, and Dwarf Forcing. Cabbages were represented by excellent samples of Ellams, Market Garden, Wheeler's Imperial, Nonpareil, Incomparable, Mein's No. 1, and Earliest of All. Peas included Duke of Albany, Langley Gem, Earliest Marrow, Gradus, Victor, and Quite Content. There were also Potatos King Edward, Purple Eyes, Gem, and Herd Laddie; Carrots St. Valery, Early Nantes, Early Gem, Matchless, Forcing, and Scarlet Model; Tomatos Sunny Bank, The Hastings, Peach, Sunbeam, and others. Cucumbers, Beans, Celeries, Lettuces, Beets, Turnips, Onions, Mushrooms, and other kinds were also included in the collection. (Gold Medal.)

Peas Abundance, May Queen, World's Record, Pioneer, and Empress of India (Messrs. SUTTON & SONS), Early Morn and Giant Lightning (JAMES CARTER & Co.), and Ready Reckoner (HOLMES & SON, Tain, N.B.) were shown from the Society's gardens at Wisley, having each been awarded three marks or a high commendation.

Strawberry Excelsior (Royal Sovereign × Sir Joseph Paxton).—This variety of Strawberry was exhibited by Mr. T. E. SMILES, Wilmington, Kent. The fruits resembled Royal Sovereign in shape and possessed an excellent flavour, for which the award was made. Plants will be grown at Wisley to test the habit of growth.

AWARDS OF MERIT.

The following varieties of Cucumbers grown under trial at Wisley, and recently inspected by a deputation of the Committee, each received an Award of Merit:—Pride of the Market (BARR & SONS) and Improved Telegraph (JAMES CARTER & Co.). Matchless (JAMES CARTER & Co. and SUTTON & SONS) was also recommended for an Award of Merit, but it was found that this distinction had been already conferred.

ROYAL AGRICULTURAL.

JUNE 26-30. The 72nd annual exhibition of the Royal Agricultural Society was held on these dates at Norwich on an ideally sheltered and picturesque site on the estate of Mr. Russell J. Colman. The show grounds occupied 150 acres, and to cope with the extraordinary traffic connected with the exhibits—the entries amounted to over 10,400—a special station was constructed by the Great Eastern Railway at Crown Point. His Majesty the King, who is the society's president for the year and who is one of the largest and most successful exhibitors of live stock, visited the show on Wednesday. Ministers of Agriculture and members of Parliament of the empire also paid an official visit. The prize list amounted to £10,600.

The horticultural section, which opened on the 27th ult., occupied three canvas tents, together covering 39,000 square feet, and of which the largest was 85 feet wide. It was only in 1905 that horticulture was represented at the Royal Show.

The feature of the horticultural exhibits was the magnificence of the hardy herbaceous plants, Roses and Sweet Peas. The Begonias and some of the Carnations were generally admitted to be better than those seen at the recent Temple Show. Orchids, except for the exhibits of Sir JEREMIAH COLMAN, were poorly represented.

Apart from the strictly horticultural department of the show, gardeners found much of interest in the spraying machines, tree guards, and other sundries. The Cooper laboratory of economic research sent specimens illustrating the damage done by insect pests to fruit trees, and many valuable exhibits by the Woburn and other experimental stations illustrated current work in Mendelism, soil sterilisation, the influence on soils of magnesia, chalk, lime, &c. Daily demonstrations were arranged by the Royal Meteorological Society in the methods of taking weather observations and the use of pilot balloons.

PLANT CLASSES.

In the class for a group of miscellaneous plants occupying 350 square feet, Messrs. J. CYPHER & SON, Cheltenham, were awarded the 1st prize for a beautiful display with a scheme of yellow and orange. At the back were Palms with patches of other colour provided by *Clerodendron fallax* and hybrids of *Fuchsia fulgens*. Crotons and *Humeas* comprised the body of the group, to which lightness was given by the inflorescences of *Oncidium divaricatum* and *Origanum Dictamnus*. *Kalanchoë flammea*, *Nertera depressa* and *Rondeletias* were effectively disposed in the group. 2nd, Mr. W. A. HOLMES, West End Nurseries, Chesterfield.

Messrs. JAS. CYPHER & SONS were the only exhibitors in a class for a collection of Orchids arranged for effect. Their best plants included *Epidendrum prismatocarpum*, *Thunia Wiganiana*, *Cypripedium barbatum* and many *Cattleyas*.

The best exhibit of a group of tuberous-rooted *Begonias* occupying a space of 100 square feet was displayed by Messrs. BLACKMORE & LANGDON, Bath. The quality of the blooms was excellent, and admirable use was made of hanging baskets. The varieties *Lady Cromer*, *Mrs. Peter Blair*, and *Lady Tweedmouth* were especially good. 2nd, Messrs. T. S. WARE, LTD., Feltham.

The class for a collection of hardy herbaceous flowers, with Bamboos, Lilliums and foliage, arranged in a space of 30 feet by 10 feet on the ground, proved a keenly-contested one. Messrs. ARTINDALE & SON, Sheffield, showed the finest exhibit, consisting of a large rock wall, at the foot of which ran a small stream. *Astilbe Morheimii* and *Lemoine's* hybrids, *Campanula Portenschlagiana*, *Sempervivum heugensiacum*, *Geum Rossii*, *Allium pedemontanum* and *Calceolaria polyrhiza* were especially good. 2nd, Messrs. W. & J. BROWN, Peterborough; 3rd, Messrs. WHITELEGG & PAGE, Chislehurst, Kent.

Messrs. JAS. CYPHER & SONS excelled in the class for a collection of stove and greenhouse plants in bloom, having splendid plants of *Clerodendron Balfourii*, *Francisca eximea*, *Erica ventricosa magnifica*, and *Aphelexis macrantha*.

Col. HARBORD's blooms of *Cecilia* and King Arthur Carnations were the best in the show, but Mr. C. S. WATERS, Balcombe, with *Carola*, *Marmion*, *Edith Waters*, &c., was placed 1st. Lord DE RAMSEY, Norwich (gr. Mr. A. Coombe), who was placed 3rd, showed, amongst others, *Maggie Hodgson*, *Mikado*, *Princess of Wales*, and *Helen Gould*.

One of the best classes was that for a group of cut hardy perennials. The 1st prize was won easily by Col. PETRE, Westwick, Norwich (gr. Mr. G. Davison). His best plants included *Lilium Martagon* seedlings, *Astrantia Biebersteinii*, *Iris spuria*, *I. Monnierii*, *Campanula pulla*, *Aquilegia* seedlings, and *Orchis foliosa*. 2nd, Messrs. G. GIBSON & Co., Leeming Bar, Bedale, Yorkshire; 3rd, Messrs. HARKNESS & SONS, Bedale, Yorkshire.

The class for collection of Roses arranged in a space of 15 feet by 5 feet was well filled, the newer varieties being especially well represented. The prizes were awarded to Mr. F. M. BRADLEY, Peterborough; Messrs. W. & J. BROWN, Peterborough; and Messrs. G. MOUNT & SONS, Canterbury, in this order.

Sweet Peas were the most numerously-represented flowers in the show, but most of the exhibits were non-competitive. Almost every raiser exhibited new seedlings or selected stocks.

In the competitive class for Sweet Peas, Mr. ROBT. HOLMES, Tuckwood Farm, Norwich, was awarded the 1st prize, Messrs. E. W. KING & Co., Coggeshall, Essex, the 2nd, and Messrs. S. BIDE & Co., Farnham, the 3rd.

VEGETABLES AND FRUIT.

The Duke of PORTLAND, Welbeck (gr. Mr. Gibson), showed the premier exhibit of eight kinds of vegetables, having splendid produce in Pea Centenary (the pods being 6½ inches long), Tomato Perfection, Cauliflower Magnum Bonum, Carrot Favourite, Dwarf Bean Canadian Wonder, Cucumber King George, Onion White Leviathan, and Potato Ideal. 2nd, Hon. W. LOUTHER, Wickham Market (gr. Mr. A. Andrews); 3rd, Col. ROWS, Worstead House, Norfolk (gr. Mr. Chettleburgh).

The Duke of PORTLAND showed the only collection of 30 dishes of ripe fruit. The group was enlivened by a free use of Carnations. Foster's Seedling, Madresfield Court, and Black Ham-

burgh Grapes, Cherries, Peaches, Nectarines, Figs, Apples, and Melons were all good.

AWARDS OF MERIT.

Lilium Martagon Hon. Mrs. PETRE.—A seedling, the reverse of the petals being pink-coloured, the inside creamy-flesh and scarcely spotted. Shown by Col. PETRE, Westwick (gr. Mr. Davison).

Begonia Lady Cromer.—The flowers of this variety are large, soft pink, cream-centred, and finely crisped. Shown by Messrs. T. S. WARE, LTD., Feltham.

B. Mrs. Peter Blair.—A large, pure-white double variety. Shown by Messrs. BLACKMORE & LANGDON, Bath.

The Newberry.—The hybrid Loganberry & Raspberry which was submitted to the Fruit Committee at the last meeting of the Royal Horticultural Society (see p. 430). Shown by Messrs. WHITELEGG & PAGE, Chislehurst.

NON-COMPETITIVE EXHIBITS.

Sir JEREMIAH COLMAN, Gatton Park (gr. Mr. J. Collier), made an effective display of Orchids. The centre piece was of *Miltonias*, with a winding spray of *Oncidium macranthum*. The finest plants included *Dendrobium Arthur Ashworth*, *Odontioda Thwaitesiae*, *Stanhopea Wardii*, *Bulbophyllum virescens*, *Masdevallia elephanticeps*, and *Anguloa Cliftonii*. Messrs. STUART LOW & Co., Bush Hill Park; Messrs. JAMES VEITCH & SONS, Chelsea; and Mr. G. W. MILLER, Wisbech, also made displays of Orchids. Messrs. J. VEITCH & SONS, Chelsea, staged an attractive group, in which good use was made of *Thomsonii*, *Souvenir de T. Rochford*, and other *Crotons*, *President de la Devansaye* and *Sir J. Goldsmith Caladiums*, *Marantas*, *Dracenas*, and *Kalanchoës*. Messrs. J. FEED & SON, Norwood, exhibited specimen *Caladiums*, the varieties *candidum*, *John Peed*, *Red Indian*, *L'Autonne*, and *Triomphe de Comte* being the most noteworthy.

Messrs. R. WALLACE & Co., Colchester, arranged in the large tent a group of hardy plants that was unrivalled in design and variety. It included an informal water-garden, an old English sunken garden, a rock wall, a shady border, a paved terrace, and an herbaceous border. Borders formed of dwarf Lavender and the pink Pentstemon Myddleton Gem, and of *Dracocephalum pterigrinum* and Rosemary were particularly pleasing.

Messrs. R. H. BATH, Ltd., Wisbech, showed a large collection of *Delphiniums*, relieved by pink *Astilbes*, Carnations and white *Campanulas*.

Messrs. BAKERS, Wolverhampton, made a pretty display of water plants, including *Iris*, *Typha*, *Funkia*, *Bambusa*, *Pinnula* and *Sarracenia*.

Exhibits of hardy border plants were also staged by Messrs. W. & J. BROWN, Peterborough; W. FELLS & SON, Hitchin; JOHN FORBES, LTD., Hawick; KING'S ACRE NURSERIES, Hereford; F. LILLEY, Guernsey; G. MASSEY, Spalding; G. W. MILLER, Wisbech; R. C. NOTCUTT, Woodbridge; PENNELL & SONS, Lincoln; and F. SMITH & Co., Woodbridge.

Messrs. W. ARTINDALE & SON, Sheffield, showed a large group of *Violas* in sprays of 12 with fronds of Bracken against a background of black velvet.

Messrs. HOBBIES, LTD., Dereham, made a large and pretty display with Roses, making a free use of Ramblers on iron supports and pergolas.

Messrs. BEN. CANT, Colchester, showed Roses very effectively, including *Mme. Melanie Souper*, *Mrs. A. Tate*, *Harry Kirk*, and *Elizabeth*.

Messrs. A. DICKSON, LTD., Belfast, showed Irish-raised Roses, such as *Mrs. Cornwallis West*, *Viscount Carlow* and *Mabel Drew*.

Messrs. DANIELS BROS., Norwich, made a free arrangement of Ramblers and Dwarf Polyantha Roses, and also had the honour of decorating the Royal Pavilion.

Exhibits of Roses were also made by Messrs. A. J. & C. ALLEN, Norwich; W. & J. BROWN, Peterborough; J. BURRELL & Co., Cambridge; W. CUTBUSH & SON, Highgate; KING'S ACRE NURSERIES, Hereford; S. LOW & Co., Bush Hill Park; and H. MORSE, Norwich.

The leading exhibit of Sweet Peas was a collection of 85 varieties shown by Messrs. DODDIE & Co., Edinburgh, followed by that from Mr. R. BOLTON, Carnforth. Other exhibitors of these flowers included Messrs. S. BIDE & SONS, Farn-

ham; T. CROSS, Bury St. Edmunds; DANIELS BROS., Norwich; R. HOLMES, Norwich; E. W. KING, Coggeshall; J. K. KING, Coggeshall; G. STARK & SON, Great Ryburgh; ROBERT SYDENHAM LIMITED, Birmingham; TOOGOOD & SON, Southampton; and W. J. UNWIN, Histon.

Carnations were shown by Mr. C. ENGELMANN, Saffron Walden; W. CUTBUSH & SON, Highgate, and STUART LOW & Co., Enfield.

Messrs. SUTTON & SONS, Reading, arranged an admirable display in the large tent of *Gloxinias* and *Begonias*, edged with a dwarf strain of *Nemesia strumosa* Suttonii.

Messrs. FISHER, SON, & SIBRAY, Sheffield, showed a group of choice hardy shrubs and Conifers.

Messrs. JOHN WATERER & SONS, LTD., Bagshot, showed *Kalmias*, *Maples*, vines and American plants.

Messrs. H. B. MAY & SONS, Edmonton, and H. N. ELLISON, West Bromwich, showed choice Ferns.

Messrs. GODFREY & SON, Exmouth, exhibited *Pelargoniums*, *Trachelium* and *Campanula*.

Messrs. JARMAN & Co., Chard, staged *Centaureas* and *Zonal Pelargoniums*.

Messrs. STUART LOW & Co., Bush Hill Park, exhibited *Chianthus Pampieri*, *Blue Hydrangeas*, and *Ericas*.

Mr. A. J. A. BRUCE, Manchester, showed *Marguerites Mrs. F. Sander* and *Blush Queen Alexandra*.

Outside the horticultural tents groups were also arranged by Messrs. J. CARTER & Co., Holborn; DICKSONS, LTD., Chester; DICKSON, BROWN & TAIL, Manchester; DICKSON & ROBINSON, Manchester; LITTLE & BALLANTYNE, Carlisle; R. C. NOTCUTT, Woodbridge; ONE & ALL AGRICULTURAL ASSOCIATION, London; J. PIPER & SONS, London; G. STARK, Great Ryburgh; SUTTON & SONS, Reading; TOOGOOD & SON, Southampton, and E. WEBB & SONS, Stourbridge.

The KING'S ACRE NURSERIES, Hereford, arranged a large display of fruit trees in pots.

Messrs. DANIELS BROS., LTD., Norwich, exhibited vines in pots, Messrs. LAXTON BROS., Bedford, Strawberries, and Mr. T. E. DAWES, Syderstone Nurseries, Norfolk, Rhubarbs.

Exhibits of vegetables were arranged by Messrs. J. K. KING, Coggeshall, Messrs. G. MASSEY, Spalding, and SUTTON & SONS, Reading.

NON-COMPETITIVE AWARDS.

Large Gold Medals to Messrs. R. Wallace & Co., Colchester, for hardy plants; Sir J. Colman, Bart., Gatton, for Orchids; and Messrs. Sutton & Sons, Reading, for vegetables and flowers.

Gold Medals to Messrs. Hobbies, Ltd., Dereham, for a Rose pergola and a temple of Roses; Dobbie & Co., Edinburgh, for Sweet Peas; Daniels Bros., Norwich, for cut flowers and Roses; Ben. R. Cant & Sons, Colchester, for Roses; J. Veitch & Sons, Chelsea, for stove and greenhouse plants; and Fisher, Son & Sibray, Sheffield, for hardy shrubs.

Silver-gilt Medals to Messrs. A. J. & C. Allen, Norwich, for pot Roses; King's Acre Nurseries, Hereford, for fruit trees, &c.; Stuart Low & Co., Enfield, for Roses, Carnations, and Orchids; H. B. May & Sons, Edmonton, for Ferns; R. Bolton, Carnforth, for Sweet Peas; R. H. Bath, Ltd., Wisbech, for *Delphiniums* and *Pyrethrums*; and Blackmore and Langdon, Bath, for *Delphiniums*.

Silver Medals to Messrs. W. Cutbush & Son, Highgate, for Roses and Carnations; C. Engelmann, Saffron Walden, for Carnations; H. N. Ellison, West Bromwich, for Ferns and trained trees; R. C. Notcutt, Woodbridge, for Roses and herbaceous plants; A. Dickson, Belfast, for Roses; Baker's, Wolverhampton, for flowers and water plants; Toogood & Sons, Southampton, for Sweet Peas; C. W. Breadmore, Winchester, for Sweet Peas; G. Massey, Spalding, for flowers and vegetables; J. Piper & Sons, Bayswater, for trained Box trees; G. Stark & Son, Gt. Ryburgh, Norfolk, for Sweet Peas; J. K. King, Coggeshall, for Sweet Peas and vegetables; W. Fells & Son, Hitchin, for Sweet Peas and herbaceous plants; Young & Co., Cheltenham, for Carnations; Laxton Bros., Bedford, for Strawberries; Robert Sydenham Limited, Birmingham, for Sweet Peas; W. Artindale & Son, Ltd., Sheffield, for *Violas*, &c.; J. Burrell & Co., Cambridge, for Roses; F. Cant and Co., Colchester, for Roses; and H. Morse, Norwich, for Roses.

MARKETS.

COVENT GARDEN, June 28.

Cut Flowers, &c.: Average Wholesale Prices.

Table listing various cut flowers and their prices, including Arums, Carnations, Gypsophila, and others.

Cut Foliage, &c.: Average Wholesale Prices.

Table listing various cut foliage and ferns and their prices, including Adiantum, Aspidistra, and others.

Plants in Pots, &c.: Average Wholesale Prices.

Table listing various potted plants and their prices, including Aralia, Asparagus, and others.

Fruit: Average Wholesale Prices.

Table listing various fruits and their prices, including Apples, Apricots, Bananas, and others.

Fruit: Average Wholesale Prices (continued).

Table listing various fruits and their prices, including Cherries, Currants, Figs, and others.

Vegetables: Average Wholesale Prices.

Table listing various vegetables and their prices, including Artichokes, Asparagus, Beans, and others.

REMARKS.—This week's shipment of Australian and Tasmanian Apples arrived in a very unsatisfactory condition...

Old Potatoes.

Table listing prices for old potatoes, including Dunbars and Maincrop.

New Potatoes.

Table listing prices for new potatoes, including Jersey and St. Malo.

REMARKS.—Stocks of old Potatoes are nearly finished; they are making good prices.

Obituary.

THOMAS C. WILSON.—Mr Thomas C. Wilson, nurseryman, of Brighton, U.S.A., died as the result of a railway accident...

JAMES WALKER.—Mr. James Walker, one of the oldest and best-known of Scottish gardeners, died at Rivaldsgreen, Linlithgow, on June 6.

ANSWERS TO CORRESPONDENTS.

LARVÆ IN PINUS INSIGNIS: W. E. The larvæ attacking the Pinus are those of the Pine Shoot Tortrix Moth (Retinia buoliana Schiff). They attack the leading buds or whole whorls of buds...

NAMES OF PLANTS: Rockery. 16, Arabis alba; 17, Gypsophila Sundermannii; 18, Viola sylvatica; 19, Epimedium sp.; 20, Silene alpestris; 21, Iberis gibraltarica; 22, Saxifraga Guildford Seedling; 23, Achillea rupestris; 24, not recognised; 26, Armaria balearica; 27, Aster alpinus affinis; 28, Arabis alba variegata; 29, Saxifraga cespitosa; 30, Pernettya mucronata; 31, Genista hispanica.—W. M. C. Viburnum Opulus.—E. S. 1, Viburnum tomentosum var. plicatum; 2, Escallonia macrantha; 3, Deutzia crenata; 4, Pernettya mucronata; 5, Choisya ternata; 6, Prunus cerasifera (Myrobalan or Cherry Plum). It is probable that your hedge of Prunus cerasifera will need clipping twice a year, in June and again in September.—M. H. 1, Calycanthus glaucus; 2, Staphylea pinnata; 3, We cannot name the variety of Rose from such a poor specimen.—Pillinger. The spiny shoot is Berberis Wallichiana; the other Veronica salicifolia.—C. Wright. The mauve coloured Rhododendron with semi-double flowers is R. catalwbiense var. fastuosum flore pleno. The other appears to be an unnamed seedling from R. catalwbiense.—C. B. 1, Fumaria officinalis; 2, Euphorbia helioscopia; 3, Linaria Cymbalaria; 4, Epilobium montanum; 5, Anagallis arvensis; 6, Oxalis corniculata.—I. L. A seedling form of Lobelia erinus.—C. H. Lotus siliquosus (a casual).—T. M. F. 1, Dianthus sylvestris; 2, specimen too small to identify; 3, Nothochlana Marante; 4 and 5, Nephrodium dilatatum.—W. H. L. 1, Dendrobium moschatum; 2, Cologyne Dayana; 3, Tecoma jasminoides; 4, Phyllanthus nivosus variegatus; 5, Abutilon Savitzii; 6, Begonia riciniifolia.—T. T. 1, Epidendrum nemorale; 2, Oncidium Wentworthianum; 3, O. pubes; 4, Ada aurantiaca; 5, Odontoglossum Wallisii; 6, Masdevallia xanthina.—Foreman. 1, Pteris tremula; 2, P. serrulata; 3, P. cretica; 4, Adiantum Capillus-veneris; 5, A. hispidulum.—E. O., Victoria Park. Populic alba.

Communications Received.—Mrs. G. T.—Bazaar—H. B.—Constant Reader—A. H.—A. T. & Son—C. H. P.—W. H. W.—K. G. F.—W. E. T. L.—E. T.—J. T.—Carlisle—G. H. J., Cornwall—K. and B., Darlington—W. E.—F. O'F.—T. W.—W. H. L., Somerset—F. J. C.—J. B. H.—J. O'B.—A. and B.—B. W. & Co.—W. E. B.—W. K. Aberdeen—E. M.—M. K., Farnham—E. J. W.—A. B.—Ireland—E. H. W.—J. J.—C. H. C.—T. S.—H. W.—A. B.—"Cultor"—S. C.—J. S.—A. W.—S. B.—C. H.—H. W. P.—A. B., Cheshire—F. N.—I. S. E.

