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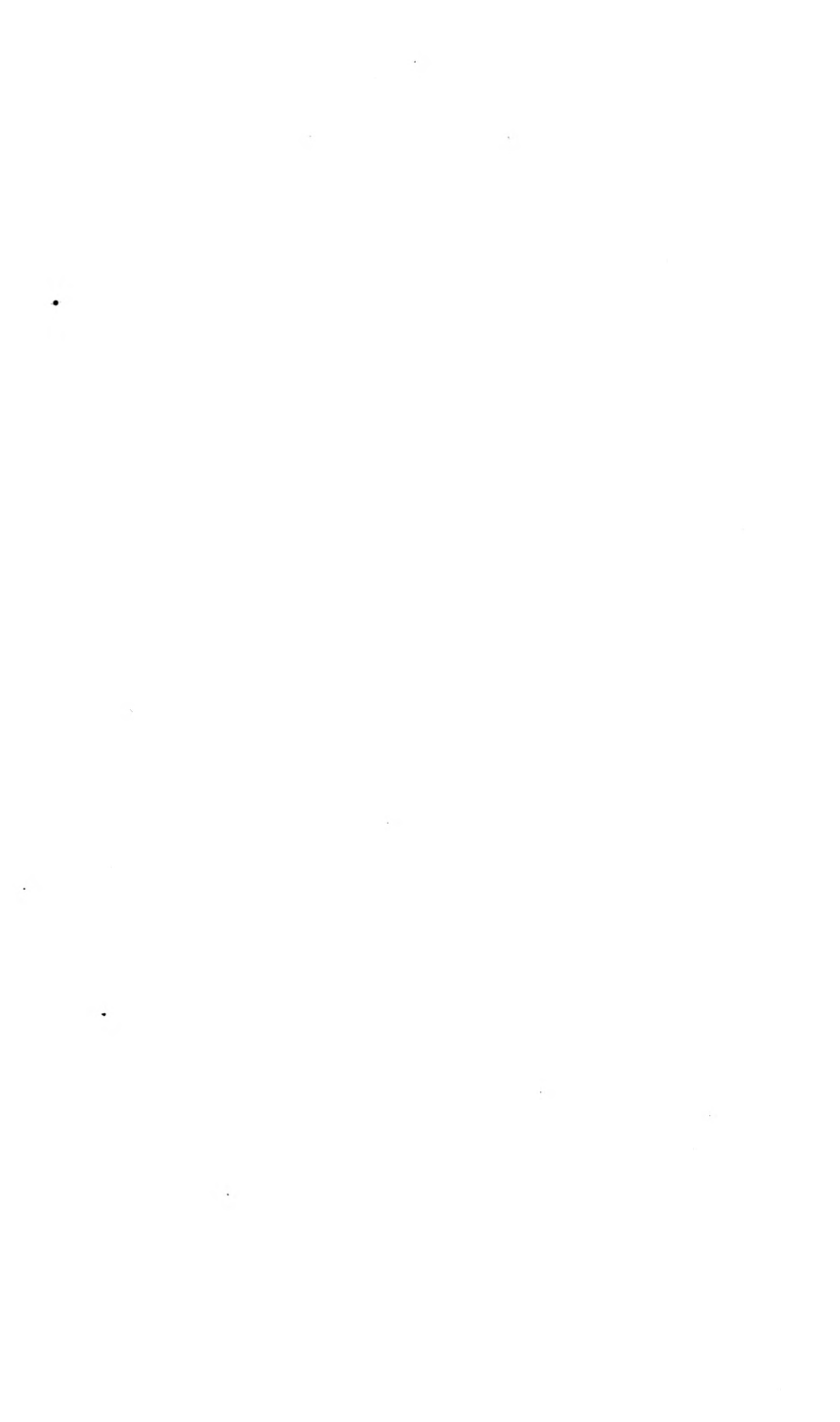
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THE MAGAZINE
OF
HORTICULTURE,

BOTANY,

AND ALL USEFUL DISCOVERIES AND IMPROVEMENTS IN

RURAL AFFAIRS.

“Je voudrais échauffer tout l'univers de mon gout pour les jardins. Il me semble qu'il est impossible qu'un méchant puisse l'avoir. Il n'est point de vertus que je ne suppose à celui que aime à parler et à faire des jardins. Pères de famille, inspirez la jardinomanie à vos enfans.”—*Prince de Ligne.*

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AUTHOR OF THE “FRUITS OF AMERICA.”

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CONTENTS.

ORIGINAL COMMUNICATIONS.

GENERAL SUBJECT.

The Progress of Horticulture	By the Editor,	1
English Nurseries. By H. W. S.,		14
On Public Parks. By Jasper Standstill,		37
Fruit Houses By the Editor,		65
Why does not Running Water Freeze? By Wilson Flagg,		70
American Pomological Society. By the Editor,		129
Acclimatization. By Wilson Flagg,		103
Rainy Day Scribblings. By Geo. Jaques,		108
A Leading Item. By F. R. Elliott,		115
Former Experiments in Hybridizing. By Wilson Flagg,		166
Insects and Fumigation. From the Gar- deners' Chronicle,		208
Hybridization of Plants. By the Editor,		225
Culture and Product of the Vine. By the Editor,		257
Objects to be Sought in Pomological Sci- ence. By Wilson Flagg,		262
The Season and Fruit in England. By T. Rivers,		294
The Spring Garden By the Editor,		321
The Close of the Magazine By the Editor,		353

HORTICULTURE.

New Vegetables,		39
The Rippowam Strawberry. By J. W. Fauikner,		74
The Barcelona, or Sicily Nut. By L. Jenny, Jr.,		79
Cordon Apple Trees,		81
The Iona and other Grapes. By B.,		140
The Fruits of 1867. By the Editor,		97
Culture of the Fig in Pots,		117
Former Miscellaneous Experiments in Fruit Culture. By Wilson Flagg,		202
The Martha Grape By Geo. W. Campbell,		236

Grape Growing in the West.		235
Our New Fruits. By the Editor,		289
The Cultivation of the Strawberry. By Edmund Faile,		326
Grape Growing at Castle Kennedy. From the Gardeners' Chronicle,		329
Pomological Gossip,	87, 116, 141, 173, 213, 246, 268, 299, 334	

ARBORICULTURE.

The Coniferous Trees By the Editor,		193
Evergreens at Wodenethe By H. W. Sar- gent,		231
Arbor Vites. By Glasnevin,		358

FLORICULTURE.

Some California Plants, worthy the atten- tion of Florists By J. L. R.,		16
The new Feathered Crimson Ceosia. By the Editor,		21
Subtropical Gardening,		33, 161
Notice of some interesting Herbaceous Plants from California. By J. L. Russell,		42
Dianthus Dentosus. By the Editor,		56
Tricyrtis lirta. By the Editor,		147
Bambusa Aurea By the Editor,		121
The Florida Air Plant. By the Editor,		176
Lupinus polyphyllus. By the Editor,		178
Schizostylis coccinea By the Editor,		217
The Florida Air Plant By John L. Russell,		249
Lilium Colchicum. By the Editor,		251
Random Thoughts on Wild Plants. By A. C. R.,		270
Palms as Decorative Plants,		273
Varieties of Ferns. By John L. Russell,		296
Notes on Lilies,		302
The Dahlia,		360
On the Occurrence of the Autumnal Col- chicum. By John Lewis Russell,		367

LIST OF ENGRAVINGS.

TREES AND PLANTS.				OPERATIONS.			
fig.		page.	fig.		page.		
.5.	Bambusa Aurea,	122	3.	Double Cordon Mode of Training Dwarf Apples,	83		
2	Dianthus Dentosus,	56	4.	Single Cordon Mode of Training Dwarf Apples,	84		
1.	Feathered Crimson Celosia,	22					
9.	Lilium Colchicum,	251					
7	Lupinus Polyphyllus,	179					
8.	Schizostylis Coccinea,	220					
6.	Tricyrtis Hirta,	147	FRUITS.				
				STRAWBERRIES.			
				10.	President Wilder,	300	

LIST OF PLANTS.

In the body of the Magazine, a few errors occur in the spelling of the botanical names, the capitalizing the generic and specific names, their derivation and accentuation; these are all corrected in the following list of plants:

List of New Azaleas,	146	List of Hardy Evergreens,	233
Lists of Gladiolus,	149, 273	List of Lilles,	304
Lists of Hyacinths,	150, 152	Lists of Subtropical Plants,	34, 164, 368
List of Violets,	123	List of Dracenas,	36
Lists of New Hybrid Coleus,	180, 217	List of Thujas,	358
A'bies cephalonica, 15, 195, 233	Asplenium rhæticum, 296	Campánula filiformis,	42
Douglasii, 15, 233	trichomanes, 297	Canna A'neei,	34
excelsa, 196	Astragalus Gilbsii, 42	Bihorelli,	11
Menziesii, 15	hypoglottis, 42	gigantea,	35
Nordmanniana, 15, 233	Attalea speciosa, 297	negricans,	35
orientalis, 15, 233, 196	spectabilis, 297	Warszewiczii,	35
taxifolia, 14	Azalea La Victorie, 146	zebrina,	35
Abronia Crux maltæ, 42	Bahiopsis lanata, 42	Caryota urens,	277
Abutilon Thomsonæ, 312	Bambusa aurea, 36, 121	Celosia pyramidalis versicolor,	23
Agave americana, 36	Fortanæ,	Centaurea gymnocarpa,	165
applanata, 36	metake,	ragusina,	165
filifera, 11	Begonia boliviensis, 51, 182	Cerastium Biebersteinii,	165
Milleri, 36	Clarkei,	tomentosum,	165
picta, 11	Veitchii,	Ceroxylon niveum,	277
Schidigera, 24	Bellis aeneobifolia, 151	Cestrum elegans,	182
xylinacantha, 54, 182	Billbergia sphacelata, 25	Chama'rops,	36
Allamanda nobilis, 51	Biota cristata, 233	excelsa,	36
Allium anceps, 20	japonica, 233	humilis,	36
angustifolium, 20	orientalis, 199	stauracantha,	275
unifolium, 20	Bleta Scherrattiana, 25	Clerodendron serotinum,	54
Alocasia Jenningsii, 52	Bloomeria aurea, 18	Chlorogalum angustifolium, 19	
internedia, 52	Bocconia cordata, 164	pomeridianum,	19
Alpinia nutans, 166	japonica, 164	divaricatum,	19
Anarctus tricolor, 2-0	Bonapartea Jincea, 166	Chrysanthemum Sensation,	155
Amaryllis Alberti, 53	Bougainvillea spectabilis, 145	Cineraria maritima,	37, 165
pardana, 25, 53	Brodia'ea terrestris, 17	Clematis Standishii,	254
Ampelopsis Veitchii, 311	Brugmansia suaveolens, 36	several var,	
Aphelandra Roezii, 52	Caladium Chas. Verdier, 11	Cocos australis,	277
Aralia papyracea, 36	Isidore Leroy,	coronata 36, 277	
Aristolochia Goldiana, 51	Madame Houillet,	flexuosa,	277
Araucaria imbricata, 14	Rautimil,	Colchicum autumnale,	367
Arca lutescens, 276	regale,	variegata,	367
rubra, 276	pietum,	Coleus Bausesi,	217
sapida, 276	Calochortus Illaenus, 17	Berkeleyi,	217
Asplenium filix foemina, 296	Calluna vulgaris, 367	Marshallii,	218
Frizellæ, 297	Camellia Angelo Cocche, 55		
marinum, 296	Campánula carpatica, 285		

CONTENTS.

v

<i>Coleus Revesii</i> , 219	<i>Hibiscus sinensis grandiflora</i> , 36	<i>Polytichum angulare plumosum</i> , 298
<i>Veitchii</i> , 54	<i>Hippophae rhamnoides</i> , 386	<i>Polypodium vulgare</i> , 298
<i>Collisia solitaria Scrophulariaceae</i> , 43	<i>Hydrangea paniculata</i> , 53	<i>Omnilacerum</i> , 298
<i>Colocasia esculenta</i> , 35	<i>stellata proffera</i> , 53	<i>Pyrus coronaria</i> , 250
<i>gigantea</i> , 35	<i>Ipomoea Gerrardii</i> , 181	<i>Rozzia regia</i> , 166
<i>Convallaria majalis variegata</i> , 341	<i>iresine Herbstrii</i> , 281, 370	<i>Rudgea macrophylla</i> , 181
<i>Cordylone indivisa</i> , 166	<i>Iris Susiana</i> , 323	<i>Sabal Adansonii</i> , 276
<i>Corypha australis</i> , 36, 275, 282	<i>Ixora princeps</i> , 51	<i>palmetto</i> , 276
<i>Crœton pictum</i> , 52	<i>Juba spectabilis</i> , 276	<i>umbraecaulifera</i> , 276
<i>Crocus biflorus</i> , 151	<i>Juniperus communis</i> , 199	<i>Salvia argentea</i> , 165
<i>Albion</i> , 151	<i>oblonga pendula</i> , 15	<i>gesneriflora</i> , 282
<i>Cupressus Goveniana</i> , 14	<i>recurva</i> , 15	<i>anchetia nobilis</i> , 52
<i>macrocarpa</i> , 14	<i>Latania borbónica</i> , 274	<i>variegata</i> , 312
<i>Lawsoniana</i> , 15	<i>Lathyrus Lanzwertii</i> , 44	<i>Saxifraga Fortunii</i> , 11
<i>lusitânica</i> , 15	<i>Lewisia alba</i> , 45	<i>Schizostylis coccinea</i> , 220
<i>Cycas revoluta</i> , 282	<i>rediviva</i> , 45	<i>Senferthia elegans</i> , 277, 313
<i>Cyclothra cerulea</i> , 16	<i>Libocedrus decurrens</i> , 14	<i>Sisymbrium Allioni</i> , 48
<i>Cyperus alternifolius</i> , 36	<i>Lilium angustifolium</i> , 18	<i>Sisyrinchium</i> , 48
<i>Cyrtodeira chontalensis</i> , 52	<i>auratum</i> , 124, 278, 280, 282, 302, 371	<i>Smilax longifolia fol. var. praguea paniculata</i> , 48
<i>Dæmonorops melanochetis</i> , 277	<i>candidum</i> , 805	<i>umbellata</i> , 48
<i>Dahlia imperialis</i> , 185	<i>Catesbaei</i> , 272	<i>Stemonacanthus Pearcei</i> , 26, 52
<i>Dalea Nuttii</i> , 54	<i>colchicum</i> , 251	<i>Stokesia cyanea</i> , 369
<i>Dalechampia Roezlidna</i> , 24, 51, 311	<i>Leichtlinii</i> , 184	<i>Streptanthus tortuosus</i> , 48
<i>rosea</i> , 313	<i>longiflorum</i> , 124	<i>Tacsonia Buchananii</i> , 51, 55
<i>Delphinium flammœum</i> , 43	<i>pardalinum</i> , 18	<i>Taxodium sempervirens</i> , 14
<i>Deutzia gracilis</i> , 156	<i>parvum</i> , 19	<i>Taxus adpressa</i> , 234
<i>Dianthus dentosus</i> , 56	<i>Philadelphicum</i> , 271	<i>canadensis</i> , 234
<i>Dieffenbachia Barraquinii</i> , 11	<i>sup. rhum</i> , 272	<i>Teberium glandulosum</i> , 49
<i>granlis</i> , 11	<i>Washingtonianum</i> , 19	<i>Thrinax argentea</i> , 276
<i>Diplazium amoena</i> , 51	<i>Linocyrus dentatus</i> , 45	<i>elegans</i> , 276
<i>Draba violacea</i> , 180	<i>Lupinus calcarratus</i> , 46	<i>Thuja aurea</i> , 233
<i>Dracaena Cooperii</i> , 10	<i>caudatus</i> , 46	<i>Donniana</i> , 15
<i>surculosa maculata</i> , 183	<i>confertus</i> , 46	<i>frenoloides</i> , 233
<i>Veitchii</i> , 11	<i>polyphyllus</i> , 178	<i>gigantea</i> , 14, 234
<i>Echinopernum nervosum</i> , 43	<i>Stivieri</i> , 46	<i>Hoveyi</i> , 233
<i>Elæis guineensis</i> , 277	<i>Maranta majestica</i> , 11	<i>Lobbii</i> , 15, 234
<i>Epilobium angustifolium</i> , 271	<i>rosea picta</i> , 10	<i>occidentalis</i> , 200
<i>Epiphyllum truncatum</i> , 252	<i>Mentzelia cordata</i> , 47	<i>Thujopsis borealis</i> , 234
<i>Eritrichium connatifolium</i> , 43	<i>Veitchiana</i> , 47	<i>Tillandsia usneoides</i> , 176
<i>Erodium macradenium</i> , 183	<i>Mertensia stomatechoides</i> , 47	<i>utriculata</i> , 249
<i>Exochorda grandiflora</i> , 250	<i>Musa Ensète</i> , 93, 369	<i>Torreya taxifolia</i> , 234
<i>Ficus dealbata</i> , 53	<i>Myosotis Empress Elizabeth</i> , 11, 145	<i>Tricyrtis hirta</i> , 147
<i>elastica</i> , 36	<i>Myrtus Chekin</i> , 25	<i>nigra</i> , 148
<i>Fritillaria viridis</i> , 17	<i>Nægèlia fulgida</i> , 51	<i>Trillium californicum</i> , 49
<i>Fulchironia senegalensis</i> , 276	<i>Nerium splendens</i> , 279	<i>Tritelèia uniflora</i> , 155
<i>Funkia alba</i> , 279	<i>Nymphaea odorata</i> , 71	<i>Trithrinax mauritiaeformis</i> , 277
<i>Galium multiflorum</i> , 44	<i>Osmunda regalis</i> , 298	<i>Veronica crystallina</i> , 18
<i>stellatum</i> , 43	<i>Pandanus variegata</i> , 36	<i>Veronica variegata</i> , 155
<i>Gentiana crinita</i> , 61	<i>utilis</i> , 36	<i>Viola aurea</i> , 49
<i>Geonoma magnifica</i> , 277	<i>Pentstemon canasobarbata</i> , 47	<i>chrysantha var nevadensis</i> , 50
<i>Gladiolus Bowieensis</i> , 156	<i>tria</i> , 47	<i>cornuta</i> , 157
<i>Gloxinia hypocyrtifolia</i> , 181	<i>cerrosensis</i> , 47	<i>lutea</i> , 23
<i>Gomphia theophrasta</i> , 24	<i>rostriflorum</i> , 47	<i>pedata</i> , 55
<i>Griffonia Blumenavia</i> , 53, 184	<i>Phoenix dactylifera</i> , 276	<i>sequoensis</i> , 49
<i>hyacinthiana</i> , 53	<i>Phoridium tenax</i> , 36	<i>Vrièsia gigantea</i> , 54
<i>Hedyclium Gardnerianum</i> , 36	<i>Pinus Lambertiana</i> , 232	<i>Wahlenbergia californica</i> , 50
<i>Hernandia balsamifera</i> , 44	<i>ponderosa</i> , 14, 234	<i>Wigandia caracasana</i> , 36, 166
<i>luxulafolia</i> , 44	<i>Pleroma sarmentosa</i> , 53	<i>Yucca aloefolia</i> , 36
<i>Hesperis hyacinthinum</i> , 18	<i>Podocarpus japonica</i> , 15	<i>glauca</i> , 36
<i>Lewisii</i> , 18	<i>Po emonium variegatum</i> , 155	<i>recurva</i> , 36
<i>Hibiscus Cooperii</i> , 36	<i>Polyanthus narcissus</i> , 323	

LIST OF FRUITS.

APPLES.					
Gravenstein,	102	Madresfield Court Black,	88	Mary,	216
Hubbardston,	102	Main,	7, 141	Margaret,	216
Moore's Extra,	175	Martha,	139, 175, 236	Newhall,	101
Nonsuch,	27	Mary Ann,	350	Reeder's Seedling,	216
Nonpareil,	27	Maxatawny,	139	Sarah,	101
Warfield,	87	Montgomery,	346	Seckel,	69
Williams,	102	Mrs Pince's Muscat,	337	Seedling,	101
		Muscat Hamburg,	329	Sheldon,	68, 101, 215
		Muscat of Alexandria,	332	Sieule,	66
		Norton's Virginia,	138, 239, 349	Swan's Orange,	101, 215
		Onondaga,	248	Tyson,	215
BLACKBERRIES.		Rebecca,	350	Vicar of Winkfield,	216
Dorchester,	100	Rogers' No. 1,	138, 309, 350	Weeping Willow,	101
Kittatinny,	100, 132, 286	Rogers' No. 3,	138, 350	Winter Nels,	68, 215
Lawton,	133	Rogers' No. 4,	102, 138, 309	Wredow,	66
Wilson,	100, 286	Rogers' No. 9,	138	List of,	101, 214, 247
List of,	285	Rogers' No. 15,	102, 309	List of New,	216
		Rogers' No. 19,	138	List of New Seedling,	101
		Rogers' No. 22,	7, 138		
		Rogers' No. 24,	139		
		Rogers' No. 43,	345	PLUMS.	
		Royal Ascot,	88, 116	Bonne Bouche,	90
		Salem,	7, 138, 240, 345		
		Sanbornston,	142	RASPBERRIES.	
		Senasqua,	316	Clark,	100, 131
		Seneca Seedling,	345	Doolittle,	132
		Trebbiano,	330	Mammoth Cluster,	337
		Walter,	240, 345	Naomi,	248
		White Nice,	330	Philadelphia,	100, 131
		List of,	137, 173, 348	Kneivt's Giant,	100
		List of New,	336		
		List of New Seedling,	103, 210, 347	STRAWBERRIES.	
				Agriculturist,	7, 74, 135, 247
				Bicton Pine,	74
				Boston Pine,	99, 246
				Brighton Pine,	246
				Buffalo,	134, 247
				Charles Downing,	301
				De Jonghe's Seedlings,	299
				Downer's Prolific,	135
				Dr. Hogg,	90
				Faulkner's King,	74
				Ferdinand Gloede,	301
				Frogmore Late Pine,	247
				Green Prolific,	135
				Hathaway's Seedlings,	269
				Hovey,	246
				Jenny Lind,	247
				Jucunda,	7, 99, 135
				La Constante,	99, 247
				Lady Finger,	135
				Mr. Radelyffe,	90
				Mrs. Nicholson,	90
				Mrs. Standish,	90
				McAvoy,	134, 247
				Nicanor,	269
				No. 60,	99
				No. 13,	99, 248
				Perpetual Pine,	90
				President Wilder,	248, 299
				Rippowam,	8, 74
				Rivers' Eliza,	8, 74, 77
				Romey n's Seedling,	270
				Scott's Seedling,	247
				Gen. Todleben,	8
				Souvenir de Kieff,	90
				The Lady,	90
				Triomphe de Gand,	135
				Trumpet,	269
				Wilder,	301
				Wilson,	99, 247
				Lists of,	135, 246

LIST OF VEGETABLES.

Beans, Giant Wax,	12	Melons, Hovey's New Mi-	12	Potatoes, Sebec,	12
Cabbages, Early Schwein-		norca,	12	Milky White,	94
furth,	12	Peas, Carter's First Crop,	12	Radish, Rat Tail,	278
Egg Plant, Pekin,	12	Dan O'Rourke,	189	Spinach, New Zealand,	341
Melons, Denbies' Green-		Laxton's Long Pod,	12	Tomatoes, Keyes' Prolific,	11,
fleshed,	90	Sutton's Ringleader,	189	Tilden,	11, 61
Dr Hogg,	90	Potatoes, Early Goodrich,	12		

LIST OF CORRESPONDENTS.

A. C. R.,	270	Flagg, Wilson,	70, 103, 116, 202, 262
B.,	140	Glasnevin,	358
Campbell, Geo. W.,	236	H. W. S.,	14
Editor, 1, 21, 23, 33, 39, 50, 56, 65, 81, 87, 90,		J. L. R.,	16
94, 97, 116, 117, 121, 129, 141, 145, 147,		Jaques, Geo,	108
161, 173, 176, 178, 179, 193, 213, 217, 220,		Jenney, L., Jr.,	79
225, 238, 246, 251, 257, 268, 272, 273, 289,		Rivers, T.,	294
299, 302, 306, 311, 321, 334, 338, 353		Russell, John Lewis,	42, 219, 296, 367
Elliott, F. R.,	115	Sargent, H. W.,	231
Faile, Edmund,	326	Standstill, Jasper,	37
Faukner, J. W.,	74		

GENERAL INDEX.

A Leading Item,	115	Kale, New Variegated,	93
Acclimatization,	103	Lachenalias,	369
American Pomological Society,	129	Lily of the Valley, How to Grow it,	340
Apple Trees, Cordou,	81	Lily Showing,	369
Arbor Vitæ, New Dwarf,	281	Lilies The,	272
Arbor Vitæ,	358	Notes on,	302
Bambusa Aurea,	121	Lilium Colchicum,	251
Barberry, The,	60	Liliums,	124
Barcelona, or Sicily Nut,	79	Lime, The as a Street Tree,	282
Bedding Out,	155	Lupinus Polyphyllus,	178
Bedding at Chiswick,	285	Manure for Potatoes,	60
Bedding, Carpet System of,	186	McKensie Peter, Death of,	94
Blackberries, How to raise bountiful Crops,	285	New Virginia Creeper,	311
Bulbs, Hints to Amateurs about,	149	Obituary,	94
Celosia, The New Feathered Crimson,	21	Palms as Decorative Plants,	273
Cloche, The,	372	for Parlors,	282
Colous, New Hybrids,	179, 217	Parks, our Public,	37
Crimson Thrift,	342	Pears, Estimate of,	246
Cyclamen, The,	283	Pruning,	26
Dahlia, The, a Decorative Plant,	283	350 Varieties of,	87
Dahlia, The,	360	Pelargoniums, Bronze or Gold Zonal,	152
Dianthus Dentosus,	56	Double Zonal,	90
Do Frogs rain down?	60	Pineapples,	151
English Nurseries,	14	Plants injured in Winter by Evaporation,	221
Evergreens at Wodeneth,	231	Plants, Hybridization of,	225
Ferns, Varieties of,	296	Old Fashioned,	153
Fig The Culture of in Pots,	117	Some California,	16, 42
Flax, New Zealand,	370	Subtropical,	3, 8
Flower Beds, Planting,	123	Wild, Random Thoughts on,	272
Flower Garden, Filling The,	253	Pomological Gossip, 87, 116, 141, 173, 213, 246, 268, 299, 334	
Floricultural Notices, 23, 50, 90, 145, 179, 217, 311		Science, Objects to be sought in,	262
Florida Air Plant, The,	176, 249	Radish, the Rat Tail,	278
Fruit Houses,	65	Rainy Day Scribblings,	108
Fruit Culture, Former Miscellaneous Experiments in,	202	Reviews,	333
Fruits, New in England,	88	Schizostylis Coccinea,	220
Fruits of 1867,	97	Scions, Healthy Advantages of Regrafting with,	27
Fruits, Our New,	289	Season and Fruit in England,	294
Garden, The Spring,	321	Shading of Glass Houses,	280
Gardening, Subtropical,	33, 161	Society, American Pomological,	129
Gardening, Subtropical, at Battersea,	341	American Wine Grower's Association of Ohio,	190
Gladiolus, The,	57	Cambridge Horticultural,	343
Culture of,	58	Cincinnati Horticultural,	189
Cultivation of the,	148	Illinois State Horticultural,	348
Gossip of the Month,	29, 60, 157, 318	Massachusetts Horticultural, 29, 62, 125, 312	
Grape Growing in the West,	238	Annual Exhibition,	312
at Castle Kennedy,	328	Election of Officers,	29
Grape, The Martia,	238	Treasurer's Report,	125
Grapes, New,	336	New York State Grape Grower's,	344
Mildew on and the Sulphur Remedy,	27	Ohio State Horticultural,	288
Grape Setting,	140	Worcester County Horticultural,	156
Grape, the Iowa and others,	253	Spring Gardening,	151
Gravel Walks, How to Make,	372	Statistics, Value of,	60
Grouping Cannas and Dahlias,	28	Strawberry, Cultivation of,	326
Hedges and Screens, the Best Trees for,	61	The Rippowam,	74
Horticulture, Progress of,	1	Strawberries in Massachusetts,	246
Horticultural Operations for		New,	269
January,	31	Suburban Visits,	306
February,	62	The Close of the Magazine	353
March,	95	Thrips, Mealy Bug, &c., Mode of Destroying,	278
April,	124	Tobacco Dust for the Destruction of Snails,	153
May,	158	Trees, The Coniferous,	193
June,	190	Tricyrtis Hirta,	147
July,	222	Vegetables, New,	39
August,	254	Vine Borders, Protecting,	58
September,	287	Vine, Culture and Products of the,	257
October,	318	Violets, Russian,	93
November,	350	Sweet,	123
December,	375	Wardian Cases,	50
Hyacinths, Fine,	150	Weeds,	279
at the Great Exhibition at Ghent,	152	Why does not Running Water Freeze?,	70
Hybridizing, Former Experiments in,	166		
Insects and Fungigation	208		
Ixias,	155		

THE
MAGAZINE OF HORTICULTURE.

THE PROGRESS OF HORTICULTURE.

THE record of the year is encouraging in all the departments of horticulture. While there has been no prominent subject of general discussion, there has still been a deep and encouraging interest manifested throughout the country, particularly in grape culture and fruit growing. These have been more especially discussed by the numerous publications upon the culture of the grape, and the manufacture of wine, and throughout the West, where the season has been highly favorable, grape growing is attracting universal attention. In fruit culture generally renewed interest has been awakened by the Eleventh Biennial Meeting of the American Pomological Society at St. Louis, which was very fully attended by the prominent cultivators of the West, and the exhibition of grapes, as well as other fruits, was fully equal to the expectations of the members.

The meeting was a most favorable opportunity for the western cultivators to consult together, and make a record of horticultural progress in that fertile region of the country. A great deal has been done in the introduction of fruits, and all the numerous varieties of grape are now in course of culture. Large numbers of these were on exhibition, and an opportunity afforded eastern members to form some estimate of their value. The apple, it was thought, did not receive so much attention as it should have done, but a reference to previous meetings will show, we think, that it was not from any want of appreciation of its merits, but rather to the limited time allowed the meeting.

The Great Exposition of Paris, and the reported displays of

fine plants have attracted universal attention, and created a great interest in fine foliaged plants, annuals, coniferous trees and other things which made up the splendid exhibitions. We see by recent English papers that the successful exhibitors, who were awarded the five "grand prizes," were Messrs. Vilmorin, Veitch, Linden and Chantin, and the Societe de Secours Mutuels de Maraschers de Paris. The effect of these exhibitions will affect somewhat our own cultivators; for the great number of Americans present could not well witness such displays without retaining something of their grand effect, and the consequent desire to see them introduced at home. We have, from time to time, given accounts of the various exhibitions, and we trust they have not only been read with much interest, but that they have imparted much information in relation to new plants.

The progress of the year has therefore not been inconsiderable, and we hope the industrial resources of our country, now recuperating from the depression caused by the events of the few past years, will be so great that ample means and time will be afforded to those who have the taste, to devote renewed attention to every department of rural art.

Our summary of the season is as follows:—

January was a cold month, without any very great extremes of temperature. It commenced with the thermometer at 20°, but fell to 8° on the 4th. The 6th it was 30°, and from that period to the 15th it varied from 10° to 15°. The 16th it was zero, succeeded by the great snow storm of the 17th, when about two feet fell in a few hours. The 19th it was zero, the 20th 2° below, with another snow storm, which continued to the 21st, with the temperature at 30°. It was then cold again until the 26th, when a light rain fell, and the thermometer was 36°, the highest of the month. On the 30th the temperature fell to 2° below, and on the 31st to 3° below zero.

February was milder, and the first thawing day was on the 1st, the thermometer 40°. This continued, with fog and light rain, to the 6th, when it was cooler. The 8th was warm again, and a heavy rain, with the temperature at 50°, carried off the snow very fast. On the 11th the temperature

fell to 2° , but it was rainy and snowy again, and the snow was about gone on the 17th. A week of cooler weather followed, with snow, and the month closed with moderate weather for the season.

The month of March was cold again. It opened rainy, but the 3d was cold, with six inches of snow on the 4th. The temperature ranged from 25° to 33° for a week or more, and the 17th brought another six or eight inches of snow, with cool weather on the 18th and 19th. The close of the month was fine and cool, the highest temperature at sunrise was 40° .

April opened cool and rainy, the temperature 36° , and it continued cool, with frosts, up to the 20th. A shower on the 20th, with a temperature of 40° , was the warmest day. The remainder of the month was cool, with frost. There are but few years in which the thermometer did not range higher.

The 1st day of May was warmer, but it immediately became cooler, with heavy frost on the 4th and 5th. It was then warmer, with rain, and fair and cloudy, for a week or more. From the 18th to the 25th it was cool again, and the first really warm day was the 26th, when the thermometer reached 75° at noon, which brought trees into bloom. The closing week was warmer, with frequent showers.

The month of June commenced warm, and the temperature 75° . The 3d was rainy. The 6th warm, and the 7th warmer, with the thermometer at 89° . It was then quite cool up to the 11th; then warmer, with the temperature at 80° on the 16th. A week of showery weather succeeded, when it was quite cool for the season. The 20th was warm again, with the temperature at 85° .

The first really warm day was on the 4th July, when the temperature reached 92° , the warmest day but one of the month. For a week the average was about 70° , with showers, and this continued until the 17th, when the temperature reached 80° . This, however, was but brief, as it was quite cool and rainy, with the temperature as low as 65° , and easterly wind. The 24th the temperature was 95° , the warmest day of the season, and the 25th, 90° . On the 30th only 65° .

August was showery and rainy, and not very warm. On

the 4th the temperature was 80°, and on the 9th, 85°. The 14th and 15th, 85°, with an abundance of rain. The warmest day was the 18th, with the thermometer at 86°. It was then cool and showery, to the end of the month.

The month of September opened warm, with continued light rains and showers; but on the 8th it became cool again, and at sunrise, on the 12th, the temperature was at the very low point of 42°, with frost in some places. The 15th it was the same, but on the 17th it was warm again, and so continued to the 23d. A sudden change brought the temperature to 32°, with white frost on the 24th, and though the 29th was warm the closing week was quite cool.

October commenced milder, and appeared more like September. The 8th, however, was a cool morning, with a very slight frost; another week of seasonable weather followed, and then a slight frost on the 15th. After this the gardens, where not too low or exposed, appeared as fresh as in August, and on the 19th the temperature was 80°, and the 20th, 70°. But on the 23d a sharp and cutting frost, with the temperature at 26°, killed every tender plant. The last week was warm, with heavy rains.

The month of November opened with a few warm days, without frost, but on the 7th the temperature fell to 20°. A few warm days followed, and another frosty week set in with a light shower on the 17th. After this the month was decidedly winterish, the last three or four days only being even warm, the highest temperature being 45°.

December 1st was a winterish day, with the thermometer at 12°. Continued cool weather succeeded, and on the 9th the mercury indicated 1° below zero. From that up to this period, (the 17th,) the weather has been more severe than usual, and with four or five inches of snow on the 13th, to stop all out-door work. The year closes quite cold.

This summary, compared with last year, shows a very great difference in the two, and to the cultivator has a lesson of some importance. The winter of 1866 and 1867 was not severe, but the average cold low, and the quantity of snow very great. The lowest temperature, as noted above, was 3° below zero. The extremes were few, just the opposite of the winter

of 1865 and 1866, when the extremes were great, and very little snow. No very warm days can be noted, either for the winter, spring, or summer; only four or five days indicated a temperature exceeding 90°.

This record, if our observations are correct, gives us a cool winter, and cool, rather wet spring; a cool and wet summer, and a cool but drier autumn. Probably few years have been so uniformly moist, or so uniformly cool. The early cold weather stopped all gardening operations from two to four weeks before the usual time.

The results of the fruit crop, as affected by the season, may be characterized as follows:—Apples were a much better crop than usual, and less affected by insects. Pears were rather more than an average crop, but owing to the wet weather many sorts cracked badly, and in some instances rotted on the trees. Peaches were abundant, but indifferent in quality. Grapes were almost a total failure in New England, mildewing badly, though they were never better in the West. Strawberries were more abundant than usual, and other small fruits plentiful and good. With the single exception of grapes, perhaps the whole fruit crop was better than the average of years, and as regards the garden crops generally—with the exception of squashes and melons, and a few things which require heat—they have yielded abundantly, and the market has been well supplied, and prices very much less than usual.

HORTICULTURE.

The failure of the grape crop has naturally instituted inquiries as to the cause, and although it is admitted that it has been from the late spring and cold and wet summer, the question arises if we may not secure a fair crop under such circumstances, which are likely to recur again. Thus the West—which last year suffered as the East has this—have a plentiful supply this year, never better, even the Catawba being quite free from rot. This fact shows conclusively that moisture in excess is fatal to the grape crop, and knowing this, it will be the main object of the cultivator to guard against it. We cannot combat with the season, but we can and should pursue such a course of culture, as will not aggravate its effects.

The lesson taught by this is, that we should avoid every thing in grape culture which has a tendency to maintain an excess of moisture around the roots. Deep trenching and high manuring must be discarded, except in thin and elevated localities, and an abundant drainage supplied, which will carry off as quickly as possible the surplus water. Sites should be selected which have a gentle slope to carry away the surface water, before it can find its way through and saturate the earth; coarse materials and sandy soil should be used when the ground is flat; and all precautions taken to keep the soil warm and dry. The roots will then have energy and vitality enough to throw off the mildew, which attack only weak vegetation, as we see it attacks the Delaware and weaker growing sorts first. As to vineyards, to be sure of success, they should be on side hills, as they are in the Pleasant Valley region, where the grapes, wherever shown, have carried off the prizes this year.

Mr. J. F. C. Hyde, who had a splendid crop of Hartford Prolifics and Concords last year, had a total failure this; as his soil is sandy and the situation dry, we were greatly surprised. Upon discussing the failure with us, he stated that he was an advocate of clean culture and frequent stirring the surface soil; but he feared he had over done the work, as the continued disturbance of the soil, not only prevented the water from the frequent rains running off rapidly, but actually contributed to absorb it and carry it down to the roots, keeping them continually moist. We are of his opinion, and except in very dry seasons would keep the cultivator out of the vineyard.

Much information has been gained in regard to the new grapes. The Iona has failed to ripen in the East, and only in good positions in the West. We fear it is too late, only for favored localities. Israella has done better, but it is not and never will be the EARLY grape claimed by Dr. Grant. Ives's Seedling increases in favor as a wine grape. Adirondac is early and excellent. The Concord still continues to be the grape of "the million," and has done better in all places than any other grape.

There seems to be quite a misunderstanding about the

“Salem” grape. Many claim that it is the same as Rogers’ No. 22, but if we understand Mr. Rogers, he says it is not 22, but an entirely new sort. We copy his own letter to the Country Gentleman, September 12:—

“It was offered for sale the first time last spring. * * I would here state that before sending out the Salem, there was a spurious black sort cultivated by some, and sold for the Salem, under No. 22, as I was informed by parties who fruited it.”

This can mean nothing more than this, that the Salem is a new sort, and not No. 22. We know nothing of its quality and never saw it, but if it possesses any excellence, those who wish to purchase, should not buy “a spurious black sort called No. 22.”

The Main grape of Concord, N. H., has created quite a sensation among Eastern grape growers; by some it is said to be the Concord, but on what evidence we do not know. Mr. Main had the grapes ripe Aug. 27, and on exhibition in Providence, Sept. 3, three weeks before any Concords were ripe even at Boston, and we have seen the best of evidence to show that it is not the Concord. We hope it will have a fair trial before cultivators denounce it as identical with a grape two to three weeks later. It is not at all impossible that two sorts of vines may look alike, and be quite different; this is the case with the Hartford Prolific and Framingham, two similar but distinct grapes.

The strawberry continues to have additions to the list, but whether valuable or not is yet undecided. At the meeting of the American Pomological Society at St. Louis, in September, there was a sharp debate about strawberries. Mr. Heaver of Cincinnati said the Jucunda was “about as good as a turnip, and he thought it an imposition.” Mr. Quinette of Missouri said he had seen the Agriculturist extensively, “and it was everywhere inferior.” These comments concur with our own observation; a poorer, more inferior looking strawberry than the Agriculturist has never been sent out. It is worthless as a market berry, and tasteless and dirty looking for the table. The Jucunda looks better, but it will be consigned to the rejected list with fifty other foreign

sorts, entirely useless. No new strawberry of decided improvement has been introduced. The Rippawam is, we think, the Rivers' Eliza; certainly the two cannot be distinguished if mixed together.

We have little to record in regard to the pear. No new sorts of high character have been brought forward. Gen. Todleben has improved with the size of the tree, and bids fair to be a good early winter sort. Of the pears not generally tested, the Beurre Superfin has proved a great acquisition. It was remarkably fine this year. Our pomological record will give all that is new about pears.

We ought not to omit here some notice of Nyce's mode of fruit preserving. Having tested it thoroughly this year, we can say that hereafter, winter pears, with one or two exceptions, will be of little value where the autumn sorts can be kept. We are now eating Seckel, Sheldon, Beurre Superfin, Doyenne du Comice, Marie Louise, Louise Bonne and others, just as fresh and fine as in October, and they can be preserved all the winter. What use then to try to grow the Beurre Langelier, Glout Moreceau, and Easter Beurre, the only three winter kinds that will keep? Glout Moreceau is good enough but hard to get. We fully believe that when it is generally known how finely pears can be kept, we shall dispense with all of the winter varieties, except the Hovey, which can be preserved till June. The Cincinnati Horticultural Society did not over-estimate the importance of Nyce's system. It is an indispensable addition to every large fruit garden. President Wilder alluded to it in his address, but he had only spoken from what he had heard. He has now had practical evidence of its value, by storing his favorite Beurre d'Anjou in the fruit house, and will have the pleasure of eating them all winter.

FLORICULTURE.

We can add but little to what has been repeated from month to month. It may be that our taste is improved, or it may be that we are ruled by fashion, but whether the one or the other, and we incline to the former, the indiscriminate bedding system is undergoing a change. Probably our in-

creased knowledge of the capacity of plants to withstand our climate has something to do with it, but whatever it may be, we are evidently alive to the fact that the showy foliaged and vigorous growing cannas, caladiums, bananas, &c., are far more ornamental, when well grouped, than the flat and gaudy beds of verbenas and similar plants. These are all well in their place, but they should not occupy exclusive attention. Even the showy annuals, so easily raised, are by no means to be overlooked; these, and the coleus, achyranthes, cineraria, and centaurea, form lines of contrast and beauty quite charming. Our notices of subtropical gardening abroad, and the account of the French gardens, will show how much they are in advance of our own system of bedding.

Our greenhouses and conservatories are similarly treated; the camellia and azalea, with the usual assortment of soft-wooded things, complete a collection. How much would this be improved by the mixture of a yucca or two, a few palms of the dwarf kinds, some of the pandanuses, dracænas, and marantas? breaking the uniformity of surface, and varying the aspect of the whole house. We invite all who love plants to see these things, and become familiar with their habits, and their value as decorative objects, though they give us no flowers.

The rose has received a grand acquisition in the new yellow variety, known as Marechal Niel. Resembling the Gloire de Dijon in its growth and habit, with the brilliancy of the old Yellow Tea, and of a hardy nature, it promises to be an invaluable addition. The Perpetuals continue favorites with the English and Continental cultivators, and quantities are introduced every year. A few prove to be decidedly new in color, shape, habit or growth, and augment the list; but a larger part never find their way into general culture. We look to many additions the coming season, and the liberal prizes offered by the Massachusetts Horticultural Society should bring out a magnificent display.

The gladiolus is a general favorite, and our cultivators are rapidly becoming independent of foreign competition. The ease with which seedlings are produced, and the certainty, if a good share of choice seeds are selected, will tend to make

this one of the most popular flowers. The lily is becoming, as it should be, a prominent flower, and the varieties will be increased by hybridization. The seedling which we have heretofore alluded to, raised by us, is evidence of what is in store for the careful hybridizer. A new variety or species from Japan is noticed in the English journals, which is quite unique, being bright yellow, with dark spots, and in shape similar to the Japan.

We must not forget those magnificent shrubs, the rhododendron and azalea. The inspection of such collections as Mr. Hunnewell's is having its legitimate effect, of showing how truly ornamental they are, and how much every plant lover loses by not procuring a quantity of these shrubs.

We have endeavored to keep amateurs informed of the progress of the improvement in the Zonal geraniums, which are now the prominent objects of attention among the English cultivators. In fact they have seemed to be the only objects of real merit. The gardening journals are filled with descriptions of the new varieties. They have been made specialties at the horticultural exhibitions. Communications have been read before the Royal Society upon their origin and production, and great preparations made to bring out a magnificent show of all the tricolored kinds next year. The public have been captivated by the rainbow hues of Mrs. Pollock, Sunset, Lady Cullum, Lucy Grieve, and many more. This would appear to those who have not seen these plants to be all enthusiasm, but the inspection of a bed in vigorous growth would at once show that, for brilliancy of tints and contrast of coloring, no plants can equal the tricolored Zonal geraniums. They are yet to become as popular here; our climate suits them, and they will take the place of inferior and far less effective bedding plants. We only hope our amateurs will bring forward fine specimens at the horticultural exhibitions, and show the public what gems they are. At present they are rather scarce and dear, but they will soon be more extensively propagated, and cheaper in price.

Not many new plants have been introduced the last year. Yet the additions have embraced some fine things; among the foliaged plants, *Maranta rosea picta*, *Dracæna Cooperii*,

and Veitchii, Diffenbachia Barraquini, and D. grandis, Maranta majestica, Agave filifera and A. picta; caladiums, Chas. Verdier, regale, Mad. Houillet, Isidore Leroy, Raulinii, Keetleri, &c., seedlings of M. Bleu, Canna Bihorelli, and some others. Of bedding plants, many of Beaton's Nosegays, and several of the tricolored Zonal geraniums, Myosotus Empress Elizabeth, Saxifraga Fortunii, several fuchsias, pe-largoniums, heliotropes, dahlias, lantanas, &c. As these become more plentiful we hope to see them added to our gardens.

THE KITCHEN GARDEN.

The introduction of a new variety is always attended with varying success. Soil and climate, as well as care and attention, are requisite to pronounce impartially upon the merits of a new vegetable. This has been exemplified in the Keyes' tomato, a valuable kind, which was pronounced to be thirty days earlier than the Tilden. It is sufficient to say that many testimonials and letters have been received, confirming its earliness and great value, while a few have not had such favorable results. We have already occupied space with some of these testimonials, and shall not repeat them here. Throughout the West, where the season has been warm and dry, it has had high praise, and Mr. J. S. Sewall of St. Paul writes us as follows:—"As there seem to be many newspaper correspondents who say the Keyes' tomato is little or no earlier than others, I will give my testimony to the effect that with me this season, it was at least a *month* earlier than the Tilden, which was the only other sort I had, and was from the *first* ripened fruit of that sort last year. The season and circumstances were unfavorable to earliness—the Keyes beginning to ripen about the 10th of August, and the Tilden in September, but has not yet (October 8) ripened freely."

This is what we claimed for it after trying it in 1866, and what we still claim for it, after another year's trial—thirty days earlier than the Tilden. In 1866 the Tilden was denounced as too late. Hundreds of plants of the Keyes, set out for seed, as late as July 10, ripened all their fruit; the ground was literally covered with ripe tomatoes, which were all gathered before October 1.

We must speak again in praise of the Pekin Black Egg Plant. It is a very distinct variety, growing very freely—ripening very early—producing very abundantly—and bearing very large, round or globular fruits, which have a white flesh of great solidity and firmness, and are so much superior to the old kinds when cooked, that they could hardly be pronounced the same kind of fruit. When well known, and the seeds are to be obtained, no lover of the Egg Plant would be without them.

Other valuable additions are the Giant Wax bean, a very remarkable and delicious kind; the Early Schweinfurth cabbage; Hovey's New Minorea melon; Carter's First Crop pea; Laxton's Long Pod pea; the Early Goodrich and Sebec potatoes. These are all decided improvements upon the old sorts, and will retain their place until better kinds are brought forward.

LANDSCAPE GARDENING.

Two very excellent communications have appeared in our last volume, on public parks, which demand the attention of all who are interested in the welfare and comfort of city dwellers. We need not enlarge upon the importance of public parks; certainly, if they were more numerous they would prevent the useless expenditure of money for lunatic hospitals. What the busy people of the city need is pure air, the sight of green trees, the smell of the fresh turf—extensive grounds, where they can enjoy the pleasures of the country, and find relief from the busy hours engaged in the turmoil of trade. This subject deserves the highest consideration of our enlightened and wealthy citizens, who can do much to influence the councils of our cities in the right direction—to secure the ground, now at command by annexation of territory,—and then devise the best means of general improvement.

Not perhaps to be classed under the head of Landscape Gardening, but for the ornamentation of pleasure grounds, is the most valuable communication from the Hon. R. S. Field of New Jersey, who has given us the benefit of his long experience in planting all the best evergreen or conifer-

ous trees. In it we learn what to avoid, in forming new grounds, for however beautiful a tree may be where it flourishes in perfection, if it will not stand our severe climate it is comparatively worthless. What would please the amateur planter, who finds delight in testing any new tree, would only mar the finish of real ornamental grounds. Mr. Field, with all his admiration of many species, distinctly pronounces them undesirable for general cultivation.

Mr. Copeland, in his excellent articles, has shown how much pleasure may be derived from the smaller city gardens by a judicious outlay of capital, and proper adaptation to our climate and wants. They would then be something more than the vacant places they now are.

Landscape gardening, as an art, is yet in its infancy, but as tending to its development the introduction of trees around our grounds and dwellings, and their arrangement about our suburban villas, with a view to picturesque effect, will pave the way to a better taste in the ornamentation of extensive pleasure grounds. Mr. Hunnewell's liberal premiums, which should not be forgotten, will do much to effect this object.

HORTICULTURAL LITERATURE.

The year has been prolific in works upon horticulture, in all its departments, particularly on the grape. Several of these we have already noticed, but we regret to state that our limited space has prevented us from giving a more full account of the others. We shall improve the earliest opportunity to do so, and in the meantime we name them here:—*THE SMALL FRUIT CULTURIST*, by Andrew S. Fuller, a capital book, practical, as all Mr. Fuller's books are; *RURAL STUDIES*, by the author of *My Farm at Edgewood*, a delightful contribution to rural art; *CHEMISTRY OF THE FARM AND THE SEA*, by J. R. Nichols, M. D., instructive and interesting; *THE GRAPE-VINE*, translated from the German of F. Mohr, by Horticola; *WOODWARD'S RURAL ART*, No. 2, a continuation of the series commenced last year, full of elegant designs and details of Suburban and Country Homes; *AMERICAN HORTICULTURAL ANNUAL FOR 1868*; *ANNUAL REGISTER OF RURAL AFFAIRS FOR 1868*; also *GEYELIN'S POULTRY BREEDING*, translated from the

French, by C. L. Flint. Other works are announced. THE AMERICAN JOURNAL OF HORTICULTURE is the title of a new periodical, devoted to gardening, and has completed its first volume. THE ANNUAL REPORT of the New York State Agricultural Society is a most valuable and interesting volume.

ENGLISH NURSERIES.

BY H. W. S.

THERE are no two nurseries in England more interesting to lovers of fine trees, especially evergreens, than those of Messrs. Veitch & Co. and Lucomb, Pince & Co., both near Exeter.

The first is, in process of demolition, and nearly all their very fine specimens have been sold and moved away. The famous Pinetum Walk still remains, however, with a few of the original fine trees left. Among them were a beautiful *Cryptomeria*, feathering to the bottom, 28 feet high, and very full, a *Taxodium sempervirens*, 25 feet, an *Araucaria imbricata*, 30 feet; *Abies taxifolia*, very fine and dense, 35 feet. Grand specimens of *Pinus ponderosa*, Cedars of Lebanon, Douglas fir, and two magnificent *Cupressus Goveniana*, and *macrocarpa*, both very hardy in this part of England.

A mile from Veitch & Co., in another direction, is the nursery of Lucomb, Pince & Co. I am not sure it is not the most interesting in England. Old Mr. Pince, a fine, hale, genial old gentleman, of 70, with a superb silver beard, is as full of enthusiasm as a boy, exceedingly well informed in every thing, and in his knowledge of trees and plants, and their culture, I never have met with anybody equal to him.

Near the gate, and over the office, stands the celebrated Lucomb Oak (Evergreen) the largest and finest in England, and raised from seed in this nursery. Near by is the first *Wellingtonia* planted in England. Twenty-five feet high by thirty-five feet wide, with a stem very thick and stocky. The first *Thuja gigantea* (*Libocedrus decurrens*) is also here,

about 12 feet high, and which Mr. Pince received from Mr. Parsons of Flushing. The climate of this part of Devonshire is so mild that the exquisite *Thuja Donniana* stands perfectly without protection, and the early rhododendrons commence flowering in December, and at Watcomb House, near by, the seat of the celebrated engineer Brunell, we saw fine specimens of that most tender and lovely of the cypress family, the Cedar of Goa (*Cupressus lusitana*), as also *Yucca aloifolia*, out all winter, over 30 feet high.

Mr. Pince has originated, by a system of continual snubbing or pinching, a species of ivy bush, which stands three or four feet high, and flowers perpetually all summer. Plants of the common heart-shaped ivy, by being continually pinched back, change their character from a vine to a bush, and would be very valuable in this country, as they might be easily protected by a barrel and a few leaves, which is all they would require.

Among the new evergreens, Mr. Pince prefers *Abies Nordmaniana*. The male *Cephalotaxus*, he thinks much finer than the female, which is apt to get thin and scraggly, which is also I think our American experience.

Three varieties (two being seedlings) of *Thujopsis borealis* are remarkably interesting, one being very distinctive and pendulous.

Podocarpus japonica, or *clinensis*, is especially fine here, and proves with us a valuable substitute for the Irish yew, being much hardier and quite as fine.

The most interesting feature, however, at this nursery, is the wonderful "Conifer rock walk," a quarter of a mile long, between high artificial rocks filled with every conceivable evergreen and rock plant, ferns, pampas, &c. Magnificent specimen of *Cupressus Lawsoniana*, *Goveniana*, *macrocarpa*, *Abies Douglasii*, *Menziesii*, *orientalis*, *cephalonica*. *Juniperus oblonga pendula* and *recurva* are beautifully managed, coming out of crevices of the rocks, as also *Thuja Donniana* and *Lobbii*, the latter most striking; the different yews are also very fine.

Mr. Pince also showed us the new Black Muscat, "Mrs. Pince," very fine, and possessing the great merit of hanging till

April, or even midsummer. The origin of it was very curious, as well as another variety, white or tawney, not so musky, but hanging equally long.

Mrs. Pince found in one *Esperione* grape which she had been eating, five seeds, three of the usual character, which she threw away, and two *perfectly round* without suture. These two round seeds she planted and obtained these two very distinctive varieties, supposed a cross between *Esperione* and Red Muscatel.

Mr. Pince thinks one vine at least of *Esperione* should be in every vinery, on account of its valuable amount of pollen.

SOME CALIFORNIA PLANTS WORTHY THE ATTENTION OF FLORISTS.

BY J. L. R.

IN the second volume of the Proceedings of the California Academy of Natural Sciences, are noticed by Dr. Kellogg some beautiful bulbous and other flowering plants, a brief record of which at least deserves a place in this Magazine. Of these is a new species of *Cyclobothra*, called the Blue Star tulip (*C. cærulea*): and judging from some of the same genus figured in the London Horticultural Transactions, Botanical Register and elsewhere, this may be hailed as a new accession to our list of fine plants. From seeds received fresh from San Francisco last spring, we found no difficulty in raising seedlings, but we have not seen this year's new growth yet, and so cannot decide on our ultimate success.

On a stem five to six inches length, infolded by a single radical leaf, nearly the whole length is an umbel of five or six flowers, small pale blue, specked and striped with darker blue; the petals obovate, subacute, serrulate, fimbriate and somewhat ventricose; bearded from base to apex; sepals petaloid lanceolate-acute, bluish spotted and streaked; anthers large, erect, looking inwards, whitish, with a bluish tinge; stigmas recurved with a beaked point; capsule at length pendulous; the bulb of the size of a hazel nut.

There is a species with a single leaf (*C. monophylla*, Lindley, in Journal of Horticultural Society, Vol. 8, p. 81,) which this new species reminds us of.

Closely allied to the tulip and fritillary of our gardens is the Calochortus, known for several years past in England, and native of California, of which figures of superb flowering species may be also seen in the Transactions and Botanical Register as above cited. Dr. Kellogg thinks he has a new one in his *C. lilacinus* or Bluebeard's butterfly tulip, with linear-lanceolate or broadly linear twisted, erect, sheathing leaves and two radical short linear acute bractes; flowers two on long peduncles borne on a scape 6—8 inches high; of a pale lilac, about two inches in diameter; petals three, broadly wedge-shaped, apex cross-toothed, bearded on the inside, nectar scale spotted and striated with bright purple; sepals like the petals three in number, and of the same colors but revolute at the apex. Resembles *C. splendens*, but of a small size with other differences.

“Highly curious little plants with blue flowers,” are the Brodiaëas, says Loudon, and enumerates two as Asiatic and one as indigenous to Chili, or South American. Another is the *Brodiaea terrestris* (K.) of which no plant is more common in California. Its bulb is of the form and size of a hazel nut, with a flattened base, with a dark shreddy fibrous outer coat, somewhat like an *Ixia*; its leaves radical, very narrow, long, and enfolded so as to seem terete; the scape short, subterranean, with many flowered umbel, the flowers funnel-shaped with a six parted border, the three outer divisions lanceacute; the three inner broader, obtuse or emarginate; stamens six, three of which are sterile, petaloid emarginate mucronate, longer than the fertile ones, stigma three cleft, with recurved spreading divisions; color of the flowers blue, with a deeper blue line on the central nerve of the petal, fading into a greenish tinge below.

It readily yields to cultivation as has been tested for several years.

And a new fritillary from New Idria, California, called *F. viridis* (K.) with pale greenish flowers, a singular and unique species.

This same part of California seems to abound with novelties for the florist, for the classic Asphodel is represented in the golden Bloomeria, (*B. aurea* K.) its root a solid bulb, bearing a slender scape a foot long and hollow, supporting an umbel 25—30 flowered, the flowers deeply parted to the base, with equal acute, linear lanceolate three nerved, subrevolute or widely spreading segments; the three outer ones apiculately beaked at the apex; anthers greenish blue; stigma nearly three lobed. As a bulbous plant it is delicate and of remarkable beauty; the long succession of its bright golden blossoms, render it worth while looking after by florists, being found easy of cultivation.

Another liliaceous plant closely allied to *Hesperos cordium* of Lindley, of which we have in *H. Lewisii* and *hyacinthinum*, a North-western territory species, is a new genus (Veatch's Diamond flower) *Veatchia crystallina* (K.) dedicated to Dr. J. A. VEATCH, by whom it was first brought into notice from New Idria. We have in this a scape 6—8 inches long, bearing an umbel of a few white flowers of a subcampanulate rotate shape with a narrow funnel-formed tube at base; the throat of a crystalline substance; anthers blue, pistil stigmatose, ovary sessile, three celled, seeds few, black and angular. This plant has been under cultivation with success.

The list of lilies is increased by Californian species as follows: "A remarkably hardy and singularly prolific lily" is Kellogg's Leopard lily (*L. pardalinum* K.) a splendid native, and though considered a variety of *L. canadense*, it is in the opinion of Dr. K., after long cultivation and observation, quite distinct. A variety with narrower leaves (var. *angustifolium*) is also noticeable. Its leaves are lanceolate, acuminate, of a deep green on the upper and under sides alike, remotely verticillate 9—12 in a whorl and scattered below and above; the lower ones spatulate, obtuse and clothed with a mealy bloom, flowers on long peduncles curved upwards, but stiffly nodding at the apex of the foot-stalks, 1—3 flowers terminating the stem, while the lower whorls have 4—6 flower-petals broadly bell-shaped and strongly revolute; of a rich orange color spotted with brown and purple.

Another, the Lady Washington lily (*L. Washingtonianum* K.) in general appearance similar to the flower of the *L. Catesbaei*, but unlike in color, being first white, then turning pink, and finally lilac purple; of a delightful fragrance, having the odor of the tuberose. Leaves small, verticillate, slightly scabrous. Stem erect, smooth, 3—4 feet high, two or more flowered, on peduncles 4—5 inches long: flowers open, tubular, funnel-formed at base, petals recurved at length revolute. It was brought from the Sierra Nevada, about 1854.

A third species is *L. parvum* (K.) with a rounded subglabrous stem, 2—3 feet high, scattered, oblanceolate, subacute three nerved leaves; erect, tubular bellshaped flowers in fives or nines, verticillate by threes and alternate or opposite, tube and throat yellow and purple spotted within, limbs or divisions red, three inner petals narrower. The specimens first seen were brought from the mountains, and subsequently others from the Nevada Territory. We should naturally conclude that it must be a very pretty and desirable species for cultivation.

A new Calliprora, similar to *C. lutea* (*Bot. Mag.* and *Bot. Reg.*) from Mariposa is spoken of, as known from a dried specimen of the flower stalk, the leaves and bulb unknown. The genus, according to Endlicher, belongs to the suborder Agapantheæ, with tubular six parted perigone (flower) perennial herbaceous plants, with tuberous or fibrous roots.

The soap plant of California is a sort of squill (*Scilla*) the inner scales of whose bulbs are so mucilaginous as to be employed by the Mexicans in washing clothes. It is the *Chlorogalum pomeridianum* (Kunth) and identical, according to Torrey, with *C. divaricatum* (Kunth); also called Amole, and ranging in its distribution from the Valley of the Upper Sacramento to Monterey. For a figure of the plant see Sweet's Flower Garden, Series 2, plate 381. Another species is claimed by Dr. Kellogg in the *C. angustifolium* brought from Shasta, and cultivated at San Francisco. Its bulb is shortovoid, covered with a thin brownish membranous coat. Radical leaves narrow, linear, lanceolate, striate nerved, undulate, lower stem leaves linear, expanded near the base and attenuated upwards, 1—4 inches long. Scape

paniculate, slender, erect, branching, smooth, light green, 2—3 feet high; flowers small, abundant, white, with a greenish line on the back of the petals, on short pedicels, which have incurved oval-shaped bracts; anthers yellow, style longer than the stamens with a three-parted stigma; blossoming in summer. From the figure appended, we should judge it a desirable plant.

The garlics, especially our native southern species, have some claim to notice in floriculture. We are presented with a new species in *Allium anceps* (K.) with a broadly ovate bulb; two radical, plain, somewhat ancipital tortuously undulate, long leaves; a short scape, naked and ancipital; a two leaved spathe, membranaceous and persistent, enclosing 20—30 flowers with pale purplish perianths, the anthers of the stamens greenish blue, the stigma sharply pointed, the fruit capsular, three celled, seeds compressed. It was brought from the Washoe, and also from Onion Valley.

Still another is the narrow leaved garlic (*A. Angustifolium*; K.) with a small, roundish, truncate bulb; two radical, sheathing at base the flower stem (*scape*) which is terete, solid, smooth, minutely speckled; bracts of the spathe three, sessile, membranaceous; umbel globose, many-flowered, whitish or with a pink tinge, flowers campanulate-rotate. Anthers cream-colored, stigma simple; capsule pinkish. Seeds roundish, black and minutely pitted. The accompanying figure represents it as a conspicuous plant. A more remarkable and singular one is called *A. unifolium* (K.) with a scape a foot or more in length, robust, terete, ascending from an *oblique bulb* furnished with a creeping *rhizoma* or root-stalk; the leaf solitary, sheathing under the soil, shorter than the scape, falcate; the spathe connate at base, two-leaved, very thin and scarious, enclosing an umbel of 15—20 flowers, which are large, pink and lively colored, the divisions of the perianth, shaped like petals, thick, fleshy, spreading, rotate, campanulate, the three inner narrower, the stamens and pistil inverted. This species is found in the vicinity of Oakland, and about the Bay of San Francisco.

The constant and easy intercourse with California, may have results, among other enterprises, of introducing several

if not all of these interesting bulbous plants into our gardens already, or they may be found with amateurs, either in this vicinity or in England. Any information respecting them, and the probability of their cultivation, under the same or other names, would be of value and importance, if made known through the pages of the various horticultural magazines of the United States.

THE NEW FEATHERED CRIMSON CELOSIA.

BY THE EDITOR.

THE introduction of novelties must always be attended with more or less uncertainty, and occasional disappointment. Frequently many of the plants which have been heralded as superior in beauty to any of their class which have preceded them, prove to be of little or no value: and again, others, of which no reputation has been attained, turn out real acquisitions, and surprise us that their merits have not been recognized. Much of this is owing to adaptation to our climate, so much unlike the cooler atmosphere of Great Britain, that plants which there need the protection of the greenhouse, flourish far better in the open air of our almost tropical summer.

Such, undoubtedly, is the reason why the magnificent *Celosia*, now under notice, has not come to us with testimonials of its beauty. The *Iresine* and the *Coleus* were the cynosure of all amateurs abroad before they reached us, yet in real decorative effect they can neither compare with the *Celosia*.

For this reason too, we can add but little to what Mr. Harris says in his brief communication below. We have never seen any thing in regard to it beyond what the Catalogue referred to states. But in looking up its history we have found in the French Catalogues (*Vilmorin's*) an account of the FEATHERED CRIMSON CELOSIA, with an engraving of the plant, and Mr. Harris has no doubt, as we have not ourselves,

that this is only an improved variety of it. It is described as follows:—

A curious variety, all the branches terminated with plume-like silky panicles, varying in color from crimson to scarlet. The panicles are very elegant, and admirable for greenhouses, vases for the parlor, or for bouquets, &c. Our engraving (FIG. 1) represents this variety, giving its habit of growth and style of flowering. The specimens sent by Mr. Harris only vary in the deep red coloring of the foliage and stems, similar to the red amaranthus, which impart to it a distinctive and highly decorative aspect.

Not having raised the plant ourselves, the following interesting communication from Mr. Harris, gardener to H. H. Hunnewell, Esq., Wellesley, will better convey an impression



1. FEATHERED CRIMSON CELOSIA.

of its importance for conservatory decoration. The specimens still retain their effective and magnificent appearance:—

Dear Sir,—I send you two spikes of *Celosia*, cut from plants measuring five feet in height, and four feet through, each plant being literally covered with bloom, presenting a “*tout ensemble*” unsurpassed by any plant I am acquainted with at this season of the year. They are growing in 10-inch pots, and have been as effective as the spikes sent for the last two months, with every appearance of their continuing in all their gorgeousness a month or more to come. I know of no plant so well adapted for conservatory decoration, and I think for florists it would be an invaluable acquisition.

I received a package of the seed from Messrs. Carter,

London, last spring, from which I succeeded in raising four plants, all of which proved different—these two I kept growing on in pots, and you have the result. The other two I planted in the open border, one of which proved a very delicate yellow, the other dark purplish crimson. I regret much I did not keep them all in pots, for I am satisfied these would have proved equally handsome.

“Messrs. Carter say of it, *Celosia pyramidalis versicolor*, var. *hybrida foliis atrobrownis*—A variety which we believe a hybrid of *C. p. versicolor* and *C. p. nana aurantiaca*. It is distinct from the former by its leaves of a darker color, and its flower trusses, which have a slight tinge of orange. Whether hybrid or not, it is at all events a pretty foliage plant, which will produce great effect in beds.”

It is questionable if the plant, from the description given above, has ever been seen in all its beauty even in England, otherwise we certainly should have heard more of its merits. Truly yours,—F. L. HARRIS.

FLORICULTURAL NOTICES.

NEW DOUBLE ZONAL GERANIUMS.—The double varieties of the Zonal geraniums are rapidly increasing, and they are sure to be great improvements upon the older ones. Not only are the flowers more double and regularly formed, but they are of the different shades of scarlet, light and dark. Some dozen or more kinds are offered for sale by the English nurserymen, among which the following are prominent: Triumph, with immense bunches of rosette-like flowers of a brilliant orange-scarlet; Prince of Novelties, flowers an inch and a quarter wide, of a brilliant carmine tinted crimson, admirably adapted for bouquets.

YELLOW FLOWERED VIOLET (*Viola lutea*).—A dwarf habited and vigorous plant, with dark glossy green foliage, flowers bright yellow, which are produced in profusion all through the early spring, summer, and autumn months. Grows only

five inches high, and one of the best yellow bedding plants in cultivation. Forms an admirable edging, and planted in lines with the *V. cornuta*, gives a fine contrast of colors.

951. *DALECHAMPIA ROEZLIANA* *Hook.* ROEZL'S DALECHAMPIA. (Euphorbiaceæ.) Vera Cruz.

A greenhouse plant; growing three feet high; with rosy bracts; appearing in spring; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1867, pl. 5640.

"A truly superb plant, one of the noblest introduced for many years, comparable only with the *Bougainvilleæ*," and exceeding in the size and clear rose color of its broad membranous involueral leaves. It has somewhat the foliage of the hibiscus, but all the terminal shoots are clothed with short stems, which bear at the ends the small flowers, set off by the lovely tinted and conspicuous bracts, which surround each and form a panicle of the richest coloring. It grows freely, and flowers abundantly, forming a good sized and most superb plant. From Mexico. (*Bot. Mag.*, May.)

952. *AGAVE SCHIDIGERA* *Lemaire.* SPLINTERED LEAVED AMERICAN AGAVE. (Amaryllidaceæ.) Mexico.

A greenhouse plant; growing six feet high; with greenish flowers; appearing in spring; increased by suckers. *Bot. Mag.*, 1867, pl. 5641.

This agave, which we have before noticed, is one of the most distinct species, having a neat compact depressed habit of growth, and the decumbent leaves have a broad white edge, from which are thrown off woolly, recurved flattened filaments, like some of the yuccas, one to three inches long, giving the splintered appearance from which it takes its name. The flower stem grows six feet high, and is covered with green flowers, two to three inches long, with yellow anthers. It is allied to the *A. filifera*, and is one of the most conspicuous of the agaves. With the other species it forms an invaluable addition to the summer garden or lawn. (*Bot. Mag.*, May.)

953. *GOMPHIA THEOPHRASTA* *Lindl.* THEOPHRASTA-LIKE GOMPHIA. (Ochnaceæ.) South America.

A stove plant; growing two feet high; with yellow flowers; appearing in spring; increased by cuttings; grown in rich soil. *Bot. Mag.*, 1867, pl. 5642.

Distinguished for its large glossy foliage, and spikes of yellow blossoms, admirably suited to stove decoration. There

are a great number of species in South America, but only six or eight have been introduced to Europe. Both foliage and flowers are bright and showy. (*Bot. Mag.*, May.)

954. MYRTUS CHEKIN *Spreng.* CHEQUEN OF CHILI. (Myrtaceæ.) Chili.

A greenhouse plant; growing two feet high; with white flowers; appearing in spring; increased by cuttings; grown in peaty soil and loam. *Bot. Mag.*, 1867, pl. 5644

A pretty evergreen plant, almost hardy, with small foliage, and a profusion of white blossoms. Like all the myrtles it is a fine addition to any greenhouse collection, whether for the pea green of its pretty leaves, or the abundance of its blossoms; both alike valuable for bouquets. (*Bot. Mag.*, May.)

955. AMARYLLIS PARDINA *Hook.* SPOTTED FLOWERED AMARYLLIS. (Amaryllidaceæ.) Peru.

A hothouse bulb; growing one foot high; with yellow spotted flowers; appearing in spring; increased by offsets; grown in rich soil. *Bot. Mag.*, 1867, pl. 5645.

One of the most magnificent of the tribe, having very large yellow flowers, covered all over with bright vermilion spots, on the translucent substance of the perianth. It is of easy culture, and is called a worthy rival of the *Lilium auratum*. The flowers are very large, and the whole aspect particularly striking. (*Bot. Mag.*, June.)

956. BLETIA SHERRATTIANA *Bateman.* SHERRATT'S BLETIA. (Orchidaceæ.) New Grenada.

A greenhouse orchid; with rosy purple flowers; appearing in spring; increased by offsets; grown in coarse peaty soil. *Bot. Mag.*, 1867; pl. 5646.

One of the cool orchids, and one of the prettiest of the true Bletias; it throws up a fine spike of the brightest rosy purple flowers, is easy of culture, and very beautiful. (*Bot. Mag.*, June.)

957. BILLBERGIA SPHACELATA *Ruiz et Pav.* CHUPON OF CHILI. (Bromeliaceæ.)

A stove plant; growing four feet high; with rose colored flowers; appearing in autumn; increased by suckers; grown in light rich soil. *Bot. Mag.*, 1867, pl. 5647.

One of the handsomest of the Bromeleads, conspicuous for its magnificent crown of leaves, four to five feet long, with a central cluster of pink flowers. (*Bot. Mag.*, June.)

958. *STEMONACANTHUS PEARCEI* Hook. M. PEARCE'S STE-MONACANTHUS. (Acanthaceæ.) Bolivia.

A hothouse plant; growing two feet high; with scarlet flowers; appearing in spring; increased by cuttings; grown in light rich soil. Bot. Mag., 1877, pl. 548.

A stove plant of vigorous growth, and producing terminal clusters of long tubular crimson scarlet flowers. Well adapted for a collection, or for bouquets; having the showy character of the salvia, and more neat and compact in habit. (*Bol. Mag.*, June.)

General Notices.

PRUNING PEARS.—*A resumé* as regards the culture of pears, brings me to the subject of *pruning* those at a fruit-bearing age. Before, in dealing with younger trees, we have had only wood or furnishing shoots to encourage. Now, spurs bearing flower-buds must be sought after—the ready demand of which, in contradistinction to the simple woodforming buds, belongs in most instances to the long standing practice above. However, if any doubt exists as to whether any questionable looking buds are one or the other, it is better to allow them to remain until spring solves the mystery. Cut back to two or three eyes within an inch or two of the main shoot upon which they grow all real woody shoots of last season's free growth. Caution is only needed with two year old ones and upward. Where any such are too thickly set together, they require a little studied pruning in order to allow of a proper development of fruits. When summer returns, shorten back old fruit spurs to the lowest buds. Be careful in doing so not to injure the latter. In some instances old spurs will produce such an influx of gross young shoots as to positively deter any flower-buds from forming thereon. The spur in consequence becomes so enlarged as to be unsightly. All such it is better to remove as near the main branch from which they issue as possible, if certainty exists that the operation can be done without injury. So treat such trees, as a whole in fact, as to afford the greatest promise to all future flowers that the fruit may have a fair chance of forming favorably. Many old standard and other orchard trees of this class, through long neglect, have become prominent in decrepitude only. This oftener occurs from want of pruning alone. All such may be greatly benefited by a free use of the pruning shears. Even some of the larger branches may be so reduced in bulk, as to afford a greater amount of light and air to others, whilst the root's abilities will also thereby be brought upon a more equal footing in relation to the upper branches. In pruning all large trees, endeavor as much as possible to open the centre of

each tree, by which means light and air will be more freely admitted.—
(*Gard. Chron.*)

ADVANTAGE OF REGRAFTING WITH HEALTHY SCIONS.—Mr. T. Rivers gives the following account of his success in regrafting old and inferior varieties:—Reverting to the fact that a healthy graft will restore to health a feeble or unhealthy stock, of which I will give some illustrations, I may state that about the year 1780 my grandfather planted a row of apple-trees, about fifty in number, in a deep alluvial loam, most favorable to the growth of apple-trees. They were all of one kind, the Nonsuch, I suppose a favorite sort in those days. My attention was not drawn to these trees till between 1820 and 1830, and I then saw that their heads were masses of cankered branches, full of nests of the *aphis langina* (woolly aphid.) These branches annually put forth vigorous young shoots, which, after a dry warm season, died back one-third, and after a cool wet season to nearly their base. If two or three consecutive seasons were dry and warm, the trees bore a considerable quantity of fine fruit, but in my eyes they were deformities, although I may add their stems were clean and healthy. I had previously tried my hand at renovating some old standard Crassane pears, full of cankered shoots, by grafting on them some hardy kinds. I therefore took the old Nonsuch apple-trees in hand, had them all beheaded, and grafted with a vigorous growing kind of apple, received under the name of Shepherd's Fame, a large fruit, but not the true kind. They grew most vigorously for some four or five, or more years, and then showed symptoms of canker. I then found that the Nonsuch was so unhealthy a stock that I should not be able to renovate the trees, but being of a persevering nature (Anthony Trollope's experience occurs to me "Its dogged as does it") I regrafted all my grafts with Dumelon's Seedling, or the Normanton Wonder, as it was then called. From that day to this not a canker shoot has made its appearance, and the heads of the trees are double the size of the Nonsuch trees when they were forty years old. I afterwards tried my hand at renovating some old Nonpareil trees, full of canker and disease, and fully succeeded in making them healthy and fertile, by grafting them with sorts hardy and not liable to canker. These trifling facts, which seem to require more words than they are worth, show precisely the effect of the graft upon the stock. Any fruit-grower, who happens to have planted apple or pear-trees too tender for his climate or soil, has the remedy at hand, viz., regrafting.—(*Gard. Chron.*)

MILDEW ON GRAPES, AND THE SULPHUR REMEDY.—Owing to the cool and rainy season in France, the grapes are suffering again from mildew (*oidium*), and we find the following in the English papers:—

The year 1867 cannot be marked with a white stone in the Vine Grower's Almanac, for it is many years since so much damage has been done to vineyards by the weather. After the late frost the plants were broken by hail, and the heavy and constant rains have caused the berries to crack, and the *Oidium* has prevented the proper development of the fruit.

A wine-grower in Candice, a district celebrated for its white wines, has sent us (*Revue des Jardins*, from which this paper is a translation) the following letter on the subject:—

Our vines, particularly those of the plains, are nearly all infected with *Oidium*; the loss of white grapes from Ampuis to Condrieu, is very serious; fortunately the hill vines have not suffered so seriously as those of the plains.

The only remedy against *Oidium* is sulphur dressing, but the dressing should be applied with timely skill. I have always succeeded, and my method is as follows:—I sulphur the vines immediately they begin to flower; I apply it the second time after the flowering, and a third time about fifteen days after the second dressing. Sulphur has no effect as soon as the berry has attained a certain size. I give the dressing very early in the morning; after 8 or 9, A. M., the sulphur is powerless. I recommend this method for next year, for the *Oidium* will remain some time with us. The plants are not constitutionally affected, the disease being produced by an anomalous condition of soil. We are now passing through the same phase as in 1851.

This method of applying sulphur, says the Editor of the *Revue des Jardins*, is really good. "We have, ourselves," he states, "operated in the same manner upon our trellised vines, with great success, but we are not equally certain that the disease is present in the soil, and not in the plant." We prefer to believe that the morbid principle, the germ of the malady, is present, but latent in the plant, and that a peculiar condition of the atmosphere will cause its development. It has been noticed that the *Oidium* acts upon the vine, as certain epidemics do upon animals, as the cholera does upon men—certain plants in a vineyard are seized with the disease, and others growing in the same plantation will escape; if the disease were present in the soil this difference would probably not exist. The vines which have been injured by frost are the most affected. We do not, however, deny absolutely that the soil does not exercise an injurious influence upon a morbid condition of the vine. One of our correspondents, a skilful cultivator, has sent us the following letter on the subject: Hail has a most positive influence upon the soil, of which I have this year had a sad experience; the earth is suddenly cooled by the fall, and a deleterious principle is left, the presence of which I cannot explain, but the effects are plainly perceptible; this is felt throughout the year by certain plants.—(*Gard. Chron.*)

GROUPING CANNAS WITH DAHLIAS.—In connexion with your remarks on dahlias, and other bedding plants, I notice the association of cannas with dahlias, as a favorite practice in the public gardens in Regent Park. Cannas and caladiums are largely used there, their distinctive character in form and color yielding an admirable foil to many species of flowers and vegetation. Of course I don't expect to see them in the same places next season, at least I shall be very much disappointed if I do. The real benefit of mixing cannas with dahlias is *immediate* effect, the cannas assisting the

general *ensemble* until the dahlias are strong enough to take up their portion. As a rule the green varieties of the cannas should be used, excepting in the case of yellow dahlias, when the darker varieties can be introduced in their immediate proximity. The plants should be small when first turned out, so as not to overtop the dahlias in the latter part of the season, as, if used large there is a danger not only of a poverty-stricken appearance in the early part of the season, but of the group in full development presenting an analogous outline to tipsey cake stiffly bristling with almonds. The adoption of receipts rather than principles is not, perhaps, to be desired, excepting so far as the receipt is illustrative of the principle; but in this case it may give a lift to dahlias, and the materials are so simple that its successful practice can very easily be attained by anybody.—(*Gard. Chron.*)

Gossip of the Month.

BOOKS, PERIODICALS, &C., RECEIVED:—

ANNUAL REGISTER OF RURAL AFFAIRS, for 1868. From L. Tucker & Son.

ATLANTIC MONTHLY, for January, 1868, beginning the new volume, containing the commencement of an original story, by Charles Dickens, and papers by Mrs. Stowe, R. W. Emerson, Nathaniel Hawthorne, Bayard Taylor, Dr. Hayes and others.

OUR YOUNG FOLKS, for January, 1868, with a new and handsome cover, and elegant illustrations. Replete with capital articles from well-known contributors.

EVERY SATURDAY begins a new volume with the January number. Each number contains a selection of the best reading from foreign current literature, and the volume for 1868 has for a leading feature a serial story by Chas. Reade. From Ticknor & Fields.

MERRY'S MUSEUM, an Illustrated Magazine for Boys and Girls, January, 1868, New Series, with contributions from excellent writers for the young. From H. B. Fuller, publisher, Boston.

WHITLOCK'S HORTICULTURAL ADVERTISER, issued from the office of All Names in One, 37 Park Row, N. Y. Vol. I., No. 1, containing priced lists of Trees, Plants and Shrubs.

Massachusetts Horticultural Society.

Saturday, October 5.—The stated quarterly meeting of the Society was held to-day for the election of officers,—President Hyde in the chair.

The following officers, for 1868, were elected:—

President—James F. C. Hyde.

Vice-Presidents—William C. Strong, Charles O. Whitmore, H. Hollis Hunnewell, William R. Austin.

Treasurer—Edwin W. Buswell.

Corresponding Secretary—Charles N. Brackett.

Recording Secretary—Edward S. Rand, Jr.

Professor of Botany and Vegetable Physiology—John L. Russell.

Executive Committee—The President, Chairman; The Ex-Presidents, ex-officio, Marshall P. Wilder, Joseph S. Cabot, Josiah Stickney, Joseph Breck, Charles M. Hovey; Eben Wight, F. Lyman Winship, Daniel T. Curtis, Charles H. B. Breck.

Committee for Establishing Prizes—Chairman of Committee on Fruits, Chairman; Chairmen of Committee on Flowers, Vegetables, and Gardens; Parker Barnes.

Committee on Finance—Charles O. Whitmore, Chairman; H. Hollis Hunnewell, Benjamin P. Cheney.

Committee on the Library—Francis Parkman, Chairman; George W. Pratt, Leander Wetherell, Edward S. Rand, Jr., H. Weld Fuller.

Committee on Ornamental Gardening—H. Weld Fuller, Chairman; Chairmen of Committees on Fruits, Flowers and Vegetables; H. Hollis Hunnewell, Parker Barnes, F. Lyman Winship.

Committee on Fruit—William C. Strong, Chairman; P. Brown Hovey, Edward A. Brackett, Daniel T. Curtis, Azell C. Bowditch, Hervey Davis, John M. Merrick, Jr.

Committee on Flowers—John C. Hovey, Chairman; James McTear, Charles H. B. Breck, Charles B. Brigham, Francis Parkman, E. Frederick Washburn, William H. Halliday.

Committee on Vegetables—Charles N. Brackett, Chairman; E. Augustus Story, James Nugent, R. M'Cleary Copeland, George Hill, Walter Russell, George W. Pierce.

Committee of Arrangements—P. Brown Hovey, Chairman; William C. Strong, John C. Hovey, Charles N. Brackett, Daniel T. Curtis, Edward A. Brackett, Charles H. B. Breck, R. M'Cleary Copeland, Azell C. Bowditch, George W. Pierce, E. Frederick Washburn, Hervey Davis, Francis Parkman.

Capt. Austin, from the Committee for that purpose, reported that they had procured the portrait of President Hyde, which was completed, and appropriately placed in the Library Room.

The following members were elected:—A. Stacy, Jas. Minton, W. N. Bartholomew, D. H. Thayer, J. H. Fenno, J. H. Frothingham, R. Vose, Jr., Wm. H. Dutton, F. Amory, W. B. Newbury, Geo. H. Scott.

Adjourned one month, to November 2.

Nov. 2.—An adjourned meeting of the Society was held to-day,—President Hyde in the chair.

Dr. Wight presented resolutions on the death of Gov. Andrew, which were unanimously adopted.

The following members were elected:—E. Gage, P. Crowell, N. Robbins, Dr. C. T. Frink, N. T. Allen, H. W. Van Voorbees, J. L. Bird, Dr. B. Mann, S. McIntosh, B. T. Prince, Geo. C. Wright, Chas. F. Baker, H. P. Kendrick, F. Almy, G. E. Leonard, C. A. Bartlett, Geo. S. Carter.

Adjourned one month, to December 7.

Horticultural Operations

FOR JANUARY.

FRUIT DEPARTMENT.

DECEMBER WAS AN UNUSUALLY cold month, with continued frost, and snow covering the ground. All out-door work was brought to a stand the first week. Continued cloudy weather and short days have been unfavorable to early forcing.

GRAPE VINES, in the early houses, will now be swelling their fruit, and the increasing sunlight, and advance of the season, will be favorable. If the border has been kept warm progress will be more rapid. Where there is any danger of plenty of heat, renew the covering with hot manure, fresh from the stable, upon this place a good thickness of hay, straw, leaves, or seaweed. Increase the temperature, and keep a genial atmosphere by frequent sprinkling the walks, &c. Vines in later houses should be pruned immediately and put into order for growing, as they usually start in February. Clean, wash, and tie up to the trellis.

FRUIT TREES, of all kinds, may be pruned in favorable weather. They may also be lightly scraped, so as to take off moss and rough bark. Manure may still be applied, if not done before the snow fell.

TREES, in pots, may be brought into the greenhouse for an early crop.

STRAWBERRIES, in pots, should have a good situation on a shelf near the glass. Water with liquid manure.

FLOWER DEPARTMENT.

The opening of the year brings with it an abundance of work. December is a quiet month with the gardener, but now every thing needs attention. With the advance of the season numerous plants need repotting. Others will require to be propagated, and many kinds of seeds should be planted. Pruning and tying plants into symmetrical shape will also take time. All this must be begun, and the work increases rapidly. By beginning in season all can be accomplished.

CAMELLIAS will be flowering abundantly, and as soon as the buds are all open the plants will need pruning. Such as are too tall should be headed in, and others pruned, to make good shaped bushes. No plants bear the knife better, and they are often spoiled for want of its free use. Top dress

such as require it, and repot others. Water, with liquid manure, as they begin to grow.

AZALEAS require similar attention; they are later, generally, in blooming than the camellias, but they need severe pruning to form handsome specimens. Syringe often, either before or after they have done flowering.

PELARGONIUMS should now have more attention. All the vigorous plants should be repotted, as well as young stock. Keep them near the light, and maintain a rather dry and cool atmosphere, watering carefully early in the morning, and avoiding any excess of moisture in the house. Turn the plants round often, and tie out the specimens in good season. The Scarlet Noregay varieties require similar care.

CALCEOLARIAS AND CINERARIAS should have their last shift into their flowering pots. Keep them near the glass, in a cool place. Look carefully after the green fly, and destroy them by occasional fumigations.

MARANTAS AND DRACÆNAS may now be partially shaken out of the old soil, and repotted in fresh compost.

POINSETTIAS, done blooming, should be kept rather dry.

GLOXINIAS AND ACHIMENES, for early flowering, may be repotted this month.

JAPAN LILIES, now beginning to grow, may be placed on a shelf in a good position.

CHINESE PRIMROSES should be carefully watered, giving liberally when dry, but avoiding continual applications. Keep in a moderately cool position.

ORCHIDS should now be kept rather dry, and moderately cool. If any show signs of blooming remove to a warm place, and water occasionally.

GARDENIAS, not showing buds and beginning to grow, should be well pruned back, and cleaned of all insects. Plunge in bottom heat, if convenient. Syringe often, with warmish water, and do not deluge the roots.

CALADIUMS may be started now into growth, placing the roots in small pots, in light sandy compost, on a good bottom heat.

CANNAS for forming large specimens may be potted soon.

PANSIES, sown last month, should be transplanted into boxes or pans, which should be placed on a shelf, near the glass.

HEATHS should be kept quite cool, and rather dry, until they begin to grow, or bloom.

VERBENAS, ZONAL GERANIUMS, SALVIAS, and other bedding plants, should now be propagated from cuttings.

FUCHSIAS should now be well pruned, and shaken out of the old soil, and repotted in smaller pots.

CHRYSANTHEMUMS may be propagated this month.

CISSUS DISCOLOR should now be repotted, and started in a good bottom heat, carefully watering till the young growth appears.

PALMS may be repotted, giving a good drainage, and using coarse soil.

AMARYLLISES may be potted, using light rich compost.

RHODODENDRON AND AZALEA seeds may be planted this month.

SUBTROPICAL GARDENING.

IN our last volume we introduced the subject of Subtropical Gardening more directly to our readers, and in some general remarks endeavored to impress upon them, or at least upon all who appreciate beautiful foliage as well as flowers, the decidedly ornamental character of this style of garden decoration.

The more intimate acquaintance with the character of the climate, and the information derived from collectors in regard to soil and locality from whence many of our finest plants have been obtained, has enabled skilful cultivators to understand more completely the requirements of these plants, and their adaptability to various modes of treatment, whether in the hothouse, the greenhouse, or the open air. To render this knowledge practically available, and of greater value to the mass of the people, has been their study, and it is with great pleasure that we record this evidence of the devotion of professional men to the wants of the people, and the means of enhanced enjoyment in the adornment of their gardens and the decoration of their homes.

Subtropical gardening really opens a new era in the ornamentation of our grounds. What we once thought only possible by the means of large and expensive glass structures, in which plants could be grown with a high temperature, is now rendered common and without much cost by the aid of a knowledge gained by experience and practice, and a climate almost tropical in summer. It is true we cannot have them in the winter season, only by means of hothouses, but we can have them in summer with only a cheap structure to carry them through the winter months, many of them only with the aid of a warm cellar; and from June to October the brilliant vegetation of the Amazon—the singular growth of the plains of Mexico—the noble foliage of Southern Europe,—and the vegetation of other climes may be grouped together, and their unfamiliar forms

produce new effects, become objects of study and afford unfailing sources of gratification and delight.

The country from which a plant is received does not always convey a true test of its hardiness. The camellia, the Tree pæony and magnolia are from China, yet the two latter are perfectly hardy. The *Weigelia amabilis* and *W. rosea* are from China; yet the former is often injured, while the latter is perfectly hardy. The coxcomb, Globe amaranth, and many other annuals are greenhouse plants in England, while with us they are the commonest and most free-growing flowers of the garden. The palm, subjected to the ordinary treatment of most plants and kept in a cool greenhouse, almost perishes by constant watering, while if kept dry it receives no injury, but appears to flourish with renewed vigor in summer. Thus it is that subtropical gardening is the result of study and knowledge applied to the treatment of each and all these varied species.

The cannas, the caladiums, the yuccas and the palms are the representatives of tropical vegetation, but there are many species and varieties of each, and many other equally beautiful objects which may be classed under the same head. It is our purpose to notice some of these that preparations may be made in good season to introduce them into our gardens. We stated in our remarks above referred to that we should embrace an early opportunity to discuss the subject, and shall endeavor now to give such information as our own experience suggests, or information that we could otherwise obtain, to make this as complete as possible.

First among the subtropical plants we name the cannas, because they are of a rapid growth, immediately effective, cheap, and can be wintered in any good warm cellar, or under the stage of the greenhouse. A few years since we had only the old and well known annual, *C. coccinea*, or Indian Shot of the catalogues; now we have fifty or more kinds, many of them of gigantic growth, and immense foliage, others with blossoms almost as showy as the gladiolus, and a few as striking for the tints of their leaves as the dracænas. We name some of the sorts already introduced, and there are a great many more: *C. Annei*, six to eight feet high, with

long, deep sea-green foliage; *C. nigricans*, ten feet, with very rich dark bronzy metallic leaves and showy flowers; *C. gigantea*, so known, but not correct, seven feet, immense green foliage, striated or tinted with bronze; *C. Warscewiczii*, four feet; *C. zebrina*, about three feet high; *C. Bihorelli*, with tinted foliage, and flowers very large and showy; *C. limbata*, four feet, with yellowish flowers; *C. nepalensis*, with large bright yellow blossoms, and many others.

C. Ancei, *C. nigricans* and *C. gigantea* are fine for the centre of beds, and *Warscewiczii* and *zebrina*, for outer rows. The plants should be potted if possible in March or April, and brought forward in a hotbed or greenhouse, and planted out the last of May; the plants will then be highly effective as early as June, and continue so till October. If planted in the ground, without potting, they do not attain such large dimensions, and though very showy, do not form such masses of foliage.

Second in importance, because easily wintered, are the colocasias, with foliage three to four feet long, and two broad; *C. esculenta* and *gigantea* have each green leaves, and atroviolacea, bronzy foliage and purple stems. These require a rich soil and plenty of moisture, and are fine for masses or for outer rows around beds of cannas. Several of the caladiums are also desirable, but they do not retain their brilliant colors so well as in the greenhouse; still they are very showy, particularly *C. Broignarti*, green, with red centre; *C. pictum*, green, spotted with white; *C. bicolor*, green, and red centre; *C. marmorata*, *C. albo punctata* and many others. These should be started in the hotbed, and when well established planted out early in June, when the ground is warm. They must also be wintered in the warmest part of the greenhouse, and kept in *perfectly* dry sand. The cannas, colocasias and caladiums are groups which, of themselves, form very effective and decorative effects, and may be used singly or in beds.

Conspicuous perhaps above all are the musas or bananas, with gigantic leaves, six to eight feet long, and three broad; standing the wind well, and planted singly in beds or in the centre of a group, they at once form objects of the greatest

attraction. *M. Cavendishii* and *M. rosacæa*, the latter with smaller leaves, are both fine. Other showy things are the *Wigandia caracasana*, with dark green foliage of immense size; *Aralia papyracea*, with large palmate leaves, downy beneath; *Brugmansia suaveolens*, with large white trumpet shaped flowers, deliciously fragrant; *Ficus elastica*, or India rubber tree, with very large glossy leathery leaves; *Hedychium Gardnerianum*, four to six feet, with spikes of yellow fragrant blossoms; *Hibiscus sinensis grandiflora*, with glossy leaves and immense scarlet flowers all summer, forming bushes four to eight feet; *Hibiscus Cooperii*, with white, crimson and green foliage, richly mottled and scarlet flowers.

Then come the dracænas, of several kinds:—*D. terminalis*, *D. ferrea*, *D. congesta*, *D. gracilis*, *D. braziliensis* and others, some with green, others with crimson and brown foliage, all desirable, and forming fine groups or edgings.

The yuccas and agaves come in for novelty and singularity of form; of the former, *Y. aloefolia* and *aloefolia variegata*, *Y. glauca* and *Y. recurva*; of agaves, *A. americana*, *A. americana variegata*, *A. Milleri*, *A. applanata*, and some others; associated with these, but yet distinct, should be named the *Phormium tenax*, with long sword-shaped leaves, vigorous in habit, and very ornamental. *Pandanus utilis* and *variegata* are both striking and novel, in aspect and outline.

The *Cyperus alternifolius*, heretofore considered only a hothouse plant, is a most beautiful object and succeeds admirably, growing freely, and throwing up its long slender shoots tufted at the extremity with its spreading head of inflorescence. The bamboos, *B. metake* and *aurea*, as well as the dwarf *B. Fortuni*, with silver striped foliage, are also striking objects, the former attaining the height of six or eight feet.

Last, but not least, are the palms, peerless in contour, which add grandeur, stateliness, and a true tropical aspect to the whole. The Chinese palm, *Chamærops excelsa*, is almost hardy, and a grand object; *C. humilis*, similar, but not so robust; *Corypha australis*, *Cocos coronata*, and *Latania borbonica*, are each effective, and thrive with vigor. Planted out in fine soil, and well watered, they make several of their

magnificent fronds each year, and taken up and wintered in the greenhouse, where they should be kept dry, they suffer nothing by the change.

The common and well known plants of course must not be left out. For rich and deep coloring the achyranthes, the amaranth, the celosia, the perilla and the coleus must not be forgotten, and for contrasts the *Cineraria maritima* and *centaureas*, with their snowy foliage, which will be used for beds, in groups or edgings. The tricolored and variegated Zonal pelargoniums are scarcely less important, for many groups would not be considered finished without a row of Mrs. Pollock.

In this list we have not named all the plants which should be included in the subtropical garden—this would occupy too much space—but having indicated some of the best, the cultivator must exercise his own taste, as to the introduction of others as well as their arrangement for immediate or for permanent effect. Our object has been to show how much beauty and variety there is in store for those who without exact rules can produce a harmonious, pleasing, effective, tropical aspect, with the aid of the numerous materials at hand.

ON PUBLIC PARKS.

BY JASPER STANDSTILL.

I am delighted to see your correspondent *Blaxton* drawing timely attention to a public park. My object is to draw attention to the abject poverty of public botanical, horticultural and arboricultural tastes and tendencies; and when each and all of these branches are more manifestly developed, then such a public boon may be an accomplished fact. Harvard College, our boasted seat of learning—with its host of professors and profound philosophers, with its plethoric coffers, and still swelling its annual income by generous bequests from some favored son of fortune, who long ago lighted his torch at its consecrated flame—has its Botanical Garden and

Professor. Of Professor Gray I have nothing to say, he is above my praise or censure. How is it that amongst the many bequests of the last ten years, not a dime or a dollar has been given to this department? If to arrive at conclusions by inference, it is only fair to conclude that no love has been created or benefits derived from this department of science. If we contrast this miserable appendage to this renowned seat of learning with the many scattered throughout England, and more especially that of Kew, we are amazed at the apathy displayed.

That precisely the same class of individuals derive immense advantages from botanic gardens, is shown by the reports from Kew, where the museum and grounds are daily crowded by an eager host of youths who, whatever may be their future destiny, feel that a knowledge of botany—which plays such important parts in the arts and sciences—is an indispensable qualification. Thus we see that restless energy in their merchants; and hardly one in twenty of the officers in the army or navy but has a fair knowledge, and some we know are really eminent; as to their physicians and apothecaries, why, as a matter of course, they are well up, but “comparisons are odious.” I only ask what does the University possess, what inducements does it offer to the student? Is there anything to impress us that the slightest knowledge is of any importance whatever? No. A plantation of overgrown trees; I say overgrown, for the size of the place; a few hardy plants, and what glass they have, more or less, devoted to the growth of plants and flowers for sale, in order to eke out its forlorn existence.

As to the park that Blaxton has urged, does he not know that before a child can run it must be taught to walk? that it may be entrusted with a toy gun from Washington Street, but not with a six shooter from Dock Square? No Sir; not for the world. As an illustration, take the Public Garden, and that mighty and magnificent structure that bridges over that vast sheet of water, whose outlines are the acme of perfection in all that is tasteful and harmonious.

Oh, shades of departed pigmies, Repton, Price, Brown, Downing and Paxton, what a pity you each and all lived so

early or died so soon. Had you, poor fellows, lived till now what ideas you could have garnered for the formation of groups, and the distribution of trees, shrubs and flowering plants. Why, the whole thing is a unit, it is all in keeping; instead of wandering all over the lot, as these poor silly men compelled you, in order to see and admire, all you have to do is, look at one and go your way, for they are all alike.

As a climax to this political hodgepodge, there is the greenhouse. Did it occur to your contributor Blaxton, when he penned his two former articles advocating a public park, that the city fathers were compelled by poverty to let their greenhouse, such as it is, for a \$1000, or \$1200 a year? If it is not poverty what else? The flower dealers and apothecaries pay their taxes to the city authorities, and they, the city authorities, let their greenhouse to a tenant (and so far he is fully justified) who devotes it to the sale of flowers and soda water.

When the Public Garden is remodelled and the greenhouse ceases to be a peddler's shop, it will be time for our friend to urge the imperative necessity of a public park.

NEW VEGETABLES.

THE principal additions to our list of vegetables have already been noticed in our last volume. A few others are announced for the present year, and we find the following account of the progress in this department abroad, the most prominent and important additions being new peas, which are said to be really valuable, combining the qualities of the wrinkled marrows with the earliness of the early sorts, McLean's Little Gem, and Laxton's Long Pod, already known to our cultivators, being examples of what the English growers are endeavoring to accomplish through careful selection or hybridization. There is no doubt we shall have varieties of the former quite as early as Dan O'Rourke, or other heretofore favorite extra early peas:—

The progress made in the culinary or vegetable department, though, perhaps, it has not been so brilliant, has been equally great. Vegetables are not in themselves of so captivating a nature as either flowers or fruits, though they exercise a wider and more powerful influence, and minister more directly to our daily wants, than either of the other two. It is, therefore, extremely gratifying to witness the gradual and general improvement that is being worked out amongst them. In speaking of vegetables, however, we can scarcely define what are the actual novelties of the past season, their introduction is, so to speak, so gradual, and it is so difficult to tell what is a novelty, and what is not. Nevertheless, both by the careful selection and saving of seeds of the truest and purest description, as well as by hybridization, our stocks of vegetables are undergoing a steady annual improvement.

A great revolution has taken place in peas during the past few years, and we have become possessed, principally through the exertions of Dr. Maclean, of an entirely new race of most excellent dwarf wrinkled marrows, rivalling in earliness and hardiness Sangster's No. 1 itself, one of the best of the early frame class, which class indeed seems destined to be entirely superseded by the new varieties in question. Of the latest of Dr. Maclean's hybrids, we may mention Premier, a variety of superior merit, and Wonderful, another excellent sort. Mr. Laxton has also succeeded in raising some very promising hybrids; in particular, Alpha, a blue wrinkled marrow as early as Dillistone's Early, and Supreme, a blue marrow, with very long pods. These, however, will require some years of careful selection before being introduced to the public. Amongst other acquisitions in this class, we may mention Messrs. Carters' Dwarf Waterloo, and Messrs. Nuttings' No. 1.

We have two additions to the Spinach family, namely, Lee's Giant Oracle, and the new Australian Spinach, both commendable in their way, since they not only grow very freely and rapidly, and produce an abundant supply of leaves, but when cooked, although not so tender or delicate in flavor as the true Spinach, yet they prove to be very useful substitutes for that vegetable. In Brussels Sprouts, Scrymger's Giant, a variety of English origin, although not strictly new,

is worthy of notice here as a most excellent sort. In cauliflowers, Bewary's Earliest Erfurt is a superb early variety; and in Broccoli we have an excellent new late acquisition in Williams' Alexandra. In cabbages, Little Pixii and the hardy Dreadnought are useful additions. In onions, on which much discussion has arisen, although we have gained nothing absolutely new, yet in the Nuneham Park and Stanstead Park selections of the White Spanish we have important regenerations of well known forms. In lettuces, the Moorpark is an excellent hardy white Cos. Potatoes, the most important of the productions which mother earth pours into the lap of the gardener, afford materials to chronicle at least one grand acquisition, in the variety called Milky White, which is, perhaps, the most valuable Kidney potato yet introduced. Smith's Early, or the Coldstream Early, still stands forward as the best early variety.

Lastly we may speak of tomatoes, of which we have learned much during the past season. The Orangefield has been found to be the earliest of the large-fruited sorts, dwarf, and excellent in quality. Keyes' Early Prolific proves a very prolific and excellent sort, while of late American kinds, which produce very large fruits, we have important additions in the Tilden, which has the fruits red, and the Fiji Island, which has the fruits of a beautiful crimson, quite a new color among tomatoes. To these we must add the plum, cherry, pear-shaped, and other small-fruited varieties, which, besides being useful, are exceedingly pretty when grown as objects of ornament; in fact, on which side soever we look, there is some improvement to be recorded.

THE MILKY WHITE POTATO.—This variety, mentioned in the above extract, is a new seedling which is highly commended by the English cultivators. It is not only perfectly distinct, but far superior to any other English potato. A writer in the Gardeners' Chronicle states that he cultivated it extensively last year, "and upon the worst potato land he had. Several other varieties, grown side by side, showed disease more extensively than this. As to its eating quality it undoubtedly stands at the head of the list." It is well worthy of trial with our American varieties.

NOTICE OF SOME INTERESTING HERBACEOUS PLANTS
FROM CALIFORNIA, NEW OR RARE IN FLORICULTURE.
NO. II.

BY JOHN L. RUSSELL.

ABRONIA CRUX MALTÆ (Kellogg.)—The abronias are considered charming plants, not unlike the verbenas, with corymbs or heads of sweet scented flowers, and belonging to the natural order of Nyctaginaceæ, which contains many showy plants. The flowers of this species are in axillary heads on long peduncles, of a deep purplish rose color, the throat swollen and of a bright emerald green, while the tube is pink or flesh color. It was detected in the Carson Valley, Washoe, and first made known in 1860.—(*Proc. Calif. Acad. Nat. Sc. Vol. II.*)

ASTRAGALUS HYPOGLOTTIS, var. *strigosa*. (K.) (Leguminosæ.)—A small plant, with considerably large flowers in condensed heads on long axillary peduncles; and of unusual beauty. The calyx is of a dark purple, the petals purple, shading to white on the points and margins.

A. GIBBSII (K.) *Proc.*, &c., fig. 50.—Stem herbaceous, fistulous, simple villous, 1—2 feet high; leaves on short petioles, with 8—10 pairs leaflets, stipules foliaceous; flowers large, an inch long, nodding, 15—20 flowered, pale purple. Calyx tubular bellshaped, with very short broadly acute awl-pointed creamy white teeth. Brought from head waters of Carson river, in the Sierra Nevada, and presented in 1862. It appears to be a fine, showy plant.

A new composite of the Rudbeckeæ order is the

BAHIOPSIS LANATA (K.)—Closely allied to the genus *Echinaceæ*, the flowers, stamens and pistils yellow, indigenous to Cerros island. The Botanical Register, No. 1167, gives a figure of *Bahia lanata*, Dec., on the similitude of which the new genus is founded.

CAMPANULA FILIFORMIS (K.) or tubular bellwort (Campanulaceæ) from the description reminds us of *Specularia perfoliata*; its stem, a foot high, pentangular, alternate leaves small, on very small petioles, ovate lanceolate, acute or acuminate; scabrous throughout; flowers from the axils of the

leaves in panicles of 3—9; corolla subfiliform tubular, half to three-fourths of an inch long, subpentangular, color of a pale blue.

COLLINSIA SOLITARIA (K.) Scrophulariaceæ.—Stem simple, slender, six inches high, pubescent leaves opposite, oblong-ovate or spatulate, three nerved entire; calyx cleft about half the distance, segments light green; below bright purple; corolla purple-blue, tube as long as the calyx; calyx spherical. Found in the vicinity of Oakland.

DELPHINIUM FLAMMEUM (K.); Ranunculaceæ. Fiery larkspur.—Stem simple, about a foot high, hirsute, with white appressed hairs throughout, petioles slender, leaves digitately five-parted, lobes attenuate cuneate, trifid, divisions long linear-subulate. Spur of the flower long and slender, dilated, at the base subulate, apex ascending bright scarlet, two upper appendiculate petals yellow, lamina two lobed, upper lobe narrow, recurved, tipped with pink, lateral calyx-sepals obovate; capsules three, naked; stigma two-toothed. From Cerros Island, by Dr. Veatch.

ECHINOSPERNUM NERVOSUM (K.) Borraginaceæ.—Stem herbaceous, simple, minutely strigose throughout, flowering branches erect, spreading, lengthened into lax rather naked virgate racemes; leaves sessile, ovate lanceolate, strigose; calyx segments lanceolate, sometimes obtuse; corolla salver formed; flowers with a blue border, the tube pale and whitish; fruit and veins of the leaves often purplish. Proc. l. c. fig. 42. Resembling a *Myosotis*, and perhaps quite as pretty. From the head waters of Carson river.

ERITRICHIMUM CONNATIFOLIUM (K.) Borraginaceæ.—Another *Myosotis* or *Forget-me-not* plant, possibly a variety of three or more supposed species belonging to *E. californicum* (Torrey.) Stem simple, ascending subglabrous below, hirsute above; leaves opposite connate and sheathing; corolla rotate salver formed, lobes rounded, stamens and pistils included; nuts (seeds) rugulose. Proc. l. c. p. 164, fig. 51. A handsome plant.

GALIUM STELLATUM (K.) Starry haired Cleavers. Rubiaceæ.—Stem suffruticose at base, above hoary with *stellate* pubescence, leaves in whorls of four, sessile, or nearly so,

ovate-acute and acuminate, subulate at the tips, flowers—fruit axillary and terminal, very densely hirsute with long straight white bristles. From Cerros Island. Proc. Vol. II. fig. 26.

GALIUM MULTIFLORUM (K.)—Stem somewhat decumbent, at the suffruticose base glabrous, the thin bark exfoliating in shining shreds; leaves four in a whorl, roundish-ovate, margins scabrous, surfaces minutely granular, peduncles axillary and terminal in trichotomous cymes; flowers numerous, white; fruit globose, hirsute, with long, slender, soft, white hairs. From Washoe. Proc. l. c. fig. 27.

HEMIZONIA Dec. Podromus, Nat. order Compositæ, Division Madios. T. & G. Flora of N. America, p. 396, Vol. II. *H. Calsamifera* (K.) Stem annual; lower leaves pinnatifid, the lamina decurrent into a winged three nerved petiole, the lobes in seven pairs, linear entire hairy, 3—5 inches long; the upper pinnate lobed; rays of the flower heads twenty-five or more, fertile in two series, three cleft-toothed; corolla of the disk yellow; receptacle convex. This plant exhales a pleasant balsamic odor, and belongs to a class of Californian plants known as “Rosin weeds.” Proc. Vol. II. fig. 13.

HEMIZONIA LUZULÆFOLIA Dec. Prod. 5, p. 692. Torrey, in Botany of Pacific Railroad Route, Vol. IV., p. 168. Variety *fragarioides* (K.) Stem annual, loosely branched alternately, branchlets leafy, numerous, slender and spreading, lower leaves opposite, spatulate, lanceolate, remote cut dentate; involucre hemispherical, scales in two series; rays five to twenty, broadly wedgeshaped, deeply three lobed; disk florets translucent white, deeply fine toothed; chaff united into a cup, membrane foliaceous, somewhat hirsute; receptacle convex. This plant has the odor of strawberries; the *pinkish tinged white* flowers are very pretty. Proc. *ut supr.* fig. 14.

LATHYRUS LANSZWERTHI (K.) Leguminosæ.—Stem slender acutely four-angled, sparsely pubescent above; leaves with three or four pairs of leaflets, linear oblanceolate, cuneate, entire. Stipules semi-sagittate; peduncles shorter than the leaves, one to four flowered, flowers rather large, pale flesh colored mature seeds unknown. Proc. *ut supr.* fig. 44. From Washoe by Dr. Lanszwert.

LEWISIA (Pursh.) Nat. Ord. Portulacaceæ.—This genus was instituted by the celebrated botanist Pursh on a specimen found in the herbarium of Lewis (Lewis & Clark's Expedition to the Rocky Mountains) and published in the Linnæan Transactions, Vol. II. In his *Flora Americæ Septentrionalis* he says, "This elegant plant would be a very desirable addition to the ornamental perennials, since if once introduced, it would be easily kept and propagated, as the following circumstance will clearly prove. The specimen with roots taken out of the herbarium of M. Lewis, Esq. was planted by Mr. McMahon of Philadelphia, and vegetated for more than one year; but some accident happening to it, had not the pleasure of seeing it in flower." Professors Torrey & Gray (*Flora of North America*, Vol. I., p. 677) tell the same story, and confirm Pursh's statement by a similar instance with specimens brought from the dry prairies in the interior of Oregon by Douglass, which vegetated in the garden of the London Horticultural Society. See also Hooker's *Bot. Miscell.*, I, p. 344, t. 70, and *Flora Boreali Americana*, I., p. 233. From this tenacity of life the plant received the name of *L. rediviva*, though called 'Spatulum or Spætulum' by the natives, who gather the roots and employ them largely as an article of food, producing a substance when boiled like *Salep* or *Arrow-root*."

The White Spatulum of the natives has been called by Dr. Kellogg *Lewisia alba*; its root large, spindle-shaped, branching below, the loose outer bark dirty white, the inner portion white and farinaceous. Leaves succulent, linear, spatulate, obtuse, the membranous margins waved, surface roughened and wrinkled, glaucous green, turning to red on withering. Scapes succulent, 2—3 inches long, subterete; flowers white, with about sixteen petals; stamens extrorse, anthers pink colored; style, eight parted.

LINOSYRIS (Lobel.)—Perennial herbs or suffruticous plants with alternate leaves, linear or oblong, most entire and one nerved. Flowers yellow. T. & Gr. *Fl. N. Am.*, II., p. 232. Natural order, *Compositæ*, Division *Chrysocomeæ*. *L. dentatus* (K.) has a stem 2—3 feet high, light and hoary; leaves crowded and fasciculate, *cut serrate*, teeth very sharp, with a

horny point. Flowers at the extremity of the leaf-branches, in compound, clustered, subcapitate corymbs. From Cerros Island. A figure of *L. pulchella*, Gray; in Sitgreave's *Report*, t. 4, shows the genus an interesting and probably hardy one.

LUPINUS, (Tournefort.)—The beauty of the lupines always recommend them to the favorable notice of all lovers of showy and fine plants. A dozen or so Californian species were published by Torrey in Botany Pacific R. R. Survey, and Dr. Kellogg has added to the list the following:—

L. STIVERII.—Stem suffruticose canescent, fistulous; leaflets six to seven, oblong, cuneate at base; racemes condensed, conical; flowers alternate, large; banner *bright yellow*, with a few red spots on the centre, wings pale *bluish purple*. Keel whitish, pods small, torulose, constricted; containing 5—6 seeds, which are of a pale amber color, with dark spots. Found on the Sierra Nevada, and on the Maripose trail to Yo Semite, growing within fifty yards of the snow, and the first plant to blossom. Proc. ut supr., Fig. 58.

L. CONFERTUS (K.)—Stem leafy, silky hirsute; leaflets 5 (or 3) to 7, oblanceolate, narrowed at base; spike cylindrical, very densely flowered; flowers persistent, blue, small; pods included in the withered flowers, silvery silky. Proc. fig. 59.

L. CALCARATUS (K.)—Stem erect, about a foot high, silky pubescent leaflets, 7—10, lance-linear acute, narrowed at base; flowers numerous, in a somewhat close alternate raceme, white and greenish white; the spur remarkably long, suggesting the name; allied to *L. laxiflorus*, but distinct. Proc. fig. 60.

L. CANDATUS (K.) Stem persistent, decumbent, leafy and branching, silvery pubescent throughout. Leaflets 5—7, linear lanceolate, acute mucronate, narrowed towards the base; flowers blue, scattered and subverticillate; pods linear silky. Found with the last, but more rare. Proc. op. cit. fig. 61.

MENTZELIA. (Linnæus.)—Branching herbs, rough and tenacious with barbed hairs, alternate, coarsely toothed or sinuate pinnatifid leaves; golden yellow or rarely whitish flowers. T. & G. *Fl. N. Am.* Vol. I., p. 582. (Nat. Order, Loasacæ.) To fourteen or more species Dr. Kellogg has added the following in California.

M. CORDATA (K.) Heart leaved mentzelia. Stem about two feet tall, leaves alternate cordate lobed; flowers in a somewhat condensed terminal panicle, numerous *whitish* petals, erect, spreading, about an inch long, opening probably at evening. From Cerros Island.

M. VEATCHIANA (K.)—Root annual, stem low, branching, lustrous, light flesh-color, leaves remote sessile, differing from lance-linear to subcordate; flowers small, *bright golden yellow*, deepening to a rich orange towards the centre petals five, twice the length of the calyx segments; capsules cylindrical. From the vicinity of Virginia City, Washoe. Proc. *op. cit.*, fig. 28.

MERTENSIA. Smooth Lungwort. (Nat. Ord. *Borraginaceæ*.) The well known *Pulmonaria virginica* of our gardens is a native *Mertensia* of the Western United States. The Sea lungwort is occasionally found on beaches from Plymouth, Mass., to Maine, and a beautiful plant it is. A more northern species is the paniced flowered *M.* ranging from "Lake Superior northward and westward." (*Gray*.) A fourth is *M. stomatechoides*, (K.) collected near the headwaters of Carson River, California. It has a herbaceous, neat, smoothish stem, ovate lanceolate, acuminate-mucronate, sessile, erect decurrent leaves; axillary and terminal, racemed inflorescence; purplish-blue flowers, with short calyxes and tubular corolla; persistent, exerted pistil. Proc. *op. cit.*, fig. 43.

PENTSTEMON. (Nat. Ord. *Scrophulariaceæ*.)—This fine group of plants holds a deservedly high place among florists, and are special objects of regard in our flower borders. Here are three new ones from California, viz., *P. canasobarbata* (K.) or Greybearded pentstemon, with lanceolate, sharply connate-serrate leaves, slightly colored flowers, the lower segments more or less densely bearded with white transparent frosted hairs. The second is *P. rostriflorum* (K.) with a smooth stem, linear lanceolate leaves, nerved *creamy-yellow* flowers, an inch long. The third is called *P. cerrosensis* (K.), a branching suffruticous stem, coriaceous, corrugate or buttate, glaucous leaves; corolla, obliquely ventricose downwards, divisions of the border very short, throat naked, contracted, yellow; capsule conic, two-celled, four-valved,

seeds black and angular. These several species would be regarded rather as curious than beautiful; interesting in a collection.

SISYMBRIUM ALLIONI. (Nat. Ord. *Cruciferae*.)—The species of this genus, which grow in the far west are more attractive than are those more familiar to our eyes. The *S. reflexum* of Dr. Kellogg is founded on specimens brought from Washoe, and though perhaps too near to Nuttall's *S. pauciflorum*, as is intimated, appears to be a prettier plant than his, with beautiful deep *rose-purple* petals, compressed reflexed siliques (pods,) entire sessile spatulate-lance-shaped leaves, and a greenish-grey biennial, perhaps perennial stem, the branches slender, erect and hairy. Proc. fig. 29.

SISYRINCHIUM, (L.) Nat. Ord. *Iridaceae*.—The pretty "blue-eyed grass" of our wet meadows is familiar to every one, who has an eye to see its morning beauty in the wet sedges. I have had it grow and flourish in a quite dry soil, and esteem it much; and why not as charming as *Commelinia caelestis* forsooth? But here is a novelty with a *bright translucent yellow* perianth, so beautiful that "its seeds have been sold in the city of San Francisco, under various names, as Yellow Pigmy lily, Star Grass lily, Yellow-eyed Grass, &c.," and occurring very abundant in damp and boggy localities in the vicinity of the city. (Proc., page 51, fig. 3.)

SPRAGUEA. Nat. Ord. *Portulacae*.—The *S. umbellata* from California is described in the Flower Catalogues as a charming plant, and valuable for rockwork. The *S. paniculata* of Dr. Kellogg is another charming species, which grows in a dense ball or cluster, prostrate upon the ground, its flowers secund scorpoid, the petals oblong, the anthers pink; the foliage consisting mostly of radical leaves in a rosulate cluster, and flowering in May and June. Found in Nevada Territory, growing at an altitude of about three thousand feet. Proc. Vol. II. fig. 56.

STREPTANTHUS (*Nuttall.*) Nat. Ord. *Cruciferae*.—Annual or biennial herbaceous plants, with purple and sometimes yellowish or white flowers. A striking and singular plant is given in Figure 46 of the Proceedings, &c., representing *S. tortuosus*,

(K.) a stem simple, glaucous and smooth; lower leaves petiolate, spatulate, wedge-shaped, at base entire, serrate above, obtuse. Near the base of the branches are large foliose bracts, orbicular clasping, entire or minutely repand dentulate, supporting as it were long recurved narrow siliques (pods); the flowers with *bright purple* calices or perhaps *lilacred*, margin of the petals undulate; seeds wing margined. Brought from the copper regions of the Sierra Nevada mountains. More than a dozen species besides are described by Torrey and Gray as indigenous to North America.

TEUCRIUM GLANDULOSUM (K.) Nat. Ord. *Labiatae*.—"The teucriums," says Loudon, "are shrubs or herbs of little beauty, though some are aromatic." The present one is represented as having the stem branches as striate, minutely glandular, with glistening glands of a *golden hue*, and *blue* flowers.

TRILLIUM CALIFORNICUM. (K.)—A fine new trillium near *T. grandiflorum*, but the petals are different in shape, and the leaves rhombic-obovate, broadly cuneate at base, abruptly acuminate, five nerved, the margin wavy, reticulate, *purple checked* towards the upper part. The flowers have however *greenish white* petals, checked with *purple* on their upper surface. Certainly worth cultivating.

VIOLA AUREA, (K.) Nat. Ord. *Violaceæ*.—A singular Alpine species, almost woolly in its external appearance, from the Nevada Territory. Stem short, erect, leaves ovate, subacute, base cucullate, entire, coarsely dentate; peduncles longer than the leaves; flower with a pure *brilliant yellow* corolla. Proc. fig. 54.

V. SEQUOIENSIS (K.)—Minutely pubescent, stem somewhat angular, flexuous; leaves subcordate and kidney shaped, often 10—12 lobed, and three to four inches broad, cordate, palmate, leafstalk, 2—3 inches long; flowers yellow, large, two upper petals brownish on the back; three lower petals brownish at base, with a few striate veins, spur short.

Abundant in the Redwood forests of Sierra Nevada mountains; and occurring at an elevation of 3000 feet. Proc. l. c. fig. 55.

V. CHRYSANTHA var. *nevadensis* (K.)—A distinct variety of Hooker's *Chrysantha*, or golden-flowered violet, with *very large* flowers, petals obovate-cuneate, the two upper yellow in front, purple on the back, claw also purple in front, lateral petals somewhat papillose bearded, lower petals brightly yellow, with dark purple veins at base, the lowest with a short spur. Proc. fig. 72. So fine a species should be sought for cultivation.

WAHLENBERGIA CALIFORNICA (K.)—Natural order, Campanulaceæ. A delicate, small, simple stemmed species, the flowers usually solitary, and terminal, on long peduncles, the leaves alternate, ovate, subacute, mucronate, dentate; corolla monopetalous, erect, funnel formed, with a fine pointed border and pale *blue*; supposed to be a new feature in the flora of the Pacific Coast of North America.

Salem, December 5, 1867.

FLORICULTURAL NOTICES.

THE BEDDING PELARGONIUMS are now the most potent force of the bedder-out, and in his hands they have been used to aid the formation of a new era of garden decoration, that is yet but as the portal leading to the temple of floricultural embellishment, wherein lies enshrined its brightest achievements. Of the bedding pelargonium, the gardener can say as Henry IV. observed of his child, the pleasures "des fleurs et des livres" are the property of all the world. The constitutional vigor of the bedding pelargonium is a point in its favor of no mean order, for, as Mr. Moore^t once observed respecting it, while the verbena succumbs to mildew, red spider, or thrips, or the calceolaria to paralysis, the pelargonium blooms on, heedless alike of the pluvial or torrifying vicissitudes of weather, simply needing certain slight modifications of treatment in order to check-mate, as it were, the predominant influences of season.—(*Gard. Chron.*)

NEW PLANTS OF 1867.—From a summary of the new plants of last year, we copy the following interesting information:—

We commence our summary with the stove plants, an important group, which in these days separates naturally into the divisions representing those which are cultivated for the sake of their inflorescence, and those in which the foliage is the chief, if not the only object of attraction. Among the former, taking all points into account, we must assign the first place to the rose-colored *Dalechampia Roezliana*, from Vera Cruz, a most distinct looking shrub, of remarkably free-flowering habit, the curiously-constructed flowers of which, together with its broad, conspicuously-colored rosy floral leaves, rivalling those of the *Bougainvillea*, are not only very ornamental, but altogether dissimilar from any thing previously known amongst cultivated plants. Even more wonderful and startling as regards its form and size, is the Calabar *Aristolochia Goldieana*, which has been coaxed into blossom in the Glasgow Botanic Garden. Then comes the new *Allamanda nobilis*, which we hope shortly to describe in detail; but of which we may here state that the blooms, while equal in size to the largest of those yet known, are superior, in regard to symmetry and perfectness of form, to those of any other species in cultivation. Another new hybrid *Dipladenia*, called *amœna*, also claims prominent mention; it has been obtained by crossing *amabilis* with *splendens*, and partakes more of the latter than the former, on which, however, it is a great improvement in regard to beauty of tint, and also in its more profuse-blooming habit. *Ixora princeps* is a very fine addition to one of the most striking genera amongst stove flowering plants; and *Tacsonia Buchanani* promises to be a worthy addition to our stove climbers, though perhaps less startlingly dissimilar from previously-known kinds than was the *T. Van Volxemii* we had to chronicle last year. Turning to another group, we have in *Begonia boliviensis* a thoroughly novel acquisition, so utterly unlike the familiar begonias of our gardens, that one has to look twice before assenting to the name; its pendent, long-petaled, bright-colored vermilion blossoms should render it a most useful decorative plant of the soft-wooded series. We must not here forget to record the Mexican *Nægelia fulgida*, a green leaved and very handsome gesnerad, somewhat

resembling *N. cinnabarina* in its flowers; nor the fine pale-colored hybrid varieties of the same genus—*chromatella*, *Lindleyana*, *cymosa*, and *rosea punctatissima*, for which we are indebted to the Belgian gardens. With these come in *Cyrtodeira chontalensis*, a gesnerad with large lilac spotted flowers, recently acquired from the gold region of Central America; *Aphelandra Roezlii*, a most brilliant orange-scarlet Mexican scanthad, with singularly twisted silvery-surfaced leaves; and the bright red long-tubed Bolivian *Stemonacanthus Pearcei*, which may be considered as another acquisition in the great family of *Acanthaceæ*; while *Sanchezia nobilis variegata*, the green-leaved form of which was mentioned last year, and the white striped form of which has come out this season, has this additional claim on our attention, that whereas in either state its flowers are gorgeous, in the latter it ranks very high indeed also as an ornamental-leaved plant.

Many fine things have been added to the series of stove plants just mentioned—those grown for the sake of the foliage; and none perhaps in the group are more beautiful, or more novel in character, than the Indian *Alocasia Jenningsii*, a herbaceous plant with bold sagittately-cordate leaves of a bright green color at the margin and along the course of the principal veins, and marked between the latter with dark chocolate brown, almost black, wedge-shaped sections, the effect of the contrast being entirely novel, and very pleasing. Another new *Alocasia* deserving of prominent mention is of hybrid origin; it is called *A. intermedia*, and comes in exactly half-way between its parents, *A. Veitchii* and *A. longiloba*, or it may perhaps be better described as a larger and more invigorated *Veitchii*, which, beautiful as it is in its color and grotesque in its form—we have heard its leaves fancifully compared to the visage of the “horned gentleman,” but we cannot speak to the resemblance—is well known to be rather a delicate and slow grower. Some extremely valuable additions have also been made to the painted-leaved *Codiaeums*, better known in our gardens as *Croton pictum*. These have been obtained from the South Sea Islands, and differ principally in the size and form of their leaves, which are brightly veined with yellow, and with age take on in addition more or less of a reddish tint; they are distinguished

by the names *Veitchianum*, *maximum*, *interruptum*, and *irregulare*. From the same source, and introduced at the same time, come three new *Dracænas*, all very distinct and handsome plants. They are: *D. regina*, which is of stout stocky habit, with the leaves broadly edged with white; *D. Moorei*, which has vigorous undulated drooping leaves, similar in color to those of *D. ferrea*; and *D. Macleayi*, which has narrower firm-textured recurved leaves, of a reddish bronzy hue. These will all be most valuable additions to our collections; as doubtless will be the Peruvian *Ficus dealbata*, with its large elliptic leaves, of a silvery white beneath, which has been shown at the Paris Exhibition.

Stove bulbs, a most distinct class of plants, to an appreciation of the merits of which public taste seems to be again awakening, have been augmented by a few most decided acquisitions. The *Hippeastrum* group of *Amaryllis* in particular receives in the *A. pardina* decidedly one of the finest of its species, and one of the most valuable introductions of the present year—so novel, and withal so really beautiful are its blossoms; they are of the widely-expanded form, straw-colored, and spotted all over with markings exactly like those one sees on spotted-flowered *Calceolarias*. The *Amaryllis Alberti*, another plant of the same group, is scarcely less an acquisition, on account of its large double flowers of a rich orange scarlet, which, in regard to their form, may be likened to those of a gigantic double Daffodil. *Griffinia hyacinthina maxima* is a grand plant, altogether stouter than the type of the species, and having large dark blue flowers measuring between four and five inches across; it has been obtained from Brazil, as has another very pretty species of the same genus, *G. Blumenavia*, which has its flowers white, striped with rose color on the principal segments.

Among greenhouse plants the accessions are not so numerous. *Pleroma sarmentosa*, however, with deep violet flowers in the way of *Pleroma elegans*, must be regarded as a novelty of the highest order of merit; and to this must be added two Japanese *Hydrangeas*, obtained by the St. Petersburg Garden, namely, *H. stellata prolifera*, with densely packed small star-shaped double sterile rosy-tinted flowers; and *H. paniculata grandiflora*, which has more the habit of *japonica*, but pro-

duces very large terminal pyramidal leafy panicles, a foot long or more, bearing numerous large white flowers. *Dalea Mutisii*, a South American shrub, with terminal spikes of deep blue flowers, falls into this group, and will probably prove useful either as a pot plant, or as a summer flowering plant for the garden, if planted in a sheltered place near a wall; and *Clerodendron scrotinum*, introduced from China to the French gardens, is also highly spoken of as a shrub for the summer garden. This is said to produce large corymbose panicles, a foot or more across, of pure white sweet-scented flowers, having rose-colored calyces. Of foliage plants for the summer garden, *Coleus Veitchii* has been the most striking novelty; this, like *C. Gibsoni*, comes from New Caledonia, and is of similar sturdy habit, but its leaves are entirely of a chocolate brown in the centre, and margined with a lively green border, which gives them an unusual and by no means unornamental appearance. Before leaving this group we should mention *Agave xylinaantha*, as representing a family which is moving upwards in popular estimation in this country, and very deservedly so; it is one of those smaller growing species, which have the leaves beset with compressed irregular spines, having a woody appearance, whence the name.

959. *VRIESIA GIGANTEA* *Gaudich.* GIGANTIC VRIESIA. (Bromeliaceæ.) Rio Janeiro.

A greenhouse plant; growing from 10 to 12 feet high; with white flowers; appearing in spring; propagated by cuttings; grown in light rich soil. *Ill. Hort.*, 1867, pl. 516.

A gigantic and superb species, from the cool regions of South America, where it is found at an elevation of 3000 to 4000 feet. It flowers from October to December. The stem grows ten to twelve feet high, and six to eight inches in circumference at the base, and throws up from seventy to a hundred branches, each one bearing from thirty to forty beautiful flowers, of a yellowish white, highly fragrant, and accompanied with purple bracts. It is a grand and extraordinary plant, and will prove a fine acquisition. (*Ill. Hort.*, May.)

960. *PELARGONIUM LADY CULLUM.* Garden Hybrid.

A greenhouse plant; with tricolored foliage and scarlet flowers. *Illustration Horticulte*, 1857 pl. 517.

This is one of the beautiful tricolored Zonal pelargoniums

like Mrs. Pollock, but is said to be even richer and finer in its tints. It will prove a fine addition to this superb class. (*Ill. Hort.*, May.)

961. CAMELLIA ANGELO COCCHÉ. Garden Hybrid.

A greenhouse plant ; with variegated flowers. Illustration Horticole, 1857, pl. 518

One of the Italian seedlings with large flowers, pinkish white, boldly striped with rose. It is slightly irregular, a peony form toward the centre, but is very showy. The foliage is good, and it is a free bloomer. (*Ill. Hort.*, May.)

962. TACSONIA BUCHANNI *Hort.* MR. BUCHANNAN'S TACSONIA. (Passifloracæ.) Panama.

A hothouse climber ; with scarlet flowers : appearing in winter ; increased by cuttings ; grown in rich soil. Illustration Horticole, 1857, pl. 513.

A very showy and superb species, introduced by Mr. R. Buchanan of New York, from Panama, and sent to M. Verschaffelt of Gand. It is a robust and vigorous plant, with trilobed foliage, the lobes very deep, and dentated on the edges. The flowers are large, of a light vermilion, axillary, and very brilliant and showy. It flowers quite young, and is a most ornamental species. (*Ill. Hort.*, June.)

963. VIOLA PEDATA *D. C.* PALM LEAVED VIOLET. (Violacæ.) North America.

A hardy plant ; growing six inches high ; with blue flowers ; appearing in spring ; increased by seeds and division of the roots ; grown in peaty soil. Illustration Horticole, 1857, pl. 520

This is the well known violet of our fields, many times described in our pages, and common throughout New England. It is treasured as one of the prettiest plants in the European horticultural gardens, and it is grown in great perfection by Messrs. Backhouse of York, England. It should receive more attention from our own cultivators. (*Ill. Hort.*, June.)

964. SMILAX LONGIFOLIA, FOL. VARIEGATA. LONG LEAVED VARIEGATED SMILAX. (Smiliacæ.) Para.

A hothouse climber ; growing ten feet high ; with variegated foliage ; increased by cuttings ; grown in rich soil. Illustration Horticole, 1857, pl. 521.

A very beautiful climbing plant, with long, narrow gracefully formed leaves, recurved towards the end, the three longitudinal veins of which are deep green, and the interme-

diate spaces pure white. Where the green and white unite the edges are jagged and uneven, giving a beautifully mottled aspect to each leaf. It is a rapid growing evergreen, and will be a rival of the ivy for hothouse decoration. (*Ill. Hort.*, June.)

DIANTHUS DENTOSUS.

BY THE EDITOR.

THE new varieties of the Dianthus, which have been obtained by hybridization, contain several novel and beautiful forms, all admirably adapted by their dwarf compact habit,



2. DIANTHUS DENTOSUS.

hardy character and prolific bloom, to the wants of the cultivator, and supply an important place in the decoration of the garden. One of these hybrids is the *Dianthus dentosus*, (FIG. 2.)

The plant has somewhat of the habit of the Chinese pink, but is more compact and dwarf, throwing up numerous branches to the height of eight inches, terminated with an abundance of flowers, double or semi-double, and varying in color from lilac to violet, or a bluish tinge, with a purple crown in the centre. It begins to blossom in June, and continues in flower throughout the summer and autumn.

Like the *Heddewegii* pink it is biennial, but flowers the first year from seed. If sown early, in March or April, and the young plants transplanted into good soil in May, they will begin to flower in July. The second year they become well established, and form dense masses of bloom.

As the colors vary considerably, and some are much more double than others, a selection may be made of the best, and these may be propagated by cuttings or layers in the same way as pinks or carnations, planting them out in beds of good soil. As an annual or biennial it forms a pretty addition to the flower garden.

General Notices.

THE GLADIOLUS.—We have no decorative flower so generally useful as the gladiolus. It can be had in bloom all the summer months, or we might say, from May to Christmas; and besides being a great favorite, it can scarcely be used amiss for in-door decoration, either as rainbows for fire-places, or 3-foot spikes in ivy screens, or as specimens in drawing-rooms, when others happen to be scarce. They are clean, bright and cheerful everywhere; and even if one bloom only is open when gathered, all the others, to the very top of the spikes, will open freely with care.

In vases of cut flowers the gladioli are greatly improved by a few good grasses being intermixed with them; for example we have been cutting to put round the sides the graceful *Milium multiflorum* and *Piptatherum Thomasii*, and for the centre *Panicum fimbriatenuis*. Perhaps the most effective are among the numerous summer varieties, as *Agrostis laxifolia*, which when introduced neatly among the gladiolus blooms has all the appearance of long threads of elegant wavy silk, clustering round as a protection to the blooms, and through which they appear to interesting advantage.

Our method of planting is the same as the Devonshire farmer plants his

potatoes. The ground is double-dug in winter, and at planting time a trench is taken out one spade deep. The bulb is then put in, covering a little soil over the top, and upon this is placed a good coating of manure and leaf mould mixed, the manure being fresh and warm, as we find that old rotten cheesy looking manure brings disease, and does not push the young growth so vigorously and quickly as the fresh manure.—(*Gard. Chron.*)

CULTURE OF GLADIOLI.—Deep digging and liberal manuring, are the chief elements of success. If the gladioli are employed to succeed lilliums, as they sometimes are, and the proper preparation of the ground cannot be made for fear of disturbing the other bulbs, a vigorous growth and long spikes of bloom may still be obtained, by a liberal use of liquid manures or sewage during their growth. Under any circumstances a weekly application of either of these is useful in dry weather. To have gladioli throw fine spikes, it is important at planting to rub off every small offset at the base of the bulb, and to see that the bulbs are properly divided and planted singly. For effect in lines of color they should also be carefully selected, and only those of uniform size and vigor employed. Care should likewise be taken to insert the bulbs at the same depth. If these points are attended to, the spikes will be ranged with the regularity of the rank of an army, in new and gorgeous uniforms, and few plants can equal them in effect either at a distance or close at hand. All inferior bulbs, and the offsets, ought to be grown by themselves, and under high culture they soon become large enough to occupy the more important positions assigned to the picked bulbs. Many of the smaller bulbs will also bloom well, and will furnish flowers and foliage enough for cutting for vases, &c. As to time, I have never tried its direct application to these bulbs, and would not recommend the experiment. But they grow well on the great chalk formation, with only a depth of from eighteen inches to two feet of soil. The drier the bottom the more water they require when growing. They seem to suffer much from the two opposite extremes, an excess or a scarcity of water. On well drained land, of a depth of from two to three feet, enriched with an annual dressing of well rotted dung, and helped with frequent waterings of liquid manure during dry weather in summer, these splendid bulbs will flourish well, and add a new charm and a special enrichment to most of our gardens.—(*Gard. Chron.*)

PROTECTING VINE BORDERS.—Most gardeners are anxious at certain times of the year to have their vine borders protected from wet; therefore many are the ways adopted to attain that object—some with perfect, some with only partial success. Glass is employed in some places, asphalte in other; but the majority have to make shift with any thing that is convenient and inexpensive. Therefore some make use of old lights partly covered with boards, while others cover with straw and thatch it down, a plan which answers pretty well if a good fall can be obtained; but this is not always the case, as in many instances the border is nearly flat, and the front lights

of the vinery so near the ground that to carry the protection up at the back is impossible. A gentleman who is an amateur grape grower, has covered one of his vine borders with common house tiles, which have a neat appearance, and perfectly effectual in keeping the border dry, and they cost about 47 shillings per 1000, that number being sufficient to cover a border 24 feet by six; they can be easily laid on by any laborer—besides, no hailstorm can break and no amount of wet can rot this covering. It is also easily removed and packed away when not required, and it will last (if we may judge by old houses) until our great-grandchildren find out or afford something cheaper or better.—(*Gard. Chron.*)

WARDIAN CASES.—In January those who possess Wardian cases have a source of pleasure which others may well envy. Their use in growing ferns, and thus affording enjoyment when flowers are scarce, is well known; but there are other uses to which they might be advantageously applied. It often happens that we have a curious flower, or some choice blooms, given to us, which we wish to keep alive for a long time, in order that as many friends may see them before they fade, or that somebody in particular may be introduced to them. For such purposes a Wardian case is of great use, since it will keep flowers placed in it in a vase or jug for a much longer time than they would last in the dry dusty atmosphere of a sitting room. It is quite as useful in preserving foliage as in keeping flowers. A vase full of fern fronds and selaginellas, when flowers are not plentiful, looks remarkably pretty. There is a tall one before us now, with a few fronds of *Nephrolepis pectinata* and of *Lebaginella*, and a spray or two of *Diosma ericoides* (which latter friends may pinch and smell,) the vase standing in a small dish of yew sprigs, relieved with some little pieces of *Jasminum nudiflorum* in bloom. Near them stands an exotic glass with four spikes of *Masdevallia tovarensis*, a flower not given away every day in the week. These, in the absence of a Wardian case, will be made to last a very long time by keeping them in the coolest part of the room at those hours of the day when visitors are likely to call, and by putting them into a cool unused room for the remaining portion of each twenty-four hours.

There is another way in which Wardian cases may be used, and we wonder it is not more frequently done; we allude to keeping a collection of cacti and their allies. They are the easiest of all plants for growing in a room, merely wanting protection from the dust. Being out of fashion now, you might look over the collections of plants in twenty nursery gardens without finding twenty different kinds; nevertheless they are to be had. In Covent Garden market, and in some seedsmen's windows in London, the little red flowerpots, "no bigger than my thumb," may be seen, each containing a miniature plant of one of these fleshy-stemmed or thick-leaved curiosities. Perhaps the best collection in Europe is that of Sencke, of Leipzig; certainly the best near London is that of Pfersdorff, at Kensal New Town, who in 1861 grew and sold 24,000 dozen of these little plants; and yet, strange to say, one hardly ever sees a collection of them among amateurs. Like pins, it is wonderful what becomes of them!

Where it is not convenient to pay so much as is usually asked for Wardian cases, a cheap and elegant substitute may be made in the following way:—Get two circular discs of stout flat glass, each one foot diameter. Buy a tall glass shade, five inches diameter, and get them to cut it into three parts, viz., two rings, each five inches high, and a short glass shade which will be sure to be useful for some little ornament on the mantelpiece. Put one of the circular discs upon one of the glass rings, put the other ring upon that disc, and the other disc upon that ring. Lastly, get a glass shade thirteen inches diameter, and not less than fourteen inches high, which is to cover the whole. The miniature pots with plants in them look very pretty when arranged upon these circular glass shelves, and a case of the size now described will hold forty-three of these little pots, which, if each contain a different plant, will not be a mean collection.—(*Gard. Chron.*)

Gossip of the Month.

THE VALUE OF STATISTICS.—The Official Report of the total productions of the gardens, orchards and vineyards of the United States is set down at \$7,000,000 for the year 1850, and \$19,750,000 for the year 1860. An equal gain in ten years would give about \$60,000,000 for the year 1870. We see, however, that Mr. F. R. Elliott of Ohio sets down the value of the grape crop alone, for 1867, at \$600,000,000. Is the government or Mr. Elliott correct?

THE BARBERRY.—Mr. Warner of Rochester, N. Y., at a late meeting of the Fruit Growers' Society, said the fruit of the barberry was really valuable. It made an excellent tart—nearly or quite equal to the cranberry! This will be useful information in regard to a fruit which has been used for the above purpose for nearly a century.

DO FROGS RAIN DOWN.—At a late meeting of the Farmers' Club, New York, some one asked this question, "Do frogs, fish or worms rain down, and do horse hairs turn into snakes, under any circumstances?" Dr. Snodgrass replied that horse hairs, when left in water for some time, become enlarged, and get the motion of snakes, but he did not say they were snakes!

MANURE FOR POTATOES.—At the same meeting Dr. Snodgrass stated that "Nothing is more certain than that to manure potatoes has a tendency to produce rot, and to destroy the original flavor, if not the quality!" This is valuable information, and will save our farmers hundreds of thousands of dollars, now thrown away in the purchase of the useless article of manure.

★
 OUR PEAR-TREES DOOMED.—In an Essay, read before the American Pomological Society, the writer says that “he is well assured that though fire blight, cracking and other diseases are the means of destruction to *many thousands* of bushels of pears *annually*, debility destroys its **TENS OF THOUSANDS.**” We had thought fire blight, so called, was bad enough in the West, but we have never heard any thing about debility. We hope it will not attack the fine pear orchards in the neighborhood of Boston. Dubriel, the great French authority, does not mention this disease, nor do we find it in Thomas or Barry, and we apprehend it must be peculiar to the locality of the writer!

GENTIANA CRINITA.—Some writer has recently stated that if the flowers of this beautiful plant are cut, and placed in a vase of water, they will continue to open their “fringed lids” for a long period. He forgot to tell us where to get the flowers.

TILDEN TOMATO.—Mr. Peter Henderson, in a notice of this variety, says that it was “represented to be two weeks earlier than any other, while all comparison shows it is one of the *latest of the late*, with hardly a quality that entitles it to cultivation.” It is certainly not an early sort, but not quite so bad as Mr. Henderson states.

THE BEST TREES FOR HEDGES AND SCREENS.—In a discussion at the Fruit Growers’ Society of Western New York, a variety of trees were recommended for this purpose. Some advised the Osage orange, others the three thorned acacia, some the barberry, others the beech, some horse-chestnuts, others deciduous and evergreens together. Mr. ELLWANGER closed the discussion with the following sensible and valuable advice: “Never plant deciduous trees with evergreens. Plant the Norway spruce and hemlock for screens. The Norway spruce was the best. It should not be pruned or sheared.”

BOOKS, &c., RECEIVED:—

AMERICAN HORTICULTURAL ANNUAL FOR 1868, from O. Judd & Co. A useful little work, giving a *resume* of what has appeared in the various horticultural periodicals of the year, with numerous engravings, a list of the various nurseries, &c., and calendar of work for each month.

AMERICAN AGRICULTURAL ANNUAL, from O. Judd & Co., similar to the above, but devoted to farming utensils, with engravings of new implements, and other useful inventions.

M. O’KEEFE, SON & CO.’S CATALOGUE OF SEEDS and Guide to the Flower and Vegetable Garden. Rochester, N. Y.

VICK’S ILLUSTRATED CATALOGUE AND FLORAL GUIDE, FOR 1868. Ninety-six pages of interesting information, with many engravings of new and old flowers, and a colored plate. J. Vick, Rochester, N. Y.

Massachusetts Horticultural Society.

Saturday, December 7.—An adjourned meeting was held to-day,—the President in the chair.

The Executive Committee reported the sum of \$3440 as the appropriation for prizes for 1868.

The Committee for establishing Prizes submitted their Report.

Annie C. Wheeler, D. Clark, and Lawrence Clary were elected members. Adjourned two weeks, to December 21.

December 21.—An adjourned meeting was held to-day,—the President in the chair.

The Flower Committee, Fruit Committee, and Vegetable Committee submitted their Annual Reports.

September 22, 23, 24 and 25 were appointed the days for the Annual Exhibition.

Meeting dissolved.

January 4, 1868.—The stated quarterly meeting was held to day,—the President in the chair.

The President delivered an appropriate and interesting address, for which the thanks of the Society were tendered.

The Garden Committee and Library Committee submitted their Reports.

The subject of an Amendment to the By-Laws, respecting prizes, was taken up, and, after some discussion, rejected.

Adjourned to January 11.

January 11.—An adjourned meeting was held to-day,—the President in the chair.

No business was transacted, and the meeting adjourned to January 18.

Horticultural Operations

FOR FEBRUARY.

FRUIT DEPARTMENT.

JANUARY has not been a very severe month. There were several light snow storms, but no zero weather, and the earlier part was sunny and very favorable for forcing.

GRAPE VINES, in the earliest houses, will soon begin to color their fruit and more air may be given, particularly in favorable weather, as this facilitates the coloring. Continue to damp the walks, but not so abund

antly as earlier in the season. Stop the laterals as they continue to break. See that the border is well protected from cold rains and heavy snows, and if the heat is not ample, replace the old manure with that fresh from the stable. Vines in graperies and greenhouses will begin to grow by the middle of the month. As soon as this takes place commence syringing the vines morning and night, and continue it until all the shoots are beginning to break freely.

STRAWBERRIES, in pots, protected in frames, may now be brought into the house and placed on a shelf near the glass. Those showing fruit should have occasional waterings with liquid manure.

SCIONS OF FRUIT TREES may be cut now, keeping them in a cool cellar, in a box of sand or earth.

PEACH AND OTHER TREES, in pots, may be brought into the house and placed in a cool place, where they will start gradually.

PRUNING may be commenced immediately, and in the Southern and Middle States grafting may be done the last of the month.

ROOT GRAFTING may be done now by those who like this method of propagation; place the grafted roots in sand, in a very cool cellar, till April.

FLOWER DEPARTMENT.

There is plenty of work now in this department. The first thing is the preparation of hotbeds, and the planting of various seeds for early flowering plants. The greenhouse will require more care; as many kinds of plants go out of bloom, they should all be headed in so as to form handsome shaped specimens. Propagation should go on at the same time, when much stock is required, and numerous plants require repotting. Attend to every thing as speedily as possible.

PELARGONIUMS will now be more prominent objects; as the season advances they will begin to grow, and this should be checked somewhat by keeping the plants rather dry, cool, and near the glass. Top all vigorous growths, and tie out the shoots so as to form good heads. Repot young stock, intended for another year, and keep the house well fumigated for the destruction of the green fly. Turn the plants round once a week, and allow plenty of room to each,

CAMELLIAS will still be in flower, but some of the earlier kinds will now begin to grow. These should have more water, and repeated syringing; if they require it they should be headed in at once. Shade from the hot sun, and see that the leaves are not burnt, which greatly mars the beauty of the plants.

AZALEAS will soon begin to flower more freely, and, as they swell their buds, the plants should be lightly syringed every day. Such as are intended for later flowering should be kept cool, and rather dry, though not so much as to check the swelling of the buds. Repot young stock, and such as are wanted for good specimens next year.

CINERARIAS AND CALCEOLARIAS should be shifted into their flowering pots, if not already done. Keep the plants clear of the green fly by frequent fumigation.

CYCLAMENS, now in flower, should be kept in a cool, airy place, near the glass. Water cautiously.

PALMS, DRACENAS, MARANTAS, and similar plants, should now be repotted.

CALADIUMS, already started, should be potted off, and others potted for a succession. Divide the bulbs carefully, to increase the stock.

FERNS will now begin to make a free growth, and such as require it should be repotted; keep them syringed, but not give too much water.

ACACIAS, now coming into flower, should be well headed in as soon as the bloom is over.

HYACINTHS and other bulbs in frames, for late flowering, may now be brought into the house, and placed in a sunny situation, and freely watered.

RHODODENDRON AND AZALEA seeds may yet be planted.

SEED OF VARIOUS ANNUALS, for early blooming, should now be planted in pans or pots.

FUCHSIAS, growing freely, and intended for large specimens, should be repotted, being careful that the plants do not receive any check.

LANTANAS will now begin to grow, and the plants should be repotted. Put in cuttings for a fresh stock.

ALLOYSIA, SALVIAS, PYRETHRUMS, COBÆAS, and similar plants, for bedding out, should be propagated this month.

GLOXINIAS AND ACHIMENES should be potted in light soil, and brought forward, if possible, in a gentle bottom heat.

TUBEROSSES, for early flowering, may be potted.

VEGETABLE DEPARTMENT.

As the season advances preparations should be made for bringing forward tomatoes, cucumbers, melons, &c. We scarcely need give directions for work, a knowledge of which should be one of the earliest acquisitions of a good gardener. Where there are ample means of supplying bottom heat in well constructed and convenient houses, there will be but little occasion for hotbeds; but these are not common, and many amateurs have no other means of raising vegetables, as well as flowering plants.

Let all the manure from the stable be thrown into a conical heap, and as soon as there is a good heat, throw the whole well over, shaking it up well. After lying a few days to get rid of the rank steam, the bed may be made. If above the ground, which should always be the case, unless the situation is sandy and dry, it should be at least $2\frac{1}{2}$ feet high, made firm, and the frame put on, with the glass. Two or three days will draw up the heat, when the soil may be put in, and soon after the whole will be ready for planting. Give air at night if the heat is too strong.

TOMATOES, LETTUCE, CAULIFLOWER, and any other vegetable seeds, may be planted in pots, or directly in the soil. Do not force too rapidly, or the plants will be weak.

FRUIT HOUSES.

IN our leading article in the January number we incidentally alluded to the preservation of pears by the system of Prof. Nye of Ohio, which has recently been introduced into some of our Eastern cities, and particularly in Boston, where one of the best constructed houses has been erected and in operation for about a year, affording a favorable opportunity for the pear growers of Cambridge to test the plan so far as one year's experience would enable them to do. They have not neglected the opportunity, and we are particularly gratified in giving the results of the experiments and the knowledge obtained.

At the quarterly meeting of the Cambridge Horticultural Society in January, the preservation of fruit was briefly alluded to, and a great desire manifested to obtain all the facts in relation to the keeping and condition of the fruit which had been put into the Massachusetts Fruit Preserving Company's house. Reports had been circulated that the experiment was a failure, and as most of the members knew this was not true, it was thought the best answer to these reports—for in every case they had been traced to those who had never been inside of the house, or had never seen a fruit which had been taken from the house—would be a full discussion of the subject, with specimens of the pears before the Society for trial. It was immediately voted to take up the subject at the next monthly meeting in February, and the members who still had fine specimens volunteered to furnish them in fine condition.

This meeting was held Monday, Feb. 3d, and was fully attended. Mr. J. V. Wellington, who had stored upwards of 200 bushels in the house, brought for exhibition and trial beautiful specimens of Lawrence, Duchess, Beurre Diel, Winter Nelis and Beurre Clairgeau. All these had been taken from the Preserving House the FIRST week in January.

Mr. Hervey Davis exhibited TWENTY varieties, viz., Wredow, Sieulle, Bartlett, Seckel, Lawrence, Winter Nelis, Surpasse Virgoulouse, Columbia, Flemish Beauty, Glout Moreceau, Dana's Hovey, Howell, Beurre d'Anjou, Beurre Clairgeau, Swan's Orange, Duchess and some others. These were taken out of the house January 30th, and only five or six kinds were ripe enough to eat. The others were hard, sound and would require three to five weeks to ripen.

We shall not occupy space in any preliminary remarks upon Mr. Nyce's system, though we think it is not generally well understood. All who wish to obtain full information can do so by applying to the Massachusetts Company, for one of the pamphlets giving in detail the construction of Fruit Houses, and the basis of the system of preserving fruit.

The President, C. M. Hovey, opened the meeting with a brief account of the preservation of fruit, and the experiments which had been made at home and abroad to accomplish the object successfully. French and English cultivators and pomologists had given it much attention, and plans of fruit houses are given in works upon fruits. But it was needless to say that with all the ingenuity and enthusiasm of those who had made the attempt, they had failed to do any thing more than keep the winter sorts a month or so beyond the usual period of ripening in an ordinary cellar. A Bartlett, a Seckel, or a Louise Bonne of Jersey, had never before been kept in perfect order until January or February.

The erection of the large and extensive fruit house of the Massachusetts Fruit Preserving Company was an enterprise of much magnitude, as they are enabled to store from 15,000 to 20,000 bushels of fruit. It was supposed that an enterprise which had for its object the supplying of our markets with fresh, sound, ripe fruit the year round and at a low price, would be welcomed as a real public benefit. But in this the gentlemen who hazarded their money in the work, many of whom did so simply as a public good, were greatly disappointed. Without waiting for even a trial, they were told that fruit could not be kept—that if it was kept it would not be wanted out of season—in fact it was a quixotic enterprise,

which those who united in it would sooner or later find out. The market gardeners and fruit dealers, full of prejudice at every innovation, with a vague fear that it would in some way jeopardize their trade, or an apprehension that somebody would be benefited, joined in the cry that "it could'nt be done, and it was of no use if it could." Ripe grapes in March at \$5 the pound would sell, but the old crop kept in perfect order at \$2 would be worthless! But some foreseeing and energetic dealers ventured quietly, though we must admit not without misgivings, to make a trial, and they have reaped the reward of success; but the plodding and old routine class still adhere to their opinions, and we doubt not will awake, Rip Van Winkle like, to find they have lost much very profitable trade, which a little thought and less conceit would have enabled them to retain.

The President stated he was happy to know that members of the Society were present, who had put into the house large quantities of pears, from the first of September up to the present time, and whose experience would settle all doubts as to the quality and keeping of the fruit. He would call upon those gentlemen to state that experience.

Hon. J. W. MERRILL had quite a variety of pears in the house, but as the specimens were generally of inferior quality when put in, owing to his absence from home, he would inquire about their flavor and keeping.

Mr. HERVÉY DAVIS said he could not give much information. He only had a few pears last year, and sent to the house only one small basket of various sorts for experiment. These kinds, or most of them, were upon the table for exhibition and trial. He had eaten Surpasse Virgoulouse and Dana's Hovey, as perfect in quality as when fresh from the trees. Urbaniste as fine as ever eaten—saw no difference in the quality—some thought they were not quite so good, but he could not see any difference. He had some bunches of Diana grapes, and found them to be as perfect as when taken from the vine.

Mr. J. V. WELLINGTON had put a great many pears in the house. Began to take out his Bartletts in October, and had shipped a great quantity, and never heard any complaint of

their quality ; a few he thought did not retain their flavor so well as others ; Louise Bonne of Jersey were taken out the last of October ; Duchess, Winter Nelis and others he had in quantities. The Flemish Beauty was hard to mellow. The Duchess he found more difficult to mellow than those which had not been in the house. Winter Nelis and Beurre Diel held their flavor the best, so far as he had observed. Beurre Clairgeau was not yet ripe. Beurre Diel and Winter Nelis as good as if they had not been in the house. Lawrence appeared to lose some flavor. Beurre d'Anjou retains its flavor and ripens up well.

Mr. DAVIS, from what little experience he had had, thought all fruit should be in perfect order when put in the house. Should be gathered directly from the trees. He put some Sheldons in the house, that had been exhibited in Boston, Cambridge and Concord, and they kept well. Beurre Superfin rotted soon after it was taken from the tree.

The PRESIDENT stated that the Beurre Superfin was one of the pears which kept best and retained its flavor, when put into the house. Usually, as Mr. Davis stated, it soon rotted at the core, but specimens gathered October 1, put into the house, and taken out November 25, kept in perfect order, and were delicious January 1. It was one of the very best pears.

Mr. WELLINGTON said that after taking the fruit from the house it should be kept rather cool, then put in a warmer place, but not too warm, and all fruit should be kept in the dark if possible. He thought they should not be hurried up in ripening. He had kept them in his cellar covered up five weeks before they were ripe.

Mr. MERRILL said he had taken a great deal of interest in the preservation of fruit ; he did not have many pears last year, and those rather poor, but he had seen many from other persons. His friend, the late Mr. Briggs, had sent five barrels to the house ; he saw them opened ; they were Beurre Diel, Glout Morceau, &c., all in perfect order ; no specked ones, and he sent one bushel to Philadelphia ; all retained their excellence. Beurre Superfin, which he had eaten, were delicious and firm all through ; Seckel very fine ; Beurre d'Anjou, received from Mr. Wilder, had been taken out in

perfect order, kept well and ripened up well. Bartlett he thought did not retain its flavor. He was led to think the acid pears keep the best. If too ripe when put in the house it would not be expected the fruit would keep. The Company should issue directions when to pick and how to put into the house. He put some in in boxes and bored $1\frac{1}{2}$ inch holes in them, according to Prof. Nyce's advice, but they did not keep as well as those in tight barrels. Catawba grapes which he had eaten from the house were in fine order, and Dana's Hovey could never be better.

Rev. A. BULLARD said he never ate the Seckel in finer order.

Mr. DAVIS said he had Bartletts gathered 20th September; kept them in the fruit house till October 1, then exhibited them in Cambridge three days, carried them to Concord and exhibited three days, brought them home, and they were as fine as any he had ever tasted.

Mr. F. HOUGHTON stored a bushel of Bartletts in the house the last week of September, and forgot all about them till 20th November, when a note was sent to him saying they should be taken out. He found about 25 per cent. of them little decayed, and he sold the balance for \$9; the flavor as good as ever; was satisfied they were too ripe when put in, which was the cause of decay.

Mr. WELLINGTON. The Bartlett was one of the good pears of the season, ripens slowly in the house and retains its flavor for a while and after that loses it. Bartlett pears were not wanted after the later pears came in.

The PRESIDENT did not think the Bartlett lost much flavor, but that its want of flavor was not apparent until it was eaten with such pears as Urbaniste, Marie Louise and others, which were so much superior, the Bartlett did not appear to be as good as usual.

Mr. WELLINGTON said he had 200 bushels of the early kinds in the house which he kept about six weeks, and then sold them; inferior pears should never be put in.

Mr. BULLARD said he had a fine crop of Duchess, many weighed a pound each, but in his cellar they all rotted.

Mr. MERRILL said the fruit should be put in perfectly clean

barrels or boxes; much of the fruit he saw was sent to the fruit house in dirty boxes and barrels, which gave the fruit a bad flavor.

Mr. WELLINGTON said fruit wanted February 1 should be taken out of the house January 1; it required twice as long to ripen them, and after they were ripe would keep as long again as those that had never been in the house.

Mr. WHEELER said he had Porter apples in the house, some of which he took out a day or two previous, and they were as fresh and good as the day they were put in.

Much other information was given, but we could only retain the principal points made by each speaker. After the discussion the fruits exhibited were tasted, and all that were fully ripe were quite equal to any of the kind kept in the usual manner. Some were decidedly more melting and better.

WHY DOES NOT RUNNING WATER FREEZE?

BY WILSON FLAGG.

THERE is a general notion prevailing in the community that running water does not so readily freeze as still water; and in confirmation of the opinion is mentioned the fact that while pools and ditches are frozen, the waters of a running brook are liquid and in motion. It is also remarked that while the shallows of a river are frozen, the moving water of the current remains unaffected. If the cold is severe enough to freeze the river entirely over, the rapids continue for the most part unfrozen. It is supposed that motion produces heat or preserves that which is contained in the waters, as exercise evolves heat in the animal body or friction in inanimate substances. Let us see whether this notion will bear the test of a scientific investigation.

When we wish to cool a cup of tea, or any other hot liquid, we stir it with a teaspoon, or pour it back and forth from one vessel into another. In this case we employ motion to cool water or a watery fluid, as nature is supposed to employ it for

the purpose of preserving its heat. Why should hot water be cooled by motion while cold water is made to retain its heat by the same action? Is there a particular point of temperature at which the laws of the radiation of heat are suddenly reversed? This is very improbable. Indeed the very opposite of this popular notion is the fact. Water will freeze much more rapidly if it be put in motion when exposed to a freezing atmosphere. One very simple fact I have often observed, and suppose it may have been observed by others. On certain winter nights, when the temperature of the pump room is a little below freezing point, I have remarked in the morning that a full pail of water which on my first entrance into the room was entirely unfrozen, became at the very moment it was disturbed suddenly covered with a sheet of icy crystals. While the water in this pail remains perfectly still, and there is no moving current of air passing over its surface, the formation of ice on the surface is retarded:—and this delay may be thus explained. The conditions which I am supposing are that the pailful of water is entirely at rest, and the atmosphere around it perfectly unmoved, as in a still cold night, when no person is moving about the house. The experiment would fail in the day time, because the water would be jarred by motions in the house, and by currents of air formed by the opening of doors.

While the water is perfectly at rest in the still atmosphere of the room, the warmest portions of it are constantly rising to the surface, and radiating heat into the air. This circulation will continue until the whole bulk of the water of the pail is reduced to the freezing point of temperature, or very near it. It would not long remain in this condition, however still the water or the atmosphere surrounding it, before ice would begin to be made on the surface. But if the air of the room is only a few degrees below freezing point, and if we had an instrument sufficiently nice for the experiment, we should discover about an inch of warmer air resting immediately upon the surface of the water, until it becomes sheeted with ice. Now when the water is reduced to the point at which it is just ready to freeze, if this stratum of warm air be suddenly removed, by moving the pail or agitating the air

that surrounds it, the surface of the water is immediately, as if by magic, coated with crystals of ice. In this case we see the freezing process hastened by a slight degree of motion.

For the further illustration of this point, the following experiment might be made:—Fill two pails with water nearly to the brim, and place them in separate rooms of a temperature several degrees below freezing point. Let one of them remain entirely undisturbed, by closing the doors of the room so that there shall be no motion of the atmosphere. Let the other pail of water be occasionally stirred, by dipping water from it and pouring it back. If the time when each begins to freeze be accurately noted, the one that has been stirred will be found to exhibit the first crystals of ice, and at a considerable time before they are found upon the other. The cause is plain: the water that was disturbed had a greater amount of its surface, or its bulk, exposed to the action of the cold atmosphere.

The explanation of the security of running waters from freezing seems very obvious. It is only those brooks which are supplied from sources that lie below the action of frost that are partially exempt from freezing. If a temporary stream of water is produced by rain and flows upon the surface of the ground, the cold of winter will freeze it more rapidly than any still water of equal depth, because its motion causes it to radiate in a given time more of its own caloric into the freezing atmosphere. But those brooks which are perpetual derive their chief supplies of water from sources that lie too deep to be frozen: and no part of the channel contains the same water at the present moment that it contained a few moments previous. The water of the brook is constantly flowing onward, and the channel is constantly resupplied from subterranean fountains that bring with them the warmer temperature of the soil, at different depths below the action of the frost.

In the latter part of winter, if the winter has been steadily cold, nearly all the small streams are frozen in their shallow parts, and the running waters are thereby diverted from their usual channel. If we follow the stream to its principal sources, we shall see the waters bubbling up from these

sources, and overflowing the adjoining ground, forming undulating sheets of ice. The motion of the water from these depths does not prevent its freezing when it overflows a field; but we shall find some pools of still water, filling certain hollows that are not entirely frozen.

The truth is that all motion tends to equalize the heat of fluids with that of the atmosphere, when brought into contact with it. If cold water be brought into contact with a warmer atmosphere, it acquires its temperature sooner if it be stirred or put in motion, than if it remains at rest. In like manner warm water is hastened in the cooling or freezing process by motion in a cold or freezing atmosphere. The supposition that the motion of running water generates heat by mechanical action cannot be correct. It is impossible that water under any ordinary circumstances can be put into such excessive action, as to cause the development of heat. Ice may by mechanical action be thawed in some degree by the heat thus devolved. But though ice thaws more rapidly when trampled and worn by the wheels of wagons and the feet of horses, this thawing is not produced in any appreciable degree by this cause. It is produced by the comminution of the solid ice, exposing a greater surface of it to the action of the sun or of a warmer atmosphere.

The reason why untrodden or unblemished snow does not melt so fast as under other circumstances, even though it is hardened by being trodden, is that in its unblemished state every snow crystal is a reflector, that radiates both light and heat. As soon as it is trodden down and solidified, its crystals become less perfect radiators, and absorb heat the more readily both from the sun and the atmosphere. Hence snow melts faster in paths than in the untrodden parts, unless the drifts are covered with dust brought by the wind, when the darker color of the surface diminishes its power to resist the action of the sun.

With regard to running waters, it may be remarked that the beds of many small streams, in their deepest parts, are not generally frozen during the winter. They are preserved from freezing partly by their depth, but mostly by the constant accession of water above the freezing point, coming from

below. This circumstance is favorable to the growth of certain aquatic plants, as cresses for example, that continue to vegetate all winter at the bottom of the stream. In ponds there are some plants that would perish, if their roots were not protected by the deep water from the action of frost. This is supposed to be the case with the white pond-lily which possesses the habits and constitution of a tropical plant.

THE RIPPOWAM STRAWBERRY.

BY J. W. FAULKNER, STAMFORD, CONN.

I was much surprised to see a notice in last week's Country Gentleman that you believed my seedling strawberry, the Rippowam, to be Rivers' Seedling Eliza. My brother, who was purser on the steamer Pacific, and lost with it, frequently brought me seeds and plants. I was in want of Bicton Pine; he brought me it and Triomphe de Gand. I had a number of varieties, and grew them separately, each in twelve-foot square beds, inclosed on all sides by hemlock boards. This was in 1855. (The steamer left Liverpool, January 23, 1856, and never heard from.) I protected the Bicton Pine each winter with salt hay, but they gradually died out. I noticed on the east side of the bed some plants growing close to the board, and supposed they were Bicton Pines, saved by the extra protection. In 1858 I first noticed the fruit. In 1860 the Fairfield County Horticultural Society, this county, was formed. They had learned from the New York Observer and other papers that I was growing fruit and flowers, and invited me to assist them. They awarded me several premiums, and urged me to propagate this new strawberry. It was named Faulkner's King by a party of visitors. I gave away a number of the plants. In 1864 I exhibited it at the Strawberry Show at the American Agriculturist Office, and took the second prize, the Agriculturist taking the first; and was assured, if flavor had been considered I would have taken the first prize. In 1865, at the same place, I took the first prize for the

three heaviest berries, also the prize for any variety equal to eighteen named sorts. In 1866 and 1867 it took the first premium at the Strawberry Show of the American Institute, and has been quite extensively distributed over the United States and Canada. I have received several letters from strawberry growers, speaking in the highest terms of it, and you are the first person to say it is not what I represented it to be, a seedling. I have abundant proof of what I state. That it may resemble Seedling Eliza I do not say. In 1861 or 1862 I bought of John Saul, Rivers' Eliza. It never grew such plants or berries as the Rippowam does on the same ground.

It is a waste of time to cite cases to one so thoroughly informed as you are in such matters, that fruits have often been grown and proved to be similar to those grown by others hundreds of miles away, where there was no possibility of mistake or deceit. I believe mine to be a cross of Bicton Pine, and possibly Triomphe de Gand, growing within twenty feet of it, it so frequently taking the cockscomb form of the Triomphe.

“The Rippowam is of cockscomb order like the Agriculturist, and a person must be possessed of very sharp eyes to detect any specific difference.”—Gardeners' Monthly, 1865, p. 256. Dr. Brinckle, Mr. Buist and others, believed the Germantown Seedling a distinct variety, while others believed it to be Hovey's.—Gard. Month., Vol. I., p. 121. “We are compelled to believe there is a Germantown Seedling.”—Gard. Month., 1860, p. 19. See letter to you from Mr. Ernst.—Horticulturist, Vol. III., p. 197. In the Garden of Eden two of my tenants, Mr. McEvoy and Mr. Schneike have raised thousands of seedlings from the Hovey, Pistillate, Kean and Taylor's Seedling, impregnated by Swainstone Seedling, and all bear strong resemblance to the mother, both in fruit and plant.”—N. Longworth, in the Hort., Vol. III., p. 280. At the Albany Horticultural Society, June 11, 1868, Luther Tucker, Esq., exhibited Royal Scarlet strawberries, “a fine variety, of beautiful appearance, much resembling Ross' Phoenix.” Mr. Geo. W. Huntsman says, “Profuse Scarlet, raised from seed of Large Early Scarlet, which it closely

resembles, both in size, color and flavor, &c.; it possesses decided advantages, &c.”—Horticult., Vol. III., p. 67. “Burr’s Rival Hudson, much resembling in form and flavor its parent, the old Hudson.” “Prolific Swainstone—productive, an improvement on its parent, the old Kensington.—Prince, Horticult., Vol. III., p. 70. F. R. Elliott “believes the Willey to be the Hudson of Longworth.” Mr. Downing, in a note, says, “We have fruited this strawberry, received both from Cleveland and Cincinnati, for two years past, and consider it entirely distinct from any variety well known here. It is entirely distinct from the Hudson of Cincinnati.”—Horticult., Vol. III., p. 146. Hon. M. P. Wilder says “Myatt’s Prolific resembles Myatt’s Eleanor.” “Willey like the Hudson.”—Horticult., Vol. IV., p. 132. Mr. Rivers, in his Description of New Fruits, in the Supplement to his Catalogue, says “Nimrod has proved so like Eleanor as not to be distinguished from it, either in size, flavor, or habit of the plant.” Mr. Bateman, in Ohio Cultivator, June 15, sets down “McEvoy’s Superior as being too light colored.” At South Bend, Indiana, Lucy Fitch’s Seedling was said to be four-fold better than Hovey’s, Early Scarlet, or Burr’s New Pine.” The Pittsburgh Horticultural Society thought Victoria to be Princess Alice Maud.—Hovey’s Mag., 1856, p. 389. Capt. Cook resembles the British Queen, and the Fillbasket resembles the Capt. Cook.—Hovey’s Mag., 1865, p. 367. “Hooker’s Seedling like Black Prince, Walker’s Seedling like Black Prince, both seedlings from it.”—Horticult., Vol. X., p. 387. “La Sultana, sent out by our friend Hovey, is proven to be identical with La Constante.”—Gard. Monthly, 1863, p. 300. He says “Abingdon Blush is a red berry, and sour.” It is not.—Gard. Monthly, 1863, p. 300. “Gen. McLellan proves to be Longworth’s Prolific.”—Gard. Monthly, 1860, p. 263. “The Wizard of the North is similar to Boyden’s Mammoth.”—Fruit Grower’s Society of Eastern Pennsylvania. “Rivers’ Seedling Eliza, one of 10 worthless sorts.”—F. R. Elliott, Report at Strawberry Exhibition of Western New York. “The variety which we call Victoria was so named by one of the growers, as the label was lost from the original plants imported from England. A box of

them was sent to Buist of Philadelphia, last season, who pronounced them the true British Queen. The experience of the present year proves this to be a mistake, as the plants are very dissimilar, though the berries are somewhat alike."—*Horticult.*, Vol. IX., pp. 379 and 380. "Myatt's Globe, in foliage, size, color and flavor, resembles the Queen, and most probably is a seedling from it.—*John Saul.*, *Hort.*, Vol. VI., p. 504.

Numberless cases could be found, if necessary. We all remember the discussions about the Delaware, Concord and many other grapes, Lawton blackberry, Allen raspberry, &c. Pears, without number, as you well remember, having made them a specialty. *Horticult.*, Vol. X., p. 41.—Discussion at Pomological Society upon Mr. Cutter's Isabella, between yourself and Dr. Brinckle, Mr. Walker, Mr. C. Downing, Mr. Hooker and others. *Horticult.*, Vol. 10, p. 58.—Mr. De Jonghe claims Beurre Superfin pear to be the Cumberland. The Editor says "M. de Jonghe must be careful."

Gard. Monthly, 1860, p. 371.—Mr. Meehan says, "Our correspondent should remember that it does not follow, that because a fruit may be well attested to be a seedling it must necessarily be very distinct from kinds already known."

Rivers' Seedling Eliza has been in this country at least five or six years. It has been in the hands of most of the nurserymen, and many amateurs, but I have yet to hear of the first exhibition where it has taken a prize. The judges at the show where the Rippowam has been exhibited were gentlemen thoroughly posted in strawberry growing. Four or five years since I sent a large number of varieties, including Rippowam, to Mr. Saunders, at the garden at Washington. He is certainly a close observer. The most favorable notice I can find of Rivers' Eliza is from Mr. Merrick, in the *Journal of Horticulture*, March, 1867.—"But perhaps the finest display of berries I could show was on a splendid row of Rivers' Eliza, whose handsome leaves, vigorous growth and enormous fruit ought to keep it forever from the list of rejected fruits. I know the berry is soft and will not bear handling. *Gard. Monthly*, 1863, p. 300.—"La Constante and Rivers' Eliza, the leaves become parched up and too

tender for our winters." The foliage of the Rippowam is firmer and stands the summer's suns and winters equal to either of about 100 varieties I have cultivated. At one of the Exhibitions at the American Agricultural Office I had a plate of Rippowams on exhibition four days, open to the handling, &c. I took them back to Stamford and kept them two days; they were still solid, as many can attest.

As regards flavor, all who tasted them at the last Exhibition at the American Institute spoke in the highest terms. Purchasers of fruit here willingly give a higher price for them on account of flavor.

We are glad to have Mr. Faulkner notice any remark of ours in regard to the Rippowam. Our remark was, however, somewhat qualified, as follows:—"The Rippowam is, we think, the Rivers' Eliza; certainly the two cannot be distinguished if mixed together." Mr. Faulkner should have quoted from our own pages. Perhaps, too, we should have said "when the two *berries* are mixed together they could not be distinguished, either by *looks* or *taste*." The Rippowam may be a seedling, but still be so much like the Eliza as not to make it desirable to keep them distinct. We alluded to this peculiarity of seedlings in the very next page to that in which the remarks quoted above appear, when speaking of the Concord and Framingham grapes.

As to the Rivers' Eliza, we have raised it for twenty years, and many times during that period have had it as large and fine as the Triomphe de Gand. Mr. Radcliffe, a great English strawberry grower, says it is one of the largest and best of the kinds he raises. Taking two or three prizes does not establish the value of a strawberry. The Agriculturist has taken prizes, but nothing could be poorer. The question, however, does not turn upon the quality, but whether the Rippowam is different from the Eliza, and if that difference is enough to distinguish it. If not it is simply multiplying names without adding to the variety.

We knew nothing of the origin of the Rippowam until we read Mr. Faulkner's account above. If we had known as much before we should have said the Rippowam *was* the

same as Rivers' Eliza. The admission by Mr. Faulkner that he had the Eliza growing in his grounds leads us to think that some strong plants were taken for seedlings, when they were only the Eliza. But there are so many ways in which errors occur in the culture of the strawberry, that nothing but a *real difference* apparent to any one, should induce us to retain a supposed seedling under a distinct name. The Bartlett strawberry was found in an old garden, and pronounced a new seedling, but it proved to be our old Boston Pine. So of the Russell's Prolific, and many others.

Our attention was first called to the Rippowam in 1866, as they were growing near the Eliza, but as the berries were from vines set out in the spring, we reserved judgment for another year. In 1867, with quite a crop, it was impossible to distinguish a dozen berries of the Rippowam from the Eliza.

We will watch them carefully the coming season, but we must confess, with the additional evidence, that our doubts are not removed, but that the Rippowam and the Eliza are synonymous.

THE BARCELONA OR SICILY NUT.

BY L. JENNEY, JR., FAIRHAVEN, MASS.

FOR three or four years Mr. L. Jenney of Fairhaven, Mass., has exhibited specimens of nuts of the filbert family grown in his garden. These nuts have been of good size, and excellent quality, and the good account Mr. Jenney has given of their culture, the hardiness of the trees, and their abundant product, has induced us to request Mr. Jenney to furnish us with some statement of his experience in the growth of the trees.

The English filberts we have repeatedly attempted to cultivate. There are many fine sorts, and at the time of our visit in England we found them so good that we imported several kinds, with the hope of producing an abundant crop; but owing to the severity of our winters, the trees suffered much, and eventually they all died.

We were, therefore, somewhat surprised at the success of Mr. Jenney, in whose garden at Fairhaven he had raised abundant crops, and who stated that the trees were entirely hardy, and had not been injured with the temperature 19° below zero, and we have prevailed upon him to give us what information he possesses, which we annex to these remarks.

There are several kinds of the filbert that are cultivated for their fruit. Loudon, in his *Arboretum*, enumerates 12, and among them the Barcelona variety (*Corylus avellania*, var. *Barceloensis*.) It has a nut of the largest size, with a well filled kernel, and obtained the name of the "Downton Large Nut." It is, he states, a native of Barcelona, and was introduced into England before 1665. It forms a tree of upright growth.

Such is the history of this variety, which now appears to be hardy enough for our severe New England climate, and seems to be well worthy the attention of cultivators, growing freely, and producing large crops of very delicious nuts. Mr. Jenney's statement is as follows:—

The Sicilian Nut Tree, or bush, is a native of the Island of Sicily, first introduced into England, and brought to Fairhaven, Mass., in 1857. The tree is erect and compact, and attains the height of fifteen or twenty feet. The leaves are about four inches long, and three inches broad. The nuts are large oblong, about an inch in length. These are produced in abundance, and ripen usually from the 20th to the last of September. The trees grow easily, and come into bearing three years after being transplanted. There is no kind of tree in our gardens that comes into leaf so early as the Sicilian nut.

I have shown specimens of these nuts at several horticultural exhibitions, and they have been pronounced by those who have tried them to be a nut of great excellence, taking into consideration the delicacy of their flavor, and the absence of any oily taste.

I have now cultivated this nut for four years in succession, during which time the temperature during the winter fell to 19° below zero, and they received no injury whatever.

The trees are not particular as to soil, and will grow well wherever the pear succeeds. I give the trees a good dressing of manure in spring and autumn, and leave four good branches besides the main stem, to form the tree after the third year of maturity. I head them back about one-third of their growth, each year. They will then throw out laterals which will produce an abundance of nuts.

C O R D O N A P P L E T R E E S .

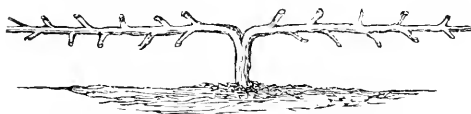
MUCH discussion has lately taken place in the English gardening journals, regarding the merits of cordon training, especially as applied to the apple. This discussion was principally between Mr. Rivers, the well known nurseryman, and an intelligent correspondent of the *Gardeners' Chronicle*. Mr. Rivers had advised the planting of "orchards" extensively on this plan, but the correspondent, while advising the system for gardens, very correctly doubts its adaptability to orchards. The system is not new, having been long ago described in the works of Du Brioul and other French writers; but as it is now more immediately brought to notice, after an inspection of the French gardens, where it is extensively introduced, we copy the account of it, with the descriptions and engravings illustrating the same. This cordon plan is admirably adapted to neat gardens, and should receive the attention of all who appreciate order, well trained trees and fine fruit. In all small gardens the apple can find no place only in this way, or as dwarf bushes; of the two the former appears the most ornamental and desirable:—

I went the other day to see Mr. Rose Charmeaux, the originator of the method for preserving grapes, of which I sent you an account a week or two ago, and found his grapes stored for the winter as described; the method was in full working order, and I was much pleased to find it even more simple and effective than could have been supposed. He began by having a stove and couple of chimneys, to keep the

atmosphere of his large grape-room right; now he finds the grapes keep very much better without this, and simply devotes to his winter stock a large room in his house, fitting it up in all parts to accommodate handily the little bottles before spoken of, and padding the inside of the windows so as to exclude light, and obviate, as far as possible, changes of temperature. The grapes are cut in October, and preserved in good condition until May, indeed, they have been shown in May frequently; and Mr. C. states that he has kept them till August, and could do so yearly were it necessary. But he forces the Chasselas extensively, cuts it about the 1st of April, and does not require them to keep such a very long time as that. The first result of the method to the village of Thomery, which is almost wholly occupied with Chasselas culture, was a gain of from 100,000 to 150,000 francs per annum. A small room in Mr. Charmeaux's house illustrated to a nicety the fact that a similar one in most houses may be made to perfectly answer the purposes of keeping grapes. It had in this case no windows, and scarcely any means of ventilation. The house is heated by hot air, but while there are openings in the floor of the passages and rooms generally to admit this, there are none in the room devoted to grapes. Thus it is clear that the ordinary temperature of a well constructed house will present suitable conditions for the long preservation of grapes, in a small room that may be devoted to that purpose. The system was attractive enough when it was considered necessary to construct a room specially to carry it out; it is much more so now when it has been proven that not only is it not necessary to take any special means to warm or ventilate the structure, but that the grapes keep very much better without such being taken.

Next I will attempt to give you a fuller idea of cordon training, and particularly of that form which will yet be found to be suitable for apple growing—the horizontal cordon. I may remark that Mr. Rivers' definition of a cordon is certainly not the French one, however well it may suit his argument; neither is that of the French professor of fruit culture who has chiefly originated the system. In France a man may have several large and distinct forms of trees, each

well-trained branch precisely like the stems of the oblique cordons against one of his walls, but he will apply the name "cordon" to the trees usually confined to single stems or with slight deviations from that form, never doing so to the larger and ampler forms. One of the chief merits claimed for the system is that you cover the wall much quicker by planting a large number of trees and confining their energies to a single stem or so, whereas it is obvious this claim does not obtain where you have a large tree. In fact, the laying in or pinching of the shoots is the same in both instances, excepting in the as yet undeveloped pinching of M. Grin. The latest development of that is an attempt to do away with nailing or laying in, and by no means as yet successful or likely to suit our climate. "It will not suit ours either," said a French peach-grower, who had often been deputed to visit and report upon the garden of M. Grin—M. E. Jamin. However, there can be no misconception in this case with regard to the little horizontal cordon, as shown in the double form in figure 3.



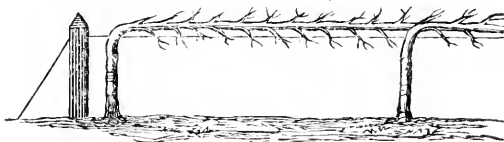
3. DOUBLE CORDON MODE OF TRAINING DWARF APPLES.

Although in France generally the single cordon, as shown in figure 4, is the kind used for making an edging to borders and squares, yet this (FIG. 3) is equally or more suitable. It is the form which will in the future afford us such capital specimens of fine apples, like Calville Blanche, from the bottoms of walls, &c. If the wall be wired as neatly and excellently as neat French fruit growers wire their walls, it may be tied to the lowermost wire; and if not, it may be nailed in, in the old-fashioned way. There are in thousands of British gardens bare spots on the lower parts of walls, &c., where this little rod on the Paradise may be beautifully worked in. It is true that if the wall were as well covered as it ought to be, there would be no room for the cordon, but in the majority of gardens there is sufficient space to do it, and they are so very cheaply established that it will be worth

while to plant them in such places, even for a comparatively short period, until the wall is furnished. It may also be trained along the front of forcing houses, pits, &c., and in various other positions now utterly useless and naked.

I know dozens of very large gardens where a magnificent crop of large and beautiful dessert apples may and will yet be gathered from such surfaces, now bare. Apart from the profit and the satisfaction of having a fruit room stored with such perfect fruit as may be grown in this way, the flowers of the little trees will embellish the walls in spring, and their noble fruit in autumn. For all parts of this fine apple-growing country it will be a clear gain for the production of apples like Calville Blanche, good both for table and kitchen—in the colder and northern parts it will prove a great boon.

I will next turn to the modification of this method that is suited for the edgings and such positions. I have had excellent means of judging of its merits, i. e., comparison of the result it produces in very many different places, and I am of opinion that it will prove the most successful of all modes of miniature apple-growing ever introduced, and that



4. SINGLE CORDON MODE OF TRAINING DWARF APPLES.

by its means we may get our crop of the finest apples, and have the garden as free of shade as a strawberry ground, and from such places as are now utterly useless, or perhaps a trouble and expense to clip once or twice a-year. The best height for them is about one foot from the ground: at less, the fruit gets soiled with earthy splashings. Figure 4 will point out the usual way of forming the line. They are usually planted at six feet apart, or thereabouts, but that is too close for good and moist ground. For very favorable soil eight or ten feet will not be found too much. Provided the five or six feet run of the tree be well furnished with spurs, it is much better to let the point proceed further than to confine its energies.

Sometimes the point of one plant is grafted on to the bend of another, but that is neither necessary nor desirable. Many people pinch them in very close, evidently with a laudable desire to keep them as ropelike as possible, but I always found the best crops and the highest health where the spurs were allowed to push out a little, say roughly a summer development of spurs, leaves, &c., of from six to nine inches through along the wire. Pinching may be overdone, and in our climate its excess should be guarded against. They of course always prune them by summer pinching, and then give them a final touch in winter or spring. To make them break regularly should be a chief object, and this must be done by judicious pinching, and by occasionally cutting an incision before a dormant eye. I have seen those beautiful little trees in full health and bearing at three years of age. I have also seen them trained obliquely against upright strained wires, and planted very closely together; it was very neatly done, but decidedly inferior to the methods above described, and, therefore, I will pass these by.

Now comes the very important question of stocks. Mr. Rivers has emphatically condemned the French Paradise stock as "too tender for this climate, unless in very warm and dry soils." Now I respect his opinion as much as that of any other person who had made a trial of a plant in one place, but there is good reason to suppose that Mr. Rivers is wrong here. I have seen the Paradise stock in the highest health on a very wet soil this year in England—it having survived, and in quantity, the very severe frost of the past winter, which even killed and injured apples, when the thermometer went considerably below zero. However, the testimony of one would be as nothing against my infallible critic, with his visits to France during the past thirty years, and therefore I humbly quote two letters now before me. One is from Professor Decaisne of the Institute, probably the highest living authority on Pomology. The other is from M. A. Leroy, of Angers, the well-known nurseryman and fruit grower. Mr. Rivers says: "The Pomme de Paradis seems identical with the dwarf apple of Armenia." The Professor says, "It is a native tree, and therefore hardy." It

is "too tender for this climate," says Mr. Rivers; "it is absolutely certain that it cannot be hurt by frost," says Professor Decaisne. M. A. Leroy of Angers, says, "I employ the Paradise because it is not over vigorous, but very fertile. No other stock is so suitable to this method. It is hardy enough to resist the intense cold of the north of France." To this I add, that it will be found perfectly hardy in all parts of the British Isles. Place the quince in the position of the Paradise, and see what we should arrive at, if led by one or a dozen isolated trials. Therefore the best thing that those can do who wish to try the system, is to plant the same kinds of apples on the "English Paradise" and on the French, taking care that they are, as far as possible, started under equal circumstances. In dry poor earth the Doucin, English Paradise, or a Dwarf Crab would do better, but for this special purpose there is nothing known equal to the true Paradise, where the soil is suitable to it, and that will be found to be the case over the greater portion of the British Isles. The reasons why this system is not adapted for orchard culture, apart from that given in his writings by Mr. Rivers—i. e., "The Paradise stock requires the cultivation of a garden"—are as follow: It is essentially a garden system, with a well defined object—i. e., the production of very fine fruit by an economical method, happily suited to the wants of a garden from its not shading any thing. To make this clearer, it should be observed that the wants of the fruit-buying public are twofold, namely, first-class fruit at a high price, and fruit of moderate quality at a low one. If proper use be made of the system in the garden we shall be enabled to supply more than the present wants for the first mentioned, and that by losing hardly any space. Of course, if orchards were planted on this principle the whole surface would be covered, and all the ground lost for other purposes. On the other hand, the grass of a well-managed orchard of standard trees is nearly or quite as useful to the farmer as that in the open, and the same applies in nearly as great a degree to the crop of a ploughed one. In the garden the trees are continually under the eye, and are very easily attended to; in the orchard a very considerable item would be required even for summer treat-

ment: the expense in every way would be great, while the difference in the result and that afforded by a well-managed orchard would by no means justify the expense. Even the most sanguine would get accustomed to it as a garden system, and know its value and its cost before "planting orchards" thus. Therefore "T. F. R." who wrote to the *Times*, and, without a single qualifying word, advised its readers to "plant orchards" of these cordons at from 2000 to 4000 plants per acre, did a very mischievous thing, and the *Times* correspondent, in writing to gently caution the public against this, and to guard himself from misinterpretation, simply did what was right and called for.

POMOLOGICAL GOSSIP.

THREE HUNDRED AND FIFTY VARIETIES OF PEARS.—We notice an account in our exchange papers of the meeting of the Pomological Congress in France, September last, at which one exhibitor had upon the tables "three hundred and fifty varieties, or rather dishes, of pears, some fifteen or more of them being pronounced synonyms of the others." This is certainly a large number for one exhibitor, but both Messrs. Hovey & Co. and the Hon. Marshall P. Wilder exhibited, a few years ago, at one of the Annual Shows of the Massachusetts Horticultural Society; in September, upwards of THREE HUNDRED AND SEVENTY-FIVE varieties of pears each, without any synonyms. We do not mention this as possessing any other merit than that of showing the enthusiasm and enterprise of these pomologists in the introduction of every new fruit, and their long labors in proving them, and giving the public the results.

THE WARFIELD APPLE is the name of a new Western Seedling, which, it is said, "promises to be one of the best market apples for the West." Fruit medium size, very round, fair, with a light blush. Flesh pleasant, tender, acid. A late summer apple, introduced by S. Foster, Muscatine, Iowa. It bears on grafts inserted three or four years.

NEW FRUITS IN ENGLAND.—Though many of the new varieties of fruits originated in England have but a limited value here, there are some, particularly among grapes, which are really fine acquisitions: how many of them can only be decided after a fair trial, but in order to keep our cultivators well posted in regard to all that transpires, we copy the following from the Gardeners' Chronicle, as a summary of the past year:—

The acquisitions of the past year, if not so numerous as those in the department of flowers, are even more important. Among grapes—that noble fruit, in the cultivation of which our British gardeners so much excel, we have to record a very considerable advance. Until a very few years ago, we had to trust for additions to our stock of grapes to the introduction of varieties from other countries. Now, however, we have the hybridizer at work at home, bringing us new varieties without number, with unheard of and undreamt of new and valuable qualities. In this respect our thanks are at present specially due to Mr. Standish and Mr. Cox. To Mr. Standish we are under obligation for the Royal Ascot grape, a variety of much promise, which, though itself black, is, singular to say, the result of a cross between two white varieties; the berries are large and roundish-oval, with a rich Muscat flavor, and the plant is of a remarkably free-growing habit, and a truly wonderful bearer, every lateral shoot even, showing one or more bunches. To Mr. Cox we are indebted for the Madresfield Court Black grape, which is also a large-berried oval black variety, with a high Muscat flavor, and, as we believe, one of the finest grapes yet obtained, forming a capital companion to the White Muscat of Alexandria, though, unlike it, it is as easy of cultivation as the Black Hamburg, which is the gardener's *beau ideal* amongst grapes. With these two last editions, and Mrs. Pince's Black Muscat and the Muscat Champion, our wants in respect to black grapes with Muscat flavor seem to be well supplied. It is worthy of note that nearly all the efforts of the hybridizer have been made in this one direction—the producing of grapes with a Muscat flavor. We would suggest that there are other tastes which should be studied.

Some prefer the sprightliness of Oldaker's West's St. Peter's, for instance, to the flavor of the Muscats, which in the case of invalids is apt to cloy the palate.

Amongst peaches and nectarines the acquisitions are equally great, thanks to Mr. Rivers, to whom, indeed, we have generally to look for any thing new, in this class of fruits. For some years back, Mr. Rivers has been working amongst them with much assiduity, and he has succeeded in introducing a new race, with qualities so superior that they seem destined to surplant all the old and what we have hitherto considered good varieties that we have in cultivation. Some are remarkable for their extreme earliness, others for their extreme lateness, thus prolonging the peach season; and all of them have a peculiarly rich and tender flesh, and are of hardy vigorous constitution. Among early varieties of peaches we may mention the Early Rivers and Early Beatrice, ripening fully a fortnight earlier than the Early Annie or Acton Scott. Rivers' Early York is later, but a decided acquisition, as having glands, it will prove less subject to mildew than its parent, the old Early York, which is glandless. It has been before noted, as a remarkable fact, that those sorts of peach trees which are without glands are very subject to this malady. Lady Palmerston is a very late variety. Amongst Nectarines the Stanwick Elruge is a grand acquisition; the old Stanwick Nectarine is well known for its high flavor and its propensity to crack, it has therefore long been a desideratum to obtain one that would not crack, and in this Mr. Rivers has now succeeded. Albert Victor is another fine new variety. We also hear of a splendid new late variety of peach, of French origin, the Belle Imperiale, raised by M. Chevalier, of Montreuil.

Of apples and pears, although many new varieties have been brought forward, none of them, perhaps, partly owing to the unfavorable nature of the season, have been considered superior to already existing sorts. In figs we have an important addition in the variety named Grosse Verte, one of the largest and richest of figs, and will ere long become one of the most popular. In cherries we have Mr. Rivers' Late Black Bigarreau, which hangs well on the trees till the end of

August—later than any of the other black cherries. In plums we have Mr. Ingram's *Bonne Bouche*, an excellent, large, yellowish-green sort, ripening in September, the flavor approaching that of a Greengage. Of melons, although their name is legion, and the flavoring of them so much a matter of judicious cultivation, we may mention Dr. Hogg and Denbies' *Green-fleshed*: the last, exhibited in November, was one of the finest melons we ever tasted.

Amongst strawberries, which are usually very prolific of novelties, we have, singularly enough, but little to record. *Souvenir de Kieff* is a large and most excellent variety. Mr. Radclyffe is also very promising. Dr. Hogg worthily holds the place it took up last year as a first-class fruit. *The Lady*, from which much was expected, has not proved equal to anticipation. *The Perpetual Pine* of Mr. Gloede, although not first-rate in itself, is a step in the right direction, from which we may be able eventually to raise a grand race of perpetual-bearing strawberries. Mr. Standish and Mrs. Nicholson have both great numbers of seedlings under trial, some of which are of superior quality, and of which we expect to hear more during the ensuing season.

FLORICULTURAL NOTICES.

DOUBLE ZONAL PELARGONIUMS.—These new varieties, first introduced to our gardens last year, are rapidly becoming favorites abroad, and we have no doubt will be fully appreciated here. The following information regarding their origin and the progress of their improvement, will be highly interesting:—

Within the last few years our collections have been enriched by several varieties of *Pelargonium inquinans*, with double flowers, the most remarkable of which is the variety called *Gloire de Nancy*. M. Lemoine states that this was obtained by crossing *Beauté de Suresnes* by one of the double-flowered

varieties previously known. Two seeds were produced, and of these one has given flowers of *P. inquinans*; the other is the *Gloire de Nancy*, which has very full double flowers, resembling minute Pompon roses, of a beautiful shade of color between that of the mother, which is rose, and the father which is scarlet—a color which has been described as Chinese orangy rose. It is one of the most beautiful varieties yet obtained among the several double-flowered sorts now in existence.

It offers a curious matter for speculation, how all the variations and modifications of plants witnessed year by year, and which come to augment the number of our ornamental plants, are produced. Is it the effect of artificial crossing, or is it simply a natural alteration—an accident, which the art of the gardener succeeds in fixing by means of the cutting or the graft? A great and sublime question this for the philosophical gardener. M. Morren holds that the greater part of these varieties are not more or less direct results of the influence of man, nor a consequence of such operations as a more or less artificial fertilization, nor a consequence of the power which the gardener exercises over the plant; but that more frequently they are the result of the artificial life which the plant leads under cultivation, which makes it take on different forms and colorings, but which never go beyond the limits traced by Nature for each species. The pelargoniums with double flowers are a new example of these accidental variations. “Whence comes,” asks the editor of *L’Horticulteur Français*, “the first of these double pelargoniums, and how have the other varieties been produced?” These questions he then proceeds to answer in the words of M. Auguste Ferrier, of which we quote the substance:—Six years ago, writes M. Ferrier, I saw in the garden of M. Martial de Champflour, a rich and intelligent amateur, a pelargonium with double flowers, that which later was called Auguste Ferrier; but nothing could be learned of its origin. A second variety, with flowers still more double, and said to have been obtained from seeds of this semi-double variety, had the umbels larger and more compact, and the coloring of the flowers different. It was a very double variety, obtain-

ed without fertilization. The duplication evidently proceeded from the transformation of the stamens; but there remained nearly always one or two of them which contained pollen. The appearance of these two plants was very curious, and M. Emile Chaté discerned in them the foundation of a new race, that of pelargoniums with double flowers.

At the death of M. de Champflour these two pelargoniums, with double and semi-double flowers, fell into the hands of M. Emile Chaté; but when they came to be commercially announced to the horticultural world it was found that several persons possessed varieties more or less double, though none were put into commerce that year, and those which appeared a little later differed but slightly from Auguste Ferrier, and from Martial de Champflour—this latter so named because it has been obtained in the garden of M. de Champflour. M. Lemoine, of Nancy, asking for flowers of this variety to decide on its merits, received one from M. Chaté. It appears that he found in it some fertile stamens, and with them fertilized a flower of Beauté de Suresnes; two seeds only sprang up, and it is one of these two, fertilized by Martial de Champflour, which has produced the admirable variety, with flowers perfectly double, named Gloire de Nancy.

M. Ferrier then proceeds to relate a curious fact bearing upon the question of the production of varieties with double flowers. At M. Chaté's, he observes, there exists a plant of Auguste Ferrier, grown from a cutting, on which may be observed the two primitive varieties. It is divided, from the base, into two branches: one bears the semi-double flowers of the mother-plant—Auguste Ferrier; the other has the full flowers of Martial de Champflour. There is no artificial skill, no grafting, but simply a branch of the variety Martial de Champflour naturally developed on the cutting of a branch of the variety Auguste Ferrier. This plant, propagated from slip to slip, is at least the tenth generation from the mother-plant. This anomaly suggests that Martial de Champflour has probably sprung [as a sport] from Auguste Ferrier. Hence it is concluded that the first double pelargoniums were accidental sports, and that they have been consequently fixed; in support of which view reference is made to a plant of Tom

Thumb shown at a meeting of the Horticultural Society of Paris, on which grew both umbels of single flowers and umbels of double flowers. The branches producing these last would in the same way yield a double-flowered Tom Thumb.

General Notices.

RUSSIAN VIOLETS.—These are most useful hardy plants for autumn and winter decoration. A small plantation of them has furnished here, more or less, since the second week in October, bouquets every week. Their early blooming makes them doubly valuable. I find it to be necessary to replant every season, either in April or in the beginning of May. I divide the old stools, cutting away the principal portion of the old roots, and planting rather deeply in order to induce fresh roots to push at the base, since sandy loam enriched with leaf mould is a suitable compost for them. Liberal watering is also essential, should the season be dry. They delight in a warm corner, or at the foot of a south wall.—(*Gard. Chron.*)

MUSA ENSETE.—A fine specimen of the grand *Musa Ensete*, generally known as Bruce's Banana, is now flowering in an orangery at Stowe, the seat of the Duke of Buckingham and Chandos. His grace brought two small plants (only three feet high) of this *Musa* from Algiers, in the autumn of 1864. Both were planted in tubs, the sides of which were after a few months removed, and the plants surrounded by rock-work, filled in with suitable soil. The specimen, now in flower, is thirty feet high, with a stem six feet two inches in circumference just above the soil, and three feet two inches under the leaves. In general appearance and effect this is one of the most beautiful of grand-foliaged plants. Some of the leaves are thirteen feet long and three feet wide—they are sometimes still larger; while the dark reddish rib at the back of the leaf gives a peculiar beauty to the plant, and contrasts most agreeably with the pale green upper surface of the broadly plaited foliage. This *Musa* has been known for about 100 years. It flowered at Kew in December, 1860, and perfected fruit there; it has flowered at the Crystal Palace. There is not much to admire in the flowers themselves. The pale lemon-colored spathes, at the base of which the flowers are situated, much resemble the petals of *Magnolia grandiflora*. It may be added that this species of *Musa* is one of the finest of the noble-foliaged plants which have been of late years so freely introduced to our summer gardens, under the title of subtropical plants.—(*Gard. Chron.*)

NEW VARIEGATED KALE.—Mr. Bull has sent us examples of a new Variegated Kale, to be called the "Caledonian Hybrid Perennial Borecole."

It is very beautifully marked, and much varied in the sample before us. Some have a white or purple centre, with green curly margin, some have the ribs picked out with white, or pink, or purple, the margin and intermediate parts being green, and some are entirely purple, while between the extreme forms there are innumerable gradations. In the majority the margin is curled after the manner of the ordinary Curly kale of the kitchen garden, but in some the edge is much more finely cut. It is decidedly an improvement on any samples of Variegated kale we have previously seen.—(*Gard. Chron.*)

MILKY WHITE POTATO.—I planted Milky White last year by the side of Smith's Early, Flourball, Rivers' Royal, and several other sorts, and I found it freer from disease than any of them. I consider it to be a first-rate potato, and with me it is a capital cropper; I have grown it for three years. We had a sharp frost here late in the spring, which cut up the potatoes, but I found Milky White withstood it better than any of its associates. Smith's Early (which I think is a good sort) was cut up so badly that I had none for use, scarcely getting enough for seed. I intend trying it for early frame work this spring.—(*Gard. Chron.*)

Obituary.

DEATH OF ISAAC PULLEN.—Died, at his residence at Hightstown, N. J., December 13, 1867, Isaac Pullen. Mr. Pullen was well known as a most intelligent and energetic nurseryman, and particularly for the successful culture of the peach, both in the open air and in pots. His collection comprised a select list of the best fruits of all kinds, and his accuracy in his profession gave him the well deserved reputation of disseminating throughout the Middle States many of the finest varieties. It will be gratifying to know that his collection of trees will be kept up, and the nursery continued by his son, Mr. T. J. Pullen.

DEATH OF PETER MACKENZIE.—Died, at his residence in Broad Street, Philadelphia, February 25th, Peter Mackenzie, at the age of 59. Mr. Mackenzie is well known to the older readers of our Magazine, not only from our frequent notices of his fine collection of camellias and greenhouse plants, but from the contribution of several valuable articles on the cultivation of plants. Mr. Mackenzie, while a young gardener at Lemon Hill, was the first to flower the Poinsettia in superb condition, and by his kindness the result of his practice was communicated in our pages. He was an enthusiastic lover of plants, and a skilful cultivator. His death will be lamented by a large circle of friends.

Horticultural Operations

FOR MARCH.

FRUIT DEPARTMENT.

FEBRUARY has been a cold month, and no work could be done in the open air. As milder weather sets in, advantage should be taken to complete every thing which can be finished at this early season.

GRAPE VINES, in the earliest houses, will now have ripened their fruit, and it will be ready for cutting. Keep the house well aired, and as dry as possible. Vines in the grapery will now be well broken, and should be tied up firmly to the trellis. Continue syringing the vines until the fruit buds are well advanced, and avoid too much heat until the flowers begin to open. Vines in cold houses may be uncovered the last of the month, and preparations made to bring them forward.

FRUIT TREES, in pots, may now be brought into the grapery, or greenhouse, and started into growth.

SCIONS of fruit trees may be cut this month, keeping them in sand or earth, in a cool cellar.

PRUNING should be begun this month, and continued until all the work is done. Scrape off rough bark, and wash with whale oil soap.

STRAWBERRIES, in pots, now ripening their fruit, should be well supplied with water.

PREPARE GROUND for planting, as soon as the weather will admit.

CANKERWORMS should be looked after; tar or protect the trees from the ascent of the grubs which lay the eggs.

MANURE TREES, where it was omitted in the autumn.

FLOWER DEPARTMENT.

The recent cold month has retarded work, and hotbeds and frames could not be prepared, or if prepared could not be properly managed. As it becomes warmer it will be safe to uncover, and air the plants. Such as are crowding the houses can now be removed where they will not be endangered by frost. In-doors many of the plants will now feel the effects of the advancing season, and will be making new growth, while others will have completed their flowering, and require rest. Repot and encourage the former, and see that the latter do not suffer from neglect.

PELARGONIUMS will now begin to make a fresh start, and by the last of the month the flower buds will appear. Keep them rather warm, with an abundance of air, and water more liberally. Turn the plants round often, and fumigate if there are any green flies. Continue to tie the plants into shape.

AZALEAS are now coming into flower, unless checked by removing to a very cool house. As the buds begin to swell, syringe the plants every day, and keep them rather warm. Water more liberally, and avoid cold currents of air. See that the plants are free from the thrip or red spider.

Encourage young stock by a shift into larger pots, and bring them forward in a good temperature.

CAMELLIAS will soon begin to make a new growth, and will require a more liberal supply of water, and syringing twice a day. Shade from the noonday sun, and give occasional supplies of manure water.

CALADIUMS should now be started into growth, if not already done. Divide the roots carefully, put in very sandy soil, and plunge in the hotbed.

GLOXINIAS AND ACHIMENES should be repotted and brought forward.

PALMS should have a shift into larger pots, if they require it.

CANNAS should be potted, so as to get good strong plants for turning out into the ground.

HYACINTHS, and other spring bulbs, may be brought into the house for a succession of bloom.

LILIES, of the various kinds, should have a good place on a shelf, and watered freely as the shoots advance.

TUBEROSES AND GLADIOLUS, for early flowering, should be potted.

CYCLAMENS, done flowering, should be more sparingly watered.

ZONAL PELARGONIUMS will now be making a fine growth, and should be topped to make bushy plants. Repot, if necessary.

FUCHSIAS should be repotted, and a vigorous growth kept up. Never allow the plants to receive any check.

HEATHS, done flowering, should be removed to a frame, where they can be kept cool, and free from frost.

ROSES, beginning to grow, may be repotted.

BEDDING PLANTS, of all kinds, should be removed to a frame as soon as the weather will admit, so as to harden them preparatory to planting out in the open ground.

CHRYSANTHEMUMS should be propagated from cuttings.

AMARYLLISES should be potted and plunged in bottom heat, if convenient.

FLOWER GARDEN AND SHRUBBERY.

The present cool weather does not appear very favorable for work in the open garden; but the cold and snow may disappear suddenly, and before April the weather may be such as to admit of an early preparation of the ground. When this comes the first thing will be to clean, rake and roll the walks, that out-door promenades may be pleasant and inviting. The next will be to commence uncovering all early bulbs and herbaceous plants that they may at once receive the genial influence of the sun and air. Crocuses, snowdrops and daffodils will soon show their blossoms, and later the early tulips will appear. Japan and other lilies, not planted in the autumn, should be put out as soon as the ground will permit.

The lawn should be well raked and thoroughly rolled as soon as it can be safely done. Ground intended for early planting should be trenched or dug.

Frames, containing violets or half hardy plants, should be opened and well aired every fine day, protecting them at night, if frost continues. Collect and prepare soils and compost for spring use.

THE FRUITS OF 1867.

NOTWITHSTANDING we have endeavored to give all the information in relation to fruits and their cultivation the past year, as well as to the introduction of new varieties, and the special growth of particular kinds, we have no doubt omitted much which would be interesting and instructive to all. It is fortunate that such omission, if any there be, can be readily supplied from reliable sources, and that our own opinions, as well as those of many valuable correspondents, may be compared with others obtained from the personal knowledge and observation of those whose special duty it is to gather up and record the progress of fruit culture in our immediate neighborhood.

Through a series of years it has been a source of gratification to present to our cultivators the accumulated information collected by the Fruit Committee of the Massachusetts Horticultural Society, who weekly have the opportunity of witnessing and observing the numerous specimens presented for exhibition, or in competition for the many liberal prizes offered by the Society. These embrace, as they ought, the very best specimens of skilful cultivators, and afford the means of judging of their comparative merits, independent of their general mode of growth, productiveness, &c., which can only be ascertained by a thorough knowledge and study of their characteristics, under the eye of the cultivator himself. But as regards these, beyond the reputation of the exhibitor, much must be taken for granted, especially where the varieties are new and not generally disseminated. The simple fact that any new fruit comes up to the standard already established is much in its favor, and leads to the promise, other qualities being equal, of an acquisition of more or less value.

The Report of the Fruit Committee of the Massachusetts Horticultural Society is before us. It embraces a short review of the season of 1867, with some preliminary remarks

on the importance and value of the grape crop, and a brief notice of fruit houses. The summing up of the results of the observations of the Committee upon the specimens from time to time exhibited is interesting and instructive, and we extract from it the following, as showing the Committee's view of the progress of fruit culture in Massachusetts for 1867:—

As has been stated, the appetite is keen for early fruits, for good specimens of which extravagant prices are paid. No variety of fruit is so well adapted for forcing as the grape. It is easy of management, it retains the highest excellence of flavor under glass, it is an attractive and saleable fruit in the market. As a pecuniary enterprise we think that in sheltered positions and in low houses adapted solely to this purpose, grapes may be forced with great success, and at prices much below those now ruling, during the months of April, May, and a part of June. M. H. Simpson was the only exhibitor of early grapes. His Muscat of Alexandria, on the 22d of June, were compact and fine bunches, yet scarcely ripe. C. S. Holbrook has been very successful in growing forced peaches, bringing them in just before the ripening of strawberries, in June, and obtaining from \$12 to \$18 per dozen for the fruit. The house in which these are grown is 60 feet long, and contains 30 trees, in boxes 3 feet square. The present was the 13th crop, and on one tree 220 fruit were picked. These figures are remarkable, and it must be added are entirely deceptive in estimating the profit of the crop. We may say it is an extraordinary crop of an extraordinary tree, at an extraordinary price. Probably the crop of this tree did not attain the size to command anything like the price named. Yet enough is seen and known to warrant the statement that, with skilful and high culture, forced fruits are a source of profit as well as highest enjoyment. It is to be hoped that the number of contributors of forced strawberries, peaches and grapes, instead of diminishing may at least increase relatively with our population.

On the 15th of June, the Jenny Lind strawberry opened the list of out-door fruits; a worthy herald of the continuous

and bountiful supply which fills out the year to its close. Other varieties are almost equally early, the Boston Pine, for example, being exhibited on the same day with the Jenny Lind. The Wilson has been an unpopular fruit in our markets, on account of its poor quality, but its productiveness is so marked that it is gaining favor. The Jucunda is a fine looking fruit, yet not equal to La Constante in this respect, while it has disappointed us as to quality and productiveness, upon its first year of trial. But we trust another trial and in various soils may demonstrate its claim to the high praise it has received in other sections.

The favorable opinion entertained last year of the Seedling strawberry of Hon. M. P. Wilder, a cross between La Constante and Hovey's Seedling, and now designated as No. 60, is confirmed this season. The fruit is of the largest size, of good flavor, in appearance a medium between its parents, not so polished or glazed, and with seeds more imbedded than in La Constante. An examination of the bed gave indications of vigor and decided productiveness. Mr. Wilder's other Seedling was shown as No. 13, and more nearly resembles Hovey's Seedling. Both varieties are promising, and we trust the former may prove worthy of the name of the distinguished originator. Other new strawberries were exhibited, but did not appear to be noteworthy. La Constante continues to be the finest exhibition fruit, though not sufficiently productive to compete with the Hovey, Triomphe de Gand, Agriculturist and Wilson in the market.

The exhibition of cherries is smaller than it should be. It will be remembered that the cherry was injured to a remarkable degree by the severe winter of 1857. The present short supply is a result of this injury. The remedy is in more extensive planting of young trees. We cannot dispense with this fruit, although it may not hold out strong inducements to plant for profit in the market. The leading varieties on exhibition continue to be Black Tartarean, and Black Eagle. On the 13th of July, Mr. T. S. Pettingill exhibited a red cherry resembling Downer's Late, with rather more juice and spirit.

Of currants, La Versaillaise is taking the first rank, both

for exhibition and for the market. Its size is regarded as more than an offset to its slightly inferior quality to the old Red Dutch. Mr. J. C. Park exhibited the Berton's Seedling currant, resembling La Versaillaise, but not quite equal in size. Who will give us a seedling currant as large as the cherry and as good as the Red Dutch? It is a tempting opportunity. Raspberries are a neglected fruit. The amount in the market is, perhaps, less than it was ten years ago. We must reform in this respect. The Knevett's Giant is an advance upon old varieties, and is a noble fruit. The Philadelphia is perfectly hardy and is remarkably productive, but its size is a great drawback. We have not had the fruit of the Clark upon our tables, but it is regarded with much favor by those who best know its merits.

The Dorchester blackberry has continued to take the first prize. The Wilson and Kittatinney blackberries have not, as yet, been exhibited and of these we cannot speak. The great increase in the number of varieties of small fruits will of itself increase the public interest, and the extent of culture, and thus in some measure offset the loss resulting from worthless novelties. The maxim seems to be to try all "and hold fast that which is good."

The plum is virtually an abandoned fruit. H. Vandine continues to exhibit several varieties, but we should judge his crop is not large. Mrs. T. W. Ward has exhibited very fine specimens of plums, which have been protected from the curculio by showering the whole tree with lime water, of the consistency of a thin whitewash, twice a week, from the time the fruit is as large as a pea, until the 24th of June. This is found to be a perfect protection. Peaches have been more abundant than usual, though by no means reminding us of the years gone by. Foster's Seedling resembles Early Crawford, and may prove to be superior in appearance and in hardness. Of this we can only judge when it is cultivated in various localities. The Van Buren Dwarf is a fine looking fruit, of high flavor, but the flesh is firm and clings to the stone to an objectionable degree.

Pears have been abundant and of fine size, but very deficient in quality, owing to the superabundance of rain and

the lack of sunshine and heat. *Beurre Giffard* was prominent as the best early kind on exhibition, receiving the three prizes. *Clapp's Favorite* maintained its high reputation, gaining the first prize for Autumn. *Doyenne du Comice* wins favor with each season, and ranks among the very best. *Beurre d'Anjou*, *Sheldon*, *Beurre Superfin*, *Swan's Orange*, *Urbaniste*, *Duchesse*, *Louise Bonne* and *Beurre Bosc* all sustained their high rank as Autumn pears. Mention may also be made of fine dishes of *Dix*, *St. Michael*, *Glout Morceau* and *Beurre Diel*, not commending them to public favor, but as showing that protection and favoring circumstances will, even now, restore these old favorites. It is clearly incorrect to say that these varieties have deteriorated. We may rather say that the conditions of healthy growth have failed. Dr. Shurtleff exhibited specimens of his Seedling pears, a lengthy description of which was given in the report of last year, to which we can add nothing at present. The following Seedlings worthy of note were exhibited by F. & L. Clapp: *Sarah*, above medium, obovate, yellowish, with russet patches; flesh, white, melting, sweet, flavor of the *Seckel*; ripe October 12th, promising. *Newhall*, a Seedling from *Marie Louise*, which it resembles, promises well, ripe October 20th. Also, a Seedling not named, a russet, above medium, a perfect pyramid, juicy, a spicy, mace-like flavor, good. F. Dana extends his long list of Seedlings, exhibiting one resembling the *Marie Louise*, and another very like the *Dix*.

The *Goodale* pear was on the tables at the Annual Exhibition, but as it has been fully described in previous reports we can add nothing. *Asahel Foot* exhibited a seedling of the *Seckel*, which is more oblate, but otherwise like its parent. Another Seedling by Mr. Foot is called *Weeping Willow*, from the remarkably pendulous habit of the tree, but the fruit is of third quality. The only prominent Winter varieties were *Lawrence*, *Winter Nelis* and *Caen de France*.

Apples are grown with perfect success in the very heart of infected districts. It may be difficult yet, plainly, it is possible to triumph over cankerworms, curculio, and caterpillars. When the cultivator has but few trees, it is scarcely an object to exercise eternal vigilance, but for a large orchard, the cost

of continuous tarring for the cankerworm is comparatively trifling. Enterprise is the main requisite. It has been a great mistake to sacrifice healthy young orchards which, with little expense, would probably yield as large profit as any other product. The single orchard of the Messrs. Clapp disproves the whole list of diseased, neglected and stunted orchards to be seen on every side. The evil is, however, in many cases beyond remedy. Trees which have been stripped of foliage for three or four years, especially if of full age, become so stunted and checked as to be scarcely worth recovering. Hence the greater need of protecting all that are yet vigorous.

The Williams was, as usual, the most prominent Summer apple, followed by the Gravenstein in Autumn, and, with unusual prominence, by the Hubbardston for Winter. Of course it is not safe to follow these indications blindly. The best and most showy fruits may not be productive or adapted to general culture. Yet it is believed that an examination of the prize varieties of the various fruits will, in the main, guide to safe conclusions.

The grape has been affected by the excessive rains, more than any other fruit. The Concord has suffered severely from mildew of the bunch, while all varieties have been more or less affected by mildew of the foliage. Add to this, that the crop was backward and in many localities was caught by early frosts, and it will be seen that the result must be meagre. Still the display has been fair, indicating general interest in this fruit, and giving great encouragement to persevere. In this region the Concord requires a dry and comparatively poor soil. Excessive moisture and high feeding causes mildew of the bunch, over luxuriance and barrenness. But there have been some instances of full crops of the Concord, of which that of Daniel Clark was quite remarkable, perhaps the best we have ever seen. Mr. Clark's vines are planted at the base and trained over a ledge of rocks, securing conditions known to be favorable. The Hartford Prolific has given a larger crop than any other kind. The Delaware has mildewed and failed in most instances. Rogers No. 15, has not ripened well. No. 4, has done much better, and for quality, appearance and good habits combined, is the best of Mr. Rog

ers' Seedlings as yet noticed by your Committee. Israella appeared to be ten days later than the Hartford. Ionas did not ripen except in favored spots. A Seedling from Olm Brothers was very like, and probably identical with Catawba; also, from the same, a Seedling resembling Lenoir. A white grape from Rev. I. P. Langworthy, called Fedora, did not appear to be equal to the Allen. On the 19th of October, Mr. Jacob Moore sent specimens of his Diana Hamburg, and Clover Street Black, both in good condition. The former has the thick skin and a trace of the flavor of Diana, but it appears to have a decided preponderance of foreign blood. The Clover Street has also a thick skin, some pulp, but no foxiness. In quality and appearance, these Seedlings stand high. Of their habits we cannot speak. Mr. J. B. Clyne, of Rochester, N. Y., sent samples of grapes ripened by him, giving an excellent opportunity of comparing them with fine samples grown by Mr. Hervey Davis, in his protected vineyard at Cambridgeport. As the season at Rochester was quite in contrast with our own, being unusually dry and warm, we should expect superior quality. Rogers No. 15 was better than we had conceived it ever could be, with some aroma and little of the roughness usually noticed. No. 4 was sweeter than Union Village, but not as juicy, quite a good grape, and, considering its noble appearance, its freedom from disease, and its apparent productiveness, it promises to be a valuable addition. This was equally good in this section as from Rochester.

ACCLIMATIZATION.

BY WILSON FLAGG.

It may not be uninteresting to the readers of this Magazine to consider, somewhat in detail, those modern discoveries which have affected the progress of fruit culture, involving some important laws of vegetation. One of the most remarkable is the principle of acclimatization, which Mr. Knight used as the basis of some of his most successful experiments

for producing new varieties. All plants have a tendency to become constitutionally adapted to the climate in which art or accident may place them. Thus the peach, a native of the southern temperate zone, has been naturalized in Great Britain. When any individual trees are brought from a warm climate to a colder one, they are less capable of enduring the climate, or of ripening their fruit, than naturalized individuals of the same variety on the same stock. "Every plant and animal adapted to man's service," says Mr. Knight, "is made susceptible of endless changes, and as far as relates to his use of endless improvement." But it is important to consider that what we call *improvement*, with regard to its fitness for the use of man, is but *degeneracy* as it regards the species which is the subject of it. A double rose or a double dahlia is a degenerate variety of the normal or single species; a golden pippen, a degenerate variety of the wild crab; and a Suffolk pig but a degenerate offspring, through many generations, of the wild hog. But these degenerate varieties are actual improvements, so far as they relate to the use of man. Yet there is a sort of improvement which implies neither degeneracy nor debility, but the opposite of these. Such is the improvement that consists in acclimatization. If, for example, we should produce by artificial means, a variety of the peach which would be unaffected by the accidents of our climate, such a variety would have taken that sort of improvement that implies superior vigor and hardihood.

This principle of acclimatization was one of the earliest subjects that engaged the attention of Mr. Knight. "The improver," he remarks, "who has to adapt his productions to the cold and unsteady climate of Great Britain, has many difficulties to contend with; he has to combine hardiness, energy of character and early maturity with the improvements of high cultivation. Nature, however, has in some measure pointed out the path he has to pursue." If two plants, peaches for example, of the same species and of the same stock were removed to widely different climates; if one, for example, were planted in Montreal and the other in St. Augustine, and each were to remain through successive generations in the open air for the space of twenty-five or thirty

years, they would, at the end of that time, have acquired very different degrees of hardihood, and susceptibility to the action of cold and heat. Take cuttings from each at the end of the period named, and graft them upon similar stocks in Massachusetts—those from the north would be less susceptible of injury from the frost at any season, than those from the south. Any other habits of constitution and growth acquired in either of those places would be preserved in the scions for a number of years.

Plants will bring with them when removed from a foreign clime, not only their delicacy or their hardihood, but all their other acclimatized habits: such as their rapid or their sluggish habit of vegetating, and their habits of late or early maturity. England, for example, possesses a mild winter, succeeded by a growing season of very moderate heat, compared with New England. All the indigenous plants of England, possess, accordingly, a slow habit of growth corresponding with the moderate temperature of its climate. In England all its indigenous plants come forward earlier in the spring and continue vegetating a longer time before they ripen their fruit or drop their leaves, than the New England plants when raised in English soil. We observe the converse of this in our own country. Hence we may at once distinguish an English elm from American elms, by the earlier development and the longer duration in autumn of the foliage of the English elm compared with the American species. The same habits may be observed in fruit trees, under like circumstances. Cherry trees grafted from trees which were raised and have been naturalized in Great Britain, put out their leaves earlier in spring and hold them longer in autumn than such as have come up from seed sown in our own soil. All these remarks will also apply to herbaceous plants.

Annual plants are more easily acclimatized by art than perennials, by repeatedly sowing the seeds of the earliest ripened individuals, and following the process through several successive generations. The selection of seeds from the products of the short and bright summers of a climate like that of Canada or Siberia enables the farmers of New England to obtain earlier varieties than they could produce by experi-

menting in our own climate. The contrary effect is produced by the cold and tardy climate of Scotland compared with that of the south of England. Mr. Knight remarks, "The barley grown on sandy soils in the warmest parts of England, is always found by the Scotch farmer when introduced into his country, to ripen on his cold hills earlier than his crops of the same kind do, when he uses the seeds of plants which have passed through several successive generations in his colder climate." On the contrary, in Massachusetts, when the farmers want a variety of Indian corn that will vegetate quickly, they obtain the seed from the north and not from the south. Indian corn which has for many years been raised in Canada, ripens its ears in a shorter time in Massachusetts, than seed from sorts that have been naturalized in this State, or in still more southern latitudes. Hence it is evident that we must sometimes go north and sometimes south, for an early ripening variety of grain or fruit; but there are no exceptions, I believe, to the fact that European, and especially English plants, are more tardy in their ripening than American plants of the same species.

The principle involved in these facts may be thus stated: a tree or an annual plant brought from a climate of great intensity, grows more rapidly in any climate, than a variety of the same species brought from a moderate, damp, and equable climate. Such is the climate of Canada compared with that of Massachusetts, and such the climate of Siberia compared with that of England. "The crab," says Mr. Knight, "is a native of both countries, and has adapted alike its habits to both. The Siberian variety, introduced into the climate of England, retains its [Siberian] habits, expands its leaves and blossoms, on the first approach of spring, and vegetates strongly in the same temperature in which the native crab scarcely shows signs of life; and its fruit acquires a degree of maturity, even in the early part of our unfavorable season, which our native crab is rarely or never seen to attain."

Mr. Knight governed himself by these principles in his experiments for obtaining new and early varieties, beginning with the apple. By a peculiar process of hastening the matu-

riety of the kinds of fruit which he wished to improve, by training them against a south wall, and by hybridizing with the Siberian crab, he obtained new varieties which matured their fruit earlier than either parent stock. This process it is needless to describe—but the whole series of steps by which he arrived at his results constitute an important study for the pomologist.

The experience of American cultivators, embracing so many different climates and soils, is likely to become very valuable, as it respects the law of acclimatization; and some important facts have already, by this means, been brought to light. It is found, for example, that the early bearing varieties of the apple, as the Summer Harvest and others, will prosper and become fruitful in the Southern States,—but the late bearing varieties, or winter apples obtained from northern scions, cannot so well sustain the heat of a southern summer, and are liable to drop their fruit while it is forming. Yet by raising these varieties from the seed planted in southern soil, cultivators have obtained winter apples that will prosper in the Southern States, that do not drop their fruit before it is ripe, and preserve a good flavor. At the South, therefore, the selection of early apples is made from northern scions, and of winter apples from southern scions. Mr. Redmond, one of the editors of the Southern Cultivator, enumerates “nearly one hundred varieties of native southern winter apples, of superior excellence;” and he thinks that by governing their practice according to the best rules of science and experience, and by proper selections, winter apples may be raised in all parts of the south.

The acclimatizing of plants indigenous in tropical climates, and rendering them sufficiently hardy to bear a northern winter, is not possible. The experiments of cultivators must be confined to trees and shrubs which are subject to hibernation. Natives of the warm temperate zone may be acclimated in a colder latitude, but a tropical tree or shrub cannot by any process be made sufficiently hardy to bear a northern winter. These remarks do not apply to annual plants, like the tomato, or to any other herbaceous plants which admit of protection in the winter.

RAINY-DAY SCRIBBLINGS. NO. II.

BY GEORGE JAQUES, WORCESTER, MASS.

MEN born and reared remote from business centres, and afterwards absorbed inextricably into the vortex of city life, are liable to be haunted by day-dreams of the never-to-be-forgotten scenes of their childhood. Upon this class, if upon no other dwellers in a crowded emporium, there suddenly intrude moments, happily not often of long duration, when the rumbling tumult and jostly throng of the pavements become a loathing and a disgust. At such intervals of profound sadness every ambitious aspiration of the soul gives way to an irrepressible yearning for the green fields, the warbling birds, the sweet breath of the rustling forest, and whatever else seems hallowed in its association with the old home in the country.

Fortunately, in these days of steam and horse railways, a combination of the more important advantages of city and rural life is within reach of many to whom, formerly, such amphibious living was wholly impracticable. Still, even now the luxury of this mode of life is, for the most part, beyond the means of mechanics and clerks, although a few of them, at some pecuniary sacrifice, may manage to indulge in it. The smallest establishment of the kind under consideration would be a tenement, or perhaps a cottage, within easy railway communication with one's place of business. Such a domicile, although without any adjacent land, may be a very desirable home to which to withdraw, after the day's work in the city is ended; for the very location itself secures this much, that it rescues the nights, mornings, Sundays, and holidays, comprising more than half the hours of the year, from the annoyances against which men seek refuge away from the busy world. If, now, in front of this comparatively humble abode, there is a small grass-plot containing a few trees and flowering shrubs, and to the rear a garden is attached, sufficient for a few flowers and vegetables and a half-dozen dwarf pears, the keeping of all things in fine order, on such a little place, will furnish a great amount of healthful recreation. To these

accessories a small hen-house with a few fowls will prove a profitable and pleasing addition. Restricted to dimensions no more ambitious than these, a suburban residence, with its appurtenant privilege of enjoying all the fresh breezes, bird songs, and fine scenery of the neighborhood, may afford a great part of all that is essential to happiness in the diversified grounds of the most extensive rural domain.

To extend the boundaries of a country home much further will necessitate the occasional or constant employment of hired labor, and this generally does not give satisfaction without the eye of the master. It will be better, therefore, in most cases, not to go beyond the dwarf pears and the poultry, unless indeed the proprietor can curtail the time which he devotes to his business in the city. Of course, the more he is able to remain at home *mentally*, as well as *bodily*, the more he can, within his resources, enlarge his rural occupations; for this country life admits of indefinite expansion in the direction of broad acres of ornamental grounds, gardens, orchards, greenhouses, horses, cattle, laborers, and so on, to an extent which may absorb the income of a princely fortune. But it is something to be thankful for, that even the humblest rural abode can be made to secure a no inconsiderable share of the blessings for the enjoyment of which so many careworn business men are everywhere sighing. It must be admitted, however, that inasmuch as the pleasures of human life are all more or less alloyed, so these country residences from which the occupant is absent a good portion of the day, fail, in a measure, to realize the ideal picture which tantalizes the permanent denizen of a city. The thorn in the side of this mode of living is the great difficulty of securing the services of skilful and faithful laborers; and the difficulty increases with every enlargement of the operations carried on. In fact, this sort of vexation, both indoors and outside, has occasioned more than one fine place to be despairingly abandoned to the chances of the auctioneer's hammer. And here, (parenthetically and as something strange,) it deserves remark that very few young Americans seem inclined to undertake the care of an ornamental country seat. Surely such employment, with its delightful exemption from the monotony of the workshop or

factory, is, as a business, by no means to be sneered at; and, especially, since the versatility of ability distinguishing the Yankee from other breeds of men, would go far toward a guarantee of success. Whoever labors upon one of these rural residences has himself to blame, if he does not share largely in the enjoyment of it; and then, after a few years of promising apprenticeship, the skill acquired in performing the diversified duties of the situation, is sure to command a liberal remuneration. In aristocratic England, gardeners have climbed the social scale; one of them as far as to knighthood; and, assuredly, the improved rural taste diffused through the British nation by the labors of Sir Joseph Paxton, will keep his name fresh in the memory of posterity, long after some who have "swung round the circle" of the highest political stations in this country, shall be rotting in oblivion.

Possibly, if the quick-made gentry occupying so many of the fine rural residences in the United States, would occasionally recall their own days of "lowly living," and discipline themselves into a less degree of haughtiness toward intelligent young men in their service, the difficulty under consideration would be gradually smoothed away. Even Hanz and Michael would then perhaps improve in their usefulness, stimulated by the sharp competition for an employment which Jonathan would begin to covet.

Another class of these country places may be appropriately noticed here. We will suppose the proprietor, acting as a sort of foreman and passing his whole time on the premises, to exact, as compensation for the labor expended thereon, a certain return in crops of hay, fruit, vegetables, &c., &c., and this without relinquishing any of his ambition to have and enjoy a beautiful country seat. Such a place is easily pictured to the imagination. The buildings grouped together with a spacious lawn spread out between them and the public highway; flower, fruit, and vegetable gardens in the rear; farther in the back-ground, orchards, fields, and forests,—this is the general idea. A few ornamental trees and shrubs sufficient to relieve the monotony of the lawn, occupy but an insignificant space, and hardly detract at all from the profita-

ble grass crops which, two or three times or often in the season, may be cut from the ground. As for the rest, almost any place will appear attractive, where the buildings, the fences, and the front entrance are kept in a neat and tidy condition.

Nothing of extravagant living can be necessarily charged upon one who occupies a home like what has just been described. Nevertheless, considering the slender income which such a place would yield at best, his life will be much more round and complete, with a few shares—no matter how many—in some good sound bank, or with a number—no matter how large—of those beautiful U. S. bonds, so likely to be the last of their species, if the nation insanely suffers them to be repudiated.

Fortunate, indeed, is the man of business who with congenial tastes, finds himself enabled, in the afternoon rather than in the evening of his years, to retire to those quiet and never satiating rural enjoyments which, always living in his memory, seem, when he takes his final leave of cities, as if coming kindly back from the spring time of childhood to bless and cheer the autumn of his life.

Of this living in the country, ornamental farms present another phase which deserves a moment's attention. It costs very little for that which serves merely decorative purposes on these places, and the reason why there are not more of these quasi paradises is because there is a lack of taste, rather than of means, on the part of our agricultural population. The truth is, the refining influences of æsthetic culture have never been appreciated in the United States, if indeed anywhere in the world; and, hence, our boasted free-school system has failed to achieve what would be a great good, and legitimately within the proper scope of popular education. Were *drawing*—the training of the eye to a keen perception of beauty and deformity—thoroughly taught in all our seminaries of learning, the taste of the whole country would be revolutionized in a few years. An improved perception and an increased enjoyment of what is beautiful in nature and in art would follow, just as the opening of summer flowers follows the sunrise, and gradually our people would take a

higher position among enlightened nations. At present, to an artistic eye, the glaring defects of our ordinary farming establishments are, chiefly, the proximity of the buildings to the public thoroughfare, the house on one side and the barns, &c., on the other; the raw white paint, and green blinds which dissociate the dwellings from all their surroundings; and the painful smartness, or else disgusting slovenliness which is sure to prevail generally. The taste of the owner never having been cultivated, his deficiency, in this respect, manifests itself in everything he does. He has a most detestable propensity "to trim up" his trees till he has destroyed half their value and nearly all their beauty. His barn is often better looking than his house; and, in the matter of the fitness of things, his kitchen not unfrequently eclipses his parlor. Of the doors leading into his dwelling, the backest of them all is his favorite entrance. When his great dreary "square room" is opened for a social gathering of his friends, he sits awkwardly through the wintry evening, sharing with his visitors in the general stiffness and discomfort of the apartment. He is not at all unconscious of this, but complacently finds an apology for all his imperfections in his necessity of having to work for his living. His logic, however, is no better than his taste; for his low estate, in both cases, may often be fairly charged upon the defective education furnished him by our common schools.

Mais, on ne peut faire flèche de tout bois; that is to say, we cannot make a whistle of a pig's, &c., and so there are localities where nature seems to have sternly set her face against the possibility of ornamentation. Still, in most parts of the United States, a good site for the class of homes we have been discussing may be easily found. Within a few years, the absence of large trees has become a frequent discouragement to the commencement of a new place. This defect, however, admits of easy remedy; since elms, maples, &c., even thirty feet high, can be removed without difficulty, to any desirable location, by what is styled "the frozen-ball" mode of transplanting, concerning the actual success of which some statements which we can verify will be found in the March number of this magazine, for the year 1862. Should the newly-set trees languish

a little, for a year or two in a sort of homesick way, we can, from gratifying experience, give the assurance that this veteran class of subjects, even untractable hickories of a nut-bearing age, will feel the invigorating stimulus of surface manuring, almost as quick as the grass beneath them; for we have had a top-dressing which was spread on for this purpose, as late as the first of May, produce a manifest improvement, after a few weeks, both in the growth and color of the foliage of one of these large trees.

Again, on the other hand, the site selected for one of these new habitations may be partially or wholly covered by a forest, with ledges of rocks near by. In this case, there is the greatest danger of cutting and clearing away too much; and it will often happen that, what with the trees and the rocks and the possibility of a small sheet of water in some part of the grounds, an hour's consultation with a competent landscape-gardener will prove of immense advantage to the proprietor, both in beautifying his residence and in saving worse than useless expense.

As for the style in which to build, sites and climates adapted to every modification of domestic architecture, may be found between the St. Lawrence and the Gulf of Mexico. But whoever purposes to fix his habitation north of the latitude of New York city, should bear in mind that dwellings in the cool airy fashion of Southern Europe, are not the most favorable for defence against the frosts and snows of a northern winter; that, on the contrary, the Elizabethan, or the English-cottage style, or constructions partaking of the Norman, or the Gothic style, ought generally to have a decided preference, as both more comfortable, and more in harmony with the rugged scenery by which it is to be surrounded.

Much skill is requisite to make the most of a level situation, to which character must be given chiefly by trees and buildings. In such a case, the first consideration is to produce something powerfully contrasting with the adjoining residences which are similarly circumstanced in regard to their natural features. We have too much servile copying of other people's improvements. A few years ago every house hereabouts had to present a quasi Grecian pediment to the street;

now, the preliminary consultation with an architect is almost sure to begin with—"a French roof, of course." Why is it that the variety which in every other direction so highly seasons our New England life seems, to a great extent, to leave our domestic architecture in a state of tedious monotony?"

And now that we are in a fault finding mood, another evil may be hinted at. Of the money expended on a rural home, too much is apt to be bestowed on the buildings and too little on the grounds. If the interior of the house is to be the scene of all the enjoyment the place can afford; if the owner and his family can find no pleasure in planting, training, pruning, or, at least, in admiring their trees and flowers, it may be better, after all, to remain in the city, and never to think of emigrating into "the lonesome country."

Surely, a family cheerfully submitting to brick and mortar, foul air, uproar, confusion and restraint, for the sake of city privileges, would be guilty of most egregious folly if, for notoriety, or in rivalry of some other family, it should banish itself into rural retirement, albeit the place of banishment might combine resources that would entitle it to be styled an American Chatsworth.

It is difficult, in this connection, to refrain from repeating our conviction that, in regard to this matter of refinement and genteel living away "from the madding crowd's ignoble strife," a great improvement would soon be perceptible, if *Drawing* were made a prominent branch of instruction in all our schools. Of course, it is not the mere making of pictures that is meant, but the training and educating of that organ by which the most perfect of our senses holds intercourse with the visible world around us,—that organ which discipline and cultivation would render surprisingly more serviceable, both for utility and enjoyment, than it can be in the almost dormant condition in which our seminaries of learning generally suffer it to remain. Hence it is, that in the direction of what is beautiful in gardening and architecture so many of our people, "having eyes, see not." And this brings us to the end of our chapter.

OUR readers will no doubt regret that so few "Rainy Days" occur in his locality, that he is not enabled to gratify them with his "Scribblings" oftener, as his last communication dates 1865, (Vol. 31, p. 267), to which we may refer for many interesting hints. We can only hope that Mr. Jaques may find leisure even in a pleasant day,—should the rainy ones be so few and far between,—to send us similar scribblings more frequently.—ED.

A LEADING ITEM.

BY F. R. ELLIOTT, CLEVELAND, O.

ALTHOUGH H. W. Sargent may say the United States is the poorest fruit growing country in the world, yet fruit growing is the great leading item among all classes, rich or poor. The stock grower, with his thousands of acres over which roam horses, cattle or sheep, has his fruit orchard and garden, from which he daily derives enjoyment and healthy food. The grower of wheat, corn, etc., selects out a few acres adapted to the point, and devotes it to the production of fruit, for well he knows that however much money his corn or wheat may bring him, the dish of strawberries, the ripe cherries, currants, etc., and the everlasting apple, are requisite to his daily comfort. The vegetable grower may devote his time and main attention to roots, but when he foots up his accounts of sales and returns, he finds a large item to pass to the credit of fruits. The lawyer, physician, or tradesman, as soon as he can, provides himself a plot of ground, and often even before he builds his house, plants his fruit garden. Attractive and beautiful as may be our deciduous and evergreen ornamental shade trees, yet no man counts his place complete without a fruit garden and orchard, and after he has shown his visitor all the new and rare trees and shrubs, pointed out the fine views, &c., he closes by leading the way to the fruit garden, and offering a choice pear or bunch of grapes, &c. And this is done in the "poorest fruit growing country in the world." Mr. Barry

has, however, well exposed the error of the statement, which is one simply exhibiting a man's ignorance of his own country.

Among magazines and horticultural publications the subject of fruit growing should be the leading one to rule. Hovey's Magazine may be said never to have departed from that rule, and its back volumes to-day are replete with ideas and instruction thereto. If there is one leading subject which has attraction for all, it is that of fruit growing; it reaches the pocket, it ministers to health, and by association reminds us of our first parent and the errors of evil doing.

POMOLOGICAL GOSSIP.

THE ROYAL ASCOT GRAPE.—We have already noticed this new grape which is attracting much attention among the English grape growers. In addition to the information in our last volume, we add the following, from a recent notice of specimens exhibited before the Royal Horticultural Society as late as January 21st:—The bunch of this grape shown at South Kensington on the 21st inst., was cut from a small plant that was only planted the first week in May last, in a pine stove, which is 18 feet wide, with a span roof, and a 3-foot path up the centre. In the front of this house, on each side, I put a little soil, kept up by a dry 4½ inch wall of bricks; at the back of this were pine plants, plunged in dung and leaves. The vines grew away very rapidly, and soon got to the top of the house—about twelve feet. They were then topped, and threw out bunches all down the vines. At first we pinched them off, but they came thicker and faster from the young growing wood, until at last I left from four to six bunches on six plants. Although they were grown under such adverse circumstances, I send you a bunch for your opinion, and to show what this variety is capable of doing under better culture. These vines were planted the first week in May. They were taken out of 48-sized, or 5-inch pots, and were not more than a foot high. Just as they set their fruit I found out that

their roots were out in the plunging material, where the pines were growing ; so I thought, as they must be moved, the sooner the better ; they were consequently taken up, and laid into another lot of soil, but there was such a quantity of roots out that the leaves on the young vines flagged. So you see they had a rough time of it.

CULTURE OF THE FIG IN POTS.

THE Fig, though cultivated to a slight extent by some amateur fruit growers, is yet a neglected fruit. Only a tree or two is occasionally introduced in the greenhouse or grapery, and these are not managed in such a way as to secure a large and fine crop. At the south it is grown as easily as the peach, and the unusual productiveness of the trees as well as the delicious character of the fruit, makes it a great favorite.

In our northern climate, however, we can only raise the fruit successfully in the greenhouse or grapery. It will not stand very severe cold, and the trees must have the protection of a cellar or house to secure a crop. But they submit so readily to pot culture, and produce such abundant crops that they ought to find a place in every collection wherever there are houses to bring them forward, or we might say even wherever there is a warm cellar to winter the trees. We know several amateurs who have fine trees managed in this way, and who get good results. The trees are set out in the open air in summer and removed again to the cellar in the autumn. In this way they produce annually fine fruit. We have, in our earlier volumes, given much information upon growing the fig ; but the following from the *Gardener's Chronicle* is so practical, that we copy it for the information of all who would attempt its cultivation, either by the aid of greenhouses or graperies or in the open air :

POT CULTURE.—The fig is exceedingly well adapted for pot cultivation. It is perhaps more pliable in this respect than any other kind of fruit tree ; moreover, it can be cultivated in pots with greater advantage than in any other way. One great re-

commendation of this method is the immense variety that can be grown in a very small space ; and by a proper selection of the varieties, an almost continual supply may be obtained. Indeed, many of the fine late Italian varieties do not succeed well when planted out, excepting where a house can be specially devoted to them. In the house at Chiswick, which is usually devoted in summer to the fruiting of the collection of figs in pots (about 100 plants), it is very rarely that a day passes, from June to Christmas, on which one or more ripe figs cannot be gathered ; while in September, October, and November they are more than abundant, that being the season in which the second crops of the early varieties, and the first crop of the late ones, mostly ripen. What a treat for the lover of figs, with a "Figery" of this description, to be able thus daily to satisfy his tastes by a few well-ripened and delicious fruits. This is the great charm of orchard-houses, for every one knows how much more of real enjoyment there is in eating fruit that is of one's own plucking, than when gathered and put before us in the most tempting way by other hands.

Properly managed fig trees in pots produce fruit in greater abundance, and of a richer flavor than do those that are planted out. The fig is a gross feeder, and when planted out, it is difficult to restrict the action of the roots when required. Young plants especially grow so luxuriantly that little fruit can be obtained, and what little there is, is of a poor watery flavor. Plants in pots, on the contrary, are perfectly under the control of the cultivator, and perhaps no fruit is much more benefited by a little attention as to temperature, watering, &c., than the fig is at particular stages of its growth. Some varieties may probably require a little more heat than the others to ripen ; these, if in pots, can be easily removed to another house, &c., but this need only be resorted to in very special cases.

An essential element of success in the cultivation of any class of plants, is undivided attention. Greater success is always attained in in-door cultivation when the whole house can be devoted to one particular class, as all kinds of plants require special treatment at certain times ; and, when it is attempted to cultivate several kinds of fruit in the same house,

all requiring different treatment, it is very rarely that anything is done well. Who would ever think of growing pines under vines, or grapes under peaches? Yet these are the conditions under which figs are generally to be seen where pot cultivation is attempted. It is also a very fallacious notion that the fig requires shade, whereas no plant is more benefited by the full and direct rays of the sun.

PROPAGATION.—The fig is very easy of propagation, by offsets or suckers from the roots, which are sometimes produced very abundantly, and having generally a little bit of root when taken off, are very quickly established; by cuttings, which strike freely in a gentle heat, if taken off with a heel, *i. e.*, a little bit of the old wood, attached; or by eyes, in the same way as the vine is propagated. They may also be raised from seed or grafted. The best season I have found for taking off the cuttings, and that in which they strike most freely, is in the autumn, just before the leaves have fallen; at that time there appears to be just a sufficient quantity of sap to form a coating over the newly made wound, and roots are very quickly formed. If taken earlier, the milky sap of the plant is so abundant that it is almost sure to rot the cutting, and the same evil is experienced when they are tried late in the spring.

SOIL.—The fig will grow in almost any kind of soil; that, however, in which it seems to thrive best, and to bear the greatest abundance of fruit, is a pretty good yellow loam, resting on a chalky or dry gravelly subsoil. For pot cultivation, it must be of a somewhat richer description, so as to produce fruits of a goodly size. I have found the following to answer admirably, *viz.*, two-thirds good yellow loam, one-third lime or brick rubbish, with a liberal mixture of rotten manure and burnt ashes. We use the same mixture for potting the plants in all stages of their growth.

POTTING.—The first shift the young plants receive from the cutting pots is into 48's, or 5-inch pots; then as they grow, which they do very rapidly, they are repotted into larger ones, always giving them plenty of drainage, which being kept clean and pure, tends much to the success of pot cultivation in all kinds of plants. While the plants are young and grow-

ing fast it may be necessary to pot some of them twice a year, but afterwards, when they are in the fruiting state, once a year will be found sufficient, or once in every three years, the objects being to produce short stubby wood, and not gross shoots, as would be the case if excess of pot room was allowed. It is our practice here to go over the whole of the plants when they are at rest, in the winter season, repotting all that may require it into larger pots, shaking off at the same time a great portion of the old soil, and shortening the roots considerably, in the same way as has long been the practice with pelargoniums. Those that have attained the largest sized pot that is desirable, if not repotted, have the surface soil picked off as far down as possible—half-way down the pot—as well as a great portion of the roots; this space is then filled up with fresh soil. Every second or third year they are shaken out of the pots, and the roots trimmed back before repotting. In this way the same plants may be grown on in the same pots for many years. I do not recommend the use of very large pots for the cultivation of any kind of fruit tree, for large pots are very unsightly, as well as being exceedingly unmanageable and inconvenient. Good plants of figs, which will bear very good crops of fruit, may be grown in comparatively small pots. We have had them very fine in 8-inch and also in 10-inch pots. The most eligible size, however, and that which I should mostly recommend as large enough for all purposes, is the 12-inch (*i. e.*, 12 inches in diameter). I have found that as much fruit can be grown in pots of that size, as in any others. During the summer time, when the pots are pretty well filled with roots, and the plants are growing freely, much benefit will be derived by frequently top-dressing them with rotten manure mixed with a little loam. This, by cutting little strips of turf and placing it round the rim of the pot, may be raised several inches higher; it also serves as a sort of basin for holding the water, for which otherwise, in the usual mode of applying top-dressings, there is very little room.

WATERING.—The fig while in a growing state requires a very great deal of water; indeed, when the pots are well drained, and pretty well filled with roots, it can scarcely get an over supply. They are even benefited at times by placing

the pots in shallow pans of water. Manure-water may also be applied two or three times a week when the plants are swelling of their fruit, which will tend to assist them greatly.

When the fruit is ripening water must be applied more sparingly, as an overdose at this time is very apt to make the fruit split. Great care must be taken with some of the varieties, such as the Brunswick, Grosse Verte, &c., which are very subject to this, especially in cold, dull, cloudy weather. The fruit is also benefited in flavor by the roots being kept somewhat drier than usual, while they are ripening. The fruit of the fig ripening in succession, however, it is somewhat difficult to pay very strict attention to this rule, as the younger fruits are injured by the very treatment that is so beneficial to those that are ripening. It is necessary here, as in so many other instances, to use a fair amount of discretion.

B A M B U S A A U R E A .

BY THE EDITOR.

THE Bambusas are a tribe of erect, tall growing, reed-like plants, some of them attaining the height of twelve feet, with narrow deep-green leaves, forming tufts, or masses of foliage, very ornamental. Most of them are natives of warm climates, quite tender, and in consequence, of but slight value for garden decoration. The first really valuable species was from Japan, introduced by M. Fortune, and known as the Bambusa metake. This proved to be hardy in England as it has since been found hardy in our climate. Another, and a very beautiful kind, was the Variegated Bamboo (*B. variegata*) sent home by M. Veitch. This is of very dwarf habit, less hardy, but with a beautiful foliage, very deep green, each leaf delicately lined with pure white. A third, and also hardy sort, is the *B. aurea*, which we are about to notice.

Bambusa aurea (FIG. 5) is from Japan, and is somewhat of the habit of *B. metake*. The foliage has a paler hue, and is not quite so long and slender. It does not grow quite so tall, and is less gross in all its parts. The annexed engraving conveys a good idea of its general aspect.

It is quite hardy in France, and we doubt not is hardy in our climate, especially if slightly protected with a light covering of leaves. Our own plants, yet limited in number, were taken up and placed in a cold frame, but another season we shall have them in the open ground.

It prefers a deep, rich, and moist soil to obtain a vigorous growth. In such a situation it throws up an abundance of



5. BAMBUSA AUREA.

its slender reed like shoots, and forms a mass of light green foliage, highly attractive and ornamental. It may be classed with the Yuccas, Phormium tenax, Agaves, and similar tropical looking vegetation, admirably adapted for grouping with them, or in isolated beds around the lawn.

B. variegata (or *Fortuni*) forms a neat and distinct dwarf edging to bed *B. metake* and *aurea*.

General Notices.

PLANTING FLOWER BEDS.—There are two distinct modes of furnishing beds with flowering plants. One is, to plant in each bed only one kind of plant, or perhaps to edge the bed with another kind; but as this style of gardening is more suitable for large than small gardens, we pass on at once to make a few remarks upon the other mode of furnishing beds, which may, for distinction, be called the mixed style; while the former style ensures a bold and decided piece of coloring, in the garden for a short period of the year, rarely exceeding three months, the latter style secures to the amateur a constantly changing source of pleasure for at least nine months [seven in our climate] out of the twelve. It consists in the judicious distribution of plants of all kinds over your beds and borders, in such a way that as month after month calls fresh sorts into bloom, a pleasing effect is maintained. This end may be obtained either entirely from hardy perennials, which, for those who cannot spare much time for gardening, afford the greatest pleasure and variety for the smallest amount of care and attention; or from a mixture of spring flowering and autumn flowering perennials with summer flowering annuals and half-hardy plants. In very small gardens it will be advisable to keep only one plant of each kind; but where space permits, a better effect is often produced by planting three of a kind in a group, so that when grown they may look like one good sized plant.—(*Gard. Chron.*)

SWEET VIOLETS.—These charming little gems are now in full bloom, after the fine weather of the last month; and there are now so many distinct varieties, both in color of flower and habit of growth, that I think they should be more generally grown than they appear to be. They will grow in almost any situation, provided they get the pure air of the country; but what they most delight in is a rich, deep, loamy soil. They will be very much improved by having two or three liberal soakings of manure water during the flowering season. I will now name some of the most distinct kinds in cultivation:

King of Violets, color dark violet, good growth, free bloomer, an improvement on arborea; good for greenhouse or out of door culture.

Reine des Violettes, blush white, very double and hardy, free bloomer; will do either for pot culture or out of doors.

The Giant and Czar, if not the same, are very much alike; if there is any difference the Giant is the largest. Both have fine large flowers, with capital long stalks, which make them very valuable for gathering, either for bouquets or vases. There is also a very fine and similar variety called Russian superb.

Rubro-plena, double red or copper color, very distinct, hardy, and a free bloomer; there is, moreover, a single variety of the same color.

Arborea alba, tree, pure white, one of the best for in-door cultivation, as it likes a little protection; there is a single of this variety—both are good.

Devoniensis is quite a wonder among violets, as it is in bloom the whole of the season; it also has a good long flower stalk, which makes it invaluable for gathering; color of flower light violet.

Neapolitan is second to none, and when grown well is one of the most beautiful flowers in cultivation. What can surpass the sweet scent and beautiful color of the flowers? They charm every one who comes in contact with them.

Sevavis is distinct from any of the preceding, both in growth and flowers—these, which are single, with a peach eye and lavender petals on a white ground, making it a desirable variety.

The above are all sweet-scented, and well worthy of general cultivation.—(*Gard. Chron.*)

LILIUMS, generally, and the varieties auratum and longiflorum especially, will now need a little special attention. The two last, or more particularly longiflorum, if kept in a cool and proper situation, will now be starting into growth, and if not already done, may be potted into fresh compost forthwith. Those who wish to succeed with the gorgeous *L. auratum*, and its hundred and one varieties, must watch and tend the growth as it issues from the apex of the scaly bulbs, in order to see that it does not in any way become drawn or impoverished through the want of a proper amount of light and air. And above all things, it must not be permitted, as I have before hinted, to become immoderately wet. Liliaceous plants would seem to adapt themselves to almost any kind of soil. They do well under careful treatment in good, rich, fibrous, yellow maiden loam, if with decomposed leaf mould intermixed all the better. This much I state for the information of those who, having surplus bulbs, would like to place them out in any warm aspect. When possible, add at all times, in such situations, a moderate quantity of sand, which by insuring more perfect drainage of superficial rains, will tend much to preserve the bulbs during the period of rest. I advise, however, the use of good fibry peat with a little well decomposed leaf mould and silver sand in which to pot them generally. Crock the pots well; then place upon the crocks a layer of the leaf mould, next a layer of the general compost, and then a surfacing of peat and sand alone which, when well pressed, should reach within two inches of the top of the rim. Press the bulbs firmly into the top layer, and cover them with the loose material, so that only the top of the bulb is above the compost. *L. auratum*, bulbs of which were only imported last season, and which furnished a moderate growth only during the past summer, if potted into sizes not less than 4 inches, had better not be shifted yet. I advise starting them in the same pots, as being much safer than to remove or risk the removal of the soil from around them, by turning the bulbs out in the operation. They can readily be shifted into pots of larger size, should they need such attention at a later date, and when it is seen what amount of progress they are likely to make.—(*Gard. Chron.*) [We would caution all who purchase the *L. auratum*, as the flow-

ering bulbs are all imported, to pot in very sandy soil, in small pots, and water cautiously; as soon as well started turn them into the ground. It is a superb lily, but requires more care than the common Japan kinds.—Ed]

Massachusetts Horticultural Society.

January 18th.—Adjourned meeting—the President in the chair.
The Treasurer submitted his annual report as follows:—

RECEIPTS OF INCOME.

Balance of Cash on hand, - - -	\$266 66
Admissions and Assessments, - - -	2,069 50
Rent of Stores, - - - -	11,450 00
Rent of Halls, - - - -	9,624 00
Received from Mt. Auburn Cemetery, -	7,482 19
Gross Receipts from Rose Show, - - -	262 25
Gross Receipts from Annual Exhibition, -	1,125 00
Net of Sale of Stocks, - - - -	8,576 68
Deposit to pay Prizes, balance uncalled for, -	73 00
Sundry Receipts, - - - -	102 67
	\$41,031 95

EXPENDITURES.

Salaries and compensations, - - -	\$2,200 00
Library accessions, - - - -	496 88
Heating, less amount paid by tenants, -	497 20
Insurance on Library, one year, - - -	20 00
Interest, less dividends, - - - -	5,313 22
Gas, - - - -	1,014 08
Water, less amount paid by tenants, - -	185 14
Expenses of Rose Show, - - - -	200 88
Expenses of Annual Exhibition, - - -	1,209 80
Taxes, - - - -	3,720 20
Additions, alterations and repairs on building,	1,294 06
New furniture, refitting and repairs, - -	1,079 75
Testimonial to ex-President Hovey, - - -	240 00
Testimonial to E. A. Story, - - - -	50 00
Stationery, postage and printing, - - -	1,174 79
Labor and incidental expenses, - - -	1,441 43
J. W. Jenks, for preparing catalogue, - -	182 50
Portrait of our President, - - - -	192 90
Repairing plate and printing diplomas, (bill of 1865),	219 00
Deposit in Market Bank to pay prizes, -	3,022 00

Amount paid for reduction of floating debt, -	\$16,878 83	
Cash in the Treasury, - - -	398 69	\$41,031 95
	<hr/>	
The amount of the floating debt, Jan. 1, 1867, was		\$35,000 00
By the sale of 167 shares C. & P. R. Railroad,	8,576 68	
And by cash, - - - -	6,993 32	
It has been reduced, - - - -		15,500 00
		<hr/>
Leaving the amount to-day, - - - -		\$19,500 00
The property of the Society consists of its real estate, building and furniture, costing at date,	\$251,457 28	
Library and glass ware, - - - -	6,423 94	
Cash in the Treasury, - - - -	398 69	
	<hr/>	\$258,279 91
The Society owes a debt, secured by mortgage of - - - -	\$100,000 00	
A floating debt of - - - -	19,500 00	
	<hr/>	\$119,500 00
Leaving a Balance, as the cost to the Society of its property at date, of - - - -		\$138,779 91
		<hr/>
Adjourned to Feb. 1.		

Horticultural Operations

FOR APRIL.

FRUIT DEPARTMENT.

A cool and backward month has prevented the accomplishment of anything of consequence in this department. Trees could be pruned and some other work done, but no preparation of ground or but little planting could be done to advantage. The present will undoubtedly be a busy one. Work already delayed will be crowded into a short space of time, and should the weather become fine the season will advance with great rapidity.

GRAPE VINES in the greenhouse or grapery will soon be in flower, and will require some attention. Syringing should be discontinued and the temperature slightly increased, with a liberal amount of air in fine weather. Laterals should be tied in, and stopped if they are extending too far. All superfluous shoots should be rubbed off. As soon as the weather will admit and the soil dry the border should be lightly dug and raked in order to admit warmth and air. Grape vines in cold houses should be uncovered at once, and the vines tied up to the trellis; admit air freely in good weather, but close up early to retain the warmth at night. Syringe daily as soon as danger of cool nights is past, and increase the temperature as the

season advances. Grape vines in the open ground should be uncovered and if any additional pruning is required it had better be done at once. Tie up to the trellises properly.

GRAFTING should be done now, and the opportunity should be taken to regraft old trees first if there are any to be done, leaving the younger until the last. Cherries should be done first. Use good grafting wax.

PRUNING should be continued as rapidly as possible; select the shoots which are to form the tree, and cut in all laterals to two or three eyes. This may be considered an invariable rule, though it may be departed from according to the skill of the pruner. Continue to scrape and wash trees, using whale oil soap,

STRAWBERRY BEDS will soon require attention; remove the covering, and as soon as the weather is good, rake and clean the beds. Prepare ground for new plantations which may be set out the last of the month.

FRUIT TREES, in pots, now swelling their fruit should have an abundance of air and plenty of manure water.

LOOK AFTER INSECTS, especially the canker worm.

FLOWER DEPARTMENT.

The recent cold weather has retarded the growth of many things; and plants in frames have suffered from chilly nights and the absence of bright sun and genial air, by which they could be hardened off; as the weather becomes warmer this must be overcome by careful attention for a few days until they can be fully exposed. This is the period when a majority of plants show the effect of the returning season upon their growth. Everything starts with rapidity, many making new wood and others coming into bloom. The former will require more attention than the latter, a portion needing repotting, and all to be encouraged in perfecting their growth for another year. See that they are all properly treated.

PELARGONIUMS should have an abundance of air, and should be kept near the glass, being careful not to have too much moisture in the house. An occasional syringing early in the morning being all that will be required for the present. Look carefully for greenfly, and fumigate often as a preventive, for if they are allowed to get too numerous it is difficult to clean the plants.

CAMELLIAS now beginning to grow will need attention. If the plants require it they may be potted now, replacing in a rather warmer temperature and syringing often. Pruning may be done if attended to at once; but such plants should not be repotted for two or three weeks. When plants have started, simply breaking off the leading shoot will induce them to throw out others below. Syringe often and shade from the hot sun. In potting, use fibry loam, leaf mould, and a sprinkling of sand,—all rather coarse.

AZALEAS will continue to bloom as they are brought from a cool temperature into a warm house, and should have good syringings until the buds are well advanced; give air freely, but avoid cool draughts, and shade from

the midday sun. Water occasionally with liquid manure. Young stock should be repotted and grown vigorously in a higher temperature.

BEGONIAS should be shifted into large pots, using very coarse soil, and a good drainage.

GLOXINIAS and **ACHIMENES** started in small pots should have a shift into a larger size.

CALADIUMS may still be potted, and such as have already started should be shifted into small pots, and kept in a pit or frame with bottom heat.

ORCHIDS now showing flower, or beginning to break, should be syringed often, and encouraged in making a new growth.

MARANTAS, **DRACÆNAS** and similar showy plants should have a shift into larger pots.

JAPAN LILIES, if well advanced, may be shifted into their flowering pots.

CHINESE PRIMROSES now about done flowering should be more sparingly watered, and preparation made to propagate from cuttings.

FUCHSIAS should be shifted into larger pots.

BEDDING PLANTS of all kinds should soon be removed to frames where they can have more space and plenty of air during the day, and good protection from cold at night. This will prepare them for planting out early and secure an immediate and healthy growth.

FLOWER GARDEN AND SHRUBBERY.

The ground yet remains covered with snow in some localities, but by the first week of April we may hope that the ground will be dryer and ready for work. The first thing will be to look after the walks and lawns. As soon as the ground will admit give them both a good rolling. Rake and clean the shrubbery and prepare ground for early planting.

EARLY FLOWERING BULBS will now be coming forward, and any covering should be immediately removed, and as soon after as the ground will admit, the surface should be gently stirred.

HERBACEOUS PLANTS should have early attention, dividing and resetting such things as *Dielytras*, *Campanulas*, &c.

TREE PÆONIES should be carefully pruned, cutting away all small weak shoots.

SOW SEEDS of Larkspurs, Pansies, *Clarkias*, and other hardy annuals.

DAISIES should be divided and reset.

DAHLIAS started now in frames will produce an early bloom.

GLADIOLUS for very early flowering may be planted out the last of the month.

CARNATIONS and **PICOTEES** wintered in frames may now be planted out in beds.

ASTERS, **ZININAS** and other Choice Annuals should be planted in boxes or pots in frames.

ANNUALS of all kinds not entirely hardy should be sown in pots in the frame, or in hotbeds or the greenhouse.

AMERICAN POMOLOGICAL SOCIETY.

IN accordance with the call of the meeting, this Association assembled at the Hall of the Polytechnic Institute at St. Louis, Mo., on the 11th of September, 1867.

We have already stated in our notice of President Wilder's address, that the Society and the pomologists of the whole country were deeply indebted to the President for his great willingness, while but partially recovered from illness, to undergo the fatigues of the long journey, in order to preside over the deliberations of the Society. His presence encouraged and cheered the members in their labors, and his readiness to co-operate with them in everything pertaining to the progress of Horticulture throughout the country, and particularly in the Great West, was fully appreciated by all.

Dr. Mudd of St. Louis delivered the address of welcome, to which the President responded, thanking the gentlemen representing Missouri, Illinois, and the Valley of the Mississippi, for the courtesies extended to the Society.

It was our intention to wait for a full and complete report, as made up from the revised copy of the Society's proceedings, but as this has been delayed from unavoidable causes, we have availed ourselves of the kindness of the President to place in our hands his notes of the proceedings, from which the report is made up. The revision of the Catalogue has been a work of great labor, and to have it complete required that the Secretary, Mr. F. R. Elliot, should visit the East and consult with the pomologists of that section, as well as those of the West, that the revision should not contain any errors. We have no doubt Mr. Elliot will spare no exertions to maintain the high standard the Society has already attained. The Catalogue we shall not attempt to notice, but must refer to the work itself, as soon as it is ready for distribution among the members.

At the close of the usual preliminary business of the Society, the officers were elected. The meeting then proceeded to business.

Mr. Meehan, editor of the *Gardener's Monthly*, was then invited to read his paper on the "Diseases of the Pear." This is a document of eight or ten pages, and we are unable even to find room for a synopsis of it. It contained much valuable information, though we do not concur in all the views of the writer. The discussion then commenced, taking up the subject of the fire blight, which was referred to in Mr. Meehan's paper. As this disease, or whatever it may be, has appeared in some places in Massachusetts since the meeting of the Society in 1864, we briefly notice this discussion:

Dr. Tremble of New Jersey wanted the Western New York gentlemen to give some information about it, as it was affecting the orchards of New Jersey, and they did not know what to do with it.

Dr. Clagget of Missouri attributed the disease to insects. A friend of his, who lives among his trees, believed he had found a night-moth, which does the work in the night.

Mr. Barry of Rochester, N. Y., confessed he had nothing to say except what is from speculation, and he had got tired of speculation and hearing it upon the subject. He desired to ask Mr. Meehan if he had discovered fungus on the affected pear trees?

Mr. Meehan. I have. Take a part of the tree where affected, and put it under a microscope of moderate power, and you will find disease spreading in threads of white fungi.

Mr. Barry. The true way is to cut away the parts affected. I do not believe it to be caused by an insect.

Mr. Husman of Missouri formerly cultivated highly and manured highly. The blight appeared. He thought he had overdone the thing and reversed the treatment. The blight has completely disappeared.

Dr. Hull of Illinois had some experience with pear blight. He thought fungus was the principal or sole cause of pear blight. Had inoculated trees with it, when the sap was in active circulation, and it had spread badly. When at rest it did not spread much. Adopted root pruning as a remedy. His orchard was now free from blight. Had found fungi on the affected trees, and figured and presented them to the local society.

Other gentlemen alluded to the leaf blight, but nothing particular was elicited in regard to the subject.

M. L. Dunlap of Champaign, Ill., addressed the meeting in regard to packing and marketing fruit, and at the conclusion the discussion commenced upon fruits, beginning with

RASPBERRIES.

CLARKE.—Campbell of Delaware, O., had this variety two years; is a strong growing, healthy, vigorous variety, and productive. Last winter was a severe one. Exposed in their localities and went through uninjured. Barry of Rochester, N. Y., had had it four years; is entirely satisfactory and he regarded it as a valuable addition to the list. It is of fair size, beautiful color and excellent quality; hardy, both in summer and winter; a delicious variety that is hardy. Bateham of Ohio said that it was said to resemble Belle de Fontenay, and asked for information. The chairman said it had no resemblance to it. Knox said it was a robust grower, produces good fruit and moderately firm. Lum of Sandusky said it compares with the Kirtland, which it is said to resemble. Trowbridge of Connecticut said it was hardy, sprightly, and for the table a better berry than any he knew. Bronson of Geneva saw it in Mr. Carke's grounds and corroborated all that had been said of it. Williams of New Jersey said his vines were killed to the snow line, which he attributed to late growth. Another season was wanted to determine its merits.

PHILADELPHIA.—Phoenix of Illinois said it was productive, very hardy, tolerably firm, but he wished it had a better flavor; an enormous bearer. Dr. Sylvester of Lyons, N. Y., said the winter of 1866-'67 was a severe one, but the Philadelphia proved hardy, and fruited abundantly last summer. Bateham said we wanted a first-rate, hardy raspberry; had tried this and must remark that we had not got a first-rate hardy raspberry unless it was the Clarke. Williams had had it four years; was productive, but of inferior quality. Barry asked if gentlemen lay the raspberry down in winter? He did not expect to get raspberries that will be hardy without laying down. He laid his canes down with a spadeful of earth on the top, and they prove hardy. Campbell said the Clarke was

hardy uncovered. The President said he found it necessary to lay the canes down. It is not safe otherwise. Downing said the Hudson River Antwerp is always laid down, and covered, and the crop had averaged five hundred dollars per acre. Dr. Sylvester said his Philadelphia were not covered and they produced well. The President tried the Clarke by leaving half the plantation uncovered; they went through the season safely but were not as productive as those laid down.

DOOLITTLE.—Dr. Tremble wanted to say a good word for the Doolittle. Wier said in the West we know nothing but Doolittle; have discarded all others. Practised covering the tender kinds but did not succeed. Bronson said Mr. Doolittle was bringing out another kind, that was a week later than the Doolittle Black Cap, and fully equal to it; he named it the Seneca; it is a larger fruit than the Doolittle. Dunlap said the Miami was of the same season as the Seneca and very like it. Barry said the Doolittle is our best early raspberry; Miami is a week later. Had twenty acres of the Doolittle, and discarded all other black sorts; grows equally well in all soils. Plants four by eight feet, and does not stake; cut the canes back according to their strength, from three to five feet high. He shortens in winter before the buds start. Babcock of Lockport, N. Y., said the Black Cap is the most in cultivation.

BLACKBERRIES.

KITTATINY.—Williams said as he had disseminated it he would not extol its merits, but wished to hear how it had succeeded away from home. Wier said he thought more of it than of any new fruit he had ever tried. It stood the winter well with him. Dr. Edwards of St. Louis said it was nearly a week earlier than the Lawton, about as productive, and a better berry. He esteemed it highly. Dr. Tremble had tried it for years with the Lawton and gave it preference. It is hardier and decidedly superior. You can pick it and have every berry ripe. By summer pruning you can make a perfect tree of it. It suckers largely. Discolors in transporting, but not so bad as Lawton. Dr. Sylvester had fruited both—the Kittatiny but one year. Hardier, according to his experience, than the peach or cherry. The fruit is distinct from the Lawton, and they occupy two different positions with

pomologists. The Lawton is too acid for the table. The Kittatiny is of good flavor, and will please most people. It is a strong and vigorous grower; in bearing, four weeks. Wier said the fruit ripened all at once. Williams said it ripened rapidly. Trowbridge said it was successfully cultivated in New Haven. Newman said there was no difference in the time of ripening between the Kittatiny and Dorchester. The Kittatiny is loaded with fruit, and is more hardy than the Lawton.

GOOSEBERRIES.

DOWNING'S SEEDLING.—Dr. Tremble said all gooseberries mildew with me except the American varieties. Hooker said the Downing had proved an abundant bearer, had made a healthy growth, and he thought it a decided advance upon American varieties. The President said it was the best. Manning said it was excellent with him. Wier had had it five years; had proved very satisfactory except because of its lateness for market. Hooper of Pennsylvania said it was a delicious gooseberry, A 1. Williams had it three years and liked it; none but American varieties worth growing. Phoenix said it was a large, greenish white berry, productive, and of fine quality; more upright than the Houghton in growth.

CURRANTS.

VERSAILLAISE.—The President said this was the best large currant we have. It is an abundant bearer, and of good quality. Wier said we must produce better fruit. Dr. Tremble said we pick currants too soon; we do not let them get ripe. Williams said currant culture is as profitable as the culture of any of the small fruits. The currant is a most healthful fruit and comes into market when it is most needed. If properly managed, people have no idea of its lusciousness. The merits of this fruit had been strangely overlooked. It comes at a season when the system seemed to require the acid peculiar to them. They were healthful and exhilarating. Those who had only been accustomed to our common varieties as commonly grown, had no conception of the beauty of the Cherry, or the quality of the Versaillaise white grape,

or Imperial Yellow, when well grown. It is *one* of our most profitable fruits. The President said a neighbor of his got currant crops every year that bring him eight hundred to a thousand dollars per acre, all grown under apple trees in an orchard. Hooker said it might be new to many that the currant worm could be destroyed by sprinkling the branches when the dew is on with white powdered hellebore. His experience did not justify the distinction claimed for the Cherry, La Versaillaise and La Fertile; they are not so different that they may not be mistaken for each other. Manning said he had found it difficult to distinguish between the varieties named by Mr. Hooker. The President said the Cherry currant is most certainly distinct from La Versaillaise and the other varieties. He was quite sure of that.

[We are surprised at Mr. Hooker's remarks. No two varieties are more distinct than the Cherry and La Versaillaise in growth, size of bunch and quality. The Cherry is too sour to eat at any time, the growth is dwarf, and the bunches short. The Versaillaise is sweet, the growth tall and vigorous, and the bunches long.—ED.]

STRAWBERRIES.

BUFFALO AND McAVOY.—Mr. Heaver asked if gentlemen had found them to be identical as is asserted? Hooker said no,—they were distinct; the Buffalo is the better berry; but neither worthy of extended planting. Heaver said Russell and McAvoy were distinct; there was great dissimilarity between them. Hooker visited Mr. Russell, and told him his berry resembled McAvoy Superior. He said it grew from seed of McAvoy. Russell's is dark scarlet. Heaver said with him it was a light colored fruit; was at a loss to know whether he knew Russell's Prolific or not, and was anxious to know if it was identical with Buffalo. Knox said the whole matter was discussed at Rochester, and it was decided then that the Buffalo and McAvoy were identical. Quinette of Missouri said he had grown the McAvoy fifteen years; does not stand the climate well; had no doubt Buffalo and McAvoy were the same. The President thought it was hardly worth while to discuss the question further, as it was

of no importance whether identical or not. [We quite agree with Col. Wilder; they are worthless sorts.—ED.]

AGRICULTURIST.—Hooker had been disappointed with this sort; had not found it of a particle of value for cultivation for home or market. Produces a few large berries and a great number of inferior ones. Dr. Humphrey said they did not come up strong. Baugh of St. Louis said it was the strongest growing sort he had. Williams said it exceeds anything he grew, but there was not vigor enough to mature the fruit that sets. Taft of Missouri said it did not stand as well as other varieties in his locality; flowers imperfect. Knox said it grew well with him and bore tolerable good crops, second as to quality. Jordan of St. Louis said he had seen it in hills on clay soils not doing well, but on sand in hills it did well. It runs much. Dr. Long of Illinois said it ranked with Russell's Prolific for market; it is rather soft; is a profitable berry; second quality. Hoag said a friend had tried it on gravel and clay; had proved an entire failure. Dr. Tremble said Mr. Boyden, the raiser of it, told him it did not succeed well with him. He regarded the Green Prolific as much better. Dr. Edwards had not had any strawberry which would compare with the Agriculturist in productiveness except the Green Prolific, and none in quality; the latter too soft for transportation; the Agriculturist was firmer; was among his best and most productive berries. Williams said the Green Prolific was too soft for market and too acid for family use. [Just its character.—ED.] Lady Finger unsurpassed for beauty and solidity; quality first-rate, but not quite so productive as desired. Filmore not fit to eat. Triomphe de Gand very unproductive and poor in quality. Downer's Prolific the best *early* variety, he had tried. Quinette said it had not proved valuable with him. Barry of New York said it did well with him, and was one of the best and most profitable.

JUCUNDA.—Hooker had fruited it three years; was pleased with its appearance, health and vigor, and fine productiveness. A handsome fruit of middling flavor. Promising. Heaver said it was of fine appearance, but when you taste it you might as well *eat a poor turnip*. From the advertisements he

had expected great things of it, but had been disappointed in it. McCulloch of Ohio had fruited it; was a good berry—first class; nearly as good as Wilson; did not stand drought well. Hoag said it had done finely with him for five years. Productive, though not of first quality; compared with Wilson, it had proved more productive with him where it had been tested. Dr. Humphrey said it was not productive with him. Knox had waited to hear all that could be said against the Jucunda. Had tested it thoroughly. Had practised no deception in relation to it, in putting it before the public. It was the valuable variety he grew; uniformly large, a perfect beauty in form and color, and yields enormously. The flavor is a matter of taste. Does not regard the Jucunda as of first quality. He would say but little about flavor, in putting a fruit before the public, because it was a matter of taste; could make more money off of one acre of Jucundas than off of five acres of Wilson's Albany; easy to pick, as ten berries fill a pint. (?) Wise said he had never seen it outside of Pittsburg on any soil, anywhere, where it had done well. Griffith of Pennsylvania admitted that it did well at Pittsburg, which he thought the result of good culture. Colman of St. Louis tried it, but with every attention he did not discern the remarkable merits that are claimed for it, and concluded that on his soil it was not worth anything and ploughed it up, Wilson paid well when with the same culture Jucunda did not. Jordan said the lesson learned from these discussions was that different varieties are adapted to different modes of culture.

Mr. W. Saunders read a paper on the Diseases of the Grape which we will endeavor to notice in another number. The discussion on grapes was then taken up.

GRAPES.

IONA.—Husman of Missouri planted a dozen vines four years ago; he also grafted on good stocks. They have grown less and less until he has no vines left except those grafted. His experience was unfavorable, mildews badly and the fruit rots. Muir of Missouri had it, and it had proved a satisfactory

grower, but he had not fruited it. Dr. Edwards tried it; vines grew well in 1866; last year poorly. Bateham said that along the Lake Erie shore, for 200 miles, there are not many vines in bearing; but in nine cases out of ten the growth of vine and promise of fruit is exceedingly satisfactory. On sand it did well; on richer ground it mildewed. This side of Cleveland it was doing splendidly. Griffith of Pennsylvania had planted twenty thousand Ionas. He went into it, he thinks, understandingly. Mr. Knox cannot grow the Iona; he could. Mr. Husman cannot grow it, but he can grow others; so far as he knew every bearing vine on the Lake Shore is doing well. It cannot compare with the Concord all over the country. It will surely get hurt if it undertakes to keep company with the Concord. Husman said he should like to know if Dr. Grant had made the Iona productive and valuable as a fruit. Barry said he should like to know who had the Iona in bearing. Men who have simply propagated it are not competent to speak of it. Hoag planted it two years ago, and had an abundant crop of fruit from it this year. It is hardy and productive with him; felt well satisfied with it. Babcock of New York said that the Iona when fruited last year had done well.

IVES' SEEDLING. — Stephens wanted to learn something about this grape. Thought it might go along with the Concord without trouble. Mears of Ohio had known it nine years; had never seen any mildew upon it or rot; bunches compact, solid and well developed. Its reputation as a wine grape good. Elliot had heard of its rotting at Cincinnati. Mears said there was no rot on it a week ago. It has a good flavor, though as Mr. Knox has said that is simply a matter of taste. Any man who likes the flavor of Concord will like the flavor better. Meehan of Pennsylvania said he was travelling for information; had the impression the Ives was only good for wine. At Cincinnati was astonished to find its quality for eating quite equal to Concord; thought it would be entirely free from rot; not quite so early as the Concord. Husman said the vine made strong growth; thought the wine of the Concord quite superior to the Ives. Griffith thought the Ives likely to occupy more territory than any grape except the

Concord; did not think it would be established as a table grape; good for wine. Warder said it was healthy, hardy, vigorous and productive, and ripened earlier in Cincinnati than the Concord. Knox said the same.

ISRAELLA.—Taylor of Kentucky said his experience is that we could not grow healthy vines of the Israella and Iona out of doors. Peabody said that vines planted on a bluff held their foliage well; the fruit set and ripened well except during a few days of weather favorable to rot; ripened two or three days later than Hartford Prolific; soil, heavy clay. Griffith had seen a few vines in bearing, and they were healthy and full of fruit; did not think the quality remarkable, but a "clever grape."

NORTON'S VIRGINIA.—Taft and Elliott had found it a good grower and in good condition at the West. Saunders said it was tender North. Griffith said it was as hardy as a beech tree; ripened before the Catawba. Husman said it was a good deal like the Ives; did not rot and was not tender. The discussion was continued to some length, the evidence being that it is a good wine grape in the West, but tender and too late for the North. The President properly suggested that brief testimony should be only given of the varieties discussed.

CREVELLING.—Doing well at Alton, Ill., Pittsburgh, Pa., Rochester, N. Y., Hermann, Mo., in Massachusetts, and generally so far as testimony given.

ROGERS No. 3.—Promising in Massachusetts. Pittsburg, Pa., Hermann, Mo., and Alton, Ill., but the bunches small.

ROGERS No 1.—Too late, except in Missouri.

ROGERS No. 4.—Downing said it was the best of all the Rogers grapes; best black grape at Alton, and a favorite in Massachusetts.

ROGERS No. 9.—Early in Ohio; one of the best. Promising for wine. The President said it was one of the best as to flavor. Some selected it as preferable to Delaware.

ROGERS No. 19.—Best of all in Iowa; good at Hermann, Newburg, N. Y., and along Lake Shore. The President said all Rogers grapes were so much improved at the West and South that Eastern cultivators would scarcely recognize them.

SALEM, (or No. 22).—Requa of New York said the habit was good, little mildew, early and promising. Saunders said

it was fine. Husman, satisfactory. Griffith, a success on the Lake Shore. Dr. Spaulding, promising as to health. The President said it was healthy and of good quality.

ROGERS No. 34.—Nobody had ever ripened it; too late.

MAXATAWNY.—Good, hardy, but late in Ohio. Good at Pittsburg.

MARTHA. Husman said it made a good white wine, healthy, hardy and bears abundant crops; bunch small. Knox said it was promising, and he thought it would be one of our valuable white grapes. Hoag of New York said it did well with him.

ADIRONDAC.—Doing well at Rochester, N. Y., and Alton, Ill.; poorly at Missouri. Grows and produces well at Lockport; don't succeed at Newburg nor at Pittsburg; does well at Washington.

CYNTHIANA.—Promising for wine. Husman said it produces a wine of fine flavor, but not so good for medicinal purposes as Norton's Virginia. Dr. Spaulding said wine experts in Europe preferred it over many of the fine wines. Colman said it made the best red wine in America.

This ended the discussion. The meeting was adjourned to the evening, when Col. Wilder was invited to give the result of his observations in Europe, as to the relative merits of American and European wines.

We have not space for a report of the remarks of Messrs. Wilder and Barry, who were appointed American Commissioners to look after the interests of American wine-growers. Mr. Wilder reported that after much trouble he obtained a *carte blanche* to test the wines before a special committee, and the reply after trial was, "If you can make such in America, you will never want our wines." Col. Wilder gave a brief account of their visit to the wine-cellars of Johannesburg, where they tested such wines as they "never tasted before." These wines cost here \$15 per bottle, and he said he had tasted Delaware, Diana, and Herbemont wines, which, when well made, will compare favorably with the majority of Johannesburg and Steinburg wines. The report was highly favorable to the future success of American wines.

Time and space prevent us from noticing the discussion on pears, which we shall refer to again.

THE IONA, AND OTHER GRAPES.

BY B., HARTFORD, CONN.

I notice in your remarks, from time to time, upon grape growing in New England, you seem to consider the Iona a failure.

I have about 1200 vines, Ionas, one to five years in vineyard ; and with me it has so far proved to be more uniformly free from disease than any other variety, with the exception of Clinton and Hartford. The growth is ample ; it is very productive ; nearly free from mildew, on the foliage, and so far the fruit is entirely free from disease.

The Concord rots badly with me the past two years, and is not nearly so prolific as the Iona, and does not ripen any earlier, or quite so early. Diana is worse than Concord. I had about 400 pounds of the Iona fruit this year, and though much of it did not color as well as the year previous, it was much better for eating than Knox's Concord to my taste. It keeps as well as Diana, and retains its fine flavor. I had some last week, neither wilted nor with a single decayed grape on the bunch, which were only placed upon shelves (four months previous) in the farm house cellar.

We were fairly drowned the whole of last summer, so I fully expect much better fruit in good seasons.

Delaware ripens nicely with me. Vines which were first class when planted grow well ; but I have some which were poor when I started and have continued so. The foliage mildews, and drops too early, but it is very valuable for eating or *wine*, even in Connecticut. Israella begins to color at the same time as the Adirondac and the Hartford. The latter, however, makes more rapid progress and gets fully ripe before anything else. Mine—Hartfords—bear all I could ask and drop but little, not more than Concord.

Israella bears very heavy bunches, and will hang on the vines until it is picked. The fruit is most too compact. If it could be thinned, as under glass, it would probably make very large bunches. The fruit seems to improve by keeping two months ; at least that was the case this year.

I have written at so much length, thinking the facts might interest you.

We are pleased to hear so good a report of the Iona. Undoubtedly Hartford is a much more favorable location than the neighborhood of Boston, or Massachusetts generally, for some grapes. So far as we have seen the Iona, for two years, as raised here, it has been a failure; that is the grapes did not mature either in 1866 or 1867, and the specimens exhibited were unripe. We have no doubt with the greater age of the vines, and with a good location, it will ripen in favorable seasons; but it has so far, as regards a crop, not come up to the expectations of cultivators, though it is well known and acknowledged to be a superior grape, where it will fully mature its fruit. We shall endeavor, if the Iona proves valuable, to give it every publicity.—Ed.

POMOLOGICAL GOSSIP.

THE MAIN GRAPE.—A great deal has been said about this grape, which is reported by some to be nothing but the Concord. We have already referred to this in a previous number, and as we have not yet fruited the variety ourselves, can add but little of our own knowledge to our remarks. Yet, as we have some doubts whether the Main and Concord are identical, and as they have been declared to be so by persons who never fruited the Main, we think the report of a committee to examine Mr. Main's vine should be generally read by all who would have all the facts upon the question. Mr. Main exhibited ripe grapes at the exhibition of the New England Agricultural Society, at Providence, Sept. 3, 1867, and as the committee of examination would not recognize them as a new variety, but insisted they were the Concord, a committee was chosen to examine and investigate the subject. This committee was composed of Col. Humphrey and V. C. Gilman, and their report to the President was as follows:—

“The undersigned, special committee appointed to investigate and examine the manner of growing the ‘Main grape,’ so called, (it having been asserted that the specimens exhibited by Mr. Main at the Fair held at Cranston, R. I., on the 3d and 4th of September, 1867, must have been grown under glass), beg leave to report that two of your committee visited Mr. Main on the 15th of September, (the other member being familiar with the grape, having examined it particularly before). They found the original vine growing at the back side of the house, formerly occupied by Mr. Main, one of the main branches being trained upon the flat roof of the rear part of the house, and having a southern exposure, and the other upon the east roof of the shed or L, and having an easterly exposure. We ascended to the roof and ate of the ripe fruit, and found much of it well advanced toward ripeness. Mr. Main pointed out to the committee the branch from which the fruit was taken that he exhibited at the Fair, and *no glass or other aid to ripening were upon or about the vine*. It is now fourteen years old, and maturing its ninth crop, and has the appearance of a hardy and strong growing vine. It having been also stated that it is identical with the ‘Concord,’ your committee visited several vines of that variety, in different parts of the city, in as favorable localities, and it was apparent to your committee that the ‘Main grape’ was earlier by ten days or two weeks. This comparison was made not as a part of the duty of your committee, but for their own satisfaction.—Respectfully submitted, V. C. GILMAN, MOSES HUMPHREY, Committee. Concord, Sept. 16, 1867.

“I would also state that on the 9th day of September I ate clusters of ripe grapes from the above vine; and in my opinion they were a superior variety.—MOSES HUMPHREY, Concord, Sept. 16.”

THE SANBORNTON GRAPE.—This variety, which has attracted considerable attention from the fact of ripening its crop regularly at Sanbornton Bay, one hundred miles north of Boston, has been said by some to be a new variety, and by others to be nothing but the Isabella. It appears from a notice of it in the Country Gentleman that the vine came from Cambridge, Mass. That it was given to David Smith, in the

spring of 1846, by the late Dr. Carr of Sanbornton, and that he received it from Cambridge *twenty years* before. It appears that Dr. Carr sent for an Isabella vine and obtained this, but who from the writer was unable to learn. As we happen to know that the only dealers in vines in Cambridge, ten or twenty years previous to 1846, were S. Pond and Hovey & Co., it would seem that the vine was purchased of one of the above parties. As, however, its origin is traced to Cambridge, we must let the question rest here at present, for want of information as long ago as 1826.

The following description is given of the vine as it now appears: Mr. Smith, in the autumn of 1849, moved his vine to where it now grows. It is upon the south side of the house trained upon a rough trellis, horizontal, running east, south and west, high enough for a person to walk under. The soil is light, dry, fine loam, full of stones. There are twelve canes that start from the ground, and sixty to one hundred feet in length. There is 1600 feet of vine to produce fruit this year. The vine is taken down and laid on the ground until spring, when it is put up again. The united girth of the twelve stems near the ground is eight feet seven inches. The vine bore the past season about 1200 pounds of grapes, and a large portion of them ripened, although almost all varieties proved a failure in that section. The vine bore the first season Mr. Smith had it, and has borne every year since, and ripened its fruit from the last of August to the 20th of September, varying with the season. The average time of ripening is the middle of September. The fruit is nearly round, or between the Isabella and Concord. Blossom blue, dotted with white spots; berries large, some being an inch in diameter, having seldom more than two seeds. Clusters large, weighing fourteen pounds [ounces?] and sometimes as many as six clusters upon a single "shoot."

The question is, is it the Isabella? We have seen the grapes often, and think it is. Yet there is something remarkable that it should ripen so well. Either the position is a very remarkable one, or it would seem impossible for it to be the Isabella. We have seen the branches with six clusters on them, all ripe and handsome, exhibited and for sale in the

Boston market. This we never saw on an Isabella, though we must admit we never saw such a huge vine. The berries and bunches are, however, like the Isabella, and the quality the same.

The probability is, that the "light dry fine loam, full of large stones," is the whole cause of the great change; and that this is the cause, not only of its early ripening, but its vigorous growth. If this is so, it opens a wide field of inquiry, how far such soils and such only should be selected or made for the successful culture of the grape.

In corroboration of this we may mention that last year Mr. D. Clark of Waltham exhibited clusters of the Concord, weighing seventeen ounces each. These were shown in Boston, September 20th, and Concord, October 3d, taking the prize at each. Mr. Clark, in a statement he presented to the Middlesex Agricultural Society, describes his mode of culture as follows:—

"The grapes exhibited by me are from a vine planted in 1862, on a ridge of land at the north-eastern base of a ledge, supported by a terrace wall about two feet in height, and containing about one square rod of land, mostly of a loamy nature.

The vine, which had been kept small under the above system, and bore but few bunches, and had been but moderately manured, was allowed, in 1865, to produce an additional cane from near the roots, which grew well, and was cut off at about seventeen feet in length. In the autumn of that year a pretty good dressing of common manure was slightly spaded in. In 1866, the vine produced twelve to fifteen pounds of grapes, and two additional canes, which were stopped at fifteen feet. Last autumn (1866) four or five pounds of flour of bone were applied and slightly covered. The present year (1867) another cane and about sixty or seventy pounds of grapes were produced, at least forty bunches averaging three-quarters of a pound each. The vine is now pretty large, and is supported over the rock by trellis-work of poles. I train in November, and cut back and pinch several times in summer, but not so closely as some recommend."

No finer specimens were ever seen,—as black as sloes,

resembling in appearance bunches of the best Hamburgs. No other specimens exhibited compared with them, and few if any were quite ripe, though cultivated, as we know many of them were, on trellises in sheltered localities against high fences. The soil—the ledge—these were the sources of success. Similar locality and soil have no doubt converted the Isabella into the so-called Sanbornton grape.

NEW GRAPES.—Two new grapes are mentioned in the Rural New Yorker, raised in New Jersey, and introduced by Mr. Barrett. Their names are CHALLENGE and CONQUEROR. They are described as a cross between Concord and Royal Muscadine, both black and ripening with and before the Concord. Another new one is named DAQUETT, from Orleans Co., N. Y., described as white, with one seed, as large as Isabella, with flavor of Chasselas, perfectly hardy, and ripens September 1st.

FLORICULTURAL NOTICES.

MYOSOTUS EMPRESS ELIZABETH.—This very beautiful variety is now coming into flower, and promises to become a most valuable addition to our early blooming and summer flowering plants. The growth is vigorous and strong, with long narrow deep green foliage, and a dense branching habit, each branch terminated with a raceme of flowers of the most intense blue, so numerous as to cover the whole plant. For the greenhouse or summer garden it is a fine acquisition.

BOUGAINVILLEA SPECTABILIS is one of the most beautiful of greenhouse climbers, growing rapidly, and admirably adapted for training to a pillar, or a trellis, in the same manner as Bignonia venusta. Every bud produces a cluster of its tiny flowers, surrounded with its large, lovely, rose colored bracts, forming a mass of the richest and most brilliant coloring, which remains in beauty a long period. No plant of similar attractiveness has been introduced for a long time.

THE DOUBLE ZONAL GERANIUMS, which we recently noticed, are destined to be great favorites. Already numerous seedlings have been produced which are great improvements upon the original kind. The flowers are much more double, and of the regularity of a ranunculus, forming immense trusses of blossoms, which do not shed their petals, but remain in flower a long time. Our cultivators should turn their attention to the production of new varieties. There can be no doubt that we shall have varieties with the foliage of Mrs. Pollock, and flowers as double and regular as any of the plain leaved sorts.

NEW AZALEAS.—A magnificent show of these plants was made at the great International show at Ghent last month. Nothing could excel the banks of plants, completely covered with bloom. The pyramidal form adopted by the English growers is quite ignored in Ghent, and a more globular shape is aimed at. In fact, it may be said the half globe indicates the form of almost all the plants exhibited. The new kinds were so numerous and fine that it is difficult to tell which were really the best. We especially noticed, *La Victorie*, bright red with spotted petals; *La Vestale*, shaded lilac pink, fine substance, size and form; *Thisbe*, bright salmon red, extra fine form; *Meteor*, shaded lilac red, fine form; *Raphael*, a very double white; *La Superbe*, intense rich dark orange scarlet, smooth and fine; *Madame Leon Maenhaut*, a peculiar shade of red, with rich violet spotted top petals; *Madame Van der Cruissa*, a very large semi double rose; *Gloire Avant tout*, white and occasionally striped with pink; *Bayard*, a light pink, with rosy carmine spots, very fine; *La Déesse*, pale rosy salmon margined with white, extra fine; *La Paix*, bright rosy purple, fine form; *James Veitch*, warm rosy vermilion, extra fine; *M. Thibaut*, rich pale scarlet, fine form; *Beaute Supreme*, pale rose, bordered with white; *Ferdinand Kegelman*, light orange red, densely spotted in the top petals, extra fine; *Eclatant*, intense dark reddish scarlet, extra fine; *Charmer*, (Bull) rich rosy pink, very fine indeed; *Antoinette Theilman*, rich double scarlet, extra fine; *Roi des Blancs*, an extra fine white; *Unica*, intense rich glossy crimson; and several other fine sorts. A large number of other fine sorts

were shown, such as Madame Ambrose Verschaffelt, Louis Napoleon, Duc de Nassau, Rubens, and other continental and English named varieties.

TRICYRTIS HIRTA.

BY THE EDITOR.

AMONG the plants of recent introduction from Japan, and numbered among the Japanese acquisitions, are many new forms, unknown to our collections previously. One of these is the *Tricyrtis hirta*, originally found by Thunberg, but rediscovered and sent to England by Mr. Fortune, upon his last visit to Japan. It proves to be a half-hardy perennial, of



6. TRICYRTIS HIRTA.

neat habit, and a pretty addition to late autumnal blooming plants, for the decoration of the greenhouse or conservatory.

The *Tricyrtis* (FIG. 6) belongs to the *Uvulariaceæ*, and has a lily-like aspect in its growth, with leaves not unlike in form the Japan lilies, but narrower, and more recurved upon the sides. It is herbaceous, attains the height of two or three feet, and each stem is terminated with numerous blossoms, of a pearly white, dotted with chocolate colored spots.

The past year our plants had attained a good degree of vigor, and when removed to the greenhouse they blossomed in great perfection, and formed conspicuous ornaments from October to December; contrasting, in their peculiar form and color, with the chrysanthemums and other late blooming plants.

The plants should be treated in a similar way to the lilies, that is, they should be shifted, from time to time, into larger pots, until August, tying the main stem up to a neat stake, and removing the plants to the greenhouse before frosty nights, and giving more copious supplies of water as they attain their full growth.

In England it is stated to be hardy, but we have not yet tested it here. It may prove hardy in our climate, but we apprehend it will require the protection of the greenhouse or a cold frame, in the same way as many other Japan plants. It is propagated by dividing the roots at this season.

There is a variety of it called *T. hirta nigra*, with much darker colored flowers, and said to be very handsome, but we have only flowered *T. hirta*. As an addition to autumn blooming plants it is a fine acquisition.

General Notices.

CULTIVATION OF THE GLADIOLUS.—The following is my mode of cultivating this favorite autumn flower. I must, however, premise that the treatment recommended is that for purposes of exhibition only, and that for the decoration of borders, or for mixing with roses, or other plants, it would require to be considerably modified. One of the most important points in regard to the cultivation of gladioli, in order to secure success in quality of bloom and safety from disease, is, I am persuaded, planting the bulbs in fresh soil each season. This being the case, I turn out my gladiolus bed to the depth of about 14 inches, and for drainage, fill in about four inches of chopped fibry sods, mixing lime rubbish or any coarse material there may be at hand with them. Over this to the depth of about six inches, I place first any good fresh soil that can be got, then a liberal supply of well-rotted stable or hotbed manure, which, when pointed in or mixed with the soil, leaves about four inches of the surface of the bed to be filled up with fresh

maiden loam, or such as can be had from a potato lay field would answer for this purpose. The bed being completed, I make my first planting of the smallest bulbs about the third week in February, the main planting of medium-sized bulbs in the first week in March, and the latest planting of the largest bulbs about the end of that month. As the large bulbs come into bloom about three weeks earlier than the small ones, this method of planting brings them as nearly as possible all into bloom together. For purposes of exhibition the advantage of this will be obvious. As far as possible I select medium-sized bulbs, such as will furnish but one spike of bloom, as the large bulbs invariably split into two or three spikes, each of which is inferior in quality to the single spike.

In planting, I open drills about 4 inches in depth, putting about half an inch of sand under and over the bulbs; when the drill is levelled in, this leaves the bulbs with about 3 inches of covering. My bed is about 5 feet in breadth. I plant the bulbs 9 inches apart, and leave about 12 or 14 inches between the rows. I take care to keep the bulbs from contact with the manure. In summer the roots feed on the cool rich manure underneath; I therefore find little necessity for watering, especially if the beds are mulched with half-rotted stable-litter (mostly straw) I am of opinion that it is an excess of moisture which causes disease in most cases, particularly if much manure is used in the way of top-dressing. The only waterings I gave my bed last year were on two occasions before putting on the mulching of litter, and, except to stake carefully as the flower spikes lengthen, I have no further trouble with them until the bloom is over, when considerable care is required to be exercised in lifting them. Some bulbs will be fit to lift before others; any delay, therefore, in taking them up when they begin to turn brown is apt to cause injury to, or the loss of, the bulb. At this stage, being dormant, moisture is apt to injure the crown of the root. When lifted I spread them out on the top shelf of a greenhouse (cutting off the stalk to within an inch of the bulbs), and when quite dry I place them in bags, and keep them on a dry shelf, free from frost, for the winter. Under this treatment I have never lost more than 3 or 4 per cent. from disease, and these principally such delicate sorts as *Madame Furtado* and *Impératrice Eugénie*.

As I have been a most successful exhibitor of the gladiolus for some years past, I may perhaps be excused for giving a list of what I consider to be the best varieties. In short, the first list, in my estimation, consists of the *crème de la crème* of all at present in cultivation.

First List: Shakspeare, Madame Vilmorin, Lord Byron, Sir Joseph Paxton, Dr. Lindley, James Veitch, Velleda, Reine Victoria, Mons. A. Brougniart, Meyerbeer, Madame Furtado, Imperatrice Eugenie, Marie Dumortier, Thomas Moore, Le Titirn, Le Poussin, Eurydice, Milton, Princess Mary of Cambridge, Princess Clothilde, Sir William Hooker, Duc de Malakoff, Madame Chauviere, Sir Walter Scott.—(*Gard. Chron.*)

HINTS TO AMATEURS ABOUT BULBS.—In April there are so many inducements to devote our time to out-door gardening that a caution may not

be ill timed respecting certain out-door duties that ought not to be neglected. We have lately had our rooms gay with tulips and crocuses, and perfumed with hyacinths, jonquils and narcissus; and it is a common notion that these bulbs are not worth the trouble of saving for next year, as the blooms they will then produce will be fewer, smaller and of poor quality. There is a certain amount of truth in this no doubt; but this result, in most if not all cases, is the fault of the cultivator, not the fault of the plant. The plants are grown in pots in three ways, by which a succession of bloom is maintained for the drawing-room or conservatory. The earliest flowers are obtained by growing the plants in heat. The next are from plants grown in a greenhouse or room, and the third are from plants grown in the open air, by plunging the pots in the border, or, better still, in a bed of coal ashes. Inasmuch as these bulbs mostly come from a climate rather warmer than that of England, it follows that the hothouse treatment and the open air treatment are not such natural conditions of growth as that afforded by the temperature of a greenhouse, and it is therefore to be expected that, if the bulbs can be made to flower year after year, this result will be best attained from those plants which are subjected to the most natural of artificial treatments. Indeed it is upon a proper attention to keeping up the natural growth of the plant after the flower fades, that its power of blooming next year depends. It is usual to turn the pots out of doors without care or heed where they lie or stand, exposed to cold winds and spring frosts, if not to rain. No wonder that poor flowers come next year, when a coddled and petted favorite is thus hardly treated. Although the flower has faded, the leaves are still green and beautiful, and while the plant is kept in a genial atmosphere they continue to fulfil for the appointed time their duty of nourishing the bulb and preparing it for flowering again. This done they fade, shrivel, and die; and then the bulb may be taken out of the soil and stored away for planting again in the autumn. Bulbs thus matured—thus taken as much care of after the flower fades as before it appears—will flower well every season and reward their owner for the trouble spent upon them, not to mention the money saved that has previously been annually expended on new bulbs.—(*Gard. Chron.*)

FINE HYACINTHS.—At a recent exhibition of hyacinths at the Liverpool (Eng.) show, the following new or comparatively new varieties were shown in quantity:—The finest and most striking flower was Marge, a single variety, with very large grayish azure blue flowers, the bells very large, stout and well formed and forming a handsome and commanding spike. Prince of Wales is a very pretty and novel lovely rose flower, classed with single reds, the flowers having a conspicuous white centre. Charles Dickens, single mauve, is very like Prince of Wales in the same class; it is of a pale reddish mauve hue, close spike and small bells. W. E. Gladstone may be well described as a pale form of the single blue Charles Dickens. Michael Angelo is an improvement on that fine but uncertain single white hyacinth, Madame Van der Hoop, and produces a fuller, firmer and more reliable spike. Lord Derby is a darker form of Lord Palmerston, but not so

good as Mr. Paul's Clio. Marcel is the other self of Grand Lilas, but slightly suffused with pale violet, giving it a darker appearance. Van Hoboken, double white, though not new, is rarely seen, because so unreliable; the individual bells, though good, are loosely hung on an irregular spike. Amazon is much in the way of Marie, single blue, but with a pale centre, and not so effective. L'Or d' Australie is a slightly deeper form of Ida, single yellow, apparently not capable of producing so fine and symmetrical a spike. Agn's Sorrel and Orange Boven are evidently two rose colored varieties produced from Duc de Malakoff single red; the former has the deepest color, but both are very pretty and novel and form good spikes. La Joyeuse, a single red variety, by no means new, deserves to be more largely grown for its bright pale pink hue, which has quite a glittering appearance when well grown; it was one of the most striking flowers at the Liverpool Exhibition.—(*Gard. Chron.*)

PINEAPPLES.—I believe with Mr. Thompson that much has yet to be accomplished in rendering the culture of pineapples more cheap, simple and speedy. I have been for more than two years trying to find out this cheap, simple and speedy way, and I am at present trying to the utmost to ascertain what amount of pines can be obtained in a small space, and with the least trouble and cost. The pit, which the pines occupy under my care is 26 feet 6 inches long, 6 feet 6 inches wide. From this pit, from October 1865 to October 1867, I cut 120 lbs. 1 oz. weight of pines, and from October 1867 to this date, I have cut 35 lbs. 4 oz. with 22 fruits in different stages of swelling off, and many more will be up in a few weeks. I hope therefore this year to reach 70 lbs. weight of pines.—(*Gard. Chron.*)

SPRING GARDENING—I wish to recommend for decorative purposes in the early spring the pretty free blooming *Crocus biflorus*. I got it from Holland under the name of the Scotch crocus. The bulb in a dry state is of a peculiarly hard and smooth substance, and does not readily shed its skin, like many of the varieties of *Crocus vernus*. The value of its individual flowers is not to be regarded so much as its prolific character, very small bulbs producing from eight to ten blooms. Of the improved garden varieties, one of the best is a fine striped kind, named Albion; the flowers are unusually large, and are heavily pencilled with violet, while it is one of the most showy and striking in the flower garden, it is also one of the finest for pot culture. One of the liveliest and most pleasant things in my garden just now is that useful golden-tipped *Sedum acre*. To look down upon it, it resembles a mimic field of the cloth of gold. It can be used for the edges of beds, or to fill small beds entirely, or for covering rockwork, &c. It is scarcely so robust as the old variety, so should not be planted in a too exposed position. The golden-blotched double daisy, *Bellis aucubæfolia* is very beautiful just now, when massed in patches, or planted thickly as edging. Each succeeding day the golden hue comes out more distinct and striking. Each of these useful plants for spring gardening loses its golden hue during the late summer and autumn, but it comes out again quite fresh and bright just when it is wanted.—(*Gard. Chron.*)

BRONZE AND GOLD ZONAL PELARGONIUMS.—The varieties of these useful plants will, I have no doubt, become the most popular section of zonal pelargoniums. What makes them more useful than the golden zonals is their adaptability to conservatory decoration both in summer and winter; they also produce large trusses of finely-formed flowers in great abundance all through the winter months, and when placed in positions where they can have the benefit of light and air their foliage will retain its beauty for a long time, and the flowers will remain in perfection for a considerable period. Many of the varieties that I have raised are seedlings from the two double varieties, *Auguste Ferrier*, and *Marechal Champflour*, crossed with the pollen of *Beauty of Oulton* and *Mrs. Pollock*, and most of them retain their flowers much longer than many of the other varieties bred from single flowers. Many green foliaged seedlings, from the two varieties just named, having single flowers, have for two years refused fertilization, either by their own pollen or that from other flowers. This is a curious, and, to me, unaccountable fact. I was most anxious to raise seedlings from them on account of their foliage being of extraordinary thickness, and each leaf having a very handsome outline, with leaf stalks of remarkable stoutness—and many of them had also very deep and well-defined zones. By crossing these with the best of the golden zonals and bronze and gold kinds, I was in hopes of producing some varieties remarkable for their vigor and beauty, but up to a late period in autumn all my efforts to fertilize them were unavailing. Very late in 1867, however, one of the plants produced a solitary seed pod, but it was, unfortunately, too late in the season for ripening, and it damped off when it was rather more than half developed. Nevertheless, I am led to hope, from this partial success, that I shall succeed this year in gaining the object I have in view, when the plants become older, and, consequently, better ripened; and by keeping them in small pots without giving them any fresh soil, their vigor will be considerably reduced. One of my latest seedlings—*Mrs. Petch*, is remarkable for the beauty of its leaf, which is very handsome in outline, and has not a wrinkle in it. Looking at the plant at a distance it appears like a large mass of beautiful picotees, so finely marked is each leaf; the margin outside of the well-defined dark-chocolate zone is of a bright yellow, and as true as the mark was on a well formed picotee. The flowers produced by this variety are also very large, and of fine shape and substance; in color they are a bright crimson scarlet, with a good white eye, and the truss is large and globular. This variety is a seedling from *Her Majesty*, crossed with the pollen of *Gloire de Nancy*. The plant has a vigorous habit, erect, with nice short-jointed shoots, and the leaves are borne on stout leaf-stalks. This I consider to be the finest variety yet raised.—(*Gard. Chron.*)

HYACINTHS AT THE GREAT INTERNATIONAL EXHIBITION AT GHEENT.—A greenhouse was devoted entirely to hyacinths, tulips, and a few melo-cacti. Of hyacinths there was a fine display. These were all grown in small pots, and were a remarkable collection, among them a large number of fine spikes. Some of the Haarlem cultivators exhibited collections of

100 to 150 varieties, and all were very creditable. These were all prettily arranged in banks on each side of the greenhouse and looked well. A collection of 123 hyacinths grown in glasses elicited unbounded admiration. They had really been grown in the glasses, and each was a perfect specimen. The jury evidently thought so by awarding the first prize to those in glasses. Amongst these we noticed as especially fine, Double Reds—Lord Wellington, Milton, Jenny Lind, Noble par Mérite and Regina Victoria; Single Reds—La Dame du Lac, Agnes, Princess Clotilde, Dabatsch Subalskauksy, Von Schiller, Susanna Maria, Cavaignac, Mrs. Beecher Stowe, Josephine, Amphion and Macauley; Double Whites—La Tour l'Avergne, Jenny Lind, Prince of Waterloo, Lord Anson and Vigo; Single Whites—Pucelle d'Orleans, Kœnig Von Nederlanden, Hercules, La Candeur, Reine d'Hollande, Mont Blanc, Cleopatra, Alba Maxima, Madame Vanderhoof, Alba Superbissima, Nina, Grandeur a Merveille; Double Blues—General Antinck, Garrick, Blocksburg, Van Speyk, and Laurens Coster; Single Blues—Leopold II., Argus, Uncle Tom, Charles Dickens, Couronne de Celle, Prince Albert, Nimrod, William I., Grand Lilas and Sir C. Napier. We have named all these, as some may be glad to know what sorts do well in water, but the whole collection was good.—(*Gard. Chron.*)

TOBACCO DUST FOR THE DESTRUCTION OF SNAILS.—These pests, which often destroy or mar the beauty of many young plants in greenhouses and frames, may be destroyed, according to an English writer, by tobacco. The following is his plan:—As snails will soon be leaving their winter quarters, I will mention a plan for their destruction which I have successfully employed for the last three or four years. The article I use is tobacco dust, or rather short cut tobacco; if this is laid in a circle round a plant no snail or slug will cross it—they do not shun it, but the moment they touch it they appear to be paralyzed and never move afterwards. There is a very large plant of the Pampas grass in my garden, which is a favorite winter resort for snails; as soon as they began to move last spring I had some tobacco dust on the ground about an inch wide in a circle around it,—the next morning more than sixty snails were upon it unable to move. The tobacco dust will not want repairing for a fortnight, if the weather is dry. (*Gard. Chron.*)

OLD-FASHIONED PLANTS.—The tide of popular favor is, steadily but surely, setting in in favor of many of the old fashioned plants, that are now the rejected and despised of our gardens. Old florists and gardeners, as well as many of a more modern date, are pleasantly and confidently anticipating their speedy return to power. The modern system of bedding-out is becoming confessedly weak in its capacity to secure variation of design, and consequently stereotyped designs are inevitable, and, naturally enough, wearisome. Not but that skill and resources can yet do much by way of alternating both the subjects employed and the designs executed, but these instances are exceptional and beyond the capacities of the general body of flower-gardeners. In gardening, as well as in many

other things, there is a general tendency to strive to be new-fashioned—and foliage plants, ribbon borders, and glaring masses of color are everywhere in the ascendant. These are unquestionably good things—worthy alike of the application of the highest æsthetic skill of the artist gardener, as well as of the devotion of his utmost resources: in their undue preponderance lies their misapplication. In their constant iteration there is something wearisome to the eye. While the taste is thus glutted, the cry “who will show us something new?” rises, impatient for a response.

During the past summer, when looking over one of the “show places” of the western counties, and after inspecting the terrace garden, with its glaring masses of color just in the meridian of their full glory, certainly relieved here and there to some extent with beds of foliage-plants of soberer hues, the very relief of which was at once neutralized by their immediate proximity to the groups of color, there was pointed out in one part of the garden a large-sized bed, mainly composed of herbaceous plants, mingled here and there with pelargoniums, calceolarias, and verbenas. There were to be seen masses of *Anemone japonica* intermixed with showy perennial delphiniums, foxgloves, herbaceous phloxes, scabious, columbines, dahlias, and others, producing a succession of flowers, and always securing a mass of bloom, relieved by plants that had already bloomed or had yet to bloom; the continuance of the general head of bloom being aided by the few bedding plants distributed about the bed, with the view of obtaining the best effect, together with a general diffusion of color. While the plants occupying the bed had been arranged with a view to secure a general symmetry of growth, so that there should be a gradual fall from the centre to the circumference without any approximation to formality; there was at the same time to be seen a blending of the different hues of color, so harmoniously arranged and so pleasantly, and effectively distributed, that in its general comprehensiveness it would be regarded as a piece of horticultural æsthetics, in point of practical value, far beyond that furnished by the combined whole of the elaborate terrace garden, or any fragment of it.

At its lowest value it was eminently suggestive,—not by a return to the old style of the mixed border, unenlightened or elaborated by the application of any artistic skill or novelty of design, but by a combination of the two as above described. There is no need for the masses of color to be wholly broken up and dispersed; what is wanted is relief—relief from an impressive glare of color, as well as from the continued recurrence of style, varied only by a somewhat newer arrangement of the materials as the seasons revolve.

The faculty of originating is not given to every one; pure originality is as rare in relation to horticulture as it is to other departments of art. But it is worth striving for in so far as it can be attained and applied. The desire for change in this respect is perhaps the best guarantee that in due time the new ideas now developing, will find adequate expression to the satisfaction of those who wait for their advent. Meanwhile, gardeners of all degrees will derive great advantage from the very numerous suggestions

in the excellent work of Mr. David Thompson, to which we have already called attention.—(*Gard. Chron.*)

TRITELEIA UNIFLORA.—Do cultivators grow this beautiful spring flower? If not, let them get it. In the autumn of 1866 I obtained a few bulbs of it and planted them in an exposed situation, using a soil composed for the most part of scrapings from a gravel road. Last spring I got one or two flowers from a few of them; but this spring they gave me bloom after bloom, with an exquisite tint and white ground, as delicate and charming as a spring flower can be well conceived to be. The bulbs should remain in the ground undisturbed, they could therefore be planted in patches, as desired. The *Triteleia* can also be grown in pots in a cold pit. Strong bulbs of it will bloom freely, and make an effective display.—(*Id.*) [We have usually grown this in the greenhouse, but with proper protection it may be quite hardy. It is a fine thing.—Ed.]

IXIAS.—Cultivation in pots is the only condition under which they can be bloomed at all satisfactory. They should be potted in 5-inch pots, about the end of October; the compost to be a mixture of sandy loam and leaf mould, the latter in good proportion, from ten to twelve bulbs being placed in a pot. From the first they should be kept in a cool house, and on no account must they be placed in heat. They will flower during the spring, according to the earliness or lateness of the variety.—(*Id.*)

BEDDING OUT.—And now, who shall head the lovely procession, which is to pass in review before us? The tricolor pelargoniums may hereafter win this pride of place, but as yet, with the exception of a few varieties, their merits as bedding-out plants are not proved. Next to these, such of the Golden and Silver-leaved pelargoniums as have effective flowers; Flower of Spring, for example, Bijou, Variegated Nosegay, Golden Fleece, and others, may claim priority; but premier as they are in my estimation, my verdict would be *digniori detur*. I should prefer before all our foliage plants the *Polemonium variegatum*, charming in all soils and seasons, with its frond-like graceful leaves, green edged with white—beautiful in itself, and the cause of fresh beauty in the flowers around it. In proximity to *Amaranthus melancholicus*, it was admired, I think, more than any other combination in my garden of 1867.

Next to this I should place (as the racing prophets have it) *Veronica variegata*, as being *Donna Secunda* in last season's opera. As I saw it in the grand gardens of Grove, Nottinghamshire, in contrast with *Iresine Herbstii*, it was admirable, and the more it rained, the prettier and fresher it looked.

Chrysanthemum Sensation is a golden gain to gardeners. Here it has withstood the winter frosts, and is coming up in abundance.

Of pelargoniums with gold and silver leaves, I prefer those I have previously named, as having attractive flowers, together with *Golden Chain*, *Crystal Palace*, *Gem*, *Manglesii*, *Queen of Queens*, *Alma*, &c.

Most striking among plants, with dark foliage, are *Coleus Verschaffeltii*, which succeeds the best with me when planted in pots; *Amaranthus*, and *Iresine*, both of which delight in a very generous diet; *Perilla nankinensis*, the Crimson beet, and *Oxalis corniculata rubra*.

With leaves of silvery gray or white we have the *Centaureas*, *Cineraria maritima*, *Strachys* and *Gnaphalium* for centres, and the higher places of our parterres; the *Cerastium*, *Koniga*, and *Santolina* for exterior use. *Dactylis glomerata variegata* is also a charming border or edging; and in this department nothing can be prettier than *Arabis lucida variegata*, or more effective, to my fancy, than Golden Fleece. The Japanese honeysuckle, well done, is also very striking, as an edging, or elsewhere.—(*Gard. Chron.*)

GLADIOLUS BOWIENSIS.—Permit me to fully endorse the remarks of “*Bowiensis*,” as to the superiority of this variety; it seems but little known or cultivated, compared with *Brenchleyensis*, but for general usefulness it is much to be preferred. As “*Bowiensis*” remarks, you may have it in bloom up to December. We began cutting spikes from this variety—for the purpose of decorating the Loan Exhibition held here this past summer—early in July, at the rate of sixty or eighty spikes per week, besides large quantities for other purposes, and continued to do so up till the middle of November, at which time the spikes were even finer than in the summer, although not quite so bright in color, and this from bulbs, none larger than a good-sized hazel nut, and the greater portion merely “spawn,” about the size of peas. This is in fact the chief merit of this variety, viz., its blooming from such small bulbs—a merit which I believe no other variety possesses. A good way of planting this variety in borders, shrubberies, &c., is to plant in clumps of say twenty, from the size of walnuts down to that of peas; all these would bloom in succession from July to November, and so the clump would always look gay, instead of, as in the case of *Brenchleyensis*, a bloom of a few weeks in duration. I may remark that they like plenty of manure. Our best bed, which produced magnificent spikes, was heavily manured at planting time (in February—plant early) with pig manure, trenched in; this may not suit the more delicate French varieties, but I can confidently assert that it does the variety in question.—(*Gard. Chron.*)

DEUTZIA GRACILIS.—When well flowered it is scarcely possible to conceive a more beautiful object than this valuable shrub—its cultivation, too, is simple in the extreme. Young wood of it strikes freely in heat, and it withstands vicissitudes of heat and cold better than most things; it can be bloomed in 60-sized pots, and in that form is valuable for table decoration. I endeavor to secure as early and strong a growth as possible, and never use the knife. My largest sized plants are in 24-sized pots, and they are loaded with bloom, from the soil to the very extreme points of last season’s wood.—(*Id.*)

VIOLA CORNUTA.—Beds filled with Cloth of Gold, Mrs. Pollock, or other golden sorts, and surrounded with a row of *Viola cornuta*, with an edging of *Cerastium*, have a superb effect. In May, when the beds are filled, the violets should be lifted from a frame, with balls of soil, and they will bloom till October. The soil should be very rich with leaf mould or old manure.—*(Id.)*

Gossip of the Month.

BOOKS, CATALOGUES, &c., RECEIVED:—

TRANSACTIONS OF THE NANTUCKET AGRICULTURAL SOCIETY, for 1867, with Premiums offered for 1868.

THE RESOURCES OF MISSOURI, by Sylvester Waterhouse, St. Louis.

TRANSACTIONS OF THE MIDDLESEX AGRICULTURAL SOCIETY, for 1867, with List of Premiums for 1868.

TRANSACTIONS OF THE ILLINOIS STATE HORTICULTURAL SOCIETY, for 1867, a valuable document of 285 pages, which we shall notice hereafter.

THE CORNELL UNIVERSITY. First General Announcement. Ithaca, N. Y.

FIRST ANNUAL REPORT OF NOXIOUS INSECTS OF THE STATE OF ILLINOIS, by B. D. Walch, Acting State Entomologist. Contains some valuable hints on the destruction of insects.

TRANSACTIONS OF THE WORCESTER COUNTY HORTICULTURAL SOCIETY, for 1867. From E. W. Lincoln, Secretary.

H. E. HOOKER & BRO'S Descriptive Catalogue of Fruit and Ornamental Trees, Vines, Roses, &c., Rochester, N. Y.

PREMIUM LIST OF THE CINCINNATI HORTICULTURAL SOCIETY and American Wine Grower's Association, at the joint Fall Exhibition, September 22, 1868.

BENNETT & DAVIDSON'S CATALOGUE OF NEW PLANTS, for 1868. Flatbush, Long Island, N. Y.

ELLWANGER & BARRY'S WHOLESALE CATALOGUE and Trade List, for 1868, of Fruit and Ornamental Trees. Rochester, N. Y.

T. C. MAXWELL & BRO'S CATALOGUE OF NEW PLANTS, for 1868. Geneva, N. Y.

HOOPER, BRO. & THOMAS, WHOLESALE LIST OF FRUIT AND ORNAMENTAL TREES, for 1868. West Chester, Pa.

THE GALAXY, for May, 1868.

THE YOUNG FOLKS, for May.

WHITLOCK'S ADVERTISER, for April.

DEMOREST'S MONTHLY MAGAZINE OF FASHIONS, for April.

CURTIS & COBB'S ILLUSTRATED CATALOGUE OF SEEDS, for 1868. Boston.

HOVEY & NICHOLS' SIXTH ANNUAL CATALOGUE, and Floral and Western Cultivator's Guide, for 1868. Chicago, Ill.

Societies.

WORCESTER COUNTY HORTICULTURAL.

At the Annual Meeting the following officers were elected for 1868:—

President—Francis H. Dewey.

Vice Presidents—J. Henry Hill, O. B. Hadwen, and Calvin Taft.

Secretary and Librarian—Edward W. Lincoln.

Treasurer—Fred. W. Paine.

The Annual Autumnal Exhibition will be held on the 15, 16, 17, and 18 of September next.

Horticultural Operations

FOR MAY.

FRUIT DEPARTMENT.

THE unprecedented cool weather of April, with frost and snow, has retarded the season, which is now (April 20th) scarcely more forward than is usual the first week. Work has been delayed, the ground is cold and wet, and but little done. The winter too has been severe, and although the hardy fruits look promising, peaches and grapes where not covered have suffered badly.

GRAPE VINES in the grapery will now be coming forward more kindly under the influence of better weather, and will soon be out in bloom. As soon as this occurs gradually increase the air, and damp down the house morning, noon and night; attend to the stopping of laterals which are extending too far, and tie in the spurs firmly to the trellis. The borders, if not already dug, should be done as soon as the weather will admit, giving a good dressing of manure or flour of bone. Grapes in cold houses have had a rough time; but if they have been kept from frost they will soon make up for the delay. Keep the house warm by shutting up early, until the weather is favorable, when syringing should be resorted to freely, and more air given. Enrich and dig the borders. Vines in the open air should be now tied up to the trellis, pruning away any shoots which mar the symmetry of the vine.

GRAFTING may continue throughout the month.

PRUNING should be continued if not all done, and trees with rough or mossy bark may be lightly scraped and washed with whale oil soap.

STRAWBERRY BEDS should have attention. Weed and clean old plantations, and top dress with any old compost if the plants are thrown out of the ground by the winter. If the soil is poor, top dress lightly with flour of bone. Prepare ground for new beds.

RASPBERRY plantations should be lightly dug, and the canes tied up to neat stakes.

FRUIT TREES in pots, now swelling their fruit, should have abundant supplies of water and liquid manure.

STRAWBERRIES, FORCED, should be liberally watered and kept near the glass, or removed to frames in a sunny position.

FLOWER DEPARTMENT.

As the season advances, and the growth of plants is accelerated by heat and moisture, they will require more room than they have had hitherto. Where there is a crowded house it may be difficult to provide this space, but good handsome specimens cannot be had without it; it is therefore better to remove some to frames or a sheltered place, so that the others may be allowed room to extend their branches and attain a handsome shape. A few handsome bushy plants are far better than a quantity of tall lanky things. But a too free growth, as is often the case, must be checked by stopping the rank shoots or heading them back to good strong buds, so as to obtain a fresh break and more branches, which multiply the bloom while they give compactness of habit. All young stock intended for planting out will be greatly benefited by removing to frames, protecting them from cold winds or frosty nights.

CAMELIAS now making their growth should be syringed morning and night, and shaded from the hot sun; water with liquid manure once or twice a week.

AZALEAS will now be displaying their flowers in the greatest perfection, and care should be taken that the plants are properly watered, as a little neglect will often spoil the bloom. Shade from the noon-day sun, and keep the house cool and well aired. Young plants intended for specimens should be encouraged by a shift, and the new growth topped to induce a fresh growth; give liquid manure occasionally.

PELARGONIUMS will now be coming forward, and will soon make a grand display. Turn the plants round often, and give liquid manure occasionally to sustain the quantity of flowers. Shade in the middle of the day.

HEATHS AND EPACRISSES, as they finish flowering, should be pruned back so as to obtain a good start before planting out; remove to cold frames.

CALADIUMS should have another shift as soon as the pots are full of roots. Keep on a shelf near the glass, and only shade from the midday sun.

ACHIMENES AND GLOXINIAS should all be potted without further delay.

PALMS should now have a shift if they require it, so as to get well established before removing to the open air.

CHINESE PRIMROSE seeds may now be sown for early winter blooming.

CYCLAMENS may be removed to cold frames until time for planting out.

HEDYCHIUMS should be started now in a little bottom heat.

CHYSANTHEMUMS, intended for fine specimens, should be repotted and removed to a frame. Cuttings may be put in for late stock.

STEPHANOTUS, ALAMANDAS, and similar tall growing or climbing plants, should now be thinned out, pruned and tied into shape.

FUCHSIAS intended for autumn flowering should be repotted and grown on quickly; any check is sure to injure the growth. Water with liquid manure.

ACACIAS done flowering should be well headed in, and syringed often to obtain a good break of young shoots.

JAPAN LILIES AND **L. AURATUM** should be shifted into larger pots, and have occasional waterings with liquid manure. Keep them in a cool airy place.

ORANGES as soon as done flowering should be headed in and have good attention.

GARDENIAS removed to a frame with a brisk bottom heat will flower in great perfection.

ZONAL GERANIUMS intended for large specimens should be repotted, the shoots stopped, and the branches tied out to obtain broad handsome plants.

CACTUSES should be watered more freely as the flower buds appear.

AGAVES, YUCCAS and similar plants may now have a shift into larger pots.

FLOWER GARDEN AND SHRUBBERY.

The cold and uncomfortable weather of April, during which time the ground has been cold and wet, has not only prevented the completion of work, but has so retarded the growth that lawns have hardly yet assumed their tint of green. The opportunity should be improved as soon as the ground is dry enough to roll the lawn thoroughly, and to accomplish the same work we recommended last month. Mow as soon as the grass will admit, and dig all beds or borders and have them ready for planting by the middle or last of the month.

BEDS OF EARLY BULBS should be cleaned and lightly stirred.

SEED OF ASTERS, and all Hardy Annuals, should be sown immediately.

SUBTROPICAL PLANTS should be planted out just at the close of the month.

GLADIOLUS, TIGER FLOWERS, AND TUBEROSES should be planted soon.

BEDDING PLANTS may be put out from the middle to the last of the month.

DAHLIAS should be planted.

THE KITCHEN GARDEN.

With May the work of the kitchen garden increases, and most of the planting will require to be done.

TOMATOES will not be safe to put out until the last of the month unless protected on cold nights.

RADISHES may be sown in the open ground for a succession.

LETTUCE may be transferred to a rich soil.

EGG PLANTS in frames should be carefully removed with a good ball of earth.

BEETS, ONIONS, PARSNIPS, CARROTS, &c., should be put in as soon as possible.

SUBTROPICAL GARDENING.

SINCE our article in a late number upon subtropical gardening we have had so many inquiries, and a desire for more information, in regard to the plants adapted to this style, that we refer to it again, for the purpose of adding some few things that were omitted in the previous paper.

We are glad to learn that this style of gardening is appreciated by many amateurs, especially those who had the opportunity of visiting the Parisian gardens last summer, where subtropical gardening has been carried out on the most extensive scale. The grand effect of the massive growth of some, and the variegated foliage of other plants, which have been used so liberally, has left impressions upon many of our American visitors which will not readily be forgotten; and those who have grounds of their own will endeavor to imitate them, so far as it is possible to do with the space and means at command. So much has been gained horticulturally by the inauguration of the great Exposition.

Something has been said in regard to the expense of many of the rare palms, and the newer and more delicate stove plants, but it is not absolutely necessary that these should form part of all subtropical gardening, though they are confessedly magnificent additions, where they can be introduced. On the contrary,—though these choice things are so welcome,—there are plants enough that are not expensive to produce beautiful effects, and this is one of our main objects now to offer some hints on the growth of a few of these plants from seed, as they have been found to flourish even in the climate of England.

Those who do not mind expense, and desire to produce immediate effects, will of course select or purchase fine large specimens of the best plants recommended by us, or which are suited to the style. Those who are willing to wait longer may, at very little cost, secure a fine stock of some of the best by beginning with seed, and thus working up a quantity:

of large plants for another year. Besides, the stock is not yet abundant of many of the best subtropical plants, and some of the plants can only be raised from seed.

What our commercial dealers should study is the increase of a taste for these plants, and endeavor to keep a supply of all the kinds that are wanted. When this is done the demand will keep place with the supply, and our gardens will no longer be reduplications of each other, with nothing but patches of verbenas and geraniums, which, though beautiful, are not to be planted to the exclusion of more variety, to say nothing of their adaptation to lawns and grounds near the house, and in the vicinity of ornamental trees and shrubs, where, if not out of place, they do not harmonize with the surrounding objects.

An English writer, who discusses this style of gardening, remarks that "it needs but little consideration to discover the success of these plants in the flower garden. To use them tastefully in it, is to approximate to nature's own plan of arranging vegetable beauty, whereas the ordinary garden one is in violent opposition to it. Among plants in a wild or untrammelled state the brilliant color is usually set in abundant green, and even in the case of mountain and meadow plants of one kind, that produce a rude blaze of purple or golden color, at one season, there is intermingled a spray of pointed grass, and other leaves, which tone down the mass, and quite separate it from the rude style of gardening that we deprecate. But if we come to examine the most charming examples of our own indigenous, or any other wild vegetation, we find that they are founded on flower and fern, trailer, shrub and tree, sheltering, supporting, relieving and beautifying each other, so that the whole array has an indefinite tone, and the mind is satisfied and delighted with the refreshing mystery of the arrangement. Every where we see nature judicious in the arrangement of her highest effects, setting them in clouds of verdant leafage, so that the eye is never palled and monotony never produced—a state of things it is highly desirable to attain, as far as possible, in the garden." This should be the aim of all true taste. We admire the mass of gay colors, of beds of verbenas, gera-

niums, and similar showy flowers, but, once seen, they are the same the season through, while the continued growth of leafy plants is daily varying, constantly producing new outlines, and by the succession of bloom of different forms, as well as colors, new combinations are effected, and a succession of beauty produced from spring till autumn.

We do not intend to name all the plants which are useful in the subtropical garden; indeed, every year's experience adds more or less to the number—but our object is to enumerate a few of the more prominent of those which have so far been found best adapted, and which are readily produced from seed:—

The Cannas, which we have already noticed, are a prominent group. The Continental growers have made great improvements over the original kinds, and with the same care our own cultivators may add to the beauty of this grand family. They are easily raised from seed, and when sown very early make large plants the first year. The best time to sow is early in March, when they should be planted in pots, in light sandy soil, and plunged in a hotbed with a good bottom heat. Later they may be planted in the same way, or even in the open ground in June. When sown early, as soon as the plants are large enough, they should be potted off and replaced in the hotbed, supplying them freely with water, and keeping them growing on till the time for turning out into the open ground, in rich soil, in June, when they should receive the same treatment as old sorts. In the autumn, before any hard frosts, take up the plants, cut off the tops, and keep in a warm, dry cellar, or under the stage of a greenhouse.

The Tritomas form another group of superb plants. Some writer has said that any one who attempts to make a really interesting garden, without the aid of tritomas, will make a great mistake. Few things are more imposing than the tall and stately spikes of brilliant blossoms, attaining the height of three or four feet. But, to produce a grand effect, the soil should be rich and deep, and the plants large, strong, and well established in pots, when they are turned out into the garden. Constantly taking up and dividing the roots

weakens them so that they do not show how really fine they are. These may be raised from seeds sown now, or even later, and if grown along, in good soil, will make fine plants for next year. Sow the seeds in pots or pans, in the frame or greenhouse, and remove to beds in the garden as soon as well established.

The *Abutilons*, which have heretofore been classed only as greenhouse plants, have been tried extensively at the Battersea gardens, and found admirably effective and beautiful. They are plants which cannot be very well wintered without the aid of the greenhouse, and hence will not be of such general use as some others: but they may be grown as annuals, and when sown in March, and brought forward in a house, they will produce a good effect the first year. Older plants of course make an immediate show, and turned out into the ground and headed in, soon break afresh, attain a large size, and flower profusely all the latter part of summer.

The *Bocconias* have been increased almost to a group, and all are very fine, especially *B. cordata*, *japonica* and *frutescens*. The first is hardy, but the others require a greenhouse in winter. They should be raised in the same way as *abutilons*, and seed may be now planted for a supply for next year.

The *Solanums* are another group, greatly used in England and on the Continent, but not yet fully appreciated here. Then they are, some of them, almost indispensable, on account of the great diversity of foliage, some of the species having small leaves, and others with very large leaves, some set with fierce long spines, like needles, some with purple foliage, others with green. These are all raised from seed, which should be sown early, in a hotbed, and the plants brought forward until time for planting in June.

The *Amaranthus* family is well known by those old representatives, the Prince's Feather, and Love Lies Bleeding, which, though coarse in small beds, have a good effect in large groups. But the new sorts, such as *Melancholicus ruber*, are ranked among the very finest plants with colored leaves. They are hardier than the *coleus*, and when there are not the means of bringing the latter forward, fill an

important place. They are easily raised from seed, sown earlier or later, as opportunity will admit.

Besides these groups, or families of plants, there are quite a number of plants, no less valuable for producing grand effects. Among these are the silver foliaged plants, of which the *Centaureas*, *ragusina* and *gymnocarpa*, are examples. These are adapted for outer lines or edgings, and by their neat, compact habit, and silvery hue, form strong contrasts with the dark leaved objects. These may be raised from seed sown in March or April, and brought forward in a frame till time of planting. *Cineraria maritima* is well known, though by no means common, for its white foliage, and as an edging, or for groups, is very fine. It is very hardy, and may be wintered in a cold frame. It grows quickly from seeds. *Salvia argentea* is another similar plant, with huge woolly leaves, covered with a white down, and has a fine effect among other plants. It is a hardy perennial, and seed sown now will make handsome specimens for another year, as it does not show its real character until the plants are a year old. The two *Cerastiums*, *Biebersteini* and *tomentosum*, belong to this class. They are easily raised from seed, and are fine for edgings.

The Japan Maize is a recent but fine addition to foliaged plants, having the advantage of rapid growth and the immediate effect of some of the more rare and costly plants. Planted at once it grows with the rapidity of common corn, and its broad striped ribbon-like leaves, and graceful habit, place it among the best of variegated foliaged plants. It should have a rich soil.

The *Coleus*, which is now becoming so popular, from the great variety of its elegantly colored leaves, is readily raised from seed, as the recent introduction of so many remarkable kinds has demonstrated. No doubt seed will soon be abundantly procured of our seedsmen, and then they will become as generally known and appreciated by the mass as they now are by the amateur. They will form a variegated group of themselves, embracing, as they do, all colors, from green to black purple.

The *Wigandias* are a fitting completion to the class of

subtropical plants easily raised from seed. So far as our experience goes, it must be awarded the highest place for the size, outline, texture and general aspect of its huge foliage. If the soil is rich these are immense. *W. caracasana* is a truly noble object, and no subtropical garden can be complete without it.

The following are some of the plants of decided effect, which we omitted to name in our previous paper. They are yet rather difficult to procure, but when to be had should find a place in every collection:—

Cordyline indivisa, of a noble habit, with long, narrow, recurved foliage, and free growth. This only requires the protection of a cool greenhouse in winter.

Erythras, of the several kinds, are really superb objects, with long spikes of large coral colored flowers, appearing in abundance all summer.

Alpinia nutans, with very large, thick, deep green foliage, growing five or six feet high, and of somewhat the aspect of the cannas. It requires a warm place in winter, and should be kept growing with plenty of moisture.

Bonapartea juncea is another fine object, with small, round, rush-like foliage, but beautifully recurved, and graceful.

Roezlia regia is a yucca-like plant, quite new, but really very attractive, from its large, broad, sharp pointed foliage.

These are some of the additions which may be made to our former list, sufficiently extensive to test the variety of objects best fitted for "subtropical gardening."

FORMER EXPERIMENTS IN HYBRIDIZING,

BY WILSON FLAGG.

THE theory and practice of hybridizing are at the present day very generally understood by cultivators, and have probably been carried very near perfection. It may not be uninteresting however, or without profit, to review some of the theories and experiments connected with this subject,

which were made public in the early part of this century. It is well known that the seeds of all species of plants, when under cultivation, possess a natural tendency to "sport" into varieties: for if it be a law of nature *that the offspring shall resemble its parents*,—it is also a law of nature *that the offspring shall never exactly resemble its parents*: and this tendency to dissimilarity is proportional to the artificial circumstances in which the species is placed. I believe it was Mr. Andrew Knight who denominated these two forces or tendencies in generation, by a figure of speech, the "centripetal and centrifugal action." It is this combined "centripetal and centrifugal" action of the law of propagation, that places it within the power of human ingenuity to improve, within certain *undetermined* limits, every known species of plant or domesticated animal.

There are methods of originating and methods of perpetuating improved varieties of fruit: the one consisting of propagation by seed, the other of propagation by division of parts, as budding, grafting, layering. The one is a *conservative* process, and is needful for the preservation and multiplication of any particular sorts; the other an *hypothetical* process, which is needful for the acquisition of new sorts. Mr. Knight's theory of obtaining new and improved varieties was founded on selection and hybridization. He obtained thereby many excellent new varieties of fruit, some of which are still retained among valuable sorts. Mr. Lindley remarks "the seed when ripe will not renew the species from which it is derived, with all its individual peculiarities. The seed of a Green Gage plum, for instance, will not, with any certainty, produce a plant having the sweet green fruit of that variety, but it may produce a plum whose fruit is red or acid. All that the seed will do [with certainty] is to produce a new individual of the plum species; the peculiarities of individuals are perpetuated by other means, and especially by leaf buds." Mr. Knight attributed the multiplication of varieties, to artificial or accidental hybridization; and contends that if there be no mixture of the farina of another variety with any given kind of fruit, it will produce its like, or a variety very closely resembling it. Nature has provided each flower of

the rosaceous tribe of plants, including the most of our garden and orchard fruits, with both male and female characters. But by the agency of insects the farina of the flower of one variety may be conveyed to the flower of another variety; and the same operation may be performed by art. By such means, as every cultivator knows, new varieties are produced; and by proper selection of varieties for this purpose, and mixing or crossing them, new fruits may be bred up to a certain limited ideal standard.

Dr. Van Mons maintained that new varieties are the simple effects of culture, without any hybridization. All this may be admitted without denying that some of the most important varieties have been produced by crossing. By means of insects undoubtedly are produced the most of the crossed varieties, which are not produced by art, especially of wild plants. Thus the blackberry has been multiplied into countless varieties, so that the different species run into one another by imperceptible gradations. The varieties of cultivated fruits have been chiefly the results of these and other accidents, though many excellent ones have been produced by artificial means. But it is not philosophical to call these "sports" endless. There is a round of variations, of which the apple and the pear for example are susceptible; but the most of the supposed new varieties are but repetitions of old varieties with scarcely perceptible modifications. Like the figures in the kaleidoscope, the varieties of any one species are the repetitions of similar forms and combinations; and the finest already produced cannot be materially improved by another repetition. By hybridization, we introduce a new stone into the glass, slightly changing the character of all the figures.

The most of our American varieties of fruit, which are well known, have been the *accidental* productions of nature under various artificial circumstances of climate and soil. They are chiefly seedlings found in old gardens and fields, where they have come up spontaneously, and survived the dangers that beset them.

The continuation of varieties by grafting, layering, &c., is in all cases a propagation by bud; for it is the bud only that

continues the variety. This has been termed the *conservative* mode of propagation, because, except so far as it is modified by the stock upon which it is grafted, by this mode all the characters of the variety are preserved. This mode of propagation is commonly regarded as a continuation of the individual. A bud, however, is really a new individual no less than a seed. The truth is, that while animals can be continued only by the union of the sexes, plants of almost every species may be continued without this union of the sexes. Such is propagation by buds, which are not indeed parts of the individual from which they are separated, but new individuals from the same stock. The bud is an identical seed in that state of advancement which the seed has attained when it has just begun to germinate,—differing from a seed as a viviparous offspring differs from an egg. The bud, however, having only one parent, inherits all the characters and habits of its parent; while the seed proper having two parents, contains a partial combination of the qualities of both parents; and the different conditions in which they are combined, causes the differences in the offspring.

Nature, however, has only in rare instances provided for the *spontaneous* propagation of the species by buds, if we except the bulbous and tuberous rooted plants, which are propagated by buds contained in the bulb or tuber. In the Tiger lily buds are produced, similar in structure to the buds of a tree, but having the property of becoming separated from the parent stock, and dropping to the ground when they vegetate like true seeds. When a gardener takes a bud attached to a scion or to a leaf, and sets it in the ground, he causes the variety from which it was taken to be propagated by artificial means, in the same way as the Tiger lily is propagated spontaneously. Grafting the bud or the scion into another tree, is the same thing in effect; and the laws by which this operation, under a multitude of different circumstances, may be successfully performed, are among the most important principles of horticulture. It would be useless to describe these well known operations; but it may not be out of place to allude to certain general principles involved in the science of grafting.

Grafting I have termed the *conservative* mode of propagation: but it has been ascertained that the scion and its fruit may be materially improved or injured in many respects, by the nature or quality of the stock into which it is inserted. If a scion of a late-bearing variety of the apple be engrafted into the stock of an early bearer, its maturity is somewhat hastened by this union. It is not improbable, therefore, that by grafting successively, from the last grafted scion into the stock of an early bearer, a complete change of the original scion might be effected; that is, the late-bearer might be converted into an early-bearer, while retaining its other original peculiarities. Similar modifications, in other respects, might in this way be produced by successive grafting, proving that grafting is not entirely a conservative process.

Unhealthy stocks will sometimes convey their disease to the graft; and healthy stocks will affect it with some of their constitutional habits, such as their early or late habit of maturing their fruit, and as some cultivators have observed "their disposition to bear annually or biennially." Crab-stocks, or stocks from wildings, "cause the apples of the scion to be firmer and to have a sharper flavor." It is remarkable also that while some varieties of the pear are improved, others are injured by grafting on quince stocks. The different effects of this sort of grafting have been amply elucidated by the editor and correspondents of this Magazine.

The similar organization of the stock and the scion is important to the healthy union of the two, and to their durability. It is this similarity, or the opposite relation between the two, that may cause the success or the failure of the operation. The exact nature of this affinity cannot probably be discovered, as it plainly depends rather on similarity of constitution, or a similar vitality, than on similarity of fibre. When the two are of the same species they will unite very happily; yet there are favorable and unfavorable unions of two varieties of the same species. Winter fruit cannot always safely be grafted upon a summer stock—"because the sap in the summer stock is liable to decline and diminish, before the winter fruit has become fully ripe." And if it be desirable to preserve the late bearing character of the winter

fruit, it is important to know that this quality is diminished and its precocity increased by the nature of the early bearing stock.

The union of a scion with a stock of different species, whenever it can be effected, confers new properties both upon the scion and the fruit; as when certain varieties of the pear are grafted on the quince, or the medlar or the white-thorn. This mode of grafting is in fact a sort of hybridization; but there are some facts connected with it which cannot be explained. The apple, for example, cannot be grafted successfully on the pear, nor the pear on the apple; yet the pear will succeed on quince stocks, and on stocks of the Mountain ash—a tree that bears much resemblance to the medlar—while both of these species seem to be more widely separated from the pear, than the pear from the apple. Grafting must, however, in all cases, be confined to species of the same family; and the grafted tree is seldom long-lived, unless the graft and the scion are also of the same species. The nearer their affinity, the more complete and healthy is their union.

Another important principle which has been the subject of controversy is, that scions taken from young seedlings, and grafted upon an old tree, or a tree that has arrived at perfect maturity, will bear fruit at an earlier period than if they had remained upon the parent seedling stock. Those who deny this fact should consider that the converse of it is true:—that a scion taken from a bearing tree, a scion which the second season after would have borne fruit, if it had not been separated from the parent tree, will not bear fruit when grafted upon a young seedling stock, until near the time when the seedling would have commenced bearing. “If any facts,” says Mr. Wilder, “seem to oppose this doctrine, they may be regarded either as exceptions to the general law, or as results of locality and cultivation.”

If we doubt these facts, we should consider that a tree is but an assemblage of a countless number of individuals—each individual or bud having a separate identity, and drawing its support from the branch that contains it. This branch is analogous to the ovarium of animals, having the

property both of constantly evolving new individuals, and of sustaining them by its connection with the roots of the tree. The tree and its branches are indeed but a vegetable organized mass, designed for the support and continuance of this assemblage of buds, as the substance of the tuber of a potato is an organized mass of *pabulum* for the production and support of the germs existing on its surface. These germs or buds have no connection with one another, except that of deriving their support from a common stock. A tree is, therefore, not an individual in the absolute sense of the term, but an assemblage of individuals having a distinct identity. And as a plant may become precociously developed by being confined to a pot of earth, or to a dry, barren situation, so the precocity, or the opposite character of the buds, depends on the condition of the tree or the branch that bears them. All buds originating at the same time, whether upon an old tree or a young tree, are equally old and equally young; but whether they be leaf buds or flower buds depends, among other circumstances not ascertained, considerably upon the youth or the age of the tree on which they are grafted. If the tree serving as the stock is old, the graft taken from a young seedling will soon produce a considerable proportion of fruit buds, like the other branches of the tree not grafted, because the graft acquires the constitutional properties of the stock. The only old age that ever comes upon a tree affects the wood; for the buds are all annual or rather biennial plants, that have their birth this year, and the next year produce leaves or fruit, and then invariably perish. Whether they produce leaves or fruit depends greatly on the maturity of the wood from which they are annually put forth. The wood of a scion from an old tree soon acquires the youthful properties of the wood of the young tree into which it is grafted; and just the opposite effect is produced by inserting the scion of a young seedling into the stock of an old tree.

POMOLOGICAL GOSSIP.

THE GOLDEN CHAMPION GRAPE.—New grapes continue to attract the attention of English cultivators, and the accessions to the list have been so great, that many of the older sorts are giving way to the newer and better kinds. The acquisitions of the last five or six years, of English origin, are the Lady Downes, Golden Hamburg, Buckland Sweetwater, Muscat Hamburg, Champion Muscat, Foster's Seedling, Trentham Black, Mrs. Pince's Muscat, Royal Ascot, Ingram's Prolific Muscat, Duchess of Buccleugh and several others. Some of them are now well known and proved varieties in our gardens, and are planted in preference to some of the old sorts, which, though good grapes, have not the large bunches and large berries of the new ones. In this respect there has been very great improvements.

What we require now is some additions to the Muscats, which will grow and ripen as well as the Frontignans, with the size of berry and bunch of the Hamburg; with such grapes, adapted to the cool vinery, cultivators could have little more to desire, unless more variety to make up a collection.

One of the latest additions is the Golden Champion, raised at Dalkeith, an account of which is given as follows:—

“In the interests of horticulture it is well to notice particularly any novelty of first-rate importance offered in commerce. In the matter of grapes, especially, there is so general a desire manifested and often expressed to be put in possession of the ‘latest intelligence’ as to the condition and promise of any conspicuous seedling that has come within the observation or crossed the palate of the ‘knowing’ pomologist, that one need scarcely offer an apology for craving space to touch upon the ‘present condition and future prospects’ of the Golden Champion.

“While at Dalkeith the other day the writer had an opportunity of seeing it growing under a variety of circumstances—on its own roots, as well as worked on the Hamburg, Muscat, and Lady Downes. In some instances it was considerably

advanced, in others it had been pressed forward a stage in the routine of forcing; while some of the stronger samples were just moving with a minimum amount of fire heat. In every instance—and there is abundant room for comparison in the numerous vineries at Dalkeith—it was the most robust in point of constitution, the freest as a bunch producer, and the most showy in point of size of bunch of any of its competitors; and that is no small meed of praise. Two of the more prominent Muscat houses that have recently been remodelled, are extraordinary in point of ‘shows,’ much more so than has ever been seen at Dalkeith before, and yet withal several of the Golden Champion grafted in the house are far more conspicuous than they; this, too, with an unusual length of cane left for fruiting and propagating purposes, which has a considerable depreciating tendency upon the size and ‘show’ of the bunches. In a comparatively embryo stage of development the bunches were peeping from their leafy envelopes, as large and prominent as the inflorescence of Timothy grass (*Phleum pratense*), which comparison will give a better idea than anything short of a diagram of what may be estimated as to eventual proportions. This was no isolated instance, no mere gathering up for the sake of writing a sensational notice, but met the eye wherever it was grown.

“In a grape of the dimensions of the Golden Champion, where even the Canon Hall is to it in relative size what the Black Hamburg is to the Canon Hall, the first question to occur to the practical mind will be, is it a free setter? Have not the flowers that unfortunate disposition to shy off, rendering the apparent show abortive in results? No! emphatically no! In a house of forced Hamburgs, where the berries were getting well towards the point of stoning, it was as full and symmetrical as the best of them, and Mr. Thomson, to whom particular inquiries were addressed upon this point, has not the slightest misgiving about it.

“In the Lady Downes, or latest house, where there is a particularly exuberant plant ramifying upon the extension principle, the Golden Champion shows its gigantic proportions unmistakably, and one sees its adaptability for late work.

The house has just been shut up, and those who have from time to time seen the fine produce taken from that plantation of vines, can bear testimony to its merits; but this alien seedling, which Mr. Thomson introduced by the process of grafting, beats them all in fertility, and for the plastic way in which it evidently accommodates itself to the various degrees of forcing compatible with success, which the horticulturist practices.

“Not having seen the vine in the earlier stages of its growth, but having tasted its produce more than once, I was induced to visit the establishment from which it emanates, to see if it really was an acquisition all through. The above comments are sufficient evidence of my appreciation of it as a most desirable vine to cultivate; and, if my palate be any thing of a judicious censor, I ought to say that every berry is a most delicious mouthful, fit not only for the gods, but for the goddess Pomona herself!”

MARTHA GRAPE.—Gen. Negley of Pittsburgh gives the following account of the Martha grape, in the Gardeners' Monthly, specimens of which were exhibited in October last before the Pennsylvania Horticultural Society, from Mr. Knox:—

Truly a White Concord, fully equal to its parent, in hardihood, fruitfulness and vigorous growth; foliage deeper green, more enduring, bunch below the Concord in size; berries nearly equal to it; color a transparent greenish white, with a golden tint; skin thin, flesh juicy and sweet, with a little of the aroma of the Concord. It is a superb and highly attractive grape, one that promises to bestow credit upon the skill and enterprise of its introducer to public favor.

IVES.—The same writer says he is agreeably disappointed in the characteristics of this variety. The fruit is large, earlier than the Concord, juice rich, and to many palatable; more robust, hardy and productive. Promises to be a valuable wine grape.

MOORE'S EXTRA APPLE is the name of a kind described in the Horticulturist as having been received from Jas. Fruit of Quincy, Ky. Fruit large, roundish; conical form; light yellow skin; splashed in the sun with bright clear red;

Flesh yellowish, crisp, tender, rather coarse grained, subacid, aromatic, "and very good." Ripe from December to January.

AUGHWICK GRAPE.—This is another new variety which has been offered to the public, as a wine grape not equalled in America. It was found growing on an old farm in the Aughwick valley in Pennsylvania. The bunch is about the same size as the Clinton, with larger berries; bunches shouldered; color of juice very dark red, almost black, and strong flavor, making a very dark red wine. Wine and fruit entirely free from rot or mildew. It is a strong grower, and has stood the severest winters, while others have been frozen to the ground.

BEURRE SUPERFIN PEAR, which promised last year to be one of our best varieties, is also classed among the best by Mr. Rivers and some other English cultivators. Its liability to rot at the core, unless picked early, has been an objection to it, but we found it last season to be one of the very best to keep. After having been in Nyce's fruit-house a month our specimens at Christmas were perfectly melting, firm, vinous, brisk and delicious. Its usual season is early in October.

THE FLORIDA AIR PLANT.

BY THE EDITOR.

LAST autumn, through the kindness of Messrs. Washburn & Co. of Boston, we were favored with two specimens of the so-called "Florida Air Plant," a species of *Tillandsia*, probably *T. usneoides*, or *utriculoides*, common, we believe, to the tropics, and which, it would appear, is a very pretty thing, and may easily be grown in our climate, in summer, giving it greenhouse protection in winter. The plants are now growing finely, and we shall give them a full trial. As showing the interesting character of the plants we annex the following letter, which accompanied the specimens:—

I take the liberty of sending you (accompanying this letter) a fine specimen or so of our greatest curiosity, viz.,

the "Florida Air Plant." I think you will agree with me in saying it is quite unique. This plant is considered a great curiosity with us—how much more so it will prove to you. I will try and give you some slight description of it, but cannot give it a name, but think it belongs to natural order "Bromeliaceæ," genus *Tillandsia*, as no work on Southern Botany describes it.

This plant grows freely in all situations, adhering to the barks of the live oak, cypress, cedar and maple. It is occasionally found growing on the pine, but very rarely. Its most favored locality seems to be on those large live oaks which overhang our glorious river (the St. Johns). Unlike the mistletoe it does not penetrate the bark and woody fibre, but ramifies its sparse roots into the cracks, crevices and inequalities of the bark, and may be truly said to be an "air plant," as it derives no nourishment from the bark, but wholly and solely from the air and moisture. When you pluck it from the tree, no matter where you throw it it will live. You cannot kill it save you bruise it. It seems to live alike without, as well as with, moisture, though from their abundance on the banks of our river, it would seem as though it were a favored locality. This plant is one of the kindest friends to the hunter and traveller, for no matter where found, whether on the stunted live oak in our burning almost endless sandy barren scrubs, where no water can be found for ten or even twenty miles—or by the river bank—wherever found, if you pluck it from the tree and invert it over a tin-cup you will obtain from two to three ounces of the finest, purest, coldest water that ever it was the fortune of a thirsty traveller to partake of. Where this water is obtained from I cannot imagine, unless it is from the heavy dews we have here at night. You can well imagine the joy and pleasure evinced by the wearied traveller, or hunter, as he descries in the distance a lonely live oak, after a day of tiresome hunting or travelling in our hot burning sandy country, say, for instance, on a July or August day, for well he knows that from that live oak he will obtain an abundance of fresh pure water, cold as ice water almost, while even the plant is exposed to the burning sun.

This plant produces long spikes of flowers in the spring and summer, and are of different colors. Nothing could possibly be more unique in a parlor in winter as an ornament, or as a constituent of a hanging basket.

The only care you need bestow on the plants which I send you, is as follows: Tie the roots to a horizontal limb of an oak tree, as soon as received, by means of a piece of thread. Souse the whole plant freely with water at least once a day, for a week, until the roots have laid hold of the bark; after that it needs no further care until fall; then, before your first frost, remove the plant from the tree and tie its roots to a billet of firewood—watering it freely, and remove it to some room in the house in which fire is kept during winter. Use water freely on it until well established; by spring it will give you a spike of bloom. This plant, as a general thing, likes shade. It never produces seed that I can find, but propagates itself from the little rootlets. The plants I send you are very small. These plants grow from four to five feet high, and send up spikes six feet in length.

LUPINUS POLYPHYLLUS.

BY THE EDITOR.

THE Lupins are old and well known plants, many of them annuals, which have long been cultivated in our gardens. They are nearly all natives of America, extending from New England to California. The annuals are showy and pretty plants, easily raised, and with their soft foliage and long spikes of various colored flowers, form pleasing groups in the flower-garden.

The perennials, which are mostly from California, are, however, much more showy than the annuals, and some of them are really superb ornaments, growing three feet high, and producing tall stems, terminated with long and dense spikes of showy blossoms. Of this group the *L. polyphyllus* is the representative plant. It is a native of Columbia River, and was discovered by the lamented Douglas, in his visit to

the North-West Coast, and introduced to England in 1826. It is not, however, so well known as it should be; and though so long introduced we think it has never been brought prominently enough before the public. It is easily raised from seed, and the plants, when well grown, produce a mass of strong stems, terminated with spikes of rich purple flowers, which remain in beauty a long time. Our engraving, though on a reduced scale (FIG. 7) gives a good representation of a vigorous plant.



7. LUPINUS POLYPHYLLUS.

The seed may be sown now, and when the young plants are large enough they should be removed to a good place in the flower border. Here they will soon attain a strong growth, and by the autumn will have formed good plants. A slight protection, the same as usually given to most perennials, will preserve the roots in fine condition, and the next year they will throw up their stout stems, and form a mass of bloom at once attractive and highly ornamental. Few finer plants can be added to the garden.

FLORICULTURAL NOTICES.

NEW HYBRID COLEUS.—Since the introduction of *Coleus Verschaffeltii*, with its rich deep colored foliage, it has formed

a prominent object for bedding purposes, especially in England, where the style of ribbon borders has extensively prevailed. The introduction of another kind, called *C. Veitchii*, increased the taste for rich foliaged plants, and by the skill of the hybridizer, a great number of new sorts have been raised between these two, which seem to have attracted unusual attention, amounting almost to a *furor* for these plants. The successful grower of these hybrids was M. Bause, of the Chiswick garden, who has raised twelve of these seedlings; and two weeks ago the plants were sold at auction for the benefit of the Royal Horticultural Society. The prices obtained for them were almost fabulous, as follows:—*Berkleyi*, 40 guineas; *Saundersii*, £26; *Ruckeri*, 40 guineas; *Bausei*, 59 guineas; *Scottii*, 36 guineas; and *Batemanii*, 49 guineas, purchased by Mr. Veitch. *Dixii*, 49 guineas; *Clarkei*, 10 guineas; *Wilsoni*, 14 guineas, and *Reevesii*, 5 guineas, by Messrs. Carter. *Marshallii*, 25 guineas, and *Murrayi*, 25 guineas, by Mr. Wills. Total, £390; about \$2000.

All these, or a portion of them, will no doubt find their way into American collections, and we shall give a brief description of them, that our cultivators may know their merits. The plants are offered for sale on the 1st of July, by the dealers who purchased them.

965. DRABA VIOLACEA *D. C.* VIOLET FLOWERED DRABA.
(Cruciferæ.) Quito.

A greenhouse plant; with violet colored flowers; growing a foot high; increased by cuttings or seeds; grown in light soil. *Bot. Mag.*, 1837, pl. 5650.

Most of the *Drabas* are rather inconspicuous and weedy plants, of no great beauty, but the present species seems to claim a higher position, and to be well worthy of introduction into our gardens, Sir William Hooker having described it, as “a lovely plant.” It comes from a high elevation on the Andes, and would undoubtedly prove a fine summer blooming or bedding plant, having a dense compact habit, with slender stems, terminated with heads of the richest violet colored flowers. It is easily raised from seed or cuttings. (*Bot. Mag.*, July.)

966. *IPOMÆA GERRARDII* Hook. GERRARD'S IPOMÆA. (Convolvulacæ.) Natal.

A greenhouse climber; with white flowers; appearing in summer; increased by cuttings; grown in rich soil. *Bot. Mag.*, 1867, pl. 5651.

This is a very large and fine *Ipomæa*, with flowers four inches in diameter, cultivated in the palm stove at Kew, where it flowered in August. It forms a tuberous root, from which the annual shoots spring up, and attain the height of ten to twenty feet. It will undoubtedly prove, as several of the tuberous species have, a fine summer flowering species in our climate, and easily wintered, as all the tuberous rooted ones are. Its immense white flowers would form a fine contrast with the deep rich blue of the *I. Leari*.

The seeds are covered with a cottony substance, and it was exhibited in 1862 as the wild cotton. (*Bot. Mag.*, July.)

967. *RUDGEA MACROPHYLLA* Benth. LARGE LEAVED RUDGEA. (Rubiaceæ.) Rio Janeiro.

A hothouse plant; growing six feet high; with white flowers; appearing in spring; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1867, pl. 5653.

“A magnificent plant,” with very large, shining, deep green leaves, and large globular dense heads of white flowers, as large as the snowball, which appear on short stems at the axils of the leaves. It comes from Rio Janeiro, and first flowered last year. It is a very beautiful acquisition. (*Bot. Mag.*, July.)

933. *GLOXINIA HYPOCYRTIFOLIA* Hook. (Gesneriaceæ.) Andes.

A greenhouse plant; growing a foot high; with yellow and scarlet flowers; appearing in summer; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1867, pl. 5655.

A new and very pretty plant, which is claimed as a *Gloxinia*, though it has the corolla of a *Hypocyrtia*, and the glands of a *Gesnera*. The leaves are very beautiful, of a velvety texture, very deep green, and the main nerves clear white. In addition to this the flowers are globose, small, yellow and scarlet, somewhat like an *Achimenes*. It is a native of the forests of the Andes, where it was found by Mr. Reeve, the collector of Mr. Veitch. It is an acquisition. (*Bot. Mag.*, July.)

969. *BEGONIA BOLIVIENSIS* *D. C.* BOLIVIAN BEGONIA. (*Begoniaceæ.*) Bolivia.

A greenhouse plant; growing two feet high; with scarlet flowers; appearing in spring; increased by cuttings; grown in light rich soil. *Bot. Mag.*, 1857, pl. 5657.

One of the most showy of the flowering Begonias, exhibited for the first time last May, at the Parisian Exhibition, where it attracted great attention. The foliage is narrow and so deeply cut as to appear almost fringed, and the flowers, which are of the deepest scarlet, are as large and long as a fuchsia. It is quite rare, distinct and beautiful. (*Bot. Mag.*)

970. *CESTRUM ELEGANS* *Schlecht.* PURPLE HABROTHAMNUS. (*Solanaceæ.*) Mexico.

A greenhouse plant; growing four feet high; with crimson flowers; appearing in winter; increased by cuttings; grown in rich soil. *Bot. Mag.*, 1867, pl. 5659.

This is a very superb species, not only in its clusters of large, rich, crimson blossoms, but in the clusters of fruit which succeed them, which form dense grape-like clusters of deep purple globular berries, a third of an inch in diameter. It comes from a high elevation, and succeeds well in a temperate house. (*Bot. Mag.*, Aug.)

971. *AGAVE XYLONACANTHA* *Salm Dyck.* (*Amaryllidaceæ.*) Woody-thorned Agave.

A greenhouse plant; growing ten feet high; with greenish flowers; appearing in summer; increased by suckers; grown in light rich soil. *Bot. Mag.*, 1867, pl. 5660.

One of the "noble class of plants that few can afford to cultivate, and which seldom flower in cultivation, but which are of equal interest to the scientific botanist and the horticulturist. Amongst these the aloes and agaves, hold, after the palms, the place of honor, and their value for decorative purposes is yearly becoming more apparent." Such are the remarks of Dr. Hooker, and we commend them to the attention of cultivators. No plants are more attractive in a collection in winter, or more decorative in the garden in summer; and as they thrive well in our warm climate, and are easily wintered in the greenhouse, bearing in mind to keep them rather dry, they should be more rapidly known and introduced.

This agave has a stout rigid look, with short stout spines,

and curious as well as ornamental. When of sufficient size to flower the scape or stem rises ten feet, and is densely covered with hundreds of greenish white flowers. (*Bot. Mag.*, Aug.)

972. DRACÆNA SURCULOSA, VAR. MACULATA. SPOTTED LEAVED DRACÆNA. (Asparaginææ.) Africa.

A hothouse plant; growing six feet high; with creamy white flowers; appearing in spring; increased by cuttings; grown in light, rich soil. *Bot. Mag.*, 1867, pl. 5662.

A pretty, spotted leaved variety of the Dracæna, the leaves being dotted with round, yellow spots, very ornamental. It also has a rather dense, globular head of yellowish white flowers. It was introduced in 1863, and first flowered in the Glasgow Botanical Garden. (*Bot. Mag.*, Sept.)

973. BEGONIA VEITCHI *Hook.* VEITCH'S BEGONIA. (Begoniaceæ.) Peru.

A greenhouse plant; growing a foot high; with scarlet flowers; appearing in summer; increased by division of the roots; grown in light, rich soil. *Bot. Mag.*, 1867, pl. 5663.

“Of all the species of Begonia known,” says Dr. Hooker, “this is, I think, the finest. With the habit of *Saxifraga ciliata*, immense flowers, of a vivid vermilion cinnabar red, that no colorist can reproduce, it adds the novel feature of being hardy in certain parts of England, at any rate, if not all, having withstood a temperature of 28° with absolute impunity.” The flowers are almost round, and nearly two inches in diameter. The plant is stemless, with large radical leaves, and from the roots are thrown up the stout stems, terminated with the superb blossoms. If as hardy as stated it may be kept in a frame or cool house, and planted out in summer, in the same manner as many of our bedding plants, and its fine foliage and rich flowers prove a gay and attractive ornament to our gardens. (*Bot. Mag.*, Sept.)

974. ERODIUM MACRADENIUM *L'Herit.* SPOTTED FLOWERING STORKSBILL. (Geraniaceæ.) Pyrenees.

A half hardy perennial; growing a foot high; with spotted flowers; appearing in summer; increased by division; grown in peaty soil. *Bot. Mag.*, 1867, pl. 5665.

A charming perennial plant, with finely cut foliage, and producing slender stems, terminated with clusters of geranium-like flowers, of a delicate pink, spotted upon the upper

petals. In England it is a hardy perennial, but would probably require the protection of a frame in our climate. It is one of those beautiful plants which require a little attention in culture, but is abundantly beautiful to repay the labor of the enthusiastic amateur. (*Bot. Mag.*, Sept.)

975. *GRIFFINIA BLUMENAVIA* *Roch & Bouché*. DR. BLUMENAVE'S GRIFFINIA. (Amaryllidaceæ.) Brazil.

A hothouse bulb; growing a foot high; with striped flowers; appearing in spring; increased by offsets; grown in light, rich, sandy soil. *Bot. Mag.*, 1857, pl. 5666.

A very pretty bulb, with heads of white flowers, beautifully striated from the throat with crimson. It is a native of Bengal, and was introduced into the German collections. (*Bot. Mag.*, Oct.)

976. *LILIUM LEICHTLINI* *Hook*. MAX LEICHTLIN'S LILY. (Liliaceæ.) Japan.

A hardy bulb; growing three feet high; with yellow spotted flowers; appearing in summer; increased by offsets; grown in rich soil. *Bot. Mag.*, 1867, pl. 5673.

This very pretty lily was one among a number received from Japan for *L. auratum*, but is entirely distinct, and quite new in color. It resembles, in some respect, *L. tigrinum*, in the form of the flowers, but differs from it, not only in color, but in its graceful habit and scattered leaves, and crested segments of the perianth. The color is a uniform lemon yellow, thickly spotted in the way of the Japan, with brown spots. It grows only three or four feet high, with slender stems and narrow foliage. It will be a valuable acquisition to the hybridizer, to infuse the rich yellow into other new seedlings. (*Bot. Mag.*, Nov.)

977. *BEGONIA CLARKEI* *Hook*. MAJOR TREVE CLARKE'S BEGONIA. (Begoniaceæ.) Andes.

A greenhouse plant; growing two feet high; with rose colored flowers; appearing in summer; increased by cuttings; grown in light, rich soil. *Bot. Mag.*, 1857, pl. 5673.

This is a splendid kind, allied to *B. Veitchii*, but has a shrubby habit, attaining the height of two feet, and the flowers, which are very large, are of a deep rose color. It is not so hardy as *B. Veitchii*, but grows freely in the greenhouse, and is very showy. (*Bot. Mag.*, Nov.)

General Notices.

DAHLIA IMPERIALIS.—We openly confess that we read our friend Roezl's first account of this new dahlia with a somewhat incredulous smile, and perhaps the same may happen to many a reader of the "Garten flora" when he casts a first glance at the accompanying plate, which shows him a dahlia of a very extraordinary—I might say undreamed of—and surprisingly new appearance, for a dahlia with bell shaped, white, liliaceous flowers, with a pyramidal, hundred blossomed, candelabra-shaped inflorescence, appears to belong, judging from what we have hitherto known of dahlias, to fairy world. In truth, *Dahlia imperialis* appears to be new to the scientific world, for we cultivated several specimens last year in the Botanical Garden at Zurich, and brought them into blossom, and convinced ourselves that it did not belong to either of the species described in the "Prodromus," or in "Walper's Repertorium." Roezl's short and convincing information read somewhat like the following:—"This new dahlia, which is imposing even as a leaf plant, will make as great a sensation as the first single dahlia did. It blossoms on pyramidal flower stems, with from 150 to 200 large, white, bell-shaped nodding flowers, like a yucca or a giant white lily. I consider it the most beautiful and valuable of my importations. It will, I hope, completely justify its proud name of the Emperor dahlia, even in European gardens; and as we (Messrs. Roezl & Besseur) place our entire confidence in it, we try, by representing it at its first blossoming, to make it known." At the same time as this information, which excited our curiosity and expectation in the highest degree, we received at the end of May of last year, (1862), a large chest with about 200 tubers, pretty much like the ordinary dahlia tubers, but of a longer, more tapering shape. As the season was already pretty well advanced, they were all immediately planted in the open ground, in groups and beds in the garden, and a large number, on account of want of space, in a poor unmanured potato field. All the tubers threw out well, several three or four tubers, which, even to the strongest, were immediately broken off, and took root more quickly and with greater certainty, than tubers of the ordinary dahlia planted at the same time for comparison, which sufficiently convinced us that *D. imperialis* would support itself and spread rapidly, even if it did not ripen seed. The specimens planted in the garden soon reached the height of 5 to 6 feet, whilst those in the poorer ground were from 3 to 4 feet. The stately growth, the large, elegantly double, almost triple pinnate, gladsome green leaves, make at least as beautiful a leaf-plant as the most beautiful of the *Wigandia*, *Solanums* and *Nicotianas* at present so highly prized. Singly, in the grass, with well manured ground, the *D. imperialis* will figure in the first rank as a leaf plant, even before its flowering time commences, as it does not lose its flower leaves. As soon, however, as it unfolds its flower panicles, richly covered with

large white lily-bells, it will far surpass the most beautiful of the ornamental flowers which are at present so much liked. We ought not to, neither will we keep silent, that last year (for our impatience can be well understood) we had to wait long, but too long, before we discovered the first buds. Not before the middle of October did the longed-for buds show themselves; but now, as if by enchantment, several specimens, the most luxuriant as well as the poorer, were covered with buds; the top as well as the side-branches produce whole bunches of buds. There was no longer any doubt that Roezl did not exaggerate when he spoke of 150 to 200 flowers on a panicle, for on our strongest specimen we could show a still larger number of buds.

These, however, were nipped by the frost, and as to *Dahlia imperialis* ever taking its place as an out-door plant, continued Mr. Bateman, the idea was absolutely preposterous. It must, therefore, be grown plunged in a tub out of doors in summer and moved into the conservatory in September. He presented the Society with tubers of it, which he had brought from Cannes, and he hoped that under Mr. Eyles' or Mr. Barron's care they would produce flowers before the end of the year.—(*Gard. Chron.*)

CARPET SYSTEM OF BEDDING OUT.—The great objections urged against our present system of flower gardening are, that its characteristic features are sameness and want of variety, and that the display is after all but a gaudy glare of color. Sometimes these objections are urged in a sensational tone, prompted, doubtless, by reactionary feelings and sentiments, but, nevertheless, there is no doubt that to a certain extent the objections may be sustained. Gay and glittering a flower garden in its highest state of perfection should indeed be, but it need not, it ought not, to degenerate into a mere chromatoscope.

Something has been done, and is doing, to remedy the admitted defects of the system, by the introduction of foliage plants of considerable size and of graceful or picturesque form, and in this way the general monotony of the flower garden as a whole may, no doubt, be broken up with advantage; but the color masses themselves need to be also remodelled beyond the mere breaking of them up into contrasted lines or sections, and it seems to us that the hint how to do this most effectually, has been, though perhaps unconsciously, already given.

The idea which we now wish to present to the consideration, and to propose for the adoption, of the flower-gardening fraternity, may be designated as the carpet system of bedding-out. We have said that the hint has been already given. It has been so, and in the first instance, we believe, by our great artists in spring gardening. Mr. Fleming in the beautiful spring garden at Cliveden, has for years been in the habit of dotting brightly-colored tulips through some of his beds, the ground color of which was of some sober, or at least distinct hue, such as would show them up advantageously; for example, white catchfly or white forget-me-not was dotted with high-colored tulips, or blue forget-me-not was dotted

with white tulips. Mr. Ingram, at Belvoir, has to a large extent followed the same principle; and we can well believe, as, indeed, we have been assured was the case, that one of his combinations—we merely quote an example—that of white arabis dotted with blue scilla, was charming when in perfection. But it is not only among spring flowers and in spring gardening that the hint to adopt the carpet system has been dropped. It has been worked out, and with marvellously effective results, by Mr. Gibson, at Battersea, in a case to which we specially invited attention last season, that of a bed of succulents, in which the remarkable forms and tints of plants like the echeveria and the shrubby sempervivums, were brought out to great advantage by surface irregularities, and by a carpeting of a dwarf grayish tinted sedum, which clothed the whole surface between the larger plants, forming a neutral-tinted carpet, with which the more prominent plants finely contrasted.

Now, if this method of arranging the materials for flower beds be available and effective, as it is, in spring time for spring flowers, and if it be available and effective, as it is, for quaint-looking foliage plants during summer, why may it not also be applied to our summer flower beds, and be made the means of toning down the excess of color, of which all persons of correct taste now complain? We think it may be. Our object, indeed, in penning these remarks is to bring the idea of carpet-bedding—so we think it may be distinguished—prominently under the notice of gardeners, that they may put it to a practical test; and we feel confident that in many positions where beds entirely filled with bright-hued flowers are now employed, if not in most or all of them, the proposed change might be adopted with advantage.

That we may be clearly understood, we will offer a supposititious illustration of what we mean by carpet bedding. A circular bed of considerable size, forming perhaps part of a formal design, perhaps isolated, has to be filled with summer flowers. In the ordinary course it would be so planted that the flowering plants, when grown up, would cover the whole surface, and that the bed would in due time present an even mass of floral coloring, either of one hue, or of contrasted hues, as the taste or fancy of the planter might dictate. Now if the surface of this bed, level, convex, or undulated, as the case may be, were in the first instance clothed with a close carpet of—if on gravel, say, such plants as the bright green Saxifrage of the hypnoides group, if on grass, of some grayish or neutral-tinted plant, and then, if the flowering plants, pelargoniums, we may suppose, of the same kinds as would have been used *en masse*, were planted out or plunged at intervals among the carpet plants, sufficiently far apart to show each one distinctly, with something of the carpet surface also evident, it seems to us, judging by the effects produced in the cases to which we have referred, that a much more chaste combination, and one both of a novel and pleasing character, would be produced. The dotted color-plants might in many, perhaps in most cases, be exactly the same as would have been used for close planting, so that the color effects at a distance would be the same, except in so far as the glare might be toned down by the open mode

of planting; but when more closely viewed the effects would be entirely dissimilar to those now usually produced, and we cannot but think, that if good materials were used, they would be equally beautiful, and much more satisfying to the eye. We therefore ask for the system of carpet-bedding a fair and honest trial during the ensuing season, and shall be glad to chronicle the results.—(*Id.*)

CHINESE PRIMROSES.—The double-flowered varieties of the Chinese primrose form a group of considerable extent, as well as one of great beauty and interest. The old double rose colored and double white varieties of former days, attractive and useful as they were, are far surpassed by more modern productions. The law of progress has worked out the most cheering results: swiftly and certainly have higher forms come forth from the work-shop of nature to gladden the eyes of the patient worker in this direction. A few flowers, that represent the latest form of the fine varieties produced by Messrs. Windebank & Kingsbury, of Southampton, were exposed at a recent meeting of the Floral Committee, and were especially remarkable as containing some very fine flaked varieties of considerable beauty. Singular to say, these fine double kinds are all raised from the seed obtained from single flowers. The double blooms do not produce seed as a rule: and even if they did yield seed, and it were to germinate, the plants so raised would simply produce single flowers. This is a curious fact, but Messrs. Windebank & Kingsbury, as well as others, have abundantly proved that it is so. Semi-double flowers will produce seed, but it is necessary that they should be fertilized with the pollen from the single blooms. They rarely, however, if ever, produce really double flowers when so fertilized, and the number of semi double flowers are always in a minority—the remainder, and consequently the larger part, proving single.

To obtain double varieties the raiser fertilizes certain fine and striking single flowers, with the pollen of other equally fine single blooms and the desired result is obtained. This is Messrs. Windebank & Kingsbury's *modus operandi*, the exact details or mode of accomplishment are a professional secret they keep to themselves. That they have hit upon some method of fertilization by which the production of double flowers is rendered certain is evident; and further than this, they at the same time secure a strong and vigorous constitution for the double kinds. Probably the act of fertilizing, say a fine red flower, with the pollen of another flower of the same hue, equally fine in character, is the most likely cause of the production of double kinds of that same hue of color; and a similar process would be attended with a like result, if this hypothesis be a correct one, in the case of flowers of other hues of color.

It is somewhat singular that though Messrs. Windebank & Kingsbury have been engaged for some years past in the production of double primulas, this is the first year that they have been successful in obtaining double blossoms on plants with the fern-leaved foliage. Others had accomplished this a few years ago, but it has hitherto been denied to Messrs. Windebank

& Kingsbury. More than that, they are hopeful of now getting striped double flowers from the fern-leaved plants, as they hold the opinion—and it certainly lends something like a sanction to the hypothesis I have advanced—that when a single flower of any character can be obtained and perpetuated, it is not difficult to obtain also double flowers of a similar character.

There is another characteristic of the Chinese primrose worthy of notice, namely, that all striped or flaked flowers, whether double or single, are produced on plants the leaf-stalks of which are red. No instance has yet occurred of a white flower, flaked or striped with any shade of rose or purple, being produced in plants the leaf stalks of which are white. Flowers of a pure white color, without any marking whatever, have also been produced in plants with red leaf-stalks; but no red or rose-colored flowers have been as yet produced on plants with white leaf-stalks.—(*Id.*)

EARLY PEAS.—An English writer states that he sowed Sutton's Ring-leader and Dan O'Rourke, on the 1st of February, in boxes, under glass, and transplanted them out in a south border, about the middle of March. On the 15th of May he had a good dish of Sutton's Ringleader fit for gathering. The pods were small, but well filled, while Dan O'Rourke will be fully a week behind.

Societies.

CINCINNATI HORTICULTURAL.

The following are the officers of this Society, for 1868:—

President—Capt. W. P. Anderson.

Vice Presidents—Wm. Stoms, Geo. Graham, and Robt. Buchannan.

Recording Secretary—L. A. Hine.

Corresponding Secretary—C. H. Wardlow.

Treasurer—Robt. Clarke.

Librarian—Jas. Haworth.

The Annual Exhibition will take place in September next, commencing on the 22d. In connection with it, the American Wine Growers' Association of Ohio will hold their Annual Meeting, when liberal prizes will be awarded for the best samples of Native Wines. Sixteen prizes are offered. For the largest variety of still wines, not less than two bottles of each kind, \$20. Second prize, \$10. The other prizes are mostly for one bottle each of Catawba, Delaware, Iona, Ives, Concord, Isabella, Norton, Clinton, &c.

In addition to the numerous prizes for fruits and flowers, offered by the Society, the Longworth Wine House offer the following liberal premiums for the encouragement of Grape Growing:—

To the Wine Growers of the United States, through the American Wine Growers' Association of Ohio:

Feeling deeply interested in the improvement of our Native Grapes and wines, we offer the following premiums: A silver pitcher, two goblets and waiter, to cost not less than \$350, as the first premium; a silver cup, to cost not less than \$100, as the second premium; and a silver cup, to cost not less than \$50, as the third premium.

The first premium to be given to the best general wine grape of our whole country. The second premium to be given to the best variety of grapes for wine purposes in the State of Ohio, provided it is not awarded to the grape that receives the first premium, in which case it will be given to the second best wine grape in the country. The third premium to be given to the best table grape, for general purposes in the country.

Our requirements are that the plants, when generally cultivated, shall be perfectly healthy, hardy, and productive, and the fruit shall produce a wine of good quality, as to flavor, strength, and quantity. The fruit must be shown at the Fall Consolidated Exhibition of the American Wine Growers' Association of Ohio, and Cincinnati Horticultural Society, September, 22, 1868, in quantities of ten pounds or more, with samples of the wines from the competitors for the first two premiums, if practicable.

The committees to be composed of the Hon. Marshall P. Wilder, of Boston; Solon Robinson, Esq., of New York; a member to be designated by the Lake Shore Grape Growers' Association; a member to be appointed by the American Wine Growers' Association of Ohio; and Dr. C. W. Spalding, of Missouri.

At the meeting of the committee to award premiums, in case they are not all present, the members present to fill the vacancies. The award of the committee to be final.

AMERICAN WINE GROWERS' ASSOCIATION OF OHIO.

Officers for 1868:—

President—E. A. Thompson.

Vice President—Cassimer Werk.

Secretary and Treasurer—Jacob Bogen.

Horticultural Operations

FOR JUNE.

FRUIT DEPARTMENT.

THE wet and cool weather of May has been very unfavorable to all gardening work. The ground has been saturated with water, and planting

prevented, except in light, high, and dry soils. The winter was severe upon many trees as well as vines, and the late spring appears now to offer anything but a promising season for grapes. Pears look well, if the rain has not prevented a good fertilization of the blossoms.

GRAPE VINES, from the want of plenty of sun heat, do not look as strong as usual; but with good care and attention will soon improve. As soon as the berries are well set, and of proper size, thinning may be commenced, observing the usual caution not to thin too much. If cool shut the house early, so as to retain a good body of heat, and if wet weather continues light fires should be made to dry up any extra damp. Top all straggling growths, and tie in the main laterals. Vines in cold houses have had an unfavorable time, and if they have not suffered any by an early bloom, will soon feel the effects of better weather. Close the house early while in flower and setting, if this is not yet over. Stop laterals, and prune away superfluous shoots.

STRAWBERRY BEDS should have a final weeding now, and clean straw or short hay placed under the fruit to keep it from being injured by heavy rains. New beds should be kept clean, and free of all weeds. Water freely, if the weather should set in hot and dry.

RASPBERRY PLANTATIONS should be kept clean of all superfluous suckers.

GRAFTED TREES should have attention, removing any strong suckers, and loosening the ties, if necessary.

SUMMER PRUNING should be commenced as soon as the new growth has made five or six inches, pinching back to two or three eyes.

FLOWER DEPARTMENT.

Where there are collections of plants of various kinds, there are many things which should now be removed to the open air, and towards the end of the month the greater part of greenhouse plants may be placed out of doors. Such as are intended for winter work will need attention, so as to secure a good growth. Insects will increase, and among stove plants, the mealy bug, as well as the red spider, will become more abundant. Lose no opportunity to destroy both, depending only upon the use of the hands, and a brush or sharp pointed stick to kill the former, looking over each plant infected every few days. Sulphur or whale oil soap will answer for the red spider.

CAMELIAS will now be finishing their growth and setting their flower buds. Keep them well watered and syringed, until the flower buds are prominent, when it may be partially discontinued, and the plants removed to the open air in a half shady sheltered place.

AZALEAS, which have finished their bloom, should have all the seed pods picked off, and pruned into shape. They should then be kept in an increased temperature, syringing freely twice a day, and watering occasionally with liquid manure. Early flowering plants, already making vigorous shoots, should have the tops of any strong growths nipped off.

CHRYSANTHEMUMS, if grown in pots, should have a shift when they require it, and the tops pinched off, to produce a stocky growth.

CALADIUMS, under good treatment, will need a shift often, if large specimens are wanted. Keep in a good place, near the glass, and shade from the noonday sun.

CYCLAMENS may be planted out in a frame, first preparing the ground with good leaf mould, or very old manure.

PELARGONIUMS will now be in full blossom, and should have an abundance of air and light, only shading from the sun in the middle of the day. Water freely and fumigate, if the green fly appears.

FUCHSIAS will need another shift into larger pots, using richer and stronger soil.

STEVIAS, EUPATORIUMS, and other winter flowering plants, should be shifted into larger pots.

HEATHS, of the common kind, should be planted out in the open ground; the better sorts may be shifted, and kept in a cool frame.

BEGONIAS should have a shift into larger pots.

GLOXINIAS AND ACHIMENES should be shifted into larger pots.

COLEUS, of the different varieties, intended for specimens, should be shifted into larger pots.

MONTHLY CARNATIONS should be planted out in beds of good rich soil.

TUBEROSES, started in small pots, should be shifted into larger ones, and plunged in the open ground.

FLOWER GARDEN AND SHRUBBERY.

The flower garden and lawn will now require much attention, as all the bedding plants, as well as annuals, must be planted out at once. The subtropical garden will also occupy time and care, in planting and arranging, to produce the best effect.

The lawn will now need mowing, after the long rainy weather, and afterwards a good rolling, following it up every week, until a good hard surface is obtained. Cut edgings, and clean and roll the walks.

DAHLIAS should be planted out now. Make the soil rich.

GLADIOLUS must be planted, if not already in the ground.

LILY BEDS should be kept clear of weeds, and the surface soil lightly stirred.

TULIPS, and other autumn bulbs, should be taken up the last of the month.

NEAPOLITAN VIOLETS should be taken up, divided and reset, in good rich soil.

CANNAS, and similar plants, should be set out in beds, carefully prepared with plenty of leaf mould, or very old manure.

BEDDING PLANTS, of all kinds, should be got into their places, as soon as time and weather will permit.

THE CONIFEROUS TREES.

THE coniferous trees, or evergreens, as they are generally called, have attracted the greatest attention among European cultivators and planters of trees, and no efforts or expense have been spared to introduce, from almost every portion of the globe, every species or variety. Collectors have been sent out by societies and associations, as well as by individual enterprise. North and South America, Mexico, China, Japan, Asia, Africa, New Holland, and other countries, have been explored for the single purpose of securing the coniferous trees. Numerous works have been published, some elaborately and expensively illustrated, and specimens of nearly all the acquisitions may be found in the private establishments, or commercial collections of Great Britain and France. With a climate highly favorable for the growth of trees from every temperate clime, they have, by their variety of form, their difference of foliage, and other distinctive qualities, added immensely to the picturesque aspect of every plantation, and, aside from their value for timber, or for the simple purpose of shelter, as ornamental objects they occupy deservedly the eminent rank that has been accorded them.

Unfortunately the climate of the United States, or that portion of it from Washington north and east, is too severe to admit of a full estimate of the value of the coniferous trees, or a due appreciation of their importance. Besides, we have so many thousands of acres covered with some of these trees—and among them a few of the best—that we do not feel the want of them, and the mass of the people will not plant what their predecessors cut down, as cumberers of the ground. America is rich in coniferous trees. Great Britain only numbers some thirty-five indigenous species, and her isolated position, surrounded by water, exposed to sweeping winds, requires not only the shelter they furnish, but the timber they supply. This in some degree accounts for the great zeal manifested for their introduction, increased by the cultivated

taste of amateur planters and professional landscape gardeners. As ornamental objects, their evergreen foliage renders them at all seasons, in winter as well as summer, conspicuous features in any landscape or plantation.

But notwithstanding the want of that general taste for coniferous trees, which prevails in Europe, and which we cannot but regret, there are many extensive plantations in various parts of the country, and several enthusiastic lovers of them, who have spared no pains or expense to introduce all the known hardy species, and many others of doubtful hardiness. Such are the collections of Mr. Hunnewell, at Wellesley, Mass., Mr. Field, at Princeton, N. J., and Mr. Sargent, at Fishkill, N. Y., besides the lesser but yet good collections of Messrs. Ellwanger and Barry of Rochester, N. Y., Messrs. Parsons of Flushing, L. I., Messrs. Hovey & Co. of Boston, Mass., and Messrs. Hoopes & Brother of West Chester, Pa.

Scattered through the thirty-two volumes of our Magazine, covering a space of thirty-two years, will be found almost everything worth knowing regarding the really hardy coniferous trees,—all that have come out unharmed after the sad experience of the winter just past. What the milder winters of the Middle and Southern States will admit of being done in those localities, we have only had some partial information from time to time, but fortunately we are now supplied with all that is known up to the present period of the growth and character of a very large number, including many which could only be grown in the greenhouse at the North. This information is given in a handsome and interesting book by Joshua Hoopes of West Chester, Pa.*

As we have said, America is rich in evergreen trees, but unfortunately, they are, the larger part of them, natives of the Southern States, or of the North-West Coast, and as experience has now proved, but few of them are to be relied upon in the North and East. A great many of these species, first introduced to Europe, have been imported at great expense, and planted by amateur lovers of the coniferæ, and

* The Book of Evergreens, a Practical Treatise on the Coniferous or Cone Bearing Plants. By Jos. Hoopes. Illustrated. New York, 1868. Pp. 436.

they have done so well that hopes were entertained that they would prove rich acquisitions, and add to the variety as well as beauty of every collection; but, alas, the winter of 1867 and 1868 has dispelled these hopes, as the blackened, withered branches of numerous species, many of them of very large size, too well attest. Mr. Hunnewell of Wellesley, and Mr. Sargent of Wodenethe, have lost several of their finest trees, *Abies pinsapo*, 12 feet high, *A. cephalonica*, 18 feet, Lawson's Cypress, 10 feet, and others, equally large and fine, are, to use Mr. Sargent's own words, "as brown as snuff." Nothing, he says, looks green, "except *Retinosporas*, which are perfectly hardy." On our own ground the Lawson's Cypress, 6 feet, *Washingtonia*, 8 feet, *Thujaopsis borealis*, 6 feet, European Silver Firs, 12 feet, are quite dead, and even the beautiful Nordman's Fir, is slightly browned. Only once in twenty years have these trees been injured so much; this was in 1857.

The time is opportune, just now, to make out a complete list of the hardy coniferous trees, those that under any and all circumstances will stand without serious injury; we say serious, for a tree that is badly browned or its terminal branches killed, is unfit for a prominent position on the lawn or in a plantation; they may do in some positions, as specimens of a complete collection, but as ornamental objects their value is gone. We already have had some valuable information on this point, communicated by the Hon. R. S. Field, in his excellent article in our last volume. He has condemned many of the trees which have been thought hardy, and which he had hoped himself would prove so. Planted in the most favorable locations, reared and tended with every attention, these have been disfigured by the severity of the winters, until nothing remained of their real beauty.

We hope to learn from Mr. Field how the winter has affected his many beautiful specimens, particularly the Silver Fir, which he thinks one of the FOUR he would select among all the numerous kinds he has experimented with for general purposes. If his trees have suffered as our own have we think he would leave out the European Silver Fir, as noble a tree as it is; but New Jersey is milder than New England,

and perhaps they have come out unharmed. A very beautiful tree, fifteen feet high, was killed to the ground, and every specimen has from one-third to two-thirds of the top marred.

One of the very best of the Spruces, though but little known, has proved to be among the very hardiest, quite as much so as the Norway; this is the *Abies orientalis*, a real gem, as symmetrical as the Norway, less coarse in its branches, much more dense in habit, with leaves not one-third the length, set closer on the shoots, and of the deepest and richest green. We have been surprised that more has not been said about it. Loudon, when he published his *Arboretum*, in 1838, did not know it, and he quotes the opinion of M. Loiseleur Deslongchamps, that *A. orientalis* is only a variety of the American *A. alba*, showing how mistaken even a careful observer may be. The two trees have, apparently, no similarity, certainly not so much as the *A. excelsa* and *orientalis*. We have trees ten feet high, and they are the finest of all the positively hardy spruce firs. Mr. Field enumerates it among the species of *Abies* in his collection, but he does not particularly allude to it, and we infer his specimens are yet small, otherwise one who so fully appreciates the character of each tree, could not well omit it.

Enough has now been learned to make out a list of valuable evergreen trees for our Northern climate, and another list of those which succeed for a greater or less period, until such winters as the last occur, when they fail entirely, and a succession of young plants must be ready to take their place. For arboretums, or pinetums, or collections of coniferæ, this loss, though great, is not so serious, or of so much importance as when a few trees are planted out in particular positions which they are intended to fill for a lifetime, where their loss cannot be made good.

What we need,—what the mass of planters require,—is not what are the peculiar merits of a hundred species and varieties, be they ever so great, but will they stand our climate, can they be depended upon? Gentlemen forming collections of all the coniferous trees will wish to know something about every kind they intend to plant; but, after all, the great question is, to know, what long experience only can establish—

the real hardness of every tree intended for general planting. As something towards this end we shall endeavor as soon as possible to give a list of all the trees, as far as we can ascertain, which have stood the winter without the least injury; also a list of those which suffered more or less. We hope in this to have the aid of our amateur planters, and trust that Mr. Sargent and Mr. Hunnewell will supply us with what information they possess. It will serve as a guide to young planters, and enable them to avoid the mistakes of zealous and enthusiastic amateurs; and it will encourage them to persevere, when great losses would dampen their ardor, and perhaps induce them to give up all attempts in the introduction of evergreens.

Loudon's *Arboretum*, published in 1838, the last and greatest work of this author, completely exhausted the subject of Arboriculture up to that period, and nearly all that has been published since has been in the main a repetition of the information he gathered together. To know all about trees the planter should consult the splendid volumes of Loudon. But as the acquisitions to the coniferous trees have been very extensive since 1838, we are indebted to Carriere, Gordon, and other writers, for the information regarding them. Gordon's *Pinetum*, published in 1860, enumerated and described nearly all the additions, and though less important than Loudon, contained much that was new, valuable and interesting regarding new coniferous trees. These are all foreign works, and give us the experience of the authors in another and very different climate from our own.

Mr. Hoopes, in his book, gives us information adapted to our own country, and bringing to his aid all that is valuable in Loudon and Gordon, gives us a work highly creditable to the arboricultural taste of the country. Indeed, we have been surprised to hear of his success with many of the coniferous trees, which we had supposed too tender for the locality of the author, and congratulate those who enjoy the same advantages of climate, at the rich treat in store for all who wish to add the great number of fine species to their plantations. While we at the North must rely upon some dozen or more of the various kinds of Pines, Spruces, Thujas,

&c., the southern planter can count his two or three hundred species and varieties of the tribe, natives of every portion of the globe—from the rich valleys of California, the hills of Mexico, the Andes of South America, the Alps of Europe, the Himalayas of Asia, the Peaks of Japan, and the regions of New Holland.

The volume is divided into thirteen chapters, the Chapters from 1 to 9 being devoted to the Growth and Management of the Trees, such as Soil and Planting, Propagation, Pruning and after management, Evergreen Hedges, Diseases and selection of varieties. Chapters 9 to 13 contain a descriptive account of all the species and varieties, comprising the greater portion of the work. It would be gratifying to go over this part of the book, and note the views of the author on some of the kinds he enumerates: but this would occupy more space than we have at command. All planters and amateur cultivators of the conifers will wish to consult the work, and our brief notice is only intended to attract attention to a subject too little considered, but of great importance in the decoration of our public and private gardens, our parks and conservatories. The volume closes with a brief notice of the old Bartram garden, and two or three other places around Philadelphia, and of the collections we have already referred to in the first part of our paper.

As a specimen of the author's views on the formation of Evergreen Hedges we copy the following, which will interest all who wish to have a good hedge:—

Nothing, in our opinion, is so peculiarly attractive in a well kept place, as an evergreen hedge, neatly and frequently trimmed; and nothing really injures the appearance of a place more than one that is neglected and allowed to grow at will. Either as an ornamental boundary, or for a protective screen, no class of plants can equal those with persistent or evergreen leaves. Always green and cheerful throughout the whole year, an impassable barrier to winds and storms, easily clipped, and remarkably beautiful when properly cared for, of rapid and dense growth, and comparatively free from disease, they comprise indeed nearly all the requisites needed for a hedge.

True, they cannot be formed into a defensive barrier against the incursions of unruly cattle and the depredations of the fruit stealer; but in beautifying our homes and endeavoring to create additional attractions in their surroundings, we desire something more than the merely practical; and we therefore insist that there can be no place, however small, but what may receive an added charm by the introduction of a neat evergreen hedge, such as we have described. Such improvements are invariably associated with good taste and refinement.

Evergreen hedges may very properly be divided into two distinct classes, which, in the planting, selection of varieties, and after-management, differ very essentially from each other: first, those intended strictly for shelter or to conceal unsightly objects; and secondly, the true ornamental hedge. The former requires less care, and is intended mainly for the unfrequented portion of the grounds, and very frequently needs no attention, excepting an occasional clipping of the stronger branches and a heading-in of the taller plants.

What is needed more particularly in a screen or barrier to break the force of storms, is a strong growing, hardy species that is not easily affected by the wind, and such we find in the hardier class of pines and spruces; as the White, Scotch, and Austrian Pines, and Norway Spruce.

Although we find the common Red Cedar (*J. Virginiana*), Chinese Arbor Vitæ (*Biota orientalis*), and common Juniper (*Juniperus communis*), occasionally recommended for this purpose, we are compelled to discourage their use owing to their unfortunate habit of dying out near the base, and thus disfiguring the symmetry of the screen as well as opening a passage for the cold winds. This may not be the case throughout the West, and indeed Dr. Warder, in his work on Hedges and Evergreens, maintains the contrary opinion; but in the Eastern States we have frequently noticed this drawback to their culture. The late William Reid of Elizabeth, N. J., than whom no more skilful hedge-grower could possibly be found, stated to the writer that these plants would never answer the purpose, and that after several years of patient trial he had entirely given them up. The American

Arbor Vitæ (*Thuja occidentalis*) affords an excellent protective screen, in a small place; but on an extensive scale, we prefer the pines and spruces.

The true ornamental hedge, to please the eye by its symmetrical proportions, and richness of color, should receive a full amount of care and attention, for the neglect of one season will very frequently cause it to become disfigured to such a degree as to require several years to rectify the damage caused by the remissness.

After determining the location for the hedge, the ground should be ploughed or dug deeply, about four feet (or even more) in width, and the plants set along the centre of the pulverized strip. The proper distance apart for the plants will be determined in a great measure by their size and the species used. We prefer the height from twelve to fifteen inches for arbor vitæ, hemlock, and other plants of medium and slender growth. In large screens, this distance must be modified, and the plants set three, four, and even a greater number of feet apart, according to the required density of the screen.

Nothing further is needed during the first season than to trim off the tops of the larger plants, or an occasional side shoot, that projects out further than the main portion of the hedge. Always bear in mind that the ground must be kept scrupulously clear of weeds, and be frequently stirred. Mice very often attack a neglected hedge, but very seldom a clean, well cultivated one. In stirring the soil, the hoe or cultivator should not run so deeply as to destroy the numerous small rootlets with which the coniferæ are so abundantly furnished. We usually scatter a slight dressing of well-rotted manure over the surface of the soil during the winter, and thus at the same time protect the roots and furnish nutriment for the ensuing season's growth.

The second year the plants ought to make a reasonable growth, and a clipping during the summer will be required in addition to the regular autumnal shearing. If inclined to grow strongly, a frequent trimming will be beneficial, as it should always be the aim of the cultivator to produce an impenetrable mass of foliage, especially at the base of the

hedge. The requisite shape should also be given as soon as circumstances will permit.

We prefer the curvilinear form for many reasons, the most practical of which is its ability to shed a heavy weight of snow that would otherwise adhere, and by pressing out the side branches, mar the beauty of the hedge. Novices must always bear in mind that it is very easy to produce a tall hedge, but to form one with a close, broad bottom, requires frequent trimming, and a proper amount of attention; for after the hedge is grown, this cannot be accomplished. In after years, when the hedge arrives at its required height, all that will be necessary is the frequent use of the shears, and due attention to keep the weeds and other strong growing plants clear from the row.

SEASON FOR PRUNING CONIFERS.

Many intelligent cultivators utterly disregard all set times for performing this important operation, under the belief that the best season to trim is when they have the most time to devote to it. There is, no doubt, an advantage to be gained by this course, but there are principles that govern this operation, as well as those of planting, propagating, etc.

In a *young hedge*, for the first two or three years, we do not desire to trim severely, as the object should be to encourage, not weaken the growth, and consequently our own practice has been to cut them but once in the season, say in October, and when the young shoots have ripened, but not by any means after freezing weather sets in. One main reason for not pruning late in the autumn is, that after the external portion of the hedge is removed, the inner and weaker parts are then exposed, which, being in a very tender state, are liable to become injured by evaporation and sudden changes of temperature. In an older hedge, the object in pruning is to weaken growth, and this is best gained by pruning early in the month of June. At that season the immatured shoots are suddenly checked by being cut back, and the growth weakened very materially in consequence. A second trimming is also given the hedge in October, to bring it into shape.

The same principle governs the pruning of specimen evergreens. When we wish to weaken the growth, trim the

young shoots early in the season ; but on the contrary, if we desire a stronger growth, cut back in the autumn after the shoots are ripened. Operation and practice will soon teach the operator many facts in relation to this subject that cannot be learned in any other way, as much depends upon the object we desire to accomplish.

We again commend Mr. Hoopes's book, and place it among the most interesting of American Arboricultural works, and shall embrace an early opportunity to give the author's experience, and his estimate of some of the most prominent and desirable kinds for general culture.

FORMER MISCELLANEOUS EXPERIMENTS IN FRUIT CULTURE.

BY WILSON FLAGG.

CLOSELY connected with the physiological principle considered in my last Essay is the theory first put forth by Mr. Andrew Knight, that scions partake of the age and infirmities as well as the specific characters of the stalk from which they are taken. If the original tree, for example, from which they were first separated is 300 years old, all the scions taken from that tree, and all taken from trees that have been produced by grafts from that tree directly or indirectly, have the age and infirmities of the original tree, while it remains unaffected by accidents. In the words of Mr. Bucknal, "though these trees may amount to millions, yet on the death of the primogeneous or parent stock, merely from old age, or nihility of youth, each individual shall decline, in whatever country they may be, or however endowed with youth or health. I say they shall gradually begin to decline, and in the course of time, or of centuries, the *whole variety* will scarcely have a single tree remaining to show what the fruit was.

Mr. Knight, who originally propounded this theory, says in

his "Pomona Herefordiensis"—"Those apples which have long been cultivated are on the decay. The Red-streak and the Golden-pippin can no longer be propagated with advantage." He concluded from this fact, that the *fruit* and the *trees* propagated from the stock of these varieties were affected by the old age of their stock. Certain later experiments with grafting other kinds on the branches of these deteriorated trees, seem to prove that the deterioration affects only the fruit, leaving us to infer that no such decay affects the tree itself. This theory of running out or degeneracy, or old age, however it may be designated, has been the subject of a great deal of controversy, which is still very far from being concluded. The deterioration of some varieties in certain localities is a fact not denied; but is it from a disease of the tree or the fruit? Does it proceed from the old age of the stock, or from a peculiar disease incident to it? Then the question arises, is it incident to it in all places or is it exempt in certain localities? A great many positions may be taken in order to explain this circumstance, and in proportion to their number is the difficulty of forming a definite conclusion.

The "old age" theory was opposed by Speechly, who called it a visionary notion, and by others who proved that they had trees of these degenerate varieties still in healthy and productive condition. It was still more lately denied by Mr. Lindley, who bears testimony that many varieties supposed to be extinct in Great Britain, are found prospering and bearing good fruit on the Continent of Europe and in the United States. Mr. Lindley, while admitting that certain kinds of fruit may have *run out* in certain districts, from some disease which they transmit through the scion to the plants raised from it, does not believe in the *old age* hypothesis. He affirms that no such thing as old age can be applied to trees. "In plants we have annuals, biennials and perennials, to the last of which belong all trees and bushes. Now wild perennial plants, whether woody or herbaceous, whether forming a trunk or a mere permanent root, have never yet been shown by any trust-worthy evidence, to be subject to decrepitude arising from old age. On the contrary, every new annual growth is an absolute renewal of their vitality, in

the absence of disturbing causes. Hence the enormous age at which trees arrive."

This reasoning is not strictly philosophical. A tree will in the course of time inevitably perish: and though scions from a tree that is about to perish from dilapidation and decay, might produce trees that would live another life as long as that of the parent, the original tree must at last die. The interior part of a tree gradually hardens and becomes dry, and the innermost core may be three thousand years old, while the outer and indeed the only living part is really no older than the youngest bearing tree in a nursery. The only living part of any tree, if it be an *exogen*, is what has grown during the two or perhaps three past years. But the trunk and the branches of a tree, not having the power to expand beyond certain limits, and only in certain directions, must finally become dilapidated, by the decay of those parts which have ceased to have vitality, and which constitute its framework and support. This constitutes what we call the old age of the tree. Each new annual growth being at length but feebly supported, on account of the dilapidation of its framework, will finally perish. The new annual growths become less from year to year; one limb after another perishes: and this condition of the tree may properly be called its old age.

Now the question arises, whether a young scion obtained from one of these antediluvian trees, or from any other tree that is perishing with decay, and properly grafted into a vigorous young tree of the same species, is capable of as long and vigorous a life, as a scion from a young seedling, grafted into a similar stock? According to all well ascertained laws of vegetation, we should answer this question in the affirmative. The scion taken from the old tree is in fact as young as the scion taken from the young seedling; and it would have perished, if it had remained on the aged parent stock, only from the incapacity of that accumulated mass of wood, any longer to sustain its position in the ground, from its dilapidation. The tree is old, but the scion is young. Indeed if a scion from a young seedling were grafted into this old tree it would perish, just like the recent shoots of the old tree itself, and from the same cause.

This propagation by buds is in fact a perfect system of in-and-in breeding; and carries with it consequently more of the constitution and habits of the parent, than the true seed, which is the offspring of *two* parents. Nature has provided *buds* and *bulbs*, for *perpetuating the individual*; but she has provided seeds, originating from the union of the sexes, for the *perpetuation of the species*. Hence it must be admitted, that the doctrine of Mr. Knight, for all practical purposes, is correct. The tree has not perished nor grown old, as he supposed, nor has it become incapable of bearing other kinds of fruit, when grafted into it; but it is no longer capable of bearing its own original fruit. The St. Michael pear trees bear leaves and branches apparently as healthy as those of any other trees; and they will, if grafted, bear other kinds of pears; but they can no longer produce good St. Michael pears. This circumstance cannot certainly be attributed to the old age of the tree. At the same time, it cannot be denied, that in certain localities this variety of fruit has been long *run out*. Dr. Munson of New Haven has grafted another kind into the St. Michael pear, after it had ceased to bear good fruit, and obtained excellent crops of good fruit of the new kind; and he attributes the degeneracy of the St. Michael to a parasite, which he describes, and which affects, in certain districts, all the delicate and thin-skinned pears.

There is still another theory which is termed *reversion*, that remains to be considered. As stated by Lindley "there is strong tendency in plants from seeds of cultivated fruit trees of high quality to *revert* immediately to the state of wildings;" and he refers these sudden changes to accidental cross-breeding with the flowers of some wilding stock. We see frequent instances of this reversion in the culture of annuals. The seeds of a double poppy, for example, if sown in a very dry and sterile soil, will produce single flowers. This reversion to the wilding state was observed in the first European fruit-trees that were raised from seed in North America. Thatcher remarks in his "American Orchardist" (one of the earliest American publications on Fruit Culture) "a hundred seeds of the Golden Pippin, which have a small leaf, will produce large leaved apple trees bearing fruit of

considerable size: but the tastes and colors of each will be different, and none will be the same in kind with the Pippen. Some will be sweet, some bitter, some sour, some mawkish, some aromatic, some yellow, others green, red or streaked." From these and a number of other similar facts Lindley drew the inference that the climate of North America is unfavorable to the apple and pear, as he doubted the theory of *reversion*. The number of facts was too small, however, to serve as the basis for any such conclusion.

Both the apple and the pear thrive perfectly well in our climate, even as far south as Georgia; and it is admitted, at the present day, that no country in the world produces finer apples than many parts of the United States. The degeneracy mentioned by Thatcher was undoubtedly caused by the want of high culture which is necessary for all seedlings, to maintain their superior qualities unimpaired.

Considering the frequency of this reversion to a wilding state, when the seeds of double annual flowers are planted in a soil too meagre to support their artificial character, it seems reasonable to believe that the same reversion must frequently take place in the product of seeds of improved varieties of fruit, planted under circumstances unfavorable to this high condition. It need not be doubted that if the seeds of a hundred of the best varieties of the apple and the pear were sown in a forest, and were to grow up and mature their fruit, without any culture from first to last, the greater part of the fruit would resemble that of the original wildings. Let the same number of seeds of the same varieties be sown in the most favorable soil and situation, and reared under the most favorable conditions of culture, and the larger number of them would yield fruit as good as that from which the seeds were taken.

This opinion is corroborated by the experiments of Dr. Van Mons in the opposite direction; whose experiments were not long ago the subject of a great deal of controversy. Dr. Van Mons planted the seeds of the wild crab, and subjected the seedlings to the highest possible culture. When these bore fruit, he planted the seeds of this fruit; and proceeded in this manner through several successive gen-

erations, subjecting each offspring to the highest culture. By this process, and without crossing with any improved varieties, he finally obtained new kinds of fruit of the greatest excellence.

From such experiments and such results we have the right to infer, that by leaving the offspring from the seed of the most improved varieties of fruit, to a natural soil and natural conditions, they would, after a few generations, revert to the state of wildings. We see this principle illustrated in the case of domestic animals as well as plants, if they are allowed to run wild for several generations in the woods.

The theory of Dr. Van Mons is founded on the hypothesis that trees, like animals, have a certain period of youth, maturity, old age and decay, and that all trees which are the offspring of scions from one individual stock, partake of the age of this parent stock, and must perish nearly about the same time when they would have perished had they remained on the parent tree. Upon this supposition Dr. Van Mons reasoned, that *seeds* from any stock enfeebled by cultivation would also, like scions, partake more or less of the debility of the parent; and that the true method of regenerating the fruit of our orchards is to resort to the seed of the original wild stock. But as the immediate products of a seedling thus obtained would differ but little from the wilding, he subjected each generation of seedlings to this high culture. After the highest development has been thus obtained, all the new varieties will from their seeds reproduce the same or similar high qualities in their offspring, while the same culture is continued. Whatever theory we may employ to account for either the improvement or the degeneracy of fruits, it is admitted on all sides that all improvements are in some way or other the effects of high culture.

INSECTS AND FUMIGATION.

FROM THE GARDENERS' CHRONICLE.

NOTHING is so annoying in the culture of a collection of plants as the depredations of various insects, particularly the thrips and aphids. When everything appears to be flourishing with vigor, and the gardener or proprietor congratulating himself on the freshness and beauty of the plants, a foe is at work unseen, which will, sooner or later, if neglected, despoil and almost ruin every specimen. They begin so gradually that only the observing eye of the enthusiastic man will discover them; and they increase with such rapidity, that before one is aware of much danger, they have already done great damage. Constant vigilance is therefore necessary to keep a collection freed from insects; and even the utmost attention will often fail to prevent more or less injury.

Fortunately we have remedies for these pests, which are easily applied, and when done in season will check their ravages, if it does not wholly destroy them. These remedies are whale oil soap, tobacco soap, and the new chryselic compounds, the last of which are said to be excellent, though we have not experimented with them. But for the aphids and thrips, the last one of the most destructive pests to many plants, fumigation with tobacco is perhaps the easiest, surest and best. Tobacco is cheap, and fumigation, when well done, is sure to destroy them.

But the operation of fumigating plants is generally very imperfectly done, often injuring many delicate plants, if severe enough to destroy the insects on others, and care and attention are required in all cases, especially where there are rare or choice plants. We believe the work is so imperfectly done that we have thought some hints would be useful as a guide to amateurs if not to the professional man, and we know not how we can offer better or more important advice than we find in the annexed article. It covers the whole ground, and if carefully followed we should have much finer and cleaner looking plants than are often seen:—

There is probably not a single operation in gardening handicraft attended with more difficulty and danger than fumigation. To counteract insect supremacy over plant life some corrective measure is absolutely essential, and the difficulty and danger lie in administering a dose or doses potent enough to effect the desired object without infringing upon the vitality, and disfiguring the appearance of the plants.

The chief insects which fumigation by tobacco in one state of preparation or another is powerful enough to exterminate, are the aphid and the thrips. Both multiply with great rapidity, and although the former is comparatively harmless as compared with the latter among a collection of plants, both are dangerous enemies. Aphides are ubiquitous in their ravages, both on foliage, flower stems, and flowers. Thrips, although it does not confine its operations to any common spot as a rule, shows a disposition to infest the foliage, dealing such an amount of devastation if not instantly dealt with, as those in charge cannot but look upon with the greatest concern. The former discharges quantities of excremental matter of a glutinous description, after the character of honey-dew, or the corresponding excrement of scale, and almost seals up the pores of not only the foliage which it infests, but all immediately under its influence. The thrips has no such capacity. It confines its influence to the ground upon which it travels, but its very breath is poison, and its power of boring and sucking the life-blood from the leaves is wonderfully apparent. At the outset faint zigzag lines are traceable, in a short time the ground has been traversed, longitudinally, diagonally, horizontally, until it would defy the most careful scrutiny to follow the labyrinthine path; the leaf gets powerless from sheer exhaustion, and in time falls off quite decayed. This is a sample of the work of the reddish-gray thrips, the smallest and most destructive of the race. It is found in many East Indian Orchids, and a prompt remedy must be the rule absolute.

The white and black thrips are common to azaleas and several other hard-wooded exotics, and are found often among such soft-wood plants as have been mismanaged, such as pelargoniums, fuchsias, cinerarias, &c.. They seem to be

generated and prevail in high temperatures, for one scarcely can pull through the season a collection of gloxinias or achimenes without their presence. The same remark is applicable to hippeastrums and liliaceous plants requiring artificial heat. Among ferns they are very common. Their system of action is more gregarious than that of the small reddish-gray thrips, and more similar to that of aphides, with which they often keep up the most intimate companionship. Their operations have much the appearance of the "spot" malady. Of course the mischief at first is superficial, the green leaves being covered over with white blotches of irregular outline. The insects seem to gnaw away at the epidermis, like a quadruped selecting its food in a field, first at one patch then at another, as if one portion of the leaf was more delicious to the tiny palate than another, until death, as represented in the case of the cognate species, ensues. Slight black orbicular excrescences may be observed on examination, but they are the larvæ of the insect. Looking at and closely watching the operations of the insect in question, and of the aphides upon a common field of pasture, the thrips completely cuts the ground from beneath the feet of the aphid, and but for the plentiful pasturage of a greenhouse full of plants, they would be compelled to die of inanition. The insects migrate but the larvæ cannot, and they too, like the leaves, die.

My own opinion is that 10 thrips of any of the kinds, will do as much damage to plant life as 100 aphides. The one is lymphatic in its action and stolid in its movements; the other is as nimble as a shrew, making off at the first appearance of danger, and as wily as a fox in returning to its prey.

Powders, and insecticides in the shape of powder, can only be partially effectual. True they do not injure the plants, but the insects which they fail to reach are not the less slow because some of their fellows have been unfortunate. I would not look at any remedy that did not imply extermination. It is mere child's-play, and an extravagant waste of time peering about in search of insects with a dredging machine, and could only be tolerated out-of-doors where fumigation is impossible. Thrips especially will avoid it, and seek out a hiding-place with the greatest expedition. I should

have far more faith in attaining the object desired by simply moistening the finger and thumb, and dispatching them in that way, than by any other specific recommended, short of tobacco fumigation.

But I have said, and this can be endorsed by every practitioner, that tobacco fumigation is dangerous among some orchids, the majority of ferns, pelargoniums, fuchsias, some of the arads, such as caladiums, gloxinias, gesneras, foliage plants of all descriptions, and the grape vine. What is to be done? Every establishment is visited with the insects, and some remedial measure must be resorted to. If the fumigation were potent enough to rid the houses of these insect pests, then a careful application would be harmless in its effects; but in the case of thrip it requires at least three consecutive ones to vanquish the living insects, and one more a little while afterwards to subdue the larvæ, at least such of them as arrive at maturity and locomotive power. Before any one is in a position to order his houses to be fumigated, he must estimate and provide in some way or another against the following disturbing causes: he must in the first place, if valuable plants are concerned, make an assortment of these that can withstand ordinary fumigation from those that cannot; he must endeavor to fumigate only when the smoke is likely to remain at a minimum stillness in the house; he must, if in a tropical atmosphere, arrange that the temperature be reduced to a minimum, before a single puff of smoke is emitted; he must see that the foliage of the plants is dry—at least in the sense in which it is generally interpreted; he must have discouraged all along a temperature and an atmosphere favorable to elongated and etiolated stems and foliage.

After having made due provision against all these likely occurrences, the fumigator must be enjoined, and the dictum must be enforced, to avoid the issue of flame, and to endeavor to send out the smoke as cool as possible. It is premised that a proper article in the shape of tobacco-paper is provided, else all these essential precautions are good for nothing. A bad article will ruin a house of plants, and if there be one thing more necessary than another for something like discriminative power on the part of the practical gardener, it is in regard to

this particular. The paper ought to be thin, and well soaked with liquor of the most genuine description, no matter the price. If it be so, very little harm will ensue, all other things equal. Thick paper and rags I look upon with detestation, for as "burnt bairns dread the fire," so have I by experience suffered—allured by the dense wreaths of smoke and the rapidity with which the house was filled. It is scarcely possible to escape injuring tender plants from thick paper or rags, however well they may be soaked with tobacco juice; and then it is not half so effective an agent of destruction to the insect pests, owing to the quantity of smoke that intermingles with the pure tobacco from the fabric. But it is in the taking fire that the danger lies, and when the house is tolerably full, it is not easy for the operator to avoid the contingency.

All very tender plants should be fumigated in a lofty house. You may fumigate such things as azaleas at certain periods of the year with a very ordinary quality of tobacco-paper, without injury, in a confined atmosphere; and the same remark applies to many New Holland plants, some of the Orchidæ, such as *Vandas*, *Aerides*, and even *Phalænopsids* and *Saccolabiums*. All these may with impunity be practised upon in that way, but if some *Odontoglots*, *Oncidiums*, *Lycastes*, *Anguloas*, especially when they are making young growths, almost any of the ferns, *gloxinias*, *fuchsias*, were so treated, not one single individual would escape without some mark of disfiguration. The best way certainly to avoid bad consequences is to convey them to a lofty house, of a cool temperature, and shade them for days from sun influences. Do this and you may fumigate for three successive nights, and incur but a small percentage of damage. Fortunately the vine is not subject to insects, unless it be red spider, else it would be almost an impossibility to carry on fumigation with tobacco, without a sensible amount of injury being produced. There is more in the study how to engender a proper condition of plant-life than some people imagine. I have seen houses of plants coddled to that degree that I would not upon any consideration have incurred the responsibility of advising their fumigation; far rather would I in that case have called to aid all the insecticides in the

market, trusting to patience and praying for a lynx-eye in behalf of the guardian who was expected to do the job. One has only to try such a hardy, beautiful primrose as the *Primula cortusoides amoena*, after having been for some time grown in the greenhouse conservatory, in an atmosphere of smoke, in order to attest the accuracy of the foregoing observations as to coddling.

What is really wanted for everybody is first-rate tobacco-paper and a fumigator sufficiently powerful, with a little fanning, to keep up an uninterrupted volume of smoke, without causing the paper to be ignited. With regard to the former, there is too much adulteration in the market, and our nurserymen vendors can scarcely be held responsible for it. If there were such a thing as an emporium to which we could look for a genuine article, there is a fortune to be made in that simple article, the demand being co-extensive with the progress of gardening. Give us that, and we could put up with the tubular sheet-iron pot, content with improvising a very simple receptacle, so long as we had an innate satisfaction that the smoke that was issuing from its mouth, would suffocate the insects, without injuring the plants.

POMOLOGICAL GOSSIP.

SINCE our Report of the last Meeting of the American Pomological Society, the Proceedings have been published, and a copy is before us. It forms a handsome volume of two hundred pages, with the Revised Catalogue of sixty pages additional. It is well printed on good type, on clear paper, and will compare favorably with any of the previous Reports. The work has been carefully revised by Mr. Elliott, the Secretary, who has been aided as much as possible by the President, and we think there are fewer errors than in any previous copy.

Our report left off with the discussion on grapes, and the observations on European grape culture, by Messrs. Wilder

and Barry. Pears were then taken up and discussed as follows:—

CLAPP'S FAVORITE.—Barry had not had it in bearing, but had watched it closely. Mr. Clapp marketed his fruit August 20. A remarkably fine fruit, full of juice, sound at the core, not of the highest quality, not very vinous; but the flavor is pleasant, a first class pear. Smith said it was a first-rate bearer; it is sweet and rich. Elliot fruited it last year. It is a week earlier than Bartlett, and one of the best pears. The President said it was the largest, handsome early pear we have. It is productive, and lacks nothing to make it a first class pear; the habit of the tree is excellent, and it is handsomer than the Bartlett. Barry had fruited it, was two weeks earlier than the Bartlett.

EDMUNDS.—Barry said it was an excellent fruit, not handsome in shape, but a large pear, with a long stem and first-rate as to quality. It grows finely on the quince. The President thought highly of it. Downing said it was a pear of first quality with him. [We are somewhat doubtful of its being well adapted to the quince: our oldest trees do not keep up with such sorts as *Beurré d'Anjou*, *B. Diel*, &c.—Ed.]

JULIENNE.—The President said it was old, and discarded years ago; yet it is a tolerably good early fruit.

HOWELL.—Good at Rochester; one of the three best at the West. Good in Ohio, Keokuk, Iowa, Boston, and Southern Illinois, and a fine market fruit.

BEURRE SUPERFIN.—Barry said it was generally a very fine pear.

STERLING.—The President said it was a handsome, early, red checked pear, and a good market fruit, of medium quality. It is a good tree.

BEURRE DIEI.—Cracks around Boston, in Illinois and Southern Wisconsin. Does well in St. Louis. Barry asked if it cracked every year? All pears cracked occasionally. The President and Dr. Warder said it cracked every year, and also shed its foliage. Heaver of Cincinnati said it was one of the best with him. Douglas of Waukegan, Ill., and Hoag of Lockport, N. Y., said it failed.

BEURRE D'ANJOU.—One of the best at St. Louis, also at Alton, and at Syracuse, N. Y., fine at Geneva; good at

Waukegan. The President said it was his great favorite out of twenty-five hundred bearing trees, as he introduced it. His crop was one hundred bushels, which was engaged beforehand. It is a profitable market fruit. It bears abundantly, and succeeds admirably on the pear. It is not very late in bearing, and every pear is a good one. It keeps till December.

SHELDON.—One of the best in Western New York. The President said no man can say else of it, he trusted. Manning said it was first-rate.

BEURRE CLAIRGEAU.—Barry said it was a handsome, productive fruit. The President said it is handsome, sometimes very good, and sometimes very indifferent as to quality. But it is beautiful, and sells well.

TYSON.—Dr. Warder said it did well in the West; a good tree; bears early; good fruit; delicious. Husman said it was nearly as good as Seckel, and very productive. The President said it was one of the very latest in coming into bearing. Coleman said it was the same with him. Hoag said it comes in in about ten years, but an excellent fruit.

SWAN'S ORANGE.—Fine in Ohio; splendid at Herman, Mo. Good market pear at Cincinnati; one of the best at Boston. Not to be left out of a collection of twelve anywhere. In North Illinois it ripens in November and December.

EASTER BEURRE.—No. 1 at Alton, Ill. Barry said it required thinning and high culture, and is one of the best. The President had tried it thirty years, and cannot succeed with it. Hooker said it was irregular at the West, but he feared it would have to be discarded. Dr. Hall said he was root-pruning it, and it did well.

LAWRENCE.—Good and fine, generally.

WINTER NELIS.—Best early winter pear at St. Louis; a fall pear at Alton; has been kept till April at Keokuk, Iowa. Mr. Manning said it was equal to the Lawrence.

FLEMISH BEAUTY.—Cracks in Massachusetts; rots at the core at Alton; fine in Iowa and Cincinnati; one of the best at Syracuse, N.Y. Blights badly in North Illinois. Valuable in North Indiana. Smith of Syracuse said if the trees were mulched early in the season the foliage would not drop.

BEURRE HARDY.—It is a pear of first quality, and a noble tree.

BEURRE BOSC.—Husman said it was the most valuable pear he had. It was commended generally.

VICAR OF WINKFIELD, OR LE CURE.—Dr. Claggett said it was worthless; Husman, that it was poor as a turnip. Heaver, the best winter pear he had. Dr. Warder said it was an excellent baking pear, though not valuable for dessert. Dr. Sylvester said it was good for cooking. The President said it was a productive and valuable pear, of moderate quality. Valuable for baking.

NEW NATIVE PEARS.—The Committee on New Fruits, Mr. C. Downing, Chairman, made a report upon the varieties brought to notice since the previous meeting. Some of them we have already described and figured, but the others are unknown to us, and we enumerate them:—

MARY.—Raised in Ohio, from the Seckel. Tree upright and vigorous, an early and abundant bearer. Fruit below medium size, globular, obtuse pyriform, occasionally one-sided. Skin, rich pale yellow, mostly overspread and dotted with bright red, flesh white, finely grained, almost buttery, juicy, sweet. Very good. Ripens before the Madeleine, the middle of July.

MARGARET.—Another of Mr. Wiegel's seedlings. Fruit medium size, lemon yellow, overspread with deep dull red, and russet dots and patches; flesh white, fine, juicy, vinous, sweet. Ripe the last of July, and early in August.

REEDER'S SEEDLING.—From H. Reeder of Varick, Seneca Co., N. Y. Mr. Reeder says the tree is about twelve years old, and was raised from a seed of the Winter Nelis, which grew near a Seckel, and is believed to be a cross. Tree healthy and vigorous, rather spreading in form, fruit small to medium, obovate. Skin yellow, netted with russet; flesh fine, juicy, melting, somewhat buttery, very sugary, vinous, perfumed with musk; quality best. Ripe in November.

The **RUTTER, ELLIS** and **GOODALE**, have each been fully described in previous volumes.

BRONX.—Raised by Jas. R. Swain of Bronxville, N. Y., about 1850. An early, regular and abundant bearer; fruit medium size, obovate, pyriform; skin greenish yellow, partially netted with russet; flesh whitish, juicy, melting, with a

sweet, slightly perfumed flavor. Somewhat musky, quality very good, if not best. Ripe in November.

FLORICULTURAL NOTICES.

NEW HYBRIDS OF COLEUS.—Amongst the subjects which have been successfully brought under the influence of the cross-breeder at the Chiswick Garden, a prominent place must be given to the genus *Coleus*, on which Mr. Bause has practised with results which are in every way satisfactory. A considerable number of hybrid novelties of this family has been raised, and a selection from these was exhibited on Tuesday last, at the meeting of the Floral Committee at South Kensington, where the plants attracted much attention. The plants operated on in this case were the following:—*C. Verschaffeltii* was throughout the seed-bearing parent. This was fertilized by *C. Veitchii*, by *C. Gibsoni*, and by *C. Blumci*, and in the offspring there is abundant evidence that true crosses have been effected. The novel forms which have been produced range in two series, the one having flat crenated leaves, as in *C. Veitchii*, and the other having inciso-dentate frilled leaves, as in *C. Verschaffeltii*, so that some follow in this respect the mother and some the father plant. The best of the forms, so far as yet developed, are the following:—

PLANE-LEAVED SERIES.

1. *C. Berkeleyi* (*Verschaffeltii* × *Veitchii*): leaves ovate acute, regularly crenate, the surface, both above and beneath, a rich velvety chocolate-purple, the tips of the crenatures only being green; stems green, slightly speckled and clothed with purplish down, the nodes purplish. A beautiful and richly-colored plant, in which nearly the whole surface is of a velvety purple hue, which is well displayed, from the flatness of the foliage.

2. *C. Marshallii* (*Verschaffeltii* × *Veitchii*): leaves ovate acute, crenate, rich chocolate-purple, the base of the midrib and the crenatures green, so as just to form a narrow green

margin; stems green, stained with purple at the nodes. This has a more apparent green edge than *C. Berkeleyi*, and is the plane-leaved counterpart, as to coloring, of *C. Bausei*.

3. *C. Saundersii* (*Verschaffeltii* × *Veitchii*): leaves ovate acute, crenate, deep chocolate-purple in the centre, somewhat mottled and of a pale bronzy tint towards the edge, which has a broadish band of green broken through with purplish bronzy reticulations; under surface blotched with purple in the centre; stems green, blotched with purple. The broader mottled green and bronze margin brings this near to *C. Veitchii*, to which it is, however, far superior in beauty. It may be considered as a very much improved form of that plant.

4. *C. Dixii* (*Verschaffeltii* × *Veitchii*): leaves ovate acute, crenate, dark chocolate-purple in the centre, feathering out through the broadish bright green margin, which is nearly an inch wide, the crenatures narrowly purple-edged; under surface similarly colored; stems green, blotched with purple. A very brightly-colored and effective sort, from the strong contrast between the rich green and purple. It is probably one of the finest of the whole series.

5. *C. Ruckeri* (*Verschaffeltii* × *Gibsoni*): leaves ovate acute, crenate, deep purple throughout on both surfaces; stems purple. A fine sturdy growing dark-leaved sort, having very much the color of *Perilla nankinensis*.

6. *C. Murrayi* (*Verschaffeltii* × *Gibsoni*): leaves ovate acute, crenate, green, pinnately marked along the principal veins with bars of dark purple, which sometimes coalesce, the rest of the surface showing through from beneath the purple reticulations, which are evenly and strongly marked on the under surface; stems purple. This is a more regularly and more fully colored form of *C. Gibsoni*, and therefore an improvement on it.

FRILLED-LEAVED SERIES.

7. *C. Bausei* (*Verschaffeltii* × *Veitchii*): leaves broadly ovate acute, inciso-dentate, subundulate, of a rich velvety chocolate-purple, green towards the base and at the extreme margin; under surface slightly blotched with purple; stems green; purplish at the nodes. A fine distinct-looking plant,

richly colored, the dark color nicely relieved by the slight green margin, which lighten up the whole plant.

8. *C. Scottii* (*Verschaffeltii* × *Gibsoni*): leaves cordate ovate, acute, inciso-dentate, the teeth, as in the other varieties of this series, forming a kind of coarse frill to the leaf, bright green, everywhere traversed by deep purple veins, here and there coalescing into blotches, the under surface similarly marked, but of a brighter color; stem purple. A very distinct and elegant plant, having the markings of a deep tint of purple, but well relieved by the green spaces between the dark-colored reticulations. This and the preceding will probably prove to be the best of the frilled-leaved series.

9. *C. Clarkii* (*Verschaffeltii* × *Gibsoni*): leaves cordate ovate, acute, inciso-dentate, sub-undulate, green above, with the edge of the teeth purple, and showing through the dark purple variation with which the under surface is almost everywhere marked; stem purple, mottled with green. One of the darker tinted sorts, having the markings of the reticulated character.

10. *C. Batemani* (*Verschaffeltii* × *Gibsoni*): leaves cordate ovate, acute, inciso-dentate, sub-undulate, deep purple above and beneath, here and there very slightly mottled with green; stem purple. This variety may be regarded as the incised counterpart of *C. Ruckeri*, having almost self-colored, deep purple leaves.

11. *C. Wilsoni* (*Verschaffeltii* × *Veitchii*): leaves ovate acute, inciso-dentate, of a rich velvety chocolate, shaded with purple, the base of the leaf and the teeth slightly tipped with the same color; under surface freely mottled with purple; stem green, mottled with purple. A very elegant mottled-colored, frilled leaved sort, quite distinct from any of the foregoing.

12. *C. Reevesii* (*Verschaffeltii* × *Blumei*): leaves ovate acuminate, inciso-dentate, filled with coarse wavy teeth, green, mottled with bronze and purple, sparingly dotted towards the base, and laid on in close reticulations and patches towards the edge, the centre being deeply tinted and entirely of a dark color, and the teeth green, with narrow purple edges; stem green, blotched with purple. This, as

the cross would lead one to suppose, is a much less deeply colored plant than the majority of those previously noticed.

Now that the colored-leaved plants are applied to so many uses in ornamental gardening, we cannot but regard these new hybrids of *Coleus* as most valuable acquisitions, both for in-door and out-door purposes, and they will doubtless not be long in making their way into the hands of cultivators. We may therefore heartily congratulate M. Bause on the result of his labors in this direction. The plants, as elsewhere mentioned, will be put up for competition among the trade, for distribution throughout the country.

SCHIZOSTYLIS COCCINEA.

BY THE EDITOR.

AMONG the plants of recent introduction the *Schizostylis* hold a conspicuous place among the autumn flowering kinds.



8. SCHIZOSTYLIS COCCINEA.

Allied to the Cape gladiolus, which it somewhat resembles in its growth as well as the size of the flowers, the great brilliancy

of its scarlet crimson blossoms produces a cheering effect among the chrysanthemums and other autumn flowering greenhouse plants.

The *Schizostylis* (FIG. 8) has been called a "rival to the splendid *Gladioli*." It is a native of South Africa, and was introduced into England by the Messrs. Backhouse of York, in whose fine collection it flowered in great perfection, attaining the height of three feet, with long spikes of flowers, each measuring more than two inches in diameter. In England it is nearly or quite hardy, but with us is a greenhouse plant.

Our specimens flowered finely last year, continuing in beauty from September up to Christmas, and even into winter. The plants were young, and of course were less vigorous than old established roots: still, they were very handsome.

The plant does not produce a bulb, but a kind of corm, or fleshy root. These are propagated by division, or plants may be raised from seed, which are produced in abundance.

Like the smaller Cape *Gladioli* and *Ixias*, it likes a light rich soil, composed of leaf mould, loam and sand, and the roots may be planted out in the open ground, and taken up in September and potted. Keep in a frame for a few days, and then remove to the greenhouse, where, on a light shelf, they will bloom abundantly.

Gossip of the Month.

PLANTS INJURED IN WINTER BY EVAPORATION.—Our contemporary, the *Gardeners' Monthly*, in noticing the destruction of many plants by the last severe winter, says "if anything be wanted to teach people how cold kills plants, the past winter affords the material. It was at one time supposed that frost destroyed plants by rupturing the sap vessels. The cells were believed to expand and burst by frozen sap." "Some years ago," he says, "the writer attempted to show the fallacy of such a theory. In *Hovey's Magazine*, at that time, some of our best horticulturists argued the point. We endeavored to satisfy our friends, that when evaporation went on faster than the roots could supply moisture the plant had to die. No theory of cell bursting was necessary. Evaporation is excessive in cold weather—

when there is not enough moisture to fill the cells,—when it goes out faster than it comes in—they die; not by bursting, but by shrinking away. A recognition of this fact will save many a tender tree; and a review of the past winter's losses must convince one that such is the fact."

We need only refer to the articles alluded to to show our views in regard to the action of frost. Additional experience has not materially altered our opinion. We have no doubt that great injury is done to trees by evaporation—but we cannot get away from the fact, that this is the cause of but a small portion of the injury.

Take, for instance, the grape. In numerous localities old Isabella vines have been killed to the ground. Now if this is merely the effect of evaporation, how comes it that large strong old wood is split open in numerous places? Vines in cold graperies, where they have never been injured, have been killed in the same manner—by splitting open. These vines were laid down and protected in the same way they always have been, but notwithstanding this they have been killed. Could excessive evaporation cause the splitting open?

We admit, with our contemporary, that shelter from high winds is often a prevention of great injury to trees and plants. A single evergreen, standing alone, where the wind sweeps around it, is sure to suffer more than those in sheltered places; but how much of this injury is due to evaporation, and how much to other causes, we are unable to tell. The past winter was severe on many evergreens, which have been uninjured for several years; but we find those in sheltered positions, in many instances, injured quite as much as those that were fully exposed.

The subject is one of much interest to cultivators, and we should be glad to see experiments fairly made to ascertain the correctness of either theory—that of excessive evaporation—or injury by the destruction of sap-vessels.

Horticultural Operations

FOR JULY.

FRUIT DEPARTMENT.

THE season is late, the crop of pears rather meagre, and grapes are so far behind that we fear the crop will hardly ripen. A fine dry autumn may possibly make up for a late wet spring. Certainly horticulturists have suffered much by the severity of the winter, and the cold untoward spring.

GRAPE VINES, in graperies, will now be well advanced, and a second thinning may be done, if the bunches are crowded. Damp down the house morning and night, stop all laterals, and give plenty of air by day, and a little by night, if very warm. Vines in cold graperies will require the

same management we directed for early houses last month. Shut the house early, to forward the crop, but air freely during the day. Water the border if the weather should prove dry. Vines in the open air will be growing rapidly, and all superfluous wood should be taken off, tying in the strong bearing shoots for next year.

STRAWBERRIES are very late, and the crop will be just in full perfection. As soon as gathered, clean out the superfluous plants, and make preparations for a strong growth of runners. Keep the beds clear of weeds.

SUMMER PRUNING should be attended to now, pinching off all laterals to two or three leaves.

FIG TREES should have a free supply of water.

FLOWER DEPARTMENT.

Now is the time to remove all the principal plants of the greenhouse to the open air, except such as may be desirable to retain to ornament the house. An English writer says, "stir the soil on the surface of the balls, removing effectually all moss or other parasitical growths, and add a fresh layer of mould, which should be well rammed down, in order the more readily to amalgamate with the old material, and let it afterwards receive a good soaking of water. These remarks apply especially to such plants as lemon and orange trees, myrtles, genistas, acacias, pomegranates, &c. Give them all, when practicable, a thoroughly good foliage washing, with the syringe, and especially attend to supporting the main branches against storms, whether of wind or rain. Any greenhouse plants, which may now need a shift, should have it, without any further delay. This, in the proper sense of the term, must be thoroughly carried out, as any attempt at adding fresh soil in lieu of that already contained on the ball, which will necessitate breaking it up, will entail the risk of losing the plant itself, so excessive is evaporation at this season. So great is the tax upon the energies of the plant, even when a simple shift alone has been given, that it will be well to remove the plant for a week or so afterwards into a shady situation."

PELARGONIUMS will soon finish their blooming, and preparations should be made, towards the end of the month, to head them in, and put in the cuttings for fresh stock. Keep them rather dry for a week or so before cutting in.

CAMELIAS should all be removed to the open air, when it is convenient to do so, setting them on board or coal ashes, to keep out the worms. Syringe often. Now is a good time to repot.

AZALEAS will now be growing freely. Nip off the tips of strong shoots. Water with liquid manure, and syringe often. Any that require it should be repotted.

CINERARIAS should now be divided, and the young plants placed in a frame, where they can be protected from heavy rains and hot sun. Sow seed for a succession of plants.

HEATHS should have a situation shaded from the noonday sun, on a

north aspect. Water freely, but carefully, and head in plants that are straggling and ill shaped.

CHINESE PRIMROSES should now be propagated from cuttings, and young established plants may be planted out in a cool, shady, protected border.

STEVIAS, HELIOTROPES, and similar plants, intended for winter blooming, should be put into their flowering pots, and be plunged out in an open situation, sheltered from high winds.

GARDENIAS, MYRTLES, and similar plants, may be planted out in a rich border, or frame, where they will make a vigorous growth, and form handsome bushes. Syringe often.

CALADIUMS should have a shift into larger pots. Shade from the hot sun, and water freely.

FERNS will now be growing freely, and such as require it should be repotted. Syringe often, but do not over water.

CARNATIONS, for winter blooming, should be topped to make strong bushy plants. Water with liquid manure.

CHRYSANTHEMUMS should have a shift into their flowering pots. Plunge out in an open airy place.

BEGONIAS may have another shift into larger pots. Be careful not to syringe or wet the foliage.

ROSES should be plunged out in the open ground, and have a good mulching with old manure. Now is a good time to layer or bud. Marshall Niel does well on the Gloire de Dijon.

ALL BEDDING STUFF remaining on hand may be put out in some reserve ground, where they will furnish plenty of cut flowers.

CYCLAMENS should be planted out in a frame or border of light rich soil.

FLOWER GARDEN AND SHRUBBERY.

The lawn is green enough this year, and the growth so luxuriant as to require frequent cutting. Roll often. Many things may yet be set out to fill vacant places, as the season is backward.

TULIPS, and other spring bulbs, should be taken up immediately.

DAHLIAS should be carefully staked, and the side shoots pruned in.

GLADIOLUS, well advanced, should also be staked, to keep the stems upright.

SHRUBS of all kinds, which have done flowering, should now be pruned into shape; not the round besom looking plants we often see, but into the natural form, cutting entirely out the old shoots, and heading in others.

HEDGES should be pruned, if not already done.

DAISIES should be divided and reset, in a well-prepared bed.

NEAPOLITAN, and other violets, should be planted out in beds, selecting the young, vigorous, well-rooted runners, and not the old stools.

TUBEROSES, in pots, should be plunged out in a bed and top-dressed with old manure. Fresh roots may be potted for a succession.

HYBRIDIZATION OF PLANTS.

THE hybridization of plants is a subject to which we have directed attention many times, and have, from the very commencement of our Magazine, presented many articles upon the same, in which we have given our own views, acquired after long experience in the production of a great variety of plants.

Beginning with the strawberry, as long ago as 1833, no year has passed by, up to the present time, that we have not attempted the production of some kinds of plants, by hybridization. Our main experiments among flowers having, however, been made with the camellia, azalea, lily, verbena, pelargonium, and cactus.

The results of our hybridization with the strawberry will be found in detail, in our Magazine for 1840. Our experiments with this fruit led us to certain conclusions in regard to the production of hybrids, and after many years we have not only found them, in the main, correct, but precisely those arrived at by some of the most intelligent observers abroad. In taking up the camellia, and other flowers, we pursued the same course as with the strawberry, and the results were equally successful. In fact, we could form a very correct opinion of what would be the probable result of any particular hybridization.

The subject is now brought afresh to our memory by the notice of a series of experiments by M. Germain de Saint Pierre, recently published in the Bulletin of the Botanical Society of France; and detailed in the Gardeners' Chronicle. They accord so nearly with one of our recent experiments with the lily, that we are struck with the coincidence. In fact it has been more or less the same with many of our *first* experiments with any two species, as they are established by good botanical authority, whether in reality species, or not. Probably Mr. Darwin would say they are only natural selections, and not actual species; at any rate they are so

distinct or dissimilar that hybridization is effected with great difficulty, and usually only a single seed or two is perfected.

The last summer we had two *Lilium auratum*s in flower. One was impregnated with itself, and the other with our new seedling, raised from a cross of the Japan with the *auratum*, which we have already described as so large and very remarkable. The impregnation was apparently complete with both; the pods or seed vessels, five or six in number, swelled up rapidly, and promised a good crop. The *auratum*, fertilized with the hybrid, appeared even more robust and perfect than the other. In due time the pods were gathered, but we were greatly surprised and somewhat disappointed to find that nearly all the seeds were imperfect, being nothing but chaff, and containing no germ. Apparently there was not a good seed in the five or six large pods containing more than a thousand seeds. We did not think them worth planting; but not willing to give up the experiment we sowed the entire lot, in December last, in two large pans, determined to give them a chance to grow. At the present time (July 6) about ten seed have germinated, and have four or five leaves. Whether any more will appear, another year, remains to be seen. What is peculiar is, that the seed of the *auratum*, impregnated with itself, which were large, sound, and plump, have not vegetated at all, and will probably not do so till another year, as is usually the case with the Japan lily.

Our experiment, which we alluded to above, was made with the Japan lily. At the time the *auratum* first flowered, six or eight years ago, a fine specimen was exhibited before the Massachusetts Horticultural Society, by Messrs. Spooner and Parkman. Having plenty of Japan lilies in bloom it occurred to us that something new might be obtained by fertilizing them with the *auratum*. We consequently procured a single anther or two, covered with good pollen; these were kept a few days till the flowers were in the right condition for impregnation. They were then fertilized in the usual manner; the cross was effected as the pods soon began to swell, and finally ripened what appeared a large quantity of seed; but, upon examination, not half a dozen seemed to have any germ; they were, however, planted, and the result was half

a dozen plants, one of which proved to be the greatest novelty yet seen among lilies, but the others were no different from the hundreds of seedling Japan lilies.

We annex the article detailing the experiments of M. Germain de Saint Pierre:—

The subject of Hybridization of Plants is one of such interest, alike to physiologists and practical cultivators, that no apology is needed for bringing the subject again and again under the notice of our readers. Among the gourd family the results of experiments are so striking and so beautiful, that it is no wonder that special attention should be paid to them by French amateurs, though it is strange that their British *confrères* have not followed suit to a greater extent than they have yet done. With a view of calling attention to the subject, we propose to give now a summary of M. Germain de Saint Pierre's experiments, as recorded in the Bulletin of the Botanical Society of France. The gentleman just named tells us that he sowed seeds of the handsome *Lagenaria sphaerica*, from which in due time plants were raised bearing female flowers only. Desirous, however, of seeing the fruit of this fine gourd arrive at maturity, M. Germain de Saint Pierre fertilized some of the female flowers with the pollen of the Serpent Gourd, *Lagenaria vulgaris*. The two species are so different, that the experimenter scarcely expected any result; but after a considerable interval one fruit was produced. Meanwhile some male flowers of the *Lagenaria sphaerica* were produced, and sufficed to fertilize the female flowers. The observer had thus under view one fruit formed in consequence of a hybrid cross between two species and others produced normally. So like, however, were all the fruits that it was supposed, after all, that there had been no cross, and that the fruit supposed to have had such an origin had really been impregnated by some undetected male flower.

In order to put the matter to the test, seeds of the supposed crossed fruit and of the normal plant were sown. In both cases the seed germinated, and now the hybrid nature of one set of seedlings became apparent in the fact that their

appearance was exactly intermediate between the two parents above mentioned. Space will not permit us to give the details, which are not only interesting in a physiological point of view, but also in a cultural aspect, from the elegance and beauty of the fruit of the hybrid plant.

Subsequently M. Germain de Saint Pierre continued his observations on these interesting plants. He fertilized the flowers of his hybrid *Lagenaria* with pollen from *L. vulgaris*, and *L. sphaerica* (the original parents), and with pollen from *L. angolensis*. In this case, then, the hybrid flowers were impregnated with pollen from three different species. Fruit of a similar character was produced in all cases, but the seedlings derived from that fruit were either intermediate in character between the parent plants, or reverted almost entirely to one or other of the parent species.

In fine, these are M. Germain de Saint Pierre's conclusions from his experiments:—

1. Fecundation may take place, if not frequently, at least occasionally (*accidentellement*), between widely different species, but belonging, nevertheless, to the same genus or to two very closely allied genera.

2. The fruit produced as a consequence of artificial fertilization does not differ, generally speaking, from the normal fruit.

3. The same female flower (at least in these *Cucurbitaceæ*), with several seeds, as in *Lagenaria*, may be fertilized by pollen derived from several species of the same genus, so that different seeds originating in the same fruit may produce different plants—plants, that is to say, having either the characters of hybrids, or plants reverting to one or other of the parent species.

4. The seeds of the normal female flower, fertilized by the pollen of another species, may all be perfect, and arrive at maturity; on the other hand, fruit fertilized by the pollen of a hybrid plant produces only a small number of perfect seeds, which arises from the fact that in hybrids the ovules are not usually perfectly formed.

5. Very generally the stamens of the hybrid flowers are destitute of pollen, or at least of effective pollen; hence the

female flowers of hybrids, although they might possess well-formed ovules, would still be sterile if they were not fertilized by pollen from normal species.

6. The female sex is then in this case protected and preserved, while the male is abandoned. * * *

7. A hybrid plant may present, in all its parts, characters perfectly intermediate between those peculiar to the male and to the female parent. * * * The female parent seems only to furnish the teguments of the embryo, and at a later period the material for its nutrition; the male plant seems to supply the first constituent materials for the embryo. The ovule (in M. Germain de Saint Pierre's opinion) is a bud produced on the carpellary leaf, the pollen grain is a modified cell belonging to the cellular tissue of the staminal leaf; nevertheless these two different organs impose, to an equal extent, the character of their species on the offspring resulting from their union. In the case of grafts, however, the scion does not derive any character from the stock (not an absolute rule this).

8. The female flowers of hybrids, fertilized by the pollen of a normal species, may yield fruits and fertile seeds; these seeds produce a second generation, the individuals of which may either return exactly to one of the normal types, or constitute hybrids of the second degree, having partly the characters of the hybrid mother, partly those of the hybrid father plant.

9. These hybrids of the second generation or degree may in their turn be fertilized by pollen from a species, and yield ripe fruits and well-formed seeds, returning or not to either of the normal types.

10. Perennial hybrid plants are preserved as individuals, and may be multiplied by sub-division, cuttings or grafts; not so with hybrid annual plants: these cannot, as a rule, be fertilized with their own pollen, but require pollen from the species, in order to ripen their fruits, hence the following generation tends to revert to the paternal type, so that after a time the paternal element so preponderates that the hybrid ultimately reverts completely to the paternal type. This generally happens in the third generation.

11. The maintenance of a hybrid form by generation can, therefore, only be hoped for in those very rare cases wherein the hybrid mother plant produces fertile pollen capable of impregnating the female flowers.

12. Crossed fertilization occurs in nature generally from the agency of insects (especially of bees), which carry the pollen from one flower to another. Crossed fertilization or hybridism is rare among species, it is however common between female flowers of crossed plants having imperfect or sterile stamens, fertilized with pollen from typical species.

Thus it will be seen, according to M. de Saint Pierre, under his rule 5, that the cause of the seed not being perfect is that "hybrid flowers are destitute of pollen, or at least of effective pollen."

The conclusions of M. Germain de Saint Pierre are similar to our own, and are worthy the attention of the hybridizer.

According to one of the rules laid down (3), it is shown that different plants may be produced from the same fruit, particularly in flowers with several seeds like *Lagenaria*. We have found the same true with regard to the camellia, the pods of which usually contain two or three seeds, and the lily, with a large quantity. We have had occasion to number and keep an accurate record of the product of numerous hybridizations, and have found that the progeny is distinct or reverts to one or the other of the parents. White Japan lilies fertilized with the crimson, usually produce three-quarters or seven-eighths of the progeny of the crimson shade. In an experiment with the cacti, we fertilized the *crenata*, a large pure white flower, with a brilliant scarlet hybrid. The progeny were of various shades; some rose color, just half way between white and scarlet, some scarlet, and others of various shades of red. No whites were produced like the female parent; showing conclusively that the male flower gives, in a majority of cases, the coloring, while the habit is more like the female. In the Japan lily we have spoken of, however, the habit is unlike the *auratum*, being similar to the Japan, both in the growth and form of flower, while it has the size of flower of the *auratum*, and the color of the Japan. The

variations and combinations are remarkable, and no rule will apply to individual cases. They are productions which are repeated only once in thousands of experiments.

The growth of hybrids is highly interesting, aside from the value which such productions attain from their novelty and beauty.

Recently the grape has had much attention, at home and abroad; at home with the native grape, and abroad with the foreign. We have not the time to give the history of them, but it appears that the attempts in England to produce a class of vigorous growing varieties with the musk flavor have been eminently successful. Formerly there were only the Muscat of Alexandria and Cannon Hall, two sorts which require a high temperature to produce them. Now we have the Muscat Hamburg, Champion Muscat and others, as easily produced as the old Hamburg, showing that the constitution and vigor of the female parent is predominant, and the delicious flavor of the Muscats maintained.

There is much to be learned through careful experiments. Our native grape is yet to be improved, and the evidence is that with judicious hybridization the hardiness and vigor of the female is perpetuated, and the form, color and flavor of the male transferred. Hence we may look for grapes with all the vigor and resistance to mildew of the Concord, and the delicate juice of Allen's Hybrid.

EVERGREENS AT WODENETHE.

BY H. W. SARGENT.

IN reply to your request, to give you my experience this winter on evergreens, I send the annexed list, first premising that most rules as to hardihood and protection have been set at defiance this winter, and, contrary to Mr. Meehan's theory about the necessity of shelter, I find those things protected or sheltered the most have suffered the most. Almost everything planted in a wood, and surrounded by the protection of evergreens, has been destroyed.

All things planted on the west side of a wood have been the next great sufferers; I think, from the fact that they are in shadow (in any place) up to 10 or 11 o'clock, and then suddenly receive the warm rays of an almost meridian sun, while the sap vessels are in the frozen or congealed state of an excessive low temperature of the preceding night; while trees on the east side of a wood receive the early and weak rays of the rising wintry sun, and the congealed sap vessels are thawed gradually, and without much or any harm. As a proof of the correctness of this idea, I have large specimens on the west side of a wood, from ten to eighteen feet high, of

Pinus Benthamiana,	Abies nobilis,
“ ponderosa,	“ Torreyia,
Abies amabilis,	“ Lawsoniana,
“ grandis,	“ lasiocarpa,
“ Webbiana,	Wellingtonia,
“ pinsapo,	Cedar of Lebanon,
“ cephalonica,	Golden and Common Yews,
“ chamycyparis,	

all more or less seriously injured, especially on the south and west sides. In fact, my largest Wellingtonia, a beautiful specimen last year, thirteen feet high, feathered to the ground, has only some six inches of life at top—every branch dead below this to the ground, so that I shall cut it down and replace it—while, on the contrary, another specimen, nearly as large, standing in a most exposed position, with no protection near, but receiving the early rays of the morning sun, was somewhat injured, but an hour or two, thinning of the brown leaflets, soon got it all right in appearance. It is pushing well all over, and one would hardly, at a little distance, observe it had been damaged.

My oldest and best Pinus Lambertiana, from the ground up to the top a pyramid of verdure, last year, fifteen feet high, has not a green leaf on it. The buds have not yet pushed, though green and plump. It seems as if paralyzed. This is on the west side of a wood. A similar tree on the north of a wood is untouched.

The same may be said of almost every evergreen I have. Those protected on the east side, and receiving the sudden

rays of the mid-day sun, have either nearly died, or suffered so much as to render them worthless.

Those immersed in a wood, protected on all sides, have generally died.

Strange to say, complete seclusion has been injurious to all English yews, while in complete exposure they have escaped with only a little singeing. Possibly a wet, warm autumn did not allow them, in the shade, to mature their wood sufficiently, and they were, consequently, not as much ripened as trees well exposed to the sun.

I would repeat, that trees on the north side of a wood have hardly suffered at all. Those on the east side of a wood very little. Those on the west side very much, and those in a wood are generally the greatest sufferers by far, and yet, damaged severely as many of my trees are, there has not been a single death. Many are very badly wounded and disfigured, but would still, I think, linger on and work through, if permitted to remain.

To answer your especial question, What are unquestionably hardy beyond peradventure here? I should say, without any protection, exposed on all sides, except a border plantation, some distance off, one could rely upon the following:

<i>Abies alba,</i>	<i>Abies Hudsoniana,</i>
“ <i>amabilis,</i>	“ <i>Kæmpferi,</i>
“ <i>Frazeri,</i>	“ <i>lasciocarpa,</i>
“ <i>cephalonica,</i>	“ <i>nobilis,</i>
“ <i>Clanbraziliensis,</i>	“ <i>Nordmanniana,</i>
“ <i>densa,</i>	“ <i>orientalis,</i>
“ <i>Douglasii,</i>	“ <i>Whittmaniana,</i>
“ <i>foliis variegata, or</i>	“ <i>pygmea,</i>
<i>finedoniensis,</i>	“ <i>compacta,</i>
“ <i>monstrosa,</i>	“ <i>diffusa,</i>
“ <i>inverta,</i>	“ <i>pumilis.</i>

Of these the finest, as being the most certain, would be

<i>Abies monstrosa,</i>	<i>Biota japonica,</i>
“ <i>inverta,</i>	“ <i>cristata,</i>
“ <i>orientalis,</i>	<i>Thuja Hoveyii,</i>
“ <i>Nordmanniana,</i>	“ <i>frencloides,</i>
“ <i>amabilis,</i>	“ <i>aurea,</i>

Thuja pendula,	Thuja glauca,
“ filiformis,	“ Warreana,
“ tartarica,	“ plicata,
“ Lobbii,	“ Craigiana,
“ macrocarpa,	Thujopsis dolabrata,
“ gigantea,	“ “ variegata.
“ compacta,	

These have all stood unharmed this winter with me. As a selection I should name

Thuja cristata (Buist's),	Thuja gigantea,
“ Hoveyi,	“ Lobbii,
“ aurea,	“ plicata,
“ filiformis,	“ variegata.

Cephalotaxus Fortuni stands very well, as well as Cryptomeria; north of a wood I have one 16 feet high.

Picea amabilis,	Picea nobilis,
“ grandis,	“ pectinata,
“ lasiocarpa,	“ Nordmanniana.

Of these I should plant them all, as they are all quite hardy here, and equally beautiful.

Pinus austriaca,	Pinus maritima,
“ Beardsleyi,	“ nivea,
“ Benthamiana,	“ monticola,
“ cembra,	“ pyrenaica,
“ excelsa,	“ strobis,
“ laricio,	“ sylvestris.

Of these, strobis, sylvestris, pyrenaica, laricio, austriaca, ponderosa, nivea, cembra, Beardsleyi, are perhaps the hardiest.

Taxus adpressa, Canadensis, erecta, are always hardy. Baccata and aurea generally so.

Thujopsis borealis never changed a leaf.

Torreya taxifolia, generally uninjured; this year suffered somewhat, but has entirely recovered.

All the Retinosporas, pisifera, obtusa and aurea are *perfectly* hardy.

If I could but plant *two trees*, they would be Retinospora aurea and Glyptostrobis pendulus.

In conclusion I would remark, that I consider last winter an exceptional one. If all winters were like it our list of

half-hardies would be soon reduced. Until last winter I considered *C. Lawsoniana*, Golden yews, *Wellingtonia*, *Pinsapos*, and many others, now victims, as beyond question, and I still think they will stand any ordinary winter, and do not intend to abandon their cultivation. The Silver fir stands perfectly well, but I think the future distinctive trees of the country will be the *Retinosporas* and *Thuja dolabrata*, and *d. variegata*, uninjured the severest winters.

Wodenethe, 15 July, 1868.

Lovers of coniferous trees will feel under deep obligations to Mr. Sargent for the very extended list of trees which have stood the last severe winter, without injury, upon his grounds, as well as the list of those which were injured, more or less, and, above all, for the valuable hints, in regard to the kinds which are most reliable, for general purposes of ornament.

Not less interesting and important are Mr. Sargent's remarks in regard to the position of trees, and the effect of the cold upon each location. He apparently does not have confidence in the evaporation theory, as he clearly proves that a location where the "congealed sap vessels are thawed gradually, and without much or any harm," is the safest—this being on the east, where the trees get the early morning rays of the sun, but lose the fierce mid-day beams.

Mr. Sargent's experience is the evidence of the effect of the winter at Wodenethe on Hudson, but it will be recollected that he has succeeded in growing many conifers to a large size, which could not possibly be raised in the vicinity of Boston, or in New England generally. *Abies Douglasii* we have tried in every location, for years, without success, and *Biota japonica* is always more or less injured, as is *Thuja filiformis*.

Mr. Sargent's list will serve for all localities, from the Hudson River to Pennsylvania, and to a relative degree north. A similar list, which we hope to have from Mr. Hunnewell, will put us in possession of all the information needed to give a sure and certain guide to planters throughout the North and East.

As regards the importance of shelter, which Mr. Meehan has considered so great a necessity, as a means of checking evaporation, the past winter seems to have proved of no value. "Most rules, as to hardihood and protection, have been," as Mr. Sargent remarks, "set at defiance," and we must profit from this experience, and ascertain, if possible, how much shelter, and what kind of shelter, trees should have. If too great, the wood will not ripen well in the autumn, or will be drawn and weak for want of more sun. If by shelter we mean a plantation of trees at sufficient distance to break the force of the wind, and yet allow abundance of air and sun, this may be of great service, while the former, as in Mr. Sargent's case, where they were "immersed in a wood," or surrounded by the protection of evergreens, have been destroyed. To sum up, the facts are as follows:

1. Trees, greatly protected by a dense growth of wood or evergreens, have been destroyed.
2. Trees planted on the west side of a wood have been the next to suffer.
3. Trees planted on the south side come next in injury.
4. Trees, standing in a most exposed condition, with no protection, have been but slightly harmed.
5. Trees planted on the east side of a wood are mostly uninjured.
6. Trees planted on the north side of a wood uninjured.

This is the result of the effects of the winter at Wodenethe. If Mr. Hunnewell has suffered in the same way we have arrived at one invariable rule—Never to plant any but the very hardiest tree, on the western or southern side of a wood or plantation. The north or east, or even an open location is better.

THE MARTHA GRAPE.

BY GEO. W. CAMPBELL, DELAWARE, OHIO.

IN the June number of the Magazine I observe, in your "Pomological Gossip," General Negley's account of the

Martha grape, in which occurs a statement liable, as I think, to mislead, or give uneasiness to those growing this variety. I allude to the statement that the foliage of the Martha is "deeper green" than that of the Concord, for the reverse is true. One of the most distinctive differences—and, indeed, nearly the only one, between the Martha and Concord vine, is that the foliage of the Martha is of a *lighter* shade of green. In its general habit of growth, form and consistence of foliage, vigor, hardiness, productiveness, exemption from disease, and adaptability to all soils and locations where vines will grow, it seems to be Concord "over again." It is, however, later in blooming, by five or six days, than the Concord; and was, last season, about ten days *earlier* in ripening. On young vines, the berries and bunches are both smaller than Concords; but the quality is greatly superior, having less pulp, less foxiness, more sweetness, and a much more refined and delicate flavor. I am aware that *quality* is a matter of taste; but in my estimate of the quality of this grape I am not alone; for Mr. Thomas Meehan, the accomplished editor of the Gardeners' Monthly, stated at the meeting of the Ohio Pomological Society at Sandusky, last December, that he thought the Martha *one of the finest grapes he ever tasted*. While I would hardly place it as high in the scale of excellence as this, I certainly regarded it as superior to Rebecca, or any white native grape I have ever grown, unless it may be Allen's White Hybrid. But when the vigorous, healthy, *Concord* character of the vine, its early ripening and other good qualities are considered, I cannot do otherwise than accord the Martha the highest place among our white native grapes; and I have no doubt it will prove not only the most popular, but the most valuable, both for the table and for wine, of any white grape yet introduced to the public; a worthy descendant of its distinguished parent, the Concord, and an honor to its enthusiastic originator, Samuel Miller, now of Bluffton, Mo.

The "Black Hawk," also a seedling from the Concord; but the fruit of which I have not seen, was also originated by the same gentleman; and this variety has "foliage of *deeper green*" than the Concord, which is one of its distinguishing

features. Some other seedlings of the Concord which I have seen, induce me to think this variety may be destined to be the parent of a race of grapes of the greatest value to the vine-growing community.

We are glad to have so good an account of the Martha, from one who can fully estimate its value, and at the same time we are pleased to have the mistake or oversight of Gen. Negley set right, that no doubt may exist with those who have the Martha, that they have the true sort.—ED.

GRAPE GROWING IN THE WEST.

THOUGH the season of 1867 was a disastrous one for grape culture in New England, in consequence of the cool wet summer, the reverse was true of the crop at the West. There it was never better. In New York state, in the region of Crooked Lake, and in Ohio, in the region of Cleveland and Kelley's Island, the crop was large and fine. At the Exhibition held at Elyria, Ohio, in October last, the show of grapes is stated to have been "confessedly the finest as to ripeness and quality ever witnessed in this country."

We have but a slight appreciation of grape culture, as carried on at the West. Here, probably the largest plantation does not cover over an acre, and even those of this size are not numerous. But in the places we have named the grapes are cultivated by hundreds of acres, Ohio figuring as high as 12,000 acres.

We have before us the Third Annual Report of the Lake Shore Grape Growers' Association for 1867-8. It is a pamphlet of some sixty pages, and contains an account of the summer meeting, and the excursions of the members to the various vineyards in Ohio, with a Report of the Exhibition at Elyria, the award of prizes, and discussions upon the varieties presented. The tour extended over a period of five days, passed among the Lake Shore vineyards.

The Annual Meeting of the Society was held on the 19th and 20th of February last, at Cleveland. It was largely attended, some two hundred members being present. President Dunham delivered an address, Reports on Wines were submitted, the discussion on varieties continued, and the subject of temperature and soils considered.

In the discussion of varieties the Catawba received a large share of attention; some members had produced fine crops; some thought it still a profitable grape for wine, while others had no confidence in it. Dr. Griswold of Elyria said he would not give a dollar an acre for Catawba vineyards, and Mr. J. E. Mottier of Dover Bay said his did remarkably well—no rot. Locality seems to have been the element of success. Mr. Perry of Brownhelm said he got 4,000 lbs. of Catawbas from three-fourths of an acre. His Delawares are three years old; they are rather slow in growing, but all lived. Last spring he manured them with the best decomposed manure he could find on his place. The vines grew finely after this, and from fifty vines he marketed 350 lbs. of grapes. Of Concords he had 150 vines, and last year sold half a ton of grapes. The Iona he was not successful with, though the grapes were fine when they were got.

The discussion was continued, and we extract the following, among the interesting remarks upon new or old grapes:—

Mr. Rehburg, of Put-in-Bay, said the Delaware had done exceedingly well last year; but this grape requires, unlike the Catawba, a rich soil. The average yield was about ten pounds to the vine; the vines are about eight feet apart, in rows, and six feet from each other. He thought this variety would ultimately become the favorite on the islands.

Mr. Richmond, of Sandusky, said Norton's Virginia ripened well last fall, and held its leaves longer than others—an important point in his opinion.

Mr. Hopkins, of Brownhelm, said of Delawares that he took 1,000 pounds from 100 vines, which he sold for $8\frac{1}{4}$ cents clear of expense. He got 23 pounds from one vine. He set them 8 feet apart, on sandy soil that would raise a good crop of corn. The vines were set three years ago, and were good

strong roots. Had no mildew or rot; the only trouble was from the thrips. His Iona vines were doing well; foliage and wood as good as any he had, but did not ripen as soon as the Delaware by from four to eight days. The Delaware needed manure more than other kinds, but he would not put on fresh barnyard manure.

SALEM.—It was moved to take up the Salem grape. Mr. Wolcott said perhaps no one here had seen the fruit of the Salem. He had a high opinion of the one who recommended it, and hoped it would prove a good grape. There was no one present to speak for the Salem from actual experience.

The Walter grape was taken up. Mr. Caywood, of Poughkeepsie, N. Y., said this grape did well; had never seen a rotten grape or mildew on the leaf. It ripens from August 15th to 30th. Last year, for the first time, it came as late as September 15, but they were drenched with rain the season through. While other varieties mildewed, the Walter did not. Sulphur was applied to all the varieties except the Walter, and not to that because that grape sets so closely to the stem that the sulphur could not be got out. It has borne 23 clusters to the vine, estimated to weigh half a pound each. It is a seedling of the Delaware crossed with the Diana. Its vine is an enormous grower. In answer to inquiries, Mr. Caywood stated that besides being an excellent long-keeping variety, the Walter was the best of all American varieties as a *raisin* grape—the fruit readily drying into raisins instead of decaying.

NEW SEEDLING GRAPES were not discussed in the meeting, owing to lack of time; but the Secretary has appended the following notes on a few of the most promising of the new seedlings that have been brought to notice during the past year.

HINE.—At the Ohio State Fair last September, a new grape was exhibited without name, by D. C. Richmond, of Sandusky, which was awarded the first premium as the best new seedling. Mr. R. stated to the committee that he obtained the vine from Mr. Charles Carpenter, of Kelley's Island, but he could not then give its history farther, excepting that it was not claimed by Mr. C. as his own production.

In the *Horticulturist* for March, 1868, is a description and engraving of the same grape, by F. R. Elliott, with a letter from Jason Brown, of Put-in-Bay, who states that he raised the grape from seed seven years ago, and he gave it the name of *Hine* grape, because he obtained the seed in the garden of his friend Daniel Hine of Summit County, Ohio, where he chanced to see a bunch of Catawba and one of Isabella growing so closely together that it occurred to him the seeds would very likely be hybridized; and he told Mr. Hine he would test the matter by sowing the seed, and if anything good came of it, the best seedling should bear his name. Of the seedlings produced, this one was found the best, and it is deemed quite promising; but he did not intend to bring it into public notice until after it had been tested in a number of different localities. He gave Mr. Carpenter some cuttings of it several years ago in exchange for other new sorts, and hence it came into Mr. Richmond's hands.

The fruit, as exhibited at the State Fair, would seem to confirm the supposition of its being a cross between the Catawba and Isabella—the bunch and berry being much like Catawba in size and form, while the color is darker—a dark claret brown, with a purple bloom; flesh tender, sprightly, sweet and rich, with less acidity and aroma than Catawba, and without its toughness of pulp and astringency of skin; it was also said to ripen earlier than the Catawba, the vine quite hardy and productive.

LORAIN.—This excellent white grape was christened and introduced to public notice at the first annual exhibition of this Association, 1865, and it is gratifying to find that it has done remarkably well the past season, and gains friends wherever the fruit is shown. If the vine proves as hardy and vigorous as hoped, it bids fair to take the very first rank among native light colored grapes. Another seedling of the same origin and color, is also promising well, though not so delicate in texture. Mr. Barney, of Sandusky, has the charge of their trial and propagation.

CANADIAN SEEDLINGS.—Mr. Saunders, of Washington, has repeatedly expressed the belief that the *Clinton* is the most hopeful parent from which to raise seedlings or hybrids that

will prove healthful, and suited to the Northern States of the Union. In accordance with this idea, Mr. Charles Arnold, of Canada West, has been for some years experimenting, and has raised a number of promising seedlings from the Clinton, crossed, as he claims, with the Black Hamburg and several other foreign varieties. These have only fruited in Canada as yet, and will need testing in more favorable climates, before their real merits can be known. If they are truly hybrids, as claimed by Mr. Arnold, the fact is highly interesting and important, especially as suggesting what may be produced hereafter, from a similar line of experiments.

JANESVILLE.—This is the name of a seedling produced at Janesville, Wisconsin, and said to be of excellent quality, ripening in August, in that northern climate, and the vine quite hardy and productive. No description is published, but as the original vine is said to have been sold for \$1,000, it will of course be heard from in due time.

MT. HOPE SEEDLINGS—Messrs. Ellwanger & Barry, the well known Rochester nurserymen, have an experimental vineyard of several hundred vines, among which are quite a number of new seedlings produced by them from seeds of the Delaware, Diana, Rebecca and Concord, saved from fruit grown on the sides of a building where these varieties were in immediate contact with each other, so that the blossoms were liable to be cross-fertilized. Of several hundred seedling vines, about fifty of the most promising were saved for fruiting, and of these about a dozen, after three years' bearing, are found to be of very good quality—several of them, we think, of the highest excellence, and destined to become quite popular.

Their number 19 is, perhaps, the best of all—possessing the combined flavor of the Delaware and Diana, and, of course, very spicy and delicious; flesh tender and juicy; bunch and berry of good size and form, dark color; vine hardy, thrifty and productive. Number 4 is a black grape, of the Concord class, bunch and berry of good size and form; earlier, and bunch better than Hartford Prolific. Number 27 appears like a cross between Delaware and Diana; fruit resembling Delaware, but vine and leaf stronger, hence an improvement. Number 50 resembles Diana, but the fruit of

brighter color, less musky, and skin not so tough; on these accounts, superior to that variety. Number 31 seems to be a cross between Concord and Diana; dark color, early, smaller and better than Concord; vine hardy, thrifty and productive. These seedlings will not be sent out until very thoroughly tested in a number of different localities.

Quite a discussion took place in regard to the grape soils of the Lake Shore, and Dr. Kirtland, by request, addressed the meeting. Potash he considered a necessary element of success in grape growing, and advised, as a manure for sandy land, a dressing of about two inches of broken shale. The result of his remarks was, that there is but one soil—the clay soil—for grapes.

We conclude our notice of the Report with the following hints on

PACKING, PRESERVING AND MARKETING GRAPES.

Mr. Wolcott, of Elyria, had not much experience in packing grapes. There was a considerable home market, Lorain county consuming tons of grapes. For Chicago and Milwaukee markets, he had got 11 to 15 cents per pound for Isabellas and Catawbas.

Dr. Dunham said it was utterly impossible to fix on any good market for grapes, beforehand, but the producer could find out the market when ready to ship. He had been obliged to use four pound boxes, because he could not get ten pound boxes; twelve four pound boxes in a crate cost eighty cents; ten ten pound boxes cost eighty cents, and in some markets the grapes in crates sell best. [It was here stated that some specimens of boxes were before the Special Committee, and would be shown when that Committee made its report.]

Mr. Caywood said the general opinion was that fruit-growers were the victims of commission men. Producers should send their agents to cities.

Mr. Lowry, of Berlin Heights—They had formed an association to ship strawberries, and send a man to hunt up an honest man to ship to.

Mr. Hoag, of Lockport, New York, said he had kept the Iona grape by putting them in a cool room for some weeks,

and some of the grapes had begun to shrivel before they were boxed. He thought if they had been boxed before they had shrivelled, they would all have been plump.

A member stated that tons of Catawba grapes were kept at Sandusky the past season, until Christmas or later, by Dr. Newton of Catawba Island, then shipped successfully to distant markets. They were packed in small boxes, as for shipping, the covers being left off, and stored in a dry, cool cellar, so that air could pass between the boxes.

Mr. Saxton, of Collamer, said Cleveland grapes had got a hard name because the first ones planted were on sandy soil, and everybody supposed that was the kind of soil; while the fact is that none of the grapes grown so had ever ripened. Still, these grapes were the first in market, and had given Cleveland grapes a bad reputation. He had kept his grapes in a cool room—a dry cellar, as cold as could be without freezing. They were as plump now as in October. The grapes must be right first, he had learned, and then they could be kept easily. He thought fruit would keep better in a dark room than in a light one. His grapes would keep two months yet.

Several instances were related of keeping grapes in layers, with cotton batting or paper between the layers. One man in Lake county, as related by Mr. Harrison, of Painesville, packed in saleratus boxes, with paper between the layers. Part he put on high shelves in his cellar, and part near the cellar bottom. The former were badly shrivelled, while the latter were plump. Both were well preserved, however.

Mr. Wadsworth, of Madison, Lake county, said his grapes were raised on gravelly soil; last year they ripened well; were gathered and laid on a packing table till the stems were withered, and then they were packed. They were kept in a cool cellar.

Dr. Dunham said that grapes the must of which would weigh 90, would probably stand a temperature of 27 degrees. Another gentleman said that he had tested the temperature in his grape room and found it to be 26 degrees. Still another gentleman confirmed this statement in another instance.

Mr. Lowry said he used to try to keep grapes in cotton

batting, setting them in a cool room. When one grape would rot, the juice would be communicated to others by batting. Cotton cloth remedied this, as it would not carry the juice from a rotten grape to sound ones. Catawbas keep better than Isabellas or Delawares. If grapes are shipped when the weather is pretty hot with frequent showers, they are pretty sure to spoil.

Mr. Griffith said the whole thing was to keep the grapes dry and cool. They should be kept at least three days after picking, filling the boxes half full, set them in an open room; then, after setting three days, remove every grape that is loose, and the rest would keep without trouble. He always kept his grapes in an upper room. They must be ripe, and packed with care.

Mr. Caywood said it was not thought to pay to keep grapes. He had the experience of two men who had tried it for years, and had become convinced that the cost of buildings, &c., for keeping was more than enough to over-balance the profit.

Mr. Swan, of East Cleveland, referred to the keeping of grapes in fruit-houses, both in Cleveland and in New York. The temperature in these fruit-houses was stated to be 34° the year round.

Dr. Dunham said that two years ago his grapes were bought to put in the fruit-house in this city. Mr. Nyce had them picked before he (Dr. D.) wanted them to be picked. They were not fully ripe. They did not keep well.

Dr. Beckwith said that grapes would keep perfectly in a fruit-house, but after being taken out they soon change. They would, however, taste of the chlorides used to preserve them.

Dr. Dake said he had eaten grapes from Nyce's fruit-house, and had never tasted chloride of lime in them. They would not taste of it unless the solution was thrown over them, for the chloride is an absorbent.

Rev. Mr. Leonard said he had never discovered the taste of chloride in grapes from the fruit-house in this city. He thought the fruit-house was a great benefit to cities, and the inventor deserved praise.

Dr. Dake said it was chloride of calcium that was used in the fruit-house. It was not perceptible to the smell in the fruit-house. [Specimens were afterwards distributed in the meeting by Mrs. Nyce, and none present complained of any chloride or other bad taste.]

POMOLOGICAL GOSSIP.

ESTIMATE OF PEARS.—An English writer, who appears quite fastidious in his taste, thus speaks of two of our best known and most popular pears:—

Louise Bonne is very good, as again and again I admit; but never yet was it quite first-rate to a very critical palate, nor will it ever be so. The texture of Louise Bonne (grow it where you will) is not close and velvety. Without this perfection pears may be refreshing, delicious, and all that, but they cannot be the cream of cream. As for Williams' Bon Chretien (Bartlett) ever being a most exquisite pear, I must dare to suggest that "Observer's" palate is gratified with a coarse aroma, if he finds it even tolerable. The texture is often decent, though with grit towards the centre, and the juice is pretty copious, (if you gather the fruit unripe,) yet it is a penalty to eat more than a slice. The pear has a "yellar" taste. I cannot express my meaning more clearly. *De gustibus, &c.* Winter Nelis is sometimes good, but never quite first-rate. Josephine de Malines always beats it in size, appearance and quality. Never yet have I tasted Beurré Rance above the rank of a second class pear.

STRAWBERRIES IN MASSACHUSETTS.—The State Committee of the American Pomological Society for Massachusetts make the following Report upon Strawberries:—

In strawberry culture we make Hovey's Seedling the standard variety by which we test other varieties.

Brighton Pine fully sustains its previous good reputation.

Boston Pine, as good as ever.

Hovey's Seedling, as fine as formerly, and the standard sort.

Jenny Lind, not extensively raised, but when grown is as satisfactory as formerly.

La Constante, the most beautiful in form and color; the finest foreign variety ever introduced.

Scott's Seedling is undoubtedly a fine variety, but is not extensively cultivated.

Triomphe de Gand, large and handsome, but not of first quality.

Wilson's Albany, poor quality, poor color, very acid, and good bearer.

Buffalo is identical with McAvoy's Superior, which was discarded by us years ago.

Frogmore Late Pine is a new variety, that promises well; large size, and quite late.

Russell's Prolific is a fair bearer, but of poor quality. The berry is wrinkled and ill shapen; not worthy of cultivation.

The Agriculturist is a strong grower, a good bearer, tolerable flavor when nearly ripe, and of a scarlet color, and when fully ripe of a dark dirty color, and of decidedly poor flavor.

French's Seedling is a scarlet soft berry, of poor flavor, lacking nearly all the qualities that go to make up a good strawberry.

Lennig's White, Monitor, Brooklyn Scarlet, Green Prolific, Deptford White, Progress, Lucinda perfecta, and Exposition de Chalons are all poor varieties. The Report is signed by J. F. C. Hyde, President of the Massachusetts Horticultural Society, Eben Wight, and W. C. Strong.

PEARS FOR GENERAL CULTIVATION.—The President of the American Pomological Society presented to the meeting the following List of Pears, recommended for general cultivation by the Massachusetts Agricultural Club, in the order of their ripening:—

STANDARDS.

First Series:

Bartlett,	Merriam,
Seckel,	Sheldon,
Urbaniste,	Beurré d'Anjou.

Second Series:

Brandywine,	Swan's Orange,
Doyenné Boussock,	Howell,
Beurré Bosc,	Lawrence.

Third Series:

Belle Lucrative,	Marie Louise,
Paradise of Autumn,	Beurré Clairgeau,
Beurré Superfin,	Vicar of Winkfield.

THE ONONDAGA GRAPE is the name of a new variety, described as follows, by W. B. Smith of Syracuse, N. Y.: It is a seedling, grown in Fayetteville in this county, a cross between Diana and Delaware. It appears to be entirely hardy, quite as much so as the Delaware, and the fruit ripens at the same time with it. It is of amber color, good size, nearly as large as the Diana. We think it combines, in some degree, the flavor of both these varieties, Diana and Delaware. It has a thick skin, and is a good keeper. The amount of wood it makes is not large, but what there is, is strong, similar to the Delaware.

THE NAOMI RASPBERRY is the name of a new variety which originated in California, in the garden of Mrs. Gov. Wood of San Francisco. Mr. F. R. Elliot thus describes it: It is to the public a comparatively new variety, but observation of it for about twelve years, during which it has been grown without any but good common care in cultivation, and entirely without winter protection—it has each year produced large and profitable crops of very superior fruit—induces me to place it in the department report, because of the great interest felt at this time in the cultivation of small fruits. Size large, to very large, form roundish, slightly conical or obtuse conical; hairs long; grains large; color bright rich red; flesh firm and sprightly, rich and delicious; cones strong with numerous lateral branches, when fruiting, brown, smooth, occasional inconspicuous spines, leaves broad, lanceolate, very productive and hardy.

THE WILDER STRAWBERRY.—We have already given some account of Col. Wilder's new seedling strawberry, which he has exhibited the last year or two as No. 13, and which has given promise of possessing superior qualities. The present

year the beds were in excellent condition, and we were invited to examine the plants and fruit. Unfortunately a previous engagement prevented us from accepting Col. Wilder's invitation. But from gentlemen who were present we learn that the fruit was unusually fine, showing the good qualities of productiveness, with the valuable properties which have already been noticed in the fruit itself. It has been proposed by the Committee of the Massachusetts Horticultural Society, who were especially invited to examine the strawberry, to call it the WILDER, and we are pleased to learn that the originator is gratified at the recognition of its merits, and accepts the decision of the Committee. On the 11th July, Col. Wilder exhibited the fruit. It is, as we believe we have stated, a seedling from the Hovey, fertilized with La Constante, and possesses the good qualities of both. Its form is regular, and its size large, like La Constante; its flesh and its flavor are like the Hovey, and it approaches it in the brightness of color. We think it the only new variety of value introduced for a long period, and we congratulate Col. Wilder, after upwards of twenty years' labor in the growth of seedlings, that he has at last been successful in adding to our limited stock of superior strawberries.

THE FLORIDA AIR PLANT.

BY JOHN L. RUSSELL, SALEM, MASS.

Is not the plant mentioned by you, Mr. Editor, in your pleasant article of the June number, p. 176, the *Tillandsia utriculata* of Leconte, of which Dr. Chapman, in his *Flora of the Southern United States*, says "the dilated and imbricated bases of the leaves form a kind of cup which commonly contains a considerable quantity of water." It was this specific name which was in your mind probably when you wrote *utriculoides*; and you had overlooked the fact that *T. usneoides* is the Spanish moss which hangs like mournful drapery from the live oaks, and reminds the northerner of the pendent and grayish lichen, the *Usnea plicata* and other

co-species which he sees in the forests and woods of his native mountain regions.

If I mistook not I saw some fine vigorous plants of the *Tillandsia* in question in the greenhouses of Madame Pratt, when a few days ago I revisited that neighborhood, once renowned for the genius and labors of Haggerston in Cushing's garden, opposite. The specimens, exhibited in the Library Rooms of the Massachusetts Horticultural Society by our excellent superintendent, Mr. Buswell, were of the same kind I think.

Let me tell you how delighted I was with the display of azaleas in the finely grown specimens of Messrs. Hovey & Co. this spring, with the *Beauty of America*, *Illustris nova*, *Madame Michel*, *Eulalie*, *Crispiflora*, *Gem*, *Caryophylloides*, &c., &c., and with many novelties in the numerous houses in other parts of the extensive grounds. A fine seedling Cactus tallied "K," some secret, perhaps cabalistic sign, from whose wizard spell it sprung into new and rare beauty!! the *Saxifraga Fortuni* and the Zonal geraniums, such as *Gem*, *Salamander*, *Crystal Palace Gem*, *Orange Nosegay*, *Golden Tom Thumb*, *Italia Unita* and *PICTURATA* with the fanciful foliage, *Titian*, &c., &c., what a blaze of scarlet, what a flower bed of tinted foliage! The snowy blossoms of the white double flowering almond (properly Japan or Chinese plum) arrested my attention when leaving the gardens, but if I could have but one only, I should select the rose-colored and older variety as far more showy and attractive; but then, as a florist friend once said of the *White Myosotis*, or *Forget-me-Not*, *it is new*; a world of wisdom in three words.

The *Pyrus Coronaria*, or *White Crab*, has been truly superb in blossom this last May, or rather June, and loaded the air with its balmy fragrance. I was glad to see *Exochorda grandiflora* in one of the Exhibitions of the Society this spring.

Mr. Russell is undoubtedly correct. We intended to have written *T. utriculata* instead of *utriculoides*. The specimens sent to Mr. Buswell, superintendent of the Massachusetts Horticultural Society, and noticed by Mr. Russell, are the same, and came from the gentleman who gathered the specimens sent to us.—ED.

LILIUM COLCHICUM.

BY THE EDITOR.

ALL the lilies are beautiful, though some are much more desirable than others. The Japan varieties are now well known and much cultivated, and the auratum is extensively distributed for a new lily. *L. Browni* and *Longiflorum*, two grand sorts of the trumpet shaped white lilies, are now becoming generally known.

Our American species, *superbum*, *canadense*, and *philadelphicum*, are rare in gardens, though common enough in the woods and old pastures, but they are less cultivated than



9. LILIUM COLCHICUM.

perhaps any of the foreign lilies. They are truly superb, and though not quite so easily managed as the Tiger, still, with the least proper attention, they may be grown freely, and flowered in great perfection.

Among the lilies of recent addition to our gardens, though not very new, having been introduced to European gardens more than thirty years ago, and figured and described in Van Houtte's "*Flore des Serres*" in 1849 (Vol. 5), is the *L. Scovitsianum* *Fisch. and Lallemand*, now generally known as the *L. colchicum* (FIG. 9).

It is a native of the northern regions, and was introduced by the zealous Russian voyageurs into the gardens of St. Petersburg, from whence it was subsequently distributed by Dr. Fischer. Through the Prussian and Belgian cultivators it has been introduced to our gardens.

In general aspect it has a resemblance to the American lilies. The flowers are pendent, and the petals are recurved at the ends. They are of a pale yellow, with yellow veins through the centre of each, and spotted with brownish spots. The style is recurved, and the anthers orange colored.

It grows about two feet high, and flowers at the same season as the Japan lilies, in August and September. Van Houtte, in alluding to its cultivation, says it requires very little care, and may be treated the same as the common white lily.

As a companion to the Japan lily, which also flowers in August, the *L. colchicum* is well deserving a place in every collection.

General Notices.

EPIPHYLLUM TRUNCATUM.—When well grown, this plant is one of the most showy of the decorative stove plants which flower in the dreary months of November and December. I had a collection of different varieties in flower here, and most beautiful objects they were, mixed with other plants in a warm greenhouse. They range about three feet in height, and, with the exception of about six inches at the top, they are a complete mass of flowers to the bottom of the pot. The young plants were procured from the Miss Lee, who, I believe, obtained some of the varieties from the Continent. I am not aware what stock or stocks they have been grafted or inarched on, but they seem to grow vigorously. The following varieties are the best and most distinct in colors that have flowered here, namely:—*Elegans magnificum*, *Russellianum Superbum*, *truncatum violaceum*, and *Ruckesianum*. My collection has been managed so as to keep the plants rather dry after they have done flowering, and not to excite them to grow before June or July. At that period they are repotted, the old balls being well reduced. The soil used is richer than what is generally given to succulent plants—namely, some well rotted deer dung, mixed with broken lime rubbish and light sandy loam. They are then kept in a warm moist stove to make their young growths, and generally flower about the middle of November.—(*Florist and Pomologist*.)

THE FILLING THE FLOWER GARDEN.—By all means, let us have the whole matter of bedding out thoroughly discussed. What I chiefly complain of is that our present, upon the whole, admirable system, is often flippantly condemned without a hearing, in favor of something else, no one hardly seems to know what, not half so good. I especially like the idea about asters being used as summer tulips, to be stuck as pins into a cushion of a different ground color. In my humble opinion this suggestion is of greater worth than all the leaf gardening we have imported from the Continent. A “pushing man” will be glad to hear that my views are wide enough to include within the folds of my own practice specimens of almost every style of filling the flower-garden. For instance, I have an example of his circles thus:—A groundwork of *Gnaphalium lanatum*, dotted all over with dwarf *ageratum*, and circles picked out through the centre, and planted as follows:—Centre circle, *Boule de Feu pelargonium*, 2d on each side, *Mrs. Pollock do.*, 3d *do.*, *Coleus marmoratus*, 4th, yellow *calceolaria*, 5th, *Lord Palmerston pelargonium*. The front and back of this picked out space is a ribbon border, bounded next the mixture on one side by *perilla*, and on the other by the above dark colors. I will give a few more illustrations of pretty beds from actual practice, in the hope that others may be induced to do the same, or to suggest improvements in those given, as my only object in these letters is that we may be enabled to fill the flower garden, in the best possible manner for effect. No. 1 is a raised circular bed; the centre is *Cineraria maritima*. It is then divided into four segments of circles, with lines of *Centaurea*. Inside these next the white *Cineraria*, is furnished with the red *Iresine*, outside with *Mrs. Pollock*. This bed is edged with *Viola cornuta*, with a supplementary line to droop over the sides of the dwarf *Blue Convolvulus*. No. 2 is *Mangle’s* variegated dotted all over with the blue *Convolvulus*, and edged with *Viola cornuta*. No. 3, *pelargonium White Lady* [or *Mad. Macher*] dotted with the *Convolvulus*, and edged with *Scarlet Verbena*. No. 4, *Ageratum maximum*, edged with *Calliopsis Drummondii*. No. 5, common pink monthly rose, closely pegged down, and filled up between with *Cerise Unique pelargonium*, and edged with a band, eighteen inches wide, of *Cerastium tomentosum*. No. 6, and here I must stop for the present, is filled with a central mass of *Mad. Vaucher pelargonium*, with a band of *Coleus Verschaffeltii*, and edged with blue *Lobelia* and the *Centaurea* intermixed.—(*Gard. Chron.*)

SETTING GRAPES.—Much has been written upon the setting of *Muscat* and other grapes. To set the *Muscat* of *Alexandria* like the *Black Hamburg* (says a cotemporary) keep the temperature at 75° by fire heat, and 85° by sun heat. Keep the night temperature at 70°. Damp the paths at 7.30 A. M., and 4 P. M. Keep the whole of the atmosphere of the house in perpetual motion, night and day. When the blossoms are fully expanded give each bunch a slight shake once a day. This is all that is necessary to insure well formed bunches. My experience, from having set and fruited our new grape, *Mrs. Pince’s Black Muscat*, on many occasions in pots, in conjunction with smaller canes, when the atmosphere as a rule must be

kept moist, led me to believe in, and to adopt the above plan to the very letter. In the whole of the vineries here the vines have set better this year than ever I saw them; the little house in which Mrs. Pince's Black Muscat is growing is truly a sight worth seeing; the bunches really touch each other, and as I should have to take off more than half I take the liberty of sending you part of a bunch, in order that you may see that every berry has set.—(*Id.*)

CLEMATIS STANDISHII.—The spring flowering clematises are now at their best, whether on poles or on trellis work. Having some few years back tried *C. Jackmanni* for bedding purposes with complete success, I thought I would try a bed of *C. Standishii*. This was done about eighteen months ago, by planting them in rows eighteen inches apart. They are now in full bloom, and all who have seen them within the last ten days have been much delighted with the effect which they produce. I have to day counted in the space of a square yard 118 expanded flowers, besides several unopened buds. When it is taken into consideration that these spring varieties commence and finish flowering before ordinary bedding plants begin, I think it would be a great acquisition in a gentleman's flower garden if certain beds were judiciously selected and planted, each with one sort. For example take the four cardinal points:—North bed, *C. Standishii*, beautiful violet blue; south, *C. cœrulea grandiflora*, an azure purple; east, *C. Fortunei* fl.-pl., large double white; west, *C. Helene*, white with straw centre. Besides, there are several other varieties from which selections might be made; this would enliven the garden some six or eight weeks before ordinary bedding plants would come into flower, and would accustom the eye to the "gay and glittering flower garden when in its highest state of perfection." At first thought several would say, What! have four blank beds throughout the summer? By no means. The spring clematises having finished blooming by the middle of June, all that should be done is to cut off the flower-stalks (leaving the bed covered with foliage), to prune back the young wood, and use the beds on the "carpet system," by plunging potted pelargoniums, &c., between the rows of clematis.—(*Id.*)

Horticultural Operations

FOR AUGUST.

FRUIT DEPARTMENT.

THE month of July was one of the hottest and driest we have had for many years, the temperature varying from 95° to 100°, for nearly a week, and without rain up to the time we write (24th). Trees of all kinds have made a good growth, and grapes look well, though rather late. The pear crop is very small.

GRAPE VINES will now be ripening their fruit, and the early sorts will be nearly ready for cutting. As they color, more air should be given, night as well as day, and damping the walks should be dispensed with. See that the laterals are kept stopped at reasonable distance, so as to allow the light and air to ripen the wood. In cold houses the grapes will soon begin to color, and will require more attention. Guard against cold draughts, and give no side air till the berries are fully colored. Damp the house morning and night, and close early on cool nights. Stop the laterals as they require it.

STRAWBERRY PLANTATIONS will now require attention. Old beds may be renovated, and kept in very good condition by spading in one half of the vines, leaving the others to extend the runners over the ground. Enrich the ground with well rotted manure. New beds may be made this month. Manure and dig the ground, level and rake, and set out the plants in rows, two to three feet apart. Water occasionally, if the weather should be dry.

RASPBERRY PLANTATIONS should have attention. Cut away the old canes as soon as the fruit is gathered.

THINNING FRUIT should be attended to where the crop is too large. Take off the poorest fruit, and go over a second time, and gather all but what the tree can perfect of good size.

SUMMER PRUNING should be continued, heading in all laterals to two or three eyes, and cutting out superfluous shoots.

PEAR, PLUM AND CHERRY TREES should be budded this month.

STRAWBERRY PLANTS, for forcing, should be prepared now, by layering the runners in small pots, which will be rooted in two weeks, when they should be removed and repotted in larger pots.

FLOWER DEPARTMENT.

A dry month has retarded the growth of all bedding plants, especially those late planted, and rains are needed to give vigor and beauty to the garden. When convenient, watering should be resorted to, and frequent stirring of the soil will assist in maintaining a good growth. Now is the time to secure a stock of soils and manures for winter use, stacking them in heaps.

CAMELLIAS will now be swelling their buds, and should be freely syringed and well watered, using liquid manure occasionally. Now is a good time to repot or top-dress all plants which require it. Grafting may be done now.

AZALEAS should all be removed to the open air, in a sheltered situation. Such as are intended for specimens should be tied into shape, and those that require it repotted or top-dressed. See that the thrips and red spider are all destroyed, by using whale oil soap, or tobacco soap. Give liquid manure occasionally.

PELARGONIUMS will require attention this month. Cut down the old plants to within two or three eyes of the old wood. Keep them dry for a few days, till the wounds heal, and they begin to push afresh. Then turn

out of the pots, shake off the old soil, trim the roots, and repot into smaller pots. Use light soil, leaf mould loam, and sand, and place in a frame, where they can be sheltered from heavy rains. Put in the cuttings for fresh stock.

CHRYSANTHEMUMS, in pots, should be thoroughly watered, using liquid manure occasionally. Discontinue stopping the shoots after the middle of the month.

TRICOLOR AND ZONAL GERANIUMS, intended for fine specimens, should have a shift into larger pots, in good rich soil. Pinch off all blossoms, as they appear, and stop the strong growing shoots.

PANSY SEEDS may be sown this month, for early spring blooming.

CINERARIA AND CALCEOLARIA SEEDS may be sown this month.

BOUVARDIAS should be topped, in order to make strong bushy plants.

FERNS should be shifted into larger pots.

CALADIUMS may now have a final shift into large pots, and be shaded from the noonday sun.

TUBEROSES, for late blooming, should be shifted into larger pots.

JAPAN LILIES, in pots, out of flower, should be sparingly watered.

HELIOTROPES, STEVIAS, and similar plants, for winter bloom, should have the strong shoots stopped, in order to maintain a dwarf, compact growth.

OXALIS BOWIEI may be potted this month.

CHINESE PRIMROSES should be shifted into larger pots, and kept in a frame, protected from the hot sun.

MIGNONETTE should now be planted in pots.

FLOWER GARDEN AND SHRUBBERY.

The dry weather has been very severe upon lawns, and very little cutting has been required. With rainy weather they should be well rolled. Cut grass or box edgings, and clean, rake and roll the walks.

DAHLIAS will soon begin to bloom, and they should be kept pruned of superfluous laterals, and tied to strong stakes.

GLADIOLUS, coming into bloom, should be tied to neat stakes.

ROSES may now be layered.

NEAPOLITAN AND OTHER VIOLETS should be kept clear of weeds, and watered if the weather continues dry.

CARNATIONS AND PICOTEEES should be layered for a new stock.

DAISIES may be divided and reset.

PERENNIAL PLANTS, raised from seeds, in the spring, should now be planted out into the border.

WHITE LILIES may be dug up and transplanted, if more stock is wanted.

SUBTROPICAL PLANTS flourish in the warm weather we have had, but they need plenty of water, especially Cannas, and other large leaved plants.

CULTURE AND PRODUCTS OF THE VINE.

At the meeting of the Pomological Society in St. Louis, the President, Hon. Marshall P. Wilder, was called upon to give the results of his observations in Europe as to the relative merits of American and European wines. In accordance with this request Mr. Wilder gave an interesting statement of his observations. On his arrival in Paris he was appointed one of the American Commissioners, with Mr. P. Barry of Rochester, and was charged with the duty of looking after the interests of vine growers. It appears that the American wines had already been examined before the arrival of Mr. Wilder, but in such a casual and unfair way that he appealed to the imperial commissioners for a reëxamination of the American wines, but did not obtain it. He then asked that a special committee be appointed. This was acceded to, and they had *carte-blanche* to open and test all the wines. In this examination the most eminent judges of wine were invited to be present. The samples had been kept in an unfavorable place, and some of them were soured. Still they were tested with some of the best wines from the Rhine. The European judges admitted, after the trial, and they said to Messrs. Wilder and Barry, "If you can make such wines in America you will never want our wines." "You are on the right track." The opinion prevailed among the gentlemen of the Committee, that our wines compared favorably with the wines of the Rhine.

Messrs. Wilder and Barry visited the cellars of the celebrated Johannesberg wines, and tested samples. They never tasted such wines before; yet Mr. Wilder stated that he had tasted Delaware, Diana, and Herbemont wines, which, when well made, compare favorably with the majority of the Johannesberg and Steinberg wines.

After other interesting statements by Messrs. Wilder and Barry, a vote was passed requesting these gentlemen to write out an account of their observations, but the Secretary, in a note, states that having already submitted a Report to the

United States Government, they could not comply with the request.

The Report alluded to appeared in the Monthly Report of the Department of Agriculture for March, and occupies several pages. It is particularly valuable to vineyardists, and manufacturers of native wines, and interesting to cultivators generally.

The Report commences with a general statement regarding the quality of the French wines usually furnished the American traveller at hotels or cafés. Few of them are pure, but are manufactured from the cheapest wines, purchased at thirty to forty cents per gallon, and put up and labelled with all the high-sounding names of "Medoc," and sold at enormous profits. There are about 4,000,000 acres of vines in cultivation in France, yielding an average of 1,200,000,000 gallons of wine.

The Committee remark, that as America is destined to become a great wine-producing country, her people ought to be better acquainted than they are with the higher grades of foreign wines; so far the standard of excellence is comparatively low. Our aim should be to elevate the standard of taste, and with it the greater will be our success. We must of course rely upon improved varieties of our *native* grape, except in California, and our reliance, the Committee state, must be in developing the character of these varieties.

As showing the effect of soil and experience, very important in the cultivation of the grape, either for the table or wine, the Committee describe the soil of Medoc:—

The soil of Medoc, where stand "Chateau Margeaux," "Chateau La Fitte," and "Chateau La Tour," is a bed of coarse gravel, among whose pebbles the eye can barely detect soil enough to support the lowest form of vegetable life. In the vicinity of Beziers, on the other hand, the land is rich and strong enough to yield any kind of a crop; yet Medoc grows wine that often sells for ten dollars per gallon, while that of Beziers sometimes sells for the half of ten cents per gallon. In Burgundy there is a long hill, on whose dark red ferruginous limestone sides a wretched thin covering of earth

lies, like the coat of a beggar, revealing, not hiding, the nakedness beneath. Here stand little starveling vines, very slender and very low; yet here is the celebrated "Clos Vaugeot," and this is the hill, and these are the vines that yield a wine rivalling in excellence and value that of Medoc, and to the fortunate proprietor the *Coté d'or* is what it signifies, "a hillside of gold." At its base spreads out a wide and very fertile plain, covered with luxuriant vines, whose juice sells from ten to twenty cents per gallon.

On the preparation of the ground and planting, the Committee speak as follows:—

This is probably as well understood in America as in France. We usually break up to the *dépth* of two feet and drain thoroughly. In many parts of France they trench to the same depth, but in many other parts this is impracticable, unnecessary, or injurious. Here, the distance between the vines is from eighteen inches to two feet, according to their size. We, however, are compelled, by the greater vigor of our vines, to place them five and six feet apart.

In Burgundy, Champagne, and some other districts it is the practice to renew the vigor of the vines, by laying down the cane and rooting the plant in a new place, which quite breaks up the original lines, so the plough cannot be used. This is doubtless a good way to renew the strength of the plant, but it is objected to by high authority, on the assumption that the older the stalk is the better the wine will be; on the other hand, Champagne wine dressers have attributed to this practice in a great measure their almost total exemption from the vine disease.

But then again, others attribute that exemption to the general and long established custom of spreading over the vineyards a bituminous shale containing sulphur, a well-known antidote; and here we would recommend most strongly to our countrymen a renewed and sustained effort to combat mildew with sulphur. The experience of France and other countries is entirely in its favor, and its use is still felt to be necessary, and is still kept up.

We think Americans have not been thorough enough, and patient enough. Let them try again, and this time let them begin early, and be sure to follow carefully these rules on the subject, which have been hitherto much better promulgated than observed. On rich and level land, a common plan in some districts is to set out double rows of vines at wide intervals, in fields chiefly devoted to other crops. The free exposure to sun and air thus secured seems largely to augment the yield, and this will be understood by any one who has noticed the superior productiveness of such of his vines as grow bordering on a wide alley or other open space. This is very different from planting vegetables, &c., among the vines, which is a bad practice.

Formerly the vines were mostly trained to stakes, but more recently the wire trellis has been adopted, and the following account is given of the mode of construction:—

These are becoming quite popular here, as we think they are in America also, notwithstanding the cheapness of wood. The size of wire preferred is number 16, and but two wires are used. Our large vines would need three wires. They are stretched to strong posts set 20 feet apart, passing intermediately through holes of smaller posts or stakes. On the lower line, about 18 inches from the ground, the fruit-bearing wood is trained, while the upper line, about 18 inches above the other, supports the new wood. Many prefer to allow the fruit-bearing cane to do service two years, instead of one only, as is the practice in America. There is no doubt that with wire trellises the pruning, tying, pinching off, &c., can be much more cheaply done than where the training is to stakes, and from the way the clusters depend from the horizontal cane, it is easy to see that there must be also a superior access of sun and air, and a greater ease in gathering the vintage.

It has been supposed that vines are not protected in the vineyards; and in the warm parts of France they are not, but in Germany and Hungary they are covered as we cover our

own vines in New England. Severe frosts not only destroy many vines, but greatly enfeeble the wood that is not killed.

It is a common practice to go through the vines with a plough every fall, and throw up a good ridge of earth against the stalks. The Hungarians have a more effectual way of guaranteeing against the cold of their vigorous winters, which is to lay the vines on the ground, cover them with straw, and on the straw throw the earth; without this it is said they could produce no wine at all. Our native grapes are generally hardy, and will live wherever their fruit will ripen, but occasionally there is a severe season which seems to touch the very heart of the wood, and so enfeeble it that it falls an easy prey to disease. It was noticed that the mildew set in with great destructiveness after the two hard winters of 1854 and 1856.

The thorough covering employed in Hungary would secure it against such occasional risks, and also might render it possible to grow European vines in our country. By its means, too, we could, perhaps, make the "Scupper" live in our northern States, and obtain from it a sparkling wine, of foam and flavor unsurpassed. From these considerations and others, we recommend to the wine-growers of our more northern States to lay down and thoroughly cover their vines regularly every fall; and to those in milder regions, to bank up the earth against the stalks as is done in France.

These extracts embrace the principal points in regard to culture, but a great deal of general information is scattered throughout the Report in relation to white and red wines, the Reissling and other grapes, the management of the Johannesberg vineyards, &c.:—

Your committee would say, in conclusion, that from what comparison we have been able to make between the better samples of American wines now on exhibition at the "Paris Exposition," with foreign wines of similar character, as well as from the experience of many European wine-tasters, we have formed a higher estimate of our own ability to produce

good wines than we had heretofore; and from our investigations in vine culture we are now more confident than ever that America can and will be a great wine-growing country. All that is necessary for us to rival the choicest products of other parts of the world, will ere long come with practice and experience. We have already several excellent varieties of the grape borne on American soil, and suited to it a soil extensive and varied enough for every range of quantity and quality. Who would discover a patch of ground capable of yielding a "Johannesberger," a "Tokay," or a "Margeaux," need only make diligent and careful search, and, somewhere between the lakes and the gulf and the two oceans that circumscribe our vineyard territory, will be sure to find it.

The Report is signed by M. P. Wilder, A. Thompson, W. J. Flagg, and P. Barry.

OBJECTS TO BE SOUGHT IN POMOLOGICAL SCIENCE.

BY WILSON FLAGG.

THE science of pomology, though it may be regarded by some persons as a matter that concerns those only who are seeking a new luxury, for their own gratification, has a very important bearing as a question of political economy. Fruit, considered as a staple article of human subsistence, is second in importance only to the cereal grains, whether it be raised for home consumption alone, or likewise for exportation. The apple crop is a source of considerable revenue, to thousands of farmers in the northern States, and a general failure of this crop is felt as a serious calamity. It was an important suggestion of Mr. C. M. Hovey, at one of the early meetings of the Pomological Society, that the fruit culture should be encouraged by the Society and its branches, as a source of national wealth, and that their attention was liable to be devoted too much to the multiplication of new varieties.

A consideration of profit will cause any people to raise those crops and to manufacture those goods, which will find a good market, so far as their climate and circumstances will admit. The people soon determine these matters, after a little experience; but it is not always in the power of the producing classes to determine these matters for a future year. It is more easy to decide upon the profitableness of a grain crop, than of a fruit crop. If a farmer is about to plant an apple orchard, which will not be productive under fifteen or twenty years, he must calculate the probabilities of the value of his orchard at the end of that period; while if he is preparing to plant corn, he needs only make his calculations for the next year. In planting an orchard, he must sink a certain amount of capital for as many years as it would require to become productive. He is sure of quicker and greater returns by investing his capital in almost any manufacturing stock. It is on account of these unfavorable circumstances, that our legislatures and societies should encourage by all practicable means the expensive work of planting orchards.

Our pomological societies have, therefore, accomplished much good, by directing the attention of the different states to the most profitable kind of fruit culture for their respective regions. Their primary object ought not to be to encourage the production of new and delicate varieties of fruit, to gratify the fastidious taste of epicures; but rather to gather the views and experience of practical cultivators, discuss them at their meetings and to publish the results for the benefit of the public.

There are certain qualities of fruit that should take precedence of mere delicacy of flavor. But there is a tendency among wealthy amateurs to recommend those varieties of fruit that please the taste, though they may be unprofitable to the cultivators. Gentlemen who raise fruits only as they raise flowers, as matters of fancy and curiosity, must not mistake their own motives for such as should guide a pomological society, which ought to recommend to the public such fruits only as are both productive and marketable; for the continued salableness of any article, in which fashion

does not interfere, is proof in all cases of its goodness; or at least of its possession of desirable qualities.

There seems to be a general disposition to seek after the *philosopher's stone* in fruit culture. The public needs to be informed that the limits of improvement are not endless. There are limits, both with respect to quality and productiveness, and these have probably been attained already; and it is only necessary that the public should be correctly informed in regard to those varieties which may be considered the *ne plus ultra* of improvement. It is generally admitted that the most delicate and melting sorts of fruit are not the most prolific. Delicacy of flavor and superior productiveness, if not incompatible qualities, are not often found combined in one variety. How much soever we may theorize concerning this principle, the general fact will not be denied. The same law extends to root crops. The finest varieties of the potato are commonly the least productive; and the most liable, like the finest fruits, to be affected by disease. A second rate sort, therefore, that is productive, is to be preferred to a first-rate sort, unless the difference in their productiveness be small. It is better for the public, as a matter of political economy, that a given number of fruit growers should make a thousand dollars a piece by the sale of as many barrels of good fruit, than that they should make the same amounts by the sale of as many pecks of a rare and unproductive sort.

The American Pomological Society has given deserved attention to the geographical capacity of different parts of the North American Continent, for fruit culture. Not only is the North or the South favorable or unfavorable for the raising of certain kinds; but there are localities in every state which are warmer and others which are colder than the general climate of that region. The coast of Massachusetts has a somewhat different climate, from that of the extreme western counties, and the region among the mountains, of North and South Carolina, differs still more widely in its climate from the coast. But there are modifications of climate within very narrow limits, caused not only by difference of elevation, but also by the relative position of mountains and valleys. There is no end to the circumstances that serve

to modify the climate of particular locations, for better or worse. Hence we may account for the origin of certain local prejudices, in regard to the raising of certain crops. Facts might be collected from the experience of cultivators, in these exceptional districts, that might lead to the discovery of some valuable principles in the art of acclimatizing fruit.

The importation of foreign varieties is good for the chance of obtaining a profitable sort; for it is remarkable that, in some rare cases, a foreign variety succeeds better than a native variety. It is well known also that some kinds that originated in Massachusetts succeed better in a Western State than here. The contrary of this fact is also true. But these are exceptional cases. In general native varieties of fruit succeed better than imported varieties. It has been stated by Mr. Wilder that "out of *fifty* varieties of American peaches grown in the garden of Chiswick, England, only *two* were adapted to the climate." Similar results would attend the cultivation of English varieties in this country. For this reason the American Pomological Society wisely refrains from recommending a foreign kind until it has proved its capacity for acclimatization here.

Another point of inquiry is, if this or that kind of fruit ought to be raised in any particular sections of the country as a staple commodity. Considering the raising of fruit merely as an amusement for amateur pomologists, this point is of little importance; but to the mechanic, the farmer, the professional man, and to all indeed, who wish to make the most profitable use of their land and their labor, it is important to know what kinds of fruit can be raised with the greatest chance of profit in their own soil and climate. This involves the question of the commercial value of certain crops. It cannot be generally profitable to raise any fruit as an article of exportation, unless the district in which it is raised enjoys either superior facilities for sending it to a market, or a climate and soil peculiarly favorable to it. It is profitable for the New Jersey people to raise peaches for the New England market, on account of its proximity, and its incapacity to raise this fruit abundantly on its own ground. But if New Jersey could raise apples as well as peaches, it

would find New York and other states powerful competitors in the apple market, while it enjoys almost a monopoly of the sale of peaches.

These geographical problems in fruit culture are very far from being solved. It is still questionable what part of the United States is best adapted to extensive pear culture. Probably the apple region would be found to embrace most of the country that lies north of the 40th degree of latitude; and the peach locality would embrace nearly all the country south of it. But it is not to be understood that apples may not be abundant in the region of the peach or peaches in the apple region. It is only asserted that the north is more favorable to the apple and the pear and the south to the peach and the grape; so that as competitors in great markets, we could easily decide which region would be most successful.

The pear seems to be less affected by latitude than either the peach or the apple. As the winter apples of the Northern States are the better for keeping, and therefore, for exportation, the states in high latitudes, must eventually be distinguished for this crop as an article of commerce; and winter pears will be raised in the same states with nearly equal advantage. Of the small fruits, cherries, gooseberries, currants, strawberries and raspberries are most prosperous in the apple region. Blackberries and whortleberries are abundant in the Southern Atlantic States; but the other small fruits are better adapted to a northern region.

At the present time New York exports more apples than any other state, supplying the large markets of New England, where from various causes, some yet unexplained, the apple has not prospered for several years past. New England, with its granite soil, is probably a better apple country than the limestone region of New York. But New York is more exclusively devoted to agriculture, while New England devotes a large proportion of labor to manufactures. Wherever the lands afford good natural pasturage throughout the summer, the apple finds a congenial climate; but a limestone soil is not so favorable to this fruit, as one formed of the debris of slate and feldspar.

New Jersey is the most distinguished of all the states for

the goodness and abundance of its peaches; for though not better adapted to the peach than some other states in the same latitude and south of it, this state occupies the most favorable position for exporting peaches to a northern market. Peaches do not prosper in Maryland, on account of the severity of its spring frosts, and the frequency of winter thaws. A few warm days will occur in winter, starting the sap of the trees and swelling the buds, followed by cold north winds, bringing with them severe frosts which are often fatal to the crops. There is the same liability to frost during the blossom which happens very early. The climate of this region is admirably adapted to the ripening of any fruit, that escapes the vicissitudes of the winter and spring. New Jersey and Delaware are rendered less liable to these accidents by their proximity to the sea, which retards vegetation in the spring, and ameliorates the severity of the cold changes. In the District of Columbia complaints are more frequently made of nipping spring frosts, than in the high Northern States; and this liability to sudden changes, after the blossom is out, will probably, for many years to come, greatly injure the prosperity of the Middle States as fruit growing regions.

No single state is more highly favored than Michigan for the production of all kinds of northern fruits. The extremes of its temperature, and that intensity which would follow from its inland position, are modified by lakes Huron and Michigan, which almost completely surround it. Climates of great intensity are apt to be proportionally unfavorable to fruit. Our own continent is somewhat unfortunate in this respect, the climate of the interior being both intense and extremely variable. The winters of Illinois, for example, often kill the pear tree, while the winters of the State of Maine are seldom injurious to it. It is their freedom from intensity and variability of temperature, compared with the interior States, that must render the Eastern States and Michigan eventually the most successful producers of fruits for winter use.

In the Southern States, the summers are so long and so hot, that only the early varieties of the apple have hitherto prospered there. Their winter-apples drop from the tree

before they ripen. But these kinds were obtained from the north. Lately, according to Mr. Redwood, experiments have been made with native winter apples which have succeeded well even as far south as Georgia. These varieties were obtained chiefly from the mountainous districts; and their success seems to indicate that the Southern States may be able to raise winter apples nearly sufficient for home consumption.

In conclusion, it appears that nearly all parts of the United States may profitably raise the most of the northern fruits to supply their home markets; and the skill and science of cultivators may finally overcome many of the difficulties which have attended the acclimatization of northern fruits in the warm latitudes. Although no region in the world is better adapted to the culture of the apple than the New England States, the farmers of this section have given less attention to this fruit than a full knowledge of their interest would dictate. Within the past ten years they have been discouraged by the general failure of the apple crop and the ravages of the cankerworm; but such failures have occurred at irregular periods in all countries and with all crops. There is no reason to suppose that the prosperity of the apple crop will not revive again, and perhaps in a very few years become as great as at any former period.

POMOLOGICAL GOSSIP.

THE GOLDEN CHAMPION GRAPE, which we have before noticed, as exhibited before the Royal Horticultural Society, July 6th, and unanimously awarded a first-class certificate, is figured in the Gardeners' Chronicle. It is quite as large as the Cannon Hall, a little more tapering in the berry, and the bunches are large, measuring fully ten inches broad and fifteen inches long; they are also heavily shouldered. Color, clear pale amber, or golden, inclining, when fully ripe, to a deep amber, on the exposed side. The flesh is firm, rich,

yet remarkably juicy and tender; the flavor rich, somewhat of the character of the best ripened Black Hamburgs, but exceedingly luscious and agreeable.

It was raised by Mr. Thomson of Dalkeith, five years ago, between a seedling of the Champion Hamburg and the Bowood Muscat. The plant is remarkably fine and robust in growth, and very prolific, requiring exactly the same sort of treatment as the Hamburg. The leaves most nearly resemble those of the Muscat; they are slightly lobed, and very deeply and sharply serrated, and the leaf stalks have a reddish tinge.

It is a noble grape, and one which will take the highest rank among white varieties. It supplies a desideratum which has long been felt, viz., the promise of a white grape of easy culture like the Black Hamburg, which is, *par excellence*, the very best constituted grape in cultivation; the gardeners' sure and trusty friend. It will be offered for sale the coming autumn.

NEW STRAWBERRIES.—At the Meeting of the Western New York Horticultural Society, at Rochester, June 24th, there was a very good exhibition of strawberries, and among them some new seedlings. Jacob Morse exhibited several varieties; J. Keech, Waterloo, several seedlings, one called Trumpet, large, brisk, pleasant flavor. H. Russell, Seneca Falls, two new seedlings, large and promising. T. R. Peck, Waterloo, 33 seedlings, many of them very large and showy.

NICANOR, Messrs. Ellwanger & Barry's new seedling, is highly spoken of as a market fruit, likely to surpass the Wilson. The color of the fruit is bright scarlet, and it has the flavor of the Triomphe de Gand, from which it was raised. The vines are very vigorous, hardy and productive.

HATHAWAY'S SEEDLING STRAWBERRIES.—Mr. B. Hathaway of Little Prairie Rondé, Mich., gave a long account of his seedling strawberries in the Western Rural. Out of a large number he has four, designated as Nos. 1, 6, 9, 3, which he thinks very valuable, and, as for product, however much it may seem like exaggeration, "it was no unusual thing to pick a heaping quart from a hill at one picking, from either of these numbers, except 6."

No. 1, for field cultivation, will take the lead; the berry is

light scarlet in color, about the size of the Wilson, with fewer small ones, hang on the vines well, and as for fruitfulness it is a marvel to behold. One hill, no ways remarkable from the others, produced one and one-third of a quart, or at the rate of four quarts to three hills. To say that my No. 1, alone, as a succession to the Wilson, is worth more than all the sorts disseminated since the introduction of that variety, is but to give expression to the opinion of every fruit grower that has seen it in fruit in my grounds. It is a staminate sort. The other Nos. are pistillate.

ROMEYN'S SEEDLING is the name of a new variety raised by M. Romeyn of Kingston, N. Y., specimens of which were exhibited at the Farmers' Club of the American Institute, and reported upon by a committee, who state it is a very vigorous plant and large bearer,—in color and size equal to any berry that has any merit for flavor. It yields as well as the Wilson, and in flavor and appearance resembles the *Triomphe de Gand*. Twelve berries, selected from Mr. Romeyn's vines, weighed twelve ounces. The best hybrid in the garden is six years old. Mr. C. Downing states that "having examined this variety the present season, in garden and field culture. I think it a promising variety; if it succeeds as well in other localities it will prove an acquisition. The fruit is large, fine color, very firm, excellent flavor, and productive, and the plant seems hardy and vigorous. Continues late in bearing."

RANDOM THOUGHTS ON WILD PLANTS.

BY A. C. R.

A ride in the cars to Gloucester, and then by stage to Annisquam, this tenth day of August, revealed much wild and picturesque scenery, snug houses, thrifty orchards, amid huge bowlders and almost sterile hill pastures; but the gorgeous exhibition of the Fire weed on each side the railroad, amid the burnt stumps of trees, along the rocky slopes and covering the wide area as far as the eye could reach or the

opening of the woods would allow, naturally suggested why this beautiful plant should not receive the attention of florists and be subjected to cultivation.

The *Epilobium angustifolium*, says Dr. Bigelow, in his Plants of Boston, is a tall plant, bearing a profusion of blue (?) flowers, or perhaps rose colored flowers would be a better expression; and Dr. Darlington, in the Flora Cestrica, describes them of a purplish lilac-color; the plant, though unfortunate in being named by Linnæus as the narrow leaved Willow herb, seeing its leaves are much wider than those of kindred species, "is, in fact, quite pretty—with large racemes of showy flowers;" and Torrey and Gray, in their excellent Flora of North America, tell us that it is a plant with large flowers, in a virgate raceme, of a purplish lilac color, and "sometimes white," on the authority of Pursh, he finding it in "wet springy ground, in the mountains of New Hampshire, New York and Pennsylvania, also in Canada, with beautiful purple flowers." The united testimony of botanists thus bespeaking its merits, and loud in its praise, it were not unlikely that fine and marked varieties could be originated, beside the native "white" one; for instance, deeper lilac, richer "purple," striped red and white, mottled, spotted, speckled, vying with the phlox, which within so few years has so vastly improved from the original, as it still lingers in its questionable beauty in old gardens or beside some door in the village. That its winged seeds might scatter it far and wide, and make it an obtrusive weed is no valid objection, for many are the choice flowers of the garden which lie under the same grave charge. The rapidity of motion did not allow the smell of the glaucous magnolia which grew concealed in many a bog and swamp of the woods, even supposing that a few lingering buds were yet expanding, but instead the eye feasted itself on the myriad pure white pond lilies, (*Nymphaea odorata*) which covered the sluggish streams or enamelled the stagnant pools. And occasionally the glimpse of a yellow Canada lily, or of the rich orange and elegantly constructed upright lily, (*L. Philadelphicum*) delighted the observer, as they gleamed amid the grass. How strange the taste which imports at great expense the rarities of Japan, in varieties

of *Lilium aurantiacum* and *tigrinum*, and does not try to cultivate the native *L. Catesbaei*, the *superbum* and the above-mentioned, and improve (?) them by art. On the opening of one of the flowers of one of these oriental dainties, after long and patient waiting, "it is good for nothing," said a zealous amateur, "not a quarter as pretty as the red lily of our whortleberry pastures," and the by-stander thought he was at least half right. But far fetched, dear bought, will long be an argument for admiration and adoption, and the more costly the more prized.

FLORICULTURAL NOTICES.

THE LILIES.—A very fine show of lilies has been made at the exhibitions of the Massachusetts Horticultural Society. These have embraced very fine specimens of the native *L. superbum*, *canadensis* and *philadelphicum*, showing that they equal if they do not excel any of the foreign lilies, unless the Japan. The colors are not so delicate and cheerful as many of the foreign sorts, nor the flowers as large, but for stateliness of growth, and profusion of bloom, they rival them in effectiveness and general display.

Among the newer kinds were some varieties of the *L. umbellatum*, *L. Buschianum*, *L. tigrina Fortuni*, and others. These lilies were shown by Messrs. Parkman, Rand, and Hovey.

Messrs. Hovey again exhibited their seedling lily, which had expanded ten or twelve of its large and superb blossoms on three stems, maintaining its rank as the most remarkable of lilies.

EXHIBITION OF CALIFORNIAN CONES.—Not exactly floricultural, but highly interesting arboriculturally, an exhibition of California cones was made by J. Q. A. Warren, at the Massachusetts Horticultural Society, comprising a collection of the cones of *Pinus Lambertiana*, *Sabiniana*, *Coulteri*, *insignis*, and *ponderosa*, *Picea nobilis* and *grandis*, &c. Some of these cones were of immense size, and of rare beauty, showing how

magnificent these California trees are, where the climate is favorable for their growth. Few things could be more ornamental than a splendid tree covered with these cones, some of them a foot or more long. It is the first collection ever exhibited in Boston, and is an evidence of the ornamental character of our American coniferous trees. Mr. Warren was awarded a silver medal for the collection. We understand that a set of these cones, numbering thirty or forty species, was secured for the Boston Society of Natural History; and that other collections have been ordered by amateur cultivators of evergreens.

FINE GLADIOLUS.—The new Gladiolus are great improvements upon the older varieties. W. C. Harding, Esq., exhibited a dozen specimens on the 14th of August, which were remarkable for their beauty and distinct character. The names of some of these were Mozart, Eugene Scribe, (very fine), Thunberg, Ad. Broigniard, Urania, La Fiancée, Princess Alice, and Stella. These are much in advance of anything we have seen, either of the foreign or American varieties. Our cultivators must be on the alert to compete with the French growers of this splendid tribe. Eugene Scribe is a most superb flower, of a light rose and carmine, and Ad. Broigniard, a very rich light scarlet. Stella, yellow and rose, extra.

PALMS AS DECORATIVE PLANTS.

WE have, in a previous volume, and at various times, recommended the growth and introduction into our gardens of many of the easier cultivated sorts, for the purpose of decorating the lawn in summer, and the conservatory or parlor in winter; and we have been surprised at the slight interest which has been manifested by gentlemen of wealth and taste in this noble tribe. The extent to which they are grown in Europe is almost incredible. It is no uncommon thing for some of the German nurserymen, who make a

specialty of their culture, to raise them by the thousand, and to find a demand for the whole stock. Of course, with the great wealth and advancement of horticulture in Europe, it is not to be expected that they should be appreciated with us in the same way that they are there; this may come in time. Yet, with the well known love of amateurs for ornamental plants, it is surprising that palms should be so much overlooked.

On the Continent their introduction is not confined to gardens or special collections, but they are employed everywhere for the decoration of halls, large rooms, corridors, indoors, &c., and upon all festive occasions, their stately forms, and rich foliage, being much more effective and grand than simply flowering plants, which soon lose their beauty, and fade and wither under the high or close atmosphere and gas of crowded rooms.

For the lawn in summer, or around the house, upon the veranda, or balcony, they give an ornamental aspect, at all times highly attractive. The very hardy kinds may be kept in a light warm cellar in winter, but to have them in their greatest beauty a cool house is better. Those that require a higher temperature are less desirable, except where there are appropriate and roomy houses to winter them. Where they can have such a place they grow rapidly, and soon form superb objects.

M. Burel, a French cultivator, in an article in the "Horticulteur Français," has given a list of some of the best palms adapted to the general purposes of decoration, both in the open air, and for rooms and conservatories. Many of them are yet rather rare, and difficult to obtain; but with a good demand there would soon be a supply of handsome plants.

Some of the best for ordinary houses, and for the lawn, requiring but little care, are the following:—*Chamærops excelsa*, *C. humilis*, *Corypha australis*, *Latania borbonica*, *Thrinax elegans*, *Seaforthia elegans*, *Cocos australis*, *coronata* and *flexuosa*, and *Phoenix dactylifera*.

The following is the list recommended by M. Burel:—

The employment of palms for the decoration of large

rooms, corridors, halls, windows, &c., is not by any means as general as it ought to be in this country, considering how easy is the culture of many of the species. Size need not form an obstacle, as there are many of comparatively small proportions, nor is a high temperature necessary in all cases. With a view of calling attention to their use as ornamental plants for the localities indicated, we extract, from an article of M. Burel in the "Horticulteur Français," the following list of suitable species:—

1. LEAVES FAN-SHAPED.

Chamærops excelsa.—The habit is somewhat stiff in youth. It is very hardy, bears cold without inconvenience, and may be grown for a long time in rooms without injury.

Chamærops humilis.—This species does not bear the cold so well as the preceding, but it does well in ordinary temperatures, and its habit is graceful, especially when grown as a stove plant.

Chamærops Martiana.—Not so common as, and more tender than, the preceding.

Chamærops stauracantha.—This species demands a constant high temperature and free exposure to light. It is impatient of cold.

Rhapis flabelliformis.—Very well adapted for culture in rooms if kept away from chimneys and hot draughts, and placed close to the light.

Rhapis humilis.—Rather scarce; the same remarks apply as to the foregoing.

Corypha australis.—A fine palm when once it has got into growth; it does well in rooms at the ordinary temperature if kept away from cold draught.

Corypha rotundifolia, *Jenkinsii*, *mauritana*.—These rather rare species require, in order to grow them well, a warmer temperature than does *C. australis*, and also free exposure to light.

Latania borbonica.—A magnificent palm, generally grown, but which requires considerable heat. Its leaves should be frequently syringed and washed, and the plant should get as much light as possible.

Latania rubra.—A beautiful species, but one that requires

a situation where the temperature is kept high. It is not much employed.

Sabal umbraculifera.—Less elegant than the *Latantias*, but hardier.

Sabal Palmetto.—An excellent species, which does well in apartments.

Sabal Adansonii.—Will do well for a considerable time at the ordinary temperature of apartments.

Thrinax argentea.—A very elegant palm, which does well for culture in rooms, but it is rare.

Thrinax elegans.—A charming plant, with elegant and graceful habit. It is much employed to decorate vases in saloons by reason of its small size. It prefers a sustained high temperature. All the species of *Thrinax* are excellent palms, which may be grown for a long time with care and with the necessary heat, but they are not common in the trade.

2. LEAVES PINNATE.

Phœnix dactylifera, sylvestris, reclinata.—These palms with elegant foliage are very hardy, they may be grown for a long time in saloons at the ordinary temperature; they are not very sensitive to cold, but are difficult to keep clean.

Fulchironia senegalensis.—An excellent plant, especially for large and tall or raised vases, by reason of its spreading leaves. This palm has also the bad quality of retaining the dust on its leaflets, but on the other hand it is very hardy, but little sensitive to cold, and does well if freely supplied with water.

Areca sapida.—A fine plant, dear and scarce; it does not require much heat, but demands plenty of light.

Areca rubra requires a continuous high temperature, and is impatient of cold draughts and excess of moisture.

Areca lutescens requires the same temperature as the preceding, but is less tender. All the *Areca*s require warm localities, free from draughts of cold air. They must not, therefore, be placed on balconies with the view of exposing them to the fresh air, when the external temperature is not higher than 8—10° Cent.

Jubæ spectabilis.—A very strong growing (*solide*) palm, but scarce.

Chamædorea Ernesti-Augusti, *clatior*.—These palms do well in a room with ordinary heat. They can, however, only be employed in the young state, as they soon lose their lower leaves.

Seaforthia elegans.—Large and beautiful plant, which does well in well-lighted rooms with sufficient heat. The same remarks apply to *S. Dicksoni* and *S. robusta*, which are rare in cultivation.

Cocos australis, *comosa*, *coronata*, *flexuosa*, &c.—Large palms, with elegant and slender foliage, very useful for grouping in masses against walls or by the sides of mirrors. Ordinary temperature suffices for them.

Attalea spectabilis, *speciosa*.—Very handsome palms, but scarce. They require a high temperature.

Caryota urens, *Cumingii*, &c.—These palms are fit for the decoration of halls, but to preserve them a continuous high temperature is required. They have not the majestic appearance of some other palms. Their leaves appear as if gnawn by insects. They would only be useful in decorations on a large scale, and by way of contrast.

Ceroxylon niveum, *andicola*.—Bold foliage, but not very elegant. Plants of moderate duration requiring considerable heat; rare and dear.

Geonoma magnifica, *Verschaffeltii*, *Ghiesbreghtii*, *Porteana*, &c.—The *Geonomas*, though hardy enough in the ordinary temperature of saloons, are not in much request, by reason of their entire and not very elegant foliage.

Calamas.—Pretty palms, but rare and high priced. They require a continuous high temperature.

Dæmonorops melanochetes.—A charming little palm, requiring considerable heat; dear and scarce.

Elæis guineensis.—This palm, very suitable for vases, requires a warm temperature, and exemption from cold draughts.

Trithrinax mauritiæformis.—This little palm is suitable for vases in saloons, but requires a continuous heat.

General Notices.

THE RAT TAIL RADISH (RAPPANUS CAUDATUS).—Few amongst us know the real value and use of this singular vegetable. When the plant was first introduced, few really practical men would take the trouble to give it a fair trial. I am, however, rather partial to the delicate flavor of the young pods, when eaten like common radishes, as a relish, with bread and butter, for breakfast. Nevertheless, I have never seen or heard of its being in regular use until the other day, when I had the pleasure of visiting the fine gardens at Sandringham, the princely seat of H. R. H. the Prince of Wales. There I saw a goodly patch of this radish growing in the open border, and one of the men picking a handful of the pods, to be included in the ordinary basket of salads for the day. Mr. Carmichael, the gardener, told me that he always kept a regular supply of it, and that it was much used and relished at the royal table, a fact surely worth knowing. It is a plant of easy cultivation; it will grow in heat, in pots; and it may be had even in the open borders; and in a season like the present, when common radishes are not obtainable, and when nearly all sorts of salading are at a premium, the Rat-tail radish will be found extremely useful. The pods must be used while they are quite young and tender, when by being slightly bent they will snap in two,—just about the same age and condition in which we now use our common kidney beans.—(*Gard. Chron.*)

LILIUM AURATUM.—There is, as you have justly stated, nothing extraordinary in the quantity of blooms produced by this lily at the Edgebaston Nursery. I have a plant of it here in a 16-inch pot, which has already produced seven stems, on which is an aggregate of 52 flowers, and on one spike yet unexpanded, are 49 healthy well swelled flower buds. I grow my plants in good peat, and I do not shake out the bulbs when the plants are dormant: on the contrary, I allow them to start again in the same pot, and shift onwards in the same compost. Much of the failure that sometimes takes place in the cultivation of this beautiful lily must be attributed to the division and shaking out of the bulbs, operations which not only bruise, but actually sometimes break away the outside ripe scales, each of which forms in itself a reservoir of nutriment for future growth and support.—(*Id.*)

MODE OF DESTROYING THRIPS, MEALY BUG, &c.—In conclusion I must mention a plan of treating scale, thrips, mealy bug, &c., followed by Mr. Cole, which he thinks original. If so, it certainly deserves to be well known as most simple, efficacious, and cheap. He merely makes a solution of mud, by mixing strong loam with water, and then dips the plant in it, or syringes it with the mud water. The latter sticks to the leaves and stems, and smothers the vermin, coating the eggs so that the larva cannot grow. In a week or ten days he syringes the plant with clear water, and generally finds it clean. He has lately treated some beds of verbenas infested with

the black bug in this way, with complete success. The verbenas, which were badly attacked, were pegged to the earth, and then syringed with the mud water. The latter impinging against the soil is forced up on the under side of the leaves and incrusts the vermin in an earthy tomb. The appearance of the bed was spoiled for a week, but already a new and healthy vegetation is growing up.—(*Id.*)

WEEDS.—But it is not flower beds only that are encumbered with weeds. Lawns and gravel walks are quite as much troubled in that way and require quite as much care and attention to keep them nice.

Upon lawns, perhaps the most troublesome weed is dandelion, because its roots run down so far that it is difficult to get it out, and if you merely cut it off near or just below the surface of the ground, the plant is almost sure to grow again. The peculiar mode of its growth renders it a particularly undesirable tenant upon a lawn. Its leaves grow horizontally and vertically, and cover as a thick whorl upon the crown of the root, so thick that no other plant can grow under them; and consequently when you cut off one or more plants, a bare space on the lawn indicates too plainly what you have done, until grass has had time to grow and cover it. If the soil will permit, the best instrument for dividing the root deep down, is an asparagus knife; but a stronger instrument is usually required, and there is probably nothing to beat a spade for the purpose.

In gravel walks the commonest weed is grass, for the eradication of which the finger and thumb is the best machine yet invented. In dry weather the grass is very hard to pull up; but after showers it comes up very readily, though it is rather back-aching work. Clover is of very common occurrence in garden walks, and from the extent over which its roots ramify it is difficult to pull up, except when the ground is damp.

FUNKIN ALBA.—Can any one give me information as to the proper treatment of the charming Funkin alba, so as to cause it to flower as abundantly as it does on the Continent. Last August there were on each side of the door of a hotel at Fontainebleau two large tubs filled with plants of it, with flowers as abundant as the leaves, and diffusing a fragrance similar to that of Lily of the Valley.—(*Id.*)

NERIUM SPLENDENS.—This Oleander, as grown and exhibited by Mr. Lees, Tynninghame, deserves special notice. It is usually so ill-grown and leggy, with a few flowers surmounting its foliage, that it seems almost a wonder how a specimen plant, four feet across, in capital foliage, with hundreds of gay blossoms as thickly set as a well flowered rhododendron, can be produced. Such, indeed, was Mr. Lees' plant, as shown at Edinburgh, and it was one of the most striking objects in the hall, particularly striking to the initiated culturist. Mr. Lees' plan of cultivation is to grow on the plant freely in an intermediate house for a couple of years, keeping it "near home" by pinching. When it arrives at something like specimen size it is gradually hardened off; the pot is matted with roots, and the wood

ripened in a cool greenhouse during the autumn and winter of the year previous to that in which it is intended to crop it with bloom. Nothing seems to be more easily managed, only it must be treated to copious supplies of water, and the foliage syringed to maintain a viridescent appearance. Really this is a subject worthy of the most advanced practitioner experimenting upon.—(*Id.*)

SHADING FOR GLASS-HOUSES.—On reading your answer to “Ignoramus,” respecting blinds, I have thought it might be worth while to record a different method of shading which we have had in operation here for several years, and which answers well, I would not say better than the plan you recommended, but as a roller involves extra cost it is sometimes important to know the cheapest method of accomplishing an object. Our plan is as follows:—We purchase “tiffany,” or “Brown’s floral shading,” and tack the material inside the houses. The operation is very quickly performed, and much time is saved; besides, the material lasts longer by being kept inside, the heat is greatly economized, and accidents, which so frequently happen through neglect, are prevented. I have tried this plan in our conservatory or show-house, without sustaining any damage in any way. I might say the same of our orchard houses, which are glazed with thick dark glass; notwithstanding this, we grow good solid, stiff, and healthy plants, with the shading fixed as has just been mentioned during several summer months. If some contrivance could be found for rolling up this inside shading, when not required, I am satisfied that the plan would be generally adopted. I might also say that we adopt a method of covering our ventilators, &c., with Haythorn’s hexagonal netting, and that by this means we keep our houses comparatively free from wasps, bees, and flies.—(*Id.*)

AMARANTHUS TRICOLOR AS A BEDDING PLANT.—Has any of your readers tried this beautiful plant for this purpose? I find that it is on an equality with regard to hardiness with the *Amaranthus melancholicus ruber*, *Coleus Verschaffeltii*, *Iresine*, &c.; but it far surpasses them all in brilliancy of color. It is liable to be attacked by red spider when grown under glass, but in the open air it grows freely, and the color is truly splendid.—(*Id.*)

LILIUM AURATUM.—On a recent visit to Mr. Andrew Turnbull, gardener to the Earl of Home, Bothwell Castle, I saw there an example of this gorgeous lily in great perfection. The plant was growing in a 13-inch pot, yielding one stem about eight feet long, with no less than 120 leaves. The number of leaves and the height of the stem clearly attest how closely they must have been arranged in tiers; and how necessary it is toward a successful inflorescence, to induce and maintain a corresponding breathing power, is, or ought to be, well known to every horticulturist. There were seventeen flowers on the stem, by no means an unprecedented number, for others have come within cognizance considerably exceeding this; but then

the flowers! each flower measured 12 inches across, and had the additional charm of great breadth of perianth, the segments overlapping one another, and the whole presenting a full and appreciable outline. To complete the description it must be added that the spike was as perfect as a hyacinth, the lower tier of flowers looking as if geometrically operated upon, tier after tier in an alternate manner keeping, in military phrase, in proper "dressed" position. The spike was thirty inches long and twenty-four inches across its base—a very picture of symmetry, both as regards foliage and inflorescence. From the above notice it will be seen that it is not so much a question of "Have you got *Lilium auratum*?" as it is, "What is your variety?" Many of the sorts under cultivation can never ape Mr. Turnbull's superb variety. But notwithstanding this remark there are thousands in the country equally as good, so that with a proper regard for cultivation gardeners can not only produce a striking object, taking size and free blooming properties into consideration, but a perfect mammoth, so artistically arranged as to individual flowers, and so perfect withal, that the florist dare not refuse it admittance within his prescribed domains. It is, too, one of the much needed plants in a cool conservatory during summer and autumn, standing out in bold relief to pelargoniums, fuchsias, and such other things as perpetually meet the eye and almost weary it by their constant repetition. Great size is always attractive, and when to that we have such beautiful spotting on a pure white surface, relieved with the bright golden bands that, as it were, form the thew and sinew of its existence, we have additional sources provided for commanding and eliciting our admiration.—(*Id.*)

NEW DWARF ARBORVITÆ.—Mr. A. G. Burgess of East New York recently favored us with the sight of a specimen of his new Dwarf Arborvitæ, which he has named Commodore Nutt. It is very dwarf, growing only four to six inches, and is very bushy, branching out close to and even below the ground, rooting at the base of the stems like box. It is perfectly hardy, and so dwarf and compact, that it will undoubtedly become one of the most valuable plants for edging, taking the place of box, which is always more or less injured in our climate. Mr. Burgess is now offering it for sale, and we have no doubt it will prove to be a plant greatly wanted. It has only the long linear leaves of the Dwarf Arbor Vitæ, more like the *Retinospora*, which gives it the appearance of some species of heath.

IREFINE HERBSTII (ACHYRANTHES).—Last summer, with plenty of water, it did well, and looked handsome. Our garden is situated on a hill with very light gravelly soil; in fact it consists of nothing but gravel, for twenty feet down, and the beds where I have Iresines have not been watered all the season, and yet I never saw it do better. True it was planted out early, and in good condition. I have taken hundreds of cuttings off it and more. Some of the plants measure eighteen inches, though my experience with it is that it does not want much water when once it is established. And in winter the drier it is kept (in reason) the better, for if

watered too much it will soon shed its leaves. Than this I know of no plant more easy to propagate.

LILIIUM AURATUM.—Some nurserymen recommend this to be planted in peat, but I have found it to do a great deal better in good stiff loam, with plenty of manure and sand, and if watered occasionally with strong guano water the plants thrive better still.—(*Gard. Chron.*)

THE LIME AS A STREET TREE.—Allow me to suggest the propriety of using the lime as a street tree for the purpose of a promenade. Of rapid growth, graceful habit, hardy constitution, and the most exquisite sweetness, rivalling the grape vine itself in the rich aroma of its blossoms, it is an arboreal treasure of the dearest, sweetest kind, and I trust it may be raised. Nothing can exceed it in sweetness. A row along the Thames embankment would go a long way towards perfuming all London, and in every other respect it is worthy of such a place of dignity and honor as the Thames embankment. I trust, therefore, that Limes may be planted.—(*Id.*)

PALMS FOR PARLORS.—An amateur, writing from Italy, where some of the palms are, thus alludes to them for house decoration:—

Several of the palms which I raised last November, *Corypha australis* and *Cycas revoluta*, I planted in *Jardimieres*, and kept in a south drawing room, in a day temperature of from 62° to 66°, and night temperature of 56° to 60°. They remained perfectly healthy all winter, and in repotting them in the spring I found their roots quite fresh and sound. Palms are much used in this way in Paris, in summer for room decoration. They are very ornamental in rooms, and very hardy, bearing the dryness of the atmosphere of inhabited houses, with apparent immunity. Indeed it is sufficient to visit the palm houses on the Continent, in spring, to be convinced of their hardihood.

SALVIA GESNERIFOLIA.—This choice salvia is specially a winter bloomer. We have endeavored to flower it out of doors, but only succeeded in growing robust specimens which bear lifting and potting in October very nicely. The slight shock of removal (quickly recovered) induces a most liberal development of flower buds, which expand in succession, commencing early in December, and at this time of writing (January 31) it is a complete mass of the most brilliant pale scarlet or cherry red blossoms. One plant is exceedingly conspicuous in a back row. It is nearly three feet high, with half a dozen much branched leading stems; every one of the laterals having a panicle of expanded bloom or buds in process of development. For gorgeous effect, or duration of bloom it cannot be surpassed. Plants grown throughout the summer in pots, started at the same time as those set out in the open ground, care for them as you may, bear no comparison either in vigor of growth or profusion of flowers. This salvia can be raised from seeds or cuttings. The latter put in now root quickly, if in a very porous medium. We greatly prefer a mixture of finely sifted

charcoal dust and very gritty sand, half and half, which seems to agree with almost anything at this season of the year. Later we add a little fresh 3-year old leaf mould. In potting the salvia (after removal from the border) the compost should be rich and porous.—(*Gard. Monthly.*)

THE CYCLAMEN is tuberous rooted, and can only be raised from seeds, as it produces no offsets. An ample supply can be obtained by sowing in February. Use shallow boxes; fill up two-thirds with a guano compost (as the seedlings are not to be shifted for some time) and the balance with a less rich mixture and rather more sand. As the seedlings progress, remove any developments of furze beginning to grow around the young tubers, which presently show on the surface, and carefully stir the soil, but not so as to disturb them. Later, carefully remove some of the surface soil, and replace with a richer compost. Decayed cow manure is by far the best, with a little yellow loam and sand. In September lift carefully so as not to damage the roots, and repot the small tubers (then about the size of peas) round the sides of flower pots, just below the surface, and no more, so that when watered they may partly reappear. The young stock must be kept growing without intermission. In the following fall select the tubers according to size, and plant two or three in a pot, or singly in rather small sized pots, just as you want them in particular positions. Full grown tubers are larger than the biggest bulbs of gladiolus. The cyclamen must never be allowed to dry up, even during its period of rest, at which time, however, bestow water sparingly. It does not cease to grow all the year round.—(*Gard. Monthly.*)

THE DAHLIA, A DECORATIVE PLANT.—How true is your remark that the dahlia is not made the most of, and how apparent must this fact be to all, who are in the habit of seeing the dahlia grown, or rather allowed to exist, as it generally is in both private and public gardens. If we take the trouble to observe, we find old roots planted year after year without the least regard to color, habit of growth, or height; and as the buff or brickwork colored sorts are generally the most hardy, these predominate. These are allowed to grow, without proper ties or stakes, until the wind breaks away what ought to be the most ornamental portion; immediately after which some huge stakes are applied, to which the remaining lanky stems are tied, and the unsightly support is at once crowned with an inverted flower-pot. All I think will agree with me, that this picture is not in the least overdrawn. Now, as I have been a successful grower of this fine autumnal flower during the greater portion of my life, I intend to state how it should be grown in order to ensure a continuous and gorgeous display of bloom during summer and autumn. I also wish to give, hereafter, a list of varieties most suited to the purpose, with the colors, habits of growth, &c., belonging to them, arranged according to their various heights.

In the first place, no divided roots ought to be planted, as these invariably produce such strong shoots, that they rarely come into bloom until late in

the season, added to which the height of the plant is considerably increased, the lower branches, if any, are too much elongated, and the flowers have not the same smoothness and beauty as those furnished by plants which are struck in the spring. There is no difficulty in procuring plants of this description, as all cultivators for show purposes propagate dahlias from cuttings, consequently they may be obtained from all nurserymen. These plants should be planted at least 3 feet from each other, about the last week of May or first week of June; the latter I prefer, as on more than one occasion my entire collection has been severely damaged during the latter days of May. The soil should only be moderately good, but made as retentive of moisture as possible—anything short of clay will suit them. At the time of planting, neat, straight sticks, about 3 feet long, should be inserted in the ground, and to these the young plants should be carefully tied. They should be occasionally watered, until they have grown sufficiently to shade the ground, when watering may be dispensed with, unless the weather be so hot and dry as to cause the plants to suffer. In about a month or six weeks side shoots or laterals will be emitted from the main stem; these should be carefully tied out to neat stout sticks, about 2 feet high. Not a lateral should be removed, as these produce the best flowers, and prevent the plants from having the usual leggy appearance which they often have. About five short sticks to each plant will be necessary; if properly placed, they will cause the plant when tied out to be as circular as a well grown greenhouse plant. Nothing more will now be required but to look the plantation over occasionally, and tie any branches to the stakes that may have grown out of bounds. No flower pots need be placed on the stakes, which ought to be all hidden from view by foliage by the time they are well in bloom. The sticks should be made of nut, ash, or any wood that will retain the bark, as such are always less obtrusive than white or painted ones. They will also last for years if taken care of.

I must again repeat the necessity for the lower branches being all left on the plants, as by that means they not only become well furnished with blooms from the bottom to the top, but are considerably decreased in height, and therefore much handsomer in appearance; the blooms are also not so liable to be damaged by wind.

The habit of the dahlia of late years has been considerably improved, and instead of having plants 8 or 10 feet high, as used to be the case among the collections grown for show, the majority are not over 4 feet; and the graceful habit of some when laden with blooms from the base to the summit is most pleasing. It has often been a matter of astonishment to me that all the capabilities of this plant for decorative purposes, and the great demand that exists for flowers, both in and out of doors, during the autumn months, that more has not been made of it, seeing that the care required in its cultivation is far less than is bestowed upon many less effective plants. I am answered that a mistaken idea, with regard to the necessary care required, together with many errors usually committed in its cultivation, are the main causes of its non-popularity.—(*Gard. Chron.*)

BEDDING-OUT AT CHISWICK.—In your last issue Mr. W. Robinson alludes to a beautifully-arranged circular flower-bed, opposite Mr. Barron's house, in the Royal Horticultural Society's Garden at Chiswick. This bed is really worthy of notice, the simplicity of its arrangement enhances rather than detracts from its effective appearance. It is even more beautiful than Mr. Robinson describes it, the primary color—yellow—of the *Lonicera aurea reticulata* being seen to more advantage by reason of its being in juxtaposition with the secondary and compensating color, purple. The latter color is afforded by a broad ring of purple King verbena (a fact which seems to have been overlooked); next to the verbena comes scarlet pelargoniums; the central position is accorded to a plant of *Ferdinanda eminens*, its large velvety green foliage affording a cool grateful contrast to the brilliant scarlet below. The edging of *Lonicera* is the most perfect I have seen. I think the value of this plant for edging flower beds is scarcely as much appreciated as it ought to be.—(*Id.*)

CAMPANULA CARPATICA.—As a summer bedding plant, the old blue *Campanula carpatica* is worthy of a much wider recognition. A hardy perennial, it will do well in almost any situation, but it should not occupy a damp and low position during the winter. It commences to bloom by the beginning of June, and will continue to flower through the summer. The seed pods should be gathered, as they have an unsightly appearance, and their removal tends to induce the production of fresh flowers. The tufts should be lifted in early spring, divided if necessary, and replanted, using some good soil about the roots. It is invaluable for ribbon borders, and when once tried will not be readily abandoned. There is a so-called variety to be met with in some places, under the name of *Bowoodiana*, said to be much darker in color and more branching in the habit than the old variety, and said to have been selected at Lord Lansdowne's seat, at Bowood, Chippenham.—(*Id.*)

HOW TO RAISE BOUNTIFUL CROPS OF BLACKBERRIES.—To insure good crops requires close attention; the canes should be kept thin and well headed back; and on poor land, an occasional dressing of manure, muck, or fertilizers of some kind, adds to the quantity and quality of the fruit. There is no likelihood of the market being overstocked with the fruit, as it pays well to make it into wine. Three quarts of blackberries and three pounds of sugar, with the addition of a little water, will make a gallon of wine, highly recommended for its medicinal properties, worth \$2 per gallon, while new; and its value increases with age. All the poorer berries, those that are too ripe to ship to market, may be properly converted into wine at home; and only the finest and most perfect fruit sent to market, which will always command a fair price.

LIST OF VARIETIES.—Being extensively engaged in the cultivation of blackberries myself—having grown thousands of bushels of them within the last few years, and tested many varieties, such as the New-Rochelle, Dorchester, Cutleaf, Newman's Thornless, Cape May, Cumberland, Sinclair, Mason's Mountain, Missouri Mammoth, Idaho Climbing

Parker's Early, Felton, Brandenburg, Holcomb, Needham's White, Col. Wilder and Dr. Warder, also the Dewberries sent out by Dr. Miner, of Honeyeo Falls, N. Y., and have growing now ten acres of the Kittatinny and thirty of the Wilson Early blackberry, I consider the latter the most profitable for market, and therefore have planted more largely of it than of any other variety. The fruit is large, luscious and sweet, as soon as black, holds its bright color and bears carriage well. The plants are hardy and productive. The Wilson will become a general favorite when its merits become more widely known. The berries sold readily in New York and Philadelphia markets last year, and this also, at 50 cents a quart, wholesale, when no other variety, that I am aware of, brought as much.

ORIGIN OF THE MOST VALUABLE VARIETIES.—It is somewhat remarkable that all the valuable varieties in cultivation have been found growing wild, and were selected and saved on account of their supposed merit over others, and from the thousands of seedlings raised, none have yet proved superior to their parents. May it not be attributed to the fact that sufficient care has not been taken to mix the pollen of different varieties? Having grown seedlings for many years without favorable results, I have now adopted the plan of planting some of the best varieties near each other, so as to insure the admixture of the pollen of many flowers, thereby combining qualities in their seedlings which could in no other way be found in the same fruit. If as much care and attention were bestowed in selecting and propagating new seedling blackberries as have been with the strawberry and grape, we might yet obtain varieties even superior to those that are now cultivated.—(*W. Parry, in Whillock's Recorder.*)

Societies.

OHIO STATE HORTICULTURAL.

The Annual Report of this Society has been published, and, as usual, is a very interesting record of the progress of horticulture in the West. It forms a thick pamphlet of 84 pages, giving an account of all the meetings during the last year, with notes on fruits by some of the members. The grape and strawberry are very fully discussed, and all the numerous varieties briefly described or noticed.

At the December meeting the name of the Society was changed from the old and familiar one of the "Ohio Pomological Society," to its present title, viz., Ohio State Horticultural Society. The officers are as follows:—

Dr. J. A. Warder, *President.*

G. W. Campbell, *Vice President.*

M. B. Bateham, *Secretary and Treasurer.*

The Exhibition of Fruit for 1868 will be held at Toledo, September 21—25, in connection with the Ohio State Fair. Very liberal premiums are offered for fruits and other horticultural products.

CINCINNATI HORTICULTURAL.

This Society, in connection with the Wine Growers' Association of Cincinnati, will hold a Fruit Exhibition, September 22 to 25.

Horticultural Operations

FOR SEPTEMBER.

FRUIT DEPARTMENT.

THE refreshing rains of August and the cooler weather have given a fresh growth to all vegetation; fruits of all kinds have greatly improved; the crop of pears is light, and they are not so large and fair as usual, but they promise much better than in July.

GRAPE VINES, in the greenhouse and graperly, will now be ripe and ready for cutting. Keep the house dry, with an abundance of air night and day. Keep the laterals pruned in where there are plants which need the light; but in graperies they may be allowed to ramble more freely. In cold houses the grapes will begin to color, and will need considerable attention, as danger of mildew is not wholly over. Continue to damp the house, though not so liberally as heretofore, and air liberally, but closing up the house early in cool nights, and when there are cool winds. Hardy vines may be pruned of superfluous laterals, but not so as to expose the grapes to the sun.

STRAWBERRY PLANTATIONS may now be made, first preparing the ground by deep spading and good manuring. Beds already made should be kept clear of all weeds, and the runners laid in at equal distances. Plants for forcing should be repotted into 6-inch pots, and placed where they can have the shelter of a frame during heavy rains.

FLOWER DEPARTMENT.

With September begins the preparation and housing of plants for the winter. Many of the more tender things should be put in in the early part of the month, while the more hardy sorts may remain out until the last of the month. Frames should be got in readiness for all the smaller things, as they keep much better than to be coddled in the house. See that the flues and heating apparatus are in good order, and collect soils for winter use.

AZALEAS should be removed to the house before cold rains occur, which are apt to injure the plants. See that they are free from the thrips and red spider. Keep in a cool situation.

PELARGONIUMS, not yet repotted, should be attended to at once. Shake out of the old soil, and repot into smaller pots, giving the plants the

protection of a frame. Cuttings, already rooted, should be potted off, and placed in a frame, or on an airy shelf in the house.

CAMELLIAS should be more sparingly watered, as the weather is cooler. Remove to the house before frost.

CHRYSANTHEMUMS may now be removed to their blooming pots. Water with liquid manure, and remove to frames before frost.

CINERARIAS AND CALCEOLARIAS should be kept in a frame until the weather is quite cool.

VERBENAS for winter flowering should be repotted.

CALADIUMS should be more sparingly watered, as they attain their full growth.

MONTHLY CARNATIONS should be potted and removed to a frame, or the house.

CHINESE PRIMROSES should be kept in a cool house, near the glass.

CYCLAMENS may be repotted this month; keep in a frame as late as possible.

CUTTINGS of Verbenas, Petunias, Geraniums, and other bedding plants, should now be put in for a spring stock.

CALLAS should now be shaken out of the old soil, and repotted in fresh earth.

HEATHS should be taken up and potted, and removed to a cool frame.

TUBEROSES, for late flowering, should be removed to the house. Water with liquid manure.

BOUVARDIAS should be taken up and potted in good rich soil.

ROSES should be potted this month, and removed to a cool frame.

BULBS, for early flowering, may now be planted.

FLOWER GARDEN AND SHRUBBERY.

The lawn has assumed a new and fresh appearance since the refreshing showers, and will require frequent cutting. Continue rolling, when the ground is in the right condition. Clean, rake and roll the walks.

DAHLIAS will now be flowering freely, and will require occasional pruning of the lateral branches, and tying up firmly.

CARNATIONS AND PINKS, layered last month, may be removed to frames for the winter.

NEAPOLITAN VIOLETS may now be removed to frames, where they are to bloom. Plants may also be potted for flowering in the house.

PEONIES may be transplanted this month.

PANSY SEEDS may now be sown in frames, for a spring supply of plants.

PERENNIAL PLANTS, of many sorts, may be taken up, divided, and reset.

WHITE LILIES should be replanted now, before they begin to grow.

JAPAN LILIES, in full flower, will hold their beauty a long time, if shaded from the hot sun.

GLADIOLUS, in full bloom, should be tied to neat stakes.

SUBTROPICAL PLANTS, of many kinds, should be taken up and potted before the first light frosts, as they are likely to be much injured.

OUR NEW FRUITS.

How shall we encourage and stimulate the production of new varieties of Fruits or Plants? and in what manner secure a proper reward to the producer? These are questions which are just now prominent and have received the attention of cultivators.

The production of new and of course superior varieties is of the greatest importance in Horticulture or Floriculture. It is hardly possible to adequately appreciate this, only by a comparison of the prominent fruits and flowers of to-day with those of a quarter of a century ago. A few years or a shorter period does not show, except in rare instances, these great improvements, for they must necessarily be gradual and slight, though in the aggregate of several years they are wonderful. That this is so we need only instance a few of the most important. Among fruits, the strawberry and grape give, perhaps, the greatest results. Not many years ago, the Early Virginia or Early Scarlet and the Old Wood strawberry were the only kinds extensively grown for market. Our Seedling was the first popular American variety; but during the thirty years since its production how largely have the varieties increased, and how improved their character! Thousands of varieties have been raised and hundreds introduced as possessing superior qualities; and though but a portion of these have actually been of any value, the few that have stood the popular test have added immensely to the importance of the strawberry and given it a market value which it did not before possess. The Hovey, the Boston Pine, the Wilson, La Constante and several others have added to the luxury of every table, while they have enriched thousands of cultivators throughout the country.

So with the grape. The day is within the remembrance of almost every cultivator when the Isabella and Catawba were the only two hardy varieties worthy of attention. For a long period they seemed to supply the popular demand; but

with the introduction of the Concord and Delaware, the Diana and Hartford Prolific, a new era commenced, and for the first time we had grapes which everybody could grow with the certainty of ripening, and possessing qualities equal, if not superior to the old varieties, which were uncertain at all times except in more Southern latitudes, and unprofitable as market fruits. How much have these improved varieties added to the resources of every cultivator, while the people have been abundantly supplied with ripe fruits at reasonable prices!

Flowers have been no less objects of the greatest attention. From the dingy red and yellow gladiolus, introduced not many years ago, have been originated the thousands of magnificent seedlings which now enrich our gardens with their flowers of almost every shade of color. From the semi-double irregular-flowered asters, of the same period, have been produced the varied and magnificent pæony, imbricated and other varieties, now such prominent additions to the autumnal garden. The camellia, azalea, pelargonium and numerous others might be named which have undergone the same transformation, and last, but not least, the geranium, whose rainbow foliage has given it such a high rank as a decorative plant. How great indeed have been these changes!

Among vegetables the results have been the same. Witness the large, perfectly formed, solid and smooth tomatoes of the present day; the superior quality of our squashes; the rich and sugary peas with their neat dwarf habit, and the valuable quality of the new potatoes. These are all improvements which affect the whole mass of the people, adding new sources of profit to the industrious and energetic cultivators.

In fact the history of horticulture from the time of Knight abounds with achievements of the highest importance, gained at the sacrifice of years of patient labor and investigation, by the zeal and enthusiasm of those who have made it a life-long study and essayed to advance the usefulness of the science and extend its benefits to all classes of the community. Nor has this been done in many cases with the hope of reward; but rather from a pure love of the art and a desire to increase

and extend the objects which contribute so much to our comfort and health, or the gratification of our taste for beautiful things.

But as wealth has increased and the taste of the people become more educated, and novelties more appreciated, a growing demand has stimulated cultivators to renewed exertions in the origination of new varieties, and the certainty of a rich reward has now become the prominent inducement and incentive to their production. A new grape which shall fill a place demanded by the public, a new rose which shall add to the variety already existing, or a new tomato which shall surpass our present kinds, is now looked for with as much interest as we look to the return of the season, and the lucky originator of either is sure of being rewarded for his labor.

But the mass of the people, in all this expectation for what they desire, know nothing of the time and labor which have been spent in the endeavor to accomplish the object of their wishes. The successes are heralded to the world; but the failures are never known. How the skilful man has sown and reaped, year in and year out, before anything valuable was obtained; how much time he has spent in trying and proving that which was thought superior, only to be disappointed in the end, can only be appreciated by those who are somewhat familiar with the production of new varieties. Could they be made apparent we should have less complaint of the extravagant prices of novelties, and a more general wish that the originators should in some way meet with a greater reward.

The question now is, in what way shall the producer of new varieties be protected, so as to secure a just compensation for his services. Mr. A. S. Fuller, in some remarks upon this subject, proposes that the inventor or originator should be protected by a patent, and a writer in the *Horticulturist* seconds his proposal. The government, the latter says, "protects the inventor of a clothes pin or a goose yoke by a patent running seventeen years. He may fill warehouses with his improved goose yokes, refuse to sell them to an impatient public, and no one dares manufacture them except at his

peril. When he does sell, no one but himself can produce them unless by license. His monopoly for goose yokes is absolute, and cannot be broken up except by some more ingenious mind, inventing a different and better one. The most trifling mechanical contrivances have thus become stepping stones to fortune. How little ingenuity it required to invent the goose yoke or the clothes pin! Yet the government protected that little, and the protection secured rich rewards. Not so with the originators of new fruits or flowers. They labor in this vocation year after year, concentrating upon their efforts the experience and skill of a life-time, and not succeeding oftener than once in five hundred trials. Even when signally successful, their reward is too often below their merits."

This is all too true, and it would be undoubtedly of the greatest advantage if some method could be devised for the better protection of originators of new varieties. Whether the process of patenting would accomplish this needs careful consideration. The same writer thinks there may be difficulties in the way, but they may be overcome. His mode is as follows:—

"As the law now stands, no one can manufacture a patented article without a license from the patentee. Let the inventor of a new plant receive his patent for it. When he sells the plants, let him also require payment for the right to manufacture and sell other plants in a specified territory. If it be valuable, the purchaser of the right to that territory may dispose of rights to others, and thus refund himself for what he paid the patentee. Should the plant be offered for sale beyond the limits of the territory sold, the patentee will become aware of it, and can prosecute for infringement precisely as in the case of a machine or process. There ought to be no difficulty in having Mr. Fuller's excellent suggestion adopted."

We must admit that this appears to be a very good mode of protecting the originators of new plants, and securing to them the profits of their sale, if it can be carried out. But there are many objections to it which the writer has not stated, and we fear that infringements would be so general

that little good would be effected after the first sale to local agents.

After all, it is a question whether horticulture would secure any permanent benefit to be hedged about with patents, and subject to the injunctions and litigations which would be sure to follow; it would, we fear, lose much of its character as a science and art, and lessen its hold upon those who view it not as a commercial speculation but as a source of pure enjoyment and delightful recreation. The benefits which might be secured to the inventors of plants, would in the end hardly compensate for the injuries which would result from any attempt to render art subservient to the "almighty dollar."

It is not to be disguised, that of all the new fruits, or new plants, or new vegetables which are yearly originated and brought to notice, not one in fifty is worthy of notice, and the few which are really meritorious scarcely ever fail to bring a reasonable reward to the producer, not by any means oftentimes in proportion to their value, but sufficient to stimulate and encourage to continued exertions. As we have said before, in most cases the improvements are slight. Occasionally there is a great advance at a single experiment, and when this is the fact, and the variety is properly brought before the public, they are generally appreciated and encouraged, and the originator rewarded for his labors.

The mistake is in admitting that horticulture has no higher aim than dollars and cents. A patent which would have secured to Mr. Knight ten thousand pounds sterling for the various fruits which he originated, valueless as they mostly are now, would have been of far less value than the gratitude of millions for his life-long labors in the hybridization and production of new varieties; and the same may be said of those who have succeeded him in similar works. The inventor of the clothes pin or the goose yoke will be forgotten, if indeed he be known at all, when the originator of a really valuable fruit or flower will be known to millions.

We would do all in our power to encourage and reward the producer of new varieties. But first educate the public taste to the appreciation of those only of superior excellence,

and to ignore those which do not come up to the standard. This having been accomplished, the really meritorious will never lack appreciation or the originator fail to receive his due reward.

THE SEASON AND FRUIT IN ENGLAND.

BY T. RIVERS.

It is with great pleasure that we present our readers with a letter from that veteran pomologist, Mr. T. Rivers, written to the Hon. Marshall P. Wilder, through whose kindness we have been favored with this communication. We annex the letter from Mr. Wilder, accompanying that of Mr. Rivers:—

Mr. Editor,—I have just received the following interesting letter from Mr. Rivers, the great pomologist of England, from which you are at liberty to extract. In regard to the hybridization of peaches and nectarines, I witnessed his results last year, they are indeed wonderful. Respectfully yours, MARSHALL P. WILDER.

My Dear Old Friend,—How I wish you were here as last year to have a good long spell of talk. I fear I have not much to say, and that I am almost too idle to write; for only think of our tropical weather, 90° to 92° in the shade, and so dry, for we have had no rain here for more than two months, so that our lawns are of the same color as our roads, and even shrubs are beginning to feel a little unhappy. As to such things as green peas and other succulent vegetables, of which we always have an abundance, they have, I suppose, gone to comfort our antipodes. We have, however, in this heavy land district grand crops of wheat and barley. I was at an auction sale the other day in this parish, in which the wheat was reported, at from 7 to 9 and 10 quarters per acre. It was in fact so exuberant as to seem as if the earth had given her utmost produce: it was indeed a glorious sight, the *golden* harvest, for not a speck could be seen on the straw. There is something in harvest that takes one away from earthly thoughts, and one thinks of the promise that has never failed,

and then one looks at the bright straw, and humbly hopes to be as clear and bright, and to be crowned with golden ears, as full of life-giving grain. Our pastures are very brown, and we have no turnips as yet, or mangels, but if summer showers come there will be plenty.

With regard to fruit we had a most abundant crop of pears set, which swelled to the size of the point of one's finger, and then nearly all dropped off, although when dissected, or rather bisected, no injury could be found in the core. This has taken place all over the country. Apples are a fair crop, but very "buggy," owing to the dry weather. Plums dropped off much as the pears did, but on many trees the crop is most abundant.

My seedling early peaches turn out well; a grower from New Jersey came over in spring, and took trees of all. They will make his fortune, only because they are so very early, and ripened as follows, all the trees in pots, and standing near together in the same room: Early Beatrice, July 4; Early Louise, July 8 (these are both of a deep crimson, and fine for market); Early Rivers, July 13 (this is white and exquisite, but too melting for market); Hale's Early, July 20. Early York, still hard, will ripen on or about the 30th. The fortnight's difference between Early Beatrice and Hale's Early will be of great value in your country.

Apricots, in our orchard-houses, have been most abundant ever since the first instant, and cherries, in the cherry house, ever since May 25; the late Black Bigarreaus are still in fine perfection.

I have noted your new tariff. It seems unjust to allow *you* to import trees duty free, and make nurserymen pay it. Your rulers do very odd things. I had the pleasure, some weeks since, of lunching with Mr. Darwin, and was much delighted with him and all about him. You must get his books, "Animals and Plants under domestication."

The weather is so hot that my hand trembles while I write.

I am thy humble friend, ever truly yours, THOS. RIVERS,
July 22, 1868.

Thermometer, yesterday, at 2 P. M., in the shade, 94°, to-day, 92°. In the sun, 120°.

VARIETIES OF FERNS.

BY JOHN L. RUSSELL, SALEM, MASS.

A little book, entitled a "Fern Book for Everybody, by M. A. Cooke," was published in London last year, and is a nice manual, in a cheap form, for amateurs and novices in the fern culture.

In our shaded and rich woods grows the *Asplenium filix fœmina*, a beautiful species, greatly varying in size and culture, but according to our author varying much more in cultivation. We have waded through acres of this beautiful fern in luxuriant profusion covering rocky places at the foot of cliffs and wet spots in thick woods. In the autumn, the fronds turn to a golden color and pale away to nearly white. Collected and dried between sheets of paper, they help essentially in the grouping of colored leaves for winter bouquets, and in the garden a tuft of the *filix fœmina* makes a pretty show.

We learn that in England it is called the Lady fern, "a somewhat doubtful term to designate the genus (subgenus) of *Athyrium*." With us it is considered *Asplenium*, the difference in the form of the indusium not being thought essential. It is the fern immortalized by Scott,

"Where the copsewood is the greenest,
Where the fountain glistens sheenest,
Where the morning dew lies longest,
There the lady fern grows strongest."

But think you, of "60 or 70 recognized varieties of this fern which are in cultivation:" *sixty or seventy varieties of lady fern*, why the gentler sex could scarcely furnish so many varieties in its own personal attractions! What a fernery they alone would make, and who has attempted the collection! Or what botanist has arranged sixty or seventy varieties in his herbarium and placed them side by side, so as to trace the gradation from the type to its farthest aberrant form! "The most typical and attractive are, the *Marinum*, found near the sea at Aberdeen, the fronds rather small, broad at the centre and tapering gradually upwards and downwards; the *Rhaticum*, which grows in boggy places, the

fronds smaller, narrower, the leaflets shorter and in habit it is more erect; the broad-leaved *latifolium* is a more desirable variety for cultivation; it attains a good size, and the large, broad leaflets give it a most distinct and noble appearance; the tasselled variety (*multifidum*) is one of the greatest favorites in cultivation; the fronds are of the usual size and form, except that the apex is furnished with a branched tuft resembling a tassel, with a similar one terminating all the side branches; the same character prevails in the *depauperatum*, and has the same starved and poverty stricken appearance, which characterizes the variety *depauperatum* of other species, as the name denotes; the variety *crispum* is very small and has whilst growing a pretty parsley like appearance, from the complex branching of the fronds. Certainly the most singular of all forms is that known by the name of *Frizellia* in which the fronds are not an inch in width, with kidneyshaped leaflets divided into two parts which overlap each other and are toothed at the edge; these are attached to each side of the leaf-stalk, and more resemble a large Spleenwort of the *Trichomanes* kind than a variety of the Lady Fern."

Who has *Frizellia*, *multifidum*, *latifolium*, and who of our gardeners can exhibit any of the 60 or 70 varieties of the Lady Fern? With us a narrow form is *Asplenium angustum* of Willdenow. With our British friends there are 60 or 70 varieties! "Near the margin of Bala lake in North Wales, it is a truly magnificent fern, for we have measured fronds of five feet in length, and counted from thirty to forty such fronds on a single tuft."

What a pretty thing is *Asplenium Trichomanes*, with its shining, black, leaf stalks and simple pinnate frond, growing in tufts from crevices near the ground of shady rocks, almost everywhere! And abroad too it "is not an uncommon species, being widely distributed over the British Isles. Its varieties are nine or ten (!), of which the *incisum* with deeply cut leaflets, each of which is like a fan of spreading long lobes: the branched (*ramosum*) the upper third of its fronds, divided and subdivided; the crested (*cristatum*), with the upper portions of the fronds crisped; the *depauperate*, curious but

not attractive," may be cited. The Hart's Tongue (*Scolopendrium*) a rare indigenous fern, but everywhere met with abroad, "a list of eighty five named varieties lies before us"!! Only think of 85 named sorts of Hart's tongue; a perfect Polyglot such a tongue must be, and how eloquent in the silent language of Nature, "Sermons in" leaves!

The Soft Shield Fern (*Polystichum Angulare*) an European species not unlike our own fine, Mountain *Aspidium aculeatum* of the Northern States, is very "sportive with no fewer than 60 varieties, the handsomest of all is undoubtedly the *plumosum* in which the fronds will reach 9 inches in width and nearly 3 feet in length; it has a spreading, plumelike habit, but is unfortunately a gem which is *rare* as well as rich." Ours is an aberrant form of the typical species, and though Swartz considered it identical, Koch has pointed out the distinction and called it *variety* Braunii, in honor of the Berlin botanist well known to fame. The common polypody (*Polypodium vulgare*) sometimes gives us deeply incised lobes to its fronds, such as I have found near Hubbardston, and in the vicinity of Wachusett; but abroad, see you, "about twenty varieties are recognized of this common fern," and one of these "called *Omnilacerum* has the margin of all the lobes of the frond cut into long tapering teeth," how beautiful it must be.

In one of the choicest old gardens in the vicinity of Boston, I saw this summer in the border, a vigorous plant of the elegant *Osmunda regalis* or Royal fern; it is European and North American alike; it is the Water fern, delighting in wet places near brooks; it is the Flowering fern, why, does not appear; it is the "French Bracken, and a crested variety (*cristata*) was described in the Gardeners' Chronicle for 1863, which does not attain so great a height, and is sought after by cultivators;" a curious accidental form, in which the tips of the main divisions of the barren frond were fertile, occurred to my notice, gathered unperceived by one of a botanical class near Taunton in this state; but the exact locality was lost. Some enterprising cultivator may, ere this, have raised other varieties from the spores of the British *Cristata*; at all events let us hope.

I have said enough to attract attention to the novelties to be found in the ferns: to gardeners, who have come to us from the fine collections in Great Britain and the Continent of Europe they are familiar, and may it not be anticipated, as it is desired, that by their efforts, taste and skill, similar lists of the New England and North American ferns will by and by be found in the Magazine of Botany, in the Gardeners' Monthly, in the Horticulturist, in the American Journal of Horticulture, and in the well got up Plant Catalogues of the United States.

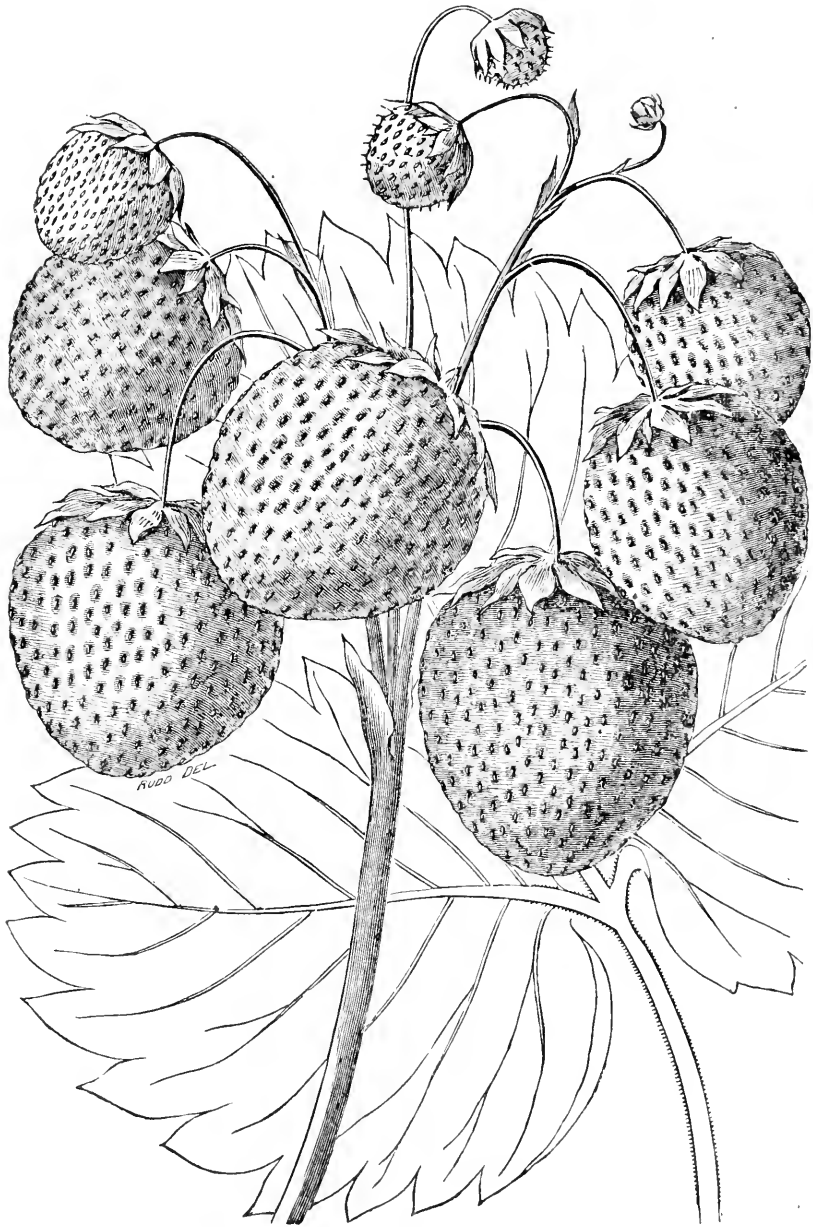
POMOLOGICAL GOSSIP.

PRESIDENT WILDER STRAWBERRY.—We have already noticed this variety, and we now present our readers with an engraving (FIG. 10) of the fruit. The whole stock of plants has been purchased by Messrs. Tilton, and before long an opportunity will no doubt be offered to give this new variety a trial on other soils and localities.

DE JONGHE'S NEW STRAWBERRIES.—M. de Jonghe, the originator of La Constante, has raised three new seedlings, and has given a description of them in the Gardeners' Chronicle. He states that in a lot of seedlings of La Constante, a few years ago, he noticed characteristics in advance of this fine variety. To one of these seedlings he gave the name of President Wilder, to another, Charles Downing, and to a third Ferdinand Gloede.

If they surpass La Constante, one of the finest strawberries yet introduced, we shall possess a list of superior varieties. The descriptions are as follows:—

Of the first of these three in 1867 I wrote as follows:—"In the stalks of the leaves and of the fruits the growth and development of this variety offer greater consistency than in La Constante; its constitution is hardy in all seasons. The hairs on its surface are rather inconspicuous, and all directed



10. PRESIDENT WILDER STRAWBERRY.

upwards (*direction ascensionelle*), a point which must not be overlooked." The fruit is nearly conical, but when full sized it becomes more oval. The seeds are abundant and rather large, arranged in symmetrical order on the surface. The skin is of a deep cherry color, very shining, like that of a chestnut. The flesh is firm, juicy, and of a brisk and *relevée* flavor. The name was given in honor of Marshall P. Wilder of Boston, known for half a century as a promoter of horticulture in the United States, and for eighteen years President of a Pomological Committee. The fruit in question is a fine type of strawberry, and, so far as habit of plant and beauty of berries are concerned, eclipses *La Constante*. A plate of the fruit produces a splendid effect, either on the dessert-table or at an exhibition.

The second of our select varieties is dedicated to Mr. Charles Downing, whose name is generally known from his having published the work of his brother, A. J. Downing, revised, corrected, and completed, under the title, "Fruits and Fruit-trees cultivated in America." Here are the remarks relating to this strawberry:—"There is considerable firmness in the leaf-stalk and flower-stalks; the runners (*filets des otolons*) are likewise short and firm. The plant has a vigorous but compact habit. Its constitution is hardy in all seasons. The divisions of the leaves are broad, flat, deeply serrated, of a deep somewhat dull green color, like those of the parent plant. The hairs are not numerous, and spread horizontally. The fruit is abundant, larger, and of a regular rounded conical form. In color it is usually of a pale cherry tint, not very shiny. The seeds, of a deep yellow color, are on the surface (not imbedded). The flesh is white, a little flesh-colored, very juicy, sugary, vinous, and with a very delicate *arrière goût*. In this last particular this variety will perhaps be the best of the series."

The third variety is dedicated to M. Gloede, now of Beauvais, well-known for his success in the cultivation of strawberries, and for the efforts he has made to distribute the best varieties in cultivation. The variety is in every respect an improvement upon its parent. It has more vigor, with as much firmness in the leaf and fruit stalks. The leaf, of a deep green color and

shining surface, is large, its lobes rounded with broad and deep serratures. The hairs are very abundant, and spread horizontally. The floral scape, very firm, about five to six centimetres long, is developed upon a yearling plant, and bears seven to nine flowers, which set well as soon as the corolla opens. The fruits at first conical, become round, and subsequently elongated. As soon as the berries have attained half their dimensions they assume a reddish-brown color. When ripe the color is of a deep shiny red. The seeds are abundant, and placed in pits, so as to be almost flush with the surface of the fruit, and are of a clear coffee color. The fruit which is generally large, has the flesh compact, white, filled with sugary vinous juice, with a brisk *arrière goût*.

It may be asked, which is the best and the most desirable of these strawberries? This is a difficult question to answer at the moment. I simply limit myself to the enumeration of the most prominent characters observed during several years' cultivation, and I submit these remarks to the impartial judgment of competent strawberry growers in all countries.

NOTES ON LILIES.

THE season is now at hand for planting the lily, and we had in view the preparation for an article upon the different varieties, now sought after and planted much more extensively than heretofore. The *Lilium auratum*, and the Japan lilies have added new charms to a tribe already endeared by associations connected with this beautiful flower, and cultivators have begun to appreciate them, and introduce them into their gardens.

All the lilies are worth growing; but the varieties of the Japan (*L. lancifolium*) *L. auratum*, *Brownii*, *longifolium*, *umbellatum*, *superbum*, *excelsum*, *chalcedonicum* and *aurantiacum* are the most showy and desirable, when but a few sorts can be planted. In larger collections many others may be added.

The following from an English journal will be read with interest, though incomplete. What is said about frequent removals is strictly true of many varieties. *Lilium longifolium* is perfectly hardy with us, and always flowers abundantly. *Lilium giganteum* is not quite hardy, it can be wintered in the open ground by a good covering, but it is unsatisfactory and slow. In the greenhouse, where it can have attention and space, it is fine. All our native lilies, *canadense*, *superbum* and *philadelphicum* are hardy and beautiful, and should be more extensively planted. *Thompsonianum* and *Wallichianum* are not hardy. The German catalogues enumerate nearly one hundred species and varieties; but many of them are varieties, differing but slightly and not to be commended only to the amateur, who is desirous of a complete collection:—

Very desirable is it that some botanist would do for lilies what the late Mr. Haworth did for the narcissi. The genus, indeed, is a good one, and ought not be broken up, but some of the species are either bad or insufficiently discriminated. This work of revision would be best performed by a botanist-cultivator, as the French call him—a collector resident near the metropolis, and having free access to books, and especially to living plants. Of course, such a student would consult herbaria, and standard books as Redout's "*Liliaceæ*;" but the decisive appeal must be made to living specimens. Some authors, for example, confound the common Orange lily and the bulb-bearing Orange lily; but they cannot have compared the plants in a growing state, and certainly have never examined the bulbs. If the reform alluded to does not come soon, the labors of hybridizers will render it extremely difficult, if not impossible, a result which florists probably would not much regret. The following notes are in the florist interest:

L. pomponium and its variety *L. pyrenaicum*, are now seldom seen in flower gardens. They do not possess much beauty, their flowers emit an unpleasant odor, and they are mostly relegated to the shrubbery. *L. martagon* may be allowed to go along with them; being very robust it is well adapted to the wild or semi-wild parts of pleasure grounds. I have seen it growing luxuriantly in the wooded gorge of a

deep valley, by the side of a considerable stream, where it propagated itself and sported into a diversity of tints. There is a white variety in cultivation. The scarlet Turk's-cap (*L. chalcedonicum*) is more of a garden plant, and thrives well in any dry sunny nook if left undisturbed, but is impatient of frequent removals. There is a tall, robust variety with a cymose fastigate inflorescence. To this group may be added *L. monadelphum superbum*. I give the name which, with the plant, has emanated in Scotland, from the Botanic Garden in Edinburgh. It is certainly monadelphous, as the broad-winged filaments of the stamens cohere at the edges. It may be loosely described as a gigantic *L. pyrenaicum*, only the tops of the petals are less reflected. In the deep moist soil of my garden it multiplies freely, and throws up numerous stems 4 or 5 feet in height, crowned with loose corymbs of from 10 to 16 brilliant canary-colored flowers. Towards the end of June it is an extremely showy plant.

L. tigrinum is well known, and is valuable as one of the latest of the lilies. The Poet Laureate speaks of it as a sign of the departing year, asking in winter, "Where is now the Tiger lily?" The variety introduced by Mr. Fortune being one-half taller, and about ten days later in flowering, is a most desirable plant.

The American species *L. superbum*, *canadense* and *penduliflorum* are very beautiful, but are difficult to keep in a satisfactory state, at least in the northern districts of the country. It is usually said that they should be grown in a deep peaty border. To this advice I would add, that they should be planted in the full sunshine, and in the warmest nook of the flower garden. What they want in this country is the bright glowing summer of Upper Canada and the Northern States of America. *L. philadelphicum*, I believe, belongs to this section, but I have not seen it. *L. colchicum* is a very beautiful species, rare in gardens, and requiring much the same treatment as the preceding. Relays of them all should be kept in pots, and it should be remembered that they sometimes continue dormant for a year. This year I was obliged to bring on my potted *superbum* by a little bottom heat.

The Orange lily group is a brilliant one. It is composed

of *L. aurantiacum*, *bulbiferum*, *umbellatum*, *kamtschatense*, *pennsylvanicum*, and, perhaps, some others. The varieties are numerous, and some of them are as intense in color as the finest Ghent azaleas. They are for the most part very hardy. *L. pennsylvanicum* is an elegant miniature form of the common orange lily but specifically different. It thrives well in light peaty earth.

L. candidum has been loved as the lily, *par excellence*, by many generations. It has long been associated with pictures of the Virgin,

“The Lily of Eden’s fragrant shade.”

For simple statuesque beauty it is, perhaps, unrivalled in the empire of Flora. Only the single variety ought to be cultivated. It thrives perfectly in light and moderately dry soils. To show the capricious effects of situation I may mention that, to my great regret, I cannot keep this favorite lily. Being a semi-herbaceous plant, or rather having green leaves above ground, it is regularly killed by damps and frosts in winter. Its congeners, *L. longiflorum* and *japonicum*, with their numerous varieties, which are daily increasing, are surpassingly beautiful plants, but they are rather tender for the general climate of Great Britain. They afford admirable decoration for greenhouses and conservatories; and where there is room a store of them should be kept in cold frames or pits. For several summers I have plunged out *L. longiflorum*, and repotted it the autumn. It is needful to replace it in the pots before the leaves have withered, for previous to that stage the young shoots for next year start from the bulbs, and then the fibrous roots are injured by the lifting. My success in this matter has not been great. Probably the plan would succeed better in the south.

L. excelsum, or what I got for it from an eminent London nurseryman, has thriven well with me. It is quite hardy. It throws up a stem four feet high, which hitherto has been crowned by a single shallow bell of considerable size. The color is pure white, but the interior of the petals is often soiled in wet weather by the abundant brown pollen, which, I suppose, accounts for the nursery synonymes *L. testaceum*, *isabellinum*, &c. It is an attractive plant, but not equal to

its great Himalayan compatriot, *L. giganteum*. The latter has repeatedly stood the winter and flowered in the open air in the nursery of Messrs. Dickson & Co., Edinburgh, who have also raised many plants from seeds saved in this country. It is a great seed-bearer, and it is to be hoped that in the hands of hybridizers it will yet yield magnificent results.

I say nothing of the gorgeous and well-known *L. auratum*; and the scarcely inferior *L. speciosum*, or *lanceifolium* as it is often called. Who will tell us something of *L. carolinianum*, *concolor*, *croceum*, *pumilum*, *monadelphum* (of the "Botanical Magazine"), *tenuifolium*, *pseudo-tigrinum*, *cordifolium*, *Buschianum*, *Thompsonianum*, *Wallichianum*, &c.? Are they extant in this country? Or must some of them be sought again in their native habitats?

It will be observed that I have spoken only of the more common hardy species, and probably I have said nothing but what is well known to many. My most important remark, which I put as young ladies do in the postscript, is this, that most lilies, even those of the hardiest sorts, are weakened by frequent transplantation. *L. chalcedonicum* takes two, sometimes three years to recover the effects of a removal. I suppose the fibrous roots under the scaly bulbs are not merely annual rootlets, as in most other bulbous plants. From this remark a skilful gardener will readily draw his own practical conclusions. It will be perceived that it can be little better than death to lilies for their scaly bulbs to lie withering on the counters of seed warehouses, where tulips, crocuses, &c., may continue for a long time with impunity.

S U B U R B A N V I S I T S .

RESIDENCE OF DR. LODGE, SWAMPSCOTT.—A few days since, at the invitation of the Garden Committee of the Massachusetts Horticultural Society, and in company with them, we visited the sea-side residence of Dr. Lodge at Swampscott. This beautiful place, comprising some thirty-three acres, is most

admirably located, and commands a magnificent view of the harbor and its numerous islands. A long covered drive through an avenue of evergreen and deciduous trees, judiciously planted, leads to the house, which stands on a broad open plateau, near the rocky boundary of the ocean.

It is about fifteen years since Dr. Lodge purchased his grounds, which were then in the wildest state, but abounding in natural beauties of rock and dale. Since then he has cleared up all the available portions, retaining the original features of the place. Immense rocks diversify the surface, and the dells and low places have been raised and drained, and are now devoted to the culture of farm crops. The sheltered nooks and favorably located spots are devoted to fruits.

In all this Dr. Lodge has succeeded wonderfully, showing good taste in the arrangement of the grounds, and preservation of so much of their natural beauty. In a slightly sloping valley sheltered by the rocks on the north and east he located his apple orchard of two or three acres, filled with trees, which are trained upon a system of his own, resembling the "wine-glass" pattern of Capt. Austin, which we described in a former notice of the grounds, in our volume for 1865. The trees had then just begun to bear; this year many of them had an abundant crop, distributed evenly along the branches, from the base to the top, and presenting a very ornamental appearance; every tree being erect, from the strength of each branch, acquired from repeated cutting in of the laterals. Such as were not in bearing were full of young shoots, which burst out from the shortening in, the only objection to the system, which requires a great amount of labor to keep the trees in order. As specimens of skilful pruning, and as objects of ornament, nothing could be more attractive, but we fear only such wealthy amateurs as Dr. Lodge could afford to adopt it.

The pear orchard, located on higher ground, was in very good condition, though the crop of fruit is small and inferior this year. The trees are trained in the pyramid form, and some of them handsome specimens. Evidently, however, the pear does not thrive so well near the sea. Winds, fogs,

moisture or something prevent the trees from attaining that verdure which they have more inland. However, Dr. Lodge, from an admirable location, sheltered by high projecting rocks on the sea-side, has succeeded very well.

As some evidence of the coolness of the sea-side, the Concord grapes were as green as they usually are in July. They are too late for such locations. A bed of *La Constante* strawberry, grown in hills, was in fine condition, the plants covering a foot or more of ground each: the Doctor says that it is the best of all the strawberries.

An hour or more was pleasantly passed, in looking over the farm crops and vegetables, embracing quantities of carrots, mangolds, and ruta-bagas. A ramble along the ocean bank, admiring the natural beauties of the grounds, and enjoying the grand view of the ocean, completed an afternoon visit to the sea-side, impressed with the wish that all similar places might be made as interesting and delightful as Dr. Lodge's.

RESIDENCE OF S. G. DAMON, ARLINGTON.—As a specimen of a suburban home, without any claims to landscape art or even floral decoration, the Committee was invited to visit Mr. Damon's grounds at Arlington, to witness what can be done, with proper attention, by almost every man who possesses a garden; that is, how much comfort can be enjoyed by a well arranged and neatly kept fruit and vegetable garden at little expense.

Mr. Damon's premises occupy about three acres, of a rectangular shape, two hundred feet wide perhaps on the street, and extending far to the rear. About six years since Mr. Damon began the improvements on his place, by planting fruits, chiefly pears and grapes; the latter occupying two rows the whole length of the grounds on one side, and the end at the rear. One row is planted against the fence, and trained to wires running lengthwise, about a foot apart; the other row is trained to a similar wire trellis, supported by cedar posts, eight feet apart, and distant from the fence about six feet. These vines were planted four years ago, and are mostly Delaware, Concord and Iona, with a few of the Adirondac, Diana, Framingham, Allen's Hybrid, Israella, &c., and ten or a dozen of Rogers' Hybrids. All of these

were in fruit, and looked well, mostly free from mildew, and with two weeks of good weather the fruit will nearly all attain maturity. The Delawares were remarkably fine, some of the clusters unusually large, in fact the best we had ever seen, and so ripe (September 18) as to be quite sweet. The Iona was nearly or quite as ripe as the Delaware, and the specimens gave us great encouragement that this fine variety will succeed in good locations in the vicinity of Boston. Adirondac, though wanting in the vigor of the vine, had its fruit nearly ripe; the earliest of all the kinds cultivated here. Concords were handsome, with no rot; but still unripe, though well colored. Of the Rogers', No. 4 was the only one which showed any sign of ripeness; No. 1 will never ripen; No. 15, too late. Allen's Hybrid had mildewed slightly. Israella, well colored, and about with the Concord. Framingham, nearly or quite ripe; a vine of this grape trained to a post was truly a sight. The bunches were very large and handsome, quite black, but not perfectly sweet. It has been stated that this grape is nothing but the Hartford Prolific, and all must admit that it does appear much like it; but we believe it to be distinct, as the foliage appears to be different. It has more substance, has a whiter down on the young leaves, and the leaves are quite reflexed on the footstalks, while the Hartford are erect. We hope to see this question fully settled. Practically it is of little importance, but pomologically it is very interesting to know if two seedlings could be so much alike. The history of this variety would hardly render it possible to be the Hartford.

Mr. Damon stated that his grapes had not had any manure since they were planted four years ago. He then trenched the ground two feet deep, and added a little manure, and two years ago he covered the whole surface with an inch or two of gravel, which has since been dug in; yet the vines were remarkably vigorous, with leaves on the Concord fifteen inches broad, and the Iona and Delaware very large. The vines were well filled with fruit, and the clusters larger than any we had ever seen. Mr. Damon's grape growing has been a decided success, no doubt attributable in some degree to a light warm soil, a dry location and shelter, by which he has

escaped that pest, the mildew. Field culture of many of the same kinds we are sure would be a failure.

The vines are planted about six feet apart, and are trained in a kind of fan shape, without any particular system, laying in the strong wood, and cutting away the superfluous laterals. The only mistake we noticed was in planting the second row too near the first, by which the lower part of the trellis was shaded a portion of the day. Had the distance been eight or ten feet it would have allowed the sun's rays to fall upon the whole vine, and also upon the ground at the root.

The spaces between the two rows of grapes on one side of the boundary line and a walk on the other, is planted with dwarf pears in long lines, say ten feet apart, and six feet from each other in the rows, the spaces being devoted to the growth of vegetables. A row of strawberries occupies the outer edge next the grapes. This portion of the ground comprises more than two-thirds of the space, and separated from the remaining part by a single cross walk. The pear trees were in good order, well pruned, and healthy, but the crop, as usual this year, light and inferior. Currants and gooseberries are grown between some of the trees.

Around the house, which stands near the street, and nearly in the centre of the lot, the space on one side is laid out with walks and planted with pears, and a few varieties of flowers. On the other with pears, screened from the street with a few evergreens. Further on, before we reach the fruit garden, already described, the space is devoted to raspberries, strawberries, rhubarb, an asparagus bed and miscellaneous vegetables.

It was Mr. Damon's object to show the Committee, that extensive grounds, great expense, and unceasing care, were not necessary requirements to make a pleasant and desirable suburban home. That from such a spot of ground as his own, with only an hour at morning and evening, to be spared from active business in the city, with the labor of one man, a family could be bountifully supplied with fruits and vegetables the year round, with a quantity to give away and much to sell as Mr. Damon had done. We think his crop of strawberries was 300 boxes,—plenty of raspberries, gooseberries

and currants,—pears in quantity,—grapes by the hundreds of pounds,—peaches and apples,—the latter mostly dwarf, with the exception of six or eight old standards,—and of vegetables large quantities. Everything was in fine order—no weeds to be seen—reflecting great credit upon the industry of his gardener.

The Committee fully appreciated Mr. Damon's good judgment, the simplicity of arrangement and the skill shown in the management of the grapes and fruits, and they were unanimously of the opinion that as an example of suburban gardening it was one of the best they had ever witnessed, and one which they commend for imitation. When expense is no object, of course more lavish adornment may be carried out, but no one could view Mr. Damon's grounds and say, that suburban life is too expensive for only those of abundant wealth.

FLORICULTURAL NOTICES.

NEW VIRGINIA CREEPER, (*Ampelopsis Veitchii*.)—This is a miniature foliage variety of our Virginia creeper, which clings to any building with the tenacity of the strongest ivy, and producing in great profusion its dense foliage, of a glossy green shaded with purple, cannot fail to command great attention. It is of exceedingly rapid growth, requires no nailing, and from earliest spring it produces its beautiful purple tinted leaves so thickly as to form the most perfect coating wherever it is planted, the young shoot being quite purple. The leaves are sometimes divided into three parts, and are sometimes entire, turning red in autumn, similar to the old kind. It was introduced by Messrs. Veitch, and long received first class certificates and prizes at the great shows in London.

DELECHAMPIA ROEZLIANA.—A specimen of this pretty plant was shown at the Annual Exhibition of the Massachusetts Horticultural Society last month. It was a foot or more high, well grown, and each shoot was terminated with a

cluster of flowers surrounded by its two floral bracts, of a delicate pink or rose color, and producing a fine effect. As it appears to be a free grower, and an abundant bloomer, it will become a favorite in any collection. It was exhibited by W. C. Harding, Esq.

SANCHEZIA NOBILIS VARIEGATA is the name of another new and fine foliaged plant, with long ovate leaves of a pale green, barred transversely and conspicuously with clear white. It has a stiff upright habit, and its superb variegated leaves make it one of the best of this class of plants. Mr. Harding was the exhibitor.

ABUTILON THOMPSONI is the name of a new Abutilon, with very beautiful variegated foliage, which has been brilliant in color the present season in Messrs. Veitch's nurseries, where it was introduced. For the subtropical garden it is pronounced to be a great acquisition.

SEEDLING GLADIOLUS.—Many very fine seedlings of this showy flower have been exhibited recently at the meetings of the Massachusetts Horticultural Society by Mr. Geo. Craft and J. S. Richards. Some of the light colored and buff and yellow sorts are quite equal to the French, and among the lot a few have some very distinct markings, which will make them great favorites. As a lot, it would be difficult to get a finer strain of colors.

Massachusetts Horticultural Society.

THE FORTIETH ANNUAL EXHIBITION was held on the 22d, 23d, 24th and 25th of September, and greatly exceeded in attractiveness the anticipations of the members. The season has been unfavorable; fruits have not done as well as usual, and cold autumn rains and early frost injured or marred the beauty of many flowers. Yet, notwithstanding this the display was really excellent, and in some departments superior to the exhibitions of previous years. The plants were very fine, and contained more novelties than usual, and specimens of a higher degree of culture, but flowers were not so good as heretofore. The apples were large and hand-

some, but the pears were not so good. The vegetables were of great excellence, particularly potatoes, which appeared to be a leading feature of this department. We give our report as full as space will permit.

PLANTS IN POTS.—There was a very grand display of these, and nearly or quite all of them rare and select things, including several varieties exhibited for the first time. The specimens too, were large, and filled the centre table, adding greatly to the general effect of the arrangement. H. H. Hunnewell contributed twenty plants, among them *Dracæna Australis* and *indivisa* (6 feet), *D. stricta*, similar to *terminalis*, but more erect in its growth. The variegated aloe leaved *Yucca*, *Coleus Veitchii*, *Agave filifera*, *Musa vittata*, a noble plant, with beautifully variegated foliage; the new and handsome palm, *Stephensonia sechellarium*, the stems thickly set with black spines; *Dracæna Draco*, a fine *Croton pictum*, *Eurya latifolia*, *Theophrasta imperialis*, *Hibiscus Cooperii*, *Pavetta borbonica*, *Rhopala corcovadense*, *Calocasia machorriza* var. &c., also *Maranta fasciata*, *splendida*, *Vandenbeckii*, *Eximia*, *lineata*, *albo lineata*, *pardina*, the fine *Dieffenbachia Barraquiniana*, with ivory white stems, and green spotted leaves; 12 ferns, including *Alsophila australis* (6 feet), *A. excelsa*, *Dicksonia antarctica*, *D. squamosa*, *Thamnopteris nidus*, *Asplenium bifidum*, *Onychium lucidum*, *Asplenium Billingeri* and others.

From W. C. Harding came several new and fine plants. Among the 20 were *Cyanophyllum magnificum*, *Dracæna Cooperi*, very fine, *Alocasia zebrina*, *Arundo Donax variegata*, the Chinese paper plant, *Alsophila australis*, a large *Maranta zebrina*, *Anthurum regale*, with superb foliage, *Maranta capitata* and *Porteana*, *Calocasias*, &c.; also the rare *Sanchezia nobilis*, with large clear green leaves, every nerve pure white, and the equally rare *Delechia rosea*, each shoot terminated with two rosy bracts, and the whole plant extremely beautiful. Mr. Harding also had 12 of the newest *Caladiums* of M. Bleu, which were very fine and well grown; the names are as follows: Adolph Adam, Auber, August Riviere, Dr. Boisbunel (extra fine), Harley, Dr. Lindley, Boildeau, E. G. Harderson, A. Bleu and Reine Victoria; some of these are very distinct and beautiful additions to this showy group.

Hovey & Co. sent 20 plants, among them several large and beautiful Palms. The collection included *Seaforthia elegans* (10 feet), *Latania borbonica*, *Chamærops excelsa*, very large, *Cocos coronata*, *Pandanus utilis*, the rare *Agave filifera*, *Cyperus alternifolius*, *Cycas circinalis*, *Dracæna Veitchii*, *D. indivisa*, *D. terminalis*, *D. brasiliensis*, and *D. Draco*, *Hibiscus Cooperi*, *Calocasia machorriza albo* var., *Theophrasta imperialis*, *Anthurium magnificum*, *Beschorneria yuccoides*, a superb specimen of the rare *Pandanus elegantissimus*, *Philodendron pertusum*, &c.; also fine specimens of *Dracæna umbraculifera*, *Pandanus variegatus*, *Alocasia Veitchii*, and 10 variegated plants, viz., *Yucca quadricolor*, *Cissus discolor*, *Dieffenbachia maculata*, *Yucca aloifolia* var., *Dracæna Cooperi*, *Cyperus alternifolius* var., &c.; six ferns, among them a very large *Blechnum Corcovadense*; six Lycopods, grown in large pans; six plants in bloom; six very large *Caladiums*, and eight seedlings of M. Bleu, viz., Edmund Moreaux, Mad.

Houllet, Keeteleer, Isidora Leroy, Raulinii, Mad. Andreau, and Chas. Verdier; six Marantas, among them small specimens of the rare *M. Lindeniana*, *magnificum* and *splendidum*.

From Jona. French, some fine *Caladiums*, particularly *C. Belleymei*, a superb variegated pineapple, *Croton pictum*, *Dracæna terminalis*, *Begonias*, &c. Ferns and some other plants were furnished by Wm. Cairns and others.

BOUQUETS, CUT FLOWERS AND BASKETS.—There was a very good show of these, notwithstanding the early frost. Hovey & Co. and J. Breck & Co. had very fine collections, as also E. Wason, A. McLarin, F. Parkman and others. The Seedling *Gladioli* of Mr. Richards and Mr. Craft were very splendid, and added greatly to the display. Curtis & Cobb sent a collection of some 30 foreign varieties, which were truly superb; the newest were the same sorts we have previously noticed. The baskets of flowers were numerous, and some of them arranged with great taste. Bouquets were hardly as fine as usual, but a few very superior. A collection of *Zinnias* from Hovey & Co. were remarkably double, and regularly formed. A very handsome show of Japan Lilies came from Col. Wilder, and grand specimens of *Allamanda Schottii* from Mrs. T. W. Ward.

DAHLIAS were few in number, owing to frost. B. D. Hill, Olm Brothers, Springfield, J. Nugent, Hovey & Co., and E. E. Whitman, were the principal exhibitors.

PREMIUMS FOR PLANTS, FLOWERS, &c.

GREENHOUSE PLANTS.—For the best twenty, to Hovey & Co., \$30.

For the next best, to W. C. Harding, \$25.

For the next best, to H. H. Hunnewell, \$20.

VARIEGATED LEAVED PLANTS.—For the best ten, to Hovey & Co., \$10.

VARIEGATED LEAVED PLANT.—For the best single specimen, to Jona.

French, for *Ananassa sativa* var., \$5.

CALADIUMS.—For the best ten, to W. C. Harding, \$10.

For the best six, to Hovey & Co., \$5.

FERNS.—For the best ten varieties, to H. H. Hunnewell, \$8.

For the best six, to Hovey & Co., \$5.

LYCOPODS.—For the best six, to Hovey & Co., \$5.

MARANTAS.—For the best six, to H. H. Hunnewell, \$6.

For the next best, to Hovey & Co., \$4.

PLANTS IN FLOWER.—For the best six, to Hovey & Co., \$6.

For the next best, to Wm. Cairns, \$4.

SPECIMEN PLANT.—For the best, for *Dracæna umbra caulifera*, to Hovey & Co., \$5.

CUT FLOWERS.—For the best and best kept, to Hovey & Co., \$16.

For the next best, to J. Breck, \$14.

For the next best, to A. McLarin, \$12.

For the next best, to E. Wason, \$10.

GLADIOLUS.—For the best, to J. S. Richards, \$6.

For the next best, to Geo. Craft, \$5.

For the next best, to Curtis & Cobb, \$4.

HAND BOUQUETS.—For the best, to J. McTear, \$6.

PARLOR BOUQUETS.—For the best, to J. McTear, \$6.

LARGE BOUQUETS.—For the best, to Hovey & Co., \$10.

Numerous Gratuities were also awarded for rare Plants, Flowers, &c.

FRUIT.—The very unfavorable season, and light crop of pears, it was believed, would prevent even an average show of this fruit: this, however, was an error. Though by no means equal to last year, yet the display was really excellent, and included many very handsome specimens, proving that among the numerous cultivators around Boston, fruit enough may be gathered to make a creditable display. The specimens were not so smooth and fair as last year, even when they came up in size, and of some few sorts hardly any were shown. The varieties which appear not to have been affected much, and of which large specimens were shown, were as follows: Beurré Bosc, from J. Eaton and J. Stickney; Clapp's Favorite, from Messrs. Clapp; Sheldon, from Messrs. Hovey & Co. and J. Stickney; Marie Louise, from the same cultivators; Doyenné Boussock, from G. Train and others; Mount Vernon, Messrs. Walker; Merriam, A. J. Dean; Bartlett, J. Eaton and A. Dickinson; Seckel, Messrs. Clapp; Doyenné du Comice, Hovey & Co.; Beurré Superfin, W. Maloon; Dana's Hovey, Hovey & Co.; Beurré Hardy, Hovey & Co. and H. Vandine. These appeared to be uniformly good.

Apples were unusually large, fair and beautiful, and the Exhibition one of the best for some time. There were several competitors for the large prizes, and it would be difficult to find more superb specimens of the Gravenstein, Nonsuch, Alexander, and other good sorts. Foreign grapes were hardly up to the standard, though some fine bunches were exhibited, particularly of Hamburg and White Frontignan. The best came from Geo. B. Durfee, H. S. Mansfield, R. S. Rogers, Edmund Gage, and W. C. Harding.

Native kinds were mostly unripe, though very good specimens of growth were displayed. The Hartford, Framingham, and some of the Concord were the only sorts fully mature. Specimens of the new Walter grape, from New York, were exhibited, and attracted much attention. It is a new grape, larger than the Delaware, with a little of the aroma of the Diana. It promises very well, but we should wish to know more about it before forming a decided opinion. S. Underhill, of Croton Point, N. Y., showed four seedlings, two black and two white, raised from the Hartford Prolific, fertilized with the Black Prince and Chasselas. One of the black and one of the white sorts was quite ripe, and the other two nearly mature; they appear well, and we hope to see them again. T. B. White of South Dedham exhibited a very handsome bunch, like a Hamburg, but not quite ripe. It is one of a number of hybridized seedlings, and if early would be very valuable. It is the first fruit on a young vine. Ionas from S. G. Damon were very nearly ripe, and very handsome bunches. Davis &

Bates had a very handsome collection. Very handsome Rebeccas from Geo. B. Cutter. Delawares were quite numerous, some of them very large bunches and ripe, and others not near ripe, showing the difference of locality or treatment.

PREMIUMS FOR FRUITS.

APPLES.—For the best twenty, to F. & L. Clapp, the Lyman Plate, \$20.

For the next best, to A. D. Williams, \$15.

For the next best, to C. B. Brigham, \$12.

For the best fifteen varieties, to J. W. Foster, \$12.

For the next best, to S. Hartwell, \$10.

For the next best, to J. Eustis, \$8.

For the best ten varieties, to F. Skinner, \$8.

For the next best, to C. N. Brackett, \$6.

For the next best, to B. Harrington, \$5.

For the best five varieties, to Geo. Pierce, \$6.

For the next best, to W. A. Crafts, \$5.

For the next best, to W. H. Barnes, \$4.

For the best dish, to F. & L. Clapp, for Gravenstein, \$5.

For the next best, to E. Farmer, for the same, \$4.

For the next best, to C. M. Atkinson, for Northern Spy, \$3.

For the next best, to W. P. Hale, for Alexander, \$2.

PEARS.—For the best twenty, to J. C. Chase, \$25.

For the next best, to A. Dickinson, \$20.

For the next best, to H. Vandine, \$16.

For the best fifteen, to M. P. Wilder, \$15.

For the next best, to Davis & Bates, \$12.

For the next best, to Jos. Stickney, \$10.

For the best ten, to J. Nudd, \$10.

For the next best, to G. H. Fenno, \$8.

For the next best, to F. Skinner, \$6.

For the best five, to J. Eaton, \$6.

For the next best, to John Mahoney, \$5.

For the next best, to F. Dana, \$4.

For the best twelve Bartlett, to J. Nudd, \$5.

For the best twelve Doyenné Boussock, to G. Train, \$5.

For the best twelve Beurré Bosc, to S. C. Perkins, \$5.

For the best twelve Seckel, to F. & L. Clapp, \$5.

For the best twelve Swan's Orange, to A. McDermott, \$5.

For the best twelve Louise Bonne, to H. P. Kendrick, \$5.

For the best twelve Urbaniste, to C. Blanchard, \$5.

For the best twelve Duchesse, to J. Mahoney, \$5.

For the best twelve Beurré Diel, to Davis & Bates, \$5.

For the best twelve Beurré Superfin, to Wm. Maloon, \$5.

For the best twelve Sheldon, to Hovey & Co., \$5.

For the best twelve Flemish Beauty, to J. C. Park, \$5.

For the best twelve Marie Louise, to J. Stickney, \$5.

For the best twelve Belle Lucrative, to Wm. Maloon, \$5.

For the best twelve Merriam, to A. J. Dean, \$5.

For the best twelve Beurré Hardy, to H. Vandine, \$5.

For the best twelve Mount Vernon, to Walker & Co., \$5.

PEACHES.—For the best four varieties, to F. Nichols, \$5.

For the best single variety, to A. Dickinson, \$4.

For the next best single variety, to H. Vandine, \$3.

For the next best single variety, to J. E. M. Gilley, \$2.

PLUMS.—For the best collection, to H. Vandine, \$5.

GRAPES, (Foreign).—For the best three bunches of Black Hamburg, to E. Gage, \$5.

For the best three bunches of Barbarossa, to R. S. Rogers, \$5.

For the best three bunches of Muscats, to W. C. Harding, \$5.

For the best three bunches of Royal Muscadine, to J. Falconer, \$5.

For the best six varieties, to Geo. B. Durfee.

GRAPES, (Native).—For the best collection, four bunches of each, to Davis & Bates, \$20.

For the next best, to J. B. Moore, \$15.

For the best six bunches of Allen's Hybrid, to Davis & Bates, \$4.

For the best Israella, to Davis & Bates, \$4.

For the best Adirondac, to Davis & Bates, \$4.

For the best Rebecca, to Geo. B. Cutter, \$4.

For the best Hartford Prolific, to B. B. Davis, \$4.

For the best Diana, to B. B. Davis, \$4.

For the best Delaware, to \$4.

For the best Concord, to D. Clark, \$4.

For the best Iona, to J. Capen, \$4.

For the best Isabella, to J. V. Wellington, \$4.

Numerous gratuities were also awarded.

Ferris & Caywood, Silver Medal for Walter Grape.

S. Underhill, Jr., Silver Medal for Seedlings.

VEGETABLES.—The display of these was unusually fine. Potatoes were an especial feature, and the Early Rose came from more than a dozen exhibitors: some of them large and handsome, but unfortunately some showing a little rot. The Goodrich, Sebec, Harrison, Shaker Fancy, and others were also shown, and of good size, and J. Comley sent 23 kinds. Mr. Bresee, the originator of the Early Rose, exhibited four seedlings, one of which, No. 4, he claims to be as early, or earlier than the Rose. It is a roundish potato, very large, and of fine quality. It promises to be valuable, if as early as is stated. Among the ten or twelve kinds of tomatoes shown, one, called General Grant, is a very smooth and handsome sort, of medium and uniform size, good color, and solid. Large and well grown Pekin Egg Plants were shown by Josiah Crosby. Extra fine Celery from Geo. Hill, which obtained the silver cup. S. A. Merrill, J. J. H. Gregory, and S. W. Hathaway had very fine collections. Extra Cauliflowers from F. Skinner. Numerous prizes and gratuities were awarded, but our space will not admit of the list in detail.

Gossip of the Month.

BOOKS AND PAMPHLETS RECEIVED:—

THE AMERICAN ENTOMOLOGIST, No. I., for September. A new Monthly Journal, under the editorial charge of B. D. Walsh of Rock Island Ill., and C. V. Riley of St. Louis, devoted to Entomological Studies. Price \$1 per year.

WHITLOCK'S HORTICULTURAL ADVERTISER, New Series, commencing July 1. Nos. 1, 2 and 3. This work is enlarged to the size of our Magazine, and is under the Editorial charge of A. S. Fuller, who will undoubtedly make it an interesting and instructive Journal.

THE GALAXY, for October.

OUR YOUNG FOLKS, for October.

ELLWANGER & BARRY'S CATALOGUE, for 1868 and 1869.

RECORD OF HORTICULTURE, No. 2. By A. S. Fuller. This is a Second Volume, for 1868, containing an account of all that is new in Fruits, Flowers and Vegetables, and other interesting information, with many Illustrations.

INDIANA STATE HORTICULTURAL SOCIETY'S TRANSACTIONS, for 1868. Seventh Annual Report. A neat, small volume of 110 pages, containing Reports of the Several Meetings, List of Fruits, &c. From J. S. Dunlop, Esq., President.

ANNUAL REPORT of the Ohio State Horticultural Society, for the Year 1867. Containing Reports of Meetings during the Year, the Annual Address of the President, &c. 82 pages.

FLORE DES SERRES. By Van Houtte of Ghent. Three numbers of this magnificent work have been received, containing superb colored plates of various flowers and plants. Of all the Serials with colored plates this is the finest. It is published monthly, with 8 colored plates.

FIRST ANNUAL REPORT of the Iowa State Horticultural Society, for the Year 1867. 124 pages. Received from Judge John King.

Horticultural Operations

FOR OCTOBER.

FRUIT DEPARTMENT.

SEPTEMBER was a cool and wet month, with a very severe frost on the 18th, which was injurious to grapes in many places. A dry and warm

October is now needed to ripen and perfect the wood, and prepare the trees for winter.

GRAPE VINES, in houses intended for early forcing, should now be pruned and put in order for starting next month. Allow the border to receive all the rains, until the last of the month, or when the ground becomes frosty, when it should have a good covering of old hay to keep in the warmth and keep out the wet. Vines in houses where all the grapes are cut will need no other attention than to take off the large leaves, and give every care to the thorough ripening of the wood. Vines in cold houses, where the fruit is not all cut, should be kept as dry as possible, and warm by closing up early at night. Hardy vines may now be pruned.

FRUIT TREES may be transplanted as soon as the leaves begin to fall.

FRUIT should all be gathered soon, and late sorts stored in barrels in a cool shed, or in boxes in a cool dry cellar.

FIG TREES should be removed to a cool dry cellar, before severe frosts.

ORCHARD-HOUSE TREES should be kept in some sheltered place, and be kept rather dry, to ripen the wood.

FLOWER DEPARTMENT.

The early frost did much injury, in many places, to dahlias and all tender things, but in sheltered and protected gardens they are still in full flower. As more severe frosts must soon be expected, preparations should be made to have everything well secured. Proceed with the arrangement of the houses as rapidly as possible, and keep them cool and well aired, to prevent weakening the plants by too early forcing. Take up and pot all plants wanted to fill vacant places, or for securing a spring stock. Protect in frames, if no other means are at hand.

CAMELLIAS, now all housed, should be carefully watered, and be occasionally syringed. Use liquid manure occasionally.

AZALEAS should be kept in the coolest part of the house, unless wanted for early bloom. Water sparingly, and fumigate if any appearance of the thrip.

PELARGONIUMS should be placed on a shelf as near the glass as possible, and be kept cool. Cuttings recently potted may have a similar location, with a little more warmth to cause more root action. Water cautiously.

MONTHLY CARNATIONS, growing in the open ground, should be taken up and potted and kept in a frame, unless wanted for winter blooming.

CINERARIAS AND CALCEOLARIAS should be kept on a cool shelf, near the glass. See that they are not infested with the green fly.

CHINESE PRIMROSES should have a cool and airy place, and be cautiously watered until well advanced. Such as are full of roots may have a shift in to the next size.

CALADIUMS should now be allowed to dry off, preparatory to placing them away in a warm dry place near the flues, or hot water pipes. They are often lost for want of a *warm* situation.

CALLAS should have an abundance of moisture, by placing them in pans kept filled with water.

CYCLAMENS should be potted, if not already done, and kept in frames secure from frost, or in a cool place in the house.

JAPAN LILIES, for early blooming, should be potted and placed in a frame for a few weeks.

PANSY SEED for early spring flowering should be planted now.

OXALISES AND IXIAS should be potted.

BULBS of various kinds should be potted for blooming about Christmas, or New Year. Place in a frame for a few weeks, and then bring into the house; use light, rich, sandy soil, and do not pot too deep.

BELLADONNA LILIES, potted now, will soon come into bloom.

CACTUSES should now be more sparingly watered.

CHRYSANTHEMUMS should be removed to the house, or have the protection of a frame. Water liberally, and use liquid manure.

NEAPOLITAN VIOLETS, for flowering in the house, should now be potted and removed to a frame.

HEATHS should be kept in a frame as late as possible, as they do better than in a warm greenhouse.

CUTTINGS of Verbenas, Geraniums, Petunias, and similar bedding plants, should be put in for spring stock.

ROSES, growing in the open ground, should be potted immediately and placed in frames until well established, when they may be pruned and removed to the house.

FLOWER GARDEN AND SHRUBBERY.

The cool and moist weather has kept the lawn in fine order, and rendered frequent cuttings necessary: with the aid of a good lawn mower, this is easily done. Continue to cut as long as there is any growth, and clean, rake and roll the walks.

GLADIOLUS should be taken up before hard frosts. Cut off the tops, dry the bulbs, and remove to the greenhouse or a warm cellar.

HYACINTHS, TULIPS, and other bulbs may be planted now.

DAHLIAS should be taken up. Dry the tubers and remove to the cellar.

DAISIES should be set out in a frame, where they can be protected from severe frosts.

JAPAN LILIES should be planted.

NEAPOLITAN VIOLETS may be planted in frames, where they can be protected from severe frosts.

CARNATIONS should be planted in frames.

PERENNIAL PLANTS may now be taken up, divided, and reset.

PEONIES may be safely transplanted this month.

FRAMES should be prepared for wintering all half-hardy things, such as Tritomas, Pampas Grass, &c.

SUBTROPICAL PLANTS should all be taken up immediately, potting them, and removing such as can be wintered safely to a warm cellar, and the others to the hothouse.

THE SPRING GARDEN.

SUMMER has come and gone—frosts have already marred or destroyed the beautiful garden flowers, which have afforded so much pleasure—and we are reminded of the approaching season when preparations should be made for a renewal of this floral beauty with the very earliest days of spring. Our summers are indeed short, and our winters long: with October fades away all that is cheerful and attractive in the summer garden. Long since the dahlia and other tender plants succumbed to the first frosts, and that hardiest and showiest of autumnal flowers, the aster, has lost its freshness and beauty. A few chrysanthemums, in favored places, may yet display their blossoms, but they are pale and wan, and show the effects of cold rains and the chill October air. The garden has ceased to interest and gratify us, and we look forward through the long dreary winter to the early days of spring, when we can welcome the first snowdrop, and greet with joy the gay crocus, and the long train of spring bulbs, which for two months or more cheer us with their freshness and brilliancy.

The cultivation of bulbs, though constantly increasing, is yet very limited, compared with their great claims for hardiness, earliness, fragrance and beauty: but for these our grounds would be completely barren of flowers, from April until June, shortening the season a month or two, and depriving us of some of the gayest as well as the sweetest of flowers. The snowdrop, the crocus, the jonquil, the narcissus, the hyacinth, and the tulip, not to name many others, give a succession of bloom and enliven the garden at a season when without them all would be cheerless and bare.

Within a few years the culture of bulbs has been more extended. The English cultivators have instituted a series of spring shows, composed mainly of hyacinths, which has greatly increased the taste for this flower, and brought it more directly to notice. Even the Dutch, who have so

long been the only growers to any extent, have partaken of this enthusiasm, and for the first time have offered handsome prizes to be competed for the coming spring. Stolid as the Dutchman is, he begins to be alive to the progress in bulb culture, and the result will be the production of new varieties, much superior to anything we have yet had.

With us the hyacinth has not yet attracted much attention, only as a pet flower for glass vases or pots in the parlor or greenhouse. As a hardy out-door bulb it is rare to find a large and handsome bed. Yet it is quite as easy to cultivate, and less expensive than the gladiolus; and when we take into consideration the season of flowering, the rare elegance of the stately stems, crowded with their little bells of every hue, and their delightful fragrance, need we inquire if any plant is more deserving of our attention and care?

The Dutch cultivated the hyacinth for many years before it was introduced to England, and they are still the only commercial growers to any extent. They supply the great demand for the world, and acres of land, in the neighborhood of Harlem, are devoted to its growth. It has been stated that the success of the Dutch florists is owing to their soil and climate, which are especially favorable to the growth. Possibly this may be true; but we are rather inclined to think it is owing to their long experience and skill in the preparation of the soil and treatment of the bulbs, rather than to any natural advantages. We have raised as handsome roots as any we have ever imported, but it was only done with much care.

The hyacinth, however, is but one, though prominent, of the many spring flowering bulbs which contribute so much to the decoration of the garden at that season. We briefly name them:—

First, because the earliest to appear, is the snowdrop,—double and single. Its delicate white flowers appear, even when the snow covers the ground. These should be planted in clumps, where they may remain two or three years. They look well on the lawn, near the house. Plant two inches deep.

The crocus succeeds the snowdrop, often flowering in March, when the weather is mild. There is an endless

variety of shades, of yellow and purple colors, and pure white, and when planted in groups or masses they make a magnificent show. They flourish in almost any good soil, and are adapted to edgings of beds. Planted in grass embankments, simply by removing the sod and replacing it, they flower freely, and make a gay appearance when in full bloom.

The jonquil is a species of narcissus, with deep yellow flowers, and a fragrance almost too powerful when confined to the room. It perfumes the garden. It should be planted in any good soil, in the border or in beds devoted to bulbs.

Of the narcissus or daffodil there are many varieties of different shades of yellow. The Orange Phoenix is one of the largest, and by many considered the handsomest. The flowers are of the deepest yellow. The white or poetical narcissus has a snow white flower, with a yellow cup in the centre, fringed on the border with a circle of bright purple. This and all the more common varieties are very showy, and look well planted in groups. They bloom in April.

Then there is the *Polyanthus narcissus*, less hardy than the above kinds, requiring to be planted five inches deep, and protected with a thicker covering of leaves or coarse litter to keep the frost from reaching the bulbs. The large heads of numerous yellow flowers are very beautiful and fragrant, and are highly ornamental.

The squills (*scillas*) are very pretty objects, with spikes of blue flowers, which are bell-shaped and pendulous. They are hardy, easily cultivated, and bloom in April.

The bulbous iris, though quite different in style from any we have named, are very handsome and showy, with the varied mixture of sky blue, purple, yellow, and sometimes white. The Persian is also very fragrant, and blooms early. One of the most magnificent is the *Iris Susiana*, but it sometimes fails to bloom well. It requires a sandy soil, and a very dry locality, as too much moisture is sure to injure it. The flowers are very large, and loose, and of a light color, streaked and stained with dark lines. The bulbs should be planted two inches deep.

The Crown Imperials are very imposing and conspicuous,

throwing up a stem two feet high, terminated with a whorl of pendulous flowers, yellow or red, very showy at the early season of its flowering in April. Allied to these are the fritillarias, growing a foot or so high, with dark spotted flowers, blooming in May, singular and ornamental. These need not be removed oftener than every three years.

Following these comes the hyacinth, which we have already spoken of and commended to greater attention. The best mode of planting is in beds, four and a half feet wide, and six rows in the bed, alternating the colors, blue, red, white, and yellow, so as to produce a good effect. The soil should be deep, very sandy, and enriched only with leaf mould or cow dung, thoroughly decomposed. Plant four inches deep, and cover the bed, on the approach of winter, with four or six inches of leaves, tan or coarse litter.

The Grape and Feathered hyacinths, though not as showy as some other bulbs, are very ornamental and attractive. The Grape hyacinth has spikes of small flowers, thickly set on the stem. They are blue, purple, white, or rose colored, and have an agreeable odor. The Feathered hyacinth takes its name from the feathery appearance of its handsome flowers. All are hardy, and easily cultivated. They bloom in May.

The tulip is, without doubt, the most brilliant of all bulbs, and is more extensively cultivated, and better known than the hyacinth, yet it is only the more common kinds that are generally seen, the choicer and well marked flowers being too expensive, and much care being required to keep the colors pure.

There are two classes of tulips, the early and late, and of the former class, double and single.

The early tulip grows only six or eight inches high, and flowers in the early part of May. When planted in masses or in beds, they make a grand display. The Van Tholls are the dwarfiest and earliest bloomers, and are perhaps the gayest colored, but all the numerous varieties are exceedingly rich and varied in their tints, and a bed of twenty or thirty sorts, double and single, is a grand sight. The late tulips,—the only kinds prized by tulip fanciers,—are those which

in former times commanded such fabulous prices among the Dutch cultivators, and are still held in high estimation by English florists. They differ from the early kinds by their much taller growth, their broader, rounder, and perfectly formed petals, and the exquisite penciling of various colors on a clear white or yellow ground. The very choice kinds still command a high price, and a good collection of varieties, such as is cultivated by many English tulip fanciers, would cost many hundred pounds sterling. Some sorts increase very slowly, and others are liable to be injured by bad cultivation, running the colors.

The Dutch, however, now send out many fine named varieties at fair prices, and a collection of them, though perhaps not coming quite up to the florist's standard, makes a magnificent display. They are usually divided into three classes, viz., bizarres, byblœmens and roses. The first of these have yellow grounds, shaded with scarlet or purple. The second have white grounds, shaded with violet purple, and the third have white grounds, shaded with rose or cherry red. This classification enables the amateur to make a selection of colors suited to his taste, and in such proportion as he may fancy.

The usual mode of planting is in beds $4\frac{1}{2}$ feet wide, with seven rows, the tallest growing being placed in the middle row. The beds should be prepared with light rich sandy soil, and the bulbs planted four inches deep. Upon the approach of freezing weather they should have a light covering of leaves or litter. This should be removed as soon as the weather will admit, which is usually about the first of April.

There are some other bulbs which may be added when there is room, such as the alliums, anemones, ornithogalums, &c., but our list comprises the principal hardy sorts, which bloom in April or May.

A few general hints will close our remarks. All the spring bulbs require a light sandy soil, enriched only with leaf mould, or very old cow dung. The beds should have a light covering of leaves, straw, old hay, or litter of some kind, to keep the frost from penetrating the soil. Good

sound bulbs should always be selected, particularly of hyacinths, which are often inferior. On the approach of spring, soon after the covering is removed, stir the soil carefully, and keep it clear of all weeds. Shade when in bloom, and the flowers will retain their beauty for a long period.

THE CULTIVATION OF THE STRAWBERRY.

BY EDMUND FAILE, WOODSTOCK, CONN.

AN amateur cultivator near New York, who grows the strawberry to considerable extent, and who has tried the various methods of culture detailed in our Magazine, and particularly the system practised by the Belmont growers, informed us, sometime since, that a friend of his had been very successful in the culture of the strawberry, and if desired by us he would endeavor to send us an account of his system, which was different from the ordinary practice, and which had given good results.

This communication, which we are sure will be read with much interest, we now present to our readers. It is almost unnecessary to say that any system, whatever it be, which is carried out with the same preparation of the ground, would be pretty sure to succeed. Mr. Faile is a thorough cultivator, as his article shows, for he not only prepares the soil well, but follows this up by careful planting, good winter protection, &c. Half the plantations of strawberries are injured or destroyed, from want of proper care or knowledge in setting out the plants; they are dibbled into ground not half prepared, often in warm weather in August, when an hour or two of hot sun, without watering the plants, is sure to cause their death.

Whether the system be annual, like that of the Belmont growers, the mode of planting in narrow beds, as practised by Mr. Faile, or any other plan, if the work is done as thorough as described by him, success is sure to follow. Plenty of manure, deep tillage, a complete admixture of the manure and soil, good plants, skilful planting, and winter protection, cannot fail to give great results.—ED.

Dear Friend,—In compliance with your request I herewith annex a statement of my mode of cultivating the strawberry plant.

The first and most important part of the cultivation, to secure large fruit, and a large crop, is deep tillage.

In garden plots the ground should be trenched at least three spades deep, and care taken to keep the top soil uppermost. After trenching, the bed should be manured with well rotted horse manure. This should be done fully two months before the time of planting, and the ground packed over two or three times, at intervals of about two weeks, in order to get the manure well mixed through the soil before the plants are set. At the time of first forking I scatter over the ground a mixture composed of bone dust 4-10, wood-ashes 5-10, salt 1-10. These proportions suit our heavy soil; which is also much improved by a good coat of sand. The last forking should be done immediately before planting. This mellows the ground, and enables the operator to make holes for the plants with his hands, which is better and more expeditious than using a trowel. A dibble should never be used. The plants should be set in two rows, at a distance of 15 inches each way; then leave a walk of two feet, and again plant two rows as before. The space of two feet allows the fruit to be picked, and saves it from being trodden under foot. In taking up the runners I am particularly careful to protect them from the rays of the sun, as a few moments exposure is hurtful, if not death, to the tender plants.

Success attends much upon the manner of planting, which should be done as follows: the operator should make the holes with his hand, spread the root of the plant, and hold it against the straight side of the hole, and fill in loosely with earth; then let another person follow with a watering pot (having the rose removed) and pour in a sufficient quantity of water to settle down the plant in its place. This will again expose the roots of the plant, which are to be covered to the proper depth with the dry earth, which will prevent it from baking when exposed to the sun.

All new runners should be removed, and the ground frequently forked to keep down the weeds. This is very

important, as no work should be done in the spring after fruiting other than to pull a few scattering weeds, which are sure to come.

After the ground is frozen hard a light covering of salt hay or straw should be put on, and not removed until after the fruit is gathered. In the spring it is only necessary to open the covering above the plants, to allow them to come through.

I hope this scribble will prove to be of some service to you, and that you will be more successful in raising large berries than I have been.

P. S. The time to set the plants is August 1, or as much before this date as well rooted plants can be obtained.

GRAPE GROWING AT CASTLE KENNEDY.

FROM THE GARDENERS' CHRONICLE.

GRAPE growing has attained a wonderful perfection under the hands of such skilful gardeners as Mr. Fowler of Castle Kennedy, and Mr. Meredith of Garston. They are the champions of grape culture, and the specimens they have exhibited have had no equal. We have in our previous volumes given some account of them, but they seem to have surpassed all their previous efforts, and highly interesting statements have been published of the vineries under their care, the varieties cultivated, and the crops.

The grape is extensively cultivated in this country, but we do not see or hear of any such specimens as are produced by the gardeners above named. We seem to be content with a crop, without regard to its quality, and make no attempt to improve our cultivation of this delicious fruit. We do not think our exhibitions of foreign grapes are so good as they were ten years ago, though larger in quantity. Occasionally we see a few excellent specimens, but generally they are of ordinary quality.

There is no reason why our cultivators should not do

better. Our climate is more favorable than that of England, and nothing but skilful treatment is required to accomplish the greatest results. Amateurs, especially, should keep up the standard of excellence, and endeavor to show something of the perfection of grape growing.

Let our Horticultural Societies offer liberal prizes for superior specimens, and if those exhibited are not worthy of the prize they should be disqualified until they came up to the standard of good culture. It is not expected that cultivators for the market will do much in this way, though we think they would be the gainers in raising fine grapes, which always command a good price. Mr. Meredith cultivates extensively for the market, and he is too shrewd a gardener to do so unless he found it more profitable.

Let our cultivators read the following account of grape growing at Castle Kennedy. If it does not stimulate them to renewed exertions, it will at least show to what perfection grape culture can be carried by skilful management:—

No. 1 vinery is the early Hamburg house, out of which a portion of the crop had been taken. What remained of the Hamburg proper, was good in all respects as to size of bunch and berry, color, and finish. The Golden Hamburg is grand—quite a model for a grape of its kind, the berries and bunches unexceptionally beautiful, and showing no tendency, at that mature stage, of the constitutional deficiency with which it is chargeable. Mr. Fowler estimates it as one of the best of modern grapes, and it finds much favor at the table of his noble employer. Like other growers, he is not insensible of its immediate tendency to flaccidity at the ripening period, but he has found a useful antidote to this in a steady temperature, and a warm, comparatively dry, root medium. Here, too, is to be seen the Muscat Hamburg worked on the Black, and fine as the produce is—such indeed as would delight the majority of growers who cultivate it—it is puny in comparison to samples which we afterwards had an opportunity of inspecting growing on their own account. Like everyone catering for the fruit supply of a great establishment, Mr. Fowler took the earliest opportunity of adding this valuable grape to the

collection, and hence the position it occupies as a scion in a Hamburg house.

No. 2 is a Muscat house, containing some extraordinary samples of grapes. The Alexandrian Muscat bunches are not so large as the produce that has been staged at the Scottish exhibitions by Mr. Fowler, but notwithstanding, very few of them will be under three lbs. weight. In point of uniformity of bunch, as to size and symmetry, they are indeed remarkable, while the color gives promise of being all that is desirable. The Trebbiano and White Nice have bold positions in the house, and very great is their produce. The Trebbiano is very much finer than in any previous year, the bunches weighing, according to the estimation of the three gentlemen that inspected them, from eight to nine lbs. each. When to this are added their symmetry and size, the reader can easily estimate that such prodigies deserve more than a passing glance, and the wonder is how the stripling of a vine can maintain, and, in pomological phraseology, finish them. The White Nice is quite Brobdingnagian, but it will not yield, by a difference of two or three lbs., a compeer with that which was exhibited at Glasgow last autumn, and which weighed $17\frac{1}{2}$ lbs. Wonderful as the bunches of these grapes of the latter variety are, it is almost throwing away space to give them house-room; and then looking at the Muscats growing side by side, they are influencing them in point of deterioration to a very marked degree. These giants, although capable of being kept within bounds as far as branches and leaves are concerned, are making havoc with their feeders in that capacious border, being indeed a set of marauders that poach upon valuable preserves, and which nothing short of extermination has the power of correcting.

No. 3 is a late house, and here are to be seen a great many excellent grapes. Black Hamburg promises to be fully as good as any Mr. Fowler ever grew or exhibited. The bunches and berries are admirable, but what their finish will be, time must solve. Lady Downe's Seedling is of fully average size, good throughout, and at the time inspected beginning to color. Black Alicante and Duchess of Buccleuch are unique in all respects, and, from their extraordinary size in bunch

and berry, eclipsing anything that has been seen or heard of them, are worth of themselves, to any grape grower, a journey to see. Talk of splendid Alicantes three and four lbs. weight, what will be said of a six lb. sample of a bunch that has never been shown of any unusual dimensions! Yes, truly, this is *un fait accompli*, and then such berries!—so large and plump as to suggest the idea of distending themselves to the size of Golden Champions. More wonderful still are the samples of Duchess of Buccleuch, which nobody but Mr. Fowler seems to be able to do anything respectable with. How ludicrously small some of the bunches, and especially the berries of this fine flavored grape are, both in private places and upon the exhibition tables, as if it were a worthless article for show, and a weed in the market! Go to Castle Kennedy and see it, ye doubters, for I have no interest other than that of proclaiming the truth. Some of the bunches, speaking within the mark, would be four lbs. in weight, and the berries and general appearance quite the size and form of what would be considered extra good bunches of Black Prince. When such wonderful examples as these are producible, there must be some prime moving cause or causes to influence them, and not the least potent, in my estimation, is the artificial root-propagating medium, to which might be added a wise system of artificial manuring.

Passing on, however, to the inspection of No. 4 house, I find the interest increases, for the low-level houses seem, this season at all events, to be yielding the best crops. Muscats here are in the very best trim, much better colored than usual, which cannot be accounted for, according to Mr. Fowler, unless it be owing to the high and dry temperature of the year. The sun, indeed, has been so powerful that Mr. Fowler for the first time places tissue-paper to intervene between the sun's rays and the bunches, for sun-stroke does no good to pomological any more than to animal subjects. This tissue-paper seems to possess the power of frightening away mice, the worst pest that anyone can have in a vinery, and not easily got rid of, particularly where there is so much cover for them, as is the case here where litter ridges prevail. Associated with these White Muscats are the Muscat Hamburg,

the Black Lombardy, and the Black Marocco. The Muscat Hamburg is here on its own roots, and in such condition as to be enviable. Little wonder, then, that the grower invites you to mount his litter ridges to have closer inspection of the extraordinary bunches of a wonderfully fine-flavored grape. Cultivated like this, no black grape can approach it, and the color this season seems to be coming better up than in Mr. Fowler's contributions at bygone exhibitions. The great shoulders, and the length of the principal stem loaded with berries, are quite a treat to look upon. Black Lombardy seems a good sized grape in point both of bunch and berry, with a clear transparent black skin, and carrying a good bloom; the flavor, however, is not highly spoken of. Black Marocco is a very distinct grape, with large oblong berries, not quite finishing to the desirable blackish blue—a tone so much sought after. If kept long hanging it improves in flavor. It has the inherent defect of shyness at the setting period, which is corrected by a good shaking occasionally to disperse the pollen; and in order to provide for this the more efficiently Mr. Fowler tautens up, in naval phrase, the wires from end to end, without having auxiliary supports attached to each rafter.

No. 5 vinery is also a late house, nearly all occupied by Lady Downe's Seedling. These are all good in so far as can be judged, and it is well known there is no difficulty in getting the color up in this excellent late hanging grape. There is nothing so remarkable in the size of the bunches in this house, all being fully above the average, but none inclining to take position as prodigies. One remarkable feature is observable here, which led to some questions. The Muscat of Alexandria is growing here. It had no artificial heat up to the time of its starting of its own accord; it showed no symptoms either of debility, unfruitfulness, or any of the other ills that are concomitants of ill-managed graperies—in fact it was simply the most vigorous vine, bearing the heaviest crop and the best bunches of any of its fellows in the other houses, wherever growing. "This is something new," said the writer to Mr. Fowler; "I always thought that the Muscat of Alexandria required an early start to finish well, and that

the general opinion was if it was not fully colored early in September it wouldn't color at all. Yours must be sadly deficient in that respect." "I have tried it now," he said, "as you see it for several years, and I do not hesitate to tell you that, with the exception of some bunches of Muscats I saw at Archerfield, grown by Mr. D. Thomson, that vine finishes its berries the best I ever saw, and you see the bunches, so that you can judge for yourself." Here is a fact worth knowing, if for nothing else than for general usefulness. Amateurs are afraid to introduce this sort, owing to the heat and forcing it is said to require. Mr. Fowler grows it better than its compeers in a Lady Downe's house, which only requires a little artificial heat in the atmosphere to consume damp, and ripen the wood.

So much for the sorts cultivated, and their general appearance, but what about a crop? I am imagining that many readers in perusing this article may be cogitating and summarizing to this effect:—"It is all very well—a bunch or two upon the rods of the size dilated upon—but we have a family demanding a large supply, and if we do not cater towards that end somebody else will be glad to do so. Very fine, indeed, a bunch or two of the dimensions specified for exhibition purposes, but what about the crop?" The writer fortified himself against an evasion of that sort, else he never would have started the objection. Now for statistics: Mr. Fowler's own estimate of a full crop such as a vine can bear for a series of years is 25 lb. to the rod. There are 10 rods with their complement of laterals in each house, which gives 250 lb.; to that must be added—what is taken here, very judiciously it may be inferred, and without injury—25 lb. from each gable; giving, as nearly as possible, 300 lb. of grapes in a house, say 35 by 16, and a length of rafter of about 22 feet. Now, looking over the whole of the five houses—and it was not a cursory examination, else I could not have presented it in the light I have done—there is a crop this year justifying that estimate. Mr. Fowler says truly he could double it, but it would not only be at the expense of the crop, it would also engender shanking, bad coloring, and probably deficiency of flavor, and it would

militate against the permanent constitution of the vines. Query, then : if a crop of this kind can be carried through to give general satisfaction, is it not better than one-half more, bearing several objectionable marks? One good bunch is better than two or even three bunches of equal size but inferior quality.

The great question of permanency of cropping and uninterrupted success in yield having been stated, Mr. Fowler clearly avers that borders to be so productive must at least be renovated every ten years, to correct the physical deficiency which age brings with it. All the auxiliary means called into play must fail whenever aëration is materially infringed upon, and the fibre and the bones that go together to assist to keep apart the cohesive particles lose their virtue. This grower also has found by experience that guano is a powerful stimulant for increasing size of bunch and berry in an otherwise well-prepared border ; but he also believes that it affects the perfection of coloring. The best ingredient for promoting finish and color that he has ever experimented upon is wood-ash. That is now introduced in considerable quantity. The soil of the district is sadly deficient in potash, and the introduction of this corrective into the vine border has been attended with good effects. Like most energetic men of a scientific turn of mind, Mr. Fowler is greedy and painstaking in collecting facts to establish the theory upon which his practice has latterly been based, and the careful reader will agree with me that he has by no means been reticent in committing the gist of his practice to one who was laid under no obligation to be silent on the matter.

POMOLOGICAL GOSSIP.

THE CONCORD GRAPE.—It is now more than a dozen years since we had the pleasure of introducing the Concord grape to the public. During this period it has had a pretty good trial, and it is certainly gratifying to us, to learn that our

estimate of it was none too high. It will be well recollected, how severely we were attacked for our high commendations of this variety,—that it was pronounced only “fit for jellies,”—and only half the size we represented it, &c. It is therefore with great pleasure that we learn it has been awarded a prize of \$100, as the BEST WINE grape for Ohio, and a prize of \$50 as the BEST TABLE grape for the whole country. We copy below the report of the committee awarding the premiums, which we find in the *Prairie Farmer*:—

The premiums were offered by the Longworth Wine House for the best wine grape for the whole country—the best wine grape for Ohio—and the best table grape for the whole country. The fruit was to be shown and the awards made at the Consolidated Exhibition of the American Wine Growers' Association of Ohio and the Cincinnati Horticultural Society, to be held at Cincinnati, September 23, 1868. This Exhibition took place at that time, and was a complete success, and great interest was centred in the awards of the Longworth prizes. The Committee consisted of C. N. Spaulding, St. Louis; Prof. Thurber, New York; J. E. Mottier, Pa.; Geo. Graham, Cincinnati, and E. A. Thompson, Cincinnati. The Report of the Committee is as follows:—

“The Committee, appointed to decide upon the best wine grape of our whole country, the best wine grape of the state of Ohio, and the best table grape for our whole country, and to distribute your very munificent premiums therefor, beg leave to report that they have examined all the samples of grapes and wine presented to them, carefully and critically, and after much discussion and deliberation, have made the following decision and award:

For the best wine grape of the whole country—Ives Seedling; and the first premium—silver plate of the value of \$350—awarded to Lewis Finch, of Plainville, Ohio, he having the best display of that variety present.

For the best wine grape for Ohio, the Concord was agreed upon, and the second premium—a silver goblet of the value of \$100—awarded to E. A. Thompson, of Cincinnati, for the best display of that variety.

For the best table grape for our whole country, the Concord

was agreed upon, and the third premium—a silver cup of the value of \$50—awarded to Frank Murphy, of Cedar Avenue, Ohio, for the second best display of that variety.

Your Committee would also make honorable mention of A. E. Mottier, and others also competing for these premiums, for the fine display of grapes and wine.

Your Committee, aware of the great difficulty of selecting a wine or table grape for the entire country, embracing many degrees of latitude, entered upon the discharge of their duties with many misgivings; they were also restricted by the generous donor in this 'that the plants, when generally cultivated, shall be perfectly healthy, hardy and productive in all sections of the country,' and after a thorough canvass of all the varieties, became satisfied that, although there are better varieties of table grape, yet they are sectional, and will only mature their fruit on certain soils and in certain locations, and that the Ives and Concord are the only known varieties that fulfil the restrictions imposed upon your Committee."

NEW GRAPES.—A favorable season has again brought the grape prominently before the public, and quite a number of new or recently introduced varieties have fruited in great perfection, giving a better opportunity to judge of their merits. Among these new sorts, the Walter and Eumelan seem to be the most important. Of the former we have already given a full account, but the latter is new, and now for the first time introduced to notice. At Canandaigua specimens were exhibited which attracted considerable attention, and through the kindness of Col. Wilder, who attended the show, we had the pleasure of tasting this grape. The specimens, however, had been 'too long gathered to judge correctly of its merits. It is a black grape, of rather small size, but fair sized shouldered bunches, and is pronounced by Dr. Grant superior to the Israella. Mr. Underhill's seedlings also promise well. There are four or five kinds; one is a white grape, as early as the Hartford Prolific, and the other a black one, of the same earliness. They were produced between the Concord and Sweetwater, and the Concord and Black Prince. The others, one of them white, are later, but about as early as the

Concord. Ellwanger & Barry have several seedlings, some of which promise well. Grape culture is certainly progressing rapidly, and as we have stated, the varieties will yet be produced, which will answer every demand, both as regards quality and earliness, as well as vigor and freedom from mildew.

THE MAMMOTH CLUSTER RASPBERRY.—This is the name of a large and improved variety of the Black Cap Raspberry, which originated in the west, and is larger than the Miami, and produces the fruit in large compact clusters. It is fully equal in productiveness to the Philadelphia raspberry, stands carriage well, and has been sent 300 miles to New York in good order. It will probably prove the best of this class of native raspberries.

MRS. PINCE'S MUSCAT GRAPE.—This new grape, which we have previously noticed, has been fruited by the celebrated grape grower, Mr. Meredith, and the following account is given of it: Perhaps one of the most surpassing examples is a grape-vine of Mrs. Pince's Muscat. It was sent, as I understood, a small plant, as a present to Mr. Meredith, who planted it out in the end of May, 1867. The stem is now six inches in circumference, with twenty-three fine beautifully formed bunches,—not a little one to be seen, nor an uneven berry. The latter are oval in shape, very hardy in appearance, with a stout, thick footstalk; the flavor has the smack of a Muscat now, but after the beginning of the year is the proper season, when it acquires a rich, full Muscat flavor. Mr. Meredith considers this the best late grape, and fearlessly asserts it will take the place of all others. Indeed there is plenty of evidence of the estimation it is held in here, from the enormous stock of fine young canes ready for the market. The habit is robust and fine growing: it is a good setter, and shows plentifully.

THE CHAVOUSH GRAPE.—Specimens of this new white grape were exhibited at the recent show of the Massachusetts Horticultural Society. It is a very handsome variety, with large oval white berries and good size bunches, productive and keeps well.

REVIEWS.

THE TIM. BUNKER PAPERS ON YANKEE FARMING. By TIMOTHY BUNKER, Esq.; of Hookerstown, Conn. With Illustrations. 1 Vol., pp. 316. New York, 1868.

THIS is a volume of papers, contributed from time to time, during twelve years, to the American Agriculturist, and now collected together, more in deference to the Editor of that paper than to the judgment of the writer. "They are a humble attempt to represent the average wisdom of the Connecticut farmer, and the steady progress which this class is making in rural improvement, and the comforts and moralities of rural life."

These papers are 84 in number, and upon every conceivable topic, such as subsoiling,—horse racing at agricultural fairs,—book farming,—new manures,—county fairs,—raising boys and girls,—irrigation,—farmers' clubs,—painting buildings,—extravagance,—value of muck,—family horses, &c. &c.

The papers are written in pleasing style, and the incidents selected are fictitious in form, though not in fact, for they are the results of experience and observation. The object of the author is to show how a little thrift, intelligence and good judgment, would change the condition of things, and make agriculture the science that it is, rather than the haphazard practice which has hitherto prevailed.

HOW CROPS GROW. A Treatise on the Chemical Composition, Structure and Life of the Plant, for all Students in Agriculture, with Illustrations and Tables of Analyses. By SAMUEL W. JOHNSON, M. A., Professor in the Sheffield Scientific School of Yale College. 1 Vol., pp. 394. New York, 1868.

This is the first of a series of works intended to cover the whole ground of Agricultural Chemistry and Physiology, and

the processes by which plants grow and feed, and the mode of supplying food, by proper tillage.

It is unnecessary to say, that anything from Mr. Johnson's pen is full of interest to the agriculturist, and the present volume is the result of studies undertaken by him in preparing the lectures, which he has delivered during the last twelve years on Agricultural Chemistry and Physiology, to a class in the Scientific School in Yale College, and is offered to the public in the hope it will supply a deficiency that has long existed in English literature.

The work is divided into three parts, as follows:—1, chemical composition of the plant; 2, the structure of the plant, and offices of its organs; and 3, life of the plant, with an Appendix of twelve tables, giving the composition of the ash of agricultural plants and products,—their proximate composition, detailed analysis of bread grains, potatoes and sugar beets, composition of fruits, &c. &c. Each division is subdivided, and the whole subject of how plants are formed;—the vegetative organs;—reproductive agencies;—the phenomena of germination;—food;—flow of sap;—root action, &c., given in detail.

It is a work which everyone interested in agriculture may read with profit. It is adapted to the novice as well as the student, and is as practical as the nature of the subject would admit. With the volumes which are to follow it will supply a want in agricultural literature.

POPULAR DECIDUOUS AND EVERGREEN TREES AND SHRUBS, for planting in Parks, Gardens, Cemeteries, &c. By F. R. ELLIOTT, Landscape Gardener and Pomologist. 1 small Vol., pp. 125. New York, 1868.

“The preparation of this volume,” says the author, “has not been with the intention to exhibit or inculcate anything specially new, but rather to put in plain, every day, accessible form, some features connected with trees and shrubs for planting in streets, parks, private grounds, cemeteries, &c., and their value for such purposes, that would readily enable the

improver of a new place to answer for himself a question often asked, viz., 'What shall I plant?'"

The volume contains eight Chapters, viz.: Chapter I., Introductory; II., deciduous trees; III., weeping deciduous trees; IV., deciduous trees, with colored or variegated foliage; V., evergreen trees; VI., weeping evergreen trees; VII., evergreen shrubs; VIII., ornamental deciduous shrubs.

In each of these Chapters the author gives a full description of the popular and well-known kinds, with occasional illustrations and brief notices of some of the newer varieties.

As a hand-book, or guide to those who are planting trees, and have not leisure to consult the various authorities upon the subject, the volume is a desirable addition to our arboricultural literature. We only regret that some of the illustrations were not better done, particularly those of the rhododendron, azalea, clethra, spiræa, kalmia and some others. They do great injustice to these truly beautiful shrubs. The evergreen trees are well represented.

With this exception the volume is a welcome contribution to our stock of information about trees, and will aid the young planter in his endeavor to learn what he shall plant.

General Notices.

LILY OF THE VALLEY, HOW TO GROW IT.—Plant the crowns in good rich, sandy loam in February or March, tying about six or eight of them together so as to keep them compact, in order that they may go into the pots without disturbing the roots or the soil much. Water them occasionally through the spring and summer with weak liquid manure, taking great care to give enough at a time to reach the lower roots. When the leaves decay in autumn, they may be potted and plunged in coal ashes until required, or they may be potted as they are wanted to be placed in heat. The plant may be had in flower at Christmas, but the leaves will not come freely until the third week in January. I always place mine on the shelves in the different houses, and they get no more attention than a drop of water as they require it.

The main point in their cultivation is good summer treatment. They must have well trenched rich soil, and must be supplied with an abundance of water while growing. One or more patches may be put in a pot, in which they should be set as closely as they can be got together.

The *Convallaria majalis variegata* is a very useful variety, on account of its golden striped foliage, which is ornamental as well as its flowers.—(*Gard. Chron.*)

SUBTROPICAL GARDENING AT BATTERSEA PARK.—A very telling group is formed of a background of poplars fronted with a mass of *Arundo Donax*, followed with yuccas, and edged with *Acer Negundo variegata*. Looking along the green valley from this group towards a lower bed partially flooded with water, immense masses of *Gunnera scabra* were seen lighted up with the elegant and graceful bulrush of the Nile, the slender *Cyperus papyrus*, and the pink flowering *Lythrum salicaria*. An exquisite bed near here had a centre of the fine cycad *Zamia Lehmanii*, surrounded with *Dracæna variegata*, planted on a thick groundwork of variegated *Dactylis Glomerata*. A large curved bed near this is filled with paper plants and cannas, and in a circle near each end of it is a round mass of *Negundo variegata*. Another mass of cannas and wigandias has a broad band of the Golden Variegated honeysuckle, climbing up and enclosing them in a wide reticulated frame work of gold. Castor oil plants, fronted with erythras; masses of *Musa* in horseshoe beds, flanked with the long leaves of the palms, and overtopped with the drooping bells of the abutilon, yuccas and choice specimens of *Musa Ensete*, dotted singly in striking nooks or corners, or massed on prominent knolls; the silvery *Solanum marginatum* climbing up among green shrubs, or glistening against dark cannas, and groups of magnificent ferns of *Dicksonia antarctica*, *Alsophila excelsa*, and *Cibotium princeps*, filling up cool shady places, give a variety and a freshness to the grouping which it would be difficult to find anywhere else but at Battersea.—(*Id.*)

KEYES' EARLY PROLIFIC TOMATO.—Last year Messrs. Hovey & Co. sent seed of this new variety to Messrs. Carter, seedmen of London, and we find the following account of it:—I have lately seen on the seed farm of Messrs. Carter & Co. at L'Osyth, such a crop of tomatoes, as I never remember to have seen before. It is calculated, as nearly as possible, that on one rod of ground, they will be able to gather at least 5 cwt. of well ripened fruit of the kind called "Keyes' Early Prolific," which is several days earlier than any other with which I am acquainted. It is dwarf in habit, and the fruit is produced in large bunches. There can be no doubt that this fine crop is in part owing to the ground being good, and to the fine season; but still, much, I believe, depends upon the productiveness of the variety. I also saw upon the same farm, a fine bed of Sim's New Mammoth tomato, a kind which belongs to the cherry section. The fruit, which is about four or five inches in circumference, is perfectly round, and has a beautiful appearance when ripe. This variety is not so dwarf in habit as Keyes' Early Prolific, but it will succeed well if grown upon a dry soil, if not too poor.—(*Id.*)

NEW ZEALAND SPINACH (*TETRAGONIA EXPANSA*).—This is an old,

extremely useful, and excellent vegetable, which has been much neglected. In dry seasons like the past nothing surpasses it; indeed, the warmer and drier the season is, the better it seems to grow. During the past summer, in this district, when all the Brassica tribe has been almost entirely burned up and ordinary spinach not to be thought of—Vegetable marrows at 6d. apiece, turnips, kidney beans, and, indeed, all green vegetables, at fabulous prices, and not at all good—this old and neglected plant has been supplying us daily for the past two months with abundance of nice green fleshy leaves, which when cooked are quite equal, if not superior to the finest spinach. Why it should be so little cultivated is a mystery; little patches of it may be seen at times in large gardens, but that very rarely. I have never heard any one object to its flavor, which differs but slightly from that of ordinary spinach; on the contrary, it is generally much relished.

In ordinary wet seasons this spinach may not be so much wanted, as then all sorts of green vegetables are abundant and good; nevertheless, as we are never sure of what kind of seasons we are going to have, it is well to be prepared for all contingencies. To those who are fond of spinach it is invaluable. Whilst ordinary spinach fails to grow in summer from excessive heat and dryness, a score or so of plants of this New Zealand spinach will produce quite an abundant supply for any ordinary family, and that through the hottest and driest months of the year.

Its cultivation is simple. The seeds should be sown in a little heat in April or May, and the plants put out in June, in ordinary soil, about a yard apart each way. It is a rapidly-growing plant, and although seemingly planted at a great distance apart, it soon covers the ground. The leaves are picked from it in the same way as those of ordinary spinach, or, when plentiful, the points of the young shoots are cooked in the ordinary way.—*(Ill.)*

CRIMSON THRIFT.—Next in point of merit to the beautiful varieties of *Primula cortusoides amœna*, recently introduced into this country, I do not hesitate to place this dark-flowered *Armeria*. If anything the latter is more hardy, whilst for compactness of growth, continuity of flower, ease as regards propagation and adaptability to the uses to which it may be put as an edging plant, it is second to none. Nor must the color of the flower, or appearance of the plant itself, be judged of by any reference to its old, pigmy prototype, the old "thrift" of our gardens. The leaves of this variety, to which I refer, possess a far deeper green tint, and are sufficiently wide to give an effect perfectly evergreen-like, without in any degree depriving the plant of its true generic characteristic. The flowers, which are bright, have their color enhanced by contrast with the green foliage just alluded to, are borne boldly upon footstalks, some six or eight inches in length, and are well adapted for bouquets or other uses to which cut flowers are usually put. Plants which commenced blooming with me early, in May of the current season, have continued to do so, more or less perpetually, up to the present time. As this is a good time to propagate this class of

plants, especially this variety, I may state that every plant may be divided into from forty to fifty divisional parts, and that these, if dibbled separately, firmly into the open border, will root freely, and yet have time to establish themselves before winter in reality sets in. The sooner the operation is done now, however, the better.—(*Id.*)

Societies.

CAMBRIDGE HORTICULTURAL.

The Seventh Annual Exhibition of this Society was held at the City Hall, on Tuesday and Wednesday, the 29th and 30th of September.

The display, though not quite so extensive as last year, was nearly or quite equal in point of merit. There were upwards of 400 plates of pears, some of them as fine as were ever shown. The apples were more numerous and better than last year. The grapes were excellent, all fully ripe, and very handsome specimens.

The display of plants came principally from Hovey & Co., who had several large Palms, Pandanus, Anthuriums, Hibiscus Cooperii, Dracænas, Marantas, Lycopods, Ferns, &c. Two very beautifully arranged hanging baskets, from Asa Bullard, two Jardinieres from F. Becker, and several plants; from Wieland Bros. a dozen pretty plants. There was a good show of cut flowers, bouquets and baskets.

Among the pears, the extra fine specimens were De Tongres, from T. M. Davis; Beurré Clairgeau, from G. G. Gove, Davis & Bates, J. Haley, and T. M. Davis; Sheldon, from Hovey & Co.; Beurré Diel, very large, from J. G. Barker; Doyenné du Comice, very extra, from E. Kendall; Beurré Bosc, the finest we ever saw, from T. M. Davis, J. Nudd, and J. C. Chase; Beurré d'Anjou, from Hovey & Co.; Seckel, from F. Hyde; Bartlett, from J. C. Chase and J. Mellen; Urbaniste, from S. Rhoades; Duchesse, from J. G. Barker; Louise Bonne, from Geo. Wellington and H. J. Kenrick.

Fifteen dishes were shown for the extra prizes, for Duchesse, Beurré Clairgeau, Bartlett, B. Diel and Louise Bonne. They were all very fine.

The collections were excellent, particularly the Fives, for which there were several competitors, as also the single dishes. Hovey & Co's collection of fifteen contained the following: Sheldon, Marie Louise, Beurré d'Anjou, Belle Lucrative, Doyenné Boussock, Merriam, Doyenné du Comice, Beurré Bosc, Bartlett, Swan's Orange, Adams, Beurré Superfin, Hovey, Beurré Hardy, and Paradise of Autumn. The Sheldons were the finest ever shown.

Seventy-one dishes of apples were shown. Hovey & Co. had twenty varieties, J. G. Coolidge, eight. Among them were very superior Hubbardston Nonsuch, Gravenstein, and Alexander.

Twenty-eight dishes of very handsome peaches were exhibited, among them fine Late Crawford, Old Mixon and others.

Of grapes the display was large, and embraced more varieties than were ever before exhibited. Davis & Bates sent twenty-six kinds, and J. D. Hovey, twelve. The Israellas were very handsome, and came from E. Snow, J. D. Hovey, and Davis & Bates. Allen's Hybrid, from E. Raymond, large and fine. Adirondac, from Davis & Bates, and J. D. Hovey. Union Village, very large, from A. Dickinson. Concord, from Davis & Bates, and others. Rebecca, from E. Raymond. All the specimens were nearly or quite ripe.

The following are a few of the leading prizes:—

PREMIUMS FOR FRUITS.

PEARS.—For the best fifteen varieties, to Hovey & Co., \$15.

For the next best, to J. C. Chase, \$12.

For the best ten varieties, to Jacob Nudd, \$10.

For the next best, to Davis & Bates, \$8.

For the next best, to T. M. Davis, \$6.

For the next best, to E. C. Stevens, \$4.

For the best five varieties, to G. G. Gove, \$5.

For the next best, to J. Eaton, \$4.

For the next best, to J. G. Barker, \$3.

For the next best, to J. Haley, \$2.

SPECIAL PRIZES.—For the best twelve Duchess Pears, to J. G. Barker, \$10.

For the best B. Clairgeau, to T. M. Davis, \$8.

For the best Bartlett, to J. Mellen, \$8.

For the best Louise Bonne, to G. Wellington, \$8.

For the best Buerré Bosc, to T. M. Davis, \$8.

For the best Buerré Diel, to D. Cross, \$8.

GRAPES.—For the best collection, to Davis & Bates, \$6.

APPLES.—For the best eight varieties, to Geo. Paine, \$6.

PLANTS AND FLOWERS.—To Hovey & Co., for the best collection, \$10.

The Display of Vegetables was limited, but the quality unusually good.

J. D. Hovey had the best collection, among which were Le Normand Cauliflower, Black Pekin Eggs, several varieties of Tomato, &c. Hubbard and Marrow Squashes, by J. G. Coolidge. A specimen of Pea Nuts, grown by Geo. W. White, attracted much attention.

The show was every way creditable to the Society, and sustained the high reputation of the Cambridge pear growers, who carried off the principal prizes at the Annual Show of the Massachusetts Horticultural Society. The Exhibition was fully attended, and the enthusiasm of the members in no way lessened.

NEW YORK STATE GRAPE GROWERS.

The First Annual Exhibition of this new association was held at Canandigua, on the 7th and 8th of October, and has been pronounced the finest show of grapes ever made in the county. There were eighty-one exhibitors, and about one hundred varieties, including seedlings, and a few

foreign kinds. The Rural New Yorker remarks, "Judged by this exhibition New York would be placed in the front rank of grape growing states, a position she justly merits not only by reason of the extent of vine culture within her borders, but for the uniform health and high productiveness of the grape in the same limits. Also in the manufacture of those important products of the grape, wine and brandy, high excellence has been attained. Both sparkling and still wines and brandies, made in New York cellars from New York grapes, challenge with unvarying success those from any other part of our country. And grape culture in this state, as elsewhere in the Union, has but begun. And varieties that are hardy, early and excellent, render it possible to grow grapes in localities heretofore deemed unsuitable. The culture will rapidly widen. One of the most cheerful features of grape culture, made prominent by this exhibition, is the exemption of the vine and its fruit from serious disease in this state. There is some mildew, but no rot. Frost is the most dangerous enemy.

Among the numerous distinguished horticulturists present we noticed Hon. Marshall P. Wilder of Boston; E. S. Rogers, Salem, Mass.; Dr. John A. Warder, Ohio; Patrick Barry, Chas. Downing, Dr. Grant and A. S. Fuller, New York.

The display of the newer varieties and seedlings was very interesting. Mr. Arnold, Paris, Canada, sent five or six numbers of his series of hybrids. They are claimed to be a cross between the Clinton and Black Hamburg, and the vines are said to be hardy and the fruit was sprightly and agreeable. The Lorain grape was shown by Barney & Carlin of Sandusky, Ohio. This is a white or amber grape, sweet to the taste and handsome to the eye, and a supposed cross between the Isabella and Catawba. Dr. Underhill of Croton Point, N. Y., exhibited three new seedlings, hybrids, one a cross between the Concord and Black Hamburg; another between the Concord and Black St. Peters, and the third between the Delaware and a foreign variety. These bore off the first and second premiums for seedlings. Nothing in this line attracted more attention than the 'Eumelan,' Dr. Grant's newest grape, which he is pushing into notice. It is a black, early variety, and said to be of better quality than the Israella. The 'Walter,' shown by Ferris & Caywood, Poughkeepsie, N. Y., is pretty well known to the public by description. The Salem, one of Rogers' Hybrids, was shown by F. L. Harris of Salem-on-Erie. It is certainly delicious, and Mr. H. has great faith in it, having already planted with it a very large vineyard. Rogers' No. 43, which is a fine, showy grape, was shown by Mr. Wilder of Boston. With him it is the favorite among the Rogers' Seedlings. Dr. Perrine of Dansville exhibited a seedling sprung from the Delaware and Diana or Catawba. The 'Seneca' Seedling was shown by Mr. Rose of Penn Yan. It is large and black and said to be a good keeper. There were also some seedlings shown by the Pleasant Valley Wine Association. It astonishes one to look back but ten years, and see what strides grape culture has made in our land, and in all pomological history there is nothing like this quick creation, as it were, of so many very excellent varieties of American grapes.

That thought was suggested as our eye rested on the collection exhibited by Ellwanger & Barry. It contained fifty varieties, the most of any one on the tables. Fifteen of these were Rogers' Hybrids, and they were splendid looking grapes. Near by C. L. Hoag & Co. of Lockport had a collection nearly as numerous. Their fruit was very fine, particularly Ionas, which variety is a great favorite with them, and does remarkably well in their locality. We noticed among their novelties the 'Montgomery,' which is white. It is of delicious flavor, but only half hardy. However, amateurs will cultivate it. These were, perhaps, the largest single collections of varieties, but the wine growing localities of the state were choicely represented. From Naples we saw J. W. Clark, who, in addition to the usual collection, showed twenty feet of vine loaded with Isabella clusters. Hon. E. B. Pottle had a large collection of Isabellas and Catawbas, and five other varieties. C. S. Lincoln eight varieties; W. B. Reed five; Geo. Reese ten; Harlan Hinckley premium Isabellas; S. L. Deyo eight varieties, and A. J. Byington five. There were numerous other exhibitors from that locality. Coming down the shores of Canandaigua Lake we find among the exhibitors Messrs. Morse & Wells, Seneca Point; R. D. Cook, M. D. Munger, R. P. Shaw and others. Vine Valley, on the east side of the lake, was represented by A. C. Younglove, Nichols, Seeley & Co., Ayers & Coff, and H. Green, whose Catawbas took the first premium after close competition with the favored grapes of Pleasant Valley. The Pleasant Valley Wine Co. of Hammondsport had on exhibition some twenty-eight varieties. E. W. Sylvester, Lyons, showed ten varieties; Dr. Parker, Ithaca, five Rogers' Hybrids; Jos. Keech, Waterloo, twelve varieties; J. W. Bailey, Plattsburg, the Adirondac grape; Wm. Griffith, North East, Pa., Ionas and Israellas, and Ryckman & Co., Brockton, Erie, a fine collection. H. H. Farley, Union Springs, bore off some premiums. But we cannot particularize further.

PREMIUMS AWARDED.—The second day of the Grape Fair closed with an award of the premiums, which will be found below. The receipts were less than was expected, and than they would have been but for the unfavorable character of the weather. About \$250 was taken at the gate, while the avails of the refreshment saloon—some \$200—went to aid the Ontario Orphan Asylum. The awards were as follows:

Catawba.—1st Premium, Hezekiah Green, Vine Valley, Yates Co.; 2d, Pleasant Valley Wine Company, Hammondsport; 3d, R. F. Stewart, Pultney.

Clinton.—1st, Ryckman, Day & Co., Brockton, Chautauqua Co.; 2d, S. W. Kimber, Naples, N. Y.; 3d, J. Ringuenberg, Lockport, N. Y.

Isabella.—1st, Harlow Hinekley, Naples, N. Y.; 2d, L. A. Larrowe, Hammondsport; 3d, Ayers & Cobb, Vine Valley, Yates Co.

Creveling.—1st, P. V. Wine Company; 2d, G. Zimmerman, Buffalo; 3d, C. L. Hoag & Co., Lockport.

Delaware.—1st, H. H. Farley, Union Springs; 2d, D. W. Birge, Peach Orchard, Schuyler Co.; 3d, A. Rose, Penn Yan.

Diana.—1st, H. H. Farley; 2d, P. V. Wine Company; 3d, C. L. Hoag & Co.

Iona.—1st, D. S. Wagener, Pultney; 2d, H. H. Farley; 3d, A. C. Younglove, Vine Valley, Yates Co.

Israella.—1st, H. H. Farley; 2d, D. S. Wagener; 3d, Frederick Ingersoll, Phelps, N. Y.

Adirondac.—1st, J. S. Gillett, Penn Yan; 2d, H. H. Farley; 3d, C. L. Hoag & Co.

Concord.—1st, J. J. Mead, Benton, Yates Co.; 2d, J. W. Clark, Naples; 3d, Ryckman, Day & Co.

Hartford Prolific.—1st, J. W. Clark; 2d, C. L. Hoag & Co.; 3d, no award.

Hybrids.—The Walter was awarded the 1st premium as one of promise among the new ones, and among the old the 1st premium was given to Rogers' No. 4, C. L. Hoag & Co.; 2d, Salem, T. L. Harris, Salem-on-Erie; 3d, Rogers' No. 28, J. W. Clark.

New Seedling.—1st, Stephen Underhill, Croton Point, N. Y.; 2d, same.

Grapes Grown Under Glass.—1st, E. H. Lapham, Canandaigua; 2d, Edward Huntington, Rome, N. Y.

Unenumerated Grapes.—1st, Alvey, R. B. Shaw, Canandaigua; 2d, Rebecca, H. H. Farley; 3d, Montgomery, C. L. Hoag & Co.

Grape Boxes.—1st, Fairchild Bros., Hammondsport; 2d, Rochester Grape and Berry Box Company.

Grape Mill.—1st, Mitchell & Co., Springfield, Ohio.

NATIVE WINE.—Still Catawba.—1st, Ryckman, Day & Co.; 2d, Urbana Wine Company; 3d, P. V. Wine Company.

Isabella Wine, Red, Dry.—1st, P. V. Wine Company; 2d, Ryckman, Day & Co.

Isabella, White, Sweet.—1st, Ryckman, Day & Co.; 2d, J. Ringuebery; 3d, H. O. Chesebro, Canandaigua.

Clinton Wine, Red.—1st, Ryckman, Day & Co.

SPARKLING WINE.—Paris Exposition and Sparkling Delaware, Diana and Catawba.—P. V. Wine Company.

Imperial.—Urbana Wine Company.

Diamond Wedding.—Ryckman, Day & Co.

Brandy.—1st, Perkins, Sterns & Co., San Francisco and New York; 2d, P. V. Wine Company.

Stephen Underhill of Croton Point, N. Y., exhibited a simple but effective vine lock, designed to dispense with the use of strings or straps in fastening vines to the trellis, which was awarded a special premium.

New Seedlings—Committee Report.—The Committee on New Seedlings named the following, with their characteristics and promise:

Ryckman, Day & Co., seedling similar to Catawba, but not quite its equal in flavor.

Pleasant Valley Wine Co., seedling of the Concord, but inferior to it.

Dr. Perrine, Dansville, seedling of the Delaware, and very similar to it, but not its equal, judging by the specimens exhibited.

Stephen Underhill, a hybrid from the Delaware and the Chasselas Fontainbleau, a white grape. Ripens with the Hartford Prolific. Tender, juicy and sweet. Quality very good. Also one called the Senasqua, a hybrid from the Concord and Black Prince,—not fully ripe, but a promising grape. Also an unnamed seedling, not fully ripe,—a large, fine, white grape, and large bunch—a promising variety.

ILLINOIS STATE HORTICULTURAL.

At a meeting of this society, September 4, President Starr read the following paper on grapes, giving his experience with several varieties:—

Hartford—I have never failed to secure a good crop from this variety. In quality I rank it as among the poorest we have, certainly when in the condition usually gathered for market. It is unfit to eat, but if allowed to hang on the vine until fully matured it is far better. If picked early its berries will not drop, but if allowed to remain but few will adhere to the stem. The bunches are too loose and open to make a good appearance, owing to a want of perfect fertilization—for there are found among them those that are very solid and compact. It is a very rank grower, hardy and heavy bearer. So long as it keeps its place as the earliest ready for market—and so long as buyers will pay for appearance rather than quality, it will and can be grown with profit.

Concord—This grape has no peer. Its ability to resist the severe cold of our winters, its strong luxuriant growth, its fitness to produce large crops, its almost total exemption from disease, its heavy, strong foliage setting at defiance the whole insect race—the quality of its fruit for the table, its splendid appearance as a market fruit, and finally, but not least, its capacity for making a good, sound, wholesome, cheap wine for the many, certainly justify me in placing it at the head of all known grapes. It is easily propagated either by layers or from cutting, bears abuse and neglect, and should be found in every door-yard. It has one objection; when fully ripe the juice becomes impatient of restraint; if handled roughly it will find its way out of its skin; it therefore, in such condition, cannot be shipped to a remote market over rough roads under the present system of handling freight. If the many are ever to be educated on grapes, it must be with this variety, for no other possessing so many excellent qualities can be so easily and cheaply produced.

Catawba—This well-known fruit needs but little to tell its tale. It is liable to disease, having never entirely escaped with me; the leaf-hopper seeks it among its first upon which to feed—but its bearing qualities, the high character of its fruit both for the table and for wine, will induce, nay, compel its cultivation to a moderate extent. I consider no vineyard complete without it.

Delaware—My opinions of this fruit have undergone some changes. They are based upon experience, and may not, therefore, be without inter-

est. For the first two years, I thought highly of it. It has ever grown well with me, but has not always produced as well as I thought it should. It is perfectly hardy, and its superior quality places it first in this respect upon our list. The small size of both bunch and berry renders its producing qualities in weight light in comparison with some others but I think it will make more wine for the same weight of fruit than any other variety. The season of 1867 it seemed to fall back, and I felt inclined to grow it only for family use at home. I had it trained upon a trellis until this spring, but was induced to remove that and substitute stakes instead. I am pleased with the change; the vines have borne better, and the fruit is more protected from the ravages of the birds. It has done so well that I shall certainly plant it largely for wine purposes. It has been generally healthy with me, both in foliage and fruit, but never entirely so. Some little rot appearing at times. Its worst enemy is the birds. Whether they have a tasting committee, and are governed by their conclusions, or whether its small size is more suitable and meets the capacity of their bills, I am unable to determine, but certainly it is a fact that they leave their impressions clearly discernible, making anything but a favorable impression upon the grower.

Norton—A very poor grower when young, but when it has established a foothold a rampant grower. I have received less fruit to the vine from this variety than from any other on my grounds. It does not bear well with me on the renewal system, but canes that bore in 1867 were this season retained and pruned to spurs, and from them I have a good crop. The fruit is always healthy—the leaf suffers first, and most from the ravages of the leaf-hopper. I would recommend to every grower to raise some of this variety, as the wine is of the first quality, and is needed to add to Concord wine in small quantities.

Clinton—I cannot say much concerning this grape. It is a very luxuriant grower, too much so, perhaps; bears well, and is of a good quality. The leaf is attacked by a gadfly, which gives it an unsightly appearance; but I cannot say that it proves injurious. After the bunches have set and the grapes have nearly completed their growth, the few berries will frequently be found shrivelled and dried up. If it proves good for wine it will be profitable.

Herbemont—Tender in the wood, though it will bear severe cold some winters. If protected certainly desirable, a good grower, good bearer, very ornamental in foliage and fruit, and excellent for wine and table.

Creveling—My early experience with this variety was not favorable. This season has proved better. The fruit, when fully ripe, (which occurs about the same time as the Concord,) is of the finest quality. From its very rich high flavor I should pronounce it excellent for wine, and certainly one of the very best for table. The loose habit of the bunch would prevent its ready sale in market, but I would advise all amateurs to grow this grape.

Meads—So nearly identical with the Catawba that it may well be classed with it.

Mary Ann—I have a grape under this name from a Missourian, recommended for its earliness. It may be so, but it does not bear well, and is worthless when you get it.

Diana—This grape ranks with the Catawba in growth and general habits, save that it does not bear as well, and that its foliage is sooner attacked by the leaf-hopper. The fruit is quite unlike all other grapes in flavor; is very rich, and makes a good wine.

Rebecca—Has been until this season a very poor grower, but now has made a fine growth. So far it has proved hardy with me. Bears moderate crops of beautiful bunches of white fruit of good quality. Desirable in gardens, on account of its color.

Isabella—This well known fruit must do better elsewhere than with us to justify its cultivation.

Iona and Israella—I have paid for my knowledge of these varieties. The fourth year I had sample bunches. The Israella, ripening with the Hartford, is a handsome, compact bunch, of better quality than the Hartford. The Iona is better in quality, but I have eaten too few of either to pronounce decidedly. I will say this much, however, they have both been feeble growers, and give anything but encouragement.

Of Rogers' Hybrids I have tested ten varieties. No. 1 is the finest in appearance of any white grape grown by me; but its leaf is not healthy and lacks substance. Of the others most are good, but the best for quantity has been No. 3. This is a really good grower, and of good quality. Further experience, and on a more extended scale, would be needed to justify me in placing myself on record as to these sorts.

I have tested, in a small way, some other sorts, but will not fatigue you by reciting the results.

Horticultural Operations

FOR NOVEMBER.

FRUIT DEPARTMENT.

OCTOBER has been a variable month, with some mild weather, but varied with frost, and snow and rain. A snow storm in October is unusual; this occurred on the 17th, when about two inches fell, and remained on the ground till next day. The very low temperature of 22° also occurred on the 24th, so severe as to freeze and injure apples upon the trees, except the late kinds. This we have never known to occur before in thirty years.

GRAPE VINES, in the early houses, will soon begin to grow, and all the preparations should be made to secure a warm border, that the forcing may receive no check. Start with a moderate temperature, not too high at night, so that the growth may be strong. A good day temperature should be kept. Vines in the grapery and the cold house may be pruned, and

those in the latter protected as soon as the weather is cold by a good covering with earth, which is better than straw or hay, especially where there are mice, which frequently destroy the vines. Out-door grapes may be pruned at once, and laid down as soon as the weather is cold.

STRAWBERRY BEDS should be protected by a covering of strawy manure, leaves, sedge or hay. This should be done as soon as the ground is froze an inch or two.

RASPBERRY BUSHES should be laid down and covered with earth. This will protect them from injury.

FRUIT TREES should now be transplanted. Prepare the ground by adding a good compost of very old manure.

ORCHARD-HOUSE TREES should be protected from freezing by covering the pots or tubs with leaves or coarse manure, until they are removed to the house or cellar.

FRUIT TREES, well established, should be enriched by the application of a barrow load of manure to each, placing it around the tree in a circle of three or four feet, first removing the soil a few inches, which may be covered over the manure.

FLOWER DEPARTMENT.

The sudden change on the 17th finished up the season of out-door plants. The dahlias were in full flower, and all covered with snow. A week later the temperature of 22° was unusually severe for the season. With such weather plants accidentally exposed were much injured.

CAMELIAS will now be swelling their buds rapidly, and will soon be in flower. Keep them well watered, and syringed occasionally.

AZALEAS, for early flowering, should be placed in the warmest part of the house, and those for later bloom in a cool vinery, or if none, in the coolest part of the house. See that the red spider and thrips do not infest the plants. Syringe with whale oil soap, if attacked by either. Improve the leisure time by tying the plants into handsome shape.

PELARGONIUMS should now be kept as cool as possible, with an abundance of air in good weather so as to obtain a short stocky growth. Water sparingly. Young stock may be shifted into larger pots, and encouraged in their growth, being careful not to push them too fast.

CINERARIAS AND CALCEOLARIAS should now have a small shift, and a good location on a shelf near the glass.

OXALISES of all kinds should be potted, if not already done. Use a light, rich, sandy soil.

IXIAS should be potted and placed in a frame or cool house until they begin to grow.

JAPAN LILIES, and other lilies for early flowering, should be potted this month. Keep them in a frame for a month or so.

CHINESE PRIMROSES should be cautiously watered, and have a cool airy place in the house. If large specimens are wanted some of the strongest plants may be shifted into the next size. Water occasionally with liquid manure.

VERBENAS, PETUNIAS, and other bedding plants, just rooted from cuttings, should be potted off and kept on a cool shelf.

GARDENIAS should be kept dry and cool, in a half shady place.

SCARLET AND OTHER BEDDING GERANIUMS, for winter flowering, may have a shift into larger sized pots.

FERNS should be more sparingly watered.

ROSES, in pots or frames, may be pruned soon, and afterwards brought into a cool house.

PALMS should be kept rather dry, unless in a warm house, where they can be kept growing without check.

CACTUSES should be kept cool, and rather dry.

HEATHS should be wintered in any cool airy house. Keep them in frames as long as the weather will admit.

CUTTINGS OF VERBENAS, GERANIUMS, and other bedding plants, now rooted, should be potted into good soil, placing several cuttings in a pot. Keep on a cool shelf, near the glass.

STOVE AND CONSERVATORY CLIMBERS, which flower during the spring or summer, should now be pruned in neatly.

SCARLET GERANIUMS, and others of this class, should be repotted if wanted for continued bloom. Those for later flowering should be kept dry and cool for a few weeks.

STOVE PLANTS, of such kinds as are growing freely at this season, should have a shift as they require it.

SHRUBS of various kinds, such as *Deutzias, Weigelias, &c.*, for winter flowering, should be potted, and kept in a frame or cellar till wanted for bringing into the house.

FLOWER GARDEN AND SHRUBBERY.

But little more labor will be required to complete the work of the season. Collect together all dry leaves by occasional raking and sweeping the lawn and walks, and make use of them for covering plants of all kinds, especially *Rhododendrons* and *Azaleas*.

GLADIOLUS should be taken up, if not already done.

BEDS OF HYACINTHS, TULIPS, or other bulbs, should have a covering of two to four inches of leaves or coarse strawy manure.

DAISIES, VIOLETS, &c., should be protected from frosts by covering the sashes with shutters or straw mats. Bank up with earth around each frame, to keep out frost.

CANNAS should be dried somewhat before placing away in the cellar.

BULBS may be planted as long as the ground remains open.

AGAVES, YUCCAS, and other similar plants, used for the decoration of the lawn, should be removed to a cool cellar.

STORE AWAY SOILS AND COMPOST, where they can be readily obtained for early spring use.

THE CLOSE OF THE MAGAZINE.

WITH this number the Magazine, after a period of thirty-four years, comes to a close.

In making this announcement, which we do with regret, it is unnecessary that we should enter into all the details which have brought us to this decision. Thirty-four years of constant uninterrupted monthly labor make up no small portion of an ordinary life. This we have given to the advancement and promotion of horticultural science, and now, after so long a period, when we need some cessation from the cares and responsibilities connected with these editorial duties, an opportunity has been offered to be released, and we have accepted of it, by disposing of the Magazine to the proprietors of the *Journal of Horticulture*.

We have long desired the opportunity to render available the information gathered together for so long a series of years, but have been unable to do so, and fulfil our duties as editor. But now, with abundant leisure at our command, we hope to improve the opportunity to give the results of our experience in some more compact form. With an enthusiasm unabated, and a zeal as earnest as ever, in everything connected with horticulture, we shall not retire from a field which has afforded us so much pleasure, but continue to labor in some way for the promotion of its great interests. Could we have found that assistance which would have enabled us to maintain the high standard of the Magazine, we should not have consented to relinquish it. It has been our pride to give it a tone and character, and to make it a reliable and influential source of horticultural, pomological and floricultural information. If we have not done so, it is well that its publication should cease.

As we look back and survey the thirty-four years of our editorial duties, and recall the timely aid and valuable assistance of hosts of kind friends—given to a new and untried experiment, and continued without stint for so long a period—it is with feelings of sadness that we

announce the dissolution of these pleasant connexions, and their delightful associations. They are ties which are not easily sundered, and the memory of these many years will ever cheer and reward us for the oftentimes arduous labors of our editorial duties. So too shall we deeply regret that we are no longer to hold monthly communication with all the leading and intelligent cultivators of the country, many of whom have contributed to our pages the most valuable information, and who have by their example and practice stimulated others to renewed efforts in every department of gardening. Our Magazine is, in fact, an Encyclopædia of Horticultural Science, replete with the experience of the ablest and most skilful men for nearly half a century. No other such record is to be found.

Four years ago, at the conclusion of our thirtieth volume, we gave a summary of the "progress of thirty years." To do this at the present time would be only a recapitulation of what we then said. We need only refer to that volume for the details of what has been accomplished, alluding now to some general facts.

At the period of the commencement of the Magazine in 1835 there were but four or five agricultural papers published in the country, and, with the exception of the *New England Farmer*, they devoted but little space to horticulture. The organization of the Massachusetts Horticultural Society a few years before had awakened a new interest, and kindled an enthusiasm which seemed to require some better medium of communication among cultivators than the agricultural journals. It was at that time, and with that belief, that we resolved to issue our Magazine. There were, it is true, but few men who were wholly alive to the importance of the subject, but their good wishes, and the assurance of their aid encouraged us. Still, not without some misgivings, did we attempt the rather bold experiment. It met with a kind reception, but not with that pecuniary reward which we had anticipated. Our heart, however, was enlisted in the work, and we knew no such word as fail. Gradually our circulation extended, and our contributors increased, and a few years gave it a reputation and an influence which aided

materially in disseminating valuable information. Every cultivator of note was a reader or contributor. Pomology, one of its leading features, soon became a prominent study, and the pear a fruit of the greatest interest. The elder Manning contributed the accumulated experience of many years, and from the meagre list of half a dozen American varieties, the list has grown in thirty-four years to the immense number of more than one hundred! The strawberry, then a fruit of little importance, was soon multiplied, and brought out in a perfection never before equalled, and the list of our single seedling, produced in 1833, has augmented to hundreds of reputed value, though less than a dozen are of merit sufficient to be recognized to-day. The first new American grape to demand attention was made known through our pages—the Diana—as late as 1844, the Hartford Prolific a few years after, and the Concord in 1854. To-day these are cultivated throughout the entire country, and the latter acknowledged the grape for the million, while the newer varieties are numbered by the hundred. All these numerous varieties of different fruits have been recorded and indexed in our pages, and no one is at loss to find their origin, when known, and the time of their introduction, with all the information in regard to their qualities.

We count our own labors but a small part of the value of our Magazine. To such eminent cultivators as Dearborn, Lowell, Manning, Buell, the two Downings, Wilder, Downer, Kenrick, Teschemacher, Russell, Lovett, Vose, Haggerston, Ernst, Barry, Prince, Reid, Lee, Walker, and many others, are we indebted for the most valuable information, upon the great variety of subjects interesting to practical men. They have exerted an influence which has been felt throughout the length and breadth of the land, and their labors command the gratitude of every cultivator. They gave their experience without recompense, receiving as their reward the satisfaction of aiding in a work which they knew must add to the comfort, the happiness, and gratification of the whole people.

Of the condition of horticulture as compared with thirty-four years ago we need not enlarge. It is too conspicuous to require comment. It is the natural result of knowledge

generally diffused, and of practical information applicable to all the varied departments of gardening. The cultivation of fruits and the cultivation of flowers, the growth of trees and the growth of vegetables, have been such frequent subjects of treatment that the amateur, with only ordinary judgment, could not fail to succeed. The production of new fruits and flowers by hybridization has received great attention, and the successes of skilful men have stimulated others to try this great field of labor, whose results have been, and will continue to be, the great source from whence must come the supply to take the place of worn out, inferior, or worthless varieties.

Pomological science has always been a leading feature of the Magazine. The chaos of nomenclature which existed for so long a time materially retarded the growth of some of the best varieties, and by repeated disappointments greatly checked the enthusiasm of cultivators. We think we can safely state that never since the introduction of fruits to any extent, has there been so little confusion in names as at the present time. This is owing, in a large degree, to the great efforts of a few leading pomologists, who have made large collections of fruits, and carefully studied the characteristics of each. All this accumulated knowledge we have recorded, together with accurate descriptions, and correct engravings, of each. The comparison of these fruits at yearly exhibitions, through a series of thirty years, has been the means of fully recognizing their true character, and of detecting the greater or less variations arising from culture, position, soil or treatment, which in previous years, without due observation, had been elevated to the position of distinct or new kinds. At no period in the cultivation of fruits, even when the London Horticultural Society formed its large experimental collection, could there be found so few errors as now exist in the extensive collections of the leading pomologists of America.

The introduction of new fruits—of new ornamental trees and shrubs—of new flowers and plants, and new vegetables—have also been objects of the first consideration. Though many of them have never proved to possess sufficient merit to occupy a popular place, the fact that these were considered so was sufficient to bring them notice. Without knowing

them we could not give them a trial, and without trial we could not discover their merits. That many of them should prove inferior, no intelligent cultivator doubted. The hope was, and ever will be, that among so large a number, there must be a few of the highest merit. This has been the result, and a comparison of the present with thirty-four years ago, will show how vast has been the total of these additions, whether it be among the pears, the apple, the grape, the strawberry, or other small fruits; or the weigelias, the exochorda, the deutzias, the viburnums, the spiræas, &c.; or the gladiolus, the lily, the rose, the zinnia, the camellia or pæony, or the potato, the tomato, the squash or the pea, each now represents a new type, of which none existed at the former period. Every volume of the Magazine is a record of these acquisitions, gathered from reliable sources abroad, or furnished by cultivators at home.

But we need not further extend our remarks. To us at least the Magazine has reflected the spirit of horticultural progress. The improvement of every fruit or flower, or vegetable, may be traced with the certainty that one year follows another. We see the first variation in the grape with the Diana, then the Hartford Prolific, the Delaware, the Concord, the Allen's Hybrid, the Iona, the Israella, the Adirondac, Rogers' Hybrids, the Walter, &c. The date, origin, history, and all the particulars, whether accidentally produced, or raised by hybridization, are given in detail, and nothing is left to uncertainty. No other horticultural periodical has ever done so much, while it existed, and Loudon's Magazine completed only its 19th volume.

With this brief summary of our labors we retire from our editorial duties, and consign the Magazine into other hands. It will be a source of gratification to us, if its standard is kept up and its old friends retained.

And now our pleasant intercourse with our readers comes to a close—but the delightful recollections of the past are indelibly stamped upon our memory. To our many friends, who have so long given us their aid and assistance, we return our most sincere thanks. Tendering to each and all our best wishes for their welfare and prosperity, we bid them a hearty farewell.

A R B O R V I T Æ S .

BY GLASNEVIN.

SOME years ago, it may be at least nine years, it may be ten, there were some new arbor vitæ in our nurseries, at least in our Nursery Catalogues. But arbor vitæ is a very indefinite name. Well, we shall say there were several reputed new evergreens, said to be hardy, or half hardy, or moderately hardy; they were for sale as such. We were then employed in a very respectable nursery, the proprietor of which we were bound to regard as an honest truthful nurseryman. He had at least two of these reputed new evergreens, both American, both from our Southwestern Territory, by way of England. Do we not get most of our American novelties by that well-known route? Even our *Eupatoriums*, *Conoclimums*, *Asters*, &c., &c., all come "viâ England," from the "London Nurseries;" nay, more, do not our gardeners almost all come by the same route? Well, we shall say, that there was some confusion at that distant day, among experts about these new evergreens. Even H. W. S. was not quite clear on them. One day my respected employer came to me and informed me that the *Thuja gigantea* was not as hardy as *Libocedrus decurrens* (Torr.) Here was something definite. He had tried the two plants under similar aspects; one suffered, the other did not. Now these were evidently two distinct plants, let their names be mixed up as they might by blundering garden botanists. We tried to fathom the depths of botanical nomenclature with these facts before us. And now ten years have elapsed, and behold we find nothing very definite is yet known by our nurserymen of this identical topic. We now propose to the Editor the three questions, to wit—Is there any authority on Evergreens that we can rely on in this country, and who is the authority, or what is the book? Second, is there such an evergreen known in the nurseries as *Thuja gigantea*, or is there one known as *Libocedrus decurrens* (Torr.) Is either of these hardy in the latitude of Philadelphia? I trouble you with this latter query, because I have no confidence in any nearer

authority than Boston, unless it be H. W. S., and he I have not the pleasure of being in correspondence with, being a mere working gardener, and a little of a dabbler in botanical questions.

But I have not done. Is there a *Thuja plicata* in the nurseries? Is there also a *Thuja Lobbii* of Hort. from England? Is there a *Thuja Menziesii* (Dougl.)? Is there a *Thuja siberica*, a *Thuja globosa*, a *Thuja Hoveyi*, a *Thuja Ellwanger & Barry*, a Tom Thumb, or rather how many new *Thujas* are there. Is a *Thuja* in cultivation about Philadelphia, for twenty years, new? called "*Bright's Dwarf?*" and what is it? All these, I presume, are competent questions for a Horticultural Magazine, or Monthly, and an old correspondent patiently and respectfully awaits a reply before stating his own crude opinions in the premises.

Our correspondent favors us with a budget of questions, some of which we can answer, but others we cannot, satisfactorily to ourselves. Indeed, some of the kinds enumerated have been so much injured by our winters that we have given up their cultivation.

And now, in regard to the questions, seriatim:—

1. The best authority in this country is that of Mr. Hoopes, in his "*Book of Evergreens,*" recently published. Gordon's *Pinetum* is also very good authority, though not without many errors.

2. There is such an evergreen as *Thuja gigantea*, but it is rare in collections. The *T. gigantea*, *Gordon*, generally so called, is *Libocedrus Craigiana*, *Jeffries*. *T. gigantea* of *Nuttall* is distinct. We have never received it from England. Our plant was raised from seed brought from California. Neither of these are entirely hardy with us.

3. There is no such kind as *Libocedrus decurrens*. It is the same as *L. Craigiana*.

4. If there is a *Thuja plicata* we have never seen it.

5. *Thuja Lobbii* is distinct, and is, we suppose, the *T. Menziesii*, *Douglas*. Hoopes makes it a synonym of *Libocedrus Craigiana*, which is an error. It is entirely distinct. Our plant was received from Messrs. Veitch, and was sent to

them by Mr. Lobb. It has a bright green foliage, and the growth is erect. It has stood out, but was much injured last winter.

6. Is there a *Thuja Menziesii*, *Doug.*? We refer to our last answer (5).

7. Is there a *Thuja siberica*? There is, known in some of the English nurseries as *T. Warreana*. Whether it should be called *siberica* or not we cannot say; but it is very distinct, and the name so well established it will be difficult to change. Mr. Hoopes makes it a variety of the American, and says seedlings "closely resembling" it have been grown from native seed. Of the hundreds of thousand we have seen, none have approached the one known as *siberica*, or "closely resembled" it. It is as distinct as any variety we have,—and a fine tree. Very hardy.

8. *Thuja globosa* we do not know.

9. There is a *Thuja Hoveyi* raised by us, which is not surpassed in beauty by any of the smaller *arbor vitæ*. We are pleased to see that Mr. Hoopes and Mr. Meehan commend it. It is almost as "golden" as the *T. aurea*, quite as delicate in its foliage, holds its bright green all winter, and is perfectly hardy.

10. There is a *Thuja* called "Tom Thumb," raised by Ellwanger & Barry, which we are not acquainted with.

11. How many new *Thujas* there are we cannot say; but certainly a large number.

12. A *Thuja* cultivated for 20 years we should not call new.

THE DAHLIA.

THIS showy autumnal flower seems to have been neglected by our cultivators within a few years. We do not see at our Exhibitions the grand display of flowers which, a few years ago, added so much to the beauty and interest of every autumnal show. Other new and more recently introduced flowers, like the double zinnia, gladiolus and Japan lily,

&c., appear to have taken possession of the fancy, and the dahlia has been overlooked or neglected. They are not in the fashion. Similar inattention to the dahlia has also been prevalent among the English cultivators, until the last year or two, when they appear to have attracted more notice, and awakened something of the enthusiasm of former days. Thanks to a few eminent cultivators, such as Messrs. Turner, Rawlings, Keynes and Fellows, who have yearly raised very superb varieties—for their skill in its culture, and annual displays, which have kept alive an interest in the dahlia, now again to become prominent as in years past.

No real lover of flowers can deny that the dahlia is an important addition to every garden, and for exhibition purposes it holds a conspicuous place. Twelve or twenty-four beautiful blooms always attract attention, and are not surpassed for symmetry or brilliancy of color by any other flower of its season. The aster, the zinnia, and the gladiolus, are superb flowers, but for perfection of form must yield to the dahlia.

Probably one cause of neglect has been the uncertainty of a good bloom. We have experienced this ourselves, and know the disappointment and vexation, after a whole summer's care to find the blossoms deficient. This was however, in some degree owing to the character of the plants. These, in former years, when a new sort was multiplied rapidly, were often so weak that no culture could wholly remove the injury they had sustained. Then again, a dry season is highly prejudicial to a plant which likes as much moisture as the dahlia; and when once the plants have suffered no after treatment can bring them into a vigorous blooming condition. All these objections have had their influence in counteracting the taste for the dahlia, and turning attention to other flowers.

It is not to be denied that the dahlia requires good management to obtain a fine display of perfect blossoms; and without good plants—a rich, deep soil—plenty of water, and judicious pruning, they cannot be obtained. The amateur or cultivator who only wishes for a good show of flowers for the decoration of the garden, need not be so particular; but when grown for exhibition purposes, the treatment must be such as the plants require.

The new class of Pompone or Lilliputian varieties has added a new feature to the dahlia. The varieties are now numerous, and some of them remarkably beautiful. Their neater habit of growth and smaller foliage render them less bulky, and they occupy less space in the border than the old kinds. Add to this their greater profusion of blossom, and their value for bouquets, and the Lilliputians must claim a prominent position among garden flowers.

The following article, on the culture of the dahlia, is by an experienced grower, and if the directions are followed success will attend the growth of this beautiful flower:—

In selecting a plot of ground on which to grow dahlias, there are two things to be avoided as regards the situation—the one a border too closely shut in, which will tend to drain, and so weaken, the plants; the other an entire absence of shelter, of which there should be sufficient amount to protect the plants from strong winds, which, even if they do not break the plants, bruise and injure them to such an extent as seriously to interfere with the thriving state of growth necessary to produce fine blooms. Too much exposure will be, however, better than too much shelter. Drainage is also a matter of first importance. No plant dislikes a cool retentive undrained soil more than the dahlia, while in a well drained free soil no plant will take more water, or thrive better with a liberal use of it.

The preparation of the land on which dahlias are to be grown may be said to be the commencement of the process of cultivation. The ground is generally formed into plots, according to the extent of the collection to be grown, and these plots are termed “quarters.” In November the ground should be deeply trenched to the depth of two feet, thrown up in ridges, and allowed to remain untouched until planting time. No manure need be trenched in. At planting time, which should not be earlier than June, mark out the ground for the plants, taking care to give plenty of room for each, say from four to five feet apart, and let three or four spits of earth be thrown out, and the same quantity of rotten manure dug in and mixed with the soil. The dahlia is not particular

as to what sort of dung is used (being in this respect like most other strong-growing plants) provided it be well decayed and incorporated with the soil to the depth of some eighteen inches. Plant by the use of a trowel, and place a centre stake behind the plant, and take care that besides the centre stake there are three short stakes placed something in the fashion of a triangle, about a foot from the plant, as by tying the matting to the centre stake, thence to the plant, and fastening it to the shorter stakes, the plant is rendered quite secure from the effects of the wind. Avoid early planting; it is far better to grow on the plants in a cold frame, occasionally shifting them into larger pots to encourage growth, and to have them as large and vigorous as possible when planted out. If the plants are affected with green fly they should be fumigated in the frame before being placed in their growing quarters.

When planted, every encouragement should be given to induce the plants to make rapid growth, so as to be in time for the early exhibitions. If the weather be dry, watering overhead early in the evening, stirring the soil about the plants, keeping down insects, and securely tying the plants, are the ordinary methods adopted to secure this end. Simple as the operation of watering may appear, there is yet, as with most other things, a right and a wrong way of doing it. Many persons are in the habit of using small quantities of water every evening, but this is almost worse than useless. Unable to penetrate to the roots, it tends to harden the surface of the soil, and, by rendering it impervious to the air, deprives the plant of one of its readiest modes of procuring sustenance. In watering dahlias, let it be done effectually: give the whole surface round the plant a thorough soaking, and do not rest satisfied with the mere moistening of the soil round the stem of the plant. Use rain water if possible, but if this cannot be obtained, such as has been softened by a few hours' exposure to the sun. It is of great importance that the foliage be freely sprinkled every evening during dry weather. The plants should also be mulched with short moist manure about the middle of July, in order that it may be done before the lower shoots of the plants cover the surface. It may be done

immediately after planting. It is useful in several ways. It keeps the soil cool and open, prevents excessive evaporation, and therefore the necessity for frequent waterings, it encourages the roots to keep upon the surface, and prevents waste from the washing of the soil, whilst it enriches the plant with every watering. At this stage of growth slugs are apt to become troublesome, and fresh lime strewed about the soil as well as over the plants, when the slugs are out, either late in the evening or early in the morning, will be effectual if followed up for a short time. If earwigs prove troublesome also, a small flower-pot with a little moss or wadding in it, placed in an inverted position on the centre stake, will entrap them, and the pots should be examined twice or thrice a day.

By the time the middle of August is reached, the thinning out of the small side shoots and the process of disbudding will be the principal work for some time, with the exception of watering, the tying out of the principal shoots securely, and hunting after vermin, neither of which must be neglected. It is in relation to the former operation, however, that most care and judgment is necessary. A young beginner will be at a loss what to do till he has had experience of the varieties he cultivates. The exhibitor gains most valuable information from experience, as it is impossible almost to frame rules that will apply to all varieties alike. Generally it may be stated that the grower should operate earliest on such varieties as produce small flowers, leaving to a later time those varieties that produce larger flowers. If a bed of dahlias be planted out in a soil of average fertility, and they be left to follow the bent of their own inclinations in regard to growth, it will be found, when the blooming season comes round, that there will be a vast difference in the growth of the plants, in their freedom of blooming, and in the size and character of the flowers they produce. Some varieties would present such an intricate mass of branches, shoots, and foliage, as to prevent the free circulation of air through the interior, and altogether to suggest the idea of over-crowding and confusion. These are the sorts which demand severe pruning. If, in addition to this habit of exuberance, the same varieties have a tendency to excessive flowering, or if the blooms they furnish are below

the medium size, free disbudding must be added to the liberal thinning of shoots and branches. If the sorts requiring this treatment are tolerably constant—that is, if the great majority of the flowers they yield are true to their best character—disbudding cannot well take place too early. But other kinds are in cultivation, which, although they occasionally afford flowers of the most perfect shape, cannot be depended on for good blooms; to disbud these varieties early, that is as soon as the buds begin to show themselves, will be seriously to impair the chances of obtaining a fine bloom. It is wise, therefore, to pause before the disbudding of these sorts is commenced. By exercising a little patience the cultivator is able to ascertain which buds must from their formation produce faulty flowers, and these he removes as soon as he has ascertained their true character, but not till then. The same delay is advisable in the case of very large and coarse flowers, since the late and sparing removal of buds decreases the size of the bloom, and increases its compactness in an equal ratio. Therefore the grower should commence thinning as soon as the shoots of the plant become crowded, and continue the operation from time to time up to the day of exhibition, and the same with regard to disbudding.

With the end of August and the early part of September would come the necessity for the careful protection of such blooms as may be required for exhibition purposes. To prevent the possibility of any injury from vermin, the forming buds are often put into muslin bags till they begin to expand. It is sufficient to shade dark-colored flowers from the sun merely, but delicate flowers are generally shaded quite close to preserve their purity and delicacy.

Stimulants should not be administered till the buds begin to color, and then it must be used with discretion, regard being had to the variety under cultivation. Liquid manure is of great use in the production of large flowers, and it should not be had recourse to until the plant has nearly completed its growth. The best liquid manure is that from a tank which receives the drainage of stables, and it may be used twice a week. It is best used in wet weather, taking care to avoid wetting the foliage.

Flowers with either loose centres or hard eyes are often the bane of the dahlia grower, and the disturber of his peace. It has been recommended that all flowers inclined to be loose and open in the centre, or apt to become thin after the first series of blooms, should always be grown from pot roots. Flowers of this character are little to be depended on from plants obtained by a division of the roots, and still less from plants obtained from cuttings. On the other hand, and in the case of flowers inclined to come with hard eyes, it is advised that the plants be obtained from struck cuttings, in preference to ground or pot roots. Sorts inclined to this defect should be planted early, the plants should also be strong, and the soil extra rich, and an abundance of extra water should be administered, and the plants be allowed to grow without any or a very slight amount of thinning.

As growers of the dahlia are often anxious to save some seed for their own use, what flowers remain on the plants by the third week in September should be left to perfect their seed, which is sure to be produced largely as soon as the growth of the plant is effectually stopped. When the season is so far advanced that danger from frost may be apprehended, the pods should be gathered, each with a stem six or eight inches long; then tied up into bunches, half-a-dozen together, and hung up in a greenhouse or elsewhere, where a little heat could be put on, in order to dry up any moisture that may be in the pod. In due time the pods should be rubbed to pieces, put into paper bags, and cleaned at leisure. The seed should be sown in March in a cucumber frame, or a hotbed, and the plants potted off when large enough, gradually hardened, and planted out to bloom in a prepared piece of ground about a foot and a-half a-part.

The roots of the dahlias should be taken up, say in October—the state of the weather will be the best guide; they should be well dried, and they keep very well in a dry warm cellar; wherever they are put it should be secure from danger by frost. Some varieties will not produce sound roots in the ground, and invariably perish. Of these sorts some pot roots should be preserved, as they winter easily if excluded from the frost; they are also very suitable for travelling to any distance.

ON THE OCCURRENCE OF THE AUTUMNAL COLCHICUM.

BY JOHN L. RUSSELL, SALEM, MASS.

THE discovery, or rather notice of the Heather (*Calluna vulgaris*) a few years ago, and its claim as a New England plant, has been this year rivalled by the occurrence of a beautiful flowering bulb in the meadows of the little mountain town of Dublin, New Hampshire.

A single specimen of the Autumnal Dogsbane (*Colchicum Autumnale* L.) was found last year by a lady friend, and this autumn, early in October, in a meadow close by the shore of the lake, as many as fifty flowers were counted in full blossom, giving the ground a gay and pleasing aspect. On inquiring, it was ascertained that the plant had been seen only for a few years past, no one previously knowing anything about it. There can be scarcely a doubt of its being introduced; but when or how is as yet involved in obscurity: no more doubt of its adventitious character than that of many introduced and nationalized plants, the *Calluna* included, which growing as it does in the neighborhood of a Scotch settlement, naturally suggests the transportation of its seeds in bedding, clothing, &c. The *Colchicum*, however, cannot be so readily accounted for, being a bulb, and its seeds not likely to occur among grass seed, even were the meadow where it is found cultivated for English hay.

The pleasure of this discovery is enhanced by the fact that, in both cases, female eyes detected the first instance, the heather having been noticed by a Scotch girl and the *Colchicum* by some ladies resident for the summer, who brought me flowers and bulbs.

The *Colchicum* is a well-known autumnal flowerer, and much prized in gardens; but the one best known is the variegated flowered (*C. variegatum*), with beautiful, square checker-spotted petals, reminding us of the Guinea-hen tulip (*Fritillaria meleagris*) of the spring. The florists have lately imported for sale, the typical kind, whose name is identical with that of the species found at Dublin, N. H., and a variety of which is the *album* or white flowered kind of the catalogues.

The Autumnal Colchicum is found plentifully in the meadows of Italy, and occurs in the wet meadows of the subalpine regions of the Jura mountains. In very cold and frosty seasons, it does not blossom till the following spring, and in this condition is the *C. vernale* of Hoffman, as we learn from Godet, *Flore du Jura*, p. 669. Loudon gives a list of several other species found indigenous in Hungary, Greece, Levant, Crimea and Southern Europe. As a garden plant, the Colchicum succeeds best when suffered to increase indefinitely, and to form large and compact masses; the flowers, when numerous, are more effective among the fading glories of the border.

General Notices.

HIPPOPHÆ RHAMNOIDES.—When at Mr. Backhouse's the other day, I saw some fine specimens of this valuable ornamental shrub, heavily cropped with rich orange-colored berries, which the plant retains through the winter. I am surprised this shrub is not more generally planted, as it is both cheap and hardy, and forms excellent underwood; but to have it well berried it should be exposed. This plant is better known to many as the Tea buckthorn. There is also *Hippophæ angustifolia*, a bright silvery kind, which is very attractive amongst a mass of evergreens.—(*Gard. Chron*)

SUBTROPICAL PLANTS.—K. P. A. of Massachusetts, asks the Gardener's Chronicle what are the best subtropical plants, and the following are recommended:—

<i>Aralia papylifera</i> ,	<i>Cyperus alternifolius</i> ,
<i>Acanthus lusitanicus</i> ,	<i>Caladium esculentum</i> ,
" <i>mollis</i> ,	" <i>bataviense</i> ,
" <i>spinosus</i> ,	<i>Begonia nitida</i> ,
<i>Solanum marginatum</i> ,	" <i>ricinifolia</i> ,
" <i>robustum</i> ,	" <i>prestoniensis</i> ,
" <i>lasciniatum</i> ,	<i>Gunnera scabra</i> ,
<i>Cannas</i> ,	" <i>manicata</i> ,
<i>Amecia zygomis</i> ,	<i>Hibiscus palustris</i> ,
<i>Curculiga sumatrensis</i> ,	<i>Melianthus major</i> ,
<i>Cyperus papyrus</i> ,	<i>Monstera deliciosa</i> .

LILY SHOWING.—When sending lilies for exhibition I followed what I believe is the usual custom of preventing the pollen soiling the petals by tying up the stamens in cotton wool. Mr. Veitch told me that silver paper was better than cotton, and I found it so, but tying with awkward fingers often does mischief. I have just tried a thin India rubber band in place of the tying, and find it so successful that it may be perhaps worth while to make it known to exhibitors. These rings are about half an inch diameter.—(*Id.*)

LACHENALIAS.—A correspondent, who is very successful with these beautiful bulbs, cultivates them as follows:—As soon as the leaves turn yellow, say at the end of May or June, they are laid aside in the potting shed, not being exposed to damp in any way. Here the bulbs rest until September, when they are taken out of their quarters, and all the old soil shaken off, and repotted in a compost of equal parts of loam, leaf mould, and add decomposed manure, with a good addition of silver sand. The sizes of the pots are four and five inches wide. In this last size I have seen M. Wisbey exhibit magnificent specimens at our April shows, which have been much admired, bearing spikes, I should say, from six to nine inches of flower, without stalks. The kinds were *L. tricolor*, and *L. orchidoides*, the latter much the finer of the two.—(*Id.*)

MUSA ENSETE.—I have recently seen a fine plant of this *Musa*, that remained in the open air through the winter of 1867-8, in Baron Haussman's garden in the Bois de Cologne. It was left in the position in which it grew, during the summer of 1867, and in the month of November, covered with a little thatched frame, the space about the plant being filled with dry leaves, all the leaves were cut off. In the spring the protection was removed, and the leaves pushed vigorously. It had (on the 8th September, 1868) sixteen leaves, not one of which was torn or lacerated although in an exposed position. It was not more than five feet high, but more attractive than larger individuals of the same species, from being so compact, untattered in its growth. As most people who grow it will have means of growing it in-doors, in winter, and as it is so rare, this way of keeping it is not likely to be taken advantage of with us at present, but that it can, and has been so wintered is one entirely new. Independently of its use in the open air, as at Battersea Park, it is the finest plant ever introduced to this country, for planting out in the bed of a conservatory, doing finely in a cool house.—(*Id.*)

STOKESIA CYANEA.—Allow me to call attention to this hardy plant for conservatory decoration. It flowers so late in the autumn that to see it in perfection it should be grown in pots and bloomed in-doors; otherwise the early frosts will spoil its beauty. I know of nothing to compare with it at the same season for the brightness of its large blue flowers.—(*Id.*)

IREFINE HERBSTII.—How Iresine has stood the drought is a fitting subject of inquiry at the end of so exceptional a season. Notwithstanding the prolonged drought, the plant has done remarkably well in some positions, and particularly has this been observed at Nuneham park, near Abingdon. So generally good is it here, as a rule, that Mr. Stewart has quite abandoned the use both of *Perilla nankinensis* and *Amaranthus melancholicus ruber*, preferring the Iresine to either. No matter what the position occupied by the plant, whether under the shade of the fine trees that shelter some portions of the garden, or on the south terrace garden, without any shade whatsoever, save in the early part of the day, it is very rich and bright, deserving all the praise written and spoken of it. Pegging down is evidently the secret of Mr. Stewart's success with the plant. This is effected early in the season, as soon as the shoots are long enough to admit of its being done. From each joint spring rootlets that fasten themselves into the soil, and become so many more arteries supplying life and vigor to the plants. If the weather be dry long in the season, the Iresine is freely watered, and rapid growth ensues. There is scarcely anything of a special character about the soil, and all the beds at Nuneham are re-enforced at the commencement of each season by the addition of some charcoal soil, which is formed by the ashes on the rubbish heap. This may suit the Iresine; certain it is that the red hue of the foliage comes out exceedingly bright, many of the leaves being infused or flaked and marked with a lively violet carmine hue. Mr. Stewart uses the Iresine largely for edging purposes for medium sized beds, but it is kept well pinched back.—(*Id.*)

NEW ZEALAND FLAX, (*Phormium tenax.*)—This really useful plant deserves to be generally cultivated in the gardens of Great Britain, not only on account of its ornamental foliage, but also for the uses to which it may be turned. A large plant, which I have growing in a very exposed situation, has this season produced from 700 to 800 leaves, averaging four feet in length, and seventeen spikes of bloom, from seven to twelve feet high, which have again produced well ripened seed. The leaves have all been turned to account by experimentalists, who are sanguine that at some future day we shall have sufficient supply of the flax manufactured from them to place it in commercial competition with Russian hemp, with which I have but little to do as yet, but I would wish particularly to recommend the plant to the attention of British gardeners, as both ornamental and useful.

It is easily raised from seed, requiring but the protection of a cold frame in its earliest stages of growth. A good stiff loam seems to be the soil most suited to it. The young plants soon develop themselves, and produce leaves of sufficient length for use, the fibre being so strong that it is only necessary to strip the leaves lengthwise, after separating them from the plant to have bands and strips of any required length for tying. It grows very freely, either among shrubs, in the pleasure ground, or in a portion of the kitchen garden allotted to it, requiring but little attention, after once

planting, and little space would be required to produce the necessary quantity of tying material. So far would it be immediately useful to the garden, supplying a constant stock of fresh tying material, which is easily prepared for use.

Those of excellent quality is also made from the fibre. In proof of the durability of this I may state that a line made of it, and constantly exposed to the elements, lasted three years. I have also seen the most beautiful silken-textured flax prepared from the fibre, after the extraction of the resin it contains. The foliage is so bold and handsome in its style of growth, that irrespective of the uses to which it is turned, the plant is worthy of cultivation, and may be safely recommended for open air culture in all the southern and western counties of England, as well as further north, where sheltered situations can be afforded it.—(*Gard. Chron.*) [We call the attention of lovers of fine foliage to this plant. It is not hardy enough for our northern climate, and must have protection in the house or cellar. But it is a very handsome object planted out in the spring, and taken up in the autumn, giving it a good rich soil. In Virginia and further south it is probably hardy. It should be more extensively introduced.—Ed.]

LILIUM AURATUM.—I went some time since (August 12) to Melchet Court Gardens, to see that grand specimen of the *Lilium auratum*, concerning which Mr. Cross had written a few particulars; these, however, might well be enlarged upon, as anything that relates to the successful cultivation of such a fine specimen of the *Lilium* tribe cannot fail to be of interest. The bulb was purchased in 1864 of Messrs. Veitch & Sons, of Chelsea, for the sum of three guineas; that season it produced one flower only. In 1865 it produced seven blooms, and thirty-one blooms in 1866. The following year the bulb sent up three stems, which carried 104 blooms, and this year it has three large stems and four smaller ones, with a total of 161 blooms. One of the large stems has come flattened, thus somewhat crowding the flowers, the others are perfectly round. In consequence of the height of the stems the appearance of the plant is not exactly pleasing, but the four smaller stems give some relief. "Previously," said Mr. Cross, "I had been in the habit of taking away the newly-formed bulbs, till the present year, when I allowed them to remain, and the smaller stems are the consequence. For the future I shall allow them to remain, in the belief that by encouraging the growth of a quantity of small bulbs, I may eventually produce in the plant a near approach to the pyramidal form." With regard to its successful cultivation, Mr. Cross states that the bulb should never be deprived of soil. The bottom roots are of an exceedingly fleshy character, and should never be allowed to become dried, which will be the case if the bulb is quite shaken out. After blooming, continue to water freely, until the foliage turns yellow. When the stems are cut down turn the pot on its side, and allow it to remain in a dry house or shed for the winter; shift into a larger pot in February, rubbing off about one-third of the old compost, and using a fresh mixture of turfy loam, peat, and leaf mould, or well-rotted dung;

keep the top of the bulb several inches below the top of the pot, as the principal rootlets are emitted from the base of the flower stem, and space is thus afforded for liberal top-dressing.—(*Gard. Chron.*)

THE CLOCHE.—This, which is simply a large and cheap bell-glass, is used in every French garden that I have seen, and it is the cloche which enables the French market gardeners to excel all others in the production of spring salads. Acres of them may be seen in the market gardens around Paris, and private gardens have them in proportion to their extent—from the small garden of the amateur with a few dozen or scores, to the large garden where they require several hundreds or thousands of them. They are about sixteen inches high, and the same in diameter of base, and cost about a franc a-piece, or a penny or two less if bought in quantity. Messrs. Vilmorin, the well-known seed merchants of Paris, have obliged me with the address of a person who supplies them—Rouchonwat Jerine, 75, Rue du Faubourg St. Antoine. He offers them at 85 francs per 100, if more than 500 are taken; smaller quantities at 90 francs per 100—i. e., at the rate of about 9d. each. The cloches are packed by twenties, four francs being charged for the package; but the vendor will not be responsible for breakage in transit. The advantages of the cloche are—it never requires any repairs; it is easy of carriage when carefully packed (one inside the other in a rough frame made for the purpose); but, carefully handled, one is very rarely broken in the Paris market gardens—level as a billiard-table, and without a leaf out of its place; they are easily cleaned—a swill in a tank and a wipe of a wad of hay every autumn, cleans and prepares them for their winter work. They are useful in many ways beside salad growing; for example, in advancing various crops in spring, raising seedlings and striking cuttings, and, finally, they are cheap. A thousand of them may be bought for 40l., or less in France, and with good management these would soon more than repay the cultivator. But of course it is only in market gardens that they would be required in such quantities as that, and in some small gardens not more than a few dozen will be wanted. Every garden should be furnished with them, according to its size; and when we get used to them, and learn how very useful they are for many things—from the full developing of a Christmas rose to the forwarding of herbs and even stools of asparagus in spring—I have no doubt they will be much in demand.—(*Id.*)

HOW TO MAKE GRAVEL WALKS.—When we find walks, which ought to be of a pale warm brown color, looking green, we may be assured that such a condition of things is an unmistakable sign of neglect. But it may not be easy, at a first glance, always to determine who is most to blame for this. The keeper of the paths will be that person if the paths were properly made in the first instance, for then no excuses can be allowed for their not being well kept; but if the walks were not originally well made, the maker of them is the person who deserves the greatest amount of censure for their bad condition. From these remarks it will be gleaned

that gravel walks must first be properly made, and secondly, they must be carefully attended to, if their owner would have them look as they ought to look.

First, how to make a gravel walk. Having marked out with pegs the direction in which the walk is to go, dig out the soil to the depth of at least a foot, and remove this soil somewhere out of the way, as it will not be wanted again for the present purpose. If it should be good mould that is being dug out, it should, of course, be wheeled away, and heaped up for use on some future occasion, for good mould is not often so plentiful or so easy of access that we can afford to throw it away. If, on the other hand, the soil is a stiff clay, and you have the means of wheeling it sufficiently far off from the house to burn it, by all means do so, for burnt clay (or ballast, as it is called in the neighborhood of London) is a valuable commodity to florists who labor in gardens having clay soils. By sifting it you can separate the larger portions—which, when of the size of walnuts, are most useful in making paths—from the finer and dusty parts of it, which are of great service if dug into heavy soils, in lightening them. When the soil has been taken out to the required depth, dig a trench down the middle of this sunken path of the width of the spade and four or five inches deep, and take care that the bottom of the sunken path shall not be lower at the sides than it is in the middle: this trench will thus receive and carry off any rain that may fall, and will prevent it from lodging in any other part of the sunken path. The next step is to fill up this trench and the lower half of this sunken path with broken bricks, or large stones, or chalk in small blocks. By the use of such materials a thoroughly dry walk is secured at all times, even soon after the heaviest shower. Upon this coarse drainage it is desirable to spread three inches of any dry rubbish that can be scraped together, such as shavings, wood-chippings, sweepings of the wood-house, straw, dead stalks, or any similar kind of garden rubbish. This will prevent the next layer of material from running down amongst the coarse drainage. For this next layer there can be nothing better than two or three inches of burnt clay, from which the dust and finer particles have been screened; this should be well trodden down and then raked smooth, leaving it slightly raised in the middle. If this ballast cannot readily be obtained, some very coarse gravel must be substituted for it, and trodden down in the same way. The path being now nearly filled up, is prepared for receiving its top layer and final coating of the best gravel that can be bought. This should be spread evenly two or three inches thick, then well trodden down, next smoothed with the back of the rake, and finally rolled with a heavy roller. The surface of the walk must not be left flat, but must be slightly convex, so as to throw off the rain from the middle to the sides. If the curve be too great the path will be very unpleasant walking for two or three people together, while too flat a curve will entail puddles, from the water not running off. It is desirable, therefore, to give a rule for the best form of curve. It will be found that a rise of half an inch for every foot that the pathway is wide, will make a good curve for all walks up to six feet in width; thus, for a walk of four

feet wide, the middle ought to be about two inches higher than the sides. Men who are accustomed to the work will gravel and roll a path very regularly and evenly, and apparently without taking particular pains about it. The amateur, however, will find it expedient to provide himself with a piece of half inch deal board, some six inches wide, and of the length of the intended width of the walk, and from one edge to saw out, with a key-hole saw, a curved piece of wood corresponding to the proposed curve of the surface of the walk. He can then use the remaining piece as a gauge, with which to determine, as he proceeds, whether the walk is in all places properly and evenly curved. Whatever you have to do in moving gravel should be done in dry weather; for, if it is moved in wet weather, the rain is liable to wash away some of the loam which is mixed with it, and upon which you depend for its binding together when well rolled. It is upon this account advisable only to spread a few yards of gravel at a time, and to roll it and finish it off before spreading any more. Walks so made are always the firmest.

Having thus explained how a good gravel walk should be made, it only remains to say a few words about keeping it in good order. It may get into bad order from two causes; either from weeds being allowed to grow, or from unevenness of surface. Weeds may be removed by pulling them up, or by raking them off when the surface has been loosened; in either case it will be found easier to do this after a shower of rain. Unevenness may proceed from wheelbarrows or heavily nailed boots passing roughly over the path during or after rain. To remedy this, the surface must be loosened with a spade or fork to the depth of about an inch, by holding the tool almost on a level with the ground instead of upright; the gravel must then be trodden, raked smooth, and well rolled. Frequent rolling is one of the best preventives of weeds, as it keeps the surface so hard and smooth that weeds cannot readily grow upon it, and are as liable to be blown off again as they are to be blown there.

In places where you have seen thistles or bindweed forcing their way up through a gravel path, you may be sure that the foundation of that walk has not been properly made; and the same may be safely asserted of any walk which assumes a greenish tinge from the young growth of moss; this is always a sign of defective drainage, and nothing but remaking the walk in a proper manner will effectually correct it. Mosses and other dwarf annual weeds will not grow upon a smooth, dry, well-drained surface; and deep-rooted perennial weeds will not force their way up through eight or nine inches of bricks and rubbish, topped with five or six inches of hard compact gravel, though they might perhaps manage to get through the gravel by itself. These lower strata of drainage materials also prevent worms boring up, and discoloring the gravel with their pyramidal casts. In short, a well-made gravel walk, though it may cost rather more at first than a badly made one, will always look as it should do, and in the end will prove cheaper than any other.—(*Id.*)

Gorticultural Operations

FOR DECEMBER.

FRUIT DEPARTMENT.

THE cool weather of November has reminded cultivators of the proper precautions for winter; and, though December may be mild, the sooner everything is done the better.

GRAPE VINES, in the early houses, will now be breaking well,* and will soon show their fruit buds. Do not attempt to force too rapidly in these short days and little sun. Maintain a good day heat, but not too high during the night. Give additional covering to the border before severe cold sets in. Vines in greenhouses and graperies should now be pruned. Hardy vines may be laid down and protected with earth or litter, if not already done.

STRAWBERRY BEDS should be lightly covered with strawy manure, sedge, or short hay. Plants in pots, intended for forcing, and for early fruit, should be removed to a warm shelf, near the glass. Those for later use may remain in the frame, well protected with leaves, to keep out any frost.

MANURE may now be applied to all kinds of fruit trees, spreading it on the ground in a circle of three feet. It will be much more effective than if put on in the spring.

FLOWER DEPARTMENT.

The greenhouse and conservatory should now receive good attention, and preparations made for a gay appearance next month. All plants done flowering should be removed, if there are other houses. Camellias will soon be in full flower, to be followed by azaleas, heaths, primroses, bouvardias, &c. Top dress the plants, if they require it. Wash the pots, tie to neat stakes, and keep everything neat and clean.

PELARGONIUMS will now begin to require attention. Young stock and specimen plants should be repotted, and all have a cool, airy place, near the glass. Do not force into growth, but aim to have a short, stout, stocky habit. Any extra heat is sure to injure the plants. Turn the pots round often, and tie out the shoots when crowded.

CAMELLIAS will now begin to flower, and should have more water, with an occasional dose of liquid manure.

AZALEAS, kept in the warmest part of the house, will soon flower. Syringe often, and give liquid manure.

CHINESE PRIMROSES should have a cool, airy shelf, and be carefully watered. They are impatient of a warm moist atmosphere.

CAPE GERANIUMS are fine winter flowering plants. They should now be shifted into slightly larger pots, in a peaty soil, and the stems tied up to neat stakes.

JAPAN LILIES should be potted, if not already done. Keep in a cool place, under the stage, until well rooted.

OXALISES are very pretty plants, and bloom all winter. They should have a situation on a sunny shelf, where they will bloom abundantly.

SCARLET GERANIUMS, and the zonal variegated kinds, will flower freely, if shifted into pots, not too large, and watered with liquid manure.

FERNS should not be kept too wet; they like a moist atmosphere, but not too much dampness at the root. Now is a good time to repot such as require it.

PALMS, PANDANUSES, AGAVES, and similar plants, should be kept rather dry, unless there is plenty of heat.

MARANTAS, of the different kinds, should be repotted, and divided, if additional plants are wanted.

ORCHIDS should be kept rather dry for a few weeks.

BEGONIAS should be sparingly watered, unless kept in a good temperature.

ROSES, kept in a frame, may now be removed to the house, and have a good pruning, after which they will commence to bloom.

HEATHS should be kept in the coolest part of the house, and as far away from fire heat as possible. A slight frost is less injurious than dry heat.

CALLAS should have an abundance of water, and occasionally liquid manure. A pan under each pot, kept filled with water, gives them additional vigor.

MONTHLY PINKS, which have grown vigorously, and full of flowers, may be repotted.

CYCLAMENS should be kept in a cool, airy part of the house, near the glass.

CINFRARIAS AND CALCEOLARIAS should be shifted into larger pots. Fumigate, if the green fly appears. Keep them in a cool place.

CISSUS DISCOLOR, one of the most beautiful plants, should be shaken partially out of the soil, and repotted into fresh, light, peaty earth. Keep in a warm place.

VERBENAS, PYRETHRUMS, and all other kinds of bedding plants, should be propagated next month.

GLADIOLUS, for early blooming, may soon be potted.

HYACINTHS, in pots, may now be brought into the house. Give them a thorough watering.

GLOXINIAS AND ACHIMENES, for flowering early, may be potted soon.

DAPHNES, as soon as the flowering is over, should be pruned and repotted.

FUCHSIAS should now be shaken out of the old soil, and repotted. Head them well in, to make good shaped heads. Propagate for a young stock.

SEEDS OF PANSIES may be planted for a succession of bloom.

