

Handbook of the Wild
and Cultivated
Flowering Plants

Chester Arthur Darling



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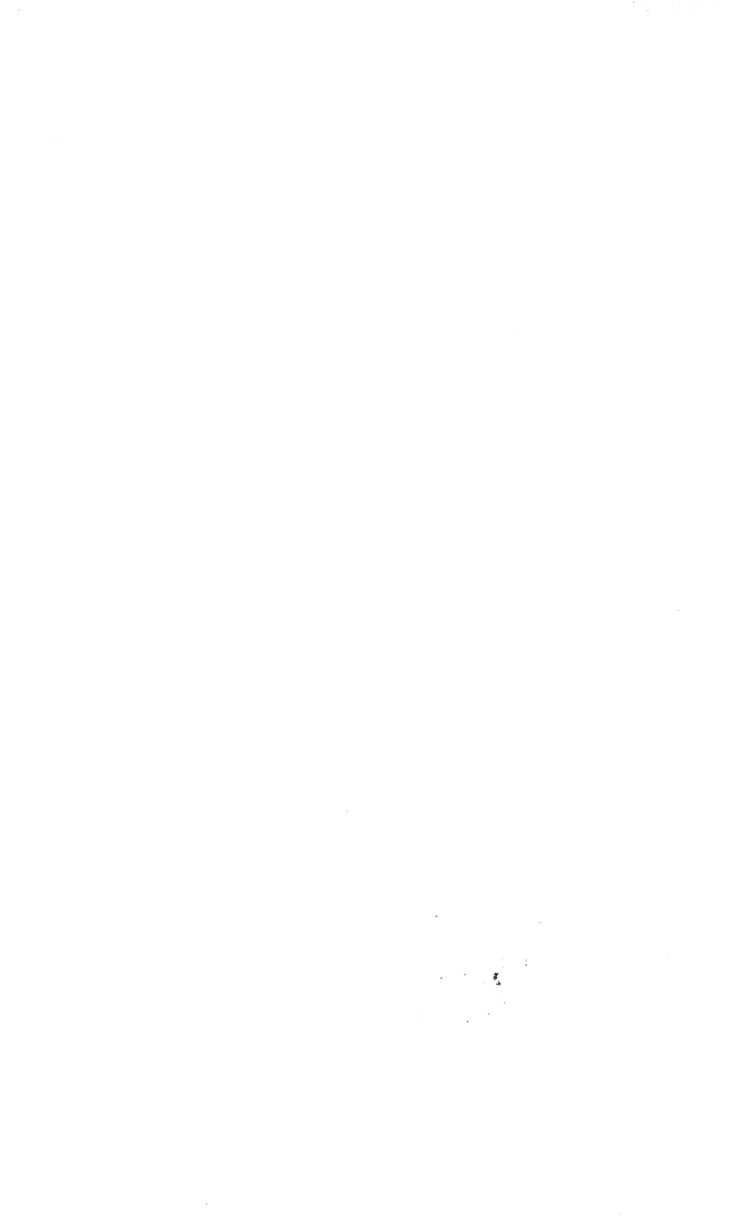
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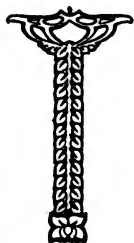


HANDBOOK OF THE WILD
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Handbook of the Wild and Cultivated Flowering Plants



BY
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PREFACE

The object of this Handbook is to furnish a convenient and easy means of determining the wild and cultivated flowering plants found in the East. The rarer plants grown in greenhouses and in Botanical Gardens are not included.

In the preparation of the Keys it has been the aim to make the book usable to the untrained as well as to the trained Botanist; as a result we have sought to give only essentials and to use as simple terms as possible.

In addition to the plants themselves, I have freely consulted Britton's Manual, Gray's New Manual, and Bailey's Cyclopedia of American Horticulture. The scientific names given preference in the native plants are those used in Britton's Manual. The arrangement of Orders and Families is that commonly accepted by present Botanists.

In the preparation of this work valuable suggestions have been received from Prof. Carlton C. Curtis and Dr. Bernard O. Dodge, to whom I am very grateful; much credit is also due my wife who has so generously assisted in many phases of the work.

C. A. D.

Columbia University, New York City.

April, 1912.

SUGGESTIONS TO THE STUDENT

The Keys found in this Handbook are designed to be used in the field. There are four general Keys: (1) Key to the Wild Plants and Cultivated Trees and Shrubs which flower during March, April, and May, p. 3; (2) Key to the Wild Plants and Cultivated Trees and Shrubs which flower from June to November, p. 27; (3) Key to the Wild and Cultivated Trees and Shrubs in Autumn, p. 65; (4) Key to the Cultivated Herbs and Potted Shrubs, p. 81.

To find the name of the plant, you must first decide in which of the four Keys it will be found, depending upon the time of year and whether the plant is cultivated or not. Excepting Key 3 and part of Key 4, it is necessary to have the flowers as well as other parts of the plant which are present at flowering time. Beginning with No. 1 of the Key selected, consider both *a* and *b* and choose the one which fits the specimen; the number after *a* or *b* indicates the next to be considered, e.g., if you are to determine a wild flower found in the spring before June you will turn to Key 1, and if it is an herb or herbaceous, then you are directed to 162; be sure always to turn to the number indicated. By a continued following of the numbers you will be led to the first or generic name of the plant. You are there referred to the page on which will be found the generic and the common name; if there is more than one kind in the genus, use the key there found to determine the species.

To enable you to pronounce the scientific name correctly the accented vowel is marked, (à) indicates a long sound of the vowel, (á) a short. When you find words and phrases that you do not understand, turn to the Glossary which pre-

cedes the Index, where they are defined. In order to use the Keys with success, accuracy of observation of the specimen and careful attention in following the Key are of primary importance; the flowers should be completely open. It is always desirable to read both *a* and *b* and *c* when present, before choosing between them. At times you will have to exercise your best judgment and use the one which seems to fit best; usually, however, there will be no difficulty in determining which to take.

Many plants are variable, so where there are several plants always obtain an average one, and one which is in full flower. When you are sure that you have a Violet, for instance, you can turn to the Violets without using one of the four general Keys, or when you know the flowers of a certain Family as the Mustard, Pea, Carrot, or Thistle Family, you can turn to the Key of that Family. After using the Keys for a time you will find many "short cuts" in finding out the individual plant, but at first you should begin as suggested above. The asterisk (*) after the scientific name indicates that the plant is cultivated, although in some cases it may be found growing wild.

Should you find some plants which you cannot determine I shall be very glad to have them sent to me for identification; I shall likewise appreciate any suggestions which may be offered to improve the Keys, and any suggestions as to omissions. Should this work meet with sufficient approval it will be followed by the descriptions of the species. An abridged copy containing only the Spring Flora has been published for those wishing such an edition.

THE AUTHOR.

HANDBOOK OF THE WILD
AND CULTIVATED
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I

Key to the Wild Plants and Cultivated Trees and Shrubs Which Flower During March, April and May

- | | | | |
|----|---|---|-----------------------------|
| 1 | a | Trees, shrubs, and woody vines | 2 |
| | b | Herbaceous plants | 162 |
| 2 | a | Leaves about $\frac{1}{8}$ in. or less broad, present at flowering time | 3 |
| | b | Leaves $\frac{1}{4}$ in. or more broad or wanting at flowering time | 21 |
| 3 | a | Leaves scale-like, more or less appressed to the stem, the tips sometimes spreading | 4 |
| | b | Leaves awl-shaped, linear, or needle-like, not appressed to the stem | 9 |
| 4 | a | Low shrubs usually 2 ft. or less high | 5 |
| | b | Shrubs or trees 3 ft. or more high | 6 |
| 5 | a | Cultivated shrub; leaves in 4 rows on the stem
<i>Calluna.</i> p 195 | |
| | b | Native shrubs; leaves not in 4 rows on the stem
<i>Hudsonia.</i> p 186 | |
| 6 | a | Flowers white or pink with sepals and petals; branches often plume-like | <i>Tamarix.</i> p 186 |
| | b | Flowers in small aments, without sepals or petals | 7 |
| 7 | a | Branchlets appear more or less 4-sided, not flattened laterally; all leaves more or less keeled
<i>Juniperus virginiana.</i> p 109 | |
| | b | Branchlets appear much flattened laterally, 2 rows of leaves flat and 2 rows keeled | 8 |
| 8 | a | Branchlets about $\frac{1}{8}$ in. broad | <i>Thuja.</i> p 109 |
| | b | Branchlets about $\frac{1}{16}$ in. broad, or the tips of leaves spreading | <i>Chamaecyparis.</i> p 109 |
| 9 | a | Leaves in clusters on the stem | 10 |
| | b | Leaves attached singly to the stem | 12 |
| 10 | a | Leaves 2-5 in a cluster | <i>Pinus.</i> p 107 |
| | b | Leaves 10 or more in a cluster | 11 |
| 11 | a | Leaves deciduous, borne on short bud-like branches
<i>Larix.</i> p 108 | |
| | b | Leaves evergreen, not borne on short bud-like branches
<i>Cedrus.</i> p 108 | |

KEY FOR MARCH, APRIL AND MAY

- 12 *a* Leaves 3-6 in. long, in whorls at the ends of the branches
Sciadopitys. p 109
b Leaves 2 in. or less long 13
- 13 *a* Each leaf extending down the stem, not jointed to it;
 leaves awl-shaped; small cultivated tree
Cryptomeria. p 109
b Each leaf jointed to the stem, not extending down it as
 in *a* 14
- 14 *a* Leaves thick, somewhat 4-sided; branchlets very rough 15
b Plants not completely as in *a* 16
- 15 *a* Leaves about $\frac{1}{4}$ in. long; native shrub....*Corema.* p 180
b Leaves usually more than $\frac{1}{4}$ in. long*Picea.* p 108
- 16 *a* Leaves rather rigid, tapering to apex, somewhat chan-
 nelled 17
b Leaves flat, not channeled or tapering 18
- 17 *a* Native shrubs; leaves sometimes arranged in 3's on the
 stem*Juniperus.* p 109
b Cultivated shrubs; leaves arranged in 4 rows on the
 stem*Chamaecyparis.* p 109
- 18 *a* Branchlets covered with small projections, rather rough 19
b Branchlets without projections, rather smooth 20
- 19 *a* Leaves about $\frac{1}{2}$ in. long, blunt at apex, whitish be-
 neath when fresh*Tsuga.* p 108
b Leaves $\frac{3}{4}$ -1 in. long, pointed at apex, green beneath
Taxus. p 107
- 20 *a* Leaves thin, deciduous, appearing only on new branches
Taxodium. p 109
b Leaves comparatively thick, appearing on 2-year-old
 branches*Abies.* p 108

Trees or Shrubs With Opposite, Compound Leaves

- 21 *a* Leaves or leaf-scars opposite on the branches 22
b Leaves or leaf-scars alternate on the branches 49
- 22 *a* Leaves compound 23
b Leaves simple or wanting at flowering time 28
- 23 *a* Leaves palmately compound; flowers irregular.
Aesculus. p 183
b Leaves not palmately compound; flowers regular 24
- 24 *a* Flowers $\frac{1}{2}$ -1 in. broad, yellow*Jasminum.* p 198
b Flowers $\frac{1}{2}$ in. or less broad 25
- 25 *a* Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. long, bell-shaped, in pendulous ra-
 cemes*Staphylea.* p 182
b Flowers not completely as in *a* 26
- 26 *a* Flowers white, in cymes*Sambucus.* p 214
b Flowers not in cymes 27
- 27 *a* Petals 4, white; leaflets 7-11*Fraxinus ornus.* p 198
b Perianth parts green; leaflets 3-5....*Acer negundo.* p 182

KEY FOR MARCH, APRIL AND MAY

Trees, Shrubs, or Woody Vines With Simple, Opposite
Leaves or Leaves Wanting at Flowering Time

- 28 a Tree with violet, tubular flowers 2 in. or more long
Paulownia. p 210
b Trees or shrubs not completely as in a 29
- 29 a Shrubs with showy yellow flowers about 1 in. long, usu-
ally appearing before the leaves.....*Forsythia.* p 198
b Shrubs or trees not completely as in a 30
- 30 a Shrub or small tree with entire, evergreen leaves $\frac{1}{2}$ -1
in. long; flowers small, greenish*Buxus.* p 181
b Trees or shrubs not completely as in a 31
- 31 a Flowers without a perianth 32
b Flowers with a perianth 33
- 32 a Stamens numerous; leaves round-heart-shaped
Cercidiphyllum. p 152
b Stamens 2; leaves often wanting at flowering time
Fraxinus. p 198
- 33 a Stamens 20-40; flowers white, 1 in. or more broad.... 34
b Stamens 10 or less; flowers not completely as in a 35
- 34 a Calyx-lobes toothed, nearly as long as the petals
Rhodotypos. p 164
b Calyx-lobes much smaller than the petals.*Philadelphus.* p 162
- 35 a Flowers dark purple, 1-2 in. broad*Butneria.* p 154
b Flowers not completely as in a 36
- 36 a Corolla deeply saucer-shaped, 5-lobed, with 10 pouches
on the tube*Kalmia.* p 195
b Flowers not completely as in a 37
- 37 a Flowers greenish or reddish, about $\frac{1}{4}$ in. broad 38
b Flowers not completely as in a 40
- 38 a Leaves evergreen, thick, usually variegated..*Aucuba.* p 194
b Leaves not evergreen 39
- 39 a Decumbent shrub about 1 ft. high.*Euonymus obovatus.* p 182
b Erect shrubs or trees*Acer.* p 182
- 40 a Leaves with silvery scales at least on the under surface
Lepargyreae. p 189
b Leaves wanting or not as in a 41
- 41 a Flowers in heads subtended by 4 large, white or red-
dish bracts usually $\frac{1}{2}$ in. or more long....*Cornus.* p 193
b Flowers not completely as in a 42
- 42 a Stamens 10, or flowers double*Deutzia.* p 162
b Stamens 5 or less 43
- 43 a Stamens 2 44
b Stamens 4 or 5 or wanting 46
- 44 a Petals 4, nearly distinct*Fontanesia.* p 199
b Petals joined into a tube 45

KEY FOR MARCH, APRIL AND MAY

- 45 a Flowers about 1 in. long, white, not fragrant
Chionanthus. p 199
 b Flowers $\frac{3}{4}$ in. or less long, lilac or white, usually
 fragrant*Syringa.* p 199
- 46 a Flowers more or less irregular*Lonicera.* p 215
 b Flowers regular 47
- 47 a Flowers $\frac{1}{2}$ in. or more long, yellow or rose-colored
Diervilla. p 216
 b Flowers $\frac{1}{2}$ in. or less long, white, rarely yellow.... 48
- 48 a Leaves with toothed or lobed margins; petals usually 5
Viburnum. p 214
 b Leaves wanting or with entire margins: petals usually 4
Cornus. p 193

Woody Vines With Alternate Leaves

- 49 a Climbing woody vines 50
 b Erect or prostrate trees or shrubs 58
- 50 a Vines with tendrils or aerial rootlets 51
 b Vines not with tendrils or aerial rootlets 55
- 51 a Vines with prickles; leaves entire*Smilax.* p 136
 b Vines not with prickles; leaves not entire 52
- 52 a Vines with tendrils..... 53
 b Vines with aerial rootlets 54
- 53 a Tendrils tapering at the tips*Vitis.* p 184
 b Tendrils with adhesive expansions at the tips
Parthenocissus. p 184
- 54 a Leaves simple, usually evergreen with lighter veins
Hedera. p 191
 b Leaves 3-foliolate, not evergreen....*Rhus radicans.* p 181
- 55 a Leaves simple, thorns often present*Lycium.* p 209
 b Leaves compound 56
- 56 a Flowers irregular*Wistaria.* p 173
 b Flowers regular 57
- 57 a Thorns or prickles present*Rosa.* p 166
 b Thorns or prickles not present*Akebia.* p 154

Shrubs or Trees With Alternate, Compound Leaves

- 58 a Leaves compound 59
 b Leaves simple or wanting at flowering time..... 78
- 59 a Trees usually with thorns on the trunk 1 in. or more
 long; branchlets zigzag; flowers greenish.*Gleditsia.* p 170
 b Trees or shrubs not completely as in a 60
- 60 a Flowers irregular, not greenish 61
 b Flowers not completely as in a 65
- 61 a Flowers yellow 62
 b Flowers not yellow 63

KEY FOR MARCH, APRIL AND MAY

- 62 a Leaflets 3 *Laburnum*. p 173
 b Leaflets 8-12 *Caragana*. p 173
- 63 a Flowers violet-purple, about $\frac{1}{4}$ in. long... *Amorpha*. p 173
 b Flowers white, pink, or purple, $\frac{1}{2}$ in. or more long.. 64
- 64 a Trees or shrubs usually with short spines for stipules;
 racemes usually 8 in. or less long *Robinia*. p 173
 b Shrub not with spines for stipules; racemes often 10-25
 in. long *Wistaria*. p 173
- 65 a Trees, shrubs, or trailing vines with prickles 66
 b Shrubs or trees not with prickles 68
- 66 a Tree or large shrub 10 ft. or more high
Xanthoxylum. p 179
 b Shrubs 6 ft. or less high, erect or trailing 67
- 67 a Shrubs cultivated for the flowers *Rosa*. p 166
 b Shrubs not cultivated for the flowers *Rubus*. p 164
- 68 a Flowers white 69
 b Flowers not white 71
- 69 a Leaflets 3; flowers fragrant *Citrus trifoliata*. p 179
 b Leaflets 5 or more 70
- 70 a Leaves doubly compound; flowers in racemes
Gymnocladus. p 170
 b Leaves singly compound; flowers in cymes.... *Sorbus*. p 167
- 71 a Leaves evergreen; leaflets with spiny teeth
Berberis japonica. p 154
 b Leaves not evergreen; leaflets not with spiny teeth.... 72
- 72 a Leaflets 3 *Rhus radicans*. p 181
 b Leaflets 5 or more 73
- 73 a Shrub 1-2 ft. high; flowers purplish-brown
Xanthorrhiza. p 152
 b Shrubs or trees 5 ft. or more high 74
- 74 a Flowers about $\frac{1}{2}$ in. long, yellow..... *Koelreuteria*. p 183
 b Flowers $\frac{1}{4}$ in. or less long, greenish 75
- 75 a Leaflets entire *Juglans regia*. p 141
 b Leaflets toothed 76
- 76 a Leaflets 5-11; pith in the twigs not chambered
Hicoria. p 141
 b Leaflets 11-25; pith in the twigs chambered with cross
 partitions 77
- 77 a Cultivated tree; pistillate flowers in racemes
Pterocarya. p 142
 b Native trees; pistillate flowers in clusters of 2-4
Juglans. p 141

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Shrubs or Trees With Simple, Alternate Leaves
or Leaves Wanting

- 78 a Flowers green or greenish or else without a distinct perianth 79
 b Flowers not green, with a distinct perianth 105
- 79 a Small tree with smooth, dark-grayish bark, not peeling; trunk with smooth, rounded ridges, sinew-like
Carpinus. p 142
 b Shrubs or trees not completely as in a 80
- 80 a Shrub with leaves indented nearly to the midrib, fern-like, fragrant *Comptonia.* p 141
 b Shrubs or trees not completely as in a 81
- 81 a Bark with horizontal markings $\frac{1}{2}$ in. or more long; bark peeling in papery sheets or in plates, never furrowed *Betula.* p 142
 b Bark not completely as in a 82
- 82 a Shrubs or trees with the fruiting aments somewhat woody and remaining on the tree throughout the year *Alnus.* p 143
 b Shrubs or trees not completely as in a 83
- 83 a Trees with smooth, light-gray bark close on trunk, not peeling *Fagus.* p 143
 b Trees or shrubs not completely as in a 84
- 84 a Leaves star-shaped, 5-7 pointed *Liquidambar.* p 163
 b Leaves wanting or not star-shaped 85
- 85 a Bark with light-green or whitish patches on upper trunk; flowers in globose balls *Platanus.* p 163
 b Bark and flowers not completely as in a 86
- 86 a Shrub or tree with thorns; pistillate flowers in globose head *Toxylon.* p 145
 b Shrubs or trees not completely as in a 87
- 87 a Leaves somewhat fan-shaped, broadest toward apex and often incised *Ginkgo.* p 107
 b Leaves not completely as in a 88
- 88 a Milky juice exudes when young twigs are cut 89
 b No milky juice exudes when twigs are cut 90
- 89 a Twigs very hairy; pistillate flowers in heads
Broussonetia. p 145
 b Twigs not very hairy; pistillate flowers in short spikes
Morus. p 144
- 90 a Leaves more or less lobed 91
 b Leaves entire, toothed, or wanting at flowering time.. 92
- 91 a Shrubs 5 ft. or less high; flowers with conspicuous perianth *Ribes.* p 162
 b Shrubs or trees 6 ft. or more high *Quercus.* p 143

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- 92 *a* At least the staminate flowers in aments, spikes, or racemes 93
b Flowers not as in *a* 97
- 93 *a* Bark of tree peeling off in narrow, vertical strips
Ostrya. *p* 142
b Bark not peeling completely as in *a* 94
- 94 *a* Twigs clothed with brownish hairs; only staminate flowers in aments *Corylus*. *p* 142
b Trees or shrubs not completely as in *a* 95
- 95 *a* Shrubs 8 ft. or less high; pistillate flowers not in aments; fruit of waxy nutlets, sometimes present
Myrica. *p* 141
b Shrubs or trees not completely as in *a* 96
- 96 *a* Trees with lateral leaf-buds with several scales; leaves usually not more than twice as long as broad
Populus. *p* 139
b Trees or shrubs with lateral leaf-buds with a single scale; leaves usually more than twice as long as broad
Salix. *p* 140
- 97 *a* Leaves evergreen, with spiny teeth *Ilex*. *p* 181
b Leaves not as in *a* 98
- 98 *a* Flowers solitary or few together in the axils of the leaves 99
b Flowers not completely as in *a* 101
- 99 *a* Tree with furrowed or checkered bark; leaves entire
Diospyros. *p* 198
b Shrubs 9 ft. or less high; leaves wanting or when present toothed or entire 100
- 100 *a* Stamens 4 or 5, opposite the petals..... *Rhamnus*. *p* 184
b Stamens 4-12, not opposite the petals..... *Ilicioides*. *p* 181
- 101 *a* Flowers in panicles 3 in. or more long; leaves entire
Cotinus. *p* 181
b Flowers not completely as in *a* 102
- 102 *a* Leaves entire, appearing with the flowers..... *Nyssa*. *p* 194
b Leaves toothed or wanting at flowering time..... 103
- 103 *a* Shrub, often twining; leaves finely toothed.. *Celastrus*. *p* 182
b Trees, rarely shrubs; leaves usually wanting at flowering time 104
- 104 *a* Usually wings of cork at the base of tree; pistil ovoid
Celtis. *p* 144
b Bark not completely as in *a*; pistil 2-lobed at apex
Ulmus. *p* 144
- 105 *a* Tree with flowers 2 in. or more broad, orange within; leaves broadly notched at apex..... *Liriodendron*. *p* 152
b Shrubs or trees not completely as in *a* 106

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- 106 *a* Flowers 2 in. or more broad; stamens and pistils numerous *Magnolia*. p 151
b Flowers not completely as in *a* 107
- 107 *a* Flowers irregular, pink or purple, appearing before the leaves *Cercis*. p 170
b Flowers not completely as in *a* 108
- 108 *a* Shrubs or trees with spicy bark; flowers yellow, $\frac{1}{4}$ in. or less broad; anthers opening by terminal pores.... 109
b Shrubs or trees not completely as in *a* 110
- 109 *a* Flowers in lateral clusters on the branches.. *Benzoin*. p 154
b Flowers in racemes or umbels, usually terminal on the branches *Sassafras*. p 154
- 110 *a* Shrubs with thorns at the base of the leaves; flowers about $\frac{1}{4}$ in. long, yellowish *Berberis*. p 154
b Shrubs or trees not completely as in *a* 111
- 111 *a* Shrubs 6 ft. or less high; leaves more or less lobed; flowers yellow or whitish *Ribes*. p 162
b Shrubs or trees not completely as in *a* 112
- 112 *a* Flowers with petals distinct, not united at base, or petals wanting 113
b Flowers with the corolla more or less tubular, sometimes tubular only at the base 146
- 113 *a* Flowers yellow, 1 in. or more broad, often double
Kerria. p 164
b Flowers not completely as in *a* 114
- 114 *a* Stamens 10 or less to each flower, or flowers never double 115
b Stamens 15 or more, or flowers double 122
- 115 *a* Flowers rose-purple, about $\frac{1}{2}$ in. long, fragrant
Daphne. p 189
b Flowers not completely as in *a* 116
- 116 *a* Flowers yellow or yellowish; petals wanting 117
b Flowers white 120
- 117 *a* Stamens 5-10 118
b Stamens 4 119
- 118 *a* Stamens 5 or 10; leaves evergreen *Ledum*. p 195
b Stamens 8; leaves not evergreen *Dirca*. p 189
- 119 *a* Branches covered with whitish scales or hairs
Elaeagnus. p 189
b Branches covered with reddish or brownish scales
Hippophae. p 189
- 120 *a* Flowers solitary or 2 together in the axils.... *Ilex*. p 181
b Flowers in panicles or cymes 121
- 121 *a* Shrub 2-5 ft. high; leaves toothed; flowers in panicles
Ceanothus. p 184
b Shrub 8 ft. or more high; leaves entire; flowers in cymes *Cornus alternifolia*. p 194

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- 122 a Shrubs or trees with spines or thorns on the branches 123
 b Shrubs or trees not with spines or thorns on the
 branches 128
- 123 a Leaves evergreen; flowers about $\frac{1}{4}$ in. broad
Cotoneaster. p 167
 b Leaves not evergreen; flowers $\frac{1}{2}$ in. or more broad 124
- 124 a Shrub 2-6 ft. high; flowers 1-2 in. broad, scarlet to
 white *Cydonia.* p 168
 b Shrubs or trees 6 ft. or more high 125
- 125 a Ovary superior *Prunus americana.* p 169
 b Ovary inferior 126
- 126 a Flowers 1 in. or less broad *Crataegus.* p 167
 b Flowers 1-2 in. broad 127
- 127 a Flowers white *Pyrus.* p 167
 b Flowers pink or rose-colored *Malus floribunda.* p 169
- 128 a Leaves round-ovate; flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, in corymbs
Sorbus aria. p 167
 b Leaves and flowers not completely as in a 129
- 129 a Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad 130
 b Flowers $\frac{3}{4}$ -2 in. broad 135
- 130 a Shrubs cultivated for their flowers 131
 b Shrubs or trees not cultivated for the flowers 133
- 131 a Leaves round-ovate, heart-shaped at base, fragrant,
 appearing with the flowers *Prunus mahaleb.* p 169
 b Plants not completely as in a 132
- 132 a Leaves lobed usually below the middle, the middle lobe
 often notched at the apex, flowers on slender stalks;
 ovary inferior *Malus toringo.* p 168
 b Leaves and flowers not completely as in a .. *Spiraea.* p 163
- 133 a Shrub 1-3 ft. high; flowers in racemes; ovary inferior;
 leaves oval, usually rounded at both ends
Amelanchier spicata. p 168
 b Shrubs or trees not completely as in a 134
- 134 a Flowers in terminal, compound cymes; ovary inferior
Aronia. p 168
 b Flowers in lateral umbels or racemes; ovary superior
Prunus. p 169
- 135 a Flowers double, pink or rose-colored, usually appearing
 with or before the leaves 136
 b Flowers not double 139
- 136 a Flowers appearing before the leaves, usually solitary
Amygdalus pedunculata. p 170
 b Flowers appearing with the leaves, not solitary on the
 branch 137
- 137 a Flowers in terminal cymes *Malus spectabilis.* p 169
 b Flowers not in terminal cymes 138

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- 138 a Flowers on branched stalks in lateral umbels
Prunus pseudo-cerasus. p 170
 b Flowers 2-4 together, not on branched stalks
Amygdalus pumila. p 170
- 139 a Pistils 5; ovaries superior; flowers white. *Exochorda.* p 164
 b Flowers not completely as in a 140
- 140 a Style 1 to each flower; ovary superior 141
 b Styles 3-5 to each flower; ovary inferior 142
- 141 a Flowers pink *Amygdalus persica.* p 170
 b Flowers white *Prunus.* p 169
- 142 a Flowers in racemes; wild shrubs. *Amelanchier.* p 168
 b Flowers in lateral or terminal cymes, not in racemes.. 143
- 143 a Ovary woolly; tree cultivated for the fruit
Cydonia vulgaris. p 168
 b Ovaries not woolly 144
- 144 a Shrub or small tree cultivated for the flowers
Malus floribunda. p 169
 b Shrubs or trees cultivated for the edible fruit 145
- 145 a Flowers pink to white, the petals usually pink on the
 outside *Malus.* p 168
 b Flowers white, the petals not pink on the outside. *Pyrus.* p 167
- 146 a Corolla deeply saucer-shaped, 5-lobed, with 10 pouches
 on the tube *Kalmia.* p 195
 b Corolla not completely as in a 147
- 147 a Trailing shrubs 148
 b Erect trees or shrubs 151
- 148 a Flowers about $\frac{1}{2}$ in. long, hairy within, very fragrant
Epigaea. p 195
 b Flowers not completely as in a 149
- 149 a Leaves $\frac{1}{2}$ -1 in. long; ovary superior. *Arctostaphylos.* p 195
 b Leaves about $\frac{1}{4}$ in. long; ovary inferior 150
- 150 a Flowers white, solitary at the ends of the branches
Pyxidanthera. p 196
 b Flowers pink, in clusters of 2-6 *Oxycoccus.* p 196
- 151 a Flowers 1-2 in. broad 152
 b Flowers $\frac{3}{4}$ in. or less broad 153
- 152 a Corolla conspicuously 2-lipped; stamens 10; wild shrub
Rhodora. p 195
 b Corolla only slightly 2-lipped; stamens usually 5; wild
 or cultivated shrubs *Azalea.* p 195
- 153 a Small tree planted in parks; flowers bell-shaped, $\frac{1}{2}$ - $\frac{3}{4}$
 in. long, white *Mohrodendron.* p 198
 b Shrubs not completely as in a 154
- 154 a Leaves thick, evergreen 155
 b Leaves thin, deciduous 157

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- 155 *a* Flowers in terminal umbels; leaves white-glaucous beneath *Andromeda*. p 195
b Flowers in racemes; leaves not white-glaucous beneath 156
- 156 *a* Flowers in leafy racemes; leaves scurfy beneath
Chamaedaphne. p 195
b Flowers in naked racemes; leaves smooth beneath
Leucothoe catesbaei. p 195
- 157 *a* Leaves with yellow resin dots beneath. *Gaylussacia*. p 196
b Leaves not with yellow resin dots beneath 158
- 158 *a* Stamens very conspicuous, extending beyond the corolla;
corolla deeply 5-lobed *Polycodium*. p 196
b Stamens not extending beyond the corolla 159
- 159 *a* Corolla globose, much narrowed at the opening
Xolisma. p 195
b Corolla not globose, but sometimes narrowed at the
opening 160
- 160 *a* Ovary inferior *Vaccinium*. p 196
b Ovary superior 161
- 161 *a* Flowers about $\frac{1}{4}$ in. long, in dense 1-sided racemes
Leucothoe racemosa. p 195
b Flowers about $\frac{1}{2}$ in. long, in lateral umbels. *Pieris*. p 195

Herbs

- 162 *a* Herbs growing either floating or submerged in water 163
b Herbs not growing completely as in *a* 165
- 163 *a* Leaves linear, $\frac{1}{2}$ in. or more long. *Philotria*. p 112
b Leaves not completely as in *a* 164
- 164 *a* Leaves rounded, 3 in. or more broad; flowers solitary on
a stalk *Nymphaea*. p 151
b Leaves ovate, 5 in. or more long; flowers numerous
in a spike *Orontium*. p 132
- 165 *a* No part of plant green; plants parasitic 166
b Plants with green stem and green leaves 167
- 166 *a* Plant whitish; flowers solitary *Thalesia*. p 212
b Plant light-brown; flowers several. *Conopholis*. p 212
- 167 *a* Plant with a disagreeable, skunk-like odor; flowers
in a globose head surrounded by a shell-shaped, purple-
streaked spathe *Spathyema*. p 132
b Plants not completely as in *a* 168
- 168 *a* Leaves tubular, pitcher-like, with a terminal lid; plant
growing in bogs *Sarracenia*. p 160
b Leaves not as in *a* 169

Herbs With Flowers Greenish or Else Without a Distinct Perianth

- 169 *a* Flowers green or greenish or without a distinct perianth 170
b Flowers not as in *a* 204

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- 170 *a* Leaves grass-like, linear, usually $\frac{1}{4}$ in. or less broad,
 i in. or more long 171
b Leaves not completely as in *a* 179
- 171 *a* Flowers in spikes 172
b Flowers in terminal panicles or umbels 174
- 172 *a* Spike about $\frac{1}{4}$ in. long, solitary at the end of the
 flowering stalk *Eleocharis*. *p* 124
b Spikes not completely as in *a* 173
- 173 *a* Spike 1-3 in. long, somewhat flattened, the spikelets
 stalked; leaves fragrant when drying. *Anthoxanthum*. *p* 120
b Spikes not completely as in *a* *Carex*. *p* 125
- 174 *a* Leaves hairy; flowers in terminal umbels. *Juncoides*. *p* 133
b Leaves not hairy 175
- 175 *a* Flowers in top-shaped heads, arranged in terminal
 umbels *Juncus*. *p* 132
b Flowers not in top-shaped heads; spikelets arranged
 in panicles 176
- 176 *a* Spikelets of panicle each with several awns about $\frac{1}{2}$
 in. long *Bromus tectorum*. *p* 120
b Spikelets of panicle not completely as in *a* 177
- 177 *a* Outer scales of spikelets shining; grass fragrant
 *Savastana*. *p* 121
b Outer scales of spikelets not shining, grasses not fragrant 178
- 178 *a* Spikelet 1-flowered, comparatively broad, blunt at apex
 *Oryzopsis*. *p* 120
b Spikelet 2-6-flowered, tapering to apex *Poa*. *p* 122
- 179 *a* Flowers arranged compactly on a spadix which is sur-
 rounded or subtended by a leaf-like, often colored
 spathe 180
b Flowers not arranged completely as in *a* 182
- 180 *a* Spathe white, subtending but not surrounding the spadix
 *Calla*. *p* 131
b Spathe surrounding the spadix 181
- 181 *a* Leaves compound, with 3 leaflets *Arisaema*. *p* 131
b Leaves simple, arrow-shaped *Peltandra*. *p* 131
- 182 *a* Flowers in a compact spike which appears lateral on
 a flattened flowering stalk; leaves sword-shaped
 *Acorus*. *p* 132
b Plants not completely as in *a* 183
- 183 *a* Flowers arranged in globose heads $\frac{1}{2}$ in. or more in
 diameter; leaves usually 1 ft. or more long, linear
 *Sparganium*. *p* 110
b Plants not completely as in *a* 184
- 184 *a* Leaves in 1 or 2 whorls on an upright stem; leaves
 1-4 in. long, ovate to lanceolate *Medeola*. *p* 136
b Plants not completely as in *a* 185

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- 185 *a* Leaves all basal 186
b Leaves not all basal 187
- 186 *a* Flowers very small in a terminal compact spike
Plantago. p 213
b Flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, irregular, in a raceme
Leptorchis. p 139
- 187 *a* Plants prostrate on the ground 188
b Plants more or less erect 189
- 188 *a* Leaves ovate or rounded, short-petioled; anthers orange-red *Chrysosplenium*. p 161
b Leaves awl-shaped, not petioled..... *Scleranthus*. p 151
- 189 *a* When cut or broken, the plant exudes a milky juice.. 190
b Plants without a milky juice 191
- 190 *a* Leaves 2-5 in. long, 1-3 in. broad; flowers in umbels
Asclepias. p 200
b Plants not completely as in *a* *Euphorbia*. p 180
- 191 *a* Leaves compound, the leaflets sometimes petioled.... 192
b Leaves simple 196
- 192 *a* Leaves palmately compound; leaflets 3-11, 1-4 in. long 193
b Leaves not completely as in *a* 194
- 193 *a* Flowers 1-3 in. broad *Helleborus*. p 152
b Flowers $\frac{1}{4}$ in. or less broad.. *Sanicula marylandica*. p 192
- 194 *a* Leaflets 2-4 in. long, toothed *Aralia*. p 190
b Leaflets $\frac{1}{2}$ -2 in. long, somewhat lobed toward apex.. 195
- 195 *a* Flowers perfect; sepals 6; petals 6; stamens 6
Caulophyllum. p 154
b Flowers imperfect; perianth 4 or 5 parted; stamens numerous *Thalictrum*. p 154
- 196 *a* Leaves mostly basal, 4-10 in. long, oblanceolate; flowers in a panicle *Saxifraga pennsylvanica*. p 161
b Plants not completely as in *a* 197
- 197 *a* Leaves with toothed, lobed, or wavy margins 198
b Leaves with entire margins 199
- 198 *a* Leaves rounded, with 7-9 rounded lobes.. *Heuchera*. p 161
b Leaves not rounded *Rumex*. p 145
- 199 *a* Leaves ovate, 3-12 in. long, not all basal; flowers $\frac{1}{2}$ -1 in. broad *Veratrum*. p 133
b Plants not completely as in *a* 200
- 200 *a* Leaf-like branches narrowly linear; leaves scale-like; flowers about $\frac{1}{4}$ in. long *Asparagus*. p 135
b Plants not completely as in *a* 201
- 201 *a* Leaves 3-4, basal, 4-8 in. long; flowers $\frac{1}{2}$ -1 in. long
Clintonia. p 135
b Plants not completely as in *a* 202
- 202 *a* Plant with tendrils; flowers with disagreeable odor
Smilax herbacea. p 136
b Plants not with tendrils 203

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- 203 *a* Flowers $\frac{3}{4}$ in. or more long; leaves 1-3 in. long
Uvularia. p 133
b Flowers $\frac{1}{4}$ - $\frac{3}{4}$ in. long; leaves 2-6 in. long. *Salomonina.* p 136

Terrestrial Green Herbs With Distinctly Yellow Flowers

- 204 *a* Flowers yellow, not at all red or merely with a yellow center 205
b Flowers not yellow 251
- 205 *a* Flowers very irregular, one petal modified into a swollen sac 1 in. or more long *Cypripedium.* p 138
b Flowers not completely as in *a* 206
- 206 *a* Leaves in 1 or 2 whorls on an upright stem; flowers $\frac{1}{2}$ -1 in. broad, in umbels *Medeola.* p 136
b Plants not completely as in *a* 207
- 207 *a* Leaves grass-like; perianth greenish outside. *Hypoxis.* p 136
b Leaves not grass-like 208
- 208 *a* Flowers very small, usually sessile, arranged in a more or less compact head 209
b Flowers not completely as in *a* 220
- 209 *a* Leaves 3-foliolate 210
b Leaves not 3-foliolate; heads subtended by an involucre of green bracts 211
- 210 *a* Stipules toothed at the base; achenes black when ripe
Medicago lupulina. p 175
b Stipules not toothed at the base *Trifolium.* p 175
- 211 *a* Leaves all basal, pinnatifid; flowering stalk hollow
Taraxacum. p 219
b Plants not completely as in *a* 212
- 212 *a* Stem very hairy; leaves bract-like, the basal leaves wanting at flowering time *Tussilago.* p 238
b Plants not completely as in *a* 213
- 213 *a* Plant white-woolly throughout; leaves entire. *Gifola.* p 233
b Plants not completely as in *a* 214
- 214 *a* When open all flowers in the head irregular with strap-shaped corollas, as in the Dandelion 215
b When open only the outer flowers in the head irregular, the inner ones regular and tubular, as in the Daisy.. 218
- 215 *a* Flowering stalk with 1 head 216
b Flowering stalk with 2 or more heads 217
- 216 *a* Basal leaves entire; head 1-2 in. broad
Hieracium pilosella. p 220
b Basal leaves usually toothed or pinnatifid; heads $\frac{1}{4}$ - $\frac{3}{4}$ in. broad *Adopogon carolinianum.* p 219
- 217 *a* Basal leaves with purplish veins; stem leaves not clasping at the base *Hieracium venosum.* p 220
b Basal leaves not with purplish veins; stem leaves clasping at the base *Adopogon virginicum.* p 219

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- 218 *a* Heads 2-4 in. broad; plant clothed with long hairs throughout; leaves usually entire.. *Rudbeckia hirta*. p 234
b Plants not completely as in *a* 219
- 219 *a* Outer flowers with the corolla 3-7 lobed or toothed at apex; lower leaves oblong or linear.. *Coreopsis*. p 235
b Plants not completely as in *a* *Senecio*. p 238
- 220 *a* Flowers irregular 221
b Flowers regular 227
- 221 *a* Leaves compound; leaflets 6-10, with tendrils
Lathyrus ochroleucus. p 174
b Leaves not completely as in *a* 222
- 222 *a* Flowers in a terminal spike or raceme 223
b Flowers solitary on axillary stalks 225
- 223 *a* Leaves entire *Schwalbea*. p 212
b Leaves compound or lobed 224
- 224 *a* Leaves pinnately parted or lobed *Pedicularis*. p 212
b Leaves doubly compound; leaflets linear. *Capnoides*. p 155
- 225 *a* Leaves opposite, linear-lanceolate to ovate
Melampyrum. p 212
b Leaves alternate, broadly ovate to heart-shaped 226
- 226 *a* Plant very hairy; stipules ovate.... *Viola pubescens*. p 188
b Plant not noticeably hairy; stipules lanceolate
Viola scabriuscula. p 188
- 227 *a* Perianth 6-parted, undifferentiated; stamens 6; leaves entire 228
b Plants not completely as in *a* 230
- 228 *a* Flowers solitary on the flowering stalk; leaves usually mottled *Erythronium*. p 135
b Plants not completely as in *a* 229
- 229 *a* Leaves basal; flowers in umbels *Clintonia*. p 135
b Leaves not basal; flowers solitary or 2 together
Uvularia. p 133
- 230 *a* Sepals 4; petals 4; stamens 6 231
b Flowers not completely as in *a* 235
- 231 *a* Basal leaves with terminal lobe only 1 or 2 times larger than the lateral lobes *Roripa palustris*. p 158
b Basal leaves with terminal lobe several times larger than the lateral lobes 232
- 232 *a* Flowers about $\frac{1}{4}$ in. broad, showy and densely clustered at top of spike; leaves dark green, often shining above, not hairy *Barbarea barbarea*. p 158
b Plants not completely as in *a* 233
- 233 *a* Upper leaves with bases clasping the stem
Brassica campestris. p 158
b Upper leaves not as in *a* 234
- 234 *a* Flowers $\frac{1}{4}$ in. or less broad *Sisymbrium*. p 157
b Flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad *Brassica*. p 158

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- 235 *a* Ovary inferior 236
b Ovary superior 239
- 236 *a* Petals 4; flowers 1-2 in. broad *Kneiffia*. *p* 190
b Petals usually 5; flowers about $\frac{1}{4}$ in. or less broad.... 237
- 237 *a* Leaves simple, linear, arranged in whorls. *Galium verum*. *p* 214
b Leaves not completely as in *a* 238
- 238 *a* Fruit or ovary conspicuously winged, not flattened
Thaspium. *p* 193
b Fruit not winged, somewhat flattened *Zizia*. *p* 193
- 239 *a* When broken plant exudes a yellow juice. *Chelidonium*. *p* 155
b Plants not as in *a* 240
- 240 *a* Stamens 15 or more 241
b Stamens 10 or less 248
- 241 *a* Perianth not differentiated into a green calyx and
colored corolla *Caltha*. *p* 152
b Perianth differentiated into green calyx and colored
corolla 242
- 242 *a* Pistils 1-6 243
b Pistils 10 or more 244
- 243 *a* Leaves compound, chiefly basal *Waldsteinia*. *p* 165
b Leaves simple *Helianthemum*. *p* 186
- 244 *a* Calyx with distinct sepals which readily pull off
Ranunculus. *p* 153
b Calyx more or less united at the base, the lobes not
readily pulled off 245
- 245 *a* Leaves pinnately divided; flowers $\frac{1}{4}$ in. or less broad
Geum vernum. *p* 165
b Leaves palmately divided 246
- 246 *a* Plants erect *Potentilla*. *p* 165
b Plants prostrate or ascending 247
- 247 *a* Leaflets 3 *Duchesnea*. *p* 165
b Leaflets usually 5 or more, or a few leaves with 3
Potentilla. *p* 165
- 248 *a* Leaves compound with 3 inversely heart-shaped leaflets
Oxalis. *p* 178
b Leaves not as in *a* 249
- 249 *a* Leaves opposite *Naumbergia*. *p* 198
b Leaves alternate 250
- 250 *a* Style thread-like, much exerted *Onosmodium*. *p* 203
b Style not thread-like or exerted..... *Lithospermum*. *p* 203

Terrestrial Green Herbs With Flowers Neither Green nor Yellow

- 251 *a* Several small flowers collected into a dense head which
is subtended by an involucre of bracts, as in the Daisy,
not as in the Clover 252
b Flowers not arranged completely as in *a* 261

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- 252 a At least the outer flowers of the head with strap-shaped corollas 253
 b None of the flowers of the head with strap-shaped corollas 256
- 253 a Leaves pinnately divided into linear or lanceolate segments *Anthemis arvensis*. p 237
 b Leaves not completely as in a 254
- 254 a Leaves basal *Bellis*. p 230
 b Leaves not all basal 255
- 255 a Heads 1-2 in. broad; ray flowers white; leaves often pinnatifid *Chrysanthemum*. p 237
 b Plants not completely as in a *Erigeron*. p 233
- 256 a Leaves with spiny-toothed margins *Cnicus*. p 240
 b Leaves not as in a 257
- 257 a Leaves basal or wanting at flowering time; flowers pink to purple; heads arranged in dense racemes
Petasites. p 238
 b Plants not completely as in a 258
- 258 a Leaves not white-woolly beneath; plant 1-4 ft. high
Erigeron ramosus. p 233
 b Leaves white-woolly beneath 259
- 259 a Bracts of involucre yellow *Gifola*. p 233
 b Bracts of involucre not yellow 260
- 260 a No conspicuous basal leaves. *Gnaphalium purpureum*. p 234
 b Both basal and stem leaves present *Antennaria*. p 233
- 261 a Flowers irregular 262
 b Flowers regular 291
- 262 a Ovary inferior; leaves entire 263
 b Ovary superior 265
- 263 a Flowers with a large inflated lip 1 in. or more long, pink *Cypripedium*. p 138
 b Flowers not completely as in a 264
- 264 a Leaves ovate, 2-5 in. long; flowers 3-6 together
Galeorchis. p 138
 b Leaves linear, 4-6 in. long; flowers usually solitary
Arethusa. p 139
- 265 a Flowers with the petals distinct 266
 b Flowers with the corolla or colored parts of the perianth tubular 274
- 266 a Leaves compound 267
 b Leaves simple 271
- 267 a Leaves palmately compound; leaflets 7-11. *Lupinus*. p 174
 b Leaves pinnately compound or with 3 leaflets 268
- 268 a Leaves tendril-bearing at the ends 269
 b Leaves not tendril-bearing at the ends 270

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- 269 *a* Some stipules $\frac{1}{2}$ in. or more long, sharply toothed only
at the base *Lathyrus*. p 174
- b* Stipules usually less than $\frac{1}{2}$ in. long or else toothed all
around *Vicia*. p 174
- 270 *a* Leaves doubly compound; flowers in racemes
Capnoides. p 155
- b* Leaves 3-foliolate; flowers in heads.... *Trifolium*. p 175
- 271 *a* Plants 5 ft. or more long, twining.... *Aristolochia*. p 145
- b* Plants less than 5 ft. long, not twining 272
- 272 *a* Flowers without a spur; leaves clustered near the top
of stem *Polygala paucifolia*. p 179
- b* Flowers with 1 petal spurred or sac-like 273
- 273 *a* Lower petal sac-like; flowers about $\frac{1}{4}$ in. long
Cubelium. p 188
- b* Lower petal spurred; flowers more than $\frac{1}{4}$ in. long
Viola. p 187
- 274 *a* Corolla with a spur at the base.... *Linaria canadensis*. p 210
- b* Corolla not spurred at the base 275
- 275 *a* All of stem leaves alternate 276
- b* Some or all of stem leaves opposite or in whorls 278
- 276 *a* Bracts subtending the flowers very conspicuous, scarlet
Castilleja. p 212
- b* Bracts subtending the flowers not scarlet 277
- 277 *a* Leaves pinnately lobed or divided..... *Pedicularis*. p 212
- b* Leaves not pinnately lobed or divided... *Schwalbea*. p 212
- 278 *a* Leaves in a whorl near the summit of the stem
Polygala paucifolia. p 179
- b* Leaves opposite, rarely in whorls 279
- 279 *a* Calyx with a protuberance on the upper side
Scutellaria. p 205
- b* Calyx not with a protuberance as in *a* 280
- 280 *a* Flowers solitary or few together in the axils of the
leaves, not in racemes 281
- b* Flowers not arranged as in *a* 286
- 281 *a* Flowers less than $\frac{1}{4}$ in. long, usually as broad as long
Veronica. p 211
- b* Flowers $\frac{1}{4}$ in. or more long, usually longer than broad 282
- 282 *a* Plants creeping, with rounded or ovate-heart-shaped
leaves 283
- b* Plants erect or ascending; leaves not rounded 284
- 283 *a* Upper lip of corolla 2-lobed or notched; calyx about
15-nerved *Glecoma*. p 206
- b* Upper lip of corolla entire; calyx 5-nerved. *Lamium*. p 206
- 284 *a* Calyx 4-toothed; stamens 4 *Melampyrum*. p 212
- b* Calyx 5-lobed or 5-parted; stamens 2 285

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- 285 *a* Flowers whitish; calyx subtended by 2 bractlets
Gratiola. p 211
b Flowers purplish; calyx not subtended by 2 bractlets
Ilysanthes. p 211
- 286 *a* Conspicuous, ovate, entire, overlapping bracts subtending each 1-3 flowers; spike 1-4 in. long....*Prunella.* p 206
b Bracts subtending the flowers not completely as in *a.* 287
- 287 *a* Flowers $\frac{3}{4}$ -1 in. long 288
b Flowers $\frac{1}{2}$ in. or less long 289
- 288 *a* Stamens 2, the connective of the anther elongated and hinged to the filament*Salvia.* p 206
b Stamens 4, not as in *a**Penstemon.* p 210
- 289 *a* Stamens 4; flowers in panicles*Scrophularia.* p 210
b Stamens 2; flowers in spikes or racemes 290
- 290 *a* Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. long, in dense long-stalked spikes
Dianthera. p 213
b Flowers $\frac{1}{4}$ in. or less long*Veronica.* p 211
- 291 *a* Leaves linear, thick, with onion-like odor..*Allium.* p 133
b Leaves not with an onion-like odor 292
- 292 *a* Perianth parts 3 or 6, not tubular; stamens 3 or 6 293
b Flowers not completely as in *a* 303
- 293 *a* Ovary inferior; flowers usually blue 294
b Ovary superior 295
- 294 *a* Flowers $\frac{3}{4}$ in. or less broad*Sisyrinchium.* p 138
b Flowers 1 in. or more broad*Iris.* p 137
- 295 *a* Flowers blue, purplish, or rose-colored 296
b Flowers not colored as in *a* 298
- 296 *a* Flowers 1-2 in. broad, subtended by leaf-like bracts
Tradescantia. p 132
b Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad 297
- 297 *a* Flowers in dense terminal racemes*Helonias.* p 133
b Flowers solitary or 2 together*Streptopus.* p 136
- 298 *a* Flowers about $\frac{1}{4}$ in. or less broad 299
b Flowers $\frac{1}{2}$ in. or more broad 301
- 299 *a* Both basal and stem leaves present; flowers in wand-like racemes*Chamaelirium.* p 133
b Only stem leaves present 300
- 300 *a* Plants with tendrils*Smilax.* p 136
b Plants not with tendrils*Vagnera* p 135
- 301 *a* Leaves 3 in a terminal whorl*Trillium.* p 136
b Leaves mostly basal 302
- 302 *a* Leaves lanceolate; flowers solitary
Erythronium albidum. p 135
b Leaves linear, thick; flowers in umbels.*Ornithogalum.* p 135
- 303 *a* When broken plants exude a milky juice 304
b When broken plants do not exude a milky juice 305

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- 304 a Flowers with 5 petal-like hoods inside and alternate
with the petals *Asclepias*. p 200
b Flowers not completely as in a *Euphorbia*. p 180
- 305 a Petals or colored parts of the perianth joined into a
tube at least at the base 306
b Petals or perianth parts distinct, not joined into a tube 338
- 306 a Perianth 6-lobed; flowers blue; leaves basal, linear, thick
Muscari. p 135
b Plants not completely as in a 307
- 307 a Leaves clustered in a single whorl at the top of the
stem *Trientalis*. p 198
b Leaves not clustered as in a 308
- 308 a Leaves all basal, 3-foliolate *Menyanthes*. p 199
b Leaves not all basal 309
- 309 a Leaves opposite or in whorls on the stem 310
b All leaves alternate 320
- 310 a Flowers solitary or 2 together in the axils of the leaves 311
b Flowers not completely as in a 317
- 311 a Flowers 2 together in the axils, their ovaries united;
leaves thick *Mitchella*. p 213
b Plants not completely as in a 312
- 312 a Leaves rounded; flowers purplish; roots spicy
Asarum. p 145
b Plants not completely as in a 313
- 313 a Ovary inferior 314
b Ovary superior 315
- 314 a Flowers violet or blue; plant 1 ft. or less high
Houstonia. p 213
b Flowers purplish-brown; plant 2 ft. or more high
Triosteum. p 215
- 315 a Flowers with perianth lobes fringed *Mitella*. p 161
b Flowers with perianth lobes not fringed 316
- 316 a Flowers $\frac{3}{4}$ in. or more broad, usually blue; leaves
thick, evergreen *Vinca*. p 200
b Flowers about $\frac{1}{4}$ in. broad, scarlet or white; leaves
not evergreen *Anagallis*. p 198
- 317 a Ovary inferior 318
b Ovary superior 319
- 318 a Leaves opposite *Houstonia*. p 213
b Leaves in whorls *Galium*. p 213
- 319 a Corolla tube much shorter than the lobes
Sabbatia campanulata. p 199
b Corolla tube nearly as long as the lobes *Phlox*. p 202
- 320 a Creeping plant with rounded leaves; perianth 3-lobed,
purplish; roots spicy *Asarum*. p 145
b Plants not completely as in a 321

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- 321 *a* Ovary inferior; leaves rounded with clasping bases
Specularia. p 217
b Ovary superior 322
- 322 *a* Flowers about $\frac{1}{4}$ in. or less broad 323
b Flowers $\frac{1}{2}$ in. or more broad 330
- 323 *a* Leaves lobed or pinnately compound. *Hydrophyllum*. p 202
b Leaves entire or wavy-toothed 324
- 324 *a* Corolla tube closed by 5 scales attached opposite the
corolla lobes 325
b Corolla tube not completely as in *a* 326
- 325 *a* Nutlets spreading or divergent, entirely covered with
prickles *Cynoglossum*. p 202
b Nutlets erect or incurved, covered on the back and
margins with prickles *Lappula*. p 202
- 326 *a* Styles thread-like, much exerted; corolla lobes erect
Onosmodium. p 203
b Styles not completely as in *a*; corolla lobes spreading 327
- 327 *a* Flowers in racemes 328
b Flowers in umbels or panicles 329
- 328 *a* Racemes with numerous leafy bracts... *Lithospermum*. p 203
b Racemes not with numerous leafy bracts... *Myosotis*. p 203
- 329 *a* Flowers in panicles; perianth differentiated. *Samolus*. p 197
b Flowers in umbels; perianth not differentiated
Comandra. p 145
- 330 *a* Leaves pinnately compound 331
b Leaves not pinnately compound 332
- 331 *a* Flowers in panicles; stamens alternate with the corolla
lobes *Polemonium*. p 202
b Flowers not completely as in *a* *Solanum*. p 208
- 332 *a* Climbing or trailing vines 333
b Erect herbs 335
- 333 *a* Flowers about $\frac{1}{2}$ in. broad with 2 greenish spots at
the base of each corolla lobe. *Solanum dulcamara*. p 209
b Flowers 1 in. or more broad 334
- 334 *a* Leaves usually heart-shaped at base; stigma globose
Ipomoea. p 201
b Leaves not usually heart-shaped at base; stigma 2-lobed
Convolvulus. p 201
- 335 *a* Flowers 3-7 in. long *Datura*. p 209
b Flowers 2 in. or less long 336
- 336 *a* Corolla salver-shaped with lobes spreading at right
angles to the corolla tube *Phlox*. p 202
b Corolla rather funnel-shaped 337
- 337 *a* Flowers about 1 in. long *Mertensia*. p 202
b Flowers $\frac{1}{2}$ in. or less long *Cynoglossum*. p 202
- 338 *a* Two or more petals with a spur at the base 339
b None of the petals with a spur at the base 340

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- 339 *a* 5 spurs to each flower; flowers reddish
Aquilegia canadensis. p 152
b 2 spurs to each flower; flowers whitish... *Bicuculla.* p 155
- 340 *a* Leaves simple with entire or toothed, not lobed, margins 341
b Leaves compound, dissected, or lobed, or sometimes
wanting at flowering time 361
- 341 *a* Some or all of leaves opposite or in whorls on the stem 342
b All leaves alternate or all basal 350
- 342 *a* Leaves in a single whorl beneath the single white flower
Syndesmon. p 153
b Plants not completely as in *a* 343
- 343 *a* Flowers with 2 sepals; leaves usually 2, linear, 3-8 in.
long *Claytonia.* p 149
b Plants not completely as in *a* 344
- 344 *a* Calyx tubular with 4 or more lobes or teeth; flowers
pink *Silene caroliniana.* p 149
b Calyx with separate sepals, or sepals wanting 345
- 345 *a* Petals 5, deeply notched, appearing like 10 346
b Petals 5, not deeply notched 347
- 346 *a* Leaves ovate; styles 3 *Alsine media.* p 150
b Leaves oblong to linear, sometimes obovate; styles 5
Cerastium. p 150
- 347 *a* Stamens the same number as the sepals..... *Sagina.* p 151
b Stamens twice as many as the sepals 348
- 348 *a* Leaves about $\frac{1}{4}$ in. long, awl-shaped to ovate
Arenaria. p 151
b Leaves $\frac{1}{2}$ in. or more long 349
- 349 *a* Leaves 1-4 in. long, all basal.. *Saxifraga virginiana.* p 161
b Leaves $\frac{1}{2}$ -1 in. long, oval to oblong... *Moehringia.* p 151
- 350 *a* Perianth not differentiated into green calyx and colored
corolla; flowers white *Unifolium.* p 135
b Perianth differentiated into green calyx and colored
corolla 351
- 351 *a* Petals 4; sepals 4; stamens usually 6 352
b Petals 5 or more 358
- 352 *a* Pods or ovaries usually less than twice as long as broad 353
b Pods or ovaries elongated, usually more than twice as
long as broad 354
- 353 *a* Flowers purple, about $\frac{3}{4}$ in. broad *Lunaria.* p 160
b Flowers white, $\frac{1}{2}$ in. or less broad. *Roripa armoracia.* p 158
- 354 *a* Flowers $\frac{3}{4}$ -1 in. broad, purple or white, fragrant
Hesperis. p 159
b Flowers $\frac{1}{2}$ in. or less broad 355
- 355 *a* Basal leaves usually rounded; root bulbous
Cardamine bulbosa. p 159
b Basal leaves not rounded 356

KEY FOR MARCH, APRIL AND MAY

- 356 a Plants usually 1 ft. or more high; stem leaves present
Arabis. p 159
 b Plants 1 ft. or less high; stem leaves usually absent.. 357
- 357 a Basal leaves 1-2 in. long; pods $\frac{1}{2}$ -1 in. long
Stenophragma. p 159
 b Basal leaves 1 in. or less long; pods $\frac{1}{4}$ - $\frac{1}{2}$ in. long
Draba. p 159
- 358 a Leaves thick and fleshy*Sedum ternatum.* p 161
 b Leaves not as in a 359
- 359 a Leaves rounded-heart-shaped*Malva.* p 185
 b Leaves obovate to oval 360
- 360 a Leaves obovate to oval, all basal
Saxifraga virginensis. p 161
 b Leaves obovate, not all basal*Samolus.* p 197
- 361 a Ovary inferior; flowers in umbels; petals 5; stamens 5 362
 b Ovary superior; flowers not completely as in a 366
- 362 a Leaves 3; leaflets 3-5; umbels at summit of plant
Panax. p 191
 b Plants not completely as in a 363
- 363 a Ovary covered with coarse hairs or bristles 364
 b Ovary either smooth or covered with fine hairs 365
- 364 a Ovary ovoid, covered with hooked bristles
Sanicula marylandica. p 192
 b Ovary linear, covered with coarse hairs.*Washingtonia.* p 193
- 365 a Leaflets ovate, not dissected*Chaerophyllum.* p 193
 b Leaves finely dissected into linear segments..*Carum.* p 193
- 366 a When broken, plant exudes a reddish juice; flowers
 white*Sanguinaria.* p 155
 b Plants not completely as in a 367
- 367 a Perianth not differentiated into green calyx and colored
 corolla 368
 b Perianth differentiated into green calyx and colored
 corolla 374
- 368 a Flowers reddish, about $\frac{1}{8}$ in. broad; leaves with basal
 lobes*Rumex acetosella.* p 145
 b Flowers not completely as in a 369
- 369 a Flowers about 2 in. broad, borne singly in the axils of
 the 2 umbrella-shaped leaves*Podophyllum.* p 154
 b Plants not completely as in a 370
- 370 a All leaves basal or wanting at flowering time 371
 b Stem leaves present 372
- 371 a Leaves 3-lobed or wanting; flowers subtended by bract-
 like involucre*Hepatica.* p 153
 b Leaves 3-foliolate *Coptis.* p 152
- 372 a Flowers in compact or elongated racemes or spikes
Actaea. p 152
 b Flowers solitary on elongated stalks 373

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- 373 a Leaflets rounded or oblong, somewhat 3-lobed
Syndesmon. p 153
 b Leaflets variously toothed, lobed or divided, not as in a
Anemone. p 152
- 374 a Sepals 4; petals 4 375
 b Sepals 5 or more 379
- 375 a Leaves palmately 3-5-divided; flowers white or pink
Dentaria. p 159
 b Leaves not palmately divided 376
- 376 a Pods or ovaries triangular, notched at apex. *Bursa.* p 159
 b Pods or ovaries not triangular 377
- 377 a Pods or ovaries rounded, much flattened. *Lepidium.* p 157
 b Pods or ovaries much longer than broad, not rounded. 378
- 378 a Stem leaves linear to lanceolate, usually entire or slightly
 toothed *Arabis.* p 159
 b Stem leaves usually pinnately divided. *Cardamine.* p 159
- 379 a Calyx lobes 2 or 3; petals 2 or 3; stamens 4-6. *Floerkea.* p 181
 b Flowers not completely as in a 380
- 380 a Stamens 5-10 381
 b Stamens 15 or more 383
- 381 a Petals 6, smaller than the 6 sepals; stamens 6
Caulophyllum. p 154
 b Petals 5, larger than the sepals; stamens 5-10 382
- 382 a Leaves with 3 leaflets, each leaflet inversely heart-shaped
Oxalis acetosella. p 178
 b Leaves dissected or divided, not with 3 leaflets
Geranium. p 177
- 383 a Leaves 3-lobed, all basal, or sometimes wanting at
 flowering time; flowers with 3 sepal-like bracts
Hepatica. p 153
 b Plants not completely as in a 384
- 384 a Leaves with 3 leaflets; flowers white 385
 b Leaves not with 3 leaflets 386
- 385 a Pistils 5 *Porteranthus.* p 164
 b Pistils numerous *Fragaria.* p 164
- 386 a Leaves compound with several leaflets. *Geum.* p 165
 b Leaves with 5-9 rounded lobes 387
- 387 a Leaves mainly basal; flowers white *Tiarella.* p 161
 b Leaves not mainly basal; flowers purplish. *Malva* p 185

II

Key to the Wild Plants and Cultivated Trees and Shrubs Which Flower from June to November

- | | | | |
|----|----------|---|----------------------------|
| 1 | <i>a</i> | Trees, shrubs, and woody vines | 2 |
| | <i>b</i> | Herbaceous plants | 129 |
| 2 | <i>a</i> | Leaves about $\frac{1}{8}$ in. or less broad | 3 |
| | <i>b</i> | Leaves $\frac{1}{4}$ in. or more broad | 5 |
| 3 | <i>a</i> | Small tree 6 ft. or more high; branches often plume-like
<i>Tamarix.</i> p 186 | |
| | <i>b</i> | Shrubs 3 ft. or less high | 4 |
| 4 | <i>a</i> | Cultivated shrub; leaves in 4 rows on the stem
<i>Calluna.</i> p 195 | |
| | <i>b</i> | Wild shrubs; leaves not in 4 rows on the stem
<i>Hudsonia.</i> p 186 | |
| 5 | <i>a</i> | Leaves opposite on the branches | 6 |
| | <i>b</i> | Leaves alternate on the branches | 36 |
| 6 | <i>a</i> | Leaves compound | 7 |
| | <i>b</i> | Leaves simple | 12 |
| 7 | <i>a</i> | Flowers regular, funnel-shaped, about 2 in. broad
<i>Tecoma.</i> p 212 | |
| | <i>b</i> | Flowers not completely as in <i>a</i> | 8 |
| 8 | <i>a</i> | Leaves palmately compound; flowers irregular
<i>Aesculus.</i> p 183 | |
| | <i>b</i> | Leaves pinnately compound; flowers regular | 9 |
| 9 | <i>a</i> | Flowers white, in cymes | <i>Sambucus.</i> p 214 |
| | <i>b</i> | Flowers not in cymes | 10 |
| 10 | <i>a</i> | Stamens 2; perianth white or wanting..... | <i>Fraxinus.</i> p 198 |
| | <i>b</i> | Stamens 5 or more; perianth greenish | 11 |
| 11 | <i>a</i> | Leaflets usually 5, coarsely toothed; flowers in clusters
or racemes | <i>Acer negundo.</i> p 182 |
| | <i>b</i> | Leaflets 7-17, finely toothed; flowers in panicles
<i>Phellodendron.</i> p 179 | |
| 12 | <i>a</i> | Tree with violet, tubular flowers 2 in. or more long
<i>Paulownia.</i> p 210 | |
| | <i>b</i> | Trees or shrubs not completely as in <i>a</i> | 13 |
| 13 | <i>a</i> | Shrubs with showy yellow flowers about 1 in. long
<i>Forsythia.</i> p 198 | |
| | <i>b</i> | Shrubs or trees not completely as in <i>a</i> | 14 |

KEY FOR JUNE TO NOVEMBER

- 14 *a* Flowers without a perianth 15
b Flowers with a perianth 16
- 15 *a* Shrub growing on salt marshes; leaves ovate to oblong
Iva. p 221
b Cultivated tree; leaves round-heart-shaped
Cercidiphyllum. p 152
- 16 *a* Tree with irregular flowers 1 in. or more long, often
 spotted; leaves heart-shaped, 3-8 in. broad. *Catalpa*. p 212
b Shrubs or trees not completely as in *a* 17
- 17 *a* Flowers white, tubular, arranged in compact globose
 heads *Cephalanthus*. p 213
b Flowers not completely as in *a* 18
- 18 *a* Stamens 20-40; flowers white, 1 in. or more broad.... 19
b Stamens 10 or less; flowers not completely as in *a*.... 20
- 19 *a* Calyx-lobes toothed, nearly as long as the petals
Rhodotypos. p 164
b Calyx-lobes much smaller than the petals
Philadelphus. p 162
- 20 *a* Flowers dark purple, 1-2 in. broad *Butneria*. p 154
b Flowers not completely as in *a* 21
- 21 *a* Corolla deeply saucer-shaped, 5-lobed, with 10 pouches
 on the tube *Kalmia*. p 195
b Flowers not completely as in *a* 22
- 22 *a* Flowers greenish, about $\frac{1}{4}$ in. broad 23
b Flowers not completely as in *a* 25
- 23 *a* Leaves thick, evergreen, usually variegated.. *Aucuba*. p 194
b Leaves not evergreen 24
- 24 *a* Prostrate shrub about 1 ft. high.. *Euonymus obovatus*. p 182
b Erect shrubs or trees *Acer*. p 182
- 25 *a* Flowers in heads subtended by 4 large bracts usually
 $\frac{1}{2}$ in. or more long *Cornus*. p 193
b Flowers not completely as in *a* 26
- 26 *a* Stamens 10, or the flowers double *Deutzia*. p 162
b Stamens 5 or less 27
- 27 *a* Stamens 2 28
b Stamens 4 or 5, or wanting 31
- 28 *a* Corolla with an elongated tube and 4 spreading lobes. 29
b Corolla deeply 4-lobed, nearly to the base 30
- 29 *a* Shrubs often planted in hedges; flowers not fragrant;
 leaves thick, dark green, ovate to oblong. *Ligustrum*. p 199
b Shrubs not planted in hedges; flowers often fragrant;
 leaves not completely as in *a* *Syringa*. p 199
- 30 *a* Leaves 2-4 in. long, lanceolate to ovate; flowers in leafy
 panicles *Fontanesia*. p 199
b Leaves 3-8 in. long, oval to oblong; flowers in loose
 panicles *Chionanthus*. p 199

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- 31 *a* Flowers more or less irregular *Lonicera*. p 215
b Flowers regular 32
- 32 *a* Flowers $\frac{1}{2}$ in. or more long, yellow or rose-colored
Dierwillia. p 216
b Flowers $\frac{1}{2}$ in. or less long, white, rarely yellow..... 33
- 33 *a* Stamens 8-10, or wanting in sterile flowers; flowers pink
to lavender, sometimes white *Hydrangea*. p 162
b Stamens 4 or 5; flowers white 34
- 34 *a* Low shrubs 3 ft. or less high; leaves entire; corolla
tubular with spreading lobes..... *Symphoricarpos*. p 215
b Shrubs or trees not completely as in *a* 35
- 35 *a* Leaves with toothed or lobed margins; petals usually 5
Viburnum p 214
b Leaves with entire margins; petals usually 4. *Cornus*. p 193

Woody Vines With Alternate Leaves

- 36 *a* Climbing woody vines 37
b Erect or prostrate shrubs or trees 46
- 37 *a* Leaves compound 38
b Leaves simple, with entire, toothed, or lobed margins.. 41
- 38 *a* Leaflets 3 *Rhus radicans*. p 181
b Leaflets 5 or more 39
- 39 *a* Leaves palmately compound *Parthenocissus*. p 184
b Leaves pinnately compound 40
- 40 *a* Vines with thorns or prickles *Rosa*. p 166
b Vines not with thorns or prickles *Wistaria*. p 173
- 41 *a* Vines with tendrils 42
b Vines not with tendrils 44
- 42 *a* Tendrils expanded at the tips into adhering disks
Parthenocissus. p 184
b Tendrils tapering at the tips 43
- 43 *a* Leaves with entire margins *Smilax*. p 136
b Leaves with toothed or lobed margins *Vitis*. p 184
- 44 *a* Leaves entire; corolla tubular; thorns often present
Lycium. p 209
b Leaves usually toothed; corolla of distinct petals 45
- 45 *a* Wild shrub; petals 4; flowers $\frac{1}{4}$ in. or less broad
Celastrus. p 182
b Cultivated shrub; petals 5; flowers $\frac{1}{2}$ in. or more
broad *Actinidia*. p 185

Shrubs or Trees With Alternate, Compound Leaves

- 46 *a* Leaves compound 47
b Leaves simple 69

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- 47 *a* Trees usually with thorns on the trunk or branches, 1 in. or more long; branchlets zigzag; flowers greenish
Gleditsia. p 170
- b* Trees or shrubs not completely as in *a* 48
- 48 *a* Flowers irregular, not greenish 49
- b* Flowers not completely as in *a* 56
- 49 *a* Flowers yellow or yellowish-white 50
- b* Flowers not yellow 53
- 50 *a* Leaflets 3 *Laburnum.* p 173
- b* Leaflets 5-25 51
- 51 *a* Leaflets 8-12, even in number *Caragana.* p 173
- b* Leaflets 5-25, odd in number 52
- 52 *a* Flowers 3-10 in a raceme; leaflets $\frac{1}{2}$ - $\frac{3}{4}$ in. long
Colutea. p 173
- b* Flowers several in a panicle; leaflets 1 in. or more long
Sophora. p 173
- 53 *a* Flowers violet-purple, about $\frac{1}{4}$ in. long. *Amorpha.* p 173
- b* Flowers white, pink, or purple, about $\frac{1}{2}$ in. or more long 54
- 54 *a* Flowers white, in panicles 10-20 in. long; tree with smooth, gray bark *Cladrastis.* p 173
- b* Shrubs or trees not completely as in *a* 55
- 55 *a* Trees or shrubs usually with short spines for stipules; racemes usually 8 in. or less long *Robinia.* p 173
- b* Shrub not with spines for stipules; racemes often 10-25 in. long *Wistaria.* p 173
- 56 *a* Trees, shrubs, or trailing vines with prickles 57
- b* Shrubs or trees not with prickles 59
- 57 *a* Leaves doubly compound; small, erect tree. *Aralia.* p 190
- b* Leaves singly compound 58
- 58 *a* Shrubs cultivated for their flowers; leaflets 5 or more
Rosa. p 166
- b* Shrub cultivated for the flowers; leaflets 3
Citrus trifoliata. p 179
- c* Shrubs not cultivated for their flowers *Rubus.* p 164
- 59 *a* Flowers white, not merely greenish-white 60
- b* Flowers not white 63
- 60 *a* Leaflets 3; flowers fragrant *Citrus trifoliata.* p 179
- b* Leaflets 5 or more 61
- 61 *a* Leaves doubly compound; flowers in racemes
Gymnocladus. p 170
- b* Leaves singly compound; flowers in cymes or in panicles 62
- 62 *a* Flowers in cymes; ovary inferior *Sorbus.* p 167
- b* Flowers in panicles; ovary superior *Sorbaria.* p 164
- 63 *a* Leaflets 3 64
- b* Leaflets 5 or more 65

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- 64 *a* Shrub with aerial rootlets; plant often spreading on ground *Rhus radicans*. p 181
b Erect tree or shrub not with aerial rootlets.. *Ptelea*. p 179
- 65 *a* Shrub 3 ft. or less high; flowers yellow, ½ in. or more broad *Dasiphora*. p 164
b Shrubs or trees not completely as in *a* 66
- 66 *a* Flowers about ½ in. long, yellow..... *Koelreuteria*. p 183
b Flowers ¼ in. or less long, greenish 67
- 67 *a* Flowers in racemes or small clusters; leaflets usually toothed *Hicoria*. p 141
b Flowers in panicles 68
- 68 *a* Leaflets with 2-4 coarse teeth at the base. *Ailanthus*. p 179
b Leaflets entire or toothed, not completely as in *a*. *Rhus*. p 181

Shrubs or Trees With Simple, Alternate Leaves

- 69 *a* Flowers green or greenish, or else without a distinct perianth 70
b Flowers not green, with a distinct perianth 86
- 70 *a* Bark with light-green or whitish patches on the upper trunk; flowers in globose balls *Platanus*. p 163
b Bark and flowers not completely as in *a* 71
- 71 *a* Shrub or tree usually with short thorns; pistillate flowers in globose heads *Toxylon*. p 145
b Shrubs or trees not completely as in *a* 72
- 72 *a* Milky juice exudes when young branches or twigs are cut 73
b No milky juice exudes when twigs are cut 74
- 73 *a* Twigs very hairy; pistillate flowers in heads
Broussonetia. p 145
b Twigs not very hairy; pistillate flowers in short spikes
Morus. p 144
- 74 *a* Shrubs growing in salt marshes 75
b Shrubs or trees not growing in salt marshes 76
- 75 *a* Only the upper leaves alternate, the lower opposite
Iva. p 221
b All leaves alternate *Baccharis*. p 233
- 76 *a* Leaves more or less lobed 77
b Leaves entire or toothed, not lobed 78
- 77 *a* Shrubs 5 ft. or less high; flowers with conspicuous perianth *Ribes*. p 162
b Shrubs or trees 6 ft. or more high *Quercus*. p 143
- 78 *a* At least the staminate flowers in aments 79
b Flowers not in aments 80
- 79 *a* Leaves 4 in. or more long, sharply and coarsely toothed; staminate aments 3 in. or more long.... *Castanea*. p 143
b Aments usually less than 2 in. long; leaves not completely as in *a* *Salix*. p 140

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- 80 *a* Leaves evergreen, with spiny teeth *Ilex*. *p* 181
b Leaves not completely as in *a* 81
- 81 *a* Flowers solitary or few together, in the axils of the
leaves 82
b Flowers not arranged completely as in *a* 84
- 82 *a* Tree with checkered or furrowed bark; leaves entire
Diospyros. *p* 198
b Shrubs 9 ft. or less high; leaves toothed or sometimes
entire 83
- 83 *a* Stamens 4 or 5, opposite the petals *Rhamnus*. *p* 184
b Stamens 4-12, not opposite the petals..... *Ilicioides*. *p* 181
- 84 *a* Flowers in panicles 3 in. or more long; leaves entire
Cotinus. *p* 181
b Flowers not completely as in *a* 85
- 85 *a* Leaves entire; tree with branches usually horizontal
Nyssa. *p* 194
b Leaves toothed; shrub *Celastrus*. *p* 182
- 86 *a* Tree with flowers 2 in. or more broad, orange within;
leaves broadly notched at the apex, with 2-6 lateral
lobes *Liriodendron*. *p* 152
b Shrubs or trees not completely as in *a* 87
- 87 *a* Flowers 2 in. or more broad; stamens and pistils
numerous *Magnolia*. *p* 151
b Flowers not completely as in *a* 88
- 88 *a* Shrubs with thorns at the base of the leaves; flowers
about $\frac{1}{4}$ in. long, yellowish or reddish.. *Berberis*. *p* 154
b Shrubs or trees not completely as in *a* 89
- 89 *a* Flowers attached to a strap-shaped, leaf-like bract 2 in.
or more long; leaves rounded, usually unequal at
the base *Tilia*. *p* 185
b Shrubs or trees not completely as in *a* 90
- 90 *a* Shrubs 6 ft. or less high; leaves more or less lobed;
flowers $\frac{1}{2}$ in. or less broad, yellow or whitish. *Ribes*. *p* 162
b Shrubs or trees not completely as in *a* 91
- 91 *a* Flowers with petals distinct, not united at the base,
or petals wanting 92
b Flowers with the corolla more or less tubular, sometimes
tubular only at the base 113
- 92 *a* Flowers appearing late in autumn; petals 4, yellow,
narrow; hairy capsules usually present on shrub;
leaves with deeply wavy margins.... *Hamamelis*. *p* 163
b Shrubs or trees not completely as in *a* 93
- 93 *a* Flowers yellow, 1 in. or more broad, often double
Kerria. *p* 164
b Flowers not completely as in *a* 94

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- 94 *a* Stamens 10 or less or flowers never double 95
b Stamens 15 or more, or flowers double 101
- 95 *a* Flowers yellow or yellowish; petals wanting 96
b Flowers white 98
- 96 *a* Stamens 5 or 10 *Ledum*. p 195
b Stamens 4 97
- 97 *a* Branches covered with whitish scales or hairs
Elaeagnus. p 189
b Branches covered with reddish or brownish scales
Hippophae. p 189
- 98 *a* Flowers solitary or 2 together in the axils..... *Ilex*. p 181
b Flowers in panicles or cymes 99
- 99 *a* Stamens 10, the anthers opening by terminal slits;
flowers fragrant *Clethra*. p 194
b Stamens 4 or 5; flowers not noticeably fragrant..... 100
- 100 *a* Shrub 2-5 ft. high; leaves toothed; flowers in panicles
Ceanothus. p 184
b Shrub 8 ft. or more high; leaves entire; flowers in cymes
Cornus alternifolia. p 194
- 101 *a* Shrubs or trees with spines or thorns on the branches.. 102
b Shrubs or trees not with thorns on the branches 103
- 102 *a* Ovary superior *Prunus americana*. p 169
b Ovary inferior *Crataegus*. p 167
- 103 *a* Leaves round-ovate; flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, in corymbs
Sorbus aria. p 167
b Leaves and flowers not completely as in *a* 104
- 104 *a* Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad 105
b Flowers $\frac{3}{4}$ -2 in. broad 107
- 105 *a* Petals 4, yellow *Ascyrum*. p 186
b Petals 5 or more 106
- 106 *a* Leaves rounded, palmately lobed..... *Opulaster*. p 163
b Leaves ovate to lanceolate *Spiraea*. p 163
- 107 *a* Pistils 5; ovaries superior; flowers white.. *Exochorda*. p 164
b Flowers not completely as in *a* 108
- 108 *a* Pistils numerous; petals pink-purple; leaves rounded,
lobed *Rubus odoratus*. p 164
b Plants not completely as in *a* 109
- 109 *a* Flowers bright yellow; wild shrub.. *Helianthemum*. p 186
b Flowers not yellow 110
- 110 *a* Filaments of stamens not united; tree cultivated for its
fruit *Cydonia vulgaris*. p 168
b Filaments of stamens more or less united 111
- 111 *a* Sepals distinct, not subtended by bracts.... *Stuartia*. p 186
b Sepals united at the base and subtended by bracts 112

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- 112 a Calyx subtended by several bracts; shrubs common
Hibiscus. p 185
 b Calyx subtended by 3-6 bracts; shrub not common
Lavatera. p 185
- 113 a Corolla deeply saucer-shaped, 5-lobed, with 10 pouches
 on the tube *Kalmia. p 195*
 b Corolla not completely as in a 114
- 114 a Trailing shrubs 115
 b Erect trees or shrubs 117
- 115 a Ovary inferior; corolla deeply 4-lobed, the lobes re-
 curved *Oxycoccus. p 196*
 b Ovary superior; corolla not completely as in a 116
- 116 a Flowers usually solitary in the axils of the leaves; leaves
 aromatic *Gaultheria. p 195*
 b Flowers usually in racemes; leaves not aromatic
Arctostaphylos. p 195
- 117 a Flowers 1-2 in. broad 118
 b Flowers $\frac{3}{4}$ in. or less broad 120
- 118 a Corolla conspicuously 2-lipped; stamens 10; wild shrub
Rhodora. p 195
 b Flowers not completely as in a 119
- 119 a Corolla nearly regular; leaves thick, evergreen
Rhododendron. p 195
 b Corolla more or less 2-lipped; leaves usually thin and
 deciduous *Azalea. p 195*
- 120 a Leaves thick, evergreen 121
 b Leaves thin, deciduous 123
- 121 a Flowers in terminal umbels; leaves white-glaucous be-
 neath *Andromeda. p 195*
 b Flowers in racemes; leaves not white-glaucous beneath. 122
- 122 a Flowers in leafy racemes; leaves scurfy beneath
Chamaedaphne. p 195
 b Flowers in naked racemes; leaves smooth beneath
Leucothoe catesbaei. p 195
- 123 a Leaves with yellow resin dots beneath. *Gaylussacia. p 196*
 b Leaves not with yellow resin dots beneath 124
- 124 a Stamens very conspicuous, extending beyond the corolla;
 corolla deeply 5-lobed *Polycodium. p 196*
 b Stamens not extending beyond the corolla 125
- 125 a Corolla globose, much narrowed at the opening
Xolisma. p 195
 b Corolla not globose, but sometimes narrowed at the
 opening 126
- 126 a Cultivated shrub; corolla deeply 5-lobed, tubular only
 at the base *Styrax. p 198*
 b Wild shrubs; corolla tubular, 5-toothed 127

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- 127 a Ovary inferior *Vaccinium*. p 196
 b Ovary superior 128
- 128 a Flowers about $\frac{1}{4}$ in. long, in dense 1-sided racemes
Leucothoe racemosa. p 195
 b Flowers about $\frac{1}{2}$ in. long, in lateral umbels. *Pieris*. p 195

Parasitic Herbs Without Green Leaves or Green Stems

- 129 a Parasitic plants not with green leaves or green stems.. 130
 b Plants with green leaves and green stems 136
- 130 a Stems twining about other plants and parasitic upon
 them *Cuscuta*. p 201
 b Plants not twining about other plants 131
- 131 a Plants with a single terminal flower on the stem ... 132
 b Plants with more than one flower on the stem 133
- 132 a Flowers regular, often nodding *Monotropa*. p 195
 b Flowers irregular, more or less erect.... *Thalesia*. p 212
- 133 a Flowers arranged in panicles *Leptamnium*. p 212
 b Flowers arranged in a single terminal spike 134
- 134 a Flowers regular *Hypopitys*. p 195
 b Flowers irregular 135
- 135 a Ovary inferior; roots coral-like *Corallorhiza*. p 139
 b Ovary superior *Conopholis*. p 212

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- 136 a Plants growing submerged or floating in water 137
 b Plants not growing submerged or floating in water but
 sometimes in very wet places 167
- 137 a Plants not with true stems and leaves 138
 b Plants with stems and leaves 140
- 138 a Plants more or less globose, without rootlets. *Wolffia*. p 132
 b Plant flattened, with rootlets 139
- 139 a Plant 5-15 veined, with several rootlets beneath
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 b Plant 1-5 veined with 1 rootlet beneath or with 1 root-
 let to each lobe *Lemna*. p 132
- 140 a Plants with air-bladders attached to the stems or leaves
Utricularia. p 212
 b Plants not with air-bladders attached to stem or leaves 141
- 141 a Stem divided into thread-like strands; leaves scarcely
 differentiated from the stem *Podostemon*. p 160
 b Plants not completely as in a 142
- 142 a Some or all of leaves dissected or pinnatifid 143
 b Leaves not dissected or pinnatifid 148
- 143 a Flowers white, in whorls on hollow, inflated stalks
Hottonia. p 197
 b Plants not completely as in a 144

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- 144 a Flowers $\frac{1}{4}$ in. or more broad on stout stalks 1 in. or more long *Batrachium*. p 154
 b Flowers less than $\frac{1}{4}$ in. broad 145
- 145 a Leaves pinnately divided, the terminal segment largest
Roripa. p 158
 b Leaves dissected into very narrow segments, the terminal segment not the largest 146
- 146 a Submerged leaves rigid, comb-like, alternate
Proserpinaca. p 190
 b Submerged leaves not rigid, usually in whorls 147
- 147 a Leaves in whorls of 3-5; flowers in spikes
Myriophyllum. p 190
 b Leaves in whorls of 5-12; flowers in the axils of the leaves *Ceratophyllum*. p 151
- 148 a Leaves linear, usually 1 in. or less broad 149
 b Leaves not linear, usually $\frac{3}{4}$ in. or more broad 157
- 149 a Flowers in globose heads; leaves 10 in. or more long
Sparganium. p 110
 b Flowers not in globose heads 150
- 150 a Flowers in woolly heads; leaves basal. *Eriocaulon*. p 132
 b Flowers not in woolly heads; leaves not all basal 151
- 151 a Leaves 5 in. or more long, grass-like 152
 b Leaves 3 in. or less long 154
- 152 a Plant growing in fresh water; spike of flowers 1 in. or less long *Vallisneria*. p 112
 b Plants growing in salt water or on salt marshes 153
- 153 a Leaves 1-veined *Zannichellia*. p 111
 b Leaves 3-7-veined *Zostera*. p 111
- 154 a Leaves mainly alternate, not in whorls. *Potamogeton*. p 110
 b Leaves opposite or in whorls 155
- 155 a Leaves with sheathing petioles or sheathing stipules
Najas. p 111
 b Leaves not with sheathing petioles or sheathing stipules 156
- 156 a Leaves usually in whorls of 3 or more, all linear
Philotria. p 112
 b Leaves opposite in pairs, the floating ones ovate
Callitriche. p 180
- 157 a Flowers irregular, blue, with a tubular perianth
Pontederia. p 132
 b Flowers regular, perianth not completely as in a 158
- 158 a Leaves arrow-shaped, with spreading lobes 159
 b Leaves not arrow-shaped 160
- 159 a Flowers white, arranged in whorls on the stem
Sagittaria. p 112
 b Flowers greenish, surrounded by a narrow green spathe
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- 160 *a* Flowers small, numerous, in panicles or paniced racemes 161
b Flowers not in panicles 162
- 161 *a* Leaves ovate, all basal *Alisma*. *p* 112
b Leaves obovate, not all basal *Samolus*. *p* 197
- 162 *a* Flowers $\frac{1}{4}$ in. or less broad, in terminal spikes 163
b Flowers usually more than $\frac{1}{4}$ in. broad, not in terminal
spikes 164
- 163 *a* Flowers greenish *Potamogeton*. *p* 110
b Flowers pink or whitish *Polygonum*. *p* 146
- 164 *a* Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad, white or yellow
Limnathemum. *p* 200
b Flowers not completely as in *a* 165
- 165 *a* Flowers about $\frac{1}{2}$ in. broad, purple *Brasenia*. *p* 151
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- 166 *a* Flowers yellow, the petals stamen-like. *Nymphaea*. *p* 151
b Flowers not yellow, petals not as in *a* *Castalia*. *p* 151

Terrestrial Green Herbs With Green or Greenish Flowers or the Flowers Without a Distinct Perianth

- 167 *a* Flowers green or greenish or without a distinct perianth. 168
b Flowers not completely as in *a* 260
- 168 *a* Leaves at least 3 times longer than broad, usually 1 in.
or less broad, with entire margins and parallel veins,
or leaves sometimes wanting 169
b Leaves not completely as in *a* 191
- 169 *a* Plant 2-6 ft. high; leaf-like organs linear; flowers bell-
shaped about $\frac{1}{4}$ in. long *Asparagus*. *p* 135
b Plants not completely as in *a* 170
- 170 *a* Leaves 1 in. or less long, scale-like or awl-shaped 171
b Leaves not completely as in *a* 176
- 171 *a* Branches of stem opposite, fleshy, cylindric; stem jointed
Salicornia. *p* 148
b Branches not completely as in *a* 172
- 172 *a* Plants prostrate, spreading on the ground 173
b Plants more or less erect, not spreading on the ground 174
- 173 *a* Flowers in the axils of the branches or leaves
Scleranthus. *p* 151
b Flowers at the ends of the branches *Sagina*. *p* 151
- 174 *a* Some or all of scale-like leaves opposite. *Bartonia*. *p* 199
b Leaves or branches alternate 175
- 175 *a* Leaves prickly-pointed *Salsola*. *p* 148
b Leaves thick, not prickly-pointed *Dondia*. *p* 148
- 176 *a* Flowers in globose heads $\frac{3}{4}$ in. or more in diameter
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- 177 *a* Leaves sessile and prolonged into a more or less sheathing base 178
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- 178 *a* Flowers in dense, cylindrical spikes 2 in. or more long and $\frac{1}{2}$ in. or more in diameter 179
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- 179 *a* Spikes terminal on the stem *Typha*. p 110
b Spikes appearing lateral on the stem *Acorus*. p 132
- 180 *a* Flowers in racemes; each flower not subtended by bracts or arranged in spikelets 181
b Flowers not completely as in *a* 182
- 181 *a* Leaves all basal *Triglochin*. p 111
b Leaves on an elongated stem, not all basal
Scheuchzeria. p 112
- 182 *a* Perianth present, consisting of 6 parts; flowers in umbels or panicles *Juncus*. p 132
b Perianth not present; flowers subtended by 1-3 bracts; flowers arranged in spikelets which are variously clustered 183
- 183 *a* Stems usually angular and solid, each flower subtended by a single bract *Cyperaceae*. p 122
b Stems circular, usually hollow but solid at the nodes; each spikelet usually with 4 or more bracts
Graminaceae. p 112
- 184 *a* Leaves with onion-like odor *Allium*. p 133
b Leaves not with onion-like odor 185
- 185 *a* Leaves linear, thick, somewhat 3-angled; plant growing in saline places *Dondia*. p 148
b Leaves not completely as in *a* 186
- 186 *a* Leaves all basal; flowers in spikes *Plantago*. p 213
b Leaves not all basal 187
- 187 *a* Flowers in panicles 5-12 in. long; flowers $\frac{1}{2}$ -1 in. broad *Melanthium*. p 133
b Flowers not completely as in *a* 188
- 188 *a* Flowers irregular, each flower with a spur and subtended by a bract 189
b Flowers regular, not spurred 190
- 189 *a* Plant with several leaves *Perularia*. p 138
b Plant with 1 conspicuous leaf near the base
Gymnadeniopsis. p 138
- 190 *a* Perianth 6-parted; fruit with 3 wing-like structures
Rumex p 145
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- 191 *a* Leaves with 3 or more prominent veins and with entire margins 192
b Leaves not completely as in *a* 202

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- 192 *a* Vines with tendrils *Smilax*. p 136
b Plants not with tendrils 193
- 193 *a* Twining vines often several feet long.... *Dioscorea*. p 137
b Not twining vines 194
- 194 *a* Flowers irregular; ovary inferior 195
b Flowers regular; ovary superior 196
- 195 *a* Leaves usually 1 in. or less broad, usually with whitish
veins *Peranium*. p 139
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veins *Lysias*. p 138
- 196 *a* Flowers arranged in a dense spike 197
b Flowers not arranged in a dense spike 198
- 197 *a* Leaves all basal *Plantago*. p 213
b Leaves not all basal *Saururus*. p 139
- 198 *a* Flowers numerous in a panicle 199
b Flowers not in panicles 200
- 199 *a* Leaves oval, 3 in. or more broad; perianth present
Veratrum. p 133
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Panicum. p 121
- 200 *a* Flowers in umbels; leaves all basal *Clintonia*. p 135
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- 201 *a* Flowers $\frac{1}{2}$ in. or less long, tubular; perianth 6-lobed
Salomonias. p 136
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Uvularia. p 133
- c* Flowers 1-3 in. broad; sepals 5, petal-like; petals 5,
small, tubular *Helleborus viridis*. p 152
- 202 *a* Flowers on a spadix; surrounded by a spathe 203
b Flowers not completely as in *a* 204
- 203 *a* Leaves compound with 3 leaflets..... *Arisaema*. p 131
b Leaves simple, arrow-shaped *Peltandra*. p 131
- 204 *a* Vines with tendrils *Sicyos*. p 216
b Plants not with tendrils 205
- 205 *a* Twining vines with leaves and stems very rough
Humulus. p 145
b Plants not completely as in *a* 206
- 206 *a* Leaves compound, composed of distinct leaflets 207
b Leaves simple with entire, toothed, or deeply incised
margins 214
- 207 *a* Leaves palmately compound usually with 3 or more
leaflets 208
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- 208 *a* Flowers not in umbels *Cannabis*. p 145
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- 209 *a* Plants with leafy stems *Sanicula*. *p* 192
b Plants with only 2 or 3 leaves in a whorl beneath the
umbel *Panax*. *p* 191
- 210 *a* Plants with a single doubly-compound leaf 1-2 ft. high;
flowers in umbels *Aralia*. *p* 190
b Plants with more than 1 compound leaf 211
- 211 *a* Stamens very conspicuous, usually numerous 212
b Stamens not very conspicuous, 5 to each flower 213
- 212 *a* Flowers in panicles *Thalictrum*. *p* 154
b Flowers in spikes *Sanguisorba*. *p* 166
- 213 *a* Flowers in umbels *Sanicula*. *p* 192
b Flowers in compact heads *Bidens*. *p* 236
- 214 *a* Herbs with stinging hairs on the stems and leaves ... 215
b Herbs not with stinging hairs on the leaves and stems.. 216
- 215 *a* Leaves alternate *Urticastrum*. *p* 145
b Leaves opposite *Urtica*. *p* 145
- 216 *a* When broken plants exude a milky juice 217
b When broken plants do not exude a milky juice 220
- 217 *a* Flowers with curved hoods opposite the sepals 218
b Flowers not as in *a* 219
- 218 *a* Hoods with incurved horns *Asclepias*. *p* 200
b Hoods not with incurved horns *Ascerates*. *p* 200
- 219 *a* Plants 1-6 ft. high, much branched; stamens 5
Apocynum. *p* 200
b Plants usually 1 ft. or less high, sometimes spreading
on the ground *Euphorbia*. *p* 180
- 220 *a* Corolla conspicuously fringed *Mitella*. *p* 161
b Corolla not conspicuously fringed, or sometimes wanting 221
- 221 *a* Large herb 2 ft. or more high, with palmately lobed
leaves 5 in. or more broad *Ricinus*. *p* 180
b Plants not completely as in *a* 222
- 222 *a* Leaves all basal 223
b Leaves not all basal 225
- 223 *a* Flowers in compact spikes *Plantago*. *p* 213
b Flowers not in compact spikes 224
- 224 *a* Leaves more or less lobed *Heuchera*. *p* 161
b Leaves not lobed *Saxifraga*. *p* 161
- 225 *a* Some or all of leaves opposite 226
b Leaves alternate 238
- 226 *a* Prostrate, creeping herbs with rounded leaves 227
b Erect herbs 228
- 227 *a* Leaves with wavy margins; anthers orange
Chrysosplenium. *p* 161
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Isnardia. *p* 189

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- 228 *a* Several small flowers collected into a dense head and subtended by an involucre of bracts; ovaries crowned by barbed bristles *Bidens*. p 236
b Flowers not completely as in *a* 229
- 229 *a* Leaves with lobed or dissected margins *Ambrosia*. p 220
b Leaves with entire or toothed margins 230
- 230 *a* Leaves with entire margins 231
b Some or all of leaves with toothed margins 234
- 231 *a* Stem 4-sided; flowers about $\frac{1}{4}$ in. long..... *Rotala*. p 189
b Stems rounded 232
- 232 *a* Plants hairy; flowers in panicles *Lechea*. p 186
b Plants not hairy; flowers not usually in panicles 233
- 233 *a* Flowers in cymes; leaves $\frac{3}{4}$ in. or less long. *Anychia*. p 151
b Flowers in spikes or axillary clusters; leaves usually 1 in. or more long *Atriplex*. p 148
- 234 *a* Perianth irregular and distinct 235
b Perianth regular or indistinct 236
- 235 *a* Flowers clustered in whorls which are arranged in spikes *Agastache*. p 206
b Flowers not clustered as in *a* *Scrophularia*. p 210
- 236 *a* Some of the upper leaves with entire margins; leaves often somewhat triangular *Atriplex*. p 148
b All leaves with toothed margins 237
- 237 *a* Petioles usually longer than the leaf blade; flower clusters shorter than the petioles *Adicea*. p 145
b Petioles usually shorter than the leaf blade; flower clusters often longer than the petioles. *Boehmeria*. p 145
- 238 *a* Plants covered with whitish, woolly hairs 239
b Plants not covered with whitish, woolly hairs 240
- 239 *a* Some or all of leaves pinnately divided or dissected
Artemisia. p 238
b Leaves with entire margins *Gifola*. p 233
- 240 *a* Climbing or trailing vine with the leaves rounded, more or less lobed or angled *Menispermum*. p 154
b Plants not completely as in *a* 241
- 241 *a* Leaves with entire or wavy margins 242
b Leaves with toothed, lobed, or dissected margins..... 250
- 242 *a* Flowers distinctly irregular, about $\frac{1}{4}$ in. long
Cubelium. p 188
b Flowers not distinctly irregular 243
- 243 *a* Plants with a membranous sheath around the stem at the base of the petiole 244
b Plants not completely as in *a* 245
- 244 *a* Perianth 6-parted; fruit with 3 wing-like structures
Rumex. p 145
b Perianth 5-parted *Polygonum*. p 146

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- 245 *a* Leaves usually less than 1 in. long 246
b Leaves usually 1 in. or more long 247
- 246 *a* Flowers in panicles *Lechea.* p 186
b Flowers in axillary and terminal spikes or clusters
Amaranthus. p 148
- 247 *a* Flowers solitary in the axils; leaves sessile. *Ludwigia.* p 180
b Flowers not solitary in the axils; leaves petioled 248
- 248 *a* Mealy or scurfy plants; some leaves usually triangular
Atriplex. p 148
b Plants not mealy or scurfy; leaves ovate to lanceolate.. 249
- 249 *a* Leaves rather ovate; plants not growing in saline
places *Amaranthus.* p 148
b Leaves lanceolate; plant growing in saline places
Acnida. p 148
- 250 *a* Pistils 5 to each flower, very distinct; flowers in re-
curved cymes *Penthorum.* p 161
b Flowers not completely as in *a* 251
- 251 *a* Plants with a rosette of basal leaves 252
b Plants not with a rosette of basal leaves 253
- 252 *a* Leaves lobed only at the base... *Rumex acetosella.* p 145
b Leaves lobed or pinnatifid throughout.... *Lepidium.* p 157
- 253 *a* Flowers in the axils of the leaves and subtended by a
palmately-lobed bract *Acalypha.* p 180
b Flowers not subtended by a bract as in *a* 254
- 254 *a* Pistillate flowers enclosed in a spiny involucre
Xanthium. p 221
b Pistillate flowers not enclosed in a spiny involucre 255
- 255 *a* Several small flowers collected into heads which are
subtended by an involucre of bracts; heads of flowers
stalked 256
b Flowers not completely as in *a* 259
- 256 *a* Flowers all with a distinct, irregular corolla. *Nabulus.* p 220
b Flowers all regular or not completely as in *a* 257
- 257 *a* Leaves merely toothed or sometimes incised, not pinna-
tifid *Erechtites.* p 238
b Leaves pinnately divided or lobed 258
- 258 *a* Involucre of a few rows of separate bracts
Artemisia. p 238
b Involucre of united bracts so as to appear tubular
Ambrosia. p 220
- 259 *a* Most of the leaves toothed or slightly lobed
Chenopodium. p 147
b Leaves usually triangular with spreading, basal lobes
Atriplex. p 148

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Terrestrial Green Herbs With Distinctly Yellow Flowers

- 260 a Flowers yellow, not at all red or merely with a yellow center 261
 b Flowers not yellow 392
- 261 a Numerous small flowers collected into a dense head which is subtended by an involucre of green bracts.. 262
 b Flowers not arranged completely as in a 293
- 262 a When open each flower in the head with a strap-shaped corolla, as in the Dandelion *Chicoriaceae*. p 218
 b None or only the outer row of flowers in the head with strap-shaped corollas 263
- 263 a None of the flowers in the head with strap-shaped corollas 264
 b The outer flowers in the head with strap-shaped corollas 273
- 264 a Herbs with spiny-toothed leaves 265
 b Herbs not with spiny-toothed leaves 266
- 265 a Outer bracts of the involucre with pinnately-branched spines *Cnicus*. p 240
 b Outer bracts of the involucre with unbranched spines
Carduus. p 239
- 266 a Some or all of the leaves pinnately divided or dissected 267
 b None of the leaves pinnately divided or dissected 271
- 267 a Leaves compound with leaflets 1-6 in. long, ovate to lanceolate; pappus of barbed awns *Bidens*. p 236
 b Plants not completely as in a 268
- 268 a Only the lower leaves pinnately divided.... *Polymnia*. p 234
 b All of the leaves more or less pinnately divided 269
- 269 a Heads erect or drooping, not arranged in corymbs
Artemisia. p 238
 b Heads erect, arranged in corymbs 270
- 270 a Plants aromatic *Tanacetum*. p 237
 b Plants not aromatic *Senecio*. p 238
- 271 a All of the leaves with entire margins *Gifola*. p 233
 b Some or all of the leaves with toothed or incised margins 272
- 272 a Achenes crowned by a pappus of 2-4 stiff, barbed awns
Bidens. p 236
 b Achenes not crowned by a pappus *Polymnia*. p 234
- 273 a Leaves wanting at flowering time; flowering stalk with alternate, woolly bracts *Tussilago*. p 238
 b Leaves present at flowering time 274
- 274 a Some or all of leaves opposite 275
 b All stem leaves alternate 282
- 275 a Upper leaves united at their bases to form a cup-like disk *Silphium*. p 234
 b Upper leaves not united at their bases as in a 276

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- 276 a Outer bracts of the involucre much larger than the inner ones 277
 b Outer bracts of the involucre not larger than the inner ones 278
- 277 a Achenes crowned by a pappus of 2-4 stiff, barbed awns
Bidens. p 236
 b Achenes not crowned by a pappus *Polymnia.* p 234
- 278 a Receptacle of head conic or convex 279
 b Receptacle of head more or less flat 280
- 279 a Bracts of the involucre in 1-3 rows; achenes sometimes crowned by 2-4 teeth *Heliopsis.* 234
 b Bracts of the involucre in several rows; achenes usually crowned by 2 scales or awns *Helianthus.* p 235
- 280 a Achenes crowned by a pappus of 2-4 stiff, barbed awns
Bidens. p 236
 b Achenes not crowned as in a 281
- 281 a Bracts of the involucre in 2 rows and united at the base
Coreopsis. p 235
 b Bracts of the involucre in several rows not united at the base *Helianthus.* p 235
- 282 a Leaves pinnately divided or dissected 283
 b Leaves toothed or entire 285
- 283 a Heads $\frac{1}{4}$ - $\frac{1}{2}$ in. broad *Tanacetum.* p 237
 b Heads $\frac{1}{2}$ in. or more broad 284
- 284 a Heads 2-4 in. broad; ray flowers 6-10, often drooping
Rudbeckia. p 234
 b Heads 2 in. or less broad; ray flowers 10-40. *Anthemis.* p 236
- 285 a Heads 2-4 in. broad 286
 b Heads 2 in. or less broad 288
- 286 a Plant 2-6 ft. high; leaves 4-20 in. long, broadly oblong
Inula. p 234
 b Plants not completely as in a 287
- 287 a Plants 1-2 ft. high; leaves smooth on upper side
Rudbeckia. p 234
 b Plants 1-7 ft. high; leaves rough on upper side
Helianthus. p 235
- 288 a Heads 1-2 in. broad; disk globose or convex 289
 b Heads 1 in. or less broad; disk not globose 290
- 289 a Disk of head globose *Helenium.* p 236
 b Disk of head convex *Helianthus.* p 235
- 290 a Leaves linear 291
 b Leaves not linear 292
- 291 a Ray flowers usually more numerous than the disk flowers *Euthamia.* p 230
 b Ray flowers not more numerous than the disk flowers
Chrysopsis. p 228

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- 292 *a* Principal bracts of the involucre in 1 row with a few shorter outer ones *Senecio.* p 238
b Bracts of the involucre in several rows, the outer usually successively shorter *Solidago.* p 228
- 293 *a* Corolla more or less tubular, the petals joined at least toward the base 294
b Petals separate, not joined into a tube 315
- 294 *a* Flowers regular 295
b Flowers more or less irregular 305
- 295 *a* Leaves reduced to mere scales on the stem. *Bartonia.* p 199
b Leaves not reduced to scales 296
- 296 *a* Uppermost leaves of stem with bases clasping or extending down the stem *Symphytum* p 203
b Uppermost leaves not completely as in *a* 297
- 297 *a* Flowers $\frac{1}{4}$ in. or less long 298
b Flowers more than $\frac{1}{4}$ in. long 300
- 298 *a* Leaves in whorls on the stem *Galium.* p 213
b Leaves alternate on the stem 299
- 299 *a* Style thread-like, extending beyond the tube; corolla lobes erect, not spreading *Onosmodium.* p 203
b Style not completely as in *a*; corolla lobes spreading
Lithospermum. p 203
- 300 *a* Leaves densely covered with woolly hairs. *Verbascum.* p 210
b Leaves not densely covered with woolly hairs 301
- 301 *a* Corolla conspicuously tubular 302
b Corolla not conspicuously tubular; petals only slightly united at the base 303
- 302 *a* Flowers solitary in the axils of the leaves. *Physalis.* p 209
b Flowers in panicles or racemes *Nicotiana.* p 209
- 303 *a* Stamens 5, alternating with 5 conspicuous sterile stamens *Steironema.* p 198
b Stamens 5-7, sterile stamens wanting or small and scale-like 304
- 304 *a* Corolla segments linear; flowers in dense oblong heads
Naumbergia. p 198
b Corolla segments not linear; flowers not completely as in *a* *Lysimachia.* p 197
- 305 *a* Corolla with a distinct spur at the base 306
b Corolla not with a spur at the base 307
- 306 *a* Spur straight *Linaria.* p 210
b Spur bent upward *Impatiens.* p 184
- 307 *a* Flowers solitary in the axils of the leaves 308
b Flowers not solitary in the axils of the leaves 309
- 308 *a* Calyx subtended by 2 bractlets; perfect stamens 2
Gratiola. p 211
b Calyx not subtended by 2 bractlets; perfect stamens 4
Melampyrum. p 212

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- 309 *a* Flowers in head-like whorls, the whorls subtended by white or purplish bracts *Monarda*. p 207
b Flowers and bracts not completely as in *a* 310
- 310 *a* Flowers in panicles or racemes 311
b Flowers in dense or interrupted spikes 313
- 311 *a* Stamens 2, much longer than the corolla; flowers about $\frac{1}{2}$ in. long *Collinsonia*. p 208
b Stamens 4; flowers 1-2 in. long 312
- 312 *a* Leaves broadly heart-shaped with entire or wavy margins *Martynia*. p 212
b Leaves ovate to lanceolate in outline, often deeply incised or pinnatifid *Dasytoma*. p 211
- 313 *a* Flowers in dense whorls arranged in an interrupted spike *Agastache*. p 206
b Flowers in terminal, bracted spikes 314
- 314 *a* Leaves with entire margins *Schwalbea* p 212
b Leaves pinnately lobed *Pedicularis*. p 212
- 315 *a* Flowers more or less irregular 316
b Flowers regular 330
- 316 *a* One petal modified into a swollen lip $\frac{3}{4}$ in. or more long *Cypripedium*. p 138
b Petals not completely as in *a* 317
- 317 *a* Calyx petal-like, with a spur bent upward. *Impatiens*. p 184
b Flowers not completely as in *a* 318
- 318 *a* Ovary inferior; petals 3, one modified into a lip 319
b Ovary superior; petals not completely as in *a* 321
- 319 *a* Plants with several leaves; 1 or more petals fringed *Blephariglottis*. p 139
b Plants with 1-3 leaves; petals not fringed 320
- 320 *a* Leaves 2 in. or more broad, oval to ovate... *Lysias*. p 138
b Leaves 1 in. or less broad, linear to oblong *Gyrostachys*. p 139
- 321 *a* One petal distinctly spurred at the base; sepals 2 *Capnoides*. p 155
b None of the petals spurred 322
- 322 *a* Petals 5, distinct; flowers only slightly irregular *Cassia*. p 170
b 2 of the petals usually united to form a keel 323
- 323 *a* Plants with simple leaves *Crotalaria*. p 173
b Plants with compound leaves 324
- 324 *a* Vines with showy flowers about 1 in. long, 2-4 together on a stalk *Vigna*. p 174
b Plants not completely as in *a* 325
- 325 *a* Flowers in racemes 326
b Flowers in globose or oblong heads, few to many flowered 327

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- 326 *a* Racemes 3-6-flowered; flowers about $\frac{1}{2}$ in. long
Baptisia. p 174
b Racemes several-flowered; flowers less than $\frac{1}{2}$ in. long;
 plants fragrant*Melilotus.* p 175
- 327 *a* Leaflets with entire margins 328
b Leaflets with finely-toothed margins 329
- 328 *a* Leaflets very hairy beneath*Lespedeza.* p 175
b Leaflets not very hairy beneath*Stylosanthes.* p 175
- 329 *a* Stipules toothed at the base; pods spirally coiled
Medicago. p 175
b Stipules not toothed at the base; pods not coiled
Trifolium. p 175
- 330 *a* When broken plants exude a colored juice 331
b When broken plants do not exude a colored juice 333
- 331 *a* Plant with spiny-toothed leaves*Argemone.* p 155
b Plants not with spiny-toothed leaves 332
- 332 *a* Flowers 1 in. or more broad*Glaucium.* p 155
b Flowers $\frac{3}{4}$ in. or less broad*Chelidonium.* p 155
- 333 *a* Perianth 3 or 6 parted, usually undifferentiated; stamens
 3 or 6 334
b Flowers not completely as in *a* 345
- 334 *a* Flowers with perianth 2 in. or more long 335
b Flowers with perianth less than 2 in. long 336
- 335 *a* Leaves all basal*Hemerocallis.* p 133
b Stem leaves present*Lilium.* p 134
- 336 *a* Flowers numerous, small, collected into a dense, ovoid,
 terminal head*Xyris.* p 132
b Flowers not collected into a head as in *a* 337
- 337 *a* Leaves in 1 or 2 whorls on an upright stem.*Medeola.* p 136
b Leaves not arranged completely as in *a* 338
- 338 *a* Herbs or vines with tendrils*Smilax.* p 136
b Herbs or vines not with tendrils 339
- 339 *a* Twining vines with net-veined leaves*Dioscorea.* p 137
b Erect herbs, not vines 340
- 340 *a* Flowers mottled with crimson-purple spots; flowers 1-2
 in. broad*Gemmingia.* p 138
b Flowers not completely as in *a* 341
- 341 *a* Flowers borne in the axils of the leaves...*Uvularia.* p 133
b Flowers borne in umbels or panicles 342
- 342 *a* Leaves mostly basal; flowers in umbels 343
b Stem leaves present; flowers in panicles 344
- 343 *a* Leaves rather ovate; flowers pendulous...*Clintonia.* p 135
b Leaves linear, grass-like; flowers erect...*Hypoxis.* p 136
- 344 *a* Stamens 6; flowers $\frac{1}{2}$ in. or more broad.*Melanthium.* p 133
b Stamens 3; flowers less than $\frac{1}{2}$ in. broad..*Gyrotheca.* p 136

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- 345 *a* Perianth not differentiated into green calyx and colored corolla *Caltha*. p 152
b Perianth differentiated into green calyx and colored corolla 346
- 346 *a* Plant with thick, obovate, jointed stems covered in patches with prickles *Opuntia*. p 189
b Plants not completely as in *a* 347
- 347 *a* Petals 4 348
b Petals 5 or more 362
- 348 *a* Ovary inferior; stamens usually 4 or 8 349
b Ovary superior; stamens usually 6 or numerous 351
- 349 *a* Stamens 4 *Ludwigia*. p 189
b Stamens 8 350
- 350 *a* Stamens equal in length; usually coarse herb. *Onagra*. p 190
b Stamens unequal in length *Kneiffia*. p 190
- 351 *a* Stamens 9 or more 352
b Stamens 6 or less 353
- 352 *a* Leaves compound with 3 leaflets *Polanisia*. p 160
b Leaves simple *Helianthemum*. p 186
- 353 *a* Stamens 4; leaves with entire margins *Linum*. p 178
b Stamens 6, 2 of them shorter 354
- 354 *a* All leaves entire or toothed, not noticeably fleshy 355
b At least the lower leaves pinnately lobed or divided.. 357
- 355 *a* Leaves with their bases clasping the stem; pods obovoid
Camelina. p 159
b Leaves not with clasping bases 356
- 356 *a* Leaves 1-4 in. long, lanceolate..... *Erysimum*. p 159
b Leaves 1 in. or less long, linear-oblong *Alyssum*. p 159
- 357 *a* Flowers $\frac{1}{4}$ in. or less broad 358
b Flowers usually $\frac{1}{2}$ in. or more broad 360
- 358 *a* Basal leaves with terminal lobe only 1 or 2 times larger than the lower lateral ones *Roripa*. p 158
b Basal leaves with terminal lobe several times larger than the lateral ones 359
- 359 *a* Leaves dark green, often shining; flowers usually numerous and conspicuously clustered at top of stem
Barbarea. p 158
b Leaves green, not shining; flowers $\frac{1}{4}$ in. or less broad, not completely as in *a* *Sisymbrium*. p 157
c Leaves not shining; flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad. *Brassica*. p 158
- 360 *a* Pods $\frac{1}{4}$ in. or more thick, constricted between the seeds, spongy *Raphanus*. p 158
b Pods not completely as in *a* 361
- 361 *a* Pod with the beak or tip flattened, sword-shaped, as long as pod *Sinapis*. p 158
b Pod with the beak or tip conic, not sword-shaped
Brassica. p 158

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- 362 *a* Sepals 2; herbs fleshy, prostrate *Portulaca*. p 149
b Sepals usually 5 363
- 363 *a* Ovary inferior; flowers about $\frac{1}{4}$ in. broad, arranged
in umbels 364
b Ovary superior; flowers not completely as in *a* 370
- 364 *a* All of the leaves at the summit of the stem.. *Panax*. p 191
b All of the leaves not at the summit of the stem 365
- 365 *a* Leaves simple, not divided, clasping at the base
Bupleurum. p 193
b All or some of the leaves pinnately divided 366
- 366 *a* Leaves finely dissected into linear segments; fruit linear-
oblong *Foeniculum*. p 193
b Leaves not finely dissected into linear segments 367
- 367 *a* Fruit or ovary covered with bristles..... *Sanicula*. p 192
b Fruit or ovary not covered with bristles 368
- 368 *a* Basal leaves very large, much divided; ovary or fruit
much flattened *Pastinaca*. p 193
b Plants not completely as in *a* 369
- 369 *a* Fruit or ovary conspicuously winged, not flattened
Thaspium. p 193
b Fruit or ovary not winged, somewhat flattened. *Zizia*. p 193
- 370 *a* Calyx tube with a ring of hooked hairs on the outside
Agrimonia. p 166
b Calyx tube not as in *a* 371
- 371 *a* Flowers with 4-15 stamens 372
b Flowers with 20 or more stamens 380
- 372 *a* Leaves 3-foliolate, each leaflet inversely heart-shaped
Oxalis. p 178
b Leaves not completely as in *a* 373
- 373 *a* Leaves reduced to awl-shaped scales..... *Sarothra*. p 186
b Leaves not reduced to awl-shaped scales 374
- 374 *a* Leaves compound 375
b Leaves simple 376
- 375 *a* Petals 6 *Reseda*. p 160
b Petals 5 *Cassia*. p 170
- 376 *a* Leaves thick and fleshy *Sedum*. p 160
b Leaves thin 377
- 377 *a* Leaves 1 in. or less long, lanceolate to oblanceolate
Linum. p 178
b Leaves not completely as in *a* 378
- 378 *a* Stamens 5, alternating with 5 sterile stamens
Steironema. p 198
b Stamens 5-7, the sterile stamens wanting or scale-like.. 379
- 379 *a* Corolla lobes linear; flowers in dense oblong heads
Naumbergia. p 198
b Corolla lobes not linear; flowers not completely as in *a*
Lysimachia. p 197

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- 380 *a* Pistils 1-6 381
b Pistils 10 or more 386
381 *a* Leaves compound or deeply divided 382
b Leaves simple with entire or toothed margins 383
382 *a* Leaves mostly basal *Waldsteinia.* *p* 165
b Leaves not mostly basal *Reseda.* *p* 160
383 *a* Leaves opposite *Hypericum.* *p* 186
b Leaves alternate 384
384 *a* Flowers about $\frac{1}{4}$ in. broad *Sida.* *p* 185
b Flowers $\frac{1}{2}$ -1 in. broad 385
385 *a* Leaves rounded-heart-shaped, velvety *Abutilon.* *p* 185
b Leaves oblong to oblanceolate *Helianthemum.* *p* 186
386 *a* Calyx with distinct sepals which are readily detached
Ranunculus. *p* 153
b Calyx more or less united at the base, the lobes not
readily detached 387
387 *a* Leaflets of basal leaves 7-11, covered with sticky hairs
on the upper side *Drymocallis.* *p* 164
b Leaflets not covered with sticky hairs on the upper side 388
388 *a* Plants tufted or prostrate 389
b Plants with erect, leafy stems 391
389 *a* Leaflets 7-25 *Argentina.* *p* 165
b Leaflets 3 or 5 390
390 *a* Leaflets 3 *Duchesnea.* *p* 165
b Leaflets 5 or a few leaves with only 3 *Potentilla.* *p* 165
391 *a* Leaves palmately compound *Potentilla.* *p* 165
b Leaves pinnately compound *Geum.* *p* 165

Terrestrial Green Herbs With Flowers not Green or Yellow

- 392 *a* Flowers small, sessile, few or several collected into a
head which is subtended by an involucre of green or
white bracts 393
b Flowers not completely as in *a* 402
393 *a* When open all flowers in the head irregular with
strap-shaped corollas, as in the Dandelion 394
b None or only the outer flowers in the head with strap-
shaped corollas 400
394 *a* Heads with 2-16 flowers *Nabulus.* *p* 220
b Heads with 30 or more flowers 395
395 *a* Flowers blue, purple, or pink 396
b Flowers orange-colored or reddish 397
396 *a* Outer bracts of the involucre shorter than the head
Chicorium. *p* 219
b Outer bracts of the involucre longer than the head
Tragopogon. *p* 219

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- 397 *a* Leaves all basal; heads borne on leafless stalks 398
b Leaves not all basal; heads borne on leafy stems 399
- 398 *a* Leaves with more or less entire margins.. *Hieracium*. *p* 219
b Leaves pinnatifid or with coarsely toothed margins
Adopogon. *p* 219
- 399 *a* Bracts of involucre in 1 or 2 rows with no smaller,
outer ones *Adopogon*. *p* 219
b Principal bracts of involucre in 1 row with several
smaller, outer ones *Crepis*. *p* 219
- 400 *a* Heads oblong, 1-4 in. long with prickly involucre;
leaves and stems with prickles; flowers usually open-
ing in a ring around the head *Dipsacus*. *p* 216
b Plants not completely as in *a* 401
- 401 *a* Stamens 2-4, not joined into a tube around the style;
flowers lilac; heads 1-2 in. broad; bracts of the in-
volucre much smaller than the flowers... *Scabiosa*. *p* 216
b Plants not completely as in *a* *Compositae*. *p* 221
- 402 *a* Flowers numerous, small, arranged in a spike which is
subtended by a white, ovate bract 1-3 in. long. *Calla*. *p* 131
b Flowers not completely as in *a* 403
- 403 *a* When broken plants exude a colored juice 404
b When broken plants do not exude a colored juice 408
- 404 *a* Flowers 1 in. or more broad 405
b Flowers $\frac{1}{2}$ in. or less broad 406
- 405 *a* Leaves with spiny-toothed margins *Argemone*. *p* 155
b Leaves not with spiny-toothed margins... *Papaver*. *p* 155
- 406 *a* Flowers with 5 hoods alternate with the petals; inside
each hood is a pointed horn *Asclepias*. *p* 200
b Flowers not with hoods or horns 407
- 407 *a* Flowers pink, the corolla tubular; stamens 5, distinct
Apocynum. *p* 200
b Flowers not completely as in *a* *Euphorbia*. *p* 180
- 408 *a* Perianth parts 3 or 6, often undifferentiated; leaves
usually with entire margins and parallel veins 409
b Perianth parts 4, 5 or numerous, or joined into a tube;
plants not completely as in *a* 435
- 409 *a* Flowers irregular 410
b Flowers regular 421
- 410 *a* Ovary superior; stamens 6 *Commelina*. *p* 132
b Ovary inferior; stamens 1 or 2 411
- 411 *a* Flowers with a large inflated lip 1 in. or more long
Cypripedium. *p* 138
b Flowers not with a large inflated lip as in *a* 412
- 412 *a* Lip of flowers conspicuously fringed.. *Blephariglotis*. *p* 139
b Lip of flower not conspicuously fringed 413
- 413 *a* Leaves all basal and ovate in shape 414
b Leaves not completely as in *a* 416

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- 414 a Leaves 1-2 in. long, often with whitish veins
Peramium. p 139
 b Leaves 2-5 in. long, not with whitish veins 415
- 415 a Flowers violet-purple, with a spur.....*Galeorchis.* p 138
 b Flowers purple, not with a spur*Leptorchis.* p 139
- 416 a Flowers whitish, less than 1 in. broad 417
 b Flowers pink or purple, about 1 in. or more long 419
- 417 a Flowers not with a spur, arranged in a somewhat spir-
 ally twisted spike*Gyrostachys.* p 139
 b Flowers with an incurved spur 418
- 418 a Plant with numerous leaves 3-10 in. long.*Limnorchis.* p 138
 b Plant with 1 conspicuous leaf near the base
Gymnadeniopsis. p 138
- 419 a Stalk 3-15-flowered; leaf linear, 8-12 in. long
Limodorum. p 139
 b Stalk usually 1-flowered 420
- 420 a Leaves ovate, $\frac{1}{2}$ -3 in. long*Pogonia.* p 139
 b Leaves linear, 4-6 in. long*Arethusa.* p 139
- 421 a Ovary inferior 422
 b Ovary superior 424
- 422 a Flowers $\frac{3}{4}$ in. or less broad*Sisyrinchium.* p 138
 b Flowers 1 in. or more broad 423
- 423 a Flowers orange-yellow; perianth parts all spreading
Gemmingia. p 138
 b Flowers blue, violet, or purple*Iris.* p 137
- 424 a Flowers in a solitary head terminal on the stalk; leaves
 all basal*Eriocaulon.* p 132
 b Flowers not in a solitary terminal head 425
- 425 a Plants with an onion-like odor*Allium.* p 133
 b Plants not with an onion-like odor 426
- 426 a Pistils more than 1 to each flower 427
 b Pistil 1 to each flower 428
- 427 a Flowers in panicles*Alisma.* p 112
 b Flowers in whorls of 3*Sagittaria.* p 112
- 428 a Flowers blue, purple, or rose colored 429
 b Flowers not colored as in a 430
- 429 a Flowers 1-2 in. broad, subtended by leaf-like bracts
Tradescantia. p 132
 b Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad*Streptopus.* p 136
- 430 a Flowers about $\frac{1}{4}$ in. or less broad 431
 b Flowers $\frac{1}{2}$ in. or more broad 432
- 431 a Both basal and stem leaves present; flowers in wand-
 like racemes*Chamaelirium.* p 133
 b Only stem leaves present; flowers in panicles or short
 racemes*Vagnera.* p 135

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- 432 a Leaves 3, broadly ovate, arranged in a terminal whorl
Trillium. p 136
 b Leaves not completely as in a 433
- 433 a Stem leaves present *Lilium.* p 134
 b Leaves all basal 434
- 434 a Flowers whitish; leaves somewhat fleshy
Ornithogalum. p 135
 b Flowers orange colored; leaves not fleshy
Hemerocallis. p 133
- 435 a Flowers with the corolla or colored part of the perianth
 more or less tubular 436
 b Flowers with the petals or perianth parts distinct 520
- 436 a Flowers regular 437
 b Flowers irregular 487
- 437 a Vines with tendrils 438
 b Plants not with tendrils 439
- 438 a Leaves deeply 3-7-lobed, the lobes triangular-lanceolate
Micranthus. p 216
 b Leaves rounded, 5-angled or somewhat 5-lobed
Sicyos. p 216
- 439 a Perianth 6-lobed; leaves all basal and with parallel
 veins 440
 b Corolla 2-5-lobed 441
- 440 a Flowers blue; leaves linear *Muscari.* p 135
 b Flowers white; leaves lanceolate *Aletris.* p 135
- 441 a Leaves clustered in a single whorl at the top of the
 stem *Trientalis.* p 198
 b Leaves not clustered as in a 442
- 442 a Leaves all basal 443
 b Leaves not all basal 444
- 443 a Leaves simple; flowers borne in a panicle. *Limonium.* p 198
 b Leaves compound with 3 leaflets; flowers in racemes
Menyanthes. p 199
- 444 a Leaves opposite or in whorls on the stem 445
 b All leaves alternate on the stem 460
- 445 a Flowers solitary or 2 together in the axils of the leaves. 446
 b Flowers not completely as in a 452
- 446 a Flowers 2 together in the axils, their ovaries united;
 leaves thick *Mitchella.* p 213
 b Flowers solitary in the axils of the leaves 447
- 447 a Ovary inferior 448
 b Ovary superior 449
- 448 a Plants prostrate or ascending; leaves rough. *Diodia.* p 213
 b Plants erect; leaves not rough *Houstonia.* p 213
- 449 a Flowers $\frac{3}{4}$ in. or more broad; leaves thick, evergreen
Vinca. p 200
 b Flowers $\frac{1}{4}$ in. or less broad; leaves not evergreen 450

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- 450 a Flowers blue; plant with sticky hairs....*Isanthus*. p 205
 b Flowers white to scarlet; plants not with sticky hairs.. 451
- 451 a Stalks of flowers $\frac{1}{2}$ -2 in. long; leaves not fleshy
Anagallis. p 198
 b Stalks of flowers about $\frac{1}{4}$ in. long; leaves fleshy
Glaux. p 198
- 452 a Ovary inferior 453
 b Ovary superior 455
- 453 a Leaves pinnately divided into 7-25 segments
Valeriana. p 216
 b Leaves simple, not divided 454
- 454 a Leaves in whorls on the 4-sided stem*Galium*. p 213
 b Leaves opposite on the stem*Houstonia*. p 213
- 455 a Leaves with margins sharply toothed 456
 b Leaves with margins more or less entire 457
- 456 a Corolla 4-lobed; stamens 2, longer than the corolla
Leptandra. p 211
 b Corolla 5-lobed; stamens 4, not longer than the corolla
Verbena. p 203
- 457 a Flowers about $\frac{1}{4}$ in. or less broad*Isanthus*. p 205
 b Flowers $\frac{1}{2}$ in. or more broad 458
- 458 a Corolla lobes not spreading at right angles to the tube;
 flowers blue*Gentiana*. p 199
 b Corolla lobes spreading more or less at right angles to
 the tube 459
- 459 a Corolla tube much shorter than the lobes....*Sabbatia*. p 199
 b Corolla tube nearly as long as the lobes....*Phlox*. p 202
- 460 a Ovary inferior 461
 b Ovary superior 463
- 461 a Leaves clasping at the base*Specularia*. p 217
 b Leaves not clasping at the base 462
- 462 a Plants erect; perianth 5-lobed; flowers usually blue
Campanula. p 217
 b Plant creeping; perianth 3-lobed; flowers not blue
Asarum. p 145
- 463 a Flowers about $\frac{1}{4}$ in. or less broad 464
 b Flowers $\frac{1}{2}$ in. or more broad 472
- 464 a Leaves lobed or pinnately compound..*Hydrophyllum*. p 202
 b Leaves with entire or wavy-toothed margins 465
- 465 a Corolla tube closed by 5 scales attached opposite the
 corolla lobes 466
 b Corolla tube without conspicuous scales as in a 467
- 466 a Nutlets spreading, entirely covered with prickles
Cynoglossum. p 202
 b Nutlets erect or incurved, covered only on the back and
 margins with prickles*Lappula*. p 202

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- 467 a Style thread-like, much longer than the corolla tube;
corolla lobes erect *Onosmodium*. p 203
b Styles not as in a; corolla lobes spreading 468
- 468 a Flowers in racemes 469
b Flowers in umbels or panicles 470
- 469 a Racemes with numerous, leafy bracts. *Lithospermum*. p 203
b Racemes not with numerous, leafy bracts. *Myosotis*. p 203
- 470 a Flowers in panicles; stamens opposite the corolla lobes
Samolus. p 197
b Flowers in umbels 471
- 471 a Calyx lobes present; stamens alternate with the corolla
lobes *Solanum*. p 208
b No green calyx present; stamens opposite the perianth
lobes *Comandra*. p 145
- 472 a Leaves pinnately compound 473
b Leaves simple with entire, toothed, or lobed margins. 475
- 473 a Flowers not in panicles *Solanum*. p 208
b Flowers in panicles 474
- 474 a Climbing vines *Adlumia*. p 155
b Erect plants *Polemonium*. p 202
- 475 a Climbing or trailing vines 476
b Erect herbs 478
- 476 a Flowers about 1/2 in. broad with 2 greenish spots at the
base of each corolla lobe. *Solanum dulcamara*. p 209
b Flowers 1 in. or more broad 477
- 477 a Leaves usually heart-shaped at base; stigma globose
Ipomoea. p 201
b Leaves not usually heart-shaped at base; stigma 2-lobed
Convolvulus. p 201
- 478 a Flowers 3-7 in. long; ovary often covered with prickles
Datura. p 209
b Flowers 2 in. or less long; ovary not covered with
prickles 479
- 479 a Stamens covered with long, violet hairs
Verbascum blattaria. p 210
b Stamens not covered with violet hairs 480
- 480 a Flowers 1-2 in. broad 481
b Flowers 1 in. or less broad 482
- 481 a Leaves with entire margins *Petunia*. p 210
b Leaves with lobed or toothed margins *Physalodes*. p 210
- 482 a Corolla tube with 5 scales at its opening opposite the
lobes 483
b Corolla tube not with scales at its opening 485
- 483 a Anthers united into a cone about the style. *Borago*. p 203
b Anthers not united into a cone about the style 484

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- 484 *a* Flowers $\frac{1}{2}$ in. or less broad, in paniced racemes
Cynoglossum. p 202
b Flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, in recurved racemes or clusters
Symphytum. p 203
- 485 *a* Corolla bell-shaped or funnel-shaped.....*Physalis.* p 209
b Corolla wheel-shaped with lobes spreading more or less
at right angles to the tube 486
- 486 *a* Stamens forming a cone about the style, not concealed
in the corolla tube*Solanum.* p 208
b Stamens not forming a cone as in *a*, included within
the corolla tube*Phlox.* p 202
- 487 *a* Corolla with a spur at its base...*Linaria canadensis.* p 210
b Corolla not with a spur at the base 488
- 488 *a* All leaves alternate on the stem 489
b Some or all of the leaves opposite or in whorls on
the stem 500
- 489 *a* Corolla split to the base on one side; anthers joined
into a tube about the style*Lobelia.* p 217
b Flowers not completely as in *a* 490
- 490 *a* Bracts subtending the flowers scarlet, very conspicuous
Castilleja. p 212
b Bracts subtending the flowers not scarlet 491
- 491 *a* Leaves pinnately lobed or divided.....*Pedicularis.* p 212
b Leaves not completely as in *a* 492
- 492 *a* Flowers with long violet hairs on the stamens
Verbascum blattaria. p 210
b Flowers not with violet hairs on the stamens 493
- 493 *a* Flowers $\frac{1}{2}$ in. or less long or broad 494
b Flowers $\frac{3}{4}$ in. or more long or broad 496
- 494 *a* Stamens 2*Veronica.* p 211
b Stamens 6-8 495
- 495 *a* Stamens 6, joined to the pistil*Aristolochia.* p 155
b Stamens 6-8, not joined to the pistil*Polygala.* p 179
- 496 *a* Leaves with toothed margins*Digitalis.* p 211
b Leaves with entire or wavy margins 497
- 497 *a* The base of the lower lip of corolla swollen so as to
nearly close the tube *Antirrhinum.* p 210
b Base of the lower lip not swollen 498
- 498 *a* Flowers blue*Echium.* p 203
b Flowers not blue 499
- 499 *a* Plant strong-scented, densely covered with glandular
hairs; flowers slightly 2-lipped.....*Martynia.* p 212
b Plant not strong-scented; flowers strongly 2-lipped
Schwalbea. p 212
- 500 *a* Leaves in whorls on the stem; stamens 6-8..*Polygala.* p 179
b Leaves opposite, rarely in whorls; stamens 5 or less.. 501

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- 501 a Ovary inferior 502
 b Ovary superior 503
- 502 a Flowers $\frac{1}{2}$ -1 in. long, solitary or clustered in the axils
Triosteum. p 215
 b Flowers about $\frac{1}{4}$ in. long, in panicles....*Valeriana.* p 216
- 503 a Ovary deeply 4-lobed*Labiatae.* p 204
 b Ovary not deeply 4-lobed 504
- 504 a Flowers $\frac{1}{2}$ in. or less long 505
 b Flowers $\frac{3}{4}$ in. or more long 514
- 505 a Flowers solitary in the axils of the leaves 506
 b Flowers not solitary in the axils of the leaves 509
- 506 a Calyx 4-toothed*Melampyrum.* p 212
 b Calyx 5-lobed or 5-parted 507
- 507 a Leaves linear; flowers only slightly irregular, rose-purple
Gerardia. p 212
 b Leaves lanceolate to ovate 508
- 508 a Calyx subtended by 2 bractlets; flowers white or whitish
Gratiola. p 211
 b Calyx not subtended by 2 bractlets; flowers purplish
Ilysanthes. p 211
- 509 a Flowers in dense spikes 510
 b Flowers in racemes or panicles 512
- 510 a Leaves pinnately lobed or divided.....*Pedicularis.* p 212
 b Leaves not completely as in *a* 511
- 511 a Leaves with entire margins*Dianthera.* p 213
 b Leaves with toothed margins*Phyrma.* p 213
- 512 a Flowers greenish-purple, in panicles; stamens 4-5
Scrophularia. p 210
 b Flowers in racemes; stamens 2 513
- 513 a Racemes densely flowered; stamens longer than the
 corolla*Leptandra.* p 211
 b Racemes loosely flowered; stamens not longer than the
 corolla*Veronica.* p 211
- 514 a Flowers woolly within, white or faintly pink.*Chelone.* p 210
 b Flowers not woolly within 515
- 515 a Flowers in bracted spikes; leaves pinnately lobed or
 divided*Pedicularis.* p 212
 b Flowers not in bracted spikes; leaves entire or toothed 516
- 516 a Corolla swollen on one side at the base..*Antirrhinum.* p 210
 b Corolla not swollen on one side as in *a* 517
- 517 a Flowers solitary in the axils*Mimulus.* p 210
 b Flowers in racemes or panicles 518
- 518 a Leaves linear*Gerardia.* p 212
 b Leaves not linear 519

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- 519 *a* Leaves heart-shaped; plant clothed with glandular or sticky hairs *Martynia*. p 212
b Leaves ovate to lanceolate; plants not clothed with hairs as in *a* *Pentstemon*. p 210
- 520 *a* One or more of the petals or perianth parts with a spur at the base 521
b None of the petals with a spur at the base 528
- 521 *a* Each flower with 5 spurs; flowers usually reddish
Aquilegia. p 152
b Each flower with 1 or 2 spurs 522
- 522 *a* Leaves simple, not finely dissected 523
b Leaves compound, divided, or dissected 524
- 523 *a* One sepal petal-like and spurred, the spur usually bent upward *Impatiens*. p 184
b One petal with a short straight spur *Viola*. p 187
- 524 *a* Sepals 5, petal-like; flowers with 1 or 2 spurs; stamens numerous 525
b Sepals 2, very small or sometimes wanting; stamens 6.. 526
- 525 *a* Upper sepal hooded or helmet-shaped..... *Aconitum*. p 152
b Upper sepal spurred, not hooded..... *Delphinium*. p 152
- 526 *a* Two petals with rounded spurs at the base. *Bicuculla*. p 155
b One petal spurred at the base 527
- 527 *a* Flowers $\frac{1}{4}$ in. or less long, purplish *Fumaria*. p 155
b Flowers about $\frac{1}{2}$ in. long, pink with yellow. *Capnoides*. p 155
- 528 *a* Flowers distinctly irregular 529
b Flowers regular 534
- 529 *a* Leaves simple with entire or toothed margins..... 530
b Leaves compound or dissected 532
- 530 *a* Petals 6; stamens 11 or 12; leaves opposite or in whorls
Parsonsia. p 189
b Petals 3 or 4; stamens 6-8; leaves alternate or in whorls 531
- 531 *a* Petals 4; leaves with few-toothed margins... *Gaura*. p 190
b Petals 3, more or less united; leaves with entire margins
Polygala. p 179
- 532 *a* Leaves compound; 2 lower petals joined to form a keel
Papilionaceae. p 171
b Leaves dissected; petals not joined to form a keel... 533
- 533 *a* Flowers in racemes; upper sepal hood-shaped
Aconitum. p 152
b Flowers in umbels; sepals very small or wanting
Daucus. p 193
- 534 *a* Leaves simple with entire or toothed margins, not lobed 535
b At least some leaves compound, dissected, or lobed.. 595

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- 535 *a* Leaves hollow, pitcher-shaped, with a terminal lid
Sarracenia. p 160
b Leaves not as in *a* 536
- 536 *a* Leaves all basal 537
b Stem leaves present and sometimes basal ones also 540
- 537 *a* Leaves clothed with sticky hairs *Drosera*. p 160
b Leaves not clothed with sticky hairs 538
- 538 *a* Leaves conspicuously thick and fleshy. *Sempervivum*. p 161
b Leaves not thick or fleshy 539
- 539 *a* Flowers with 10 stamens; flowers in racemes. *Pyrola*. p 194
b Flowers with 5 fertile stamens; flowers solitary on a
1-leaved flowering stalk *Parnassia*. p 161
- 540 *a* Some or all of leaves opposite or in whorls on the stem 541
b All leaves alternate on the stem 570
- 541 *a* Petals 2; stamens 2; ovary covered with hooked bristles
especially in fruit *Circaea*. p 190
b Petals 4 or more; stamens 4 or more 542
- 542 *a* Ovary inferior 543
b Ovary superior 544
- 543 *a* Plant growing prostrate on the ground. *Isnardia*. p 189
b Plants erect *Epilobium*. p 190
- 544 *a* Stamens 15 or more 545
b Stamens 12 or less 546
- 545 *a* Leaves in a single whorl beneath the single white
flower *Syndesmon*. p 153
b Leaves opposite, not in a single whorl. *Hypericum*. p 186
- 546 *a* Prostrate herb with leaves in whorls of 5 or 6; flowers
in the axils of the leaves *Mollugo*. p 149
b Plants not completely as in *a* 547
- 547 *a* Flowers with 2 sepals; leaves usually 2, linear, 3-8 in.
long *Claytonia*. p 149
b Flowers with 4 or more sepals or with a tubular calyx 548
- 548 *a* Calyx tubular with 4 or more lobes or teeth 549
b Calyx of separate sepals 558
- 549 *a* Flowers about $\frac{1}{4}$ in. long; petals 4 *Rotala*. p 189
b Flowers $\frac{1}{2}$ in. or more long or broad 550
- 550 *a* Plant clothed with long, silky hairs; leaves linear
Agrostemma. p 149
b Plants not completely as in *a* 551
- 551 *a* Flowers in axillary clusters; plant 3-10 ft. high
Decodon. p 189
b Plants not completely as in *a* 552
- 552 *a* Flowers purple; stamens usually 8, sometimes 6-12,
attached to the tube of the corolla 553
b Flowers not purple; stamens 10 554
- 553 *a* Flowers about $\frac{1}{2}$ in. broad, in bracted spikes. *Lythrum*. p 189
b Flowers 1-2 in. broad, not in bracted spikes. *Rhexia*. p 189

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- 554 *a* Styles of flower 5 *Lychnis*. p 149
b Styles of flower 2 or 3 555
- 555 *a* Styles of flower 3 *Silene*. p 149
b Styles of flower 2 556
- 556 *a* Leaves with clasping bases *Vaccaria*. p 150
b Leaves not with clasping bases 557
- 557 *a* Leaves ovate; petals not notched or cleft. *Saponaria*. p 150
b Leaves usually linear; petals usually notched or cleft
Dianthus. p 150
- 558 *a* Flowers $\frac{1}{2}$ in. or more broad 559
b Flowers usually about $\frac{1}{4}$ in. or less broad 562
- 559 *a* Flowers pink or purplish *Triadenum*. p 186
b Flowers white 560
- 560 *a* Leaves lanceolate, often spotted with white veins
Chimaphila. p 194
b Leaves rounded to ovate, not spotted 561
- 561 *a* Flowering stalk with a single flower *Moneses*. p 194
b Flowering stalk with 3-20 flowers *Pyrola*. p 194
- 562 *a* Petals 3; stamens 3-12 *Lechea*. p 186
b Petals 5 or 10; stamens 5 or 10 563
- 563 *a* Petals deeply notched or cleft, appearing like 10 564
b Petals not deeply notched or cleft 565
- 564 *a* Styles 3; capsule or ovary ovoid or oblong. *Alsine*. p 150
b Styles 5; capsule or ovary cylindrical, sometimes curved
Cerastium. p 150
- 565 *a* Flowers pink *Tissa*. p 151
b Flowers white 566
- 566 *a* Fleshy plant growing on sea-beaches; leaves with clasping
bases *Ammodenia*. p 150
b Plants not fleshy; leaves not clasping at the base.... 567
- 567 *a* Stamens of the same number as the sepals. *Sagina*. p 151
b Stamens usually twice as many as the sepals 568
- 568 *a* Leaves about $\frac{1}{4}$ in. long, awl-shaped to ovate
Arenaria. p 151
b Leaves $\frac{1}{2}$ in. or more long 569
- 569 *a* Leaves $\frac{1}{2}$ -1 in. long, oval or oblong, opposite
Moehringia. p 151
b Leaves 1-2 in. long, linear, in whorls..... *Spergula*. p 151
- 570 *a* Ovary inferior 571
b Ovary superior 574
- 571 *a* Plants creeping on the ground 572
b Plants erect 573
- 572 *a* Leaves rounded *Hydrocotyle*. p 192
b Leaves linear *Lilaeopsis*. p 193
- 573 *a* Flowers $\frac{3}{4}$ -1 in. broad *Chamaenerion*. p 189
b Flowers about $\frac{1}{4}$ in. broad *Epilobium*. p 190

KEY FOR JUNE TO NOVEMBER

- 574 a Stems with a membranous sheath at the base of each leaf 575
 b Stems not with a membranous sheath at the base of each leaf 577
- 575 a Cultivated grain, sometimes escaped, with rather fleshy stem and triangular-heart-shaped leaves. *Fagopyrum*. p 146
 b Plants not completely as in a 576
- 576 a Leaves linear; stalks of flowers solitary, not clustered *Polygonella*. p 147
 b Leaves variously shaped; stalks of flowers usually clustered *Polygonum*. p 146
- 577 a Climbing or trailing vines with rounded, angled leaves *Menispermum*. p 154
 b Plants not completely as in a 578
- 578 a Perianth not differentiated into green calyx and colored corolla 579
 b Perianth differentiated into green calyx and colored corolla 580
- 579 a Plant 6 in. or less high with 2 or 3 leaves. *Unifolium*. p 135
 b Plant 2 ft. or more high *Phytolacca*. p 149
- 580 a Petals 3; sepals 5, the 2 outer smaller and narrower *Lechea*. p 186
 b Petals 4 or more 581
- 581 a Petals 4; sepals 4; stamens 6, 2 of which are shorter.. 582
 b Petals 5 or more 589
- 582 a Plant fleshy, growing on sea-beaches; pods or ovaries usually 2-jointed *Cakile*. p 158
 b Plants not fleshy; pods or ovaries not jointed 583
- 583 a Flowers $\frac{3}{4}$ -1 in. broad, purple or white 584
 b Flowers $\frac{1}{2}$ in. or less broad, white 585
- 584 a Leaves 3-6 in. long, broadly ovate and heart-shaped *Lunaria*. p 160
 b Leaves 1-3 in. long, ovate to lanceolate.... *Hesperis*. p 159
- 585 a Plant very hairy throughout, hoary; pods or ovaries hairy *Berteroa*. p 159
 b Plants not completely as in a 586
- 586 a Flowers fragrant; plants procumbent or ascending *Koniga*. p 159
 b Flowers not fragrant; plants erect 587
- 587 a Basal leaves 4-15 in. long, oblong; pods or ovaries circular, flattened *Roripa armoracia*. p 158
 b Plants not completely as in a 588
- 588 a Basal leaves usually rounded *Cardamine*. p 159
 b Basal leaves not rounded *Arabis*. p 159
- 589 a Plant with a single, ovate stem-leaf below the solitary flower *Parnassia*. p 161
 b Plants not completely as in a 590

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- 590 *a* Leaves thick and fleshy *Sedum*. p 160
b Leaves not thick and fleshy 591
- 591 *a* Leaves rounded-heart-shaped 592
b Leaves not rounded-heart-shaped 593
- 592 *a* Flowers pale blue to reddish-purple *Malva*. p 185
b Flowers white *Dalibarda*. p 164
- 593 *a* Flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, blue *Linum*. p 178
b Flowers about $\frac{1}{4}$ in. or less broad, white or whitish.. 594
- 594 *a* Petals 5; stamens 5 *Samolus*. p 197
b Petals 6; stamens 8-30 *Reseda*. p 160
- 595 *a* Ovary inferior; flowers arranged in umbels; petals 5;
 stamens 5 596
b Ovary superior; flowers not completely as in *a* 598
- 596 *a* Leaves 3 in a whorl beneath the umbel; leaflets 3-5
Panax. p 191
b Leaves more than 3; plants not completely as in *a* 597
- 597 *a* Styles 5 *Aralia*. p 190
b Styles 2, often appearing expanded at the base
Umbelliferae. p 191
- 598 *a* Climbing or trailing vines 3 ft. or more long 599
b Erect or decumbent herbs 601
- 599 *a* Two tendrils beneath each corymb.... *Cardiospermum*. p 183
b No tendrils beneath the flowers as in *a* 600
- 600 *a* Flowers $\frac{3}{4}$ in. or more broad; leaves with 3 leaflets
Clematis. p 153
b Flowers $\frac{1}{4}$ in. or less broad; leaves simple, rounded
Menispermum. p 154
- 601 *a* Perianth not differentiated into green calyx and colored
 corolla 602
b Perianth differentiated into green calyx and colored
 corolla 609
- 602 *a* Flowers reddish, about $\frac{1}{8}$ in. broad; leaves with basal
 lobes *Rumex acetosella*. p 145
b Flowers not completely as in *a* 603
- 603 *a* Flowers about 2 in. broad, borne singly in the axils
 of 2 umbrella-like leaves *Podophyllum*. p 154
b Flowers less than 2 in. broad, not borne as in *a* 604
- 604 *a* All leaves basal *Coptis*. p 152
b Leaves not all basal 605
- 605 *a* Flowers usually solitary on elongated stalks 606
b Flowers in compact or elongated spikes or racemes.. 607
- 606 *a* Leaflets rounded to oblong, somewhat 3-lobed toward
 apex *Syndesmon*. p 153
b Leaflets variously toothed, lobed, or divided, not as in *a*
Anemone. p 152

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- 607 a Stamens 4; leaves singly compound....*Sanguisorba*. p 166
 b Stamens numerous; leaves ternately compound 608
- 608 a Racemes $\frac{1}{2}$ -2 ft. long, plume-like*Cimicifuga*. p 152
 b Racemes 3 in. or less long*Actaea*. p 152
- 609 a Sepals 4; petals 4 610
 b Petals 5 or more; flowers not completely as in a 618
- 610 a Plant fleshy; pods or ovaries usually 2-jointed; flowers
 light purple; plant growing on sea beaches
Cakile. p 158
 b Plants not completely as in a 611
- 611 a Leaves palmately compound 612
 b Leaves lobed or pinnately compound or divided 613
- 612 a Stamens 6; pods with long stalks; flowers purplish
 to white*Cleome*. p 160
 b Stamens 9-12; pods not with long stalks; flowers yel-
 lowish-white*Polanisia*. p 160
- 613 a Pods or ovaries triangular, flattened; flowers small,
 white*Bursa*. p 159
 b Pods or ovaries not triangular 614
- 614 a Pods or ovaries apparently double, about $\frac{1}{2}$ as long
 as broad, wrinkled*Coronopus*. p 157
 b Pods or ovaries not completely as in a 615
- 615 a Basal leaves 4-8 in. long with terminal lobe several
 times larger than the lateral lobes.....*Raphanus*. p 158
 b Basal leaves not completely as in a 616
- 616 a Pods or ovaries circular, flattened; flowers very small,
 white*Lepidium*. p 157
 b Pods or ovaries not completely as in a 617
- 617 a Stem leaves linear or lanceolate, entire or slightly
 toothed, basal leaves not rounded*Arabis*. p 159
 b Stem leaves usually pinnately divided, or oblong with
 basal leaves sometimes rounded*Cardamine*. p 159
- 618 a Calyx lobes 2-3; petals 2-3; stamens 4-6..*Floerkea*. p 181
 b Calyx lobes 4-7; petals 5-6; stamens 5 to many 619
- 619 a Calyx 4-7-parted; petals 6, toothed*Reseda*. p 160
 b Calyx lobes 5; petals 5 620
- 620 a Stamens 5 or 10 621
 b Stamens numerous, 15 or more 622
- 621 a Leaves with 3 inversely heart-shaped leaflets.*Oxalis*. p 178
 b Leaves not completely as in a*Geranium*. p 177
- 622 a Stamens united into a column around the pistil 623
 b Stamens not united into a column around the pistil 624
- 623 a Plant 2 ft. or less high; calyx subtended by 3 bracts
Malva. p 185
 b Plant 2 ft. or more high; calyx subtended by 6-9 bracts
Althaea. p 185

KEY FOR JUNE TO NOVEMBER

- 624 a Leaves all basal; leaflets 3; flowers white....*Fragaria*. p 164
 b Leaves not all basal 625
- 625 a Plant decumbent; flowers purple*Comarum*. p 165
 b Plants erect 626
- 626 a Leaflets covered with glandular or sticky hairs on the
 upper surface*Drymocallis*. p 164
 b Leaflets not covered with glandular hairs as in a 627
- 627 a Flowers 1-2 in. broad; pistils 5; leaflets 3
Porteranthus. p 164
 b Flowers 1 in. or less broad 628
- 628 a Flowers fragrant, in large panicles; pistils 5-15
Ulmaria. p 166
 b Flowers not fragrant, in cymes; pistils 15 or more
Geum. p 165

III

Key to the Wild and Cultivated Trees and Shrubs in Autumn

- | | | | |
|----|----------|--|-----------------------------|
| 1 | <i>a</i> | Leaves about $\frac{1}{8}$ in. or less broad, often evergreen | 2 |
| | <i>b</i> | Leaves more than $\frac{1}{4}$ in. broad | 20 |
| 2 | <i>a</i> | Leaves scale-like, more or less appressed to the stem,
the tips sometimes spreading | 3 |
| | <i>b</i> | Leaves awl-shaped, linear, or needle-like | 8 |
| 3 | <i>a</i> | Low shrubs usually 2 ft. or less high | 4 |
| | <i>b</i> | Shrubs or trees 3 ft. or more high | 5 |
| 4 | <i>a</i> | Cultivated shrub; leaves in 4 rows on the stem | |
| | | <i>Calluna.</i> p 195 | |
| | <i>b</i> | Native shrubs; leaves not in 4 rows on the stem | |
| | | <i>Hudsonia.</i> p 186 | |
| 5 | <i>a</i> | Leaves alternate, usually in 2 rows on the stem;
branches often plume-like | <i>Tamarix.</i> p 186 |
| | <i>b</i> | Leaves opposite, usually in 4 rows on the stem | 6 |
| 6 | <i>a</i> | Branchlets appear more or less 4-sided, not flattened
laterally; all leaves more or less keeled | |
| | | <i>Juniperus virginiana.</i> p 109 | |
| | <i>b</i> | Branchlets appear much flattened laterally, 2 rows of
leaves flat, 2 rows keeled | 7 |
| 7 | <i>a</i> | Branchlets about $\frac{1}{8}$ in. broad | <i>Thuja.</i> p 109 |
| | <i>b</i> | Branchlets about $\frac{1}{16}$ in. broad, or the tips of leaves
spreading | <i>Chamaecyparis.</i> p 109 |
| 8 | <i>a</i> | Leaves in clusters on the stem | 9 |
| | <i>b</i> | Leaves attached singly to the stem | 11 |
| 9 | <i>a</i> | Leaves 2-5 in a cluster | <i>Pinus.</i> p 107 |
| | <i>b</i> | Leaves 10 or more in a cluster | 10 |
| 10 | <i>a</i> | Leaves deciduous, borne on short, bud-like branches | |
| | | <i>Larix.</i> p 108 | |
| | <i>b</i> | Leaves evergreen, not borne on bud-like branches | |
| | | <i>Cedrus.</i> p 108 | |
| 11 | <i>a</i> | Leaves 3-6 in. long, in whorls at the ends of the branches | |
| | | <i>Sciadopitys.</i> p 109 | |
| | <i>b</i> | Leaves 2 in. or less long | 12 |

KEY TO TREES AND SHRUBS IN AUTUMN

- 12 a Each leaf extending down the stem, not jointed to it; leaves awl-shaped *Cryptomeria*. p 109
 b Each leaf not extending down the stem but jointed to it 13
- 13 a Leaves thick, somewhat 4-sided; branchlets very rough. 14
 b Plants not completely as in a 15
- 14 a Leaves about $\frac{1}{4}$ in. long; native shrub..... *Corema*. p 180
 b Leaves usually more than $\frac{1}{4}$ in. long *Picea*. p 108
- 15 a Leaves rigid, tapering to the apex, somewhat channeled 16
 b Leaves flat, not channeled or tapering 17
- 16 a Native shrubs; leaves sometimes arranged in threes on the stem *Juniperus*. p 109
 b Cultivated shrubs; leaves arranged in 4 rows on the stem *Chamaecyparis*. p 109
- 17 a Branches rather rough, covered with small projections where the leaves have been attached 18
 b Branches without projections as in a 19
- 18 a Leaves blunt at apex, about $\frac{1}{2}$ in. long, whitish beneath when fresh *Tsuga*. p 108
 b Leaves pointed at apex, about $\frac{3}{4}$ -1 in. long, green beneath *Taxus*. p 107
- 19 a Leaves deciduous, appearing only on new branches; the branchlets often deciduous *Taxodium*. p 109
 b Leaves evergreen, appearing on 2-year old branches
Abies. p 108

Leaves Opposite, Compound

- 20 a Leaves or leaf-scars opposite or in whorls on the branches 21
 b Leaves or leaf-scars alternate on the branches 71
- 21 a Leaves compound, composed of 3 or more leaflets 22
 b Leaves simple 30
- 22 a Leaves palmately compound, consisting of 5 or more leaflets *Aesculus*. p 183
 b Leaves pinnately compound 23
- 23 a Climbing woody vine often with aerial rootlets
Tecoma. p 212
 b Trees or shrubs not climbing 24
- 24 a Leaflets 3 or 5 to each leaf 25
 b Leaflets 7-11, rarely 5, to each leaf 27
- 25 a Twigs 4-angled; fruit berry-like; plant more usually cultivated in tubs *Jasminum*. p 198
 b Twigs not 4-angled; fruit not berry-like 26
- 26 a Leaflets coarsely and irregularly toothed; fruit winged
Acer negundo. p 182
 b Leaflets finely toothed; fruit an inflated capsule
Staphylea. p 182

KEY TO TREES AND SHRUBS IN AUTUMN

- 27 *a* Stems with numerous dark spots or lenticels; pith of stem as thick as the wood *Sambucus*. p 214
b Stems not completely as in *a* 28
- 28 *a* Cultivated tree with light gray, furrowed, corky bark; fruit fleshy, globose, black..... *Phellodendron*. p 179
b Trees or shrubs not completely as in *a* 29
- 29 *a* Leaflets finely and sharply toothed; fruit a drupe
Sambucus. p 214
b Leaflets entire or bluntly toothed; fruit winged
Fraxinus. p 198

Leaves Opposite, Simple

- 30 *a* Leaves with lobed margins 31
b Leaves with entire or toothed margins, the teeth $\frac{1}{4}$ in. or less long 33
- 31 *a* Trees, rarely shrubs; fruit wanting, or present and winged *Acer*. p 182
b Shrubs 2-12 ft. high; fruit somewhat fleshy, usually present 32
- 32 *a* Leaves deeply 3-lobed toward the apex; usually cultivated shrub *Viburnum opulis*. p 215
b Leaves variable, usually rather shallow lobed toward the apex; native species *Viburnum acerifolium*. p 215
- 33 *a* Leaves with entire or wavy margins 34
b Leaves with more or less toothed margins 52
- 34 *a* Shrub 5-10 in. high, spreading on the ground; leaves sessile, dotted *Ascyrum*. p 186
b Trees or shrubs 1 ft. or more high, not completely as in *a* 35
- 35 *a* Trees with broadly ovate or heart-shaped leaves 5-12 in. long 36
b Shrubs or small trees with leaves usually less than 5 in. long 37
- 36 *a* Fruit of long pods 6 in. or more long *Catalpa*. p 212
b Fruit of short capsules 1-2 in. long..... *Paulownia*. p 210
- 37 *a* Leaves scurfy with star-shaped hairs at least on the under side; fruit drupe-like *Lepargyrea*. p 189
b Leaves not as in *a* 38
- 38 *a* Small tree, more usually planted in tubs; leaves 3-8 in. long, usually in whorls of 3 *Nerium*. p 200
b Shrubs or trees not completely as in *a* 39
- 39 *a* Fruit usually present, globose, 1-2 in. in diameter, on stalks 1-2 in. long *Cephalanthus*. p 213
b Fruit wanting or not completely as in *a* 40
- 40 *a* Leaves usually 1 in. or less long, $\frac{1}{2}$ in. or less broad, blunt at apex; twigs 4-sided *Buxus*. p 181
b Leaves usually 1 in. or more long 41

KEY TO TREES AND SHRUBS IN AUTUMN

- 41 *a* Climbing or trailing shrubs *Lonicera*. p 215
b Erect shrubs or small trees 42
- 42 *a* Leaves dark green, smooth; shrubs usually planted
for hedges *Ligustrum*. p 199
b Shrubs not completely as in *a* 43
- 43 *a* Leaves 1-2 in. long; fruit not in cymes or panicles 44
b Leaves usually 2 in. or more long 45
- 44 *a* Shrubs 2-4 ft. high; leaves oval; fruit sessile or on
short stalks *Symphoricarpos*. p 215
b Shrubs 4-10 ft. high; leaves ovate; fruit on stalks
 $\frac{1}{2}$ in. or more long *Lonicera*. p 215
- 45 *a* Leaves thick, evergreen, usually variegated. *Aucuba*. p 194
b Leaves not as in *a* 46
- 46 *a* Small tree with bark usually peeling in small rectangu-
lar patches, especially in older specimens; fruit of
red berries closely clustered; leaves much lighter
beneath *Cornus florida*. p 194
b Shrubs or small trees not completely as in *a* 47
- 47 *a* Leaves heart-shaped; cultivated shrub *Syringa*. p 199
b Leaves not heart-shaped 48
- 48 *a* Leaves 3-8 in. long, oval or oblong; fruit about 1 in.
long, fleshy *Chionanthus*. p 199
b Leaves not completely as in *a* 49
- 49 *a* Leaves usually shining; fruit a nutlet. *Fontanesia*. p 199
b Leaves not usually shining; fruit somewhat fleshy 50
- 50 *a* Leaves round-oval, abruptly pointed at apex; twigs
usually warty *Cornus circinata*. p 194
b Leaves not completely as in *a*; twigs not usually warty 51
- 51 *a* Leaves oval to obovate; wild shrub. *Viburnum nudum*. p 215
b Leaves ovate to lanceolate *Cornus*. p 193
- 52 *a* Fruit black, shining, about $\frac{1}{4}$ in. in diameter, usually
3 or 4 in a cluster subtended by leafy bracts
Rhodotypos. p 164
b Fruit wanting or not completely as in *a* 53
- 53 *a* Branches of shrub with 2-4 broad wings of cork; culti-
vated shrub *Euonymus alatus*. p 181
b Branches not with wings of cork 54
- 54 *a* Fruit a crimson capsule when ripe, enclosing 3-5 seeds
Euonymus. p 181
b Fruit wanting or not as in *a* 55
- 55 *a* Shrub growing in salt marshes; fruit greenish. *Iva*. p 221
b Shrubs or trees not growing in salt marshes 56
- 56 *a* Leaves woolly or scurfy beneath 57
b Leaves not woolly or scurfy beneath 59
- 57 *a* Fruit of winged nutlets; shrub sparingly cultivated
Caryopteris. p 203
b Fruit a fleshy drupe 58

KEY TO TREES AND SHRUBS IN AUTUMN

- 58 *a* Upper surface of leaves uneven; leaves ovate-heart-shaped *Viburnum lantana*. p 215
b Upper surface of leaves more or less even; leaves ovate to oblong *Viburnum tomentosum*. p 215
- 59 *a* Leaves evergreen, sparingly toothed, usually variegated
Aucuba. p 194
b Leaves not as in *a* 60
- 60 *a* Fruit usually present, consisting of red, yellow, blue, or black drupes arranged in cymes.... *Viburnum*. p 214
b Fruit usually wanting, or not completely as in *a* 61
- 61 *a* Wild shrubs; leaves 2-6 in. long, ovate or oval 62
b Cultivated shrubs 63
- 62 *a* Shrub 2-4 ft. high; fruit in clusters. *Diervilla diervilla*. p 216
b Shrub 4-10 ft. high; fruit in corymbs
Hydrangea arborescens. p 162
- 63 *a* Leaves with clusters of star-shaped hairs on the upper side *Deutzia*. p 162
b Leaves not with hairs as in *a* 64
- 64 *a* Shrub cultivated in tubs or boxes. *Hydrangea hortensis*. p 162
b Shrubs cultivated in lawns and parks 65
- 65 *a* Teeth on leaves few, not close together. *Philadelphus*. p 162
b Teeth on leaves numerous, close together 66
- 66 *a* Small tree; leaves 3-6 in. long, oblong-ovate
Acer carpinifolium. p 182
b Shrubs 67
- 67 *a* Leaves dotted beneath with star-shaped hairs
Callicarpa. p 203
b Leaves not dotted beneath as in *a* 68
- 68 *a* Leaves usually 2 in. or more broad; flowers sometimes present *Hydrangea paniculata*. p 162
b Leaves usually less than 2 in. broad 69
- 69 *a* Twigs circular; bark peeling in shreds; leaves 1-3 in. long, ovate-lanceolate *Diervilla*. p 216
b Twigs angled, light colored; leaves 2-6 in. long, ovate to lanceolate 70
- 70 *a* Leaves lanceolate to oblong; branches often green
Forsythia viridissima. p 198
b Leaves ovate to oblong-ovate.... *Forsythia suspensa*. p 198

Leaves Alternate, Compound

- 71 *a* Leaves compound, composed of 3 or more leaflets 72
b Leaves simple 106
- 72 *a* Trees or shrubs with thorns or prickles 73
b Trees or shrubs not with thorns or prickles 78

KEY TO TREES AND SHRUBS IN AUTUMN

- 73 a Tree usually with thorns 1 in. or more long on the trunk or branches; pods 6 in. or more long, brown; branches zigzag *Gleditsia*. p 170
 b Trees or shrubs not completely as in a 74
- 74 a Leaflets with more or less entire margins 75
 b Leaflets with toothed margins 76
- 75 a Fruit a black capsule 1 in. or less long. *Xanthoxylum*. p 179
 b Fruit a pod 3-6 in. long; usually spines for stipules; branches usually zigzag *Robinia*. p 173
- 76 a Leaves doubly compound *Aralia*. p 190
 b Leaves singly compound 77
- 77 a Leaves usually palmately compound or of 3 leaflets; fruit an aggregate of drupes but usually absent
Rubus. p 164
 b Leaves pinnately compound; fruit berry-like, fleshy, the enlargement of the receptacle tube. *Rosa*. p 166
 c Fruit yellow, fleshy, orange-like; leaflets 3; petioles winged *Citrus trifoliata*. p 179
- 78 a Climbing or trailing shrubs 79
 b Erect trees or shrubs 82
- 79 a Leaflets 9-13 *Wistaria*. p 173
 b Leaflets 3-7 80
- 80 a Vines with tendrils adhering by expanded disks
Parthenocissus. p 184
 b Vines without tendrils 81
- 81 a Leaflets 3; shrub with aerial rootlets. *Rhus radicans*. p 181
 b Leaflets 5 *Akebia*. p 154
- 82 a Leaflets 3 83
 b Leaflets 5 or more 86
- 83 a Leaflets with more or less toothed margins
Citrus trifoliata. p 179
 b Leaflets with entire or very sparingly toothed margins. 84
- 84 a Wild shrub; fruit grayish, globose, somewhat fleshy
Rhus radicans. p 181
 b Cultivated or wild shrubs; fruit a pod, or circular and winged 85
- 85 a Leaflets hairy beneath; fruit a flattened oblong pod about 2 in. long *Laburnum*. p 173
 b Leaflets not hairy beneath; fruit circular, winged
Ptelea. p 179
- 86 a Leaflets with 2-4 coarse teeth at the base; fruit winged
Ailanthus. p 179
 b Leaflets not as in a 87
- 87 a Fruit of red berry-like drupes in cymes, present on the tree; leaflets toothed especially toward the apex
Sorbus. p 167
 b Fruit and leaflets not completely as in a, or fruit wanting 88

KEY TO TREES AND SHRUBS IN AUTUMN

- 88 *a* Leaflets $\frac{1}{2}$ -1 in. long, with entire margins 89
b Leaflets usually 1 in. or more long 90
- 89 *a* Wild shrub $\frac{1}{2}$ -2 ft. high *Dasiphora*. p 164
b Cultivated shrub 5-15 ft. high *Colutea*. p 173
- 90 *a* Fruit in dense panicles, covered with reddish hairs,
 present on plant *Rhus*. p 181
b Fruit wanting or not as in *a* 91
- 91 *a* Leaflets with entire margins 92
b Leaflets with toothed margins 100
- 92 *a* Leaflets 8-12, even in number *Caragana*. p 173
b Leaflets 5-25, odd in number 93
- 93 *a* Leaves doubly compound; pods 6-10 in. long
Gymnocladus. p 170
b Leaves singly compound 94
- 94 *a* Wild shrub growing in swampy places. *Rhus vernix*. p 181
b Cultivated shrubs or trees 95
- 95 *a* Average leaflet 2-4 in. long 96
b Average leaflet 1-2 in. long 97
- 96 *a* Fruit a pod 2-4 in. long; bark smooth.... *Cladrastis*. p 173
b Fruit a nut 1-2 in. long; bark furrowed. *Juglans regia*. p 141
- 97 *a* Twigs covered with sticky hairs.... *Robinia viscosa*. p 173
b Twigs not covered with sticky hairs 98
- 98 *a* Leaflets hairy beneath *Sophora*. p 173
b Leaflets not hairy beneath 99
- 99 *a* Pods 2-4 in. long *Wistaria*. p 173
b Pods about $\frac{1}{4}$ in. long *Amorpha*. p 173
- 100 *a* Leaves clustered at the summit of the stem; leaflets
 sharply toothed or incised, 5 to each leaf
Xanthorrhiza. p 152
b Leaves not completely as in *a* 101
- 101 *a* Leaflets thick, evergreen, the margins spiny-toothed
Berberis japonica. p 154
b Leaflets not as in *a* 102
- 102 *a* Shrub 2-5 ft. high; fruit of small pods.... *Sorbaria*. p 164
b Trees; fruit wanting or not as in *a* 103
- 103 *a* Leaflets 8-14, usually even in number, coarsely and ir-
 regularly toothed or incised *Koelreuteria*. p 183
b Leaflets odd in number, more or less regularly toothed.. 104
- 104 *a* Leaflets 11 or less to each leaf *Hicoria*. p 141
b Leaflets 13 or more to each leaf 105
- 105 *a* Cultivated tree; nuts with wings about $\frac{3}{4}$ in. broad
Pterocarya. p 142
b Wild trees; nuts not with wings *Juglans*. p 141

KEY TO TREES AND SHRUBS IN AUTUMN

Leaves Alternate, Simple

- 106 a Trees with conspicuous light-green or whitish patches on the upper trunk; bark peeling in flakes; fruit globose, suspended on a stem 2 in. or more long
Platanus. p 163
- b Trees or shrubs not completely as in a 107
- 107 a Leaves star-shaped, 5-7 pointed; fruit globose, prickly; twigs often with wings of cork.....*Liquidambar.* p 163
- b Leaves not star-shaped 108
- 108 a Leaves broadly notched at apex, usually with 2 apical and 2 lateral lobes; fruit cylindrical, erect on tree
Liriodendron. p 152
- b Leaves not completely as in a 109
- 109 a Bark smooth, light gray, without horizontal markings; terminal buds slender, about $\frac{1}{2}$ -1 in. long..*Fagus.* p 143
- b Bark and terminal buds not completely as in a 110
- 110 a Leaves with entire or wavy margins 111
- b Leaves with toothed or lobed margins 162
- 111 a Climbing or trailing vines 3 ft. or more long; fruit berry-like 112
- b Shrubs or trees not completely as in a 113
- 112 a Cultivated vine; leaves $\frac{1}{2}$ -2 in. long, oblong to lanceolate*Lycium.* p 209
- b Wild vines with prickles; leaves ovate to rounded
Smilax. p 136
- 113 a Shrubs trailing or creeping on the ground 114
- b Erect trees or shrubs 116
- 114 a Leaves $\frac{1}{4}$ - $\frac{1}{2}$ in. long*Oxycoccus.* p 196
- b Leaves $\frac{1}{2}$ -3 in. long 115
- 115 a Plant covered with brownish hairs; leaves usually $\frac{1}{2}$ in. or more broad*Epigaea.* p 195
- b Plant not covered with brownish hairs; leaves usually less than $\frac{1}{2}$ in. broad*Arctostaphylos.* p 195
- 116 a Shrubs or trees with thorns on the branches 117
- b Shrubs or trees not with thorns on the branches 119
- 117 a Shrub 3 ft. or less high; fruit of red berries
Berberis thunbergii. p 154
- b Shrubs or trees 5 ft. or more high 118
- 118 a Twigs usually with milky juice; fruit large, green, globose; plant rather common*Toxylon.* p 145
- b Twigs not with milky juice; fruit an orange-yellow drupe; plant not very common.....*Hippophae.* p 189
- 119 a Leaves densely covered with brown hairs beneath; leaf margins rolled under*Ledum.* p 195
- b Leaves not completely as in a 120

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- 120 *a* Tree with branches horizontal or drooping, usually conspicuously massed toward the top; fruit a black drupe; tree growing in low ground.....*Nyssa*. *p* 104
b Trees or shrubs not completely as in *a* 121
- 121 *a* Leaves comparatively thick, dark green, usually remaining on nearly throughout the winter 122
b Leaves comparatively thin, falling off in autumn 129
- 122 *a* Leaves with yellow resin dots beneath*Myrica*. *p* 141
b Leaves not with yellow resin dots beneath 123
- 123 *a* Leaves linear or oblong with the margins rolled under, whitish beneath*Andromeda*. *p* 105
b Leaves not completely as in *a* 124
- 124 *a* Shrubs 2 ft. or less high; leaves less than 3 in. long 125
b Shrubs 3 ft. or more high; leaves 3 in. or more long.. 127
- 125 *a* Leaves whitish on under side.....*Kalmia glauca*. *p* 105
b Leaves light green on under side 126
- 126 *a* Leaves ovate; cultivated shrub.....*Azalea indica*. *p* 105
b Leaves oblong; wild shrub.....*Kalmia angustifolia*. *p* 105
- 127 *a* Leaves rounded at the base.*Rhododendron catawbiense*. *p* 105
b Leaves tapering at the base 128
- 128 *a* Leaves oblong or oblanceolate.*Rhododendron maximum*. *p* 105
b Leaves oval to elliptic*Kalmia latifolia*. *p* 105
- 129 *a* Leaves with yellowish resin dots beneath.*Gaylussacia*. *p* 106
b Leaves not with yellow resin dots beneath 130
- 130 *a* Twigs aromatic, spicy to the taste 131
b Twigs not aromatic or spicy 132
- 131 *a* Leaves rather ovate; lateral buds rounded, often 2 together*Benzoin*. *p* 154
b Leaves oval, some leaves usually lobed; lateral buds oval*Sassafras*. *p* 154
- 132 *a* Fruit of bluish drupes in cymes; leaves prominently veined beneath*Cornus alternifolia*. *p* 104
b Fruit wanting or not completely as in *a* 133
- 133 *a* Fruit somewhat fluffy, in large panicles, very conspicuous on the tree*Cotinus*. *p* 181
b Fruit wanting or not completely as in *a* 134
- 134 *a* Winter buds not with thin scales; cultivated shrub
Butneria. *p* 154
b Winter buds with thin overlapping scales 135
- 135 *a* Fruit an acorn; leaves comparatively thick
Quercus phellos. *p* 143
b Fruit wanting or not an acorn 136
- 136 *a* Fruit of yellow, red, or black drupes, present on the plant 137
b Fruit wanting or not completely as in *a* 141
- 137 *a* Fruit not in clusters on the stem*Illicioides*. *p* 181
b Fruit in clusters on the stem 138

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- 138 a Fruit globose, red changing to black
Rhamnus frangula. p 184
 b Fruit oval, red to yellow 139
- 139 a Fruit yellow; branches covered with whitish scales
 or hairs *Elaeagnus.* p 189
 b Fruit red 140
- 140 a Leaves 3-5 in. long, oblong-lanceolate *Daphne.* p 189
 b Leaves 2-3 in. long, oval to obovate *Dirca.* p 189
- 141 a Leaves very hairy or woolly beneath 142
 b Leaves not noticeably hairy beneath 144
- 142 a Cultivated shrub or small tree; fruit a large, hairy
 pome 2 in. or more in diameter. *Cydonia vulgaris.* p 168
 b Wild shrubs; fruit not completely as in a 143
- 143 a Shrub 3-10 ft. high with shredded bark
Vaccinium atrococcum. p 196
 b Shrub 2 ft. or less high; fruit of capsules
Helianthemum. p 186
- 144 a Leaves rounded-heart-shaped; cultivated trees; fruit of
 pods $\frac{1}{2}$ -1 in. long 145
 b Fruit wanting or not of pods 146
- 145 a Leaves whitish beneath; pods $\frac{1}{2}$ -1 in. long
Cercidiphyllum. p 152
 b Leaves not whitish beneath; pods 2-3 in. long. *Cercis.* p 170
- 146 a Tree cultivated for the fruit; tree often somewhat
 cone-shaped *Pyrus.* p 167
 b Trees or shrubs not cultivated for the fruit 147
- 147 a Trees with fruit about 1 in. in diameter, fleshy; bark
 checkered *Diospyros.* p 198
 b Fruit wanting or not completely as in a 148
- 148 a Shrubs or small trees cultivated for their flowers 149
 b Shrubs or trees not cultivated for their flowers 151
- 149 a Leaves usually 3 in. or more long. *Magnolia.* p 151
 b Leaves usually less than 3 in. long 150
- 150 a Shrub 6-15 ft. high *Exochorda.* p 164
 b Shrubs 6 ft. or less high *Azalea.* p 195
- 151 a Fruit present, of ovoid or globose capsules 152
 b Fruit wanting or of oblong capsules $\frac{1}{2}$ in. or more long,
 or of berries 153
- 152 a Capsules numerous, in racemes; shrub 3-12 ft. high
Xolisma. p 195
 b Capsules few together, in umbels; shrub 1-4 ft. high
Pieris. p 195
- 153 a Leaves whitish or glaucous beneath 154
 b Leaves not noticeably whitish or glaucous beneath... 156
- 154 a Shrub or small tree 8 ft. or more high
Magnolia virginiana. p 151
 b Shrubs 5 ft. or less high 155

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- 155 a Shrub $\frac{1}{2}$ -3 ft. high; twigs and buds not hairy
Vaccinium vacillans. p 196
 b Shrub 2-5 ft. high; twigs and buds usually hairy
Polycodium. p 196
- 156 a Leaves not noticeably clustered at the ends of the
 branches 157
 b Leaves noticeably clustered at the ends of the branches 159
- 157 a Shrub or small tree cultivated in parks.....*Styrax.* p 198
 b Shrubs not cultivated in parks 158
- 158 a Shrub usually 3 ft. or more high, the bark shredded
Vaccinium corymbosum. p 196
 b Shrub $\frac{1}{2}$ -2 ft. high*Vaccinium canadense.* p 196
- 159 a Leaves 1-2 in. long*Rhodora.* p 195
 b Leaves 2-4 in. long 160
- 160 a Capsule not hairy; common species in open woods
Azalea nudiflora. p 195
 b Capsule hairy 161
- 161 a Shrub growing in swampy places; capsule about $\frac{1}{2}$
 in. long*Azalea viscosa.* p 195
 b Shrub growing in dry woods; capsule about $\frac{3}{4}$ in.
 long*Azalea lutea.* p 195
- 162 a Climbing or trailing woody vines 163
 b Erect trees or shrubs 169
- 163 a Plant 2-6 in. high, creeping, aromatic....*Gaultheria.* p 195
 b Plants more than 1 ft. high, usually climbing 164
- 164 a Plants twining, without tendrils or aerial rootlets 165
 b Plants with tendrils or aerial rootlets 167
- 165 a Leaves more or less lobed*Passiflora.* p 188
 b Leaves toothed, not lobed 166
- 166 a Wild shrub; fruit a capsule, red on the inside
Celastrus. p 182
 b Cultivated shrub; fruit fleshy, berry-like...*Actinidia.* p 185
- 167 a Plant climbing by aerial rootlets; leaves usually ever-
 green*Hedera.* p 191
 b Plants with tendrils 168
- 168 a Tendrils with terminal adhering expansions
Parthenocissus tricuspidata. p 184
 b Tendrils not as in a, usually coiled*Vitis.* p 184
- 169 a Leaves fan-shaped, the apex usually deeply notched;
 cultivated tree*Ginkgo.* p 107
 b Leaves not completely as in a 170
- 170 a Leaves with lobed or deeply indented margins, the lobes
 $\frac{1}{4}$ in. or more long 171
 b Leaves with toothed margins, the teeth $\frac{1}{4}$ in. or less
 long 181

KEY TO TREES AND SHRUBS IN AUTUMN

- 171 *a* Leaves linear-oblong in outline, fern-like, fragrant when crushed; shrub 1-3 ft. high *Comptonia*. p 141
b Leaves not completely as in *a* 172
- 172 *a* Leaves 2 or 3 lobed, aromatic; bark spicy.. *Sassafras*. p 154
b Leaves not aromatic 173
- 173 *a* Shrub 3-5 ft. high; leaves 3-10 in. broad, 3-5-lobed, hairy *Rubus odoratus*. p 164
b Shrubs or trees not completely as in *a* 174
- 174 *a* Shrub 3-10 ft. high with recurved branches and bark peeling off in shreds; fruit of 3-5 shiny, inflated pods *Opulaster*. p 163
b Shrubs or trees not completely as in *a* 175
- 175 *a* Shrubs with ovoid capsules about 1 in. long; often cultivated in hedges; large, showy flowers sometimes present *Hibiscus*. p 185
b Shrubs or trees with fruit wanting or not as in *a* 176
- 176 *a* Shrubs 5 ft. or less high; leaves somewhat rounded, $\frac{1}{2}$ -3 in. broad *Ribes*. p 162
b Shrubs or trees 8 ft. or more high 177
- 177 *a* Shrubs or trees with thorns; leaves usually palmately veined *Crataegus*. p 167
b Shrubs or trees not with thorns 178
- 178 *a* Lobes of leaves entire or relobed *Quercus*. p 143
b Lobes of leaves more or less regularly toothed 179
- 179 *a* Shrub with fruit a nut enclosed by 2 bracts, usually present on shrub *Corylus avellana*. p 142
b Trees with fruit wanting; some leaves usually not lobed 180
- 180 *a* Twigs hairy; bark of trunk often striped *Broussonetia*. p 145
b Twigs not usually hairy; bark not striped.. *Morus*. p 144
- 181 *a* Shrubs with under surface of leaves covered with yellow resin dots *Myrica*. p 141
b Leaves not as in *a* 182
- 182 *a* Shrub with yellow flowers on the branches; fruit a hairy capsule $\frac{1}{4}$ - $\frac{1}{2}$ in. long; winter buds without thin scales *Hamamelis*. p 163
b Shrubs or trees not completely as in *a* 183
- 183 *a* Bark smooth, dark gray, the trunk ridged or sinew-like; fruit in clusters with leafy bracts *Carpinus*. p 142
b Trees or shrubs not completely as in *a* 184
- 184 *a* Bark with numerous horizontal markings usually $\frac{1}{2}$ in. or more long 185
b Bark not with markings as in *a* 187

KEY TO TREES AND SHRUBS IN AUTUMN

- 185 a Flowering aments or fruiting cones present on tree; winter buds usually $\frac{1}{2}$ in. or more long, tapering; inner bark not bitter *Betula*. p 142
- b Flowering aments or fruit not present; bark greenish-gray; winter buds usually $\frac{1}{2}$ in. or more long, often glossy *Populus*. p 139
- c Flowering aments and fruit not present; winter buds short, blunt; inner bark bitter 186
- 186 a Tree; leaves mostly oblong with teeth somewhat incurved *Prunus serotina*. p 169
- b Shrubs; leaves with teeth not usually incurved
Prunus. p 169
- 187 a Cylindrical flowering aments present; usually cone-like fruiting aments or nuts present 188
- b No flowering aments present; fruit wanting or not cone-like 190
- 188 a Winter buds somewhat irregular, oblong, with few scales, often with short stalks *Alnus*. p 143
- b Winter buds more or less regular, with thin overlapping scales 189
- 189 a Twigs not hairy; fruit of woody cylindrical aments
Betula pumila. p 142
- b Twigs hairy; fruit a nut enclosed by 2 bracts. *Corylus*. p 142
- 190 a Shrub growing in salt marshes; fruit covered with white woolly hairs *Baccharis*. p 233
- b Shrubs or trees not completely as in a 191
- 191 a Leaves comparatively thick, evergreen 192
- b Leaves comparatively thin, not evergreen 196
- 192 a Shrub with thorns on the branches, sometimes planted for hedges *Cotoneaster*. p 167
- b Shrubs not with thorns on the branches 193
- 193 a Leaves with spiny-toothed margins; fruit red... *Ilex*. p 181
- b Leaves not with spiny-toothed margins 194
- 194 a Leaves $\frac{1}{2}$ -1 in. long; cultivated shrub. *Ilex crenata*. p 181
- b Leaves 1 in. or more long 195
- 195 a Leaves scurfy beneath *Chamaedaphne*. p 195
- b Leaves not scurfy beneath *Leucothoe catesbaei*. p 195
- 196 a Fruit of dry capsules $\frac{1}{4}$ in. or less long, present on shrub 197
- b Fruit wanting or not completely as in a 198
- 197 a Capsules appearing on terminal branches; leaves obovate
Clethra. p 194
- b Capsules appearing on lateral branches; leaves ovate
Leucothoe racemosa. p 195
- 198 a Shrubs or trees with thorns or spines 199
- b Shrubs or trees not with thorns or spines 203

KEY TO TREES AND SHRUBS IN AUTUMN

- 199 a Fruit black, fleshy, clustered in the axils of the leaves
Rhamnus cathartica. p 184
 b Fruit wanting or not completely as in a 200
- 200 a Leaves usually palmately-veined; fruit apple-like, small
Crataegus. p 167
 b Leaves not palmately-veined 201
- 201 a Fruit scarlet, berry-like, $\frac{1}{2}$ in. or less long, in clusters
Berberis vulgaris. p 154
 b Fruit wanting or not completely as in a 202
- 202 a Shrub 6 ft. or less high, planted for the flowers
Cydonia japonica. p 168
 b Trees, wild, or cultivated for the fruit
Pyrus or *Prunus.* pp 167, 169
- 203 a Cultivated shrub or small tree with ovate leaves 2-6
 in. long; fruit 1-2 in. long, 4-winged. *Mohrodendron.* p 198
 b Trees or shrubs not completely as in a 204
- 204 a Leaves 4 in. or more long, lanceolate, very coarsely
 toothed; fruit a prickly bur *Castanea.* p 143
 b Leaves and fruit not completely as in a 205
- 205 a Fruit fleshy, a berry-like drupe or pome $\frac{1}{2}$ in. or less
 in diameter 206
 b Fruit wanting or not completely as in a 218
- 206 a Leaves toothed only toward the apex, unequilateral at
 the base; fruit purplish or orange when ripe, sweet
Celtis. p 144
 b Leaves and fruit not completely as in a 207
- 207 a Fruit black when ripe 208
 b Fruit red, blue, or purple when ripe 210
- 208 a Fruit in umbels or corymbs, not in the axils of the
 leaves *Aronia nigra.* p 168
 b Fruit not in corymbs, usually in the axils of the leaves. . 209
- 209 a Fruit usually solitary in the axils of the leaves
Ilex glabra. p 181
 b Fruit usually in clusters in the axils of the leaves
Rhamnus. p 184
- 210 a Fruit in the axils of the leaves 211
 b Fruit in panicles, cymes, or corymbs 212
- 211 a Stalk of fruit 1 in. or more long *Illicioides.* p 181
 b Stalk of fruit $\frac{1}{2}$ in. or less long *Ilex.* p 181
- 212 a Fruit blue when ripe; leaves whitish beneath
Cornus alternifolia. p 194
 b Fruit red, yellow, or purplish when ripe 213
- 213 a Cultivated species 214
 b Wild species 216
- 214 a Leaves woolly beneath; fruit ovoid, about $\frac{1}{2}$ in. long
Sorbus aria. p 167
 b Leaves not woolly beneath 215

KEY TO TREES AND SHRUBS IN AUTUMN

- 215 *a* Fruit bright red *Amygdalus*. p 170
b Fruit not bright red *Malus*. p 168
- 216 *a* Shrub 1-3 ft. high; leaves usually 1 in. or less long
Amelanchier spicata. p 168
b Shrubs or small trees 5 ft. or more high; leaves 1-3
in. long 217
- 217 *a* Fruit in corymbs *Aronia*. p 168
b Fruit in racemes *Amelanchier*. p 168
- 218 *a* Fruit a pod 2-3 in. long; leaves round-heart-shaped,
2-6 in. broad *Cercis*. p 170
b Fruit wanting or not completely as in *a* 219
- 219 *a* Shrubs or small trees cultivated for their flowers 220
b Shrubs or small trees not cultivated for their flowers.... 225
- 220 *a* Fruit a capsule about 1 in. long... *Hibiscus syriacus*. p 185
b Fruit wanting or not completely as in *a* 221
- 221 *a* Leaves very sparingly toothed, becoming red in autumn
Stuartia. p 186
b Leaves not completely as in *a* 222
- 222 *a* Shrub or small tree 6 ft. or more high. *Exochorda*. p 164
b Shrubs 1-6 ft. high 223
- 223 *a* Leaves very sharply and doubly toothed, with slender
apex *Kerria*. p 164
b Leaves not completely as in *a* 224
- 224 *a* Leaves 2-5 in. long, rounded or ovate; fruit a capsule
Lavatera. p 185
b Leaves not completely as in *a* *Spiraea*. p 163
- 225 *a* Shrub growing in salt marshes; fruit a capsule about
1 in. long *Hibiscus*. p 185
b Shrubs or trees not growing in salt marshes 226
- 226 *a* Trees cultivated for their fruit 227
b Trees or shrubs not cultivated for their fruit 231
- 227 *a* Leaves at least 3 times longer than broad
Amygdalus persica. p 170
b Leaves less than 3 times as long as broad 228
- 228 *a* Leaves hairy beneath *Malus malus*. p 169
b Leaves not hairy beneath 229
- 229 *a* Tree somewhat cone-shaped; fruit usually obovate, pear-
shaped *Pyrus*. p 167
b Trees not cone-shaped; fruit usually ovate to globose.. 230
- 230 *a* Bark usually with horizontal markings; fruit a drupe
Prunus. p 169
b Bark not with horizontal markings; fruit a pome
Malus. p 168
- 231 *a* Bark on trunk of tree peeling in rather thin, vertical
strips, somewhat shaggy; fruit of inflated capsules in
clusters *Ostrya*. p 142
b Bark and fruit not completely as in *a* 232

KEY TO TREES AND SHRUBS IN AUTUMN

- 232 *a* Leaves rounded, coarsely toothed, usually unequilateral at the base; buds often reddish *Tilia*. p 185
b Leaves not completely as in *a* 233
- 233 *a* Secondary veins of leaf very prominent and parallel, extending obliquely to the midrib; leaves unequilateral at the base *Ulmus*. p 144
b Leaves not completely as in *a* 234
- 234 *a* Leaves strongly 3-veined beneath; fruit 3-lobed; shrub 2-5 ft. high *Ceanothus*. p 184
b Leaves not noticeably 3-veined beneath 235
- 235 *a* Leaves sharply toothed only toward apex, entire at base
Spiraea salicifolia. p 163
b Leaves not completely as in *a* 236
- 236 *a* Shrub with woolly branches; leaves densely woolly beneath *Spiraea tomentosa*. p 163
b Shrubs or trees not completely as in *a* 237
- 237 *a* Shrub with ovate or obovate, finely toothed, often yellowish-green leaves *Celastrus*. p 182
b Shrubs or trees not completely as in *a* 238
- 238 *a* Leaves usually more than twice as long as broad; lateral buds with one scale *Salix*. p 140
b Leaves usually not more than twice as long as broad; lateral buds with numerous scales 239
- 239 *a* Petioles of leaves flattened laterally *Populus*. p 139
b Petioles of leaves not flattened laterally 240
- 240 *a* Low shrub 5 ft. or less high
Vaccinium pennsylvanicum. p 196
b Trees 8 ft. or more high 241
- 241 *a* Terminal winter buds often $\frac{1}{2}$ in. long.... *Populus*. p 139
b Terminal winter buds less than $\frac{1}{2}$ in. long; milky juice often exuding from broken twigs 242
- 242 *a* Twigs densely hairy *Broussonetia*. p 145
b Twigs not hairy *Morus*. p 144

IV

Key to the Cultivated Herbs and Potted Shrubs

- | | | | |
|----|----------|---|-------------------------------|
| 1 | <i>a</i> | Plants not cultivated for ornament or shade, but for their economic use, such as food, forage, etc. | 2 |
| | <i>b</i> | Plants cultivated for ornament or shade | 77 |
| 2 | <i>a</i> | Leaves compound or deeply lobed | 3 |
| | <i>b</i> | Leaves simple with entire or toothed margins, the teeth $\frac{1}{4}$ in. or less long | 33 |
| 3 | <i>a</i> | Prostrate or climbing plants with tendrils | 4 |
| | <i>b</i> | Plants not with tendrils | 9 |
| 4 | <i>a</i> | Leaves compound; flowers irregular | 5 |
| | <i>b</i> | Leaves lobed or cleft, not compound; flowers regular.. | 6 |
| 5 | <i>a</i> | Leaflets 4-6; flowers usually white | <i>Pisum.</i> p 174 |
| | <i>b</i> | Leaflets 8-14; flowers bluish-purple..... | <i>Vicia sativa.</i> p 174 |
| 6 | <i>a</i> | Climbing vine | <i>Lageneria.</i> p 216 |
| | <i>b</i> | Prostrate vines | 7 |
| 7 | <i>a</i> | Tendrils not branched | <i>Cucumis.</i> p 217 |
| | <i>b</i> | Tendrils branched | 8 |
| 8 | <i>a</i> | Leaves with the lobes cleft or pinnatifid.. | <i>Citrullus.</i> p 217 |
| | <i>b</i> | Leaves with the lobes not cleft or pinnatifid
<i>Cucurbita.</i> p 217 | |
| 9 | <i>a</i> | Prostrate or climbing vine with rough, prickly stem; flowers greenish; fruit papery.. | <i>Humulus lupulus.</i> p 145 |
| | <i>b</i> | Plants not completely as in <i>a</i> | 10 |
| 10 | <i>a</i> | Leaves palmately compound; leaflets 5-7, 3-6 in. long, rough | <i>Cannabis.</i> p 145 |
| | <i>b</i> | Plants not completely as in <i>a</i> | 11 |
| 11 | <i>a</i> | Leaves with base of petiole spreading and more or less sheathing the stem; leaves pinnately compound, the leaflets irregularly toothed or lobed | 12 |
| | <i>b</i> | Leaves not completely as in <i>a</i> | 18 |
| 12 | <i>a</i> | Leaves finely dissected into linear segments | 13 |
| | <i>b</i> | Leaves not finely dissected into linear segments | 15 |
| 13 | <i>a</i> | Flowers yellow; leaves sweet and aromatic
<i>Foeniculum.</i> p 193 | |
| | <i>b</i> | Flowers white | 14 |
| 14 | <i>a</i> | Fruit globose, indistinctly ribbed | <i>Coriandrum.</i> p 193 |
| | <i>b</i> | Fruit oblong, distinctly ribbed | <i>Carum.</i> p 193 |

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- 15 a Plant cultivated for the edible, channeled petioles
of the basal leaves *Apium*. p 193
b Plants not cultivated for the petioles as in a 16
- 16 a Plant cultivated for the leaves; leaflets often crisp
Petroselinum. p 193
b Plants cultivated for the fleshy roots; leaflets not crisp.. 17
- 17 a Root white; leaflets ovate to oblong..... *Pastinaca*. p 193
b Root orange or red; leaflets lanceolate or linear
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- 18 a Leaves compound with 3 leaflets 19
b Leaves not completely as in a 24
- 19 a Leaves all basal; leaflets rather coarsely and regularly
toothed; flowers regular *Fragaria chiloensis*. p 164
b Leaves not all basal; flowers irregular 20
- 20 a Plants cultivated for the edible seed..... *Phaseolus*. p 176
b Plants cultivated for forage, not for the seed 21
- 21 a Leaflets broadly notched at apex *Trifolium*. p 175
b Leaflets usually pointed at apex, not broadly notched.. 22
- 22 a Flowers $\frac{3}{4}$ -1 in. long, 2-4 together on a long stalk
Vigna. p 174
b Flowers not completely as in a 23
- 23 a Leaflets usually 1 in. or less long, oblanceolate to oblong
Medicago sativa. p 175
b Leaflets 1-3 in. long, broadly ovate..... *Glycine*. p 177
- 24 a Leaflets 4; plant prostrate *Arachis*. p 174
b Plants not completely as in a 25
- 25 a Leaves usually with 5 shallow, rounded lobes; plant
cultivated South for "cotton," in pots in the North
Gossypium. p 185
b Plants not completely as in a 26
- 26 a Plant strong-scented, cultivated for its fleshy fruit
Lycopersicon. p 208
b Plants not completely as in a 27
- 27 a Plant commonly cultivated for the underground tubers
for food *Solanum tuberosum*. p 209
b Plant sparingly cultivated for the medicinal, enlarged
roots *Panax quinquefolium*. p 191
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- 28 a Leaves hairy, aromatic, 1-3-pinnately divided
Artemisia. p 238
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- 29 a Plant growing in water *Roripa nasturtium*. p 158
b Plants not growing in water 30
- 30 a Flowers white or pink, appearing the first season... 31
b Flowers yellow, sometimes appearing only the second
season 32

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- 31 a Plant cultivated for the edible root*Raphanus*. p 158
 b Plant cultivated for the leaves; leaves pinnately lobed
 Lepidium sativum. p 157
 c Plant cultivated for the leaves; leaves compound with
 7-19 ovate leaflets.....*Sanguisorba sanguisorba*. p 166
- 32 a Plant sparingly cultivated for the seed; beak of pod
 flat, sword-shaped*Sinapis*. p 158
 b Plants not completely as in a*Brassica*. p 158
- 33 a More or less woody plants cultivated in pots, tubs, or
 in greenhouses in the North 34
 b Plants not completely as in a 38
- 34 a Leaves 2 ft. or more long*Musa sapientum*. p 138
 b Leaves 6 in. or less long 35
- 35 a Leaves alternate 36
 b Leaves opposite 37
- 36 a Petioles of leaves winged; plants cultivated for the fruit
 Citrus. p 179
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 leaves*Camellia thea*. p 185
- 37 a Leaves 3-6 in. long, abruptly pointed at apex, wavy-
 margined*Coffea*. p 213
 b Leaves 1-4 in. long, not abruptly pointed at apex, entire
 margined*Olea*. p 199
- 38 a Leaves usually hollow, with an onion-like odor. *Allium*. p 133
 b Leaves not with an onion-like odor 39
- 39 a Plant cultivated in pots in the North; leaves linear,
 rigid, sharply-toothed, arranged in a whorl or rosette
 Ananas. p 132
 b Plants not completely as in a 40
- 40 a Leaf-like organs thread-like, about 1 in. or less long;
 flowers bell-shaped; plant 2-6 ft. high
 Asparagus officinalis. p 135
 b Plants not completely as in a 41
- 41 a Leaves with sheaths which fold completely around the
 stem; flowers without a perianth 42
 b Leaves not completely as in a 55
- 42 a Staminate flowers in a terminal panicle, the pistillate in
 axillary spikes or ears; corn*Zea*. p 118
 b Flowers not arranged completely as in a 43
- 43 a Flowers arranged in a terminal spike 44
 b Flowers arranged in panicles 48
- 44 a Spikes 4-sided 45
 b Spikes more or less cylindrical 46
- 45 a Leaves glaucous; spikelets 2-3-flowered.....*Secale*. p 118
 b Leaves not glaucous; spikelets 4-5-flowered. *Triticum*. p 118

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- 46 a Each spikelet surrounded by awn-like bristles
Chaetochloa italica. p 118
 b Spikelets not surrounded by awn-like bristles as in a. 47
- 47 a Each spikelet with a barbed awn 1-4 in. long
Hordeum. p 118
 b Each spikelet not with a barbed awn *Phleum*. p 118
- 48 a Awns on at least some of the spikelets 49
 b No conspicuous awns present 51
- 49 a Plant cultivated South for the grain and North only
 in greenhouses *Oryza*. p 119
 b Plants not cultivated as in a 50
- 50 a Cultivated grain; awn bent outward, at least half as
 long as the scale *Avena*. p 120
 b Grass sometimes sown in fields; awns short; branches
 of panicle usually stiff *Dactylis*. p 120
- 51 a Plants cultivated South, sometimes North, for the sugary
 stem or broom-like panicles 52
 b Grasses cultivated for forage 53
- 52 a Spikelets with long silky hairs; plant cultivated only
 South and in greenhouses *Saccharum*. p 122
 b Spikelets not with long silky hairs; plant cultivated
 both North and South *Sorghum*. p 122
- 53 a Panicle appears airy, much branched; spikelets com-
 paratively fine; leaves comparatively narrow; plants
 slender *Agrostis*. p 121
 b Plants not completely as in a 54
- 54 a Leaves narrow, less than $\frac{1}{4}$ in. broad; spikelets 2-6-
 flowered, tapering; a tuft of small hairs at base of
 inner scale *Poa*. p 122
 b Leaves usually more than $\frac{1}{4}$ in. broad; spikelets
 1-flowered *Panicum miliaceum*. p 121
- 55 a Plants cultivated for their fleshy roots 56
 b Plants not cultivated for their roots 59
- 56 a Leaves linear, tapering from a clasping base
Tragopogon porrifolius. p 219
 b Leaves not linear 57
- 57 a Plant trailing; edible roots several to each plant
Ipomoea batatas. p 201
 b Plants erect; edible roots one to each plant 58
- 58 a Root very acrid; plant sparingly cultivated
Roripa armoracia. p 158
 b Root not acrid; plant commonly cultivated *Beta*. p 147
- 59 a Cultivated grain; leaves triangular-heart-shaped
Fagopyrum. p 146
 b Plants not sown for the grain 60
- 60 a Plants with prickles on the leaves and stems 61
 b Plants not with prickles on the leaves and stem 62

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- 61 *a* Leaves 1-3 in. long, ovate; flowers not in heads; plant cultivated for the edible fruit
Solanum melongena. p 208
- b* Leaves 2-12 in. long, lanceolate; flowers in oblong heads; fruit not edible*Dipsacus fullonum*. p 216
- 62 *a* Trailing vines with tendrils*Cucurbita*. p 217
- b* Plants not as in *a* 63
- 63 *a* Leaves aromatic, 2 in. or less long, usually lanceolate to linear; plants cultivated for the leaves 64
- b* Leaves not aromatic; plants not completely as in *a*. 69
- 64 *a* Fertile stamens 2; leaves hoary; plants often somewhat shrubby*Salvia*. p 206
- b* Fertile stamens 4 65
- 65 *a* Leaves coarsely toothed*Melissa*. p 207
- b* Leaves with entire margins 66
- 66 *a* Calyx hairy on the inside, unequally 5-toothed 67
- b* Calyx not hairy on the inside 68
- 67 *a* Flowers $\frac{1}{4}$ in. or less long*Thymus*. p 207
- b* Flowers about $\frac{1}{2}$ in. long*Origanum*. p 207
- 68 *a* Flowers blue; calyx 15-nerved; plant only slightly hairy*Hyssopus*. p 207
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- 69 *a* Plant cultivated for its fiber; leaves 1-2 in. long, lanceolate, entire; flowers blue*Linum*. p 178
- b* Plants not cultivated for the fiber 70
- 70 *a* Plant cultivated for the acrid petioles; leaves 10-20 in. long, ovate*Rheum*. p 145
- b* Plants not completely as in *a* 71
- 71 *a* Plant 3-10 ft. high; flowers in heads 6 in. or more broad*Helianthus annuus*. p 235
- b* Plants not completely as in *a* 72
- 72 *a* Plants cultivated for their fruit 73
- b* Plants cultivated for their leaves 74
- 73 *a* Flowers yellow; fruit more or less enclosed by the calyx, not pungent*Physalis*. p 209
- b* Flowers not yellow; fruit very pungent, not enclosed by the calyx*Capsicum*. p 208
- 74 *a* Plants cultivated for the narcotic leaves 1-2 ft. long
Nicotiana. p 209
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- 75 *a* Leaves exude a milky juice when broken
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- b* Leaves do not exude a milky juice when broken 76

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- 76 *a* Leaves fleshy; plant not with fleshy tap-root
b Leaves not noticeably fleshy; plant with a fleshy tap-root *Spinacia*. p 147
..... *Beta*. p 147
- 77 *a* Plants grown floating or submerged in water 78
b Plants not grown in water 83
- 78 *a* Submerged leaves finely dissected; floating leaves, when present, linear-oblong *Cabomba*. p 151
b Leaves not finely dissected 79
- 79 *a* Leaves rounded, 4 in. or more broad 80
b Leaves not completely as in *a* 81
- 80 *a* Leaves with the petiole attached to under side of blade
..... *Nelumbo*. p 151
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..... *Castalia*. p 151
- 81 *a* Leaves mostly clustered in a whorl at the top of stem
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- 82 *a* Leaves linear, not petioled *Iris*. p 137
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- 83 *a* Plants more or less woody 84
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- 84 *a* Plants trailing or climbing 85
b Plants more or less erect, not trailing or climbing 91
- 85 *a* Vines with prickles or thorns *Rosa*. p 166
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- 86 *a* Plants with tendrils or aerial rootlets 87
b Plants not with tendrils or aerial rootlets 89
- 87 *a* Vine with tendrils in the axils of the leaves
..... *Passiflora caerulea*. p 188
b Vines with aerial rootlets; leaves evergreen 88
- 88 *a* Leaves alternate, palmately lobed *Hedera*. p 191
b Leaves opposite with entire margins *Hoya*. p 200
- 89 *a* Leaves alternate with entire margins..... *Plumbago*. p 198
b Leaves opposite 90
- 90 *a* Leaves with entire margins *Stephanotis*. p 200
b Leaves compound with 3 leaflets *Jasminum*. p 198
- 91 *a* Leaves compound 92
b Leaves simple 100
- 92 *a* Leaflets immediately folding when touched, very sensitive *Mimosa*. p 170
b Leaflets not sensitive to the touch 93
- 93 *a* Leaflets 2 in. or less long 94
b Leaflets usually 3 in. or more long 97
- 94 *a* Leaflets 3, $\frac{1}{4}$ - $\frac{3}{4}$ in. long *Cytisus*. p 173
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- 95 *a* Leaves doubly compound; leaflets linear, $\frac{1}{2}$ -1 in. long
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- 96 *a* Plants with thorns or prickles on the stem; flowers
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- 97 *a* Leaves doubly compound, fern-like; leaflets often
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- 98 *a* Leaves with the base of petiole expanded and more
 or less sheathing the stem or other petioles
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- 99 *a* Stem usually 2 ft. or more high *Cycas*. p 107
b Stem usually 2-12 in. high *Zamia*. p 107
- 100 *a* Plant with stilt-like, aerial roots; leaves 1 ft. or more
 long, linear, spiny-toothed *Pandanus*. p 110
b Plants not completely as in *a* 101
- 101 *a* Leaves 10-30 in. long, linear, basal, with curly fibers
 on the margins *Yucca*. p 135
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- 102 *a* Leaves scale-like, overlapping in 4 rows. *Calluna*. p 195
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- 103 *a* Plant with slender spines at the base of the leaves
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- 104 *a* Leaves $\frac{3}{4}$ in. or less long, narrow 105
b Leaves usually 1 in. or more long 107
- 105 *a* Plant very symmetrical, branches arranged in whorls;
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- 106 *a* Leaves needle-like, in whorls of 3-6 *Erica*. p 195
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- 107 *a* Leaves 2 ft. or more long, 6 in. or more broad, with
 long petioles *Musa*. p 138
b Leaves less than 2 ft. long, less than 6 in. broad 108
- 108 *a* Leaves distinctly opposite or in whorls of 3 109
b Leaves alternate or clustered 117
- 109 *a* Leaves with toothed margins 110
b Leaves with entire margins 113
- 110 *a* Plants cultivated for their flowers 111
b Plants cultivated for their thick evergreen leaves 112
- 111 *a* Leaves oval, 2-8 in. long; flowers in corymbs
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- 112 a Leaves 1-3 in. long, obovate; the branches angled
Euonymus japonicus. p 181
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- 113 a Plant cultivated for the variegated leaves. *Aucuba.* p 194
 b Plants cultivated for the flowers 114
- 114 a Leaves heart-shaped at base; flowers numerous in panicles *Syringa vulgaris.* p 199
 b Leaves and flowers not completely as in a 115
- 115 a Flowers double, solitary at the ends of the branches
Gardenia. p 213
 b Flowers in terminal cymes 116
- 116 a Leaves 3-8 in. long, thick, evergreen; flowers 1-3 in. broad *Nerium.* p 200
 b Leaves 1-4 in. long, not usually evergreen; flowers about 1 in. long *Bouvardia.* p 213
- 117 a Leaves with toothed or lobed margins 118
 b Leaves with entire or wavy margins 124
- 118 a Leaves usually rounded with rounded lobes, or else deeply lobed *Pelargonium.* p 177
 b Leaves not completely as in a 119
- 119 a Flowers small, subtended by a whorl of scarlet leaves
Euphorbia pulcherrima. p 180
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- 120 a Leaves dark green and shining above; flowers 2-5 in. broad, sessile *Camellia japonica.* p 185
 b Plants not completely as in a 121
- 121 a Leaves thin, regularly toothed, not lobed, usually variegated; flowers very small *Acalypha.* p 180
 b Leaves not completely as in a 122
- 122 a Leaves thick, evergreen; flowers small 123
 b Leaves thin, not evergreen; flowers 1-3 in. broad
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- 123 a Leaves green; plant cultivated for the flowers and fruit
Ardisia. p 196
 b Leaves usually variegated; plants cultivated for the leaves *Codiaeum.* p 180
- 124 a Flowers small, subtended by a whorl of scarlet leaves
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 b Flowers not subtended by scarlet leaves 125
- 125 a Plants cultivated for the showy fruit 126
 b Plants not cultivated for the fruit 128
- 126 a Leaves with the petioles more or less winged
Citrus. p 179
 b Leaves not with the petioles winged 127

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- 127 a Fruit about $\frac{1}{2}$ in. in diameter, scarlet; leaves 1-3 in.
long *Solanum pseudo-capsicum*. p 208
b Fruit about $\frac{1}{4}$ in. in diameter, red or white; leaves
2-7 in. long *Ardisia*. p 196
- 128 a Plants cultivated for their showy flowers 129
b Plants cultivated for their foliage 131
- 129 a Leaves 4-7 in. long, thick, evergreen. *Rhododendron*. p 195
b Leaves not completely as in a 130
- 130 a Flowers very showy, in terminal umbels, often double
Azalea indica. p 195
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- 131 a Leaves aromatic when crushed; small tree usually with
rounded head *Laurus*. p 154
b Leaves not aromatic when crushed 132
- 132 a Leaves sessile *Dracaena*. p 135
b Leaves petioled 133
- 133 a Petioles of leaves 3-6 in. long, deeply channeled
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- 134 a Leaves dark green *Ficus*. p 145
b Leaves usually variegated *Codiaeum*. p 180
- 135 a Leaves tubular or pitcher-shaped toward the apex,
with a terminal lip *Nepenthes*. p 160
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- 136 a Leaves compound, pinnatifid, or lobed 137
b Leaves simple with entire or toothed margins, the teeth
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- 137 a Leaves opposite on the stem 138
b Leaves all alternate or basal 147
- 138 a Climbing vines 139
b Plants not climbing 140
- 139 a Stems rough with reflexed, bristly hairs; flowers green-
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- 140 a Leaves divided into linear segments 141
b Leaves not completely as in a 142
- 141 a Flowers arranged in heads subtended by an involucre
Cosmos. p 235
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- 142 a Plant cultivated for the variegated leaves; stem 4-angled
Coleus. p 208
b Plants cultivated for the flowers 143
- 143 a Plant prostrate and spreading on the ground; flowers
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- 144 a Flowers in heads subtended by an involucre of bracts. 145
 b Flowers solitary or in panicles 146
- 145 a Outer bracts of involucre longer than the flowers
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- 146 a Leaves pinnately divided into 7-25 segments
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- 147 a Plants climbing or else cultivated in hanging baskets. 148
 b Plants not as in a 161
- 148 a Vines with tendrils 149
 b Plants not with tendrils 154
- 149 a Tendrils at the ends of the compound leaves 150
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- 150 a Flowers irregular; leaflets 2 *Lathyrus.* p 174
 b Flowers regular; leaflets 4-6 *Cobaea.* p 202
- 151 a Leaves doubly compound, the leaflets toothed or lobed
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 b Leaves merely lobed, not compound 152
- 152 a Flowers $\frac{3}{4}$ in. or more broad *Passiflora.* p 188
 b Flowers $\frac{1}{2}$ in. or less broad 153
- 153 a Leaves deeply 3-7-lobed, the sinuses extending half way
 or more to the petiole *Micrampelis.* p 216
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- 154 a Leaves lobed, not compound 155
 b Leaves compound 157
- 155 a Vines cultivated out of doors *Ipomoea.* p 201
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- 156 a Petioles of leaves coiled; flowers solitary
Antirrhinum maurandioides. p 210
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Senecio mikanoides. p 238
- 157 a Leaves doubly compound *Adlumia.* p 155
 b Leaves singly compound, of 3-7 leaflets 158
- 158 a Leaflets 5-7, sometimes 3; flowers 1-2 in. long, violet
Bradburya. p 174
 b Leaflets 3 159
- 159 a Plant sparingly cultivated for its foliage; standard
 usually spurred at the base *Pueraria.* p 176
 b Plants cultivated for their flowers 160
- 160 a Leaflets wrinkled; flowers purple to white. *Dolichos.* p 176
 b Leaflets not wrinkled; flowers red or white
Phaseolus multiflorus. p 176
- 161 a Plants cultivated for their foliage 162
 b Plants cultivated for their flowers 170

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- 162 *a* Leaves pinnatifid, covered with white-woolly hairs 163
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- 163 *a* First or lowest leaves not pinnatifid; heads $\frac{1}{4}$ - $\frac{1}{2}$ in. broad *Centaurea cineraria*. p 239
b All leaves pinnatifid 164
- 164 *a* Leaves usually fragrant; heads arranged in cymes or panicles *Artemisia*. p 238
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- 165 *a* Leaves doubly compound; leaflets 1-3 in. long, ovate
Aegopodium. p 193
b Leaves merely lobed, not compound 166
- 166 *a* Plant 2 ft. or more high; leaves 4-24 in. broad, palmately 6-11-lobed, the lobes toothed. *Ricinus*. p 180
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- 167 *a* Leaves with very unequal bases *Begonia*. p 188
b Leaves not with unequal bases 168
- 168 *a* Leaves all basal *Saxifraga*. p 161
b Leaves not all basal 169
- 169 *a* Leaves oblong, irregularly lobed, the sinuses rounded; flowers small, greenish *Chenopodium botrys*. p 148
b Plants not completely as in *a* *Pelargonium*. p 177
- 170 *a* Flowers numerous, collected into a dense head subtended by an involucre of numerous green bracts 171
b Flowers not completely as in *a* 178
- 171 *a* Leaves with prickly lobes; heads globose. *Echinops*. p 240
b Leaves not with prickly lobes 172
- 172 *a* Leaves strongly aromatic 173
b Leaves not aromatic 174
- 173 *a* Bracts of involucre united into a tube. *Tagetes*. p 235
b Bracts of involucre in several rows, not united into a tube *Anthemis*. p 236
- 174 *a* Outer flowers in the head with the corolla obliquely 5-cleft, tubular, somewhat irregular but not strap-shaped *Centaurea*. p 239
b Flowers not completely as in *a* 175
- 175 *a* Lower leaves 5-12 in. broad, pinnately 3-7-divided, the segments toothed or lobed; heads 2-4 in. broad, yellow *Rudbeckia laciniata*. p 234
b Plants not completely as in *a* 176
- 176 *a* Achenes not crowned by a pappus. *Chrysanthemum*. p 237
b Achenes crowned by a pappus of bristles 177
- 177 *a* Receptacle of head usually flat; ray flowers usually numerous *Callistephus*. p 235
b Receptacle of head convex or globose; ray flowers few or wanting *Gaillardia*. p 234

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- 178 a Leaves with 3 inversely heart-shaped leaflets; flowers
with 5 petals and 10 stamens.....*Oxalis rubra*. p 178
b Plants not completely as in a 179
- 179 a Flowers with 1 or more spurs on the petals or sepals.. 180
b Flowers not with spurs as in a 184
- 180 a Five spurs to each flower*Aquilegia*. p 152
b One or two spurs to each flower 181
- 181 a Two petals each with a pink spur
Bicuculla spectabilis. p 155
b Only one petal or sepal with a spur 182
- 182 a Leaves palmately lobed or divided; sepals petal-like,
1-spurred*Delphinium*. p 152
b Leaves not as in a; sepals very small 183
- 183 a Flowers about ¼ in. long, purplish*Fumaria*. p 155
b Flowers about ½ in. long, pink to yellow..*Capnoides*. p 155
- 184 a Leaves with very unequal bases; sepals 2, petal-like
Begonia. p 188
b Plants not completely as in a 185
- 185 a Flowers more or less irregular 186
b Flowers regular 196
- 186 a Sepals petal-like, dark-blue to white; one sepal hood-
shaped*Aconitum*. p 152
b Calyx or sepals green, not petal-like 187
- 187 a Corolla more or less tubular; flowers somewhat 2-lipped 188
b Corolla not tubular, at least some petals distinct 190
- 188 a Flowers about 2 in. broad, often striped.*Salpiglossis*. p 210
b Flowers 1 in. or less broad 189
- 189 a Leaves pinnately divided; flowers in cymes
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b Leaves coarsely toothed; flowers in the axils of the
leaves*Alonsoa*. p 210
- 190 a The five petals all distinct, or flowers sometimes double 191
b The two lower petals united to form a keel which en-
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- 191 a Leaves all basal*Saxifraga sarmentosa*. p 161
b Leaves not all basal 192
- 192 a Leaves compound with 9-13 leaflets.....*Dictamnus*. p 179
b Leaves merely lobed, not compound.....*Pelargonium*. p 177
- 193 a Leaves palmately compound with 7-16 leaflets
Lupinus polyphyllus. p 174
b Leaves not as in a 194
- 194 a Leaflets 11-25*Coronilla*. p 174
b Leaflets 3 195
- 195 a Flowers rose-purple, about ½ in. long; pods about ½
in. long*Lespedeza sieboldi*. p 175
b Flowers blue, ¾-1 in. long; pods about 1 in. long
Baptisia australis. p 174

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- 196 *a* When broken plants exude a colored sap 197
b When broken plants do not exude a colored sap 200
- 197 *a* Leaves with spiny teeth *Argemone*. *p* 155
b Leaves not with spiny teeth 198
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- 229 a Basal leaves wanting; leaves green, often channeled
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- 238 *a* Flowers tubular with 4 short lobes; leaves entire
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- 242 *a* Leaves thick, fleshy, with wavy or toothed margins
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- 243 *a* Petioles with conspicuous glands; flowers 1 in. or more
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- 244 *a* Leaves rounded to ovate, often notched at the apex
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- 246 *a* Flowers collected in heads which are subtended by
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- 249 *a* Heads 2 in. or more broad 250
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- 250 a Petioles of leaves winged; ray flowers purple or crimson
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- 251 a Leaves lanceolate to oblong; heads about $\frac{1}{4}$ in. broad
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 b Leaves ovate or heart-shaped; heads about $\frac{1}{2}$ in. broad
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- 252 a Flowers more or less irregular 253
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- 253 a Flowers with bright red calyx somewhat spurred at
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 b Flowers not completely as in *a* 254
- 254 a Flowers with both lips more or less inflated; plant
 cultivated in pots and gardens *Calceolaria.* p 212
 b Flowers not completely as in *a* 255
- 255 a Calyx teeth with hooked bristles *Marrubium.* p 206
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- 256 a Anther-bearing stamens 2 257
 b Anther-bearing stamens 4-5 258
- 257 a Flowers $\frac{1}{2}$ in. or less long *Veronica* p 211
 b Flowers $\frac{3}{4}$ -2 in. long *Salvia.* p 206
- 258 a Plant covered with glandular hairs; leaves 3-12 in.
 broad, heart-shaped, entire *Martynia.* p 212
 b Plants not completely as in *a* 259
- 259 a Plant $\frac{1}{2}$ -1 in. high, much branched; flowers $\frac{1}{2}$ -1 in.
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 b Plants and flowers not completely as in *a* 260
- 260 a Flowers about $\frac{1}{2}$ in. long, nearly white, in axillary
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 b Flowers 1 in. or more long 261
- 261 a Flowers in terminal spikes 2-8 in. long: *Physostegia.* p 206
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- 262 a Flowers scarlet, in panicles.... *Pentstemon barbatus.* p 210
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- 263 a Flowers very small, numerous in globose heads about
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 b Flowers not completely as in *a* 264
- 264 a Colored parts of the perianth or corolla more or less
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 b Perianth or corolla not tubular, the parts distinct ... 271
- 265 a Leaves fleshy; corolla with 4 spreading lobes; stamens 8
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- 266 a Leaves with toothed margins 267
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- 267 a Calyx white or red; petals 4, distinct. *Fuschia*. p 190
 b Calyx green; corolla tubular *Verbena hybrida*. p 203
- 268 a Tube of the corolla less than half as long as the lobes;
 flowers white, in long 1-sided racemes
Lysimachia clethroides. p 197
 b Flowers not completely as in a 269
- 269 a Flowers usually funnel-shaped; leaves 2-4 in. long,
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 b Flowers with lobes spreading at right angles to the nar-
 row tube 270
- 270 a Flowers usually solitary; leaves evergreen. *Vinca*. p 200
 b Flowers in clusters *Phlox*. p 202
- 271 a Perianth 6-parted; stamens 6; leaves in whorls
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- 272 a Leaves thick and fleshy *Sedum*. p 160
 b Leaves not fleshy 273
- 273 a Stem 4-angled; flowers purple, in bracted spikes
Lythrum. p 189
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- 274 a Calyx not tubular 275
 b Calyx tubular 276
- 275 a Plant prostrate; flowers on forked stalks 4-8 in. long
Cerastium tomentosum. p 150
 b Plant erect; flowers in leafy panicles. *Alsine holostea*. p 150
- 276 a Flowers $\frac{1}{4}$ in. or less broad, white, numerous
Gypsophila. p 150
 b Flowers $\frac{1}{2}$ in. or more broad 277
- 277 a Styles of flower 2 *Dianthus*. p 150
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- 278 a Styles of flower 5; flowers about 1 in. broad, crimson
 to white *Lychnis*. p 149
 b Styles of flower 2; flowers about $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, pink
 to purple *Silene*. p 149
- 279 a Plant without roots; leaves linear, expanded at the
 base, densely hairy; growing in greenhouses without
 soil *Tillandsia*. p 132
 b Plants not completely as in a 280
- 280 a Plants climbing, or pendant and cultivated in hanging
 baskets or pots 281
 b Plants not as in a 291
- 281 a Plants fleshy, cultivated in hanging baskets or pots. . 282
 b Plants not completely as in a 284
- 282 a Plants with cylindrical leaves $\frac{1}{2}$ -1 in. or more long
Othonna. p 227
 b Plants not with leaves, the stems jointed, often spiny. . 283

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- 283 a Stems flattened, jointed, the joints 1-2 in. long
Epiphyllum. p 180
 b Stems cylindric, ribbed *Cereus flagelliformis.* p 180
- 284 a Vine with tendrils *Passiflora gracilis.* p 188
 b Vines not with tendrils 285
- 285 a Leaves with the petiole attached to the underside of the blade *Tropaeolum.* p 178
 b Leaves with the petiole attached to the margin of the blade 286
- 286 a Leaves or leaf-like organs sessile, glossy green, linear to ovate *Asparagus.* p 135
 b Leaves not completely as in a 287
- 287 a Leaves heart-shaped at the base 288
 b Leaves not heart-shaped at the base 290
- 288 a Leaves 6-12 in. broad; flowers strongly curved
Aristolochia macrophylla. p 145
 b Plants not as in a 289
- 289 a Flowers showy, tubular, 1 in. or more broad. *Ipomoea.* p 201
 b Flowers small, 1/2 in. or less broad, not tubular
Boussingaultia. p 147
- 290 a Flowers funnel-shaped, sometimes double. *Convolvulus.* p 201
 b Flowers with a slender tube and lobes spreading more or less at right angles to it *Plumbago.* p 198
- 291 a Leaves 10-30 in. long, linear, with brown curly fibers on the margins *Yucca.* p 135
 b Leaves not completely as in a 292
- 292 a Plants cultivated for their green or variegated leaves.. 293
 b Plants cultivated for their flowers 321
- 293 a Plants more or less covered with spines or prickles; leaves wanting; stems fleshy, cylindric.... *Cereus.* p 180
 b Plants not completely as in a 294
- 294 a Leaves very fleshy, thick, mostly basal 295
 b Leaves not noticeably fleshy 298
- 295 a Leaves linear, 2-6 ft. long, with spiny-toothed margins
Agave. p 137
 b Leaves not completely as in a 296
- 296 a Leaves V-shaped, with warty or horny margins. *Aloe.* p 133
 b Leaves not as in a 297
- 297 a Leaves ovate, 1-2 in. long *Sempervivum.* p 161
 b Leaves obovate, 2-4 in. long *Cotyledon.* p 161
- 298 a Leaves with petiole attached to under side of blade.. 299
 b Leaves with petiole attached to margin of blade..... 301
- 299 a Leaves with toothed margins.... *Saxifraga peltata.* p 161
 b Leaves with entire margins 300
- 300 a Petioles 3-8 in. long *Peperomia.* p 139
 b Petioles 12 in. or more long *Caladium.* p 131

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- 301 a Leaf-like organs about $\frac{1}{4}$ in. long, linear
Asparagus plumosus. p 135
 b Leaves not as in a 302
- 302 a Leaves unequalateral at the base *Begonia.* p 188
 b Leaves equalateral at the base 303
- 303 a Leaves rounded, angled, dark green with yellow or
 white spots *Senecio kaempferi.* p 238
 b Leaves not completely as in a 304
- 304 a Leaves rounded with wavy-toothed margins 305
 b Leaves not rounded 307
- 305 a Leaves not all basal, usually hairy.... *Pelargonium.* p 177
 b Leaves all basal 306
- 306 a Leaves dark-green and shining, used in decorations
Galax. p 196
 b Leaves not completely as in a *Saxifraga.* p 161
- 307 a Leaves with the margins somewhat toothed. *Cyclamen.* p 197
 b Leaves with the margins entire 308
- 308 a Average leaf 5 in. or more long 309
 b Average leaf 4 in. or less long 316
- 309 a Leaves 3 ft. or more long, petioled *Musa.* p 138
 b Leaves less than 3 ft. long 310
- 310 a Leaves with netted veins, not parallel.... *Anthurium.* p 132
 b Leaves not as in a 311
- 311 a Secondary veins oblique to the midrib 312
 b Secondary veins more or less parallel to the midrib 313
- 312 a Petioles of leaves deeply channeled *Cordyline.* p 135
 b Petioles of leaves not channeled *Calathea.* p 138
- 313 a Leaves sessile, 1-3 ft. long, oblanceolate... *Dracaena.* p 135
 b Leaves petioled 314
- 314 a Plant cultivated in pots *Aspidistra.* p 136
 b Plants not cultivated in pots 315
- 315 a Leaves all basal, 3-8 in. long *Funkia.* p 135
 b Both basal and stem leaves present, 6-18 in. long
Canna. p 138
- 316 a Leaves rounded to ovate, often notched at the apex
Iresine. p 148
 b Leaves not completely as in a 317
- 317 a Leaves all basal, lanceolate, usually with wavy margins
Funkia lancifolia. p 135
 b Leaves not completely as in a 318
- 318 a Leaves 1-3 in. long, linear-lanceolate, sometimes toothed,
 usually green, but red in autumn *Kochia.* p 147
 b Leaves not completely as in a 319
- 319 a Leaves sessile; a milky sap often exuding when a leaf
 is broken off *Euphorbia.* p 180
 b Leaves petioled 320

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- 320 a Leaves variegated by lines or rows of various colors
Calathea. p 138
 b Leaves not variegated as in a *Amaranthus. p 148*
- 321 a Flowers numerous, collected into a dense head which is subtended by an involucre of several bracts 322
 b Flowers not arranged completely as in a 339
- 322 a Leaves all basal *Bellis. p 230*
 b Leaves not all basal 323
- 323 a Plant white-woolly throughout; bracts of involucre very showy, variously colored, in several rows
Xeranthemum. p 234
 b Plants not completely as in a 324
- 324 a Outer flowers in the head with corolla obliquely 5-cleft, tubular, somewhat irregular but not strap-shaped
Centaurea cyanus. p 240
 b Flowers not completely as in a 325
- 325 a Flowers blue to purple, in heads 2-4 in. broad; outer bracts of involucre leaf-like, toothed..... *Stokesia. p 240*
 b Plants not completely as in a 326
- 326 a All leaves with entire margins 327
 b Leaves with toothed margins 331
- 327 a Leaves mostly petioled 328
 b Leaves sessile 329
- 328 a Ray flowers 6-15, the rays lobed. *Coreopsis lanceolata. p 235*
 b Ray flowers wanting; bracts of involucre very showy
Helichrysum. p 233
- 329 a Ray flowers in several rows, yellow or orange
Calendula. p 235
 b Ray flowers in 1 or 2 rows 330
- 330 a Leaves with clasping bases; pappus of capillary bristles
Aster novae-angliae. p 231
 b Leaves not with clasping bases; pappus of scales
Boltonia. p 230
- 331 a Petioles of lower leaves winged; ray flowers purple to crimson *Brauneria. p 234*
 b Plants not completely as in a 332
- 332 a Leaves 2-8 in. broad, ovate-heart-shaped, angled, toothed, with red or purple veins beneath. *Cineraria. p 238*
 b Leaves not completely as in a 333
- 333 a All flowers of the head regular, none with strap-shaped corollas 334
 b At least some of the flowers of the head with strap-shaped corollas 335
- 334 a Leaves with clasping bases; heads ½-1 in. broad
Emilia. p 234
 b Leaves not with clasping bases *Gaillardia. p 234*

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- 335 a Plant covered with white-woolly hairs; ray flowers white above, lilac beneath; leaves thick, coarsely toothed *Arctotis*. p 236
 b Plants not completely as in a 336
- 336 a Ray flowers yellow; leaves rough and often hairy *Helianthus*. p 235
 b Plants not completely as in a 337
- 337 a Achenes with a pappus of capillary bristles *Callistephus*. p 235
 b Achenes with pappus wanting 338
- 338 a Heads $\frac{1}{4}$ - $\frac{3}{4}$ in. broad *Achillea ptarmica*. p 236
 b Heads 1 in. or more broad *Chrysanthemum*. p 237
- 339 a Plants without leaves; stems cylindric or flattened, usually with prickles 340
 b Plants with leaves 341
- 340 a Stems flattened *Epiphyllum*. p 189
 b Stems cylindric *Cereus*. p 189
- 341 a Flowers with a spur on the corolla or perianth 342
 b Flowers not with a spur 344
- 342 a Leaves with petiole attached to the under side of blade *Tropaeolum*. p 178
 b Leaves with petiole attached to the margin of blade.. 343
- 343 a Sepal petal-like, spurred *Impatiens*. p 184
 b Sepals not petal-like, the petal spurred *Viola*. p 187
- 344 a Leaves with spiny teeth; a yellow sap exuding when plant is broken..... *Argemone*. p 155
 b Plants not as in a 345
- 345 a Flowers with a distinctly green calyx and a colored corolla 346
 b Flowers with the perianth undifferentiated into calyx and corolla 391
- 346 a Flowers more or less irregular 347
 b Flowers regular 355
- 347 a Corolla more or less tubular, the petals not distinct 348
 b Corolla not tubular, the petals distinct 352
- 348 a Corolla split down one side to the base; anthers cohering about the style *Lobelia*. p 217
 b Flowers not completely as in a 349
- 349 a Leaves 3-12 in. broad, broadly heart-shaped, covered with glandular hairs; fruit with long, curved horns *Martynia*. p 212
 b Leaves not completely as in a 350
- 350 a Leaves 3-10 in. long, with toothed margins. *Digitalis*. p 211
 b Leaves with entire margins 351
- 351 a Flowers $\frac{3}{4}$ -1 in. long, blue *Echium*. p 203
 b Flowers 1-2 in. long, variously colored *Antirrhinum majus*. p 210

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- 352 a Leaves 6-18 in. long, oblong *Canna*. p 138
 b Leaves usually less than 6 in. long 353
- 353 a Stamens with the anthers joined into a tube about the style *Viola*. p 187
 b Stamens not as in a 354
- 354 a Leaves all basal *Saxifraga sarmetosa*. p 161
 b Leaves not all basal *Pelargonium*. p 177
- 355 a Corolla more or less tubular, the petals not distinctly separate 356
 b Petals distinct, not joined into a tube 372
- 356 a Leaves all basal 357
 b Leaves not all basal 360
- 357 a Flowers solitary and nodding on the flowering stalk
Cyclamen. p 197
 b Flowers several on the flowering stalk 358
- 358 a Flowers about $\frac{1}{4}$ in. broad, arranged in heads or spikes
Statice. p 198
 b Flowers $\frac{1}{2}$ in. or more broad 359
- 359 a Stamens united into a tube *Dodecatheon*. p 197
 b Stamens not united into a tube *Primula*. p 197
- 360 a Ovary inferior 361
 b Ovary superior 362
- 361 a Flowers 2-3 in. broad; leaves lanceolate, 1-3 in. long, unequally toothed *Platycodon*. p 217
 b Plants not completely as in a *Campanula*. p 217
- 362 a Flowers solitary on elongated stalks 363
 b Flowers not solitary on elongated stalks 366
- 363 a Flowers 4 in. or more long, usually white. ... *Datura*. p 209
 b Flowers less than 4 in. long 364
- 364 a Plant not covered with glandular hairs; flowers $\frac{1}{2}$ -1 in. broad *Nierembergia*. p 210
 b Plants more or less covered with glandular hairs 365
- 365 a Leaves entire *Petunia*. p 210
 b Leaves usually toothed *Salpiglossis*. p 210
- 366 a Flowers often 3 in. or more long, arranged in panicles
Nicotiana. p 209
 b Flowers not arranged in panicles 367
- 367 a Leaves with toothed margins *Phacelia*. p 202
 b Leaves with entire margins 368
- 368 a Ovary not 4-lobed or 4-parted; flowers $\frac{1}{2}$ -1 in. broad
Browallia. p 209
 b Ovary 4-lobed or 4-parted 369
- 369 a Leaves wrinkled; flowers very fragrant, in 1-sided spikes *Heliotropium*. p 202
 b Plants not completely as in a 370
- 370 a Flowers about $\frac{1}{4}$ in. broad; plant spreading. *Myosotis*. p 203
 b Flowers $\frac{1}{2}$ in. or more broad; plants erect 371

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- 371 *a* Flowers bright blue *Borago*. p 203
b Flowers purplish or yellowish *Symphytum*. p 203
- 372 *a* Sepals or calyx lobes 4; petals 4 except in double flowers 373
b Flowers not completely as in *a* 383
- 373 *a* The two outside petals much larger than the two inner
ones *Iberis*. p 160
b The four petals about equal in size 374
- 374 *a* Leaves broadly ovate-heart-shaped, 3-6 in. long; pods
about 1 in. broad *Lunaria*. p 160
b Plants not completely as in *a* 375
- 375 *a* Flowers yellow or orange 376
b Flowers not yellow or orange 377
- 376 *a* Leaves ½-1 in. long, hairy *Alyssum*. p 159
b Leaves 1-4 in. long, hairy *Cheiranthus*. p 160
- 377 *a* Plant 2-8 in. high, tufted; upper leaves clasping,
toothed toward the apex *Arabis alpina*. p 159
b Plants not completely as in *a* 378
- 378 *a* Flowers about ¼ in. broad 379
b Flowers ½ in. or more broad 380
- 379 *a* Flowers white, fragrant; leaves with entire margins
..... *Koniga*. p 159
b Flowers violet or purple; leaves with 1 or 2 large teeth
on each side *Aubrietia*. p 160
- 380 *a* Calyx of four distinct sepals 381
b Calyx tubular with 4 lobes 382
- 381 *a* Leaves with entire margins, covered with hoary hairs
..... *Matthiola*. p 160
b Leaves with toothed margins, not hoary... *Hesperis*. p 159
- 382 *a* Petals abruptly narrowed toward the base, sometimes
lobed *Clarkia*. p 190
b Petals not abruptly narrowed toward the base; flowers
in the axils of the leaves *Godetia*. p 190
- 383 *a* Leaves very fleshy 384
b Leaves not noticeably fleshy 385
- 384 *a* Sepals 2 *Portulaca grandiflora*. p 149
b Calyx lobes usually 5 *Sedum*. p 160
- 385 *a* Flowers yellow or yellowish-white 386
b Flowers not yellow or yellowish-white 387
- 386 *a* Leaves linear-lanceolate, evergreen, hoary beneath;
flowers not fragrant *Helianthemum*. p 186
b Leaves obovate, not evergreen or hoary beneath;
flowers very fragrant *Reseda*. p 160
- 387 *a* Leaves all basal 388
b Leaves not all basal 389

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- 388 a Leaves thick, evergreen, 2-9 in. long; flowers in paniced
cymes *Saxifraga crassifolia*. p 161
b Leaves not evergreen, 1-3 in. broad, rounded; flowers
in paniced, 1-sided racemes *Heuchera*. p 161
- 389 a Leaves lanceolate to linear *Linum*. p 178
b Leaves rounded 390
- 390 a Stamens numerous; flowers not double
Malva sylvestris. p 185
b Stamens 10 or less; flowers usually double
Pelargonium. p 177
- 391 a Leaves petioled, with very unequal-sided blades; sepals
2, petal-like; flowers imperfect *Begonia*. p 188
b Plants not completely as in a 392
- 392 a Leaves basal, long-petioled; flowers on a spike sub-
tended by a very showy colored leaf or spathe 393
b Plants not completely as in a 394
- 393 a Colored spathe surrounding the spike of small flowers
Richardia. p 131
b Colored spathe only subtending the spike of small
flowers *Anthurium*. p 132
- 394 a Flowers without a distinct perianth, the stamens and
pistils usually indistinct; bracts subtending the small
flowers conspicuous and colored 395
b Flowers with the perianth distinct 396
- 395 a Bracts subtending the flowers crimson, red, yellow, or
white, in crowded crest-like or plume-like spikes
Celosia. p 148
b Plants not completely as in a *Amaranthus*. p 148
- 396 a Leaves 2-6 ft. long, linear, fleshy, with spiny teeth
Agave. p 137
b Plants not completely as in a 397
- 397 a Flowers more or less irregular 398
b Flowers regular 404
- 398 a Leaves with coarsely toothed margins
Impatiens balsamina. p 184
b Leaves with entire margins 399
- 399 a Leaves ovate or oblong, usually with petioles..... 400
b Leaves linear 401
- 400 a Stamens petal-like; leaves long-petioled..... *Canna*. p 138
b Stamens not petal-like; leaves short-petioled or sessile
Cattleya. p 138
- 401 a Flowers crowded, arranged somewhat spirally in a spike
Gladiolus. p 138
b Flowers not arranged completely as in a 402
- 402 a Flowers orange or crimson, borne in a spike-like raceme
Tritonia. p 138
b Flowers whitish or rose-colored 403

KEY TO CULTIVATED HERBS AND POTTED SHRUBS

- 403 *a* Flowers borne on a jointed axis bent nearly at right angles to the stem *Freezia*. p 138
b Flowers borne usually in pairs on the spike. *Polianthes*. p 137
- 404 *a* Ovary completely inferior 405
b Ovary superior 417
- 405 *a* Flowers with the perianth more or less tubular with 6 lobes 406
b Flowers with the perianth parts all distinct, not joined into a tube 413
- 406 *a* Flowers with a conspicuous crown or border at the top of the perianth tube *Narcissus*. p 136
b Flowers not with a crown or border as in *a* 407
- 407 *a* Flowers borne singly on the stem 408
b Flowers not borne singly on the stem 409
- 408 *a* Stamens 3; plants cultivated in gardens *Crocus*. p 137
b Stamens 6; plant cultivated in pots... *Zephyranthes*. p 137
- 409 *a* Stamens 3 410
b Stamens 6 412
- 410 *a* The 3 outer perianth parts spreading, broader than the 3 inner, erect ones *Iris*. p 137
b Perianth not completely as in *a* 411
- 411 *a* Perianth tube somewhat curved, about the length of the lobes *Tritonia*. p 138
b Perianth tube not curved, much shorter than the lobes
Ixia. p 138
- 412 *a* Flowers white, 3-4 in. long *Hymenocallis*. p 137
b Flowers rose-colored, ½-2 in. broad.... *Amaryllis*. p 137
- 413 *a* Stamens 3 414
b Stamens 6 416
- 414 *a* The 3 outer perianth parts spreading, broader than the 3 inner, erect ones *Iris*. p 137
b Perianth not completely as in *a* 415
- 415 *a* Flowers 1-2 in. broad *Gemmingia*. p 138
b Flowers 3-6 in. broad *Tigridia*. p 138
- 416 *a* The 3 outer perianth parts much larger than the 3 inner, notched ones *Galanthus*. p 136
b All 6 perianth parts about the same size.. *Leucojum*. p 136
- 417 *a* Leaves ¼ in. or more thick, very succulent, somewhat V-shaped *Aloe*. p 133
b Leaves not completely as in *a* 418
- 418 *a* Leaves not all basal 419
b Leaves all basal 422
- 419 *a* Flowers 1 in. or more broad; perianth parts 6. 420
b Flowers ½ in. or less broad 421
- 420 *a* Flowers checkered or else in a whorl hanging under the terminal tuft of leaves *Fritillaria*. p 134
b Flowers not completely as in *a* *Lilium*. p 134

KEY TO CULTIVATED HERBS AND POTTED SHRUBS

- 421 a Plants exuding a milky sap when broken. *Euphorbia*. p 180
 b Plants not exuding a milky sap when broken
Polygonum. p 146
- 422 a Average leaf 1 ft. or more long 423
 b Average leaf less than 1 ft. long 427
- 423 a Flowers in umbels; plant cultivated in pots
Agapanthus. p 133
 b Flowers not in umbels; plants cultivated in gardens.... 424
- 424 a Flowers 3-4 in. broad, borne singly on the flowering stalk
Colchicum. p 133
 b Flowers in spikes or clusters 425
- 425 a Flowers 3-5 in. long, 6-15 in a terminal cluster
Hemerocallis. p 133
 b Flowers 2 in. or less long, numerous in a spike 426
- 426 a Leaves 1-2 ft. long; spike 1-4 ft. long....*Eremurus*. p 133
 b Leaves 2-3 ft. long; spike 3-10 in. long....*Kniphofia*. p 133
- 427 a Leaves broadly ovate, or lanceolate and variegated
Funkia. p 135
 b Leaves linear to lanceolate 428
- 428 a Flowers solitary on the flowering stalk 429
 b Flowers not solitary on the flowering stalk 431
- 429 a Leaves linear*Triteleia*. p 135
 b Leaves lanceolate 430
- 430 a Perianth tubular at the base*Colchicum*. p 133
 b Perianth of 6 distinct parts*Tulipa*. p 135
- 431 a Perianth tubular, with 6 lobes 432
 b Perianth of 6 distinct parts 435
- 432 a Leaves lanceolate to oblong-ovate; flowers white
Convallaria. p 136
 b Leaves linear 433
- 433 a Flowers somewhat globose, usually blue; leaves thick
Muscari. p 135
 b Flowers not globose 434
- 434 a Flowering stalk 6-18 in. high, with 15 or more flowers
Hyacinthus. p 135
 b Flowering stalk 3-6 in. high with 3-12 flowers
Chionodoxa. p 135
- 435 a Flowers solitary or in racemes, rarely white..*Scilla*. p 135
 b Flowers in corymbs or umbels 436
- 436 a Flowers white with green stripes on the outside, arranged in corymbs*Ornithogalum*. p 135
 b Flowers white, stamens often colored, arranged in umbels*Allium neapolitanum*. p 134

CLASS I. GYMNOSPERMAE

Trees or shrubs characterized by having the seed not enclosed in an ovary.

1 CYCADALES. Cycad Order.

1 CYCADACEAE. Cycad Family.

- 1 CŶCASSAGO PALM. (*C. revoluta*.*)
- 2 ZĀMIACOONTIE. (*Z. floridana*.*)

2 GINKGOALES. Ginkgo Order.

1 GINKGOACEAE. Ginkgo Family.

- 1 GĪNKGOMAIDENHAIR TREE. (*G. biloba*.*)

3 PINALES. Pine Order.

1 TAXACEAE. Yew Family.

1 TĀXUS.

- 1 *a* Low, prostrate shrub; native species.
AMERICAN YEW. (*T. canadensis*.)
- b* Shrub or small tree not prostrate; cultivated species
EUROPEAN YEW. (*T. baccata*.*)

2 PINACEAE. Pine Family.

- 1 ARAUCĀRIANORFOLK ISLAND PINE. (*A. excelsa*.*)

2 PĪNUS.

- 1 *a* Leaves in clusters of 5, or some in 4's 2
- b* Leaves in clusters of 2 or 3 4
- 2 *a* Leaves 5-8 in. long, drooping, bluish-green; young branches glaucousBHOTAN PINE. (*P. excelsa*.*)
- b* Leaves 2-5 in. long; young branches not glaucous..... 3
- 3 *a* Young branches covered with brownish hairs; cones 2-4 in. longSWISS STONE PINE. (*P. cembra*.*)
- b* Young branches not covered with brownish hairs; cones 3-6 in. longWHITE PINE. (*P. strobus*.)
- 4 *a* Leaves in clusters of 3 5
- b* Leaves in clusters of 2, or some in 3's 6
- 5 *a* Cultivated tree; mature cones 4-6 in. long
WESTERN YELLOW PINE. (*P. ponderosa*.*)
- b* Native tree; mature cones 2-3 in. long
PITCH PINE. (*P. rigida*.)
- 6 *a* Erect or prostrate shrub; leaves $\frac{3}{4}$ -2 in. long.
SWISS MOUNTAIN PINE. (*P. montana*.*)
- b* Erect trees 7

PINACEAE (PINE FAMILY)

- 7 a Leaves less than 4 in. long 8
 b Leaves 4 in. or more long 9
- 8 a Leaves about 3 in. long, twisted, light green; cultivated tree SCOTCH PINE. (*P. sylvestris*.)
 b Leaves usually less than 3 in. long, dark green; native tree SCRUB PINE. (*P. virginiana*.)
- 9 a Cultivated tree; leaves much clustered at the ends of the branches; mature cones 2-3 in. long
 AUSTRIAN PINE. (*P. austriaca*.)
 b Native trees; mature cones usually 1-2 in. long 10
- 10 a Some leaves in clusters of 3, others in 2's.
 YELLOW PINE. (*P. echinata*.)
 b All leaves in clusters of 2 RED PINE. (*P. resinosa*.)
- 3 CÈDRUS.
- 1 a Leaves $\frac{1}{2}$ - $\frac{3}{4}$ in. long; cones 2-3 in. long
 AFRICAN CEDAR. (*C. atlantica*.)
 b Leaves 1-2 in. long; cones 3-5 in. long
 CEDAR OF LEBANON. (*C. libani*.)
- 4 LÀRIX.
- 1 a Leaves about $\frac{3}{4}$ in. long; cones about $\frac{1}{2}$ in. long
 TAMARACK. (*L. laricina*.)
 b Leaves about 1 in. long; cones about 1 in. long
 EUROPEAN LARCH. (*L. decidua*.)
- 5 PÌCEA.
- 1 a Leaves $\frac{1}{4}$ - $\frac{1}{2}$ in. long, crowded, appressed to branches
 ORIENTAL SPRUCE. (*P. orientale*.)
 b Leaves $\frac{1}{2}$ -1 in. long, not appressed to branches 2
- 2 a Leaves bluish or whitish, strongly incurved on the younger branches BLUE SPRUCE. (*P. pungens*.)
 b Leaves not completely as in a 3
- 3 a Leaves usually $\frac{3}{4}$ -1 in. long; cones 4-6 in. long; cultivated species NORWAY SPRUCE. (*P. abies*.)
 b Leaves usually about $\frac{1}{2}$ in. long; cones 1-2 in. long; native species BLACK SPRUCE. (*P. mariana*.)
- 6 TSÛGA HEMLOCK. (*T. canadensis*.)
- 7 ÀBIÉS.
- 1 a Leaves pointed at apex
 CEPHALONIAN SILVER FIR. (*A. cephalonica*.)
 b Leaves blunt or notched at apex 2
- 2 a Leaves blue-green, usually glaucous on young branches, often 4-sided RED FIR. (*A. nobilis*.)
 b Leaves dark green and shining above, whitish beneath.. 3
- 3 a Native tree; leaves about $\frac{3}{4}$ in. long; mature cones 2-4 in. long BALSAM FIR. (*A. balsamea*.)
 b Cultivated trees; leaves usually more than $\frac{3}{4}$ in. long; mature cones 4-6 in. long 4

PINACEAE (PINE FAMILY)

- 4 a Leaves tapering at the base, somewhat curved
 NORTHERN SILVER FIR. (*A. nordmanniana*.)
 b Leaves not noticeably tapering at the base, not curved
 SILVER FIR. (*A. picea*.)
- 8 SCIADÓPITYS.....UMBRELLA PINE. (*S. verticillata*.)
- 9 CRYPTOMÈRIAJAPANESE CEDAR. (*C. japonica*.)
- 10 TAXÒDIUMBALD CYPRESS. (*T. distichum*.)
- 11 THÛJA.
- 1 a Branchlets lighter colored beneath
 ARBOR VITAE. (*T. occidentalis*.)
 b Branchlets alike on both sides
 ORIENTAL ARBOR VITAE. (*T. orientalis*.)
- 12 CHAMAECÛPARIS.
- 1 a Leaves usually spreading, pointed; cones $\frac{1}{4}$ - $\frac{1}{2}$ in. in diameterSAWARA CYPRESS. (*C. pisifera*.)
- b Leaves usually appressed to the stem 2
- 2 a Branches not pendulous; leaves not usually with white lines beneathSOUTHERN WHITE CEDAR. (*C. thyoides*.)
- b Branches usually pendulous; leaves with white lines beneath 3
- 3 a Leaves usually shining above, thick, blunt at apex; mature cones about $\frac{1}{2}$ in. in diameter
 HINOKI CYPRESS. (*C. obtusa*.)
 b Leaves not shining above, pointed or blunt at apex; mature cones about $\frac{1}{4}$ in. in diameter
 LAWSON'S CYPRESS. (*C. lawsoniana*.)
- 13 JUNÍPERUS.
- 1 a Leaves awl-shaped, in 3's, spreading
 COMMON JUNIPER. (*J. communis*.)
 b Leaves usually scale-like appressed to the stem, sometimes spreading but not in 3's
 RED CEDAR. (*J. virginiana*.)

CLASS II. ANGIOSPERMAE

Trees, shrubs or herbs characterized by having the seed enclosed in an ovary; includes sub-classes: Monocotyledoneae, Dicotyledoneae.

Sub-Class I.

MONOCOTYLEDONEAE. Monocotyledons.

I PANDANALES. Screw Pine Order.

I PANDANACEAE. Screw Pine Family.

I PANDANUS.

- I a Leaves variegated with white or yellow
VARIEGATED SCREW PINE. (*P. vèitchii*.)*
 b Leaves green SCREW PINE. (*P. utilis*.)*

2 TYPHACEAE. Cat-tail Family.

I TYPHA.

- I a Staminate and pistillate parts of the spike usually contiguous BROAD-LEAVED CAT-TAIL. (*T. latifolia*.)
 b Staminate and pistillate parts of the spike separate
NARROW-LEAVED CAT-TAIL. (*T. angustifolia*.)

3 SPARGANIACEAE. Bur-reed Family.

I SPARGANIUM.

- I a Plant 3 ft. or more high; fruiting head 1-2 in. in diameter; fruit, not head, sessile
BROAD-FRUITED BUR-REED. (*S. eurycarpum*.)
 b Plants usually less than 3 ft. high; fruiting head 1/2-1 in. in diameter; fruit stalked 2
 2 a Leaves not more than 1/4 in. broad; plant noticeably slender SIMPLE-STEMMED BUR-REED. (*S. simplex*.)
 b Leaves 1/4-1/2 in. broad; plant often branched
BRANCHING BUR-REED. (*S. androcladum*.)

2 NAIADALES. Pondweed Order.

I NAIADACEAE. Pondweed Family.

I APONOGËTON CAPE PONDWEED. (*A. distachyum*.)*

2 POTAMOËTON.

- I a Floating and usually submerged leaves present 2
 b All leaves submerged 7

SCHEUCHZERIACEAE (ARROW-GRASS FAMILY)

- 2 *a* Floating leaves 30-50 nerved
 LARGE-LEAVED PONDWEED. (*P. amplifolius.*)
b Floating leaves less than 30-nerved 3
- 3 *a* Floating leaves 5-7 nerved
 RAFINESQUE'S PONDWEED. (*P. diversifolium.*)
b Floating leaves 9-29 nerved 4
- 4 *a* Submerged leaves narrowly linear, about $\frac{1}{8}$ in. broad,
 bladeless, or sometimes wanting
 COMMON FLOATING PONDWEED. (*P. natans.*)
b Submerged leaves usually lanceolate to linear, $\frac{1}{4}$ in.
 or more broad 5
- 5 *a* Submerged leaves 7-15 nerved; stipules pointed
 LONG-LEAVED PONDWEED. (*P. lonchites.*)
b Submerged leaves 3-7 nerved; stipules blunt 6
- 6 *a* Floating leaves ovate to lanceolate, 9-20 nerved; plant
 much branched
 VARIOUS-LEAVED PONDWEED. (*P. heterophyllus.*)
b Floating leaves elliptic to obovate, 11-27 nerved; plant
 rarely branched....NUTTALL'S PONDWEED. (*P. nuttallii.*)
- 7 *a* Leaves rounded to lanceolate with clasping bases
 CLASPING-LEAVED PONDWEED. (*P. perfoliatus.*)
b Leaves grass-like or bristle-like 8
- 8 *a* Submerged leaves 3-nerved 9
b Submerged leaves 1-nerved, bristle-like 11
- 9 *a* Spikes elongated, cylindric
 EEL-GRASS PONDWEED. (*P. zosteræfolius.*)
b Spikes rounded 10
- 10 *a* Leaves with 2 translucent glands at the base, plainly
 3-nervedSMALL PONDWEED. (*P. pusillum.*)
b Leaves without glands at the base, obscurely 3-nerved
 LEAFY PONDWEED. (*P. foliosus.*)
- 11 *a* Branches repeatedly forked; flowers in remote whorls
 FENNEL-LEAVED PONDWEED. (*P. pectinatus.*)
b Branches not forked; spikes rather cylindric
 RAFINESQUE'S PONDWEED. (*P. diversifolius.*)
- 3 ZANNICHÉLLIAHORNED PONDWEED. (*Z. palustris.*)
 4 NAIASSLENDER NAIAS. (*N. flexilis.*)
 5 ZOSTÈRAEEL-GRASS. (*Z. marina.*)

2 *SCHEUCHZERIACEAE. Arrow-grass Family.*

1 TRIGLÒCHIN.

- 1 *a* Capsule linear; ovaries 3
 MARSH ARROW-GRASS. (*T. palustris.*)
b Capsule ovoid; ovaries 6
 SEASIDE ARROW-GRASS. (*T. maritima.*)

ALISMACEAE (WATER-PLANTAIN FAMILY)

2 SCHEUCHZÈRIASCHEUCHZERIA. (*S. palustris*.)

3 ALISMACEAE. Water-plantain Family.

1 ALÍSMÀ.....WATER PLANTAIN. (*A. plantago-aquatica*.)

2 SAGITTÀRIA.

1 a Leaves arrow-shaped with triangular, basal lobes
BROAD-LEAVED ARROW-HEAD. (*S. latifolia*.)

b Leaves lanceolate or broadly arrow-shaped with very
narrow basal lobes
SESSILE-FRUITED ARROW-HEAD. (*S. rigida*.)

c Leaves linear; flowers not more than ½ in. broad
GRASS-LEAVED ARROW-HEAD. (*S. graminea*.)

4 VALLISNERIACEAE. Tape-grass Family.

1 PHILÒTRIADITCH MOSS. (*P. canadensis*.)

2 VALLISNÈRIATAPE-GRASS. (*V. spiralis*.)

3 GRAMINALES. Grass Order.

1 GRAMINACEAE. Grass Family.

1 a Grasses cultivated in parks or gardens or in pots for
their ornamental foliage or inflorescence 2

b Grasses not cultivated as in a 7

2 a Leaves 3-8 ft. long, mostly basal, tufted
1. *Cortaderia*. p 118

b Leaves 3 ft. or less long 3

3 a Leaves 2 ft. or more long 4

b Leaves less than 2 ft. long 5

4 a Leaves striped or banded with yellow; panicle 6-12 in.
long 2. *Miscanthus*. p 118

b Leaves striped or banded with white; panicle 1-2 ft.
long 3. *Erianthus*. p 118

5 a Leaves less than 1 in. broad, 4-10 in. long, linear
54. *Phalaris*. p 122

b Leaves less than 1 in. broad, 2-5 in. long, narrowly
lanceolate 53. *Oplismenus*. p 122

c Leaves 1-3 in. broad 6

6 a Leaves green, shining above; panicle 6-15 in. long
4. *Arundinaria*. p 118

b Leaves usually variegated; panicle 1-2 ft. long
5. *Arundo*. p 118

7 a Staminate spikelets in terminal panicles; pistillate spike-
lets in axillary spikes; plant cultivated for the grain
6. *Zea*. p 118

b Spikelets not arranged completely as in a 8

8 a Spikelets in a single, terminal, more or less cylindrical or
4-sided spike 9

b Spikelets not arranged completely as in a 17

GRAMINACEAE (GRASS FAMILY)

- 9 a Spikes 4-sided; plants cultivated for their grains 10
 b Spikes more or less cylindric 11
- 10 a Leaves glaucous; spikelets 2-3-flowered.. 7. *Secale*. p 118
 b Leaves not glaucous; spikelets 4-5-flowered
 8. *Triticum*. p 118
- 11 a Each spikelet surrounded by awn-like bristles
 10. *Chaetochloa*. p 118
 b Spikelets not surrounded as in a 12
- 12 a Spikelets each with a barbed awn 2-4 in. long
 9. *Hordeum*. p 118
 b Spikelets not completely as in a 13
- 13 a Spikelets with 1 or more awns $\frac{1}{4}$ in. or more long
 11. *Elymus*. p 118
 b Spikelets not completely as in a 14
- 14 a Spikes rather ovoid, about twice as long as broad
 54. *Phalaris*. p 122
 b Spikes elongated 15
- 15 a Spikes somewhat flattened; spikelets about $\frac{1}{4}$ in. long;
 plant fragrant when drying 38. *Anthoxanthum*. p 120
 b Spikes not flattened; spikelets less than $\frac{1}{4}$ in. long.... 16
- 16 a Spikes 1-3 in. long, soft, velvety 12. *Alopecurus*. p 118
 b Spikes 2-7 in. long, not soft and velvety 13. *Phleum*. p 118
- 17 a Spikelets in flattened or 1-sided spikes or racemes 18
 b Spikelets in spreading or compressed panicles 40
- 18 a Spikelets overlapping, arranged in numerous, spreading
 reflexed spikes $\frac{1}{4}$ - $\frac{3}{4}$ in. long on a single axis
 14. *Atheropogon*. p 118
 b Spikelets not arranged completely as in a 19
- 19 a Spikelets in 1 spike or raceme 20
 b Spikelets in 2 or more spikes or racemes 30
- 20 a Spikelets bur-like, with sharp spines 15. *Cenchrus*. p 118
 b Spikelets not bur-like 21
- 21 a No conspicuous awns $\frac{1}{8}$ in. or more long on spikelets.. 22
 b Conspicuous awns $\frac{1}{8}$ in. or more long on spikelets.... 26
- 22 a Spike somewhat ovoid, about twice as long as broad
 54. *Phalaris*. p 122
 b Spike or raceme elongated 23
- 23 a Spikelets rounded, flat on inner surface, in 2-4 rows,
 compact 23. *Paspalum*. p 119
 b Spikelets not rounded and flat on inner surface 24
- 24 a Coarse grass usually 4 ft. or more high; rachis easily
 breaking at the joints where spikelets are attached
 16. *Tripsacum*. p 118
 b Grasses less than 4 ft. high; rachis not easily breaking
 at joints 25

GRAMINACEAE (GRASS FAMILY)

- 25 a Flat side of spikelet turned to rachis 17. *Agropyrum*. p 118
 b Edge of spikelet turned to rachis 18. *Lolium*. p 118
- 26 a 1 spikelet at each joint of rachis, alternate on 2 sides,
 spikelets not stalked 18. *Lolium*. p 118
 b Spikelets not completely as in a 27
- 27 a Spikelets rather densely arranged on all sides of rachis;
 awns usually less than $\frac{1}{4}$ in. long
 38. *Anthoxanthum*. p 120
 b Spikelets loosely arranged on rachis; awns $\frac{1}{4}$ in. or more
 long 28
- 28 a Spikes appear somewhat fuzzy due to a hairy stalk $\frac{1}{4}$
 in. or more long from each joint of the rachis
 19. *Andropogon*. p 118
 b Spikes not completely as in a 29
- 29 a Awns bent at right angles to spikelet; slender grasses
 20. *Aristida*. p 119
 b Awns straight about 1 in. or more long; coarse grasses
 21. *Hystrix*. p 119
- 30 a Awns conspicuous, $\frac{1}{8}$ in. or more long 31
 b No conspicuous awns $\frac{1}{8}$ in. or more long on spikelet.. 33
- 31 a Spikes appear somewhat fuzzy due to a hairy stalk
 $\frac{1}{4}$ in. or more long from each joint of the rachis
 19. *Andropogon*. p 118
 b Spikes not completely as in a 32
- 32 a Awns bent at right angles to spikelet; slender grasses
 20. *Aristida*. p 119
 b Awns straight; coarse grasses.... 22. *Echinochloa*. p 119
- 33 a Spikelets not in a 1-sided spike or raceme 34
 b Spikelets in a 1-sided spike or raceme 36
- 34 a Coarse grass usually 4 ft. or more high; rachis easily
 breaking at the joints where sessile spikelets are at-
 tached 16. *Tripsacum*. p 118
 b Grasses not completely as in a 35
- 35 a Nodes of stem swollen 43. *Muhlenbergia*. p 120
 b Nodes of stem not swollen.... 22. *Echinochloa*. p 119
- 36 a Spikelets rounded, flat on inner surface; leaves usually
 hairy 23. *Paspalum*. p 119
 b Spikelets more or less pointed, not flat on inner surface. 37
- 37 a Spikes scattered on rachis, not clustered at top of stem
 24. *Spartina*. p 119
 b Spikes usually conspicuously whorled or clustered at top
 of stem 38
- 38 a Spikelets 3-5-flowered; coarse grass in tufts
 25. *Eleusine*. p 119
 b Spikelets 1-flowered 39

GRAMINACEAE (GRASS FAMILY)

- 39 *a* Spikes 2-5 in. long; leaf sheaths clothed with long hairs
26. *Syntherisma*. p 119
b Spikes 1-2 in. long; leaf sheaths not with long hairs
27. *Capriola*. p 119
- 40 *a* Awns on at least some of the spikelets 41
b No conspicuous awns on spikelets 62
- 41 *a* Each spikelet on a very slender stalk $\frac{1}{2}$ in. or more long;
 awns about $\frac{1}{2}$ in. long, straight
43. *Muhlenbergia*. p 120
b Spikelets not completely as in *a* 42
- 42 *a* Grass cultivated in the South for its grain, and in green-
 houses 28. *Oryza*. p 119
b Grasses not as in *a* 43
- 43 *a* Plant very hairy throughout, velvety, grayish, awn short
29. *Holcus*. p 119
b Plants not completely as in *a* 44
- 44 *a* Conspicuous awns at least half as long as scale on the
 spikelets 45
b Short or inconspicuous awns $\frac{1}{8}$ in. or less long on the
 spikelets 56
- 45 *a* Awns at right angles to spikelets and usually twisted
 at the base 46
b Awns more or less straight with spikelets or sometimes
 bent 47
- 46 *a* 1-3 awns from each spikelet; spikelet 1-flowered
20. *Aristida*. p 119
b 4-8 awns from each spikelet; spikelet 4-8-flowered
30. *Danthonia*. p 119
- 47 *a* Lower spikelets linear, on club-shaped stalks; awns $\frac{3}{4}$ -2
 in. long; coarse grass 31. *Zizania*. p 119
b Plants not completely as in *a* 48
- 48 *a* Spikelets small, covered with fawn-colored hairs; awns
 twisted 32. *Sorghastrum*. p 119
b Spikelets not covered with fawn-colored hairs 49
- 49 *a* 1 awn to each spikelet; spikelets comparatively short.. 50
b 2 or more awns to each spikelet; spikelets comparatively
 long 53
- 50 *a* Cultivated grain; awn bent outward, twisted at base;
 panicle widely spreading 33. *Avena*. p 120
b Wild grasses not completely as in *a* 51
- 51 *a* Panicle 1-3 in. long, very narrow; leaves as long as or
 longer than the stem 34. *Oryzopsis*. p 120
b Grasses not completely as in *a* 52
- 52 *a* Panicle very dense; stems branched at base
22. *Echinochloa*. p 119
b Panicle narrow, not very dense; stems not branched at
 base 35. *Arrhenatherum*. p 120

GRAMINACEAE (GRASS FAMILY)

- 53 a Panicle narrow, $\frac{3}{4}$ in. or less broad, often raceme-like 54
 b Panicle usually more than $\frac{3}{4}$ in. broad when open.... 55
- 54 a Leaves 3 in. or less long 36. *Festuca*. p 120
 b Basal leaves 4-6 in. long 30. *Danthonia*. p 119
- 55 a Awns bent outward and twisted at base 33. *Avena*. p 120
 b Awns straight, not twisted at base.... 37. *Bromus*. p 120
- 56 a Panicle narrow, $\frac{3}{4}$ in. or less broad, spike-like 57
 b Mature panicle 1 in. or more broad 58
- 57 a Spikelets close together, usually overlapping, hairy
 38. *Anthoxanthum*. p 120
 b Spikelets not overlapping, usually much separated, not
 hairy 43. *Muhlenbergia*. p 120
- 58 a Panicle with few stiff branches, the spikelets crowded
 in dense, often 1-sided clusters at ends of branches
 39. *Dactylis*. p 120
 b Panicles not completely as in a 59
- 59 a Spikelets 6-10-flowered, somewhat flattened
 37. *Bromus*. p 120
 b Spikelets 1-2-flowered 60
- 60 a A conspicuous tuft of hairs at base of inner scale of
 spikelet about as long as the scale
 40. *Calamagrostis*. p 120
 b No tuft of hairs as in a 61
- 61 a Spikelets 2-flowered; panicles loose, comparatively few-
 flowered 41. *Deschampsia*. p 120
 b Spikelets 1-flowered; panicles many-flowered
 42. *Cinna*. p 120
- 62 a Plant very hairy throughout, velvety, grayish
 29. *Holcus*. p 119
 b Plants not completely as in a 63
- 63 a Panicle narrow, $\frac{3}{4}$ in. or less broad when in flower,
 sometimes spike-like 64
 b Panicle more than $\frac{3}{4}$ in. broad when in flower with
 branches more or less spreading 68
- 64 a Spikelets densely clustered at top of stem, spike-like
 38. *Anthoxanthum*. p 120
 b Spikelets not completely as in a 65
- 65 a Spikelets 1-flowered, comparatively short 66
 b Spikelets 3-16-flowered 67
- 66 a Stems usually swollen at the nodes; leaves usually flat
 43. *Muhlenbergia*. p 120
 b Stems not swollen at the nodes; leaves much infolded
 44. *Sporobolus*. p 120
- 67 a Spikelets 3-8-flowered; stems much flattened, bluish-
 green 55. *Poa*. p 122
 b Spikelets 7-16-flowered; stems circular; leaves infolded
 45. *Distichlis*. p 120

GRAMINACEAE (GRASS FAMILY)

- 68 a Plants cultivated South, sometimes North, for the sugary stem or broom-like panicles, sometimes in greenhouses 69
 b Plants not cultivated for the sugary stem or broom-like panicle 70
- 69 a Spikelets not with long silky hairs; cultivated North and South 56. *Sorghum*. p 122
 b Spikelets with long, silky hairs; cultivated only South and in greenhouses 57. *Saccharum*. p 122
- 70 a Spikelets fuzzy with long silky hairs; coarse grass
 46. *Phragmites*. p 120
 b Spikelets not as in a 71
- 71 a Spikelets boat-shaped, hairy, usually overlapping and closely appressed on slender, stiffly spreading, raceme-like branches 47. *Homalocenchrus*. p 120
 b Spikelets not completely as in a 72
- 72 a Spikelets in 1-sided racemes arranged in dense panicles; coarse grass 22. *Echinochloa*. p 119
 b Spikelets not arranged completely as in a 73
- 73 a Panicle with few stiff branches; spikelets crowded often in 1-sided clusters at ends of branches 39. *Dactylis*. p 120
 b Panicles not completely as in a 74
- 74 a Spikelets usually 3-30-flowered, comparatively large.... 75
 b Spikelets 1-2-flowered, comparatively small 78
- 75 a Spikelets usually 8-30-flowered, much flattened; leaves infolded 48. *Eragrostis*. p 120
 b Spikelets 3-10-flowered; leaves usually flat 76
- 76 a Spikelets blunt at apex, flattened; flowers somewhat spreading 49. *Panicularia*. p 121
 b Spikelets tapering to apex 77
- 77 a Spikelets 5-10-flowered, no tuft of hairs at base of inner scale 36. *Festuca*. p 120
 b Spikelets 2-6-flowered, a tuft of small hairs at base of inner scale 55. *Poa*. p 122
- 78 a A conspicuous tuft of hairs as long as the scale at base of inner scale of spikelet; panicle densely flowered
 40. *Calamagrostis*. p 120
 b No conspicuous tuft of hairs as in a 79
- 79 a Cultivated grain; spikelets 2-flowered, pendulous
 33. *Avena*. p 120
 b Not cultivated grains 80
- 80 a Spikelets boat-shaped, outer scale about as long as spikelet, shining, yellowish-brown or purple; panicle 2-4 in. long; aromatic grass..... 50. *Savastana*. p 121
 b Plants not completely as in a 81

GRAMINACEAE (GRASS FAMILY)

- 81 *a* Panicle appears airy, much branched; spikelets comparatively fine; leaves comparatively narrow; plants slender 51. *Agrostis*. p 121
b Plants not completely as in *a* 82
- 82 *a* Leaves narrow, less than $\frac{1}{4}$ in. broad; spikelets 2-6-flowered, tapering; a tuft of small hairs at base of inner scale 55. *Poa*. p 122
b Leaves usually more than $\frac{1}{4}$ in. broad; spikelets 1-flowered 83
- 83 *a* Spikelets usually ovate, when tapering not more than twice as long as broad 52. *Panicum*. p 121
b Spikelets tapering, more than twice as long as broad, often somewhat velvety; leaves sometimes striped with white 54. *Phalaris*. p 122
- 1 CORTADÈRIA PAMPASS GRASS. (*C. argentea*.)
2 MISCÁNTHUS ZEBRA GRASS. (*M. sinénsis*.)
3 ERIÁNTHUS PLUME GRASS. (*E. ravénnæ*.)
4 ARUNDINÀRIA JAPANESE BAMBOO. (*A. japónica*.)
5 ARÚNDO GIANT REED. (*A. dònax*.)
6 ZÈA CORN. (*Z. màys*.)
7 SECÀLE RYE. (*S. cereàle*.)
8 TRÍTICUM WHEAT. (*T. satìvum*.)
9 HÓRDEUM BARLEY. (*H. satìvum*.)
- 10 CHAETÓCHLOA.
1 *a* Bristles on spike yellowish-brown PIGEON GRASS. (*C. gláuca*.)
b Bristles on spike green or yellow GREEN FOXTAIL GRASS. (*C. viridis*.)
c Bristles on spike purplish. ITALIAN MILLET. (*C. itálica*.)
- 11 ÉLYMUS.
1 *a* Glumes lanceolate; awns on flowering scale $\frac{1}{4}$ - $\frac{1}{2}$ in. long VIRGINIA WILD RYE. (*E. virgínicus*.)
b Glumes awl-shaped; awns on flowering scale $\frac{1}{2}$ -2 in. long SLENDER WILD RYE. (*E. striátus*.)
- 12 ALOPECÛRUS MARSH FOXTAIL. (*A. geniculátus*.)
13 PHLÈUM TIMOTHY. (*P. praténse*.)
14 ATHEROPÒGON...RACEMED BOUTELONA. (*A. curtipéndulus*.)
15 CÉNCHRUS BURGRASS. (*C. tribuloìdes*.)
16 TRÍPSACUM GAMA GRASS. (*T. dactyloìdes*.)
17 AGROPÛRON QUITCH GRASS. (*A. rèpens*.)
18 LÒLIUM.
1 *a* Spikelets with awns... ITALIAN RYE GRASS. (*L. itálicum*.)
b Spikelets not with awns RAY GRASS. (*L. perénne*.)
- 19 ANDROPÒGON.

GRAMINACEAE (GRASS FAMILY)

- 1 *a* Spikes about 1 in. long, protruding from sides of stem
 VIRGINIA BEARD GRASS. (*A. virginicus.*)
b Spikes 1-2 in. long, terminal or lateral
 BROOM BEARD GRASS. (*A. scoparius.*)
c Spikes 2-5 in. long, terminal and lateral
 FORKED BEARD GRASS. (*A. furcatus.*)
- 20 ARISTIDA.
 1 *a* Panicle spreading, not spike-like; awns united at base
 SEA-BEACH ARISTIDA. (*A. tuberculosa.*)
b Panicle spike-like; awns not united at base 2
 2 *a* Panicle 1-3 in. long; awn twisted at base
 POVERTY GRASS. (*A. dichotoma.*)
b Panicle 3-7 in. long; awn not twisted at base
 SLENDER ARISTIDA. (*A. gracilis.*)
- 21 HÝSTRIX.....BOTTLE-BRUSH GRASS. (*H. hýstrix.*)
- 22 ECHINÓCHLOABARNYARD GRASS. (*E. crus-gállii.*)
- 23 PÁSPALUM.
 1 *a* Stems densely hairy just beneath the spike
 PUBESCENT PÁSPALUM. (*P. pubescens.*)
b Stems not hairy just beneath the spike 2
 2 *a* Stems prostrate; spikelets very hairy
 PROSTRATE PÁSPALUM. (*P. prostratum.*)
b Stems erect; spikelets usually not hairy 3
 3 *a* Spikelets broadly obovate; leaves usually covered with
 fine, short hairsSLENDER PÁSPALUM. (*P. setaceum.*)
b Spikelets oval; leaves usually covered with long hairs
 MUHLENBERG'S PÁSPALUM. (*P. muhlenbergii.*)
- 24 SPARTÌNA.
 1 *a* Leaves about 1 in. broad; spikes 20-50
 SALT REED GRASS. (*S. polystachya.*)
b Leaves about ½ in. broad; spikes 5-20
 MARSH GRASS. (*S. cynosuroides.*)
c Leaves less than ¼ in. broad, infolded; spikes 2-10
 SALT MEADOW GRASS. (*S. patens.*)
- 25 ELEUSÌNE.....YARD GRASS. (*E. indica.*)
- 26 SYNTHÉRÍSMÁ.
 1 *a* Stem decumbent at the base; spikes 3-10
 CRAB GRASS. (*S. sanguinalis.*)
b Stem erect; spikes 1-5, very slender
 SLENDER FINGER GRASS. (*S. filiformis.*)
- 27 CAPRÌOLABERMUDA GRASS. (*C. dactylon.*)
- 28 ORÝZARICE. (*O. satíva.**)
- 29 HÓLCUSVELVET GRASS. (*H. lanatus.*)
- 30 DANTHÒNIAWILD OAT GRASS. (*D. spicata.*)
- 31 ZIZÀNIAWILD RICE. (*Z. aquatica.*)
- 32 SORGHÁSTRUMINDIAN GRASS. (*S. avenaceum.*)

GRAMINACEAE (GRASS FAMILY)

- 33 AVÈNAOAT. (*A. sativa*.)
 34 ORYZÓPSISMOUNTAIN RICE. (*O. asperifolia*.)
 35 ARRHENATHÈRUMOAT GRASS. (*A. elatius*.)
 36 FESTÛCA.
 1 *a* Conspicuous awns present; leaves 1-3 in. long
 SLENDER FESCUE GRASS. (*F. octoflora*.)
b No awns present; leaves 4-15 in. long
 TALL FESCUE GRASS. (*F. elatior*.)
 37 BRÒMUS.
 1 *a* Awns about $\frac{1}{2}$ in. long
 DOWNY BROOM GRASS. (*B. tectorum*.)
b Awns less than $\frac{1}{2}$ in. long 2
 2 *a* Sheaths of leaves not hairy; awns about $\frac{1}{8}$ in. long
 CHESS. (*B. secalinus*.)
b Sheaths of leaves hairy; awns about $\frac{1}{4}$ in. long 3
 3 *a* Spikelets hairy; plant 2-4 ft. high
 WOOD CHESS. (*B. ciliatus*.)
b Spikelets not hairy; plant 1-3 ft. high
 UPRIGHT CHESS. (*B. racemosus*.)
 38 ANTHOXÁNTHUM..SWEET VERNAL GRASS. (*A. odoratum*.)
 39 DÁCTYLISORCHARD GRASS. (*D. glomerata*.)
 40 CALAMAGRÓSTIS.....BLUE-JOINT GRASS. (*C. canadensis*.)
 41 DESCHÁMPSIAWAVY HAIR GRASS. (*D. flexuosa*.)
 42 CÍNNAWOOD REED GRASS. (*C. arundinacea*.)
 43 MUHLENBÉRGIA.
 1 *a* Branches of panicle 4-9 in. long, hair-like; awns $\frac{1}{4}$
 in. or more longHAIR GRASS. (*M. capillaris*.)
b Branches of panicle 3 in. or less long 2
 2 *a* Panicle with branches $\frac{1}{2}$ in. or more long, densely
 floweredMEADOW MUHLENBERGIA. (*M. mexicana*.)
b Panicle spike-like, not completely as in *a* 3
 3 *a* Panicle densely flowered, 1-3 in. long
 MARSH MUHLENBERGIA. (*M. racemosa*.)
b Panicle loosely flowered, 3-6 in. long
 ROCK MUHLENBERGIA. (*M. sobolifera*.)
 44 SPORÓBOLUSRUSH GRASS. (*S. longifolius*.)
 45 DISTÍCHLISMARSH SPIKE GRASS. (*D. spicata*.)
 46 PHRAGMÍTESREED. (*P. phragmites*.)
 47 HOMALOCÉNCHRUSWHITE GRASS. (*H. virginicus*.)
 48 ERAGRÓSTIS.
 1 *a* Spikelets $\frac{1}{4}$ - $\frac{1}{2}$ in long, oblong, 10-35-flowered
 STINK GRASS. (*E. major*.)
b Spikelets about $\frac{1}{4}$ in. long, linear, 5-15-flowered 2
 2 *a* Sheaths overlapping; panicle somewhat included in the
 upper sheathPURPLE ERAGROSTIS. (*E. pectinacea*.)
b Sheaths not overlapping; panicle not included in the
 upper sheathTUFTED ERAGROSTIS. (*E. pilosa*.)

GRAMINACEAE (GRASS FAMILY)

49 PANICULARIA.

- 1 *a* Panicle open, loose; spikelets 5-12-flowered
RATTLESNAKE GRASS. (*P. canadensis*.)
b Panicle narrow, contracted; spikelets 3-7-flowered
BLUNT MANNA GRASS. (*P. obtusa*.)

50 SAVASTANA HOLY GRASS. (*S. odorata*.)

51 AGRÓSTIS.

- 1 *a* Branches of panicle smooth RED TOP. (*A. álba*.)
b Branches of panicle rough; panicle loose
ROUGH HAIR GRASS. (*A. hyemalis*.)

52 PÁNICUM.

- 1 *a* Leaves usually more than $\frac{1}{2}$ in. broad 2
b Leaves $\frac{1}{2}$ in. or less broad 5
2 *a* Sheaths of leaves hairy throughout 3
b Sheaths of leaves very sparingly hairy or hairy only
at the nodes 4
3 *a* Cultivated grain; leaf blade more or less covered with
hairs EUROPEAN MILLET. (*P. miláceum*.)
b Wild grass; leaf blade not usually hairy
HISPID PANICUM. (*P. clandestinum*.)
4 *a* Leaves ovate to broadly lanceolate; spikelets about $\frac{1}{8}$ in.
long WIDE-LEAVED PANICUM. (*P. porteriánum*.)
b Leaves linear to oblong; spikelets about $\frac{1}{16}$ in. long
VARIABLE PANICUM. (*P. commutátum*.)
5 *a* Leaves erect, conspicuously crowded at the base; panicle
not much higher than the leaves
STARVED PANICUM. (*P. depauperátum*.)
b Plants not completely as in *a* 6
6 *a* A conspicuous ring of hairs at each node, usually point-
ing downward 7
b No ring of hairs as in *a* 8
7 *a* Sheaths and blades of leaves conspicuously hairy
ATLANTIC PANICUM. (*P. atlánticum*.)
b Sheaths and blades of leaves usually not hairy
BARBED PANICUM. (*P. barbulátum*.)
8 *a* Sheaths of leaves conspicuously hairy 9
b Sheaths of leaves not hairy 12
9 *a* Leaves 1-4 in. long 10
b Leaves 4-12 in. long 11
10 *a* Spikelets hairy. ROUND-FRUITED PANICUM. (*P. sphaerocárpon*.)
b Spikelets not hairy ... FORKED PANICUM. (*P. dichótómum*.)
11 *a* Spikelets lanceolate; branches of panicle very fine, airy
in appearance WITCH GRASS. (*P. capilláre*.)
b Spikelets ovate; branches of panicle coarse, the panicle
often drooping. EUROPEAN MILLET. (*P. miláceum*.)
12 *a* Flowering scales warty. WARTY PANICUM. (*P. verrucósum*.)
b Flowering scales not warty 13

CYPERACEAE (SEdge FAMILY)

- 13 *a* Average leaf 6 in. or more long 14
b Average leaf less than 6 in. long 16
- 14 *a* Spikelets ovate, scales usually spreading
SWITCH GRASS. (P. virgatum.)
b Spikelets lanceolate, often purplish, scales not noticeably
spreading 15
- 15 *a* Stems erect; outer glume about half as long as spikelet
AGROSTIS-LIKE PANICUM. (P. agrostoides.)
b Stems usually decumbent, rarely erect; outer glume
about 1/4 as long as spikelet
SPREADING PANICUM. (P. proliferum.)
- 16 *a* Leaves not heart-shaped at the base; spikelets lanceolate
SPREADING PANICUM. (P. proliferum.)
b Leaves more or less heart-shaped at base; spikelets not
lanceolate 17
- 17 *a* Spikelets not hairy ... *FORKED PANICUM. (P. dichotomum.)*
b Spikelets more or less hairy 18
- 18 *a* Spikelet globose, blunt at apex
ROUND-FRUITED PANICUM. (P. sphaerocarpon.)
b Spikelet elliptic, somewhat pointed at apex 19
- 19 *a* Leaves clasping at the base
VARIABLE PANICUM. (P. commutatum.)
b Leaves rounded but not clasping at the base
NORTHERN PANICUM. (P. boreale.)
- 53 *OPLISMENUS*..... *VARIEGATED PANICUM. (O. burmanni.*)*
- 54 *PHALARIS*.
- 1 *a* Spikelets arranged in ovoid spikes
CANARY GRASS. (P. canariensis.)
b Spikelets arranged in panicles
RIBBON GRASS. (P. arundinacea.)*
- 55 *PÛA*.
- 1 *a* Panicle with branches compressed; stem much flattened,
wiry *CANADA BLUE GRASS. (P. compressa.)*
b Panicle with branches more or less spreading 2
- 2 *a* Branches of panicle usually solitary; stem 3-15 in. long
SPEAR GRASS. (P. annua.)
b Branches of panicle 3-5 in a whorl; stems 1-4 ft. high
KENTUCKY BLUE GRASS. (P. pratensis.)
- 56 *SÛRGHUM*.
SORGHUM, BROOM CORN, KAFFIR CORN. (S. vulgare.)*
- 57 *SÁCCHARUM*..... *SUGAR CANE. (S. officinarum.*)*

2 *CYPERACEAE. Sedge Family.*

- 1 *a* Spikelets in a single, terminal spike 3. *Eleocharis. p 124*
b Spikelets not completely as in *a* 2
- 2 *a* Spikelets in umbels subtended by an involucre of leaves 3
b Spikelets in terminal, axillary, or lateral clusters 7

CYPERACEAE (SEDGE FAMILY)

- 3 *a* Spikelets conspicuously flattened..... 1. *Cyperus*. p 123
b Spikelets not conspicuously flattened 4
- 4 *a* Spikelets 5-10-flowered, usually not more than $\frac{1}{4}$ in. long 5
b Spikelets 15-50-flowered, $\frac{1}{4}$ in. or more long 6
- 5 *a* Plant 2-10 in. high, densely tufted 4. *Stenophyllus*. p 124
b Plant 1-3 ft. high, not densely tufted.. 9. *Cladium*. p 125
- 6 *a* Plants slender; achenes variously marked with ridges
5. *Fimbristylis*. p 124
b Plants comparatively stout; achenes smooth
6. *Scirpus*. p 124
- 7 *a* Spikelets clustered in narrow spikes, arranged in the
axils of the leaves 2. *Dulichium*. p 124
b Spikelets not completely as in *a* 8
- 8 *a* Spikelets clustered, appearing lateral on a leafless stem
6. *Scirpus*. p 124
b Spikelets not completely as in *a* 9
- 9 *a* Spikelets with long silky hairs in fruit; stems wiry
7. *Eriophorum*. p 124
b Spikelets not with long silky hairs in fruit 10
- 10 *a* Pistillate spikes spindle-shaped, few-flowered; achene
subtended by barbed bristles.. 8. *Rhynchospora*. p 124
b Pistillate spikes comparatively small, 1-flowered; no
bristles subtending the achene..... 10. *Scleria*. p 125
c Pistillate spikes various; achenes surrounded by a papery
membrane; no bristles subtending the achene
11. *Carex*. p 125

1 CYPÈRUS.

- 1 *a* Plant cultivated in aquaria or pots
UMBRELLA PLANT. (*C. alternifolius*.)
b Plants not cultivated as in *a* 2
- 2 *a* Tips of scales on spikelets spreading causing spikelets to
appear toothed; the scales often modified into leaves
TOOTHED CYPERUS. (*C. dentatus*.)
b Spikelets not completely as in *a* 3
- 3 *a* Branches of mature umbel 2 in. or less long 4
b Some branches of mature umbel 3 in. or more long.... 7
- 4 *a* Spikelets in a globose head. GLOBOSE CYPERUS. (*C. ovularis*.)
b Spikelets not in a globose head 5
- 5 *a* Spikelets about 1 in. long, very flat
NUTTALL'S CYPERUS. (*C. nuttalli*.)
b Spikelets about $\frac{1}{2}$ in. long 6
- 6 *a* Spikelets yellow.....YELLOW CYPERUS. (*C. flavescens*.)
b Spikelets green or brown....LOW CYPERUS. (*C. diandrus*.)
- 7 *a* Spikelets $\frac{1}{4}$ in. or less long, in loose heads
GRAY'S CYPERUS. (*C. grayi*.)
b Spikelets about $\frac{1}{2}$ in. or more long 8

CYPERACEAE (SEDGE FAMILY)

- 8 *a* Spikelets somewhat 2-rowed, usually more than $\frac{1}{2}$ in. longYELLOW NUT-GRASS. (*C. esculéntus*)
b Spikelets many-rowed, about $\frac{1}{2}$ in. long
 STRAW-COLORED CYPERUS. (*C. strigósus*)
- 2 DULÍCHIUMDULICHIMUM. (*D. arundináceum*)
- 3 ELEÓCHARIS.
- 1 *a* Spike 3-7-flowered....NEEDLE SPIKE-RUSH. (*E. aciculàris*)
b Spike 10-many flowered 2
- 2 *a* Stems stout, usually more than 1 ft. high
 CREEPING SPIKE-RUSH. (*E. palústris*)
b Stems slender, usually 1 ft. or less high 3
- 3 *a* Stems 4-angled with concave sides; spike narrowly oblongSLENDER SPIKE-RUSH. (*E. ténuis*)
b Stems not completely as in *a*; spike usually ovoid
 OVOID SPIKE-RUSH. (*E. ovàta*)
- 4 STENOPHÝLLUSSTENOPHYLLUS. (*S. capillàris*)
- 5 FIMBRÍSTYLIS.
- 1 *a* Spikelets oblong, stout, chestnut brown
 MARSH FIMBRISTYLIS. (*F. castànea*)
b Spikelets linear, slender, brown
 SLENDER FIMBRISTYLIS. (*F. autumnàlis*)
- 6 SCÍRPUS.
- 1 *a* Spikelets in clusters appearing lateral on the stem.... 2
b Spikelets in umbels 4
- 2 *a* Spikelets 1-6 together in a cluster; scales with a short, straight awnCHAIR-MAKER'S RUSH. (*S. americanus*)
b Spikelets 5-20 together in a cluster; mature scales with a reflexed awn or nearly awnless 3
- 3 *a* Stems with sides much concave; scales pointed or with a very short awnOLNEY'S BULRUSH. (*S. ólneyi*)
b Stems with sides not much concave; scales with a reflexed awn when mature
 SALT-MARSH BULRUSH. (*S. robústus*)
- 4 *a* Spikelets covered with reddish-brown hairs
 WOOL GRASS. (*S. cypérinus*)
b Spikelets not covered with reddish-brown hairs 5
- 5 *a* Stems circular; involucre leaf appearing as a continuation of the stemGREAT BULRUSH. (*S. válidus*)
b Stems triangular; involucre leaves 3-6, not as in *a*
 LEAFY BULRUSH. (*S. polyphýllus*)
- 7 ERIÓPHORUMCOTTON GRASS. (*E. virgínicum*)
- 8 RHYNCHÓSPORA.
- 1 *a* Spikelets in several clusters scattered on the stem
 CLUSTERED BEAKED-RUSH. (*R. glomeràta*)
b Spikelets mostly terminal, sometimes in 1 or 2 axillary clusters; stems very slender
 WHITE BEAKED-RUSH. (*R. álba*)

CYPERACEAE (SEdge FAMILY)

- 9 CLADIUMTWIG-RUSH. (*C. mariscoides*.)
- 10 SCLERIA.
- 1 a Spikelets in 1 terminal and usually 1 or 2 lateral clusters; the stem rough
TALL NUT-RUSH. (*S. triglomerata*.)
- b Spikelets in 4-6 separated clusters; the stem smooth
LOW NUT-RUSH. (*S. verticillata*.)
- 11 CAREX.
- 1 a Plant cultivated for the foliage
MORROW'S SEDGE. (*C. morrowi*.)
- b Plants not cultivated for the foliage 2
- 2 a Both staminate and pistillate spikes present 3
- b Both staminate and pistillate flowers in the same spike.. 62
- 3 a Staminate spikes more than one 4
- b Staminate spikes only one 17
- 4 a Perigynia hairy 5
- b Perigynia not hairy 8
- 5 a Pistillate spikes usually about 1/2 in. long; staminate spikes 1 or 2, very short stalked
VELVET SEDGE. (*C. vestita*.)
- b Pistillate spikes 3/4 in. or more long 6
- 6 a Mature perigynia about 1/4 in. long, gradually tapering into the beakHAIRY-FRUITED SEDGE. (*C. trichocarpa*.)
- b Mature perigynia about 1/8 in. long, abruptly tapering into the beak 7
- 7 a Leaves infolded; stem smooth beneath the spikes
SLENDER SEDGE. (*C. filiformis*.)
- b Leaves flat; stem usually rough just below the spikes
WOOLLY SEDGE. (*C. lanuginosa*.)
- 8 a Mature pistillate spikes about 2 in. or more long 9
- b Mature pistillate spikes less than 2 in. long 11
- 9 a All pistillate spikes long-stalked and drooping; perigynia nervelessFRINGED SEDGE. (*C. crinita*.)
- b Only the lower pistillate spikes stalked; perigynia nerved 10
- 10 a Perigynia straw-colored, abruptly tapering to apex
BOTTLE SEDGE. (*C. utriculata*.)
- b Perigynia green, gradually tapering to apex
RIVER-BANK SEDGE. (*C. riparia*.)
- 11 a Mature pistillate spikes about 1/2 in. or more broad.. 12
- b Mature pistillate spikes about 1/8 in. or less broad.... 15
- 12 a 3-8 pistillate spikes clustered at top of stem, 1 or 2 lower down; perigynia reflexed at maturity
RETROSE SEDGE. (*C. retrorsa*.)
- b Pistillate spikes not clustered at top of stem 13

CYPERACEAE (SEDGE FAMILY)

- 13 a Staminate spikes usually 1 in. or less above the upper pistillate spikeSALLOW SEDGE. (*C. lùrida.*)
 b Staminate spikes usually 2 in. or more above the upper pistillate spike 14
- 14 a Pistillate spikes 1, sometimes 2; beak of perigynia usually rough; perigynia about $\frac{1}{8}$ as broad as long
 BUTTON SEDGE. (*C. bullàta.*)
 b Pistillate spikes 2, sometimes 3; beak of perigynia smooth; perigynia about $\frac{1}{2}$ as broad as long
 TUCKERMAN'S SEDGE. (*C. tuckermàni.*)
- 15 a Average leaf less than $\frac{1}{4}$ in. broad; perigynia much inflatedTUSOCK SEDGE. (*C. strìcta.*)
 b Average leaf $\frac{1}{4}$ in. or more broad; perigynia little inflated 16
- 16 a Perigynia faintly many-nerved; pistillate spikes scattered on stemRIVER-BANK SEDGE. (*C. ripària.*)
 b Perigynia nerveless; pistillate spikes close together
 WATER SEDGE. (*C. aquàtilis.*)
- 17 a Plant very hairy throughout..HAIRY SEDGE. (*C. pubèscens.*)
 b Plants not hairy throughout 18
- 18 a Pistillate spikes less than 1 in. long 19
 b Pistillate spikes more than 1 in. long 44
- 19 a Pistillate spikes with 3-20 flowers or loosely flowered throughout 20
 b Pistillate spikes with 30 or more flowers, rather densely flowered 35
- 20 a Average leaf more than $\frac{1}{4}$ in. broad 21
 b Average leaf $\frac{1}{4}$ in. or less broad 25
- 21 a Plants green or yellow, not glaucous 22
 b Plants pale green, glaucous 23
- 22 a Leaves $\frac{1}{4}$ - $\frac{1}{2}$ in. broad, yellowish; staminate spike very short stalkedLONG SEDGE. (*C. folliculàta.*)
 b Leaves $\frac{1}{2}$ -1 in. broad, green with purplish sheaths; staminate spike comparatively long stalked and purplishPLANTAIN-LEAVED SEDGE. (*C. plantagìnea.*)
- 23 a Pistillate spikes on stalks 1 in. or more long; perigynia 3-angledSPREADING SEDGE. (*C. laxiculmìs.*)
 b Pistillate spikes not completely as in a 24
- 24 a Perigynia hairy, with a 2-toothed beak
 FIBROUS-ROOTED SEDGE. (*C. pedicellàta.*)
 b Perigynia not hairy, without a beak
 GRAY SEDGE. (*C. grìsea.*)
- 25 a Pistillate spikes globose; perigynia spreading, much inflatedBLADDER SEDGE: (*C. intumèscens.*)
 b Pistillate spikes not globose; perigynia not spreading.. 26
- 26 a Staminate spike with stalk usually 1 in. or more long.. 27
 b Staminate spike with stalk $\frac{1}{2}$ in. or less long, or wanting 28

CYPERACEAE (SEDFE FAMILV)

- 27 a Pistillate spikes 1-2, about $\frac{1}{2}$ in. long, usually several-floweredMUD SEDGE. (*C. limòsa*.)
 b Pistillate spikes 2-6, $\frac{1}{4}$ - $\frac{1}{2}$ in. long, 3-8-flowered
 LONG-STALKED SEDGE. (*C. pedunculàta*.)
- 28 a Mature perigynia about $\frac{1}{4}$ in. or more long; pistillate spikes 2-8-floweredCOLLIN'S SEDGE. (*C. collinsii*.)
 b Perigynia less than $\frac{1}{4}$ in. long
- 29 a Pistillate spikes $\frac{1}{4}$ - $\frac{1}{2}$ in. long, on stalks 1 in. or more long, pendulous; perigynia 3-angled
 SPREADING SEDGE. (*C. laxiculmis*.)
 b Pistillate spikes not completely as in a
- 30 a Pistillate spikes $\frac{1}{2}$ in. or more long, with stalks $\frac{3}{4}$ in. or more long
- 31 a Pistillate spikes $\frac{1}{4}$ - $\frac{1}{2}$ in. long, sessile or short stalked..
 b Pistillate flowers alternately arranged on spike; perigynia with no beak..SLENDER WOOD SEDGE. (*C. digitàlis*.)
 b Pistillate flowers not arranged as in a; perigynia with a beak bent outward.LOOSE-FLOWERED SEDGE. (*C. laxiflòra*.)
- 32 a Staminate spike $\frac{1}{2}$ -1 in. long, very short stalked
 b Staminate spike about $\frac{1}{4}$ in. long, sessile
- 33 a Plant with stolons; scales of staminate spike usually reddishPENNSYLVANIA SEDGE. (*C. pennsylvànica*.)
 b Plant not with stolons; scales of staminate spike greenish or brown...FIBROUS-ROOTED SEDGE. (*C. pedicellàta*.)
- 34 a Stems much shorter than the leaves; perigynia not hairy
 THICKET SEDGE. (*C. ptychocàrpa*.)
 b Stems not shorter than the leaves; perigynia hairy
 EMMON'S SEDGE. (*C. varia*.)
- 35 a Perigynia hairy; pistillate spike usually sessile
 b Perigynia not hairy; pistillate spike distinctly stalked..
- 36 a Upper staminate spike stalked; plant not with stolons
 WOOLLY SEDGE. (*C. lanuginòsa*.)
 b Upper staminate spike usually sessile; plant with stolonsVELVET SEDGE. (*C. vestita*.)
- 37 a Mature pistillate spike more than $\frac{1}{4}$ in. broad; plant light greenPORCUPINE SEDGE. (*C. hystricina*.)
 b Mature pistillate spikes $\frac{1}{4}$ in. or less broad
- 38 a Plant growing in dense clusters, rather dark green; pistillate spikes greenish-purple
 TUSSOCK SEDGE. (*C. stricta*.)
 b Plants not growing in dense clusters, light green or yellowish
- 39 a Pistillate spikes 1-2, pendulous, on slender stalks, 1 in. or more longMUD SEDGE. (*C. limòsa*.)
 b Pistillate spikes 2 or more, not all stalked and pendulous

CYPERACEAE (SEDGE FAMILY)

- 40 a Plant yellowish; pistillate spikes clustered at top of stem; perigynia yellowYELLOW SEDGE. (*C. flava*.)
 b Plants light green; pistillate spikes not conspicuously clustered 41
- 41 a Plant glaucous throughout
 GLAUCESCENT SEDGE. (*C. glaucodea*.)
 b Plants not glaucous throughout 42
- 42 a Mature staminate spikes $\frac{1}{2}$ in. or more long, stalked; sheaths of leaves hairyPALE SEDGE. (*C. palléscens*.)
 b Mature staminate spikes less than $\frac{1}{2}$ in. long, sessile or short-stalked 43
- 43 a Pistillate spikes 5-15-floweredGRAY SEDGE. (*C. grisea*.)
 b Pistillate spikes usually more than 20-flowered
 MEADOW SEDGE. (*C. granulàris*.)
- 44 a Mature pistillate spikes about $\frac{1}{2}$ in. broad 45
 b Mature pistillate spikes about $\frac{1}{4}$ in. or less broad.... 49
- 45 a Pistillate spikes conspicuously clustered at top of stem.. 46
 b Pistillate spikes not conspicuously clustered at top of stem 47
- 46 a Perigynia reflexed in fruit, about $\frac{1}{4}$ in. long
 RETROSE SEDGE. (*C. retrórsa*.)
 b Perigynia not reflexed in fruit, about $\frac{1}{2}$ in. long
 HOP SEDGE. (*C. lupulina*.)
- 47 a Leaves usually $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; perigynia bristly, reflexed in fruitBRISTLY SEDGE. (*C. comósa*.)
 b Leaves $\frac{1}{4}$ in. or less broad; perigynia not reflexed in fruit 48
- 48 a Perigynia spreading, usually shining, about 10-nerved
 SALLOW SEDGE. (*C. lúrida*.)
 b Perigynia ascending, about 15-20-nerved
 PORCUPINE SEDGE. (*C. hystricina*.)
- 49 a Leaves evergreen $\frac{1}{2}$ -1 in. broad; pistillate spikes comparatively loosely-flowered
 PLANTAIN-LEAVED SEDGE. (*C. plantaginea*.)
 b Plants not completely as in a 50
- 50 a Staminate spikes with stalks 1-5 in. long
 PORCUPINE SEDGE. (*C. hystricina*.)
 b Staminate spikes with stalks less than 1 in. long 51
- 51 a Entire pistillate spike conspicuously loosely-flowered, slender stalked and pendulous 52
 b Entire pistillate spike not conspicuously loosely-flowered 54
- 52 a Perigynia beakless, strongly nerved; pistillate flowers alternately arranged on the spike
 SLENDER WOOD SEDGE. (*C. digitalis*.)
 b Perigynia with a beak 53

CYPERACEAE (SEDFE FAMILV)

- 53 a Perigynia with the beak bent outward, strongly nerved
 LOOSE-FLOWERED SEDGE. (*C. laxiflora*)
 b Perigynia with a straight beak, faintly nerved, rusty
 color when mature..SLENDER-STALKED SEDGE. (*C. tenuis*)
- 54 a All pistillate spikes slender-stalked and pendulous when
 mature 55
 b Only the lowest pistillate spikes slender-stalked and pen-
 dulous when mature 57
- 55 a Pistillate spikes 2-3, entire spike rather loosely-flowered;
 perigynia light-green, slightly inflated
 DROOPING SEDGE. (*C. prásina*)
 b Pistillate spikes 3-5, entire spike rather densely-flowered 56
- 56 a Mature perigynia nerveless, greenish; spikes appear
 fringedFRINGED SEDGE. (*C. crinita*)
 b Mature perigynia strongly nerved, brown
 MEADOW SEDGE. (*C. granulàris*)
- 57 a Plant very leafy, the leaves rough; perigynia green-
 ish-brown, hairyROUGH SEDGE. (*C. scabràta*)
 b Plants not completely as in a 58
- 58 a Plant rather dark green; pistillate spikes densely-
 flowered throughout, greenish-purple
 TUSOCK SEDGE. (*C. stricta*)
 b Plants light green; pistillate spikes loosely-flowered
 at the base 59
- 59 a Pistillate spikes more or less clustered; perigynia nerve-
 less, greenishWATER SEDGE. (*C. aquàtilis*)
 b Pistillate spikes scattered on the stem; perigynia faintly
 or strongly nerved 60
- 60 a Leaves usually more than $\frac{1}{4}$ in. broad
 RIVER BANK SEDGE. (*C. ripària*)
 b Leaves less than $\frac{1}{4}$ in. broad 61
- 61 a Mature perigynia light green, obscurely nerved; pistil-
 late spikes 1-3 in. long ...DROOPING SEDGE. (*C. prásina*)
 b Mature perigynia brown, prominently nerved; pistillate
 spikes $\frac{1}{2}$ -1 in. long.....MEADOW SEDGE. (*C. granulàris*)
- 62 a All spikes 1-12-flowered, somewhat scattered on the
 stem; stems very slender 63
 b Some spikes or spikelets 15-50-flowered, variously ar-
 range' 64
- 63 a Spikes 1-6-flowered; perigynia plump, many nerved
 SOFT-LEAVED SEDGE. (*C. tenèlla*)
 b Spikes 4-9-flowered; perigynia reflexed at maturity
 REFLEXED SEDGE. (*C. retroflèxa*)
- c Spikes 5-12-flowered; perigynia spreading in all direc-
 tionsSTELLATE SEDGE. (*C. ròsea*)

CYPERACEAE (SEDGE FAMILY)

- 64 a Single spikes, not clusters of spikelets, more than $\frac{1}{2}$ in. long, cylindric to linear; staminate flowers usually conspicuous 65
 b Spikes or spikelets $\frac{1}{2}$ in. or less long; staminate flowers not conspicuous 67
- 65 a Perigynia densely hairy; spikes $\frac{1}{2}$ - $\frac{3}{4}$ in. long
 DOWNY GREEN SEDGE. (*C. viréscens.*)
 b Perigynia not hairy; spikes $\frac{1}{2}$ -4 in. long 66
- 66 a Spikes densely-flowered except at the base
 GRACEFUL SEDGE. (*C. gracillima.*)
 b Spikes very loosely-flowered throughout
 SUMMER SEDGE. (*C. aestivalis.*)
- 67 a Spikelets few, clustered in a short, terminal head about $\frac{1}{2}$ in. long OVAL-HEADED SEDGE. (*C. cephalóphora.*)
 b Spikelets not completely as in a 68
- 68 a Spikelets 3-6, globose, olive-green; perigynia spreading when mature LITTLE PRICKLY SEDGE. (*C. stérilis.*)
 b Spikelets not globose 69
- 69 a Average leaf $\frac{1}{4}$ in. or more broad, light green; the 2 or 3 upper spikes close together, the others scattered, very light green, the lowest often compound
 BUR-REED SEDGE. (*C. sparganioides.*)
 b Plants not completely as in a 70
- 70 a Lower spikelets usually compound, not usually subtended by several scales, the perigynia spreading 71
 b Lower spikelets not compound, usually subtended by several scales 73
- 71 a Spikelets comparatively loosely arranged on the stem; the leaves much shorter than the stem
 YELLOW-FRUITED SEDGE. (*C. xanthocàrpa.*)
 b Spikelets arranged more or less compactly on the stem; leaves about as long as the stem 72
- 72 a Mature perigynia about $\frac{1}{4}$ in. long
 AWL-FRUITED SEDGE. (*C. stipàta.*)
 b Mature perigynia about $\frac{1}{8}$ in. long
 FOX SEDGE. (*C. vulpinoidea.*)
- 73 a Mature spikelets less than $\frac{1}{4}$ in. broad, comparatively loosely-flowered; perigynia narrow
 BROOM-LIKE SEDGE. (*C. bromoides.*)
 b Mature spikelets about $\frac{1}{4}$ in. broad, densely-flowered.. 74
- 74 a Perigynia blunt, without a beak
 HIRSUTE SEDGE. (*C. triceps.*)
 b Perigynia tapering into a beak 75
- 75 a Perigynia conspicuously tapering and spreading when mature, causing spikelets to appear somewhat bristly.. 76
 b Perigynia not spreading but ascending 77

PALMACEAE (PALM FAMILY)

- 76 *a* Leaves glaucous HAY SEDGE. (*C. foënea.*)
b Leaves not glaucous AWL-FRUITED SEDGE. (*C. stipàta.*)
- 77 *a* Leaves stiff, much shorter than stem; spikelets 3-8
 FESCUE SEDGE. (*C. festucàea.*)
b Leaves slender, usually nearly as long or longer than
 stem 78
- 78 *a* Spikelets 6-20, rather obovoid
 BLUNT BROOM SEDGE. (*C. tribuloïdes.*)
b Spikelets 3-9, ovoid 79
- 79 *a* Spikelets scattered on the stem; perigynia abruptly
 tapering to the apex. MARSH STRAW SEDGE. (*C. tènera.*)
b Spikelets clustered on the stem into a head $\frac{3}{4}$ -2 in. long;
 perigynia gradually tapering to the apex
 POINTED BROOM SEDGE. (*C. scopària.*)

4 PALMALES. Palm Order.

1 PALMACEAE. Palm Family.

- 1 *a* Leaves palmately compound or deeply incised
 1. *Livistona.* p 131
b Leaves pinnately compound 2
- 2 *a* Lower leaflets stiff, spine-like, spreading in various
 directions 2. *Phoenix.* p 131
b Lower leaflets not as in *a* 3
- 3 *a* Stem smooth, usually ringed by leaf-scars; leaflets 10-
 20 in. long, lanceolate.... 3. *Chrysalidocarpus.* p 131
b Plants not completely as in *a* 4
- 4 *a* Stem more or less covered with fibers, not expanded at
 base 4. *Cocos.* p 131
b Stem not covered with fibers, usually expanded at base
 5. *Howea.* p 131
- 1 LIVISTONA LANTANIA. (*L. chinénsis.**)
 2 PHOENIX PHOENIX PALM. (*P. hùmilis.**)
 3 CHRYSALIDOCARPUS ARECA. (*C. lutéscens.**)
 4 CÔCOS WEDDELL'S PALM. (*C. weddelliàna.**)
 5 HÓWEA KENTIA. (*H. belmoreàna.**)

5 ARALES. Arum Order.

1 ARACEAE. Arum Family.

- 1 ARISAËMA JACK-IN-THE-PULPIT. (*A. triphýllum.*)
 2 PELTÁNDRA ARROW ARUM. (*P. virgínica.*)
 3 CÁLLA WATER ARUM. (*C. palústris.*)
 4 RICHÁRDIA CALLA LILY. (*R. africàna.**)
 5 CALÁDIUM.
a Leaves ovate-triangular
 OVATE-LEAVED CALADIUM. (*C. bicolor.**)
b Leaves lanceolate
 LANCEOLATE-LEAVED CALADIUM. (*C. picturàtum.**)

LEMNACEAE (DUCKWEED FAMILY)

- 6 ANTHÛRIUMTAIL-FLOWER. (*A. scherzerianum*.)
 7 SPATHYÈMASKUNK CABBAGE. (*S. foëtida*.)
 8 ORÓNTIUMGOLDEN CLUB. (*O. aquaticum*.)
 9 ÁCORUSSWEET FLAG. (*A. cdlamus*.)

2 LEMNACEAE. Duckweed Family.

- 1 SPIRODÈLALARGE DUCKWEED. (*S. polyrhiza*.)
 2 LÈMNASMALL DUCKWEED. (*L. minor*.)
 3 WÓLFFIAWOLFFIA. (*W. columbiàna*.)

6 XYRIDALES. Yellow-eyed Grass Order.

1 XYRIDACEAE. Yellow-eyed Grass Family.

- 1 XÛRISYELLOW-EYED GRASS. (*X. caroliniàna*.)

2 ERIOCAULACEAE. Pipewort Family.

1 ERIOCAÛLON.

- 1 a Leaves 1-3 in. long; flowering stalk 7-angled
 PIPEWORT. (*E. septangulare*.)
 b Leaves 4-20 in. long; flowering stalk 10-16 in. long
 TEN-ANGLED PIPEWORT. (*E. decangulare*.)

3 BROMELIACEAE. Pine-apple Family.

- 1 TILLÁNDZIAFLORIDA MOSS. (*T. usneoides*.)
 2 ANÁNASPINE-APPLE. (*A. sativus*.)

4 COMMELINACEAE. Spiderwort Family.

1 TRADESCÁNTIA.

- 1 a Leaves linear, 6-15 in. long..SPIDERWORT. (*T. virginiana*.)
 b Leaves ovate, 1-3 in. long
 GREEN WANDERING JEW. (*T. fluminensis*.)

- 2 ZEBRÌNAWANDERING JEW. (*Z. pendula*.)

- 3 COMMELÌNADAY FLOWER. (*C. communis*.)

5 PONTEDERIACEAE. Pickerel-weed Family.

- 1 PONTEDÈRIAPICKEREL-WEED. (*P. cordata*.)

7 LILIALES. Lily Order.

1 JUNCACEAE. Rush Family.

1 JÚNCUS.

- 1 a Flower clusters appearing lateral on the stem
 COMMON RUSH. (*J. effusus*.)

- b Flower clusters appearing terminal on the stem..... 2

- 2 a Flowers in heads arranged in a panicle; leaves with
 partitions, jointed 3

- b Flowers not in heads; leaves not with partitions, not
 jointed 5

- 3 a Heads globose; plant comparatively slender
 SCIRPUS-LIKE RUSH. (*J. scirpoides*.)

- b Heads top-shaped or hemispheric 4

MELANTHACEAE (BUNCH-FLOWER FAMILY)

- 4 a Heads top-shaped; perianth parts as long as the mature capsule; flower cluster comparatively loose
SHARP-FRUITED RUSH. (*J. acuminatus*.)
b Heads hemispheric or top-shaped; perianth parts shorter than the mature capsule.. CANADA RUSH. (*J. canadensis*.)
- 5 a Plant about 6 in. high; panicle about half as long as plant TOAD RUSH. (*J. bufonius*.)
b Plants more than 6 in. high; flower cluster less than half as long as plant 6
- 6 a Capsule linear or oblong; flowers in branching cymes.. 7
b Capsule ovoid or obovoid; flowers in panicles 8
- 7 a Capsule linear; basal leaves 2-6 in. long; perianth parts shorter than the mature capsule
SLENDER-FRUITED RUSH. (*J. pelocarpus*.)
b Capsule oblong; basal leaves 6-20 in. long; perianth parts as long as the mature capsule
FORKED RUSH. (*J. dichotomus*.)
- 8 a Mature capsule dark brown, obovoid; perianth parts brownish; plant growing in salt marshes
BLACK GRASS. (*J. gerardi*.)
b Mature capsule greenish, ovoid; perianth parts greenish; plant not growing in salt marshes
SLENDER RUSH. (*J. tenuis*.)
- 2 JUNCOIDES WOOD RUSH. (*J. campestris*.)
- 2 MELANTHACEAE. Bunch-flower Family.
- 1 CÔLCHICUM COLCHICUM. (*C. autumnale*.)
2 HELÔNIAS SWAMP PINK. (*H. bullata*.)
3 CHAMAELÍRIUM BLAZING STAR. (*C. luteum*.)
4 MELÁNTHIUM BUNCH-FLOWER. (*M. virginicum*.)
5 VERÁTRUM WHITE HELLEBORE. (*V. viride*.)
6 UVULÀRIA.
- 1 a Leaves with their bases completely surrounding the stem
PERFOLIATE BELLWORT. (*U. perfoliata*.)
b Leaves sessile, the bases not surrounding the stem
SESSILE-LEAVED BELLWORT. (*U. sessilifolia*.)
- 3 LILIACEAE. Lily Family.
- 1 EREMÛRUS EREMURUS. (*E. robustus*.)
2 HEMEROCÁLLIS.
1 a Flowers orange ORANGE DAY LILY. (*H. fulva*.)
b Flowers yellow YELLOW DAY LILY. (*H. flava*.)
3 KNIPHÔFIA POKER PLANT. (*K. aloides*.)
4 ALÔE VARIEGATED ALOE. (*A. variegata*.)
5 AGAPÁNTHUS AFRICAN LILY. (*A. umbellatus*.)
6 ÁLLIUM.
1 a Leaves ½ in. or more broad 2
b Leaves less than ½ in. broad, usually hollow 3

LILIACEAE (LILY FAMILY)

- 2 *a* Wild species; flowers appearing after leaves have withered WILD LEEK. (*A. tricoccum.*)
b Cultivated species; flowers and leaves present at same time NEAPOLITAN ALLIUM. (*A. neapolitanum.**)
- 3 *a* Plants cultivated in gardens for their leaves or bulbs. 4
b Wild species 6
- 4 *a* Leaves all basal, densely clustered; plant cultivated for the leaves CHIVES. (*A. schoenóprasum.**)
b Plants not completely as in *a*; usually cultivated for the bulbs 5
- 5 *a* Leaves hollow, cylindrical; bulbs not readily separating into bulblets GARDEN ONION. (*A. cèpa.**)
b Leaves flat; bulbs readily separating into bulblets
 GARDEN GARLIC. (*A. sativum.**)
- 6 *a* Stem leaves 2-4; flowers green to purple, often woolly
 WILD GARLIC. (*A. vineàle.*)
b Stem leaves usually wanting; flowers pink to white, not woolly MEADOW GARLIC. (*A. canadénsis.*)
- 7 LÍLIUM.
- 1 *a* Flowers white 2
b Flowers not white 3
- 2 *a* Plant cultivated in pots; tube of flower little widened toward the base EASTER LILY. (*L. longiflòrum.**)
b Plant cultivated in gardens; tube of flower much widened toward the base. MADONNA LILY. (*L. candidum.**)
- 3 *a* Flowers with numerous warty projections on perianth segments toward the base; flowers pink to white
 JAPANESE LILY. (*L. speciosum.**)
b Flowers not completely as in *a* 4
- 4 *a* Leaves not in whorls; cultivated species 5
b Leaves chiefly in whorls; wild species 6
- 5 *a* Flowers upright; perianth much narrowed at the base
 UPRIGHT LILY. (*L. élegans.**)
b Flowers nodding; perianth segments not much narrowed at the base TIGER LILY. (*L. tigrinum.**)
- 6 *a* Flowers erect, reddish-orange
 WOOD LILY. (*L. philadèlphicum.*)
b Flowers more or less nodding 7
- 7 *a* Flowers usually 1-4, yellowish, 2-3 in. long
 WILD YELLOW LILY. (*L. canadènsè.*)
b Flowers 3-20, somewhat orange colored, 3-4 in. long
 TURK'S-CAP LILY. (*L. supèrbum.*)
- 8 FRITILLÀRIA.
- 1 *a* Flowers usually solitary, checkered
 CHECKERED LILY. (*F. meleàgris.**)
b Flowers in terminal clusters hanging beneath the leaves
 CROWN IMPERIAL. (*F. imperialis.**)

CONVALLARIACEAE (LILY-OF-THE-VALLEY FAMILY)

- 9 FÚNKIA.
 1 a Flowers white; leaves usually heart-shaped at base
 WHITE DAY LILY. (*F. subcordàta*.*)
 b Flowers blue; leaves usually tapering at the base
 BLUE DAY LILY. (*F. ovàta*.*)
 c Flowers lilac to white; leaves lanceolate, usually varie-
 gated LANCE-LEAVED DAY LILY. (*F. lancifòlia*.*)
 10 TÙLIPA COMMON TULIP. (*T. gesneriàna*.*)
 11 TRITELEÏA SPRING STAR-FLOWER. (*T. uniflòra*.*)
 12 ERYTHRÒNIUM.
 1 a Flowers yellow; leaves purple spotted
 YELLOW ADDER'S-TONGUE. (*E. americànum*.)
 b Flowers pinkish-white; leaves sparingly spotted
 WHITE ADDER'S-TONGUE. (*E. àlbidum*.)
 13 SCÍLLA.
 1 a Flowering stalk 1-3-flowered; leaves more or less flat
 SIBERIAN SQUILL. (*S. sibírica*.*)
 b Flowering stalk 3-8-flowered; leaves channeled
 SQUILL. (*S. bifòlia*.*)
 14 ORNITHÓGALUM.... STAR-OF-BETHLEHEM. (*O. umbellàtum*.)
 15 CHIONODÓXA..... GLORY-OF-THE-SNOW. (*C. lucíliae*.*)
 16 HYACÍNTHUS..... COMMON HYACINTH. (*H. orientàlis*.*)
 17 MUSCÀRI..... GRAPE HYACINTH. (*M. botryoides*.*)
 18 ÁLETRIS..... COLIC-ROOT. (*A. farinòsa*.)
 19 YÚCCA..... ADAM'S NEEDLE. (*Y. filamentòsa*.*)
 20 CORDYLÍNE..... CORDYLÍNE. (*C. terminàlis*.*)
 21 DRACAÈNA..... DRACAENA. (*D. fràgrans*.*)

4 CONVALLARIACEAE. Lily-of-the-Valley Family.

- 1 ASPÁRAGUS.
 1 a Leaf-like organs ovate; plant twining
 SMILAX. (*A. medeolòides*.*)
 b Leaf-like organs linear or thread-like 2
 2 a Leaf-like organs about ¼ in. long
 ASPARAGUS FERN. (*A. plumòsus*.*)
 b Leaf-like organs ¾ in. or more long 3
 3 a Plant cultivated in hanging baskets; branches drooping
 ORNAMENTAL ASPARAGUS. (*A. spréngerii*.*)
 b Plant cultivated in gardens; branches spreading
 ASPARAGUS. (*A. officinàlis*.*)
 2 CLINTÒNIA..... YELLOW CLINTONIA. (*C. boreàlis*.)
 3 UNIFÓLIUM.... FALSE LILY-OF-THE-VALLEY. (*U. canadènsè*.)
 4 VÁGNERA.

SMILACEAE (SMILAX FAMILY)

- 1 a Leaves not clasping the stem; stamens longer than the perianth parts; berry red when ripe
WILD SPIKENARD. (*V. racemosa*.)
- b Leaves somewhat clasping the stem; stamens shorter than the perianth parts; berry green or black when ripe STAR-FLOWERED SPIKENARD. (*V. stellata*.)
- 5 STRÉPTOPUS TWISTED-STALK. (*S. roseus*.)
- 6 SALOMÒNIA.
- 1 a Leaves hairy beneath, especially on the veins; flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. long..... HAIRY SOLOMON'S SEAL. (*S. biflora*.)
- b Leaves not hairy beneath; flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. long
SMOOTH SOLOMON'S SEAL. (*S. commutata*.)
- 7 CONVALLÀRIA..... LILY-OF-THE-VALLEY. (*C. majalis*.*)
- 8 ASPIDÍSTRA..... ASPIDISTRA. (*A. lùrida*.*)
- 9 MEDÈOLA..... INDIAN CUCUMBER-ROOT. (*M. virginiana*.)
- 10 TRÍLLIUM.
- 1 a Flowers purple to pink, with offensive odor
ILL-SCENTED WAKE-ROBIN. (*T. erectum*.)
- b Flowers white to pink, not with offensive odor 2
- 2 a Flowering stalk recurved; petals ovate to lanceolate, recurved NODDING WAKE-ROBIN. (*T. cernuum*.)
- b Flowering stalk not recurved; petals obovate to oblanceolate LARGE-FLOWERED WAKE-ROBIN. (*T. grandiflorum*.)

5 SMILACEAE. *Smilax* Family.

1 SMILAX.

- 1 a Stems without prickles; umbels 20-60-flowered, ill-scented
CARRION-FLOWER. (*S. herbacea*.)
- b Stems with prickles; umbels 6-30-flowered 2
- 2 a Leaves ovate, glaucous beneath
GLAUCOUS-LEAVED GREENBRIER. (*S. glauca*.)
- b Leaves rounded to ovate, not glaucous beneath
CATBRIER. (*S. rotundifolia*.)

6 HAEMODORÀCEAE. *Bloodwort* Family.

- 1 GYROTHÈCA..... RED-ROOT. (*G. tinctoria*.)

7 AMARYLLIDÀCEAE. *Amaryllis* Family.

- 1 HYPÓXIS..... STAR-GRASS. (*H. hirsuta*.)
- 2 GALÁNTHUS..... SNOW-DROP. (*G. nivàlis*.*)
- 3 LEUCÒJUM..... SNOW-FLAKE. (*L. vèrnum*.*)
- 4 NARCÍSSUS.
- 1 a Flowers solitary on the stalk 2
- b Flowers 2-12 on a stalk 5
- 2 a Flowers white, the crown edged with pink
POET'S NARCISSUS. (*N. poeticus*.*)
- b Flowers yellow, the crown not edged with pink 3

DISCOREACEAE (YAM FAMILY)

- 3 a Leaves not glaucous, channeled
 HOOP-PETTICOAT DAFFODIL. (*N. bulbocodium*.*)
 b Leaves glaucous, flat 4
 4 a Crown as long as or longer than the perianth lobes;
 flowers 1-2 in. broad..DAFFODIL. (*N. pseudo-narcissus*.*)
 b Crown $\frac{1}{2}$ - $\frac{3}{4}$ as long as the perianth lobes; flowers
 2-4 in. broad...SUPERB DAFFODIL. (*N. incomparabilis*.*)
 5 a Flowers 2-5, yellow JONQUIL. (*N. jonquilla*.*)
 b Flowers 4-12, white....COMMON NARCISSUS. (*N. tazetta*.*)
 5 HYMENOCÁLLIS.....SEA DAFFODIL. (*H. calathina*.*)
 6 AMARÝLLISAMARYLLIS. (*A. belladonna*.*)
 7 AGÁVE.....CENTURY PLANT. (*A. americana*.*)
 8 POLIÁNTHES.....TUBEROSE. (*P. tuberosa*.*)
 9 ZEPHYRÁNTHES.....FAIRY LILY. (*Z. carinata*.*)

8 DIOSCOREACEAE. Yam Family.

- 1 DIOSCORÈA.
 1 a Wild species; flowers greenish-yellow
 WILD YAM-ROOT. (*D. villosa*.)
 b Cultivated species; flowers white
 CINNAMON VINE. (*D. divaricata*.*)

9 IRIDACEAE. Iris Family.

- 1 CRÒCUS.
 1 a Flowers yellowCLOTH-OF-GOLD CROCUS. (*C. susianus*.*)
 b Flowers not yellow 2
 2 a Flowers produced in autumn; branches of style red
 SAFFRON CROCUS. (*C. sativus*.*)
 b Flowers produced in spring 3
 3 a Leaves glaucous beneath; tube of perianth not yellow
 insideCOMMON CROCUS. (*C. vernus*.*)
 b Leaves not glaucous beneath; tube of perianth yellow
 insideSCOTCH CROCUS. (*C. biflorus*.*)
 2 ÌRIS.
 1 a Wild species 2
 b Cultivated species 3
 2 a Leaves $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; outer perianth parts 1-2 in.
 longSLENDER BLUE FLAG. (*I. prismatica*.)
 b Leaves $\frac{1}{2}$ -1 in. broad; outer perianth parts 2-3 in. long
 LARGE BLUE FLAG. (*I. versicolor*.)
 3 a Average leaf about $\frac{3}{4}$ in. broad.SIBERIAN IRIS. (*I. sibirica*.*)
 b Average leaf 1 in. or more broad 4
 4 a Outer parts of perianth covered with hairs
 FLEUR-DE-LIS. (*I. germanica*.*)
 b Outer parts of perianth not covered with hairs 5

MUSACEAE (BANANA FAMILY)

- 5 a Outer parts of perianth ovate-oblong, inner parts ob-
 lanceolate; a short tube present
 JAPANESE IRIS. (*I. laevigata*.)
 b Outer parts of perianth rounded, inner parts oblong;
 no tube present.....SPANISH IRIS. (*I. xiphium*.)
 3 GEMMÍNGIA.....BLACKBERRY LILY. (*G. chinénsis*.)
 4 TIGRÍDIA.....TIGER FLOWER. (*T. pavònia*.)
 5 SISYRÍNCIUM.
 1 a Leaves about $\frac{1}{8}$ in. broad, about $\frac{1}{2}$ as high as stem
 POINTED BLUE-EYED GRASS. (*S. angustifolium*.)
 b Leaves about $\frac{1}{4}$ in. broad, nearly as long as stem
 COMMON BLUE-EYED GRASS. (*S. graminoides*.)
 6 ÍXIA.....IXIA. (*I. híbrida*.)
 7 TRITÒNIA.....TRITONIA. (*T. crocosmaeflòra*.)
 8 GLADIOLUS.....GLADIOLUS. (*G. gandavénsis*.)
 9 FREÈSIA.....FREESIA. (*F. refrácta*.)

8 SCITAMINALES. Banana Order.

1 MUSACEAE. Banana Family.

- 1 MUSA.
 1 a Midrib of leaf green; fruit fleshy, edible
 COMMON BANANA. (*M. sapiéntum*.)
 b Midrib of leaf reddish; fruit not fleshy or edible
 ABYSSINIAN BANANA. (*M. ensète*.)

2 CANNACEAE. Canna Family.

- 1 CANNA.....CANNA. (*C. híbrida*.)

3 MARANTACEAE. Maranta Family.

- 1 CALATHÈA.
 1 a Leaves with stripes in pairs between each of the second-
 ary veinsSTRIPED MARANTA. (*C. ornàta*.)
 b Leaves with irregular blotches lengthwise of the leaf
 CALATHEA. (*C. veitchiana*.)

9 ORCHIDALES. Orchid Order.

1 ORCHIDACEAE. Orchid Family.

- 1 CÀTTLEYA.....CATTLEYA. (*C. labiàta*.)
 2 CYPRIPIÈDIUM.
 1 a Flowers pink to purplish..MOCCASIN FLOWER. (*C. acaúle*.)
 b Flowers yellow..YELLOW LADIES' SLIPPER. (*C. parvisflòrum*.)
 3 GALEÓRCHIS.....SHOWY ORCHIS. (*G. spectàbilis*.)
 4 PERULÀRIA.....TUBERCLED ORCHIS. (*P. flàva*.)
 5 LIMNÓRCHIS.....WHITE BOG ORCHIS. (*L. dilatàta*.)
 6 LÝSIASHOOKER'S ORCHIS. (*L. hookeriàna*.)
 7 GYMNADENIÒPSIS
 SMALL GREEN WOOD ORCHIS. (*G. clavellàta*.)

PIPERACEAE (PEPPER FAMILY)

- 8 BLEPHARIGLÓTTIS.
 1 a Flowers some shade of yellow 2
 b Flowers some shade of lilac 3
 2 a Flowers orange-yellow, the lip much fringed
 YELLOW-FRINGED ORCHIS. (*B. ciliàris.*)
 b Flowers greenish-yellow, the lip 3-parted, the parts
 fringed RAGGED ORCHIS. (*B. lácera.*)
 3 a Flowers lilac, $\frac{1}{2}$ -1 in. broad
 PURPLE-FRINGED ORCHIS. (*B. psycòdes.*)
 b Flowers pale lilac, 1-2 in. broad
 LARGE PURPLE-FRINGED ORCHIS. (*B. grandifòra.*)
 9 POGÒNIA.....ROSE POGONIA. (*P. ophioglossòdes.*)
 10 ARETHÛSA.....ARETHUSA. (*A. bulbòsa.*)
 11 LIMODÒRUM.....GRASS PINK. (*L. tuberòsum.*)
 12 GYRÓSTACHYS.
 1 a Leaves linear, 3-14 in. long
 NODDING LADIES' TRESSES. (*G. cèrnua.*)
 b Leaves ovate, 1-3 in. long
 SLENDER LADIES' TRESSES. (*G. grácilis.*)
 13 PERÀMIUM.....RATTLESNAKE PLANTAIN. (*P. pubéscens.*)
 14 LEPTÓRCHIS.
 1 a Leaves ovate; flowers purple..TWAYBLADE. (*L. liliifòlia.*)
 b Leaves elliptic to lanceolate; flowers greenish
 FEN ORCHIS. (*L. loesèlii.*)
 15 CORALLORHÌZA.....CORAL-ROOT. (*C. multifòra.*)

Sub-Class II.

DICOTYLEDONEAE. Dicotyledons.

Series I. Choripetalae.

1 PIPERÁLES. Pepper Order.

1 PIPERÁCEAE. Pepper Family.

1 PEPERÒMIA.....PEPEROMIA. (*P. arifòlia.**)

2 SAURÁCEAE. Lizard's-tail Family.

1 SAURÛRUS.....LIZARD'S-TAIL. (*S. cèrnuus.*)

2 SALICÁLES. Willow Order.

1 SALICÁCEAE. Willow Family.

1 PÓPULUS.

- 1 a Petioles of leaves not flattened laterally 2
 b Petioles of leaves flattened laterally 3

SALICACEAE (WILLOW FAMILY)

- | | | | |
|---|---------------|--|---|
| 2 | a | Leaves fragrant when crushed, not densely hairy when young, apex usually tapering, pointed | 4 |
| | | BALM-OF-GILEAD. (<i>P. candidans.</i>) | |
| | b | Leaves not fragrant when crushed, densely hairy when young, apex blunt, the basal lobes often overlapping | |
| | | DOWNY POPLAR. (<i>P. heterophylla.</i>) | |
| 3 | a | All leaves white-woolly beneath, usually somewhat lobed | |
| | | WHITE POPLAR. (<i>P. álba.*</i>) | |
| | b | All leaves not white-woolly beneath or not lobed | 4 |
| 4 | a | Leaves more or less triangular | 5 |
| | b | Leaves ovate to rounded | 6 |
| 5 | a | Leaves 2-3 in. broad; branches erect or ascending | |
| | | LOMBARDY POPLAR. (<i>P. itálica.*</i>) | |
| | b | Leaves 3-7 in. broad; branches more or less spreading | |
| | | COTTONWOOD. (<i>P. deltoïdes.</i>) | |
| 6 | a | Leaves ovate, usually with large, irregular teeth, sometimes hairy beneath | |
| | | LARGE-TOOTHED ASPEN. (<i>P. grandidentáta.</i>) | |
| | b | Leaves roundish-heart-shaped, 1-3 in. broad, with comparatively small teeth. | |
| | | AMERICAN ASPEN. (<i>P. tremuloïdes.</i>) | |
| 2 | SÁLIX. | | |
| 1 | a | Mature leaves shining on both sides, not hairy, ovate to lanceolate | 2 |
| | b | Mature leaves not shining on both sides | 3 |
| 2 | a | Aments appearing with the leaves; native tree or shrub | |
| | | SHINING WILLOW. (<i>S. lúcida.</i>) | |
| | b | Aments appearing after some leaves are completely developed; cultivated tree or shrub | |
| | | BAY-LEAVED WILLOW. (<i>S. pentádra.*</i>) | |
| 3 | a | Mature leaves green on both sides, not conspicuously lighter beneath, 1/4-3/4 in. broad; branchlets pale yellow; a tree | |
| | | BLACK WILLOW. (<i>S. nígra.</i>) | |
| | b | Mature leaves conspicuously lighter colored beneath. | 4 |
| 4 | a | Small shrub 1-2 ft. high; leaves woolly beneath | |
| | | DWARF GRAY WILLOW. (<i>S. tristis.</i>) | |
| | b | Shrubs or trees not completely as in a | 5 |
| 5 | a | Tree with leaves 1/4-1/2 in. broad, 3-7 in. long, very pale beneath; branchlets slender and drooping | |
| | | WEeping WILLOW. (<i>S. babylónica.</i>) | |
| | b | Trees or shrubs not completely as in a | 6 |
| 6 | a | Stipules comparatively large, often 1/2 in. or more broad, persistent; average leaf 2-4 in. long, 1/2-1 in. broad, often rounded at base | |
| | | HEART-LEAVED WILLOW. (<i>S. cordáta.</i>) | |
| | b | Stipules not persistent, either wanting or only on young branchlets | 7 |

MYRICACEAE (BAYBERRY FAMILY)

- 7 *a* Shrub with leaves silky beneath until nearly mature, green above; branchlets purplish
SILKY WILLOW. (*S. sericea*.)
- b* Shrubs or trees not completely as in *a* 8
- 8 *a* Leaves $\frac{1}{4}$ - $\frac{1}{2}$ in. broad, 1-3 in. long, somewhat oblanceolate; stipules always wanting; branchlets purplish
PURPLE WILLOW. (*S. purpurea*.)
- b* Leaves usually $\frac{1}{2}$ -2 in. broad, not oblanceolate..... 9
- 9 *a* Mature leaves $\frac{3}{4}$ -3 in. broad; branchlets often hairy when young 10
- b* Mature leaves $\frac{1}{2}$ - $\frac{3}{4}$ in. broad 11
- 10 *a* Mature leaves woolly beneath; cultivated tree or shrub
GOAT WILLOW. (*S. caprea*.*)
- b* Mature leaves not woolly beneath; native tree or shrub
PUSSY WILLOW. (*S. discolor*.)
- 11 *a* Large tree with branchlets usually shining and yellow
WHITE WILLOW. (*S. alba*.)
- b* Shrubs or small, slender trees with branchlets very brittle at base 12
- 12 *a* Slender tree; branchlets reddish-green, very brittle at base; leaves whitish beneath. CRACK WILLOW. (*S. fragilis*.)
- b* Shrub 5-12 ft. high; branchlets purplish to yellowish; leaves only slightly paler beneath
SLENDER WILLOW. (*S. petiolaris*.)

3 MYRICALES. Bayberry Order.

1 MYRICACEAE. Bayberry Family.

1 MYRICA.

- 1 *a* Shrub in wet places; fruit nearly enclosed by 2 bracts
SWEET GALE. (*M. gale*.)
- b* Shrub in dry places; fruit not enclosed by bracts
BAYBERRY. (*M. carolinensis*.)
- 2 **COMPTONIA**.....SWEET FERN. (*C. peregrina*.)

4 JUGLANDALES. Walnut Order.

1 JUGLANDACEAE. Walnut Family.

1 JUGLANS.

- 1 *a* Leaflets 5-13; cultivated tree. ENGLISH WALNUT. (*J. regia*.*)
- b* Leaflets 11-23 2
- 2 *a* Nut oblong, pointed; leaves with clammy hairs
BUTTERNUT. (*J. cinerea*.)
- b* Nut globose; leaves not with sticky hairs
BLACK WALNUT. (*J. nigra*.)

2 HICORIA.

- 1 *a* Bark of trunk splitting into shaggy strips; leaflets 5, sometimes 7 2
- b* Bark somewhat furrowed, not splitting into shaggy strips 3

BETULACEAE (BIRCH FAMILY)

- 2 *a* Nut usually about $\frac{3}{4}$ in. broad; husk comparatively thick; common tree... SHAG-BARK HICKORY. (*H. ovata*.)
b Nut usually less than $\frac{3}{4}$ in. broad; husk comparatively thin; tree not common
 SMALL-FRUITED HICKORY. (*H. microcarpa*.)
- 3 *a* Leaflets 5, rarely 7; twigs not hairy.. PIGNUT. (*H. glabra*.)
b Leaflets 7-11; twigs usually hairy 4
- 4 *a* Leaflets usually 7, broadly lanceolate to obovate; buds with thin scales; twigs comparatively coarse; husk thick MOCKERNUT. (*H. alba*.)
b Leaflets 7-11, narrowly lanceolate; buds without thin scales, yellowish; twigs comparatively slender; husk thin BITTERNUT. (*H. minima*.)
- 3 PTEROCARYA..... CAUCASIAN WALNUT. (*P. fraxinifolia*.)*

5 FAGALES. Beech Order.

1 BETULACEAE. Birch Family.

- 1 CARPINUS..... BLUE BEECH. (*C. caroliniana*.)
- 2 OSTRYA..... IRONWOOD. (*O. virginiana*.)
- 3 CORYLUS.
- 1 *a* Bracts of nut elongated into a beak 1-2 in. long; leaves ovate BEAKED HAZELNUT. (*C. rostrata*.)
b Bracts of nut not as in *a*; leaves roundish-heart-shaped 2
- 2 *a* Nut about $\frac{1}{2}$ in. long; native species
 HAZELNUT. (*C. americana*.)
b Nut $\frac{3}{4}$ in. or more long; cultivated species
 FILBERT. (*C. avellana*.)*
- 4 BÉTULA.
- 1 *a* Leaves triangular 2
b Leaves ovate 3
- 2 *a* Bark not readily peeling off in thin sheets, close on trunk; native species GRAY BIRCH. (*B. populifolia*.)
b Bark readily peeling off in thin sheets, loose on trunk; cultivated species.. EUROPEAN WHITE BIRCH. (*B. alba*.)*
- 3 *a* Shrub growing in bogs LOW BIRCH. (*B. pumila*.)
b Trees not growing in bogs 4
- 4 *a* Bark creamy white, readily peeling in thin sheets, loose on trunk..... CANOE BIRCH. (*B. papyrifera*.)
b Bark yellowish to gray or brown 5
- 5 *a* Bark yellowish, peeling in thin strips or sheets, loose on trunk YELLOW BIRCH. (*B. lutea*.)
b Bark not completely as in *a* 6
- 6 *a* Bark greenish-brown to reddish, in loose layers, not sweet or aromatic RIVER BIRCH. (*B. nigra*.)
b Bark dark-brown or ashy-gray, close or loose and peeling in plates, sweet and aromatic. SWEET BIRCH. (*B. lenta*.)

FAGACEAE (BEECH FAMILY)

5 ALNUS.

- 1 a Small twigs and under surface of leaves glaucous, whitishHOARY ALDER. (*A. incana*.)
 b Under surface of leaves green, not glaucous 2
 2 a Native shrub; leaves regularly and finely toothed
 SMOOTH ALDER. (*A. rugosa*.)
 b Cultivated tree; leaves irregularly toothed and lobed
 EUROPEAN ALDER. (*A. glutinosa*.)

2 FAGACEAE. Beech Family.

1 FAGUS.

- 1 a Mature leaves not hairy beneath; margin coarsely toothed; native tree..AMERICAN BEECH. (*F. grandifolia*.)
 b Mature leaves usually hairy beneath, sometimes reddish, the margin wavy-toothed; cultivated species
 EUROPEAN BEECH. (*F. sylvatica*.*)

2 CASTANEA.

- 1 a Native tree; leaves tapering to apex; nuts $\frac{3}{4}$ in. or less broadAMERICAN CHESTNUT. (*C. dentata*.)
 b Cultivated tree; leaves abruptly pointed at apex; nuts usually 1 in. or more broad
 EUROPEAN CHESTNUT. (*C. sativa*.*)

3 QUERCUS.

- 1 a Leaves linear-lanceolate with entire margin
 WILLOW OAK. (*Q. phellos*.)
 b Leaves more or less lobed 2
 2 a Leaves with the lobes pointed or bristly tipped; cup with smooth scales 3
 b Leaves with the lobes rounded, not with bristly tips; cup with rough scales 9
 3 a Shrubs 15 ft. or less high; leaves hairy and whitish beneath 4
 b Trees 25 ft. or more high 5
 4 a Leaves with indentations about $\frac{1}{2}$ way to midrib
 SCRUB OAK. (*Q. nana*.)
 b Leaves coarsely toothed or with very shallow indentationsSCRUB CHESTNUT OAK. (*Q. prinoides*.)
 5 a Leaves conspicuously wedge-shaped with 3-5 short, rounded lobes with bristly tips
 BLACK-JACK OAK. (*Q. marylandica*.)
 b Leaves with pointed lobes 6
 6 a Leaves 3-5 in. long; branches horizontal or drooping, usually low down on the trunk, the twigs stiff; acorn about $\frac{1}{2}$ in. longPIN OAK. (*Q. palustris*.)
 b Leaves about 4-8 in. long; acorn $\frac{3}{4}$ -2 in. long 7
 7 a Acorn $\frac{3}{4}$ -2 in. long, cup usually saucer-shaped enclosing $\frac{1}{8}$ - $\frac{1}{4}$ of the nutRED OAK. (*Q. rubra*.)
 b Acorn about $\frac{3}{4}$ in. long, cup enclosing about half of nut 8

ULMACEAE (ELM FAMILY)

- 8 a Cup with scales compressed about the top; inner bark not yellowish-orange SCARLET OAK. (*Q. coccinea.*)
 b Cup with scales more or less reflexed about the top; inner bark yellow or orange, very bitter
 BLACK OAK. (*Q. velutina.*)
- 9 a Bark on trunk furrowed, dark gray 10
 b Bark on trunk flaky, light gray 12
- 10 a Cup of acorn much fringed; leaves usually regularly lobed; cultivated species..... TURKEY OAK. (*Q. cérris.**)
 b Cup of acorn not fringed 11
- 11 a Leaves with regularly lobed margin; cup enclosing about $\frac{1}{4}$ or less of nut; native species
 ROCK CHESTNUT OAK. (*Q. prinus.*)
 b Leaves variously lobed; cup enclosing $\frac{1}{3}$ or more of nut; cultivated species ENGLISH OAK. (*Q. pedunculata.**)
- 12 a Lobes of leaves short, the indentations extending about $\frac{1}{4}$ distance to midrib; cup with stalk 2-4 in. long; bark very loose on branchlets
 SWAMP WHITE OAK. (*Q. platanoïdes.*)
 b Trees not completely as in a 13
- 13 a Lobes of leaves usually much narrower toward the base, often relobed at apex; leaves usually with brownish hairs beneath POST OAK. (*Q. minor.*)
 b Leaves not completely as in a 14
- 14 a Cup conspicuously fringed at top, mossy; tree not common BUR OAK. (*Q. macrocarpa.*)
 b Cup not fringed at top; tree common
 WHITE OAK. (*Q. álba.*)

6 URTICALES. Nettle Order.

1 ULMACEAE. Elm Family.

1 ÚLMUS.

- 1 a Leaves not noticeably rough on upper surface; buds not hairy WHITE ELM. (*U. americana.*)
 b Leaves rough above except when old; buds hairy.... 2
- 2 a Native tree; branches usually slender and drooping; inner bark mucilaginous to the taste, especially in the spring; leaves 3-8 in. long.... SLIPPERY ELM. (*U. fulva.*)
 b Cultivated tree; branches rather coarse, ascending or horizontal; inner bark not mucilaginous to the taste; leaves 2-4 in. long ENGLISH ELM. (*U. campestris.**)
- 2 CÉLTIS..... HACKBERRY. (*C. occidentális.*)

2 MORACEAE. Mulberry Family.

1 MÒRUS.

- 1 a Mature leaves dull green above, often rough; fruit purplish RED MULBERRY. (*M. rubra.*)
 b Mature leaves usually shining and smooth above; fruit whitish WHITE MULBERRY. (*M. álba.**)

URTICACEAE (NETTLE FAMILY)

- 2 BROUSSONÉZIA.....PAPER MULBERRY. (*B. papyrifera*.)*
- 3 TÓXYLON.....OSAGE ORANGE. (*T. pomifera*.)
- 4 FÌCUS.....INDIA-RUBBER TREE. (*F. elástica*.)*
- 5 HÛMULUS.
- 1 *a* Leaves green; fruiting cluster with resinous dots
COMMON HOP. (*H. lupulus*.)
- b* Leaves often variegated; fruiting cluster not with resin
dotsJAPANESE HOP. (*H. japonicus*.)*
- 6 CÁNNABISHEMP. (*C. sativa*.)*

3 URTICACEAE. Nettle Family.

- 1 URTICÁSTRUM.....WOOD NETTLE. (*U. divaricatum*.)
- 2 URTICA.
- 1 *a* Leaves 1-3 in. long, ovate, usually heart-shaped at base
STINGING NETTLE. (*U. dioica*.)
- b* Leaves 2-6 in. long, lanceolate, tapering or rounded at
baseSLENDER NETTLE. (*U. grácilis*.)
- 3 ADÍCEARICHWEED. (*A. pumila*.)
- 4 BOEHMÈRIA.....FALSE NETTLE. (*B. cylíndrica*.)

7 PROTEALES. Silk Oak Order.

1 PROTEACEAE. Silk Oak Family.

- 1 GREVÍLLEA.....SILK OAK. (*G. robusta*.)*

8 SANTALALES. Sandalwood Order.

1 LORANTHACEAE. Mistletoe Family.

- 1 PHORADÉNDRON..AMERICAN MISTLETOE. (*P. flavescens*.)*

2 SANTALACEAE. Sandalwood Family.

- 1 COMÁNDRA.....BASTARD TOAD-FLAX. (*C. umbellata*.)

9 ARISTOLOCHIALES. Birthwort Order.

1 ARISTOLOCHIACEAE. Birthwort Family.

- 1 ÁSARUM.....WILD GINGER. (*A. reflexum*.)
- 2 ARISTOLÒCHIA.
- 1 *a* Erect herb; leaves 2-5 in. long
VIRGINIA SNAKEROOT. (*A. serpentaria*.)
- b* Twining vine; leaves 6-12 in. broad
DUTCHMAN'S PIPE. (*A. macrophylla*.)*

10 POLYGONALES. Buckwheat Order.

1 POLYGONACEAE. Buckwheat Family.

- 1 RHÈUM.....RHUBARB. (*R. rhapónticum*.)*
- 2 RÛMEX.
- 1 *a* Some leaves with spreading lobes at the base
FIELD SORREL. (*R. acetosella*.)
- b* No leaves as in *a* 2

POLYGONACEAE (BUCKWHEAT FAMILY)

- 2 a Leaves about 1 in. broad; plant usually hairy; wings of fruit with 2-3 awl-like bristles
 GOLDEN DOCK. (*R. persicarioides.*)
 b Leaves more than 1 in. broad; plants not hairy 3
- 3 a Leaves rounded and often unequal at base; wings of fruit with few spreading teeth
 BITTER DOCK. (*R. obtusifolius.*)
 b Leaves rounded or narrowed at base; wings of fruit entire or notched 4
- 4 a Leaves with very wavy margins. CURLED DOCK. (*R. crispus.*)
 b Leaves not with very wavy margins 5
- 5 a Basal leaves 1-2 ft. long, lanceolate; wings of fruit toothed GREAT WATER DOCK. (*R. britannica.*)
 b Basal leaves 1/2-1 ft. long, narrowly oblong; wings of fruit entire SWAMP DOCK. (*R. verticillatus.*)
- 3 FAGOPYRUM BUCKWHEAT. (*F. fagopyrum.**)
- 4 POLYGONUM.
- 1 a Stems with recurved prickles 2
 b Stems not with recurved prickles 3
- 2 a Leaves comparatively broad with basal lobes spreading
 HALBERD-LEAVED TEAR-THUMB. (*P. arifolium.*)
 b Leaves comparatively narrow with basal lobes not spreading.. ARROW-LEAVED TEAR-THUMB. (*P. sagittatum.*)
- 3 a Plant growing in water, leaves floating
 WATER PERSICARIA. (*P. amphibium.*)
 b Plants not growing in water 4
- 4 a Leaves not more than 2 or 3 times as long as broad, comparatively large 5
 b Leaves usually lanceolate or linear, usually more than 3 times as long as broad, sometimes less than 1/2 in. long 9
- 5 a Stems climbing or trailing; leaves somewhat heart-shaped 6
 b Stems not climbing or trailing; leaves ovate or rounded 7
- 6 a Stems climbing; leaves with translucent dots; flowers in spikes ... CLIMBING FALSE BUCKWHEAT. (*P. scandens.*)
 b Stems twining or trailing; leaves not with translucent dots; flowers in axillary clusters
 BLACK BINDWEED. (*P. convolvulus.*)
- 7 a Spikes conspicuously loosely-flowered; wild species
 VIRGINIA KNOTWEED. (*P. virginianum.*)
 b Spikes densely-flowered; cultivated species 8
- 8 a Stem covered with fine hairs; flowers rose-colored
 ORIENTAL PRINCE'S FEATHER. (*P. orientale.**)
 b Stem not hairy; flowers whitish
 BUSHY POLYGONUM. (*P. sieboldi.**)

CHENOPODIACEAE (GOOSEFOOT FAMILY)

- 9 *a* Flowers in terminal or axillary spikes $\frac{1}{2}$ in. or more long 10
b Flowers in axillary clusters, not in spikes 15
- 10 *a* Spikes ovoid or oblong, densely flowered 11
b Spikes narrow, cylindric, comparatively long, loosely
or densely flowered 12
- 11 *a* Leaves with a triangular, dark blotch near the center;
spikes solitary LADY'S THUMB. (*P. persicaria*.)
b Leaves not with a blotch as in *a*; spikes numerous, in
panicles. PENNSYLVANIAN PERSICARIA. (*P. pennsylvanicum*.)
- 12 *a* Spikes comparatively densely flowered, usually drooping
PINK PERSICARIA. (*P. incarnatum*.)
b Spikes comparatively loosely flowered especially at base
of spike, erect or sometimes drooping 13
- 13 *a* Leaves with numerous translucent dots; spikes erect;
leaves comparatively long pointed
WATER SMARTWEED. (*P. punctatum*.)
b Leaves with few, rather inconspicuous translucent dots 14
- 14 *a* Spikes usually drooping; sheaths fringed with short
bristles COMMON SMARTWEED. (*P. hydrophiper*.)
b Spikes erect; sheaths fringed with comparatively long
bristles MILD WATER PEPPER. (*P. hydrophiperoides*.)
- 15 *a* Plant prostrate; leaves lanceolate, bluish-green
KNOTGRASS. (*P. aviculare*.)
b Plants erect 16
- 16 *a* Stems circular; leaves oval, yellow-green
ERECT KNOTGRASS. (*P. erectum*.)
b Stems angled; leaves linear, somewhat folded
SLENDER KNOTGRASS. (*P. tenue*.)
- 5 POLYGONELLA.....COAST JOINTWEED. (*P. articulata*.)

II CHENOPODIALES. Goosefoot Order.

I CHENOPODIACEAE. Goosefoot Family.

- 1 BËTA.....GARDEN BEET. (*B. vulgaris*.)
2 SPINÀCIA.....SPINACH. (*S. oleracea*.)
3 BOUSSINGAULTIA.....MADEIRA VINE. (*B. baselloides*.)
4 KÒCHIA.....MOCK CYPRESS. (*K. scoparia*.)
5 CHENOPÒDIUM.
- 1 *a* Leaves with pointed teeth; plant not strongly scented.. 2
b Leaves with rounded teeth or lobes; plants strongly
scented 3
- 2 *a* Leaves rather ovate to oblong, white-mealy beneath
PIGWEED. (*C. album*.)
b Leaves triangular with few large teeth, green beneath
MAPLE-LEAVED GOOSEFOOT. (*C. hybridum*.)

AMARANTHACEAE (AMARANTH FAMILY)

- 3 *a* Leaves irregularly lobed, the lobes toothed
FEATHER GERANIUM. (*C. bôtrys*.)
b Leaves irregularly toothed or nearly entire with wavy
marginsMEXICAN TEA. (*C. ambrosioides*.)
- 6 **ÂTRIPLEX.**
1 *a* Flowers in interrupted spikes; plant in waste places
SPREADING ORACH. (*A. pátula*.)
b Flowers in axillary clusters; plant on sea beaches
SEA-BEACH ORACH. (*A. arenària*.)
- 7 **SALICÓRNIA.**
1 *a* Stem not woody, erect, red in autumn
SLENDER GLASSWORT. (*S. herbàcea*.)
b Stem woody at base, somewhat prostrate, gray in autumn
WOODY GLASSWORT. (*S. ambigua*.)
- 8 **DÓNDIA**.....TALL SEA-BLITE. (*D. americana*.)
- 9 **SÁLSOLA**.....SALTWORT. (*S. kàli*.)
- 2 **AMARANTHACEAE. Amaranth Family.**
- 1 **GOMPHRÈNA**.....GLOBE AMARANTH. (*G. globosa*.)
- 2 **TELANTHÈRA**.....ALTERNANTHERA. (*T. bettzichiana*.)
- 3 **ACNÌDA**.....WATER HEMP. (*A. cannabina*.)
- 4 **CELÒSIA.**
1 *a* Spikes in crest-like panicles; leaves ovate-lanceolate
CRESTED COCKSCOMB. (*C. cristata*.)
b Spikes in plume-like panicles; leaves linear-lanceolate
FEATHER COCKSCOMB. (*C. argentea*.)
- 5 **IRÈSINE**.....ACHYRANTHES. (*I. herbstii*.)
- 6 **AMARÁNTHUS.**
1 *a* Flowers greenish; wild herbs 2
b Flowers not greenish; herbs cultivated in gardens.... 5
2 *a* Flowers only in axillary clusters
TUMBLE-WEED. (*A. graecizans*.)
b Flowers in both spikes and axillary clusters 3
3 *a* A pair of stout conspicuous spines in the axils of the
leavesSPINY AMARANTHUS. (*A. spinosus*.)
b No spines in the leaf axils 4
4 *a* Mature spikes stout, about ½ in. thick; stem rough,
stoutROUGH PIGWEED. (*A. retroflexus*.)
b Mature spikes slender, about ¼ in. thick; stem slender
SLENDER PIGWEED. (*A. hybridus*.)
- 5 *a* Spikes drooping.....LOVE-LIES-BLEEDING. (*A. caudatus*.)
b Spikes erect 6
- 6 *a* Flowers in a dense panicle, the central portion elon-
gated; bracts usually awned
PRINCE'S FEATHER. (*A. hypochondriacus*.)
b Flowers in terminal and axillary, interrupted spikes;
bracts usually pointed, not awned
JOSEPH'S COAT. (*A. gangeticus*.)

PHYTOLACCACEAE (POKEWEED FAMILY)

3 PHYTOLACCACEAE. Pokeweed Family.

1 PHYTOLACCAPOKE. (*P. decandra.*)

4 NYCTAGINACEAE. Four-o'clock Family.

1 MIRABILIS.....FOUR-O'CLOCK. (*M. jalapa.**)

5 AIZOACEAE. Carpet-weed Family.

1 MOLLÛGOCARPET-WEED. (*M. verticillata.*)

6 PORTULACACEAE. Purslane Family.

1 CLAYTONIA.....SPRING BEAUTY. (*C. virginica.*)

2 PORTULACA.

1 a Flowers about $\frac{1}{4}$ in. broad; common weed

PURSLANE. (*P. oleracea.*)

b Flowers 1-2 in. broad; plant cultivated in gardens

ROSE MOSS. (*P. grandiflora.**)

7 CARYOPHYLLACEAE. Pink Family.

1 AGROSTEMMA.....CORN COCKLE. (*A. githago.*)

2 LYCHNIS.

1 a Plant white-woolly; flowers crimson to white

MULLEIN PINK. (*L. coronaria.**)

b Plants not white-woolly 2

2 a Plant not covered with sticky hairs

SCARLET LYCHNIS. (*L. chalcedonica.**)

b Plants more or less covered with sticky hairs..... 3

3 a Flowers white or faintly pink..WHITE CAMPION. (*L. alba.*)

b Flowers redRED CAMPION. (*L. dioica.*)

3 SILÈNE.

1 a Plant 2-5 in. high, prostrate; cultivated in gardens

PENDULOUS CATCHFLY. (*S. pendula.**)

b Plants not completely as in a 2

2 a Petals fringed on the margins; leaves usually in whorls

of 4STARRY CAMPION. (*S. stellata.*)

b Petals entire or 2-cleft; leaves opposite 3

3 a Stems with few or no hairs, or sticky only just below the nodes 4

b Stems more or less covered with sticky hairs 6

4 a Calyx tube much swollen, bladderly, strongly nerved

BLADDER CAMPION. (*S. vulgaris.*)

b Calyx tube expanded only by ripened capsule..... 5

5 a Flowers $\frac{1}{4}$ in. or less broad, pink

SLEEPY CATCHFLY. (*S. antirrhina.*)

b Flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, purple or pink

SWEET WILLIAM CATCHFLY. (*S. armèria.**)

6 a Plant 4-15 in. high, tufted; flowers in April-June

WILD PINK. (*S. caroliniana.*)

b Plants 1-3 ft. high, not tufted; flowers in June-Sept. 7

CARYOPHYLLACEAE (PINK FAMILY)

- 7 a Flowers in loose panicles, usually fragrant
 NIGHT-FLOWERING CATCHFLY. (*S. noctiflora*.)
 b Flowers in forked, 1-sided spikes, not fragrant
 FORKED CATCHFLY. (*S. dichotoma*.)
- 4 VACCÀRIA.....COW-HERB. (*V. vaccària*.)
- 5 SAPONÀRIA.....BOUNCING BET. (*S. officinàlis*.)
- 6 GYPSÓPHILA.....BABY'S BREATH. (*G. paniculàta*.)
- 7 DIÁNTHUS.
- 1 a Plant clothed with fine hairs; flowers pink; wild species
 DEPTFORD PINK. (*D. armèria*.)
 b Plants not hairy; cultivated species 2
- 2 a Flowers several in a terminal cluster; plant not
 covered with bloomSWEET WILLIAM. (*D. barbàtus*.)
 b Flowers solitary or 2 or 3 together; plants usually
 covered with bloom 3
- 3 a Bracts subtending calyx linear, as long as calyx-tube
 CHINA PINK. (*D. chinènsis*.)
 b Bracts subtending calyx usually ovate, not longer than
 calyx-tube 4
- 4 a Flowers usually less than 2 in. broad; petals fringed
 COMMON PINK. (*D. plumàrius*.)
 b Flowers usually 2 in. or more broad; petals usually
 toothedCARNATION. (*D. caryophýllus*.)
- 8 ALSÌNE.
- 1 a Plant cultivated in gardens..EASTER BELL. (*A. holóstea*.)
 b Plants not cultivated in gardens 2
- 2 a Leaves ovate; stem hairy in lines
 COMMON CHICKWEED. (*A. mèdia*.)
 b Leaves oblong to linear 3
- 3 a Leaves linear $\frac{1}{2}$ -3 in. long; sepals shorter than petals
 LONG-LEAVED STITCHWORT. (*A. longifólia*.)
 b Leaves oblong to lanceolate; sepals about the length
 of petals 4
- 4 a Stem 4-angled; leaves broadest at the hairy base
 STARWORT. (*A. graminea*.)
 b Stem nearly cylindrical; leaves not usually broadest at
 baseMARSH CHICKWEED. (*A. uliginósa*.)
- 9 CERÀSTIUM.
- 1 a Leaves white-woolly; plant prostrate, cultivated in gar-
 densCOTTONY CHICKWEED. (*C. tomentósum*.)
 b Leaves not white-woolly 2
- 2 a Stem with numerous sticky hairs; leaves oblong
 MOUSE-EAR CHICKWEED. (*C. vulgàtum*.)
 b Stem with few hairs, not sticky; leaves linear
 FIELD CHICKWEED. (*C. arvènsis*.)
- 10 AMMODÈNIA.....SEA-BEACH SANDWORT. (*A. peploides*.)

NYMPHAEACEAE (WATER LILY FAMILY)

- 11 SAGINA.
 1 a Petals 4; stalks of flowers often hooked after flowering
 PROCUMBENT PEARLWORT. (*S. procumbens*.)
 b Petals 5; leaves usually bristle-tipped
 DECUMBENT PEARLWORT. (*S. decumbens*.)
- 12 MOEHRINGIA....BLUNT-LEAVED SANDWORT. (*M. lateriflora*.)
- 13 ARENARIA.
 1 a Leaves ovate; flowers about 1/8 in. broad
 THYME-LEAVED SANDWORT. (*A. serpyllifolia*.)
 b Leaves awl-shaped; flowers about 1/2 in. broad
 PINE-BARREN SANDWORT. (*A. caroliniana*.)
- 14 TISSA.
 1 a Leaves very fleshy, circular
 SALT-MARSH SAND SPURRY. (*T. marina*.)
 b Leaves flat, not fleshy.....SAND SPURRY. (*T. rubra*.)
- 15 SPERGULA.....CORN SPURRY. (*S. arvensis*.)
- 16 ANYCHIAFORKED CHICKWEED. (*A. canadensis*.)
- 17 SCLERANTHUSGERMAN KNOTGRASS. (*S. annuus*.)

12 RANALES. Buttercup Order.

1 NYMPHAEACEAE. Water Lily Family.

- 1 CABOMBA.....CABOMBA. (*C. caroliniana*.)*
- 2 BRASËNIA.....WATER SHIELD. (*B. purpurea*.)
- 3 NYMPHAEÀ.....YELLOW POND LILY. (*N. advena*.)
- 4 CASTÀLIA....SWEET-SCENTED WATER LILY. (*C. odorata*.)
- 5 NELÚMBO.....INDIAN LOTUS. (*N. nelumbo*.)*

2 CERATOPHYLLACEAE. Hornwort Family.

- 1 CERATOPHYLLUMHORNWORT. (*C. demersum*.)

3 MAGNOLIACEAE. Magnolia Family.

- 1 MAGNÒLIA.
 1 a Flowers appearing after the leaves unfold; native
 trees or shrubs 2
 b Flowers appearing before the leaves unfold; cultivated
 shrubs or trees 3
- 2 a Mature leaves 3-6 in. long, glaucous beneath
 SWEET BAY. (*M. virginiana*.)
 b Mature leaves 10-24 in. long, not glaucous beneath
 UMBRELLA TREE. (*M. tripetala*.)
- 3 a Flowers purplish or reddish on the outside
 SOULANGE'S MAGNOLIA. (*M. soulangeana*.)*
- b Flowers not purplish or reddish on the outside 4
- 4 a Petals 9-18; flowers 2-4 in. broad
 JAPANESE MAGNOLIA. (*M. stellata*.)*
- b Petals 6-9; flowers 4-6 in. broad
 CHINESE WHITE MAGNOLIA. (*M. yulan*.)*

RANUNCULACEAE (BUTTERCUP FAMILY)

- 2 LIRIODÉNDRON.....TULIP TREE. (*L. tulipifera*.)
 4 TROCHODENDRACEAE. *Trochodendron* Family.
- 1 CERCIDIPHYLLUM.....CERCIDPHYLLUM. (*C. japonicum*.*)
- 5 RANUNCULACEAE. *Buttercup* Family.
- 1 CÁLTHA.....MARSH MARIGOLD. (*C. palústris*.)
 2 TRÓLLIUS.....GLOBE FLOWER. (*T. europæus*.*)
 3 HELLÉBORUS.
 1 a Leaves thick, evergreen; flowers white to purple
 CHRISTMAS ROSE. (*H. niger*.*)
 b Leaves thin, not evergreen; flowers yellowish
 GREEN HELLEBORE. (*H. viridis*.)
- 4 PAEÒNIA.....COMMON PEONY. (*P. híbrida*.*)
 5 CÓPTIS.....GOLDTHREAD. (*C. trifòlia*.)
 6 XANTHORRHIZA.....SHRUB YELLOW-ROOT. (*X. apiifòlia*.)
 7 ACTAËA.
 1 a Berries red when ripe; stalk of berry slender
 RED BANE BERRY. (*A. rubra*.)
 b Berries white when ripe; stalk of berry thickened, rigid
 WHITE BANE BERRY. (*A. álba*.)
- 8 CIMCÍFUGA.....BLACK COHOSH. (*C. racemòsa*.)
 9 AQUILÈGIA.
 1 a Wild species; flowers scarlet, yellow within
 WILD COLUMBINE. (*A. canadénsis*.)
 b Cultivated species; flowers not scarlet 2
- 2 a Spurs of petals $\frac{1}{2}$ -1 in. long, incurved 3
 b Spurs of petals 2-3 in. long, straight or divergent 4
- 3 a Flowers lilac; spurs often coiled, without a knob at end
 SIBERIAN COLUMBINE. (*A. sibírica*.*)
 b Flowers variously colored; spur not coiled, with knob
 at endGARDEN COLUMBINE. (*A. vulgàris*.*)
- 4 a Flowers yellowGOLDEN COLUMBINE. (*A. chrysántha*.*)
 b Flowers blue or white.COLORADO COLUMBINE. (*A. caerùlea*.*)
- 10 DELPHÍNIUM.
 1 a Flowers in panicles; petals yellow
 RED LARKSPUR. (*D. nudicaule*.*)
 b Flowers in racemes 2
- 2 a Petals 2; pistil 1GARDEN LARKSPUR. (*D. ajàcis*.*)
 b Petals 4; pistils 3 3
- 3 a Plant 2-3 ft. high; flowers usually more than 1 in. broad
 LARGE-FLOWERED LARKSPUR. (*D. grandiflorum*.*)
 b Plant 3-4 ft. high; flowers about 1 in. broad
 HYBRID LARKSPUR. (*D. híbridum*.*)
- 11 ACONITUM.....MONKSHOOD. (*A. napéllus*.*)
 12 ANÉMONE.
 1 a Plants growing wild 2
 b Plants cultivated in gardens 5

RANUNCULACEAE (BUTTERCUP FAMILY)

- 2 a Plant 4-9 in. high WIND-FLOWER. (*A. quinquefolia.*)
 b Plants 1 ft. or more high 3
- 3 a Head of fruit globose; plant 1-2 ft. high; flowers 1-2
 in. broad CANADA ANEMONE. (*A. canadensis.*)
 b Head of fruit not globose; plants not completely as in a 4
- 4 a Head of fruit oblong, $\frac{3}{4}$ -1 in. long; plant 2-3 ft. high;
 flowers about 1 in. broad
 TALL ANEMONE. (*A. virginiana.*)
 b Head of fruit cylindric, 1 in. or more long; plant 1-2
 ft. high; flowers about $\frac{3}{4}$ in. broad
 LONG-FRUITED ANEMONE. (*A. cylindrica.*)
- 5 a Plant branched, flowering in autumn
 JAPANESE ANEMONE. (*A. japonica.**)
 b Plants not branched, flowering in spring 6
- 6 a Leaves with leaflets finely cut into narrow segments
 POPPY-FLOWERED ANEMONE. (*A. coronaria.**)
 b Leaves with leaflets coarsely toothed
 BROAD-LEAVED ANEMONE. (*A. hortensis.**)
- 13 SYNDÉSMON. RUE ANEMONE. (*S. thalictroides.*)
- 14 HEPÁTICA. HEPATICA. (*H. hepática.*)
- 15 CLÉMATIS.
- 1 a Flowers 2-9 in. broad. . GARDEN CLEMATIS. (*C. híbrida.**)
 b Flowers 1-2 in. broad 2
- 2 a Flowers perfect. JAPANESE CLEMATIS. (*C. paniculata.**)
 b Flowers imperfect. VIRGIN'S BOWER. (*C. virginiana.*)
- 16 RANÚNCULUS.
- 1 a Leaves lanceolate, none lobed or rounded
 WATER-PLANTAIN SPEARWORT. (*R. obtusiusculus.*)
 b Leaves not lanceolate, at least some lobed or cleft 2
- 2 a Flowers about $\frac{1}{4}$ in. broad; petals usually no longer
 than the sepals 3
 b Flowers $\frac{1}{2}$ in. or more broad; petals longer than the
 sepals 5
- 3 a Head of fruit oblong to cylindric; plant stout
 DITCH CROWFOOT. (*R. sceleratus.*)
 b Head of fruit globose 4
- 4 a Basal leaves lobed; pistils with recurved styles
 HOOKED CROWFOOT. (*R. recurvatus.*)
 b Basal leaves round-heart-shaped; pistils not as in a
 KIDNEY-LEAVED CROWFOOT. (*R. abortivus.*)
- 5 a Plant creeping; leaves often spotted
 CREEPING BUTTERCUP. (*R. repens.*)
 b Plants more or less erect 6
- 6 a Basal leaves 3-7-divided, the divisions not stalked; plant
 2-3 ft. high MEADOW BUTTERCUP. (*R. acris.*)
 b Basal leaves 3-divided, some of the divisions stalked. . 7

BERBERIDACEAE (BARBERRY FAMILY)

- 7 a Both lateral and terminal divisions of leaf stalked; plant only slightly hairy
SWAMP BUTTERCUP. (*R. septentrionalis*.)
- b Only terminal divisions of leaf stalked; plants hairy.. 8
- 8 a Plant with a bulbous root
BULBOUS BUTTERCUP. (*R. bulbosus*.)
- b Plant with fibrous roots.. HISPID BUTTERCUP. (*R. hispidus*.)
- 17 NIGÉLLA..... LOVE-IN-THE-MIST. (*N. damascèna*.*)
- 18 BATRÀCHIUM. WHITE WATER CROWFOOT. (*B. trichophýllum*.)
- 19 THALÍCTRUM.
- 1 a Plant 2 ft. or less high; flowering April-May
EARLY MEADOW-RUE. (*T. dioicum*.)
- b Plants usually more than 2 ft. high; flowering June-Sept. 2
- 2 a Plant glandular or waxy; filaments of stamens not broadened PURPLE MEADOW-RUE. (*T. purpurascens*.)
- b Plant not glandular or waxy; filaments of stamens broadened TALL MEADOW-RUE. (*T. polygamum*.)
- 20 ADÒNIS.
- 1 a Flowers pure yellow; petals 10-15; plant less than 1 ft. high..... SPRING ADONIS (*A. vernalis*.*)
- b Flowers scarlet or crimson; plants 1-2 ft. high..... 2
- 2 a Flowers with a darker center; petals flat
PHEASANT'S EYE. (*A. aestivalis*.*)
- b Flowers not with a darker center; petals usually concave
FLOS ADONIS. (*A. autumnalis*.*)

6 BERBERIDACEAE. Barberry Family.

- 1 AKÈBIA..... AKEBIA. (*A. quinata*.*)
- 2 BÉRBERIS.
- 1 a Leaves compound, evergreen... MAHONIA. (*B. japonica*.*)
- b Leaves simple, not evergreen 2
- 2 a Flowers in racemes; shrub 6-8 ft. high
COMMON BARBERRY. (*B. vulgaris*.)
- b Flowers 1-4 together; shrub 2-4 ft. high
JAPANESE BARBERRY. (*B. thunbergii*.*)
- 3 CAULOPHÝLLUM BLUE COHOSH. (*C. thalictroides*.)
- 4 PODOPHÝLLUM MAY APPLE. (*P. peltatum*.)

7 MENISPERMACEAE. Moonseed Family.

- 1 MENISPÉRMUM..... MOONSEED. (*M. canadense*.)

8 CALYCANTHACEAE. Strawberry-shrub Family.

- 1 BUTNÈRIA..... STRAWBERRY-SHRUB. (*B. florida*.*)

9 LAURACEAE. Laurel Family.

- 1 LAÛRUS..... SWEET BAY TREE. (*L. nobilis*.*)
- 2 SÁSSAFRAS SASSAFRAS. (*S. sassafras*.)
- 3 BÉNZOIN..... SPICE-BUSH. (*B. benzoïn*.)

PAPAVERACEAE (POPPY FAMILY)

13 PAPAVERALES. Poppy Order.

1 PAPAVERACEAE. Poppy Family.

1 PAPAVER.

- 1 *a* Leaves glaucous; flowers 2-4 in. broad
GARDEN POPPY. (*P. somniferum*.) 2
b Leaves not glaucous 2
2 *a* Flowers 2 in. or less broad; 2 petals smaller than other 2
CORN POPPY. (*P. rhòdas*.)
b Flowers 5-8 in. broad....ORIENTAL POPPY. (*P. orientàle*.)
2 ARGEMÒNE.....PRICKLY POPPY. (*A. mexicàna*.)
3 SANGUINÀRIA.....BLOOD-ROOT. (*S. canadénsis*.)
4 GLAUCIUM.....SEA POPPY. (*G. glaucium*.)
5 CHELIDÒNIUM.....CELANDINE. (*C. màjus*.)
6 ESCHSCHÒLTZIA.....CALIFORNIA POPPY. (*E. califòrnica*.)
7 BOCCÒNIA.....PLUME POPPY. (*B. cordàta*.)

2 FUMARIACEAE. Fumitory Family.

1 BICUCÙLLA.

- 1 *a* Flowers usually pink; cultivated species
BLEEDING HEART. (*B. spectàbilis*.)
b Flowers white; wild species 2
2 *a* Spurs spreading; roots bulb-like
DUTCHMAN'S BREECHES. (*B. cucullària*.)
b Spurs short, rounded, not spreading; roots with grain-
like tubersSQUIRREL CORN. (*B. canadénsis*.)
2 ADLÙMIA.....CLIMBING FUMITORY. (*A. fungòsa*.)
3 CAPNOIDES.
1 *a* Flowers pinkPINK CORYDALIS. (*C. sempèrvirens*.)
b Flowers yellowPALE CORYDALIS. (*C. flavulum*.)
4 FUMÀRIAFUMITORY. (*F. officinàlis*.)

3 CRUCIFERAE. Mustard Family.

- 1 *a* Flowers yellow or yellowish 2
b Flowers not yellow 11
2 *a* Plants cultivated for their flowers or for their colored
leaves 3
b Plants not cultivated for their flowers 4
3 *a* Flowers less than ¼ in. broad, in racemes or panicles
18. *Alyssum*. p 159
b Flowers ½ in. or more broad, in corymbs
24. *Cheiranthus*. p 160
4 *a* All leaves entire or toothed, not noticeably fleshy..... 5
b At least the lower leaves pinnately lobed or divided
or very fleshy in cultivated forms 6
5 *a* Leaves with their bases clasping the stem; pods obovoid,
about ¼ in. long 13. *Camelina*. p 159
b Leaves not with clasping bases; pods linear, ½-1 in.
long 17. *Erysimum*. p 159

CRUCIFERAE (MUSTARD FAMILY)

- 6 *a* Flowers $\frac{1}{4}$ in. or less broad 7
b Flowers usually $\frac{1}{2}$ in. or more broad 9
- 7 *a* Basal leaves with terminal lobe only 1 or 2 times larger than the lower lateral ones..... 9. *Roripa*. p 158
b Basal leaves with terminal lobe several times larger than the lateral ones 8
- 8 *a* Leaves dark green, often shining; flowers usually numerous and conspicuously clustered at top of stem
8. *Barbarea*. p 158
b Leaves green and not shining; flowers $\frac{1}{4}$ in. or less broad, not completely as in *a* 3. *Sisymbrium*. p 157
c Leaves sometimes glaucous, not shining; flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad 6. *Brassica*. p 158
- 9 *a* Pods $\frac{1}{4}$ in. or more thick, constricted between the seeds, spongy 7. *Raphanus*. p 158
b Pods not completely as in *a* 10
- 10 *a* Pod with the beak or tip flattened, sword-shaped, as long as pod 5. *Sinapis*. p 158
b Pod with the beak or tip conic, not sword-shaped
6. *Brassica*. p 158
- 11 *a* Flowers usually $\frac{1}{2}$ in. or more broad 12
b Flowers about $\frac{1}{4}$ in. or less broad 19
- 12 *a* Leaves palmately divided into 3-5 leaflets
11. *Dentaria*. p 159
b Leaves not palmately divided 13
- 13 *a* Some or all of leaves lobed or divided 7. *Raphanus*. p 158
b None of the leaves lobed or divided 14
- 14 *a* Leaves broadly ovate-heart-shaped, 3-6 in. long; flowers purple 22. *Lunaria*. p 160
b Leaves not completely as in *a* 15
- 15 *a* 2 outer petals much larger than the 2 inner ones
25. *Iberis*. p 160
b All petals about the same size 16
- 16 *a* Wild herbs with a bulbous base; flowers white, about $\frac{1}{2}$ in. broad 10. *Cardamine*. p 159
b Plants not completely as in *a* 17
- 17 *a* Plant 2-8 in. high; leaves $\frac{1}{2}$ -2 in. long 16. *Arabis*. p 159
b Plant 1-2 ft. high 18
- 18 *a* Leaves toothed; plant not hoary.... 21. *Hesperis*. p 159
b Leaves entire; plant covered with hoary hairs
23. *Matthiola*. p 160
- 19 *a* 2 outer petals much larger than the 2 inner ones
25. *Iberis*. p 160
b All petals about the same size 20
- 20 *a* Fleshy, prostrate herb growing on sea-beaches; pods jointed 4. *Cakile*. p 158
b Plants not completely as in *a* 21

CRUCIFERAE (MUSTARD FAMILY)

- 21 a Plants 6 in. or less high, with tufted basal leaves 1 in. or less long, entire or toothed..... 14. *Draba*. p 159
 b Plants not completely as in a 22
- 22 a Flowers violet or purple; cultivated plant
 26. *Aubrietia*. p 160
 b Flowers white or greenish 23
- 23 a Flowers fragrant, numerous; leaves entire; pods oval or circular 19. *Koniga*. p 159
 b Flowers not fragrant 24
- 24 a Plant with a rosette of basal, usually entire leaves 1-2 in. long, hairy 15. *Stenophragma*. p 159
 b Plants not completely as in a 25
- 25 a Plant covered with forked hairs; leaves 1/2-2 in. long, entire 20. *Berteroa*. p 159
 b Plant not covered with forked hairs 26
- 26 a Pods triangular, flattened 12. *Bursa*. p 159
 b Pods not triangular 27
- 27 a Pods apparently double, about 1/2 as long as broad, rough-wrinkled 2. *Coronopus*. p 157
 b Pods not completely as in a 28
- 28 a Pods oval to circular, flattened 1. *Lepidium*. p 157
 b Pods not completely as in a 29
- 29 a Stem leaves linear to lanceolate, usually entire or slightly toothed 16. *Arabis*. p 159
 b Stem leaves usually pinnately divided or the basal ones very large 30
- 30 a Pods nearly globose, or elongated, spreading, and curved upwards 9. *Roripa*. p 158
 b Pods linear, not completely as in a 10. *Cardamine*. p 159

1 LEPIDIUM.

- 1 a Stem leaves clasping at the base
 FIELD CRESS. (*L. campestre*.)
 b Stem leaves not with clasping bases 2

- 2 a Leaves much pinnatifid; pod winged all around
 GARDEN CRESS. (*L. sativum*.)
 b Leaves only somewhat pinnatifid; pod winged only at apex 3

- 3 a Petals present; pod obscurely winged at apex; common weed WILD PEPPER-GRASS. (*L. virginicum*.)
 b Petals usually wanting; pod conspicuously winged at apex APETALOUS PEPPER-GRASS. (*L. apetalum*.)

- 2 CORONOPUS..... WART CRESS. (*C. didymus*.)

3 SISYMBRIUM.

- 1 a Pods 1/2-1 in. long, appressed to stem
 HEDGE MUSTARD. (*S. officinale*.)
 b Pods 2-4 in. long, spreading from stem
 TUMBLE MUSTARD. (*S. altissimum*.)

CRUCIFERAE (MUSTARD FAMILY)

- 4 CAKÏLE.....SEA ROCKET. (*C. edéntula.*)
 5 SINÄPIS.....WHITE MUSTARD. (*S. álba.*)
 6 BRÄSSICA.
 1 a Upper leaves not with clasping bases; plants green,
 sparingly glaucous 2
 b Upper leaves with clasping bases or the basal leaves
 fleshy; plants glaucous-blue when in flower 4
 2 a Pods appressed to stem, about $\frac{1}{2}$ - $\frac{3}{4}$ in. long
 BLACK MUSTARD. (*B. nígra.*)
 b Pods not appressed to stem 3
 3 a Plant only slightly hairy; pods 1-2 in. long
 INDIAN MUSTARD. (*B. júncea.*)
 b Plant covered with stiff hairs; pods $\frac{1}{2}$ - $\frac{3}{4}$ in. long
 CHARLOCK. (*B. arvénis.*)
 4 a Basal leaves green, thin; upper leaves glaucous; flowers
 about $\frac{1}{4}$ in. or more broadTURNIP. (*B. rápa.**)
 b Basal leaves glaucous, comparatively thick; upper leaves
 glaucous; flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad 5
 5 a First leaves hairy, older basal leaves sometimes hairy
 on the midvein; root more or less tuberous
 RUTA-BAGA. (*B. campéstris.**)
 b Leaves not hairy; roots not tuberous 6
 6 a Leaves more or less deeply scalloped; cultivated for
 forage or for seedRAPE. (*B. nápus.**)
 b Leaves lobed, not deeply scalloped; cultivated for the
 tableCABBAGE, BRUSSELS
 SPROUTS, KOHL-RABI, KALE, CAULIFLOWER. (*B. oleràcea.**)
 7 RÄPHANUS.
 1 a Flowers yellow; pod 6-10-seeded; wild species
 WILD RADISH. (*R. raphanistrum.*)
 b Flowers pink or white; pod 2-3-seeded; cultivated
 speciesGARDEN RADISH. (*R. satívus.**)
 8 BARBARÈA.
 1 a Pods spreading when mature
 YELLOW ROCKET. (*B. barbarèa.*)
 b Pods appressed to the stem...WINTER CRESS. (*B. strícta.*)
 9 RORÏPA.
 1 a Flowers yellow; leaves pinnatifid 2
 b Flowers white; leaves simple or compound 3
 2 a Plant creeping; pods linear
 CREEPING YELLOW WATER CRESS. (*R. sylvéstris.*)
 b Plant erect; pods oblong to ovoid
 YELLOW WATER CRESS. (*R. palústris.*)
 3 a Leaves with 3-11 leaflets; plant growing in brooks
 WATER CRESS. (*R. nastúrtilum.*)
 b Leaves simple, 3-12 in. long, oblong; plant growing in
 waste places and gardens.HORSE-RADISH. (*R. armoràcia.**)

CAPPARIDACEAE (CAPER FAMILY)

- 22 LUNÀRIA.....HONESTY. (*L. ànnua*.)
 23 MATTHÌOLA.....COMMON STOCK. (*M. incàna*.)
 24 CHEIRÁNTHUS.....WALL FLOWER. (*C. cheìri*.)
 25 IBÈRIS.
 1 *a* Stem woody at the base; leaves oblong
 EVERGREEN CANDYTUFT. (*I. sempèrvirens*.)
 b Stem not woody at the base; leaves linear to lanceolate 2
 2 *a* Flowers pale purple; lower leaves toothed, upper leaves
 entireCOMMON CANDYTUFT. (*I. umbellàta*.)
 b Flowers white; leaves toothed only toward the apex
 ANNUAL CANDYTUFT. (*I. amàra*.)
 26 AUBRIÈTIA.....FALSE WALL CRESS. (*A. deltoidea*.)

4 CAPPARIDACEAE. Caper Family.

- 1 CLEÒME.....SPIDER-FLOWER. (*C. spinòsa*.)
 2 POLANÍSIA.....CLAMMY-WEED. (*P. graveòlens*.)

5 RESEDACEAE. Mignonette Family.

- 1 RESÈDA.
 1 *a* Leaves entire or 3-lobed; cultivated plant
 COMMON MIGNONETTE. (*R. odoràta*.)
 b Leaves many-lobed or divided; wild plant
 CUT-LEAVED MIGNONETTE. (*R. lùtea*.)

14 SARRACENIALES. Pitcher-plant Order.

1 SARRACENIACEAE. Pitcher-plant Family.

- 1 SARRACÉNIA.....WILD PITCHER-PLANT. (*S. purpùrea*.)

2 NEPENTHACEAE. Nepentha Family.

- 1 NEPÉNTHES.....GARDEN PITCHER-PLANT. (*N. vèitchii*.)

3 DROSERACEAE. Sundew Family

- 1 DRÓSERÀ.
 1 *a* Leaves thread-like or narrowly linear
 THREAD-LEAVED SUNDEW. (*D. filifórmis*.)
 b Leaves not linear or thread-like 2
 2 *a* Leaf-blade circular
 ROUND-LEAVED SUNDEW. (*D. rotundifòlia*.)
 b Leaf-blade obovate, 2 or 3 times as long as broad
 SPATULATE-LEAVED SUNDEW. (*D. intermèdia*.)

15 ROSALES. Rose Order.

1 PODOSTEMACEAE. River-weed Family.

- 1 PODOSTÈMON.....RIVER-WEED. (*P. ceratophýllum*.)

2 CRASSULACEAE. Orpine Family.

- 1 SÈDUM.
 1 *a* Flowers yellow; leaves less than 1/2 in. long
 WALL-PEPPER. (*S. àcre*.)
 b Flowers not yellow; leaves 1/2 in. or more long..... 2

SAXIFRAGACEAE (SAXIFRAGE FAMILY)

- 2 a Leaves coarsely toothed, very fleshy
LIVE-FOR-EVER. (*S. téléphium.*)
- b Leaves entire or with wavy margins 3
- 3 a Plant 3-12 in. long; leaves 1/2-1 in. long
WILD STONECROP. (*S. ternatum.*)
- b Plant 1-2 ft. high; leaves 2-3 in. long
SHOWY SEDUM. (*S. spectabile.**)
- 2 SEMPERVIVUM. HEN-AND-CHICKENS. (*S. tectorum.**)
- 3 COTYLÉDON. ECHEVERIA. (*C. orbiculata.**)
- 4 BRYOPHYLLUM. BRYOPHYLLUM. (*B. calycinum.**)

3 PENTHORACEAE. Stonecrop Family.

- 1 PÉNTHORUM. DITCH STONECROP. (*P. sedoides.*)

4 PARNASSIACEAE. Grass-of-Parnassus Family.

- 1 PARNÁSSIA. GRASS-OF-PARNASSUS. (*P. caroliniana.*)

5 SAXIFRAGACEAE. Saxifrage Family.

- 1 SAXÍFRAGA.
- 1 a Flowers irregular; plant cultivated in pots
STRAWBERRY GERANIUM. (*S. sarmentosa.**)
- b Flowers regular; plants not cultivated in pots 2
- 2 a Leaves with the petiole attached to under side of blade
UMBRELLA SAXIFRAGE. (*S. peltata.**)
- b Leaves with the petiole attached at margin of blade. . . 3
- 3 a Leaves fleshy; plant cultivated in gardens
THICK-LEAVED SAXIFRAGE. (*S. crassifolia.**)
- b Leaves not fleshy; wild plants 4
- 4 a Basal leaves 1-4 in. long; flowers white
EARLY SAXIFRAGE. (*S. virginiana.**)
- b Basal leaves 4-10 in. long; flowers greenish
SWAMP SAXIFRAGE. (*S. pennsylvanica.*)
- 2 TIARÉLLA. FALSE MITREWORT. (*T. cordifolia.*)
- 3 HEÛCHERA.
- 1 a Plant cultivated in gardens; flowers 1/4 in. or more
broad, red to white CRIMSON BELLS. (*H. sanguinea.**)
- b Plant wild; flowers about 1/4 in. broad, greenish
ALUM-ROOT. (*H. americana.*)
- 4 MITÉLLA.
- 1 a Flowering stalk 2-leaved; flowers white
MITREWORT. (*M. diphylla.*)
- b Flowering stalk leafless; flowers greenish
NAKED BISHOP'S-CAP. (*M. nuda.*)
- 5 CHRYSOSPLÈNIUM. GOLDEN SAXIFRAGE. (*C. americanum.*)
- 6 ASTÍLBE. JAPANESE ASTILBE. (*A. japonica.**)

HYDRANGEACEAE (HYDRANGEA FAMILY)

6 HYDRANGEACEAE. *Hydrangea* Family.

1 HYDRANGEA.

- 1 *a* Wild species; flowers mostly perfect; leaves ovate
WILD HYDRANGEA. (*H. arborescens*.)
b Cultivated species; flowers mostly sterile 2
- 2 *a* Plant usually planted in tubs or pots; leaves oval
GREENHOUSE HYDRANGEA. (*H. hortensis*.)
b Plant usually planted in gardens and lawns; leaves
oblong-ovate....OUTDOOR HYDRANGEA. (*H. paniculata*.)

2 PHILADÉLPHUS.

- 1 *a* Flowers in clusters of 5-9, fragrant
GARDEN SYRINGA. (*P. coronarius*.)
b Flowers solitary or 2-3, rarely 5 together, not fragrant
SCENTLESS SYRINGA. (*P. inodorus*.)

3 DEÛTZIA.

- 1 *a* Leaves smooth above; shrub 2-3 ft. high
SLENDER DEUTZIA. (*D. gracilis*.)
b Leaves rough above; shrub 3-6 ft. high
BUSH DEUTZIA. (*D. scabra*.)

7 GROSSULARIACEAE. Gooseberry Family.

1 RIBES.

- 1 *a* Stems with spines or prickles 2
b Stems not with spines or prickles 5
- 2 *a* Bristles numerous; flowers in racemes; berry covered
with glandular hairs..SWAMP GOOSEBERRY. (*R. lacustre*.)
b Spines stiff; flowers 1-3 together; berry not covered
with hairs 3
- 3 *a* Cultivated shrub; spines usually 3 together; berry not
spinyGARDEN GOOSEBERRY. (*R. uva-crispa*.)
b Usually wild shrubs; spines 1-3 together..... 4
- 4 *a* Spines light colored, usually solitary; berry without
pricklesSMOOTH GOOSEBERRY. (*R. oxycanthoides*.)
b Spines not light colored, 1-3 together; berry usually
with pricklesWILD GOOSEBERRY. (*R. cynosbati*.)
- 5 *a* Flowers ½-1 in. long, bright yellow, spicy-scented; berry
yellow to blackMISSOURI CURRANT. (*R. aureum*.)
b Flowers not completely as in *a* 6
- 6 *a* Flowers ¼-½ in. broad, yellow or whitish; berry
black; wild shrub..WILD BLACK CURRANT. (*R. floridum*.)
b Flowers greenish to purple; berry red, white, or black;
cultivated shrubs 7
- 7 *a* Calyx and raceme hairy; berry black
GARDEN BLACK CURRANT. (*R. nigrum*.)
b Calyx and raceme not hairy; berry red
RED CURRANT. (*R. rubrum*.)

ROSACEAE (ROSE FAMILY)

- 3 SORBÀRIA.....MOUNTAIN-ASH SPIREA. (*S. sorbifolia*.)
 4 PORTERÁNTHUS.....INDIAN PHYSIC. (*P. trifoliatus*.)
 5 KÉRRIA.....JAPANESE ROSE. (*K. japónica*.)
 6 RHODOTÝPOS.....RHODOTYPOS. (*R. kerrioides*.)
 7 EXOCHÓRDA.....PEARL-BUSH. (*E. grandiflora*.)
 8 RÛBUS.
 1 *a* Leaves simple, 3-5-lobed; flowers purplish
 PURPLE-FLOWERING RASPBERRY. (*R. odoratus*.)
 b Leaves compound; flowers usually white..... 2
 2 *a* Stems more or less erect 3
 b Stems creeping, prostrate 8
 3 *a* Branches glaucous; berry purple-black when ripe, hemi-
 sphericBLACK RASPBERRY. (*R. occidentalis*.)
 b Branches not glaucous 4
 4 *a* Young branches covered with glandular hairs or
 bristles; berry red when ripe, hemispheric
 RED RASPBERRY. (*R. strigosus*.)
 b Shrubs not completely as in *a* 5
 5 *a* Shrub 1-3 ft. high; inflorescence 1-5-flowered
 SAND BLACKBERRY. (*R. cuneifolius*.)
 b Shrubs 2-10 ft. high; inflorescence several-flowered.... 6
 6 *a* Young branches with few or no glandular hairs
 LEAFY-BRACTED BLACKBERRY. (*R. frondosus*.)
 b Young branches with numerous glandular hairs..... 7
 7 *a* Berry oval to nearly globose, $\frac{1}{2}$ - $\frac{3}{4}$ in. long; leaflets
 rather ovate..HIGH-BUSH BLACKBERRY. (*R. nigrobaccus*.)
 b Berry oblong or thimble-shaped, $\frac{1}{2}$ -1 in. or more long;
 leaflets rather ovate-lanceolate
 COMMON BLACKBERRY. (*R. allegheniensis*.)
 8 *a* Leaves thick, obovate, usually shining above; flowers
 $\frac{1}{2}$ - $\frac{3}{4}$ in. broad.....SWAMP BLACKBERRY. (*R. hispida*.)
 b Leaves not shining above, ovate to obovate; flowers
 about 1 in. broad 9
 9 *a* Stalks 3-15-flowered.....DEWBERRY. (*R. procumbens*.)
 b Stalks 1-2-flowered
 ONE-FLOWERED DEWBERRY. (*R. subuniflorus*.)
 9 DALIBÀRDA.....DALIBARDA. (*D. repens*.)
 10 DRYMOCÁLLIS.....GLANDULAR CINQUEFOIL. (*D. arguta*.)
 11 DASÍPHORA.....SHRUBBY CINQUEFOIL. (*D. fruticosa*.)
 12 FRAGÀRIA.
 1 *a* Cultivated species; flowers about 1 in. broad
 GARDEN STRAWBERRY. (*F. chiloensis*.)
 b Wild species; flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad 2

ROSACEAE (ROSE FAMILY)

- 2 a Achenes of fruit imbedded in pits on the receptacle; flowering stalk usually shorter than the leaves; plant growing in fields and waste places
WILD STRAWBERRY. (*F. virginiana*.)
- b Achenes of fruit not imbedded in pits on the receptacle; flowering stem usually longer than the leaves; plant growing in woods.....WOOD STRAWBERRY. (*F. vesca*.)
- 13 DUCHÉSNEA.....INDIAN STRAWBERRY. (*D. indica*.)
- 14 CÓMARUM.....PURPLE CINQUEFOIL. (*C. palústre*.)
- 15 ARGENTINA.....SILVER-WEED. (*A. anserina*.)
- 16 POTENTILLA.
- 1 a Leaves 3-foliolate; plant erect
ROUGH CINQUEFOIL. (*P. monspeliensis*.)
- b Leaflets usually 5-9, rarely 3; plants prostrate or erect.. 2
- 2 a Plant erect; leaflets 5-9; flowers sulphur-yellow
ROUGH-FRUITED CINQUEFOIL. (*P. sulphúrea*.)
- b Plants not erect; leaflets 5, rarely 3..... 3
- 3 a Flowers in cymes; leaflets with silvery hairs beneath
SILVERY CINQUEFOIL. (*P. argétea*.)
- b Flowers solitary in the axils of the leaves 4
- 4 a Plant 6-20 in. long; first flower from axil of second to fourth stem leaf.....FIVE-FINGER. (*P. canadensis*.)
- b Plant 3-10 in. long; first flower from axil of first stem leafDWARF FIVE-FINGER. (*P. púmila*.)
- 17 WALDSTEINIA...BARREN STRAWBERRY. (*W. fragarioides*.)
- 18 GÈUM.
- 1 a Flowers red; cultivated species
GARDEN AVENS. (*G. chiloéense*.)
- b Flowers not red; wild species 2
- 2 a Flowers purple, $\frac{3}{4}$ -1 in. broad..PURPLE AVENS. (*G. rivále*.)
- b Flowers not purple 3
- 3 a Flowers cream-yellow, about $\frac{1}{4}$ in. broad; stipules $\frac{1}{2}$ -1 in. long, toothed.CREAM-COLORED AVENS. (*G. flavum*.)
- b Plants not completely as in a 4
- 4 a Flowers white 5
- b Flowers yellow 6
- 5 a Stems covered with bristly hairs; receptacle not hairy
ROUGH AVENS. (*G. virginianum*.)
- b Stems not covered with bristly hairs; receptacle hairy
WHITE AVENS. (*G. canadéense*.)
- 6 a Calyx not subtended by bracts; head of fruit stalked above the calyxSPRING AVENS. (*G. vérrnum*.)
- b Calyx subtended by bracts; head of fruit not stalked above the calyxYELLOW AVENS. (*G. stríctum*.)

ROSACEAE (ROSE FAMILY)

- 19 ULMÀRIA.
 1 a Flowers $\frac{1}{4}$ in. or less broad
 QUEEN-OF-THE-MEADOW. (*U. ulmària*.)
 b Flowers $\frac{3}{4}$ -1 in. broad..MEADOW SWEET. (*U. filipéndula*.)
- 20 AGRIMÒNIA.
 1 a Leaves velvety beneath, not with scattered hairs; stems
 with fine hairs.....SOFT AGRIMONY. (*A. móllis*.)
 b Leaves with few scattered hairs beneath; stems covered
 with coarse hairs 2
 2 a Main leaflets 9-11, with glandular hairs; stems with
 brown hairs.MANY-FLOWERED AGRIMONY. (*A. parviflòra*.)
 b Main leaflets 5-7, not with glandular hairs 3
 3 a Fruit top-shaped with bristles numerous and spreading
 HAIRY AGRIMONY. (*A. hirsùta*.)
 b Fruit hemispheric with bristles few, erect or ascending
 WOODLAND AGRIMONY. (*A. striàta*.)
- 21 SANGUISÓRBA.
 1 a Flowers greenish, in globose heads
 GARDEN BURNET. (*S. sanguisórba*.)
 b Flowers white, in spikes
 CANADIAN BURNET. (*S. canadénsis*.)
- 22 RÒSA.
 1 a Shrubs not cultivated for their flowers 2
 b Shrubs cultivated for their flowers 7
 2 a Outer calyx lobes pinnately divided 3
 b Outer calyx lobes more or less entire, not pinnately
 divided 4
 3 a Leaflets more or less covered with glandular hairs and
 resin dots beneathSWEETBRIER. (*R. rubiginòsa*.)
 b Leaflets not covered with glandular hairs and resin
 dots beneathDOG ROSE. (*R. canìna*.)
 4 a Stalks of flowers not hairy; shrub with few or no
 pricklesMEADOW ROSE. (*R. blànda*.)
 b Stalks of flowers hairy or bristly; shrubs armed with
 prickles 5
 5 a Leaflets finely toothed; shrub growing in low, damp
 placesSWAMP ROSE. (*R. carolìna*.)
 b Leaflets coarsely toothed; shrubs growing in dry, rocky
 places 6
 6 a Leaflets 7-9, usually 7, often shining above; spines com-
 paratively stoutGLOSSY ROSE. (*R. lúcida*.)
 b Leaflets 5-7, usually 5, not usually shining above; spines
 comparatively slender.....PASTURE ROSE. (*R. hòmilis*.)
 7 a Leaflets $\frac{1}{4}$ - $\frac{3}{4}$ in. long, usually 9, ovate to rounded
 SCOTCH ROSE. (*R. spinosíssima*.)
 b Leaflets not completely as in a 8

POMACEAE (APPLE FAMILY)

- 8 a Outer calyx lobes pinnately lobed 9
 b Outer calyx lobes not pinnately lobed 13
 9 a Stipules pinnately lobed
 MANY-FLOWERED ROSE. (*R. multiflora*.*)
 b Stipules not pinnately lobed 10
 10 a Calyx lobes or stalks of flowers with glandular hairs.. 11
 b Calyx lobes or stalks of flowers not with glandular hairs 12
 11 a Climbing shrub; styles exerted beyond the top of re-
 ceptacle PRAIRIE ROSE. (*R. setigera*.*)
 b Erect or spreading shrub; styles not exerted as in a
 MOSS ROSE. (*R. gallica*.*)
 12 a Stipules with glandular hairs; styles not exerted beyond
 the top of the receptacle.....DOG ROSE. (*R. canina*.*)
 b Stipules not with glandular hairs; styles exerted beyond
 the top of the receptacle..MUSK ROSE. (*R. moschata*.*)
 13 a Leaflets shining above, hairy beneath
 JAPANESE ROSE. (*R. rugosa*.*)
 b Leaflets not hairy beneath....CHINA ROSE. (*R. chinensis*.*)

11 POMACEAE. Apple Family.

1 SORBUS.

- 1 a Leaves simple.....WHITE BEAM TREE. (*S. aria*.*)
 b Leaves compound 2
 2 a Leaflets usually hairy on both sides
 EUROPEAN MOUNTAIN ASH. (*S. aucuparia*.*)
 b Leaflets not hairy on both sides 3
 3 a Leaflets pointed at apex; fruit 1/4 in. or less broad
 AMERICAN MOUNTAIN ASH. (*S. americana*.)
 b Leaflets blunt at apex; fruit 1/4 in. or more broad
 LARGE-FRUITED MOUNTAIN ASH. (*S. scopulina*.)

2 COTONEASTER.....FIRE THORN. (*C. pyracantha*.*)

3 PYRUS.....PEAR. (*P. communis*.*)

4 CRATAEGUS.

- 1 a Thorns more or less curved; leaves broadly ovate,
 doubly toothed 2
 b Thorns straight; leaves obovate or ovate 4
 2 a Corymbs and lower surface of leaves densely hairy
 RED-FRUITED THORN. (*C. mollis*.)
 b Corymbs and lower surface of leaves not densely hairy 3
 3 a Calyx lobes entire; leaves rounded or heart-shaped
 at baseWASHINGTON THORN. (*C. cordata*.*)
 b Calyx lobes toothed at base; leaves often tapering at
 basePRIMROSE THORN. (*C. pruinosa*.)
 4 a Thorns 1/2 in. or less long; leaves ovate, 3-15 lobed
 or cleft; cultivated species
 ENGLISH HAWTHORN. (*C. oxyacantha*.*)
 b Thorns 3/4 in. or more long; leaves obovate or broadly
 ovate 5

POMACEAE (APPLE FAMILY)

- 5 a Corymbs 1-3-flowered; leaves tapering at base, teeth broad, not doubly toothed..DWARF THORN. (*C. uniflora*.)
 b Corymbs 3 to many flowered; leaves nearly straight, or sometimes tapering at base 6
- 6 a Corymbs 3-7-flowered; leaves sharply and doubly toothed, often incisedRED HAW. (*C. coccinea*.)
 b Corymbs many-flowered; leaves not usually doubly toothed or incised 7
- 7 a Corymbs not hairy; leaves usually not doubly toothed, usually shining above..COCKSPUR THORN. (*C. crús-gállli*.)
 b Corymbs hairy; leaves doubly toothed toward apex, not shining above..LARGE-FRUITED THORN. (*C. punctàta*.)
- 5 AMELÁNCHIER.
- 1 a Shrub 1-3 ft. high; leaves oval, rarely pointed, about 1 in. or more long.....LOW JUNE-BERRY. (*A. spicàta*.)
 b Shrubs or trees 5 ft. or more high; leaves ovate, somewhat pointed at apex, about 2 in. or more long..... 2
- 2 a Leaves woolly beneath when young, older leaves somewhat hairy, the petioles usually somewhat woolly SHAD-BUSH. (*A. botryàpium*.)
 b Leaves only hairy beneath when young, older leaves usually not hairy, the petioles with few hairs JUNE-BERRY. (*A. canadénsis*.)
- 6 ARÒNIA.
- 1 a Leaves not woolly beneath; fruit black when ripe BLACK CHOKEBERRY. (*A. nìgra*.)
 b Leaves woolly beneath 2
- 2 a Fruit purple when ripe PURPLE-FRUITED CHOKEBERRY. (*A. atropurpùrea*.)
 b Fruit bright red when ripe RED-FRUITED CHOKEBERRY. (*A. arbutifòlia*.)
- 7 CYDÒNIA.
- 1 a Shrub with thorns on the branches JAPANESE QUINCE. (*C. japònica*.)
 b Shrubs or trees not with thorns 2
- 2 a Leaves entire; fruit globose COMMON QUINCE. (*C. vulgàris*.)
 b Leaves finely toothed; fruit oblong CHINESE QUINCE. (*C. sinénsis*.)
- 8 MÀLUS.
- 1 a Leaves on older twigs more or less lobed 2
 b Leaves on older twigs not lobed 3
- 2 a Wild species, sometimes planted for its fruit AMERICAN CRAB APPLE. (*M. coronària*.)
 b Cultivated species, planted for its flowers DWARF CRAB. (*M. toringo*.)

DRUPACEAE (PLUM FAMILY)

- 3 a Tree cultivated for the fruit, and escaped
APPLE. (*M. málus*.)
b Shrubs or small trees planted for their flowers..... 4
- 4 a Flowers single; twigs often with thorns
FLOWERING CRAB. (*M. floribúnda*.)
b Flowers usually more or less double; twigs not thorny 5
- 5 a Leaves comparatively thick; stalks of flowers reddish;
fruit brownish-red when ripe
PARKMAN'S FLOWERING CRAB. (*M. halliàna*.)
b Leaves comparatively thin; stalks of flowers not usually
reddish; fruit reddish-yellow when ripe
CHINESE FLOWERING CRAB. (*M. spectábilis*.)

12 DRUPACEAE. Plum Family.

- 1 PRÛNUS.
- 1 a Flowers in racemes 2
b Flowers in umbels or corymbs 4
- 2 a Small tree planted for the flowers; flowers $\frac{1}{2}$ -1 in.
broad EUROPEAN BIRD CHERRY. (*P. pàdus*.)
b Trees or shrubs, wild, not planted; flowers $\frac{1}{4}$ - $\frac{1}{2}$
in. broad 3
- 3 a Leaves mostly oblong, the teeth somewhat incurved
WILD BLACK CHERRY. (*P. serótina*.)
b Leaves mostly obovate, the teeth somewhat spreading
CHOKE CHERRY. (*P. virginiana*.)
- 4 a Prostrate or ascending shrub 1-6 ft. long growing on
sandy shores; leaves oblanceolate
SAND CHERRY. (*P. pùmila*.)
b Erect shrubs or trees 5
- 5 a Small tree with thorns; usually wild species; leaves
abruptly pointed at apex; flowers about 1 in. broad
WILD PLUM. (*P. americana*.)
b Trees or shrubs not with thorns 6
- 6 a Shrub 1-4 ft. high; leaves somewhat wedge-shaped;
flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; fruit black, without bloom
APPALACHIAN CHERRY. (*P. cuncàta*.)
b Shrubs or trees with flowers $\frac{1}{2}$ -2 in. broad 7
- 7 a Small tree with rounded, heart-shaped aromatic leaves;
cultivated for the flowers
PERFUMED CHERRY. (*P. mahàleb*.)
b Trees or shrubs not with rounded, aromatic leaves.... 8
- 8 a Small tree; leaves usually shining on both sides; fruit
about $\frac{1}{4}$ in. in diameter; wild species
PIGEON CHERRY. (*P. pennsylvànica*.)
b Shrubs or trees not completely as in a 9

MIMOSACEAE (MIMOSA FAMILY)

- 9 a Shrub 1-7 ft. high; leaves hairy beneath; fruit with bloom; usually on sea-beaches
 BEACH PLUM. (*P. maritima*.)
 b Trees cultivated for their fruit or flowers 10
- 10 a Leaves unequally and doubly toothed; flowers 2-4 in a lateral cluster; fruit without bloom 11
 b Leaves coarsely but more or less regularly toothed; flowers solitary or 2-3 together; fruit with a bloom.. 12
- 11 a Tree planted for its flowers; flowers usually double
 JAPANESE FLOWERING CHERRY. (*P. pseudo-cerasus*.)
 b Trees planted for their fruit 13
- 12 a Leaves more or less hairy beneath
 GARDEN PLUM. (*P. domestica*.)
 b Leaves not hairy beneath.. JAPANESE PLUM. (*P. triflora*.)
 13 a Leaves 1-3 in. long, dark green and shining above; fruit sour..... SOUR CHERRY. (*P. cerasus*.)
 b Leaves 3-6 in. long, usually not dark green above; fruit sweet SWEET CHERRY. (*P. avium*.)
- 2 AMYGDALUS.
 1 a Small tree usually 6 ft. or more high
 PEACH. (*A. persica*.)
 b Shrubs 1-5 ft. high, cultivated for the flowers..... 2
- 2 a Leaves lanceolate to oblong, never lobed at apex
 FLOWERING ALMOND. (*A. pumila*.)
 b Leaves broadly ovate, often lobed toward apex
 FLOWERING PLUM. (*A. pedunculata*.)
- 13 MIMOSACEAE. *Mimosa* Family.
 1 MIMOSA..... SENSITIVE PLANT. (*M. pudica*.)
 2 ACACIA.
 1 a Leaves simple KANGAROO THORN. (*A. armata*.)
 b Leaves bi-pinnately compound
 DRUMMOND'S ACACIA. (*A. drummondii*.)
- 14 CAESALPINACEAE. *Senna* Family.
 1 CASSIA.
 1 a Flowers in racemes; pods 3-4 in. long; plant 3-8 ft. high WILD SENNA. (*C. marylandica*.)
 b Flowers in clusters; pods 1-3 in. long; plants ½-2 ft. high 2
- 2 a Flowers 1-2 in. broad; stamens 10
 PARTRIDGE PEA. (*C. chamaecrista*.)
 b Flowers ¼-½ in. broad; stamens 5
 WILD SENSITIVE PLANT. (*C. nictitans*.)
- 2 CERCIS..... RED-BUD. (*C. canadensis*.)
 3 GLEDITSIA..... THORNY LOCUST. (*G. triacanthos*.)
 4 GYMNOCALADUS.... KENTUCKY COFFEE TREE. (*G. dioica*.)

PAPILIONACEAE (PEA FAMILY)

15 PAPILIONACEAE. Pea Family.

1	a	Trees, shrubs or woody vines	2
	b	Herbs, not woody	11
2	a	Usually climbing woody vines; flowers blue to white, showy, in long racemes	5. <i>Wistaria</i> . p 173
	b	Erect shrubs or trees	3
3	a	Shrubs cultivated in pots	4
	b	Shrubs or trees not cultivated in pots	5
4	a	Leaflets 11 or more; flowers white or rose-colored 3. <i>Sawainsona</i> . p 173	
	b	Leaflets 3; flowers yellow	4. <i>Cytisus</i> . p 173
5	a	Leaflets 3	6. <i>Laburnum</i> . p 173
	b	Leaflets 5-25	6
6	a	Leaflets 8-12, even in number.....	7. <i>Caragana</i> . p 173
	b	Leaflets 5-25, odd in number	7
7	a	Trees or shrubs usually with spines for stipules, the branches often zigzag	8. <i>Robinia</i> . p 173
	b	Trees or shrubs not with spines for stipules	8
8	a	Trees with flowers in panicles	9
	b	Shrubs or trees with flowers in spikes or racemes	10
9	a	Flowers about ½ in. long, yellowish-white; pods oblong, not flattened	1. <i>Sophora</i> . p 173
	b	Flowers 1 in. or more long; pods linear, flattened 2. <i>Cladrastis</i> . p 173	
10	a	Flowers violet to purple, in dense spikes 9. <i>Amorpha</i> . p 173	
	b	Flowers yellow, in racemes	10. <i>Colutea</i> . p 173
11	a	Herb with simple leaves	11. <i>Crotalaria</i> . p 173
	b	Herbs or vines with compound leaves	12
12	a	Herbs with palmately-compound leaves; leaflets 7-11 12. <i>Lupinus</i> . p 174	
	b	Leaves pinnately-compound or with 3 leaflets	13
13	a	Leaves with 2 or 4-25 leaflets	14
	b	Leaves with 3 leaflets	21
14	a	Leaves with an even number of leaflets	15
	b	Leaves with an odd number of leaflets	18
15	a	Garden vines cultivated for food	16
	b	Wild or garden vines not cultivated for food	17
16	a	Plant with tendrils.....	13. <i>Pisum</i> . p 174
	b	Plant not with tendrils	14. <i>Arachis</i> . p 174
17	a	Stipules usually less than ½ in. long or sharply toothed all around	15. <i>Vicia</i> . p 174
	b	Some of the stipules ½ in. or more long, sharply toothed only at the base	16. <i>Lathyrus</i> . p 174
18	a	Vines with 3-7 leaflets; flowers brownish-purple to violet	19
	b	Erect herbs with 9-25 leaflets	20

PAPILIONACEAE (PEA FAMILY)

- 19 a Cultivated vine; flowers 1-2 in. long, violet
 17. *Bradburya*. p 174
 b Wild vine; flowers about ½ in. long, brownish-purple
 18. *Apios*. p 174
- 20 a Plant more or less covered with silky hairs; flowers
 yellowish-purple 19. *Cracca*. p 174
 b Plant not covered with silky hairs; flowers whitish to
 purplish 20. *Coronilla*. p 174
- 21 a Flowers about ½-1 in. long, yellow or blue; branched
 herbs turning black when dry; pods ¼-¾ in. long
 21. *Baptisia*. p 174
 b Plants not completely as in a 22
- 22 a Showy flowers about 1 in. long, yellow or purplish, 2-4
 on a long stalk; pods 4-7 in. long; vines
 22. *Vigna*. p 174
 b Plants not completely as in a 23
- 23 a Plants fragrant; leaflets oblong, ½-1 in. long, toothed;
 flowers white or yellow in slender racemes
 23. *Melilotus*. p 175
 b Plants not fragrant 24
- 24 a Flowers in heads, few-to-many-flowered, usually rather
 compact 25
 b Flowers usually in racemes or panicles 29
- 25 a Twining vine; heads 3-10-flowered; flowers purplish
 24. *Strophostyles*. p 175
 b Not twining vines; heads usually more than 10-flowered 26
- 26 a Leaflets finely toothed 27
 b Leaflets entire 28
- 27 a Stipules toothed at base; pods spirally coiled
 25. *Medicago*. p 175
 b Stipules not toothed at base; pods not spirally coiled
 26. *Trifolium*. p 175
- 28 a Flowers yellow 27. *Stylosanthes*. p 175
 b Flowers purplish or whitish 28. *Lespedeza*. p 175
- 29 a Flowers brownish-purple or violet; leaflets usually 5-7,
 sometimes 3; vines 30
 b Leaflets always 3 31
- 30 a Cultivated vine; flowers 1-2 in. long, violet
 17. *Bradburya*. p 174
 b Wild vine; flowers about ½ in. long, brownish-purple
 18. *Apios*. p 174
- 31 a Prostrate or climbing vines 32
 b More or less erect herbs 36
- 32 a Standard usually spurred at base; plant cultivated for
 the foliage 29. *Pueraria*. p 176
 b Standard not spurred at base 33

PAPILIONACEAE (PEA FAMILY)

- 33 a Flowers about $\frac{1}{2}$ in. long; pods 1 in. or less long, oblong 30. *Falcata*. p 176
 b Flowers $\frac{1}{2}$ in. or more long; pods usually more than 1 in. long, linear 34
- 34 a Plant growing wild in sandy soil; leaflets $\frac{1}{2}$ -2 in. long 31. *Galactia*. p 176
 b Plants cultivated or sometimes wild; leaflets 1-4 in. long 35
- 35 a Plant cultivated for ornament, twining, 5-20 ft. long; flowers 2-4 together in erect racemes; seeds black 32. *Dolichos*. p 176
 b Plants wild, or cultivated for food 33. *Phaseolus*. p 176
- 36 a Pods jointed by being lobed on the lower margin, the joints separating; leaflets usually with small stipules 34. *Meibomia*. p 176
 b Pods not jointed; leaflets usually without stipules.... 37
- 37 a Pods spirally twisted; flowers bluish-purple, in racemes about 1 in. long 25. *Medicago*. p 175
 b Pods not spirally twisted; plants not completely as in a 38
- 38 a Wild plants; pods small, rounded to ovate 28. *Lespedeza*. p 175
 b Cultivated plants; pods linear, 1 in. or more long.... 39
- 39 a Pods hairy; plant cultivated for forage 35. *Glycine*. p 177
 b Pods not hairy; plants cultivated for food 33. *Phaseolus*. p 176
- 1 SOPHORA.....PAGODA TREE. (*S. japonica*.*)
 2 CLADRÁSTIS.....YELLOW-WOOD. (*C. lutea*.*)
 3 SWAINSÒNA.....SWAINSONIA. (*S. galegifolia*.*)
 4 CÝTISUS.....GENISTA. (*C. canariensis*.*)
 5 WISTÀRIA.....CHINESE WISTARIA. (*W. chinensis*.*)
 6 LABÚRNUM.....GOLDEN CHAIN. (*L. vulgare*.*)
 7 CARAGÀNA.....PEA TREE. (*C. arborescens*.*)
 8 ROBÍNIA.
- 1 a Tree with white flowers; leaves not with bristles or glandular hairs BLACK LOCUST. (*R. pseudacacia*.)
 b Trees or shrubs with pink or purple flowers; leaves with bristly or glandular hairs 2
- 2 a Tree with pinkish flowers; leaves with glandular hairs CLAMMY LOCUST. (*R. viscosa*.*)
 b Shrub with pink or purple flowers; leaves with bristly hairs ROSE ACACIA. (*R. hispida*.*)
- 9 AMÓRPHA.....FALSE INDIGO. (*A. fruticosa*.*)
 10 COLÛTEA.....BLADDER SENNA. (*C. arborescens*.*)
 11 CROTALÀRIA.....RATTLE-BOX. (*C. sagittalis*.)

GERANIACEAE (GERANIUM FAMILY)

- 3 a Leaflets less than 1 in. long, rounded; pods 1-3-jointed, joints oval
SMALL-LEAVED TICK-TREFOIL. (*M. marylandica.*)
 b Leaflets more than 1 in. long; pods 2-6-jointed 4
- 4 a Plant rather densely hairy; leaflets ovate; joints of pods not easily separating
HOARY TICK-TREFOIL. (*M. canescens.*)
 b Plants not hairy or only slightly so; joints of pods easily separating 5
- 5 a Leaflets velvety beneath, broadly ovate; joints of pods half-rounded
VELVET-LEAVED TICK-TREFOIL. (*M. viridiflora.*)
 b Leaflets not velvety beneath, sometimes hairy; joints of pods more or less triangular 6
- 6 a Plants more or less hairy; leaflets hairy beneath..... 7
 b Plants not noticeably hairy excepting the pods..... 8
- 7 a Leaflets oblong-ovate; flowers about 1/4 in. long; racemes loosely-flowered
DILLEN'S TICK-TREFOIL. (*M. dillèni.*)
 b Leaflets oblong-lanceolate; flowers about 1/2 in. long, showy; racemes densely-flowered
CANADIAN TICK-TREFOIL. (*M. canadensis.*)
- 8 a Leaflets oblong-lanceolate; pods 2-6-jointed; flowers about 1/4 in. long.
PANICLED TICK-TREFOIL. (*M. paniculata.*)
 b Leaflets ovate to oblong, pale beneath; pods 3-4-jointed; flowers about 1/2 in. long
SMOOTH TICK-TREFOIL. (*M. laevigata.*)
- 35 GLYCINE.....SOY BEAN. (*G. hispida.**)

16 **GERANIALES. Geranium Order.**

1 **GERANIACEAE. Geranium Family.**

1 **GERANIUM.**

- 1 a Flowers 1 in. or more broad
WILD CRANE'S-BILL. (*G. maculatum.*)
 b Flowers 1/2 in. or less broad 2
- 2 a Flowers pale-pink to white, in compact clusters
CAROLINA CRANE'S-BILL. (*G. carolinianum.*)
 b Flowers purplish or pink, not in compact clusters 3
- 3 a Flowers about 1/2 in. broad; beak of capsule about 1 in. long
HERB ROBERT. (*G. robertianum.*)
 b Flowers about 1/4 in. broad; beak of capsule about 1/2 in. long...
SMALL-FLOWERED CRANE'S-BILL. (*G. pusillum.*)

2 **PELARGONIUM.**

- 1 a Plant usually trailing, with more or less zigzag stem; usually not hairy.
IVY-LEAVED GERANIUM. (*P. peltatum.**)
 b Plants more or less erect 2

OXALIDACEAE (WOOD-SORREL FAMILY)

- 2 a Leaves deeply lobed or pinnatifid
ROSE GERANIUM. (*P. quercifolium*.*)
b Leaves more or less rounded, not deeply lobed or pinnatifid 3
- 3 a 2 upper petals more or less erect, striped, the 3 lower spreading; stalk of each flower jointed
NUTMEG GERANIUM. (*P. odoratissimum*.*)
b Flowers not completely as in a 4
- 4 a Leaves rounded, often variegated or marked with darker colored zone; plant somewhat strong-scented
COMMON GERANIUM. (*P. hortorum*.*)
b Leaves oval to ovate, sometimes rounded; plant not strong-scented PELARGONIUM. (*P. domesticum*.*)

2 *OXALIDACEAE. Wood-sorrel Family.*

1 *OXALIS.*

- 1 a Plant cultivated in pots or in gardens
GARDEN OXALIS. (*O. rubra*.*)
b Plants not cultivated 2
- 2 a Flowers pink or white with pink veins
WOOD-SORREL. (*O. acetosella*.)
b Flowers yellow 3
- 3 a Plant more or less erect, branched above; flower stalks erect or spreading.... TALL SHEEP-SORREL. (*O. cymosa*.)
b Plants more or less prostrate, branched at base; flower stalks usually reflexed at maturity 4
- 4 a Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; capsules $\frac{1}{2}$ - $\frac{3}{4}$ in. long, tapering to apex.. PROCUMBENT SHEEP-SORREL. (*O. corniculata*.)
b Flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad; capsules $\frac{1}{2}$ -1 in. long, short-pointed 5
- 5 a Plant with appressed hairs
UPRIGHT SHEEP-SORREL. (*O. stricta*.)
b Plant with loose, spreading hairs
SLENDER SHEEP-SORREL. (*O. filipes*.)

3 *TROPAEOLACEAE. Nasturtium Family.*

- 1 *TROPAEOLUM*.....NASTURTIIUM. (*T. majus*.*)

4 *LINACEAE. Flax Family.*

1 *LINUM.*

- 1 a Flowers yellow 2
b Flowers not yellow 4
- 2 a Stem and branches angled, sticky
RIDGED YELLOW FLAX. (*L. striatum*.)
b Stem and branches circular, not sticky 3
- 3 a Leaves more or less appressed to the stem
STIFF YELLOW FLAX. (*L. medium*.)
b Leaves spreading from the stem
WILD YELLOW FLAX. (*L. virginianum*.)

RUTACEAE (RUE FAMILY)

- 4 a Flowers red or pink..FLOWERING FLAX. (*L. grandiflorum*.*)
 b Flowers blue or white 5
 5 a Leaves linear; styles and stamens of different lengths
 in different flowers; plant perennial
 PERENNIAL FLAX. (*L. perénne*.*)
 b Leaves lanceolate; styles and stamens not of different
 lengths in different flowers; plant annual
 COMMON FLAX. (*L. usitatissimum*.*)

5 RUTACEAE. Rue Family.

- 1 PHELLODÉNDRON....CHINESE CORK TREE. (*P. amurénse*.*)
 2 XANTHÓXYLUM.....PRICKLY ASH. (*X. americanum*.)
 3 PTELEA.....SHRUBBY TREFOIL. (*P. trifoliata*.)
 4 CÍTRUS.
 1 a Leaves 3-foliolate....TRIFOLIATE ORANGE. (*C. trifoliata*.*)
 b Leaves simple 2
 2 a Leaves 1-2 in. long, lanceolate; fruit flattened-globose,
 orangeTANGERINE. (*C. nobilis*.*)
 b Leaves 2-5 in. long, ovate to oblong 3
 3 a Young branches hairy, greenish; fruit globose, yellow
 GRAPE-FRUIT. (*C. decumana*.*)
 b Young branches not hairy, reddish or greenish 4
 4 a Fruit ovoid to oblong, yellow; leaves oblong to oval
 LEMON. CITRON. (*C. mèdica*.*)
 b Fruit globose, orange; leaves ovate
 ORANGE. (*C. aurantium*.*)
 5 DICTÁMNUS.....GAS PLANT. (*D. álbus*.*)

6 SIMARUBACEAE. Ailanthus Family.

- 1 AILÁNTHUS.....AILANTHUS. (*A. glandulosa*.)

7 POLYGALACEAE. Milkwort Family.

- 1 POLÝGALA.
 1 a Flowers 1-4 together, ½-1 in. long, showy; leaves
 rather ovate.....FRINGED MILKWORT. (*P. paucifolia*.)
 b Flowers not completely as in *a* 2
 2 a Flowers showy, in loosely-flowered racemes 1-4 in.
 longRACEMED MILKWORT. (*P. polýgama*.)
 b Flowers in heads or spikes 3
 3 a Leaves in whorls on the stem 4
 b Leaves alternate on the stem 5
 4 a Spikes oval; stem angled..MARSH MILKWORT. (*P. cruciata*.)
 b Spikes conic; stem circular, not angled
 WHORLED MILKWORT. (*P. verticillata*.)
 5 a Spikes globose to oval; flowers usually red-purple
 PURPLE MILKWORT. (*P. viridescens*.)
 b Spikes oblong; flowers greenish or yellowish-purple
 NUTTALL'S MILKWORT. (*P. nuttallii*.)

EUPHORBIACEAE (SPURGE FAMILY)

8 EUPHORBIACEAE. Spurge Family.

- 1 RÍCINUS.....CASTOR BEAN. (*R. communis*.)
 2 ACALÛPHA.
 1 a Wild plant with green leaves
 THREE-SEEDED MERCURY. (*A. virginica*.)
 b Cultivated plant, usually with variegated leaves
 GARDEN ACALYPHA. (*A. wilkesiana*.)
 3 EUPHÓRRIA.
 1 a Inflorescence subtended by bright red leaves; shrub
 cultivated in pots.....POINSETTIA. (*E. pulcherrima*.)
 b Inflorescence not subtended by red leaves 2
 2 a Leaves $\frac{1}{2}$ -1 in. long, linear; plants clustered; involucre
 cups in numerous, yellowish-green umbels
 CYPRESS SPURGE. (*E. cyparissias*.)
 b Plants not completely as in a 3
 3 a Appendages of involucre white, petal-like, showy; in-
 volucre cups in umbels 4
 b Appendages of involucre not as in a 5
 4 a Leaves 1-2 in. long, green.FLOWERING SPURGE. (*E. corollata*.)
 b Leaves 2-4 in. long, white or the upper ones with white
 marginsSNOW-ON-THE-MOUNTAIN. (*E. marginata*.)
 5 a Capsule about $\frac{1}{2}$ in. in diameter; glands of involucre
 crescent-shaped; plant cultivated in gardens and es-
 capedMYRTLE SPURGE. (*E. láthyris*.)
 b Capsule $\frac{1}{4}$ in. or less in diameter; plants wild 6
 6 a Plants prostrate, hairy 7
 b Plants erect or ascending 8
 7 a Leaves usually blotched; capsule hairy
 MILK PURSLANE. (*E. maculata*.)
 b Leaves not usually blotched; capsule not hairy
 HAIRY SPURGE. (*E. hirsuta*.)
 8 a Leaves toothed, oblique at base
 UPRIGHT SPOTTED SPURGE. (*E. nutans*.)
 b Leaves entire, not oblique at base
 WILD IPECAC. (*E. ipecacuanhae*.)
 4 CODIAÈUM.....CROTON. (*C. variegatum*.)

9 CALLITRICHACEAE. Water Starwort Family.

- 1 CALLÍTRICHE.
 1 a Fruit oval, longer than the styles
 WATER FENNEL. (*C. palustris*.)
 b Fruit obovate, shorter than the styles
 WATER STARWORT. (*C. heterophylla*.)

17 SAPINDALES. Soapberry Order.

1 EMPETRACEAE. Crowberry Family.

- 1 CORÈMA.....BROOM CROWBERRY. (*C. conradii*.)

BUXACEAE (BOX FAMILY)

2 BUXACEAE. Box Family.

1 BUXUS.....BOXWOOD. (*B. sempervirens*.*)

3 LIMNANTHACEAE. False Mermaid Family.

1 FLOÉRKEA.....FALSE MERMAID. (*F. proserpinacoïdes*.)

4 ANACARDIACEAE. Sumac Family.

1 RHÚS.

1 a Leaflets 3; shrubby vinePOISON IVY. (*R. rádicans*.)

b Leaflets 7-31; erect shrubs or small trees 2

2 a Leaflets entire 3

b Leaflets toothed 4

3 a Rachis winged between the leaflets; fruit hairy; in dry placesUPLAND SUMAC. (*R. copallina*.)

b Rachis not winged between the leaflets; fruit not hairy; in swampsPOISON SUMAC. (*R. vérnix*.)

4 a Branches very hairySTAGHORN SUMAC. (*R. hirta*.)

b Branches not hairy, usually glaucous
SMOOTH SUMAC. (*R. glàbra*.)

2 CÓTINUS.....SMOKE TREE. (*C. cotinoides*.*)

5 ILICACEAE. Holly Family.

1 ÌLEX.

1 a Leaves with spiny-toothed margins; fruit red 2

b Leaves not with spiny-toothed margins 3

2 a Flowers and fruit borne on branches of the present year
AMERICAN HOLLY. (*I. opàca*.)

b Flowers and fruit borne on branches of last year's growthEUROPEAN HOLLY. (*I. aquifòlium*.*)

3 a Leaves thick, evergreen, sparingly toothed 4

b Leaves thin, not evergreen, usually toothed all around.. 5

4 a Cultivated plant; leaves ½-1 in. long
JAPANESE HOLLY. (*I. crenàta*.*)

b Wild plant; leaves 1-2 in. long...INKBERRY. (*I. glàbra*.)

5 a Fruit bright red; leaves hairy beneath
BLACK ALDER. (*I. verticillàta*.)

b Fruit orange-red; leaves not usually hairy beneath
SMOOTH WINTERBERRY. (*I. laevigàta*.)

2 ILICIOIDES.....MOUNTAIN HOLLY. (*I. mucronàta*.)

6 CELASTRACEAE. Staff-tree Family.

1 EUÓNYMUS.

1 a Shrub cultivated in tubs; leaves evergreen, usually variegated.....EVERGREEN EUONYMOUS. (*E. japónicus*.*)

b Shrubs not cultivated in tubs; leaves not evergreen.... 2

2 a Branches with 2-4 broad wings of cork; cultivated shrub
WINGED SPINDLE-TREE. (*E. alàtus*.*)

b Branches not with wings of cork 3

ACERACEAE (MAPLE FAMILY)

- 3 a Shrub prostrate, about 1 ft. high; leaves obovate, 1-2 in. long RUNNING STRAWBERRY BUSH. (*E. obovatus*.)
 b Shrubs not completely as in a 4
- 4 a Capsules warty; leaves thick, dark green; flowers greenish; wild shrub. STRAWBERRY BUSH. (*E. americanus*.)
 b Capsules smooth; wild or cultivated shrubs 5
- 5 a Flowers greenish-yellow, 3-7 together; cultivated shrub; leaves usually oblong. SPINDLE-TREE. (*E. europæus*.)
 b Flowers purple, 5-15 together; usually wild shrub; leaves usually ovate. BURNING BUSH. (*E. atropurpureus*.)
- 2 CELÁSTRUS. CLIMBING BITTERSWEET. (*C. scandens*.)

7 STAPHYLÉACEAE. Bladdernut Family.

1 STAPHYLÉA.

- 1 a Leaflets 3; wild species
 AMERICAN BLADDERNUT. (*S. trifolia*.)
 b Leaflets 5-7; cultivated species
 EUROPEAN BLADDERNUT. (*S. pinnata*.)

8 ACERÁCEAE. Maple Family.

1 ÀCER.

- 1 a Leaves pinnately compound. BOX ELDER. (*A. negundo*.)
 b Leaves simple 2
- 2 a Leaves sharply toothed, not lobed, the teeth about ¼ in. long. HORNBEAN MAPLE. (*A. carpinifolium*.)
 b Leaves more or less lobed 3
- 3 a Leaves very deeply 7-11-lobed, the lobes narrow, often cleft, the sinuses extending nearly to the petiole
 JAPANESE MAPLE. (*A. palmatum*.)
 b Leaves not completely as in a 4
- 4 a Leaves nearly circular in outline, 5-9-lobed, the lobes doubly toothed; cultivated species
 ROUND-LEAVED MAPLE. (*A. circinatum*.)
 b Leaves not completely as in a 5
- 5 a Leaves 3-lobed only toward the apex, margin finely toothed all around; bark smooth, green, striped
 STRIPED MAPLE. (*A. pennsylvanicum*.)
 b Leaves and bark not completely as in a 6
- 6 a Leaves with sinuses extending more than half way to the petiole, whitish beneath; bark peeling off in thin patches or flakes SILVER MAPLE. (*A. saccharinum*.)
 b Leaves and bark not completely as in a 7
- 7 a Leaves 3-7-lobed, the lobes entire or the middle one sometimes slightly toothed 8
 b Leaves with lobes more or less toothed or lobed 9

HIPPOCASTANACEAE (BUCKEYE FAMILY)

- 8 *a* Branches corky; leaves 3-5-lobed, the lobes blunt at apex ENGLISH MAPLE. (*A. campéstre*.)
b Branches not corky; leaves 5-7-lobed, the lobes pointed
 COLCHICUM-LEAVED MAPLE. (*A. laëtum*.)
- 9 *a* Shrub; leaves usually 3-lobed, the lobes short, coarsely toothed, hairy beneath; flowers and fruit in racemes
 MOUNTAIN MAPLE. (*A. spicàtum*.)
b Trees; leaves and fruit not completely as in *a* 10
- 10 *a* Leaves usually 3-lobed, sometimes 5-lobed, the lobes toothed; petioles and twigs often red; bark usually smooth and light gray toward top, usually rough only at base RED MAPLE. (*A. rùbrum*.)
b Trees not completely as in *a* 11
- 11 *a* Leaves 3-6 in. long, 3-5-lobed, the lobes many-toothed; petioles often red; cultivated species
 SYCAMORE MAPLE. (*A. pseùdo-plátanus*.)
b Leaves 3-8 in. long, 3-7-lobed, the lobes with 2-8 large teeth 12
- 12 *a* Cultivated species; leaves 4-7 in. broad; milky sap often exuding from cut twig or terminal bud
 NORWAY MAPLE. (*A. platanoides*.)
b Wild species; leaves 3-6 in. broad; no milky sap as in *a*
 SUGAR MAPLE. (*A. sàccharum*.)

9 *HIPPOCASTANACEAE*. Buckeye Family.

1 *AÉSCULUS*.

- 1 *a* Flowers white, or whitish with spots 2
b Flowers not white, usually yellow, red or purple..... 3
- 2 *a* Tree; flowers mottled with red or yellow spots
 HORSE-CHESTNUT. (*A. hippocàstanum*.)
b Shrub; flowers pure white
 SMALL BUCKEYE. (*A. parvisfòra*.)
- 3 *a* Flowers yellow or yellowish 4
b Flowers usually purple or some shade of red 5
- 4 *a* Stamens longer than the petals; fruit rough when young
 OHIO BUCKEYE. (*A. glàbra*.)
b Stamens not longer than the petals; fruit smooth when young YELLOW BUCKEYE. (*A. octàndra*.)
- 5 *a* Flowers flesh-colored to scarlet; fruit prickly
 SCARLET BUCKEYE. (*A. càrnea*.)
b Flowers purple to red; fruit smooth
 RED BUCKEYE. (*A. pàvia*.)

10 *SAPINDACEAE*. Soapberry Family.

- 1 *CARDIOSPÉRMUM*.....BALLOON VINE. (*C. halicàcabum*.)
 2 *KOELREUTÈRIA*.....VARNISH TREE. (*K. paniculàta*.)

TILIACEAE (LINDEN FAMILY)

19 MALVALES. Mallow Order.

1 TILIACEAE. Linden Family.

1 TÍLIA.

- 1 a Leaves white-woolly beneath
SILVER LINDEN. (*T. tomentosa*.)
b Leaves not white-woolly beneath 2
2 a Leaves usually with scattered hairs on the veins beneath;
cultivated species ... EUROPEAN LINDEN. (*T. vulgaris*.)
b Leaves not usually with scattered hairs as in a; native
species BASSWOOD. (*T. americana*.)

2 MALVACEAE. Mallow Family.

1 GOSSÝPIUM.....COTTON. (*G. herbaceum*.)

2 HIBÍSCUS.

- 1 a Wild species; leaves velvety beneath
SWAMP ROSE MALLOW. (*H. moscheutos*.)
b Cultivated species; leaves not velvety beneath
ROSE-OF-SHARON. (*H. syriacus*.)

3 LAVATÈRA.....LAVATERA. (*L. trimèstris*.)

4 ALTHAËA.

- 1 a Wild plant growing on salt marshes; leaves velvety
MARSH-MALLOW. (*A. officinalis*.)
b Cultivated plant; leaves not velvety
HOLLYHOCK. (*A. rosea*.)

5 MÁLVA.

- 1 a Plant prostrate; flowers 1/4-1/2 in. broad
COMMON MALLOW. (*M. rotundifolia*.)
b Plants erect; flowers 1-2 in. broad 2
2 a Stem leaves deeply incised..MUSK MALLOW. (*M. moschata*.)
b Stem leaves not incised..HIGH MALLOW. (*M. sylvestris*.)

6 ABÛTILON.

- 1 a Wild herb with velvety leaves..VELVET LEAF. (*A. abùtilon*.)
b Shrubs cultivated in pots 2
2 a Leaves 2-6 in. long, 3-5-lobed
STRIPED ABUTILON. (*A. striatum*.)
b Leaves 1-3 in. long, not lobed
NARROW-FLOWERED ABUTILON. (*A. megapotamicum*.)

7 SÌDA.....PRICKLY SIDA. (*S. spinosa*.)

20 PARIETALES. Rock-rose Order.

1 THEACEAE. Tea Family.

1 ACTINÍDIA.....ACTINIDIA. (*A. arguta*.)

2 CAMÈLLIA.

- 1 a Flowers 2-5 in. broad, sessile; cultivated for the flowers
CAMELLIA. (*C. japonica*.)
b Flowers 1-2 in. broad, stalked; not cultivated for the
flowersTEA. (*C. thea*.)

HYPERICACEAE (ST. JOHN'S-WORT FAMILY)

3 STUARTIA.....STUARTIA. (*S. pentágyna*.*)

2 HYPERICACEAE. *St. John's-wort Family.*

1 SARÒTHRA.....ORANGE-GRASS. (*S. gentianoïdes*.)

2 TRIADÈNUM...MARSH ST. JOHN'S-WORT. (*T. virginicum*.)

3 ÁSCYRUM.....ST. ANDREW'S CROSS. (*A. hypericoïdes*.)

4 HYPÉRICUM.

1 a Flowers $\frac{1}{4}$ in. or less broad, orange-yellow 2

b Flowers more than $\frac{1}{4}$ in. broad, yellow 3

2 a Leaves ovate to oblong, 5-veined at base

SMALL-FLOWERED ST. JOHN'S-WORT. (*H. mutilum*.)

b Leaves linear, 3-veined at base

CANADIAN ST. JOHN'S-WORT. (*H. canadense*.)

3 a Average leaf $\frac{1}{2}$ - $\frac{3}{4}$ in. long; flowers $\frac{3}{4}$ -1 in. broad

COMMON ST. JOHN'S-WORT. (*H. perforatum*.)

b Average leaf 1-3 in. long 4

4 a Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; sepals ovate; ovary 3-loculed

SPOTTED ST. JOHN'S-WORT. (*H. maculatum*.)

b Flowers $\frac{1}{2}$ -1 in. broad; sepals lanceolate; ovary 1-

loculedCREEPING ST. JOHN'S-WORT. (*H. adpressum*.)

3 CISTACEAE. *Rock-rose Family.*

1 HUDSONIA.

1 a Plant green; flowers on stalks about $\frac{1}{2}$ in. long

HEATH-LIKE HUDSONIA. (*H. ericoïdes*.)

b Plant hoary with gray hairs; flowers nearly sessile

WOOLLY HUDSONIA. (*H. tomentosa*.)

2 HELIÁNTHÈMUM.

1 a Plant cultivated in gardens..ROCK-ROSE. (*H. chamaecistus*.*)

b Plants not cultivated in gardens 2

2 a Flowers 5-12 together in a terminal cluster

HOARY FROSTWEED. (*H. majus*.)

b Flowers solitary or 2 together

LONG-BRANCHED FROSTWEED. (*H. canadense*.)

3 LÈCHEA.

1 a Plant not very hairy; all leaves narrowly linear

NARROW-LEAVED PIN-WEED. (*L. tenuifolia*.)

b Plants noticeably hairy; basal leaves oblong to ovate.. 2

2 a Outer sepals shorter than the inner; plant branched at baseBEECH PIN-WEED. (*L. maritima*.)

b Outer sepals not shorter than the inner; plants branched only toward top 3

3 a Outer sepals longer than the inner; leaves $\frac{3}{4}$ in. or less longTHYME-LEAVED PIN-WEED. (*L. minor*.)

b Outer sepals about equalling the inner; leaves $\frac{3}{4}$ in. or more longHAIRY PIN-WEED. (*L. villosa*.)

4 TAMARICACEAE. *Tamarix Family.*

1 TÁMARIX.....FRENCH TAMARIX. (*T. gallica*.*)

VIOLACEAE (VIOLET FAMILY)

5 VIOLACEAE. Violet Family.

- 1 VIOLA.
- 1 *a* Leaves all basal 2
b Plants with stem leaves, and flowers in the axils.... 14
- 2 *a* Part or all of leaves deeply lobed or cleft, not merely incised at base 3
b Leaves not deeply lobed or cleft, sometimes incised at base 5
- 3 *a* Plant hairy; lobes of leaves toothed or cleft
EARLY BLUE VIOLET. (*V. palmata*.)
b Plants not noticeably hairy; lobes of leaves linear.... 4
- 4 *a* Petals bearded or hairy COAST VIOLET. (*V. brittoniana*.)
b Petals not bearded or hairy
BIRD'S-FOOT VIOLET. (*V. pedata*.)
- 5 *a* Flowers white with purple veins 6
b Flowers some shade of blue or violet 8
- 6 *a* Leaves broadly heart-shaped or rounded; flowers usually fragrant SWEET WHITE VIOLET. (*V. blanda*.)
b Leaves ovate to lanceolate, not heart-shaped at base 7
- 7 *a* Leaves ovate to oblong
PRIMROSE-LEAVED VIOLET. (*V. primulaefolia*.)
b Leaves lanceolate... LANCE-LEAVED VIOLET. (*V. lanceolata*.)
- 8 *a* Flowers fragrant; stolons present; plant cultivated and escaped ENGLISH VIOLET. (*V. odorata*.)
b Flowers not fragrant; stolons not present 9
- 9 *a* Leaves heart-shaped, often broader than long, not incised at base 10
b Leaves lanceolate to ovate or arrow-shaped, usually incised at base 13
- 10 *a* Leaves narrowly heart-shaped, the base of blade spreading at right angles to petiole; white base of flower conspicuous.... THIN-LEAVED WOOD VIOLET. (*V. obliqua*.)
b Leaves heart-shaped to ovate, the base of blade somewhat folded or hood-shaped 11
- 11 *a* Plant growing in wet places and swamps; flowers often darker toward the base
MARSH BLUE VIOLET. (*V. cucullata*.)
b Plants growing in moist woods and meadows, not in swamps 12
- 12 *a* Flowers deep violet-purple; stalks usually 2 in. or less long in early spring.. EARLY BLUE VIOLET. (*V. palmata*.)
b Flowers violet; stalks usually 2 in. or more long
MEADOW BLUE VIOLET. (*V. papilionacea*.)
- 13 *a* Plant hairy; leaves rather ovate
OVATE-LEAVED VIOLET. (*V. fimbriatula*.)
b Plant not hairy; leaves lanceolate to arrow-shaped
ARROW-LEAVED VIOLET. (*V. sagittata*.)

PASSIFLORACEAE (PASSION-FLOWER FAMILY)

- 14 *a* Flowers yellow 15
b Flowers not yellow except in cultivated forms 16
- 15 *a* Stipules ovate; plant densely hairy
 HAIRY YELLOW VIOLET. (*V. pubescens.*)
b Stipules lanceolate; plant not hairy or sparingly so
 SMOOTH YELLOW VIOLET. (*V. scabriuscula.*)
- 16 *a* Flowers usually 1 in. or more broad; plants cultivated 17
b Flowers usually ¾ in. or less broad; rarely cultivated 18
- 17 *a* Spur at least half as long as petal
 HORNED VIOLET. (*V. cornuta.**)
b Spur less than a fourth as long as petal
 PANSY. HEART'S-EASE. (*V. tricolor.**)
- 18 *a* Flowers blue or violet; spur elongated 19
b Flowers whitish or tinged with violet on the outside.. 20
- 19 *a* Spur about ½ in. long, usually as long as petal
 LONG-SPURRED VIOLET. (*V. rostrata.*)
b Spur about ¼ in. long, about half as long as petal
 AMERICAN DOG VIOLET. (*V. conspersa.*)
- 20 *a* Stipules entireCANADA VIOLET. (*V. canadensis.*)
b Stipules toothedSTRIPED VIOLET. (*V. striata.*)
- 2 CUBÈLIUM.....GREEN VIOLET. (*V. concolor.*)

7 *PASSIFLORACEAE. Passion-flower Family.*

1 *PASSIFLORA.*

- 1 *a* Leaves deeply 5-7-lobed
 COMMON PASSION-FLOWER. (*P. caerulea.**)
b Leaves only slightly 3-lobed
 WHITE PASSION-FLOWER. (*P. gracilis.**)

8 *BEGONIACEAE. Begonia Family.*

1 *BEGONIA.*

- 1 *a* Leaves all basal or nearly so 2
b Leaves alternate on an elongated stem 3
- 2 *a* Leaves lobed or incised, without white markings on
 upper surface.....TUBEROUS BEGONIA. (*B. vèitchii.**)
b Leaves with toothed or wavy margins, variegated with
 white markings on upper surface
 ORNAMENTAL-LEAVED BEGONIA. (*B. réx.**)
- 3 *a* Leaves ovate or rounded, usually with red petiole and
 midrib. WINTER-FLOWERING BEGONIA. (*B. semperflòrens.**)
b Leaves heart-shaped, usually green throughout
 SUMMER-FLOWERING BEGONIA. (*B. gracilis.**)

CACTACEAE (CACTUS FAMILY)

21 OPUNTIALES. Cactus Order.

1 CACTACEAE. Cactus Family.

1 CÈREUS.

1 a Stem 8-12 ribbed or angled; flowers 2-3 in. long, crimson
RAT-TAIL CACTUS. (*C. flagelliformis*.*)

b Stem 3-7-angled; flowers 4-7 in. long, usually white
NIGHT-BLOOMING CEREUS. (*C. nycitælus*.*)

2 OPÚNTIA.....PRICKLY PEAR. (*O. opúntia*.*)

3 EPIPHÝLLUM.....CHRISTMAS CACTUS. (*E. truncatum*.*)

22 THYMELEALES. Mezereon Order.

1 THYMELEACEAE. Mezereon Family.

1 DÁPHNE.....SPURGE LAUREL. (*D. mezereum*.*)

2 DÍRCA.....MOOSEWOOD. (*D. palústris*.)

2 ELAEAGNACEAE. Oleaster Family.

1 LEPARGYRÆA.

1 a Leaves green above, silvery beneath
CANADIAN BUFFALO-BERRY. (*L. canadensis*.*)

b Leaves silvery-scurfy on both sides
BUFFALO-BERRY. (*L. argentea*.*)

2 ELAEÁGNUS.....OLEASTER. (*E. angustifolia*.*)

3 HIPPOPHÆA.....SEA BUCKTHORN. (*H. rhamnoides*.*)

23 MYRTALES. Myrtle Order.

1 LYTHRACEAE. Loosestrife Family.

1 ROTALA.....ROOTALA. (*R. ramòsior*.)

2 DÉCODON.....SWAMP LOOSESTRIFE. (*D. verticillatus*.)

3 LÝTHRUM.....SPIKED LOOSESTRIFE. (*L. salicaria*.*)

4 PARSÓNSIA.

1 a Plant cultivated; flowers about 1 in. long, scarlet
CIGAR PLANT. (*P. ignea*.*)

b Plant not cultivated; flowers about ¼ in. long, purple
BLUE WAX-WEED. (*P. petiolata*.)

2 MELASTOMACEAE. Meadow Beauty Family.

1 RHÉXIA.....MEADOW BEAUTY. (*R. virginica*.)

3 ONAGRACEAE. Evening Primrose Family.

1 ISNÁRDIA.....MARSH PURSLANE. (*I. palústris*.)

2 LUDWÍGIA.

1 a Flowers about ¼ in. broad, greenish; capsule globose
GLOBE-FRUITED LUDWIGIA. (*L. sphaerocarpa*.)

b Flowers ½-¾ in. broad, yellowish; capsule 4-angled
SEED-BOX. (*L. alternifolium*.)

3 CHAMAENÈRION....GREAT FIRE-WEED. (*C. angustifolium*.)

ARALIACEAE (GINSENG FAMILY)

- 4 **EPILOBIUM.**
 1 *a* Leaves linear, entire
 LINEAR-LEAVED WILLOW-HERB. (*E. lineàre.*)
b Leaves lanceolate, toothed
 PURPLE-LEAVED WILLOW-HERB. (*E. coloràtum.*)
- 5 **ÓNAGRA**.....EVENING PRIMROSE. (*O. biënnis.*)
- 6 **KNEÍFFIA.**
 1 *a* Capsule oblong, sessile or short-stalked, prominently wingedCOMMON SUNDROP. (*K. fruticòsa.*)
b Capsule obovoid or club-shaped 2
- 2 *a* Capsule sessile or very short-stalked, slightly winged
 SMALL SUNDROP. (*K. púmila.*)
b Capsule stalked, prominently winged 3
- 3 *a* Capsule shorter than the stalk, hairy
 LONG-STEMMED SUNDROP. (*K. longipedicellàta.*)
b Capsule longer than the stalk, sometimes hairy
 NARROW-LEAVED SUNDROP. (*K. lineàris.*)
- 7 **CLÁRKIA.**
 1 *a* Petals deeply lobedCLARKIA. (*C. pulchélla.**)
b Petals entire; flowers usually double
 DOUBLE-FLOWERED CLARKIA. (*C. élegans.**)
- 8 **GODÈTIA**.....GODETIA. (*G. amòdna.**)
- 9 **FÛSCHIA**.....FUSCHIA. (*F. magellànica.**)
- 10 **GAÛRA**.....GAURA. (*G. biënnis.**)
- 11 **CIRCAËA**.....ENCHANTER'S NIGHTSHADE. (*C. lutetiàna.*)

4 HALORAGIDÁCEAE. Water Milfoil Family.

- 1 **PROSERPINÁCA**.....MERMAID-WEED. (*P. palústris.*)
- 2 **MYRIOPHÝLLUM.**
 1 *a* Spike 1-3 in. long, not leafy
 SPIKED WATER MILFOIL. (*M. spicàtum.*)
b Spike 4-16 in. long, leafy
 VARIOUS-LEAVED WATER MILFOIL. (*M. heterophýllum.*)

24 UMBELLÁLES. Carrot Order.

1 ARALIÁCEAE. Ginseng Family.

- 1 **ARÀLIA.**
 1 *a* Shrub or tree usually with spines
 HERCULES CLUB. (*A. spinòsa.*)
b Plants more or less herbaceous, without spines 2
- 2 *a* Plant more or less covered with bristly hairs; leaflets 1-2 in. long.....BRISTLY SARSAPARILLA. (*A. hispida.*)
b Plants not with bristly hairs; leaflets 2-6 in. long.... 3
- 3 *a* Herb 3-6 ft. high with numerous branches
 SPIKENARD. (*A. racemòsa.*)
b Herb 1-3 ft. high, not branched, usually with 1 de-compound leaf.....WILD SARSAPARILLA. (*A. nudicaúlis.*)

UMBELLIFERAE (CARROT FAMILY)

2 PANAX.

- 1 a Plant 8-20 in. high; leaflets 2-5 in. long, stalked
GINSENG. (*P. quinquefolium*.)
 b Plant 3-8 in. high; leaflets 1-2 in. long, sessile
THREE-LEAVED GINSENG. (*P. trifolium*.)
 3 HÉDERA.....ENGLISH IVY. (*H. hélix*.)*

2 UMBELLIFERAE. Carrot Family.

- 1 a All leaves simple, not divided 2
 b All or some of leaves pinnately divided or compound.. 4
 2 a Flowers yellowish; leaves sessile, clasping
6. *Bupleurum*. p 103
 b Flowers white; leaves not as in a 3
 3 a Leaves rounded, palmately veined 1. *Hydrocotyle*. p 102
 b Leaves reduced to linear petioles.. 16. *Lilaeopsis*. p 103
 4 a Flowers yellow, yellowish, or purple 5
 b Flowers white or whitish, sometimes a few in the umbel
 purplish 10
 5 a Leaves finely dissected into linear segments; fruit linear-
 oblong; cultivated plant 17. *Foeniculum*. p 103
 b Leaves not finely dissected into linear segments 6
 6 a Leaves usually curled; flowers greenish-yellow; culti-
 vated plant 7. *Petroselinum*. p 103
 b Leaves not curled; flowers yellow or purple 7
 7 a Fruit or ovary covered with bristles.. 2. *Sanicula*. p 102
 b Fruit or ovary not covered with bristles 8
 8 a Plant cultivated for the fleshy root, sometimes escaped;
 fruit much flattened 20. *Pastinaca*. p 103
 b Plants not cultivated; fruit slightly or not at all flattened 9
 9 a Fruit conspicuously winged, not flattened
18. *Thaspium*. p 103
 b Fruit not winged, somewhat flattened.. 8. *Zizia*. p 103
 10 a Plant with bulblets in the axils of the upper leaves,
 rarely fruiting 9. *Cicuta*. p 103
 b Plants not with bulblets in the axils of upper leaves.. 11
 11 a Fruit covered with hooked bristles; umbels few-flowered
2. *Sanicula*. p 102
 b Fruit not covered with hooked bristles 12
 12 a Fruit oblong or linear, covered with straight bristles
 or coarse hairs 13
 b Fruit with or without fine hairs, not bristly 14
 13 a Mature fruit about ½ in. long, linear; umbels not con-
 cave in fruit 4. *Washingtonia*. p 103
 b Mature fruit ¼ in. or less long, oblong; umbels concave
 in fruit 22. *Daucus*. p 103
 14 a Leaves finely dissected into linear segments 15
 b Leaves not finely dissected into linear segments 17

UMBELLIFERAE (CARROT FAMILY)

- 15 a Plant growing in salt marshes; fruit ovate
 15. *Ptilimnium*. p 193
 b Plants not growing in salt marshes 16
- 16 a Fruit globose; plant cultivated for the fruit
 13. *Coriandrum*. p 193
 b Fruit oblong, slightly curved; plant in waste places,
 sometimes cultivated for the fruit.. 12. *Carum*. p 193
- 17 a Stout plant 4-8 ft. high; leaves often 1-2 ft. broad;
 fruit $\frac{1}{4}$ - $\frac{1}{2}$ in. long, oval to obovate, flattened
 21. *Heracleum*. p 193
 b Plants not completely as in a 18
- 18 a Plant cultivated for the succulent petioles
 23. *Apium*. p 193
 b Plants not completely as in a 19
- 19 a Leaves 3-foliolate; fruit about $\frac{1}{4}$ in. long, oblong, often
 curved, narrowed at each end.... 11. *Deringa*. p 193
 b Plants not completely as in a 20
- 20 a Fruit about $\frac{1}{4}$ in. long, broadly oval with double-
 winged margin; leaflets 1-2 in. long 19. *Angelica*. p 193
 b Plants not completely as in a 21
- 21 a Fruit linear-oblong 3. *Chaerophyllum*. p 193
 b Fruit oval or ovate 22
- 22 a Stem deeply furrowed, green; leaflets linear or lanceo-
 late 14. *Sium*. p 193
 b Stems not furrowed, often purple spotted 23
- 23 a Leaflets linear to lanceolate; calyx teeth prominent
 9. *Cicuta*. p 193
 b Leaflets ovate in outline; calyx teeth wanting 24
- 24 a Stem purple-spotted; ribs of fruit wrinkled
 5. *Conium*. p 193
 b Stem not purple-spotted; ribs of fruit not wrinkled
 10. *Aegopodium*. p 193

1 HYDROCÓTYLE.

- 1 a Leaves with petiole attached to under side of blade;
 umbels many-flowered
 MANY-FLOWERED MARSH PENNYWORT. (*H. umbellata*.)
 b Leaves with petiole attached to margin of blade; umbels
 1-5-flowered
 AMERICAN MARSH PENNYWORT. (*H. americana*.)

2 SANÍCULA.

- 1 a In fruit styles longer than the bristles 2
 b In fruit styles shorter than the bristles 3
- 2 a Mature fruit $\frac{1}{4}$ in. long, sessile; flowers greenish-white
 BLACK SNAKE-ROOT. (*S. marylandica*.)
 b Mature fruit less than $\frac{1}{4}$ in. long, very short-stalked;
 flowers yellow.... CLUSTERED SNAKE-ROOT. (*S. gregaria*.)

CORNACEAE (DOGWOOD FAMILY)

- 3 a Fruit about $\frac{1}{8}$ in. long; leaf-segments wedge-shaped to oblong. SHORT-STYLED SNAKE-ROOT. (*S. canadense*.)
 b Fruit about $\frac{1}{4}$ in. or more long; leaf-segments broadly ovate LARGE-FRUITED SNAKE-ROOT. (*S. trifoliata*.)
- 3 CHAEROPHYLLUM. SPREADING CHERVIL. (*C. procumbens*.)
 4 WASHINGTONIA. WOOLLY SWEET-CICELY. (*W. claytoni*.)
 5 CONIUM. POISON HEMLOCK. (*C. maculatum*.)
 6 BUPLEURUM. MODESTY. (*B. rotundifolium*.)
 7 PETROSELINUM. GARDEN PARSLEY. (*P. petroselinum*.)
 8 ZIZIA.
- 1 a Basal leaves round-heart-shaped, simple; fruit oval
 HEART-LEAVED ALEXANDER. (*Z. cordata*.)
 b All leaves ternately compound; fruit oblong
 GOLDEN MEADOW PARSNIP. (*Z. aurea*.)
- 9 CICTUTA.
- 1 a Plant with bulblets in the axils of the leaves; leaflets linear. BULB-BEARING WATER HEMLOCK. (*C. bulbifera*.)
 b Plant not with bulblets in the axils of the leaves; leaflets lanceolate to oblong. WATER HEMLOCK. (*C. maculata*.)
- 10 AEGOPODIUM. GOUTWEED. (*A. podagraria*.)
 11 DERINGA. HONEWORT. (*D. canadensis*.)
 12 CARUM. CARAWAY. (*C. carui*.)
 13 CORIANDRUM. CORIANDER. (*C. sativum*.)
 14 Sium. WATER PARSNIP. (*S. cicutaefolium*.)
 15 PTILIMNIUM. MOCK BISHOP'S-WEED. (*P. capillaceum*.)
 16 LILAEOPSIS. LILAEOPSIS. (*L. lineata*.)
 17 FOENICULUM. GARDEN FENNEL. (*F. foeniculum*.)
 18 THASPIUM.
- 1 a Stem leaves ternately compound, regularly toothed; basal leaves usually simple, heart-shaped
 MEADOW PARSNIP. (*T. trifoliatum*.)
 b All leaves usually bi-ternately compound, irregularly toothed
 HAIRY-JOINTED MEADOW PARSNIP. (*T. barbinode*.)
- 19 ANGELICA. HAIRY ANGELICA. (*A. villosa*.)
 20 PASTINACA. PARSNIP. (*P. sativa*.)
 21 HERACLÆUM. COW PARSNIP. (*H. lanatum*.)
 22 DAUCUS. CARROT. (*D. carota*.)
 23 APIUM. GARDEN CELERY. (*A. graveolens*.)
- 3 CORNACEAE. Dogwood Family.
- 1 CORNUS.
- 1 a Plant 3-9 in. high, woody only at the base
 DWARF CORNEL. (*C. canadensis*.)
 b Plants 3 ft. or more high 2
- 2 a Flowers yellow; cultivated shrub; fruit $\frac{1}{2}$ in. long, scarlet CORNELIAN CHERRY. (*C. mas*.)
 b Flowers not yellow, usually white 3

PYROLACEAE (WINTERGREEN FAMILY)

- 3 a Leaves alternate, often clustered near the ends of branches...ALTERNATE-LEAVED CORNELL. (*C. alternifolia*)
 b Leaves opposite 4
- 4 a Flowers in heads subtended by large colored bracts; small tree; fruit red
 FLOWERING DOGWOOD. (*C. florida*)
 b Flowers in cymes 5
- 5 a Leaves broadly oval, abruptly pointed at apex; twigs usually warty....ROUND-LEAVED CORNELL. (*C. circinata*)
 b Leaves ovate to lanceolate; twigs not warty 6
- 6 a Leaves lanceolate to ovate-lanceolate; older twigs gray
 PANICLED CORNELL. (*C. candidissima*)
 b Leaves ovate to ovate-lanceolate; twigs purplish or reddish 7
- 7 a Fruit light blue; twigs purplish; cymes many-flowered
 KINNIKINNIK. (*C. amomum*)
 b Fruit whitish; twigs reddish; cymes loosely-flowered
 RED-OSIER. (*C. stolonifera*)
- 2 AUCUBA.....AUCUBA. (*A. japonica**)
- 3 NYSSA.....SOUR GUM. (*N. sylvatica*)

SERIES 2. GAMOPETALÆ

1 ERICALES. Heath Order.

1 CLETHRACEAE. White Alder Family.

- 1 CLÉTHRA.....SWEET PEPPER-BUSH. (*C. alnifolia*)

2 PYROLACEAE. Wintergreen Family.

1 PÝROLA.

- 1 a Flowers in 1-sided racemes; style straight
 ONE-SIDED WINTERGREEN. (*P. secunda*)
 b Flowers not in 1-sided racemes; style bent 2
- 2 a Leaves ½-1 in. long; flowers greenish-white; calyx lobes ovate
 GREENISH-FLOWERED WINTERGREEN. (*P. chlorantha*)
 b Leaves 1-3 in. long 3
- 3 a Leaves comparatively thick, shining above; calyx lobes oblong to lanceolate
 ROUND-LEAVED WINTERGREEN. (*P. rotundifolia*)
 b Leaves comparatively thin, dull above; calyx lobes ovateSHIN-LEAF. (*P. elliptica*)
- 2 MONÈSES.....ONE-FLOWERED WINTERGREEN. (*M. uniflora*)
- 3 CHIMÁPHILA.
- 1 a Leaves spotted with white patches
 SPOTTED WINTERGREEN. (*C. maculata*)
 b Leaves not spotted.....PRINCE'S PINE. (*C. umbellata*)

ERICACEAE (HEATH FAMILY)

3 MONOTROPACEAE. Indian Pipe Family.

- 1 MONÓTROPA.....INDIAN PIPE. (*M. uniflora*.)
 2 HYPÓPITYS.....PINE-SAP. (*H. americana*.)

4 ERICACEAE. Heath Family.

- 1 LÈDUM.....LABRADOR TEA. (*L. groenlandicum*.)
 2 RHODODÉNDRON.
 1 *a* Leaves tapering at the base.. GREAT LAUREL. (*R. maximum*.)
b Leaves rounded at the base
 GARDEN RHODODENDRON. (*R. catawbiense*.)

3 AZÀLEA.

- 1 *a* Leaves thick, nearly evergreen; often cultivated in pots
 CHINESE AZALEA. (*A. indicum*.)
b Leaves thin, deciduous; plants not cultivated in pots.. 2
 2 *a* Flowers white, covered on the outside with sticky hairs
 CLAMMY AZALEA. (*A. viscosa*.)
b Flowers not covered with sticky hairs 3
 3 *a* Flowers pink to whitish; common wild species
 PINK AZALEA. (*A. nudiflora*.)
b Flowers usually red to orange-yellow 4
 4 *a* Flowers orange to reddish; leaves very hairy beneath
 FLAME AZALEA. (*A. lutea*.)
b Flowers yellow to red, various; leaves not very hairy
 beneathGARDEN AZALEA. (*A. sinensis*.)

4 RHODÒRA.....RHODORA. (*R. canadensis*.)

5 KÁLMIA.

- 1 *a* Flowers white to pink; leaves 2-5 in. long, usually oval
 MOUNTAIN LAUREL. (*K. latifolia*.)
b Flowers purplish to reddish; leaves 1/2-3 in. long,
 usually oblong to linear 2
 2 *a* Leaves glaucous beneath.....PALE LAUREL. (*K. glauca*.)
b Leaves not glaucous beneath
 SHEEP LAUREL. (*K. angustifolia*.)

6 LEUCÓTHOE.

- 1 *a* Leaves thin, deciduous; wild species
 SWAMP FETTER BUSH. (*L. racemosa*.)
b Leaves thick, evergreen; cultivated species
 CATESBY'S LEUCOTHOE. (*L. catesbaei*.)

7 ANDRÓMEDA.....WILD ROSEMARY. (*A. polifolia*.)

8 PIÈRIS.....STAGGER-BUSH. (*P. mariana*.)

9 XOLÍSMÀ.....RIVET ANDROMEDA. (*X. ligustrina*.)

10 CHAMAEDÁPHNE.....LEATHER-LEAF. (*C. calyculata*.)

11 ERÌCA.....HEATH. (*E. carnea*.)

12 CALLÛNA.....HEATHER. (*C. vulgaris*.)

13 EPIGAËA.....TRAILING ARBUTUS. (*E. repens*.)

14 GAULTHÈRIA..CREEPING WINTERGREEN. (*G. procumbens*.)

15 ARCTOSTÁPHYLOS.....BEARBERRY. (*A. uva-ursi*.)

VACCINIACEAE (HUCKLEBERRY FAMILY)

5 VACCINIACEAE. Huckleberry Family.

- 1 GAYLUSSACIA.
 1 a Leaves pale-glaucous beneath; flowers in loose racemes;
 fruit blueBLUE TANGLEBERRY. (*G. frondosa*.)
 b Leaves green on both sides; fruit black 2
 2 a Bract subtending the flower shorter than the flower-stalk;
 flowers in 1-sided racemes
 BLACK HUCKLEBERRY. (*G. resinosa*.)
 b Bract subtending the flower usually longer than the
 flower-stalk; flowers in loose racemes
 DWARF HUCKLEBERRY. (*G. dumosa*.)
 2 POLYCÒDIUM.....DEERBERRY. (*P. stamineum*.)
 3 VACCINIUM.
 1 a Leaves densely hairy on both sides when young; shrub
 ½-2 ft. high; branchlets hairy
 CANADA BLUEBERRY. (*V. canadense*.)
 b Leaves not hairy or hairy only on the under side..... 2
 2 a Shrubs usually more than 3 ft. high; leaves often hairy
 beneath 3
 b Shrubs usually less than 3 ft. high; leaves not hairy
 beneath 4
 3 a Leaves half grown when flowers are mature, not usu-
 ally hairy beneath when mature; fruit blue when ripe
 HIGH-BUSH BLUEBERRY. (*V. corymbosum*.)
 b Leaves appearing with the flowers, hairy beneath when
 mature; fruit black when ripe
 BLACK BLUEBERRY. (*V. atrococcum*.)
 4 a Flowers on leafless branches; leaves obovate to oval,
 usually entire.....LOW-BUSH BLUEBERRY. (*V. vacillans*.)
 b Flowers on leafy branches; leaves oblong to lanceolate,
 usually toothed.DWARF BLUEBERRY. (*V. pennsylvanicum*.)
 4 OXYCÓCCUS.
 1 a Leaves ovate, pointed; berry globose
 SMALL CRANBERRY. (*O. oxycoccus*.)
 b Leaves oval to oblong, blunt at apex; berry ovoid to
 oblongLARGE CRANBERRY. (*O. macrocarpus*.)

6 EPACRIDACEAE. Epacris Family.

- 1 ÉPACRIS.....EPACRIS. (*E. impressa*.)*

7 DIAPENSIACEAE. Diapensia Family.

- 1 PYXIDANTHÈRA.....FLOWERING MOSS. (*P. barbulate*.)
 2 GÀLAX.....GALAX. (*G. apylla*.)*

2 PRIMULALES. Primrose Order.

1 MYRSINACEAE. Myrsina Family.

- 1 ARDÍZIA.....ARDESIA. (*A. crenulate*.)*

PRIMULACEAE (PRIMROSE FAMILY)

2 PRIMULACEAE. Primrose Family.

- 1 PRIMULA.
- 1 a Leaves incised or deeply lobed at least $\frac{1}{2}$ distance to midrib CHINESE PRIMROSE. (*P. sinensis*.)*
- b Leaves not lobed as in *a* 2
- 2 a Flowering stalk with successive whorls of flowers 3
- b Flowering stalk with a terminal umbel or head of flowers 4
- 3 a Leaves 1-2 in. long; flowers about $\frac{1}{2}$ in. broad
BABY PRIMROSE. (*P. forbesi*.)*
- b Leaves 2-8 in. long; flowers about 1 in. broad
JAPANESE PRIMROSE. (*P. japonica*.)*
- 4 a Flowers in a head; each flower sessile
HIMALAYAN PRIMROSE. (*P. denticulata*.)*
- b Flowers in umbels; each flower stalked 5
- 5 a Flowering stalk less than 2 in. high, or wanting; flowers no higher than the leaves
COMMON PRIMROSE. (*P. vulgaris*.)*
- b Flowering stalk 2 in. or more high 6
- 6 a Umbel 1-sided; leaves with winged petioles
ENGLISH COWSLIP. (*P. officinalis*.)*
- b Umbel not 1-sided; petioles not usually winged 7
- 7 a Calyx wide open, loose. SPREADING PRIMROSE. (*P. obconica*.)*
- b Calyx rather closely enveloping the corolla tube. 8
- 8 a Leaves somewhat notched, ovate-oblong to heart-shaped
FRINGED PRIMROSE. (*P. cortusoides*.)*
- b Leaves toothed, not notched, oblong to lanceolate
POLYANTHUS. (*P. polyantha*.)*
- 2 DODECATHÉON.....SHOOTING STAR. (*D. meadia*.)*
- 3 CÝCLAMEN.....CYCLAMEN. (*C. latifolium*.)*
- 4 HOTTÓNIA.....AMERICAN FEATHERFOIL. (*H. inflata*.)
- 5 SÁMOLUS.....WATER PIMPERNEL. (*S. floribundus*.)
- 6 LYSIMÁCHIA.
- 1 a Plant prostrate; leaves rounded or broadly ovate
MONEYWORT. (*L. nummularia*.)
- b Plants erect; leaves ovate to lanceolate 2
- 2 a Flowers borne singly in the axils of the leaves
CROSSWORT. (*L. quadrifolia*.)
- b Flowers borne in terminal panicles or racemes or in clusters in the axils 3
- 3 a Flowers white; plant cultivated in gardens
JAPANESE LOOSESTRIFE. (*L. clethroides*.)*
- b Flowers yellow; plants not cultivated 4
- 4 a Leaves usually in whorls of 3 or 4; plant 2-4 ft. high
GOLDEN LOOSESTRIFE. (*L. vulgaris*.)
- b Leaves opposite, not in whorls; plant $\frac{1}{2}$ -2 ft. high
BULB-BEARING LOOSESTRIFE. (*L. terrestris*.)

OLEACEAE (OLIVE FAMILY)

- 7 STEIRONÈMA.
 1 *a* Leaves rounded at base; petioles fringed with hairs
 FRINGED LOOSESTRIFE. (*S. ciliatum.*)
b Leaves more or less tapering at base; petioles sparingly
 fringed with hairs
 LANCE-LEAVED LOOSESTRIFE. (*S. lanceolatum.*)
 8 NAUMBÈRGIA.....TUFTED LOOSESTRIFE. (*N. thyriflora.*)
 9 TRIENTÀLIS.....STAR-FLOWER. (*T. americana.*)
 10 GLAÛX.....SEA MILKWORT. (*G. maritima.*)
 11 ANAGÀLLIS.....SCARLET PIMPERNEL. (*A. arvensis.*)

3 PLUMBAGINÀCEAE. *Plumbago* Family.

- 1 LIMÒNIUM.....SEA LAVENDER. (*L. carolinianum.*)
 2 PLUMBÀGO.....LEADWORT. (*P. capensis.**)
 3 STÁTICE.
 1 *a* Leaves 5-8 in. long, oblong-elliptic. SEA PINK. (*S. latifolia.**)
b Leaves 1-3 in. long, linearTHRIFT. (*S. armeria.**)

3 EBENÀLES. Ebony Order.

1 EBENÀCEAE. *Ebony* Family.

- 1 DIOSPÝROS.....PERSIMMON. (*D. virginiana.*)

2 STYRÀCEAE. *Storax* Family.

- 1 MOHRODÈNDRON.....SILVER-BELL. (*M. carolinum.**)
 2 STÝRAX.....JAPANESE STORAX. (*S. japonica.**)

4 GENTIANÀLES. Gentian Order.

1 OLEÀCEAE. *Olive* Family.

1 FRÁXINUS.

- 1 *a* Flowers with a corolla; cultivated tree; lateral leaflets
 sessile and entire.....FLOWERING ASH. (*F. ornus.**)
b Flowers without a corolla; native or introduced tree.. 2
 2 *a* Lateral leaflets usually sessile 3
b Lateral leaflets usually petioled 4
 3 *a* Rachis at base of leaflet with conspicuous tuft of hairs;
 native treeBLACK ASH. (*F. nigra.*)
b Rachis at base of leaflet not with tuft of hairs; culti-
 vated treeENGLISH ASH. (*F. excelsior.**)
 4 *a* Fruit with wing attached at summit of seed; common
 treeWHITE ASH. (*F. americana.*)
b Fruit with wing attached half way down the sides of
 the seed; tree not common..RED ASH. (*F. pennsylvànica.*)
 2 JASMÍNUM.....YELLOW JASMINE. (*J. nudiflorum.**)
 3 FORSÝTHIA.
 1 *a* Calyx about $\frac{1}{2}$ as long as corolla tube; branches often
 green.....GOLDEN BELL. (*F. viridissima.**)
b Calyx nearly as long as the corolla tube
 DROOPING GOLDEN BELL. (*F. suspensa.**)

GENTIANACEAE (GENTIAN FAMILY)

4 LIGÛSTRUM.

- 1 a Leaves lanceolate, pointed at apex
COMMON PRIVET. (*L. vulgàre.*)
b Leaves oval, usually blunt at apex
CALIFORNIA PRIVET. (*L. ovalifòlium.**)

5 SYRÍNGA.

- 1 a Stamens extending beyond the corolla tube; tree
JAPANESE LILAC. (*S. japònica.**)
b Stamens not extending beyond the corolla tube; shrubs.. 2
2 a Leaves more or less rounded at base; panicles not leafy
COMMON LILAC. (*S. vulgàris.**)
b Leaves more or less pointed at both ends; panicles leafy
JOSIKA'S LILAC. (*S. josikaèa.**)
6 ÒLEA.....OLIVE. (*O. europàea.**)
7 FONTANÈSIA.....FONTANESIA. (*F. fòrtunei.**)
8 CHIONÁNTHUS.....FRINGE TREE. (*C. virgínica.**)

2 GENTIANACEAE. *Gentian Family.*

1 SABBÀTIA.

- 1 a Leaves ovate, heart-shaped or clasping at base; stem
sharply 4-angledROSE PINK. (*S. angulàris.*)
b Leaves linear or oblanceolate, not clasping at base 2
2 a Flowers about 1 in. broad, corolla usually 5-lobed
SLENDER MARSH PINK. (*S. campanulàta.*)
b Flowers 1-3 in. broad, corolla 8-12-lobed
LARGE MARSH PINK. (*S. dodecàndra.*)

2 GENTIÀNA.

- 1 a Corolla lobes conspicuously fringed
FRINGED GENTIAN. (*G. crinita.*)
b Corolla lobes not fringed 2
2 a Leaves heart-shaped and clasping at base
STIFF GENTIAN. (*G. quinquefòlia.*)
b Leaves more or less narrowed at base 3
3 a Lobes of corolla usually shorter than the appendages
between the lobes; flowers always closed
CLOSED GENTIAN. (*G. andréwsii.*)
b Lobes of corolla longer than the appendages between
the lobes; flowers not always closed 4
4 a Leaves lanceolate to ovate; calyx lobes with hairy mar-
gins; plant common in moist or dry places
SOAPWORT GENTIAN. (*G. saponària.*)
b Leaves linear or narrowly lanceolate; calyx lobes not
with hairy margins; plant growing in bogs
NARROW-LEAVED GENTIAN. (*G. lineàris.*)

3 BARTÒNIA.....BARTONIA. (*B. virgínica.*)

3 MENYANTHACEAE. *Buckbean Family.*

- 1 MENYÁNTHES.....BUCKBEAN. (*M. trifoliàta.*)

APOCYNACEAE (DOGBANE FAMILY)

2 LIMNÁNTHEMUM. FLOATING HEART. (*L. lacunòsum.*)

4 **APOCYNACEAE. Dogbane Family.**

1 NÈRIUM. OLEANDER. (*N. oleánder.**)

2 VÍNCA.

1 a Erect plant; flowers rose-colored to white

MADAGASCAR PERIWINKLE. (*V. ròsea.**)

b Trailing plants; flowers blue 2

2 a Leaves ovate to oblong; calyx not hairy; plant usually in gardens and escaped MYRTLE. (*V. mìnor.**)

b Leaves ovate-heart-shaped; calyx hairy; plant cultivated in pots and boxes. LARGE PERIWINKLE. (*V. màjor.**)

3 APÓCYNUM.

1 a Flowers pink, in loose cymes

SPREADING DOGBANE. (*A. androsaemifolium.*)

b Flowers greenish-white, in rather dense cymes

INDIAN HEMP. (*A. cannabìnum.*)

5 **ASCLEPIDACEAE. Milkweed Family.**

1 ASCLÉPIAS.

1 a Leaves linear, ½ in. or less broad; flowers whitish

WHORLED MILKWEED. (*A. verticillàta.*)

b Leaves 1 in. or more broad 2

2 a Leaves in whorls of 4, excepting the upper and lower ones FOUR-LEAVED MILKWEED. (*A. quadrifolia.*)

b All leaves opposite or alternate 3

3 a Flowers orange. BUTTERFLY-WEED. (*A. tuberosa.*)

b Flowers purplish, greenish, or whitish 4

4 a Leaves heart-shaped and clasping at base, margins very wavy. BLUNT-LEAVED MILKWEED. (*A. amplexicaulis.*)

b Leaves not clasping at base, margins not wavy. 5

5 a Corolla greenish or purplish 6

b Corolla bright red or purple 7

6 a Horns shorter than the hoods; leaves rounded or tapering at base COMMON MILKWEED. (*A. syriaca.*)

b Horns longer than the hoods; leaves abruptly tapering at base POKE MILKWEED. (*A. exaltàta.*)

7 a Horns much shorter than the hoods; corolla deep purple PURPLE MILKWEED. (*A. purpurascens.*)

b Horns longer than the hoods; corolla pink, red, or purple 8

8 a Stem hairy; leaves ovate to oblong, hairy beneath

HAIRY MILKWEED. (*A. pùlchra.*)

b Stem not hairy; leaves lanceolate, usually not hairy beneath SWAMP MILKWEED. (*A. incarnàta.*)

2 ACERÀTES. GREEN MILKWEED. (*A. viridiflòra.*)

3 HÒYA. WAX PLANT. (*H. carnòsa.**)

4 STEPHANÒTIS. MADAGASCAR JASMINE. (*S. floribúnda.**)

5 PERÍPLOCA. SILK VINE. (*P. graeca.**)

CONVOLVULACEAE (MORNING-GLORY FAMILY)

5 POLEMONIALES. Phlox Order.

1 CONVOLVULACEAE. Morning-glory Family.

1 IPOMOËA.

- 1 *a* Leaves pinnately divided into linear segments
CYPRESS-VINE. (*I. quámoclit.**)
- b* Leaves not as in *a* 2
- 2 *a* Plant cultivated for the edible root
SWEET POTATO. (*I. batàtas.**)
- b* Plants not cultivated for the edible root 3
- 3 *a* Stems noticeably hairy 4
- b* Stems not noticeably hairy 6
- 4 *a* Leaves entire, not angled or lobed
COMMON MORNING-GLORY. (*I. purpùrea.**)
- b* Leaves either angled or lobed 5
- 5 *a* Leaves 3-5-lobed, the lobes ovate, pointed; stalks 1-3-
flowered....IVY-LEAVED MORNING-GLORY. (*I. hederàcea.**)
- b* Leaves angular or 3-lobed; stalks several-flowered
BRAZILIAN MORNING-GLORY. (*I. setòsa.**)
- 6 *a* Flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad, scarlet or orange
STAR IPOMOEA. (*I. coccínea.**)
- b* Flowers 1 in. or more broad, white or pink 7
- 7 *a* Flowers 2-3 in. long; leaves pale beneath
WILD POTATO VINE. (*I. panduràta.*)
- b* Flowers 3-6 in. long; leaves not pale beneath
MOONFLOWER. (*I. bòna-nóx.**)

2 CONVÓLVULUS.

- 1 *a* Flowers double.....CALIFORNIA ROSE. (*C. japónicus.**)
- b* Flowers single 2
- 2 *a* Calyx with 2 membranous bracts at the base..... 3
- b* Calyx not subtended by bracts 4
- 3 *a* Leaves 2-5 in. long, triangular, with basal lobes
RUTLAND BEAUTY. (*C. sèpium.*)
- b* Leaves 1-3 in. long, usually oval
UPRIGHT BINDWEED. (*C. spithamaeus.*)
- 4 *a* Plant not hairy; wild species
SMALL BINDWEED. (*C. arvénsis.*)
- b* Plant usually densely covered with brownish hairs;
cultivated speciesGARDEN BINDWEED. (*C. trícòlor.**)

2 CUSCUTACEAE. Dodder Family.

1 CÚSCUTA.

- 1 *a* Corolla lobes pointedFIELD DODDER. (*C. arvénsis.*)
- b* Corolla lobes rounded 2
- 2 *a* Calyx subtended by 3-5 bracts; capsule oblong
COMPACT DODDER. (*C. compàcta.*)
- b* Calyx not subtended by bracts; capsule globose
GRONOVIVUS' DODDER. (*C. gronòvii.*)

POLEMONIACEAE (PHLOX FAMILY)

3 POLEMONIACEAE. Phlox Family.

1 PHLÓX.

- 1 a Plant prostrate; leaves linear, usually evergreen, opposite or in whorlsGROUND PINK. (*P. subulata*.*)
 b Plants not completely as in a 2
- 2 a Calyx lobes triangular, not pointed, about $\frac{1}{4}$ the length of the calyx tube
 WILD SWEET WILLIAM. (*P. maculata*.)
 b Calyx lobes pointed or awned, $\frac{1}{2}$ or more the length of the calyx tube 3
- 3 a Plant 2-6 ft. high; flowers in branched, cymose panicles
 GARDEN PHLOX. (*P. paniculata*.*)
 b Plant $\frac{1}{2}$ -2 ft. high; flowers in cymes or corymbs 4
- 4 a Flowers blueBLUE PHLOX. (*P. divaricata*.)
 b Flowers not blue 5
- 5 a Leaves opposite; flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad; calyx lobes awn-likeDOWNY PHLOX. (*P. pilosa*.)
 b Leaves mostly alternate; flowers $\frac{3}{4}$ -1 in. or more broad; calyx lobes lanceolate
 DRUMMOND'S PHLOX. (*P. drummondii*.*)
- 2 GÍLIA.....GILIA. (*G. tricolor*.*)
- 3 POLEMÒNIUM.....JACOB'S LADDER. (*P. van bruntiae*.*)
- 4 COBAÈA.....CATHEDRAL BELLS. (*C. scandens*.*)

4 HYDROPHYLLACEAE. Water-leaf Family.

1 HYDROPHÝLLUM.

- 1 a Leaves pinnately divided into 5-7 ovate-lanceolate segmentsVIRGINIA WATER-LEAF. (*H. virginianum*.)
 b Leaves rounded, palmately 5-9-lobed
 BROAD-LEAVED WATER-LEAF. (*H. canadense*.)
- 2 PHACÈLIA.....WHITLAVIA. (*P. whitlavia*.*)
- 3 NEMÓPHILA.....NEMOPHILA. (*N. insignis*.*)

5 BORAGINACEAE. Borage Family.

- 1 HELIOTRÒPIUM..COMMON HELIOTROPE. (*H. peruvianum*.*)
- 2 CYNOGLÓSSUM.
- 1 a Flowers reddish-purple or white; upper leaves lanceolateHOUND'S-TONGUE. (*C. officinale*.)
 b Flowers blue; upper leaves oblong
 WILD COMFREY. (*C. virginianum*.)
- 3 LÁPPULA.
- 1 a Leaves $\frac{1}{2}$ -2 in. long; flowers blue
 EUROPEAN STICKSEED. (*L. láppula*.)
 b Leaves 2-8 in. long; flowers nearly white
 VIRGINIA STICKSEED. (*L. virginiana*.)
- 4 MERTÉNSIA.....BLUEBELLS. (*M. virginica*.)

VERBENACEAE (VERVAIN FAMILY)

5 MYOSÔTIS.

- 1 *a* Calyx lobes with appressed hairs, without hooked or glandular ones; flowers blue 2
b Calyx lobes with spreading hairs, some either hooked or glandular; flowers blue or white 3
2 *a* Calyx lobes much shorter than the calyx tube; flowers $\frac{1}{4}$ in. or more broad; plant often cultivated
FORGET-ME-NOT. (*M. palustris*.)
b Calyx lobes as long as the calyx tube; flowers less than $\frac{1}{4}$ in. broad; plant not cultivated
SMALL FORGET-ME-NOT. (*M. laxa*.)
3 *a* Calyx nearly regular; flowers blue, rarely white
FIELD SCORPION-GRASS. (*M. arvensis*.)
b Calyx somewhat 2-lipped; flowers white
EARLY SCORPION-GRASS. (*M. virginica*.)

6 LITHOSPÉRMUM.

- 1 *a* Corolla without scales in the tube; mature nutlets brown, rough CORN GROMWELL. (*L. arvense*.)
b Corolla with scales in the tube; mature nutlets white, smooth COMMON GROMWELL. (*L. officinale*.)

7 ONOSMÔDIUM.....FALSE GROMWELL. (*O. virginianum*.)

8 SÝMPHYTUM.

- 1 *a* Plant covered with soft hairs; leaves lanceolate to ovate
COMMON COMFREY. (*S. officinale*.)
b Plant covered with bristly hairs; leaves ovate to lanceolate ROUGH COMFREY. (*S. asperimum*.)

9 BORÀGO.....BORAGE. (*B. officinalis*.)

10 ÉCHIUM.....BLUEWEED. (*E. vulgare*.)

6 VERBENÀCEAE. *Vervain Family.*

1 VERBÈNA.

- 1 *a* Cultivated species; flowers $\frac{1}{2}$ in. or more broad
GARDEN VERBENA. (*V. hybrida*.)
b Wild species; flowers less than $\frac{1}{2}$ in broad 2
2 *a* Leaves pinnatifid or 3-cleft, the lobes incised or toothed
EUROPEAN VERVAIN. (*V. officinalis*.)
b Leaves not completely as in *a* 3
3 *a* Spikes very loosely flowered
WHITE VERVAIN. (*V. urticifolia*.)
b Spikes rather densely flowered except toward the base.. 4
4 *a* Leaves 2-6 in. long, lanceolate to oblong, the lower ones sometimes 3-lobed BLUE VERVAIN. (*V. hastata*.)
b Leaves 1-3 in. long, linear to narrowly oblanceolate
NARROW-LEAVED VERVAIN. (*V. angustifolia*.)
2 CARYÓPTERIS.....BLUE SPIREA. (*C. mastacanthus*.)
3 CALLICÁRPA.....FRENCH MULBERRY. (*C. americana*.)

LABIATAE (MINT FAMILY)

7 LABIATAE. Mint Family.

- | | | | |
|----|---|---|--------------------------------|
| 1 | a | Plant cultivated for the variegated leaves | 30. <i>Coleus</i> . p 208 |
| | b | Plants not cultivated for the variegated leaves | 2 |
| 2 | a | Calyx with a protuberance on the upper side | 4. <i>Scutellaria</i> . p 205 |
| | b | Calyx not with a protuberance as in a | 3 |
| 3 | a | Leaves palmately 3-5-cleft; calyx with spiny teeth; corolla woolly | 12. <i>Leonurus</i> . p 206 |
| | b | Leaves not palmately 3-5-cleft | 4 |
| 4 | a | Calyx with prickly-pointed teeth about $\frac{1}{4}$ in. or more long | 11. <i>Galeopsis</i> . p 206 |
| | b | Calyx not completely as in a | 5 |
| 5 | a | Plants creeping or ascending with rounded or ovate-heart-shaped leaves | 6 |
| | b | Plants erect or ascending; leaves not rounded | 7 |
| 6 | a | Calyx about 15-nerved; upper lip of corolla 2-lobed or notched | 8. <i>Glechoma</i> . p 206 |
| | b | Calyx 5-nerved; upper lip of corolla entire | 13. <i>Lamium</i> . p 206 |
| 7 | a | Bracts subtending each 1-3 flowers $\frac{1}{4}$ in. or more broad, ovate, entire, conspicuous, overlapping; spike 1-4 in. long | 9. <i>Prunella</i> . p 206 |
| | b | Bracts subtending flowers not completely as in a | 8 |
| 8 | a | Anther-bearing stamens 2 | 9 |
| | b | Anther-bearing stamens 4 | 15 |
| 9 | a | Stamens longer than the corolla tube or extending beyond it | 10 |
| | b | Stamens not extending beyond the corolla | 13 |
| 10 | a | Flowers 1 in. or more long | 16. <i>Monarda</i> . p 207 |
| | b | Flowers $\frac{1}{2}$ in. or less long | 11 |
| 11 | a | Flowers light-yellow; leaves 4-8 in. long | 29. <i>Collinsonia</i> . p 208 |
| | b | Flowers purplish | 12 |
| 12 | a | Flowers in loose cymes; stamens about twice as long as the corolla | 26. <i>Cunila</i> . p 207 |
| | b | Flowers in interrupted spikes or whorls; stamens only slightly longer than the corolla | 17. <i>Blephilia</i> . p 207 |
| 13 | a | Flowers $\frac{1}{2}$ in. or more long; anthers with long connectives jointed to the short filament | 15. <i>Salvia</i> . p 206 |
| | b | Flowers about $\frac{1}{4}$ in. or less long; anthers not as in a | 14 |
| 14 | a | Corolla nearly regular, deeply 4-lobed; plants not aromatic | 27. <i>Lycopus</i> . p 207 |
| | b | Corolla conspicuously 2-lipped; plant aromatic | 18. <i>Hedeoma</i> . p 207 |
| 15 | a | Calyx teeth with hooked bristles | 5. <i>Marrubium</i> . p 206 |
| | b | Calyx teeth not with hooked bristles | 16 |

LABIATAE (MINT FAMILY)

- 16 *a* Flowers in branching, somewhat leafy panicles
3. *Trichostema*. p 205
b Flowers in spikes or in clusters in the axils 17
- 17 *a* Corolla nearly regularly 5-lobed; leaves linear, oblong,
or lanceolate, usually entire 2. *Isanthus*. p 205
b Corolla more or less 2-lipped; leaves toothed or entire 18
- 18 *a* Corolla 4-lobed, the upper lobe notched, nearly regular;
plants aromatic 28. *Mentha*. p 208
b Corolla 2-lipped, or not completely as in *a* 19
- 19 *a* Corolla with 4 upper lobes nearly equal, the lower lobe
much larger; ovary 4-lobed 1. *Teucrium*. p 205
b Corolla strongly 2-lipped, not completely as in *a*; ovary
deeply 4-parted 20
- 20 *a* Flowers 1 in. or more long in spikes 2-8 in. long; calyx
faintly nerved 10. *Physostegia*. p 206
b Flowers 1 in. or less long, not completely as in *a*.... 21
- 21 *a* Calyx 15-nerved 22
b Calyx 13-nerved or less 24
- 22 *a* Leaves entire, linear to oblong..... 22. *Hyssopus*. p 207
b Leaves coarsely toothed, usually ovate 23
- 23 *a* Calyx somewhat 2-lipped; average leaf 2-7 in. long
6. *Agastache*. p 206
b Calyx nearly regularly 5-toothed; average leaf 1-3 in.
long 7. *Nepeta*. p 206
- 24 *a* Calyx hairy on the inside, unequally 5-toothed..... 25
b Calyx not hairy on the inside 26
- 25 *a* Flowers $\frac{1}{4}$ in. or less long..... 25. *Thymus*. p 207
b Flowers about $\frac{1}{2}$ in. long 23. *Origanum*. p 207
- 26 *a* Corolla tube somewhat curved 19. *Melissa*. p 207
b Corolla tube straight 27
- 27 *a* Calyx 2-lipped, the tube and pointed teeth with long
hairs 21. *Clinopodium*. p 207
b Calyx more or less regularly 5-toothed 28
- 28 *a* Flowers $\frac{1}{2}$ -1 in. long, 4-10 in a whorl 14. *Stachys*. p 206
b Flowers about $\frac{1}{4}$ in. or less long 29
- 29 *a* Flowers purple 20. *Satureia*. p 207
b Flowers white or purple-spotted 24. *Koellia*. p 207
- 1 TEUCRIUM.....AMERICAN GERMANDER. (*T. canadense*.)
2 ISANTHUS.....FALSE PENNYROYAL. (*I. brachiatus*.)
3 TRICHOSTÈMA.....BLUE CURLS. (*T. dichotomum*.)
4 SCUTELLARIA.
- 1 *a* Flowers solitary or in pairs in the axils of the leaves;
flowers about 1 in. long
MARSH SKULLCAP. (*S. galericulata*.)
b Flowers in more or less leafy-bracted racemes 2

LABIATAE (MINT FAMILY)

- 2 a Flowers $\frac{1}{2}$ in. or less long
MAD-DOG SKULLCAP. (*S. lateriflora*)
b Flowers usually $\frac{3}{4}$ in. or more long 3
- 3 a All but the lower leaves entire
HYSSOP SKULLCAP. (*S. integrifolia*)
b Leaves toothed 4
- 4 a Corolla hairy; leaves 2-5 in. long, hoary, tapering at
apex DOWNY SKULLCAP. (*S. incana*)
b Corolla only slightly hairy; leaves 1-3 in. long, some-
what hairy, blunt at apex
HAIRY SKULLCAP. (*S. pilosa*)
- 5 MARRÛBIUM..... WHITE HOARHOUND. (*M. vulgare*.)*
- 6 AGÁSTACHE.
- 1 a Flowers about $\frac{1}{4}$ in. long, greenish-yellow; corolla
about as long as the calyx
CATNIP GIANT-HYSSOP. (*A. nepetoides*)
b Flowers about $\frac{1}{2}$ in. long, purplish or whitish; corolla
longer than the calyx
FIGWORT GIANT-HYSSOP. (*A. scrophulariaefolia*)
- 7 NÉPETA..... CATNIP. (*N. cataria*.)
- 8 GLECÒMA..... GROUND IVY. (*G. hederacea*.)
- 9 PRUNÉLLA..... SELF-HEAL. (*P. vulgàris*.)
- 10 PHYSOSTÈGIA..... FALSE DRAGON-HEAD. (*P. virginiana*.)
- 11 GALEÓPSIS..... HEMP NETTLE. (*G. tetrahit*.)
- 12 LEONÛRUS..... MOTHERWORT. (*L. cardiaca*.)
- 13 LÁMIUM.
- 1 a Flowers purplish or red..... HENBIT. (*L. amplexicaule*.)
b Flowers white..... WHITE DEAD NETTLE. (*L. album*.)
- 14 STÁCHYS.
- 1 a Leaves 1-2 in. long, entire or slightly toothed toward the
apex; corolla not hairy
HYSSOP HEDGE NETTLE. (*S. hyssopifolia*.)
b Leaves 2-5 in. long, toothed; upper lip of corolla hairy
HEDGE NETTLE. (*S. palustris*.)
- 15 SÁLVIA.
- 1 a Flowers scarlet; calyx red in fruit
SCARLET SAGE. (*S. splendens*.)*
- b Flowers not scarlet 2
- 2 a Corolla with a ring of hairs inside 3
b Corolla not with a ring of hairs inside 4
- 3 a Lower leaves usually deeply lobed or toothed; flowers
purplish; wild species... LYRE-LEAVED SAGE. (*S. lyrata*.)
b Lower leaves toothed or entire; flowers blue; cultivated
species COMMON SAGE. (*S. officinalis*.)*
- 4 a Whorls about 2-flowered..... HAIRY SALVIA. (*S. patens*.)*
- b Whorls 5-many-flowered 5

LABIATAE (MINT FAMILY)

- 5 a Whorls about 6-flowered
BLUE-FLOWERED SALVIA. (*S. pratensis*.)
 b Whorls 10-many-flowered 6
- 6 a Flowers blue to white; leaves broadly ovate
CLARY. (*S. sclàrea*.)
 b Flowers violet or purple; leaves ovate-lanceolate to
 linearPURPLE SAGE. (*S. farinàcea*.)
- 16 MONÁRDA.
 1 a Flowers scarletOSWEGO TEA. (*M. didyma*.)
 b Flowers not scarlet 2
- 2 a Flowers pink or purplish..WILD BERGAMOT. (*M. fistulòsa*.)
 b Flowers yellowish, purple-spotted.HORSE MINT. (*M. punctàta*.)
- 17 BLEPHÍLIA.....HAIRY BLEPHILIA. (*B. hirsùta*.)
- 18 HEDEÛMA.....AMERICAN PENNYROYAL. (*H. pulegioides*.)
- 19 MELÍSSA.....GARDEN BALM. (*M. officinàlis*.)
- 20 SATUREÌA.....SUMMER SAVORY. (*S. horténsis*.)
- 21 CLINOPÛDIUM.....WILD BASIL. (*C. vulgàre*.)
- 22 HYSSÛPUS.....HYSSOP. (*H. officinàlis*.)
- 23 ORÍGANUM.
 1 a Bracts subtending flowers purplish; leaves ovate
WILD MARJORAM. (*O. vulgàre*.)
 b Bracts subtending flowers green; leaves oval or obovate
SWEET MARJORAM. (*O. majoràna*.)
- 24 KOÈLLIA.
 1 a Leaves entire, linear or linear-lanceolate 2
 b Leaves toothed, ovate or ovate-lanceolate 3
- 2 a Leaves broadest near the middle, linear to linear-lanceolate
NARROW-LEAVED MOUNTAIN MINT. (*K. flexuòsa*.)
 b Leaves broadest near the base, lanceolate to linear-lanceolate.....VIRGINIA MOUNTAIN MINT. (*K. virginiana*.)
- 3 a Leaves covered with whitish wool beneath; flower clusters 1-2 in. broad
HOARY MOUNTAIN MINT. (*K. incàna*.)
 b Leaves hairy beneath only when young; flower clusters about ½ in. broad
SHORT-TOOTHED MOUNTAIN MINT. (*K. mùtica*.)
- 25 THÛMUS.
 1 a Plant creeping; leaves ¼-½ in. long
CREEPING THYME. (*T. serpyllum*.)
 b Plant erect or ascending; leaves ½-1 in. long
COMMON THYME. (*T. vulgàris*.)
- 26 CUNILA.....DITTANY. (*C. origanoides*.)
- 27 LÛCOPUS.
 1 a Calyx teeth not pointed, usually not longer than the mature nutlets.....BUGLE WEED. (*L. virginicus*.)
 b Calyx teeth pointed, longer than the mature nutlets.. 2

SOLANACEAE (POTATO FAMILY)

- 2 a Leaves lanceolate or oblong, incised
 CUT-LEAVED WATER HOARHOUND. (*L. americanus*)
 b Leaves usually ovate, coarsely toothed or sometimes
 incised 3
- 3 a Corolla twice as long as calyx; leaves sharply toothed
 STALKED WATER HOARHOUND. (*L. rebellus*)
 b Corolla only slightly longer than the calyx; leaves
 bluntly toothed
 EUROPEAN WATER HOARHOUND. (*L. europæus*)
- 28 MËNTHA.
- 1 a Flowers all in axillary whorls, not in spikes 2
 b At least some flowers in terminal, interrupted spikes.. 3
- 2 a Leaves 1-2 in. long, ovate to obovate
 DOWNY WHORLED MINT. (*M. gentilis*)
 b Leaves 1-4 in. long, oblong to ovate-oblong
 AMERICAN MINT. (*M. canadensis*)
- 3 a Leaves lanceolate or sometimes ovate 4
 b Leaves rounded or broadly ovate 6
- 4 a Plant hairy.....HAIRY HORSE MINT. (*M. longifolia*)
 b Plants not hairy 5
- 5 a Spike much interrupted, the flowers in numerous, sep-
 arated whorlsSPEARMINT. (*M. spicata*)
 b Spike interrupted only at the base, whorls dense and
 close togetherPEPPERMINT. (*M. piperita*)
- 6 a Leaves mostly incised, crisp, wavy; spikes $\frac{1}{2}$ - $\frac{3}{4}$ in. in
 diameter, about 1 in. long
 CRISP-LEAVED MINT. (*M. crispa*)
 b Leaves coarsely toothed; spikes 1-4 in. long 7
- 7 a Plant white-woolly; leaves rather smooth, sharply
 toothedWOOLLY MINT. (*M. alopecuroides*)
 b Plant merely hairy; leaves somewhat uneven surfaced,
 bluntly toothed..ROUND-LEAVED MINT. (*M. rotundifolia*)
- 29 COLLINSÏNIA.....HORSE BALM. (*C. canadensis*)
- 30 CÛLEUS.....COLEUS. (*C. blumei*.)

8 SOLANACEAE. Potato Family.

- 1 LYCOPËRSICON.....COMMON TOMATO. (*L. lycopersicon*.)
 2 CÁP SICUM.....RED PEPPER. (*C. annum*.)
 3 SOLANUM.
- 1 a Plants with prickly stems 2
 b Plants not with prickly stems 3
- 2 a Cultivated plant; leaves with wavy margins
 EGG PLANT. (*S. melongena*.)
 b Wild plant; leaves lobed or pinnatifid
 HORSE NETTLE. (*S. carolinense*)
- 3 a Plant cultivated in pots for the showy fruit
 JERUSALEM CHERRY. (*S. pseudo-capsicum*.)
 b Plants not cultivated in pots 4

SOLANACEAE (POTATO FAMILY)

- 4 a Plant cultivated for the tubers, sometimes escaped;
leaves compound COMMON POTATO. (*S. tuberosum*.*)
- b Plants not completely as in a 5
- 5 a Flowers white; fruit black when ripe
NIGHTSHADE. (*S. nigrum*.)
- b Flowers usually purple, rarely white, with 2 greenish
spots at the base of each corolla lobe; fruit red
BITTERSWEET. (*S. dulcamara*.)
- 4 LÝCIUM. MATRIMONY VINE. (*L. vulgare*.*)
- 5 SCHIZÁNTHUS. BUTTERFLY FLOWER. (*S. pinnátus*.*)
- 6 BROWÁLLIA. BROWALLIA. (*B. demíssa*.*)
- 7 NICOTIÁNA.
- 1 a Flowers 4-6 in. long, white
GARDEN NICOTIANA. (*N. alata*.*)
- b Flowers 1-2 in. long, not white 2
- 2 a Leaves 2-8 in. long; flowers about 1 in. long
WILD TOBACCO. (*N. rústica*.*)
- b Leaves 12-24 in. long; flowers about 2 in. long
COMMON TOBACCO. (*N. tabácum*.*)
- 8 DATURA.
- 1 a Flowers 4-7 in. long; capsule globose; plants cultivated 2
- b Flowers 3-4 in. long; capsule ovoid; plants not cultivated 3
- 2 a Flowers violet or purple on outside; leaves with wavy
or toothed margin. GARDEN THORN APPLE. (*D. fastuosa*.*)
- b Flowers white on outside; leaves entire
ENTIRE-LEAVED THORN APPLE. (*D. metel*.*)
- 3 a Stem green; flowers white. JIMSON-WEED. (*D. stramonium*.)
- b Stem usually purple; flowers violet, rarely white
PURPLE THORN APPLE. (*D. tátula*.)
- 9 PHÝSALIS.
- 1 a Leaves with broad, more or less regular teeth; plant
covered with glandular hairs
CLAMMY GROUND-CHERRY. (*P. heterophýlla*.*)
- b Leaves with few irregular teeth or entire; plant not
usually covered with glandular hairs 2
- 2 a Center of flower not purplish; ripe fruit greenish-yellow
or orange WINTER CHERRY. (*P. alkekengi*.*)
- b Center of flower purplish or purple spotted; ripe fruit
reddish, purplish, or yellow 3
- 3 a Plant usually not hairy; fruiting calyx somewhat 10-
angled 4
- b Plants hairy; fruiting calyx 5-angled 5
- 4 a Flowers about 1 in. broad; leaves 1-4 in. long
PHILADELPHIA GROUND-CHERRY. (*P. philadelphica*.*)
- b Flowers about ½ in. broad; leaves 1-3 in. long
TOMATILLO. (*P. ixocarpa*.*)

SCROPHULARIACEAE (FIGWORT FAMILY)

- 5 a Flowers $\frac{3}{4}$ -1 in. broad; fruit reddish
 VIRGINIA GROUND-CHERRY. (*P. virginiana*.)
 b Flowers $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; fruit yellow
 HAIRY GROUND-CHERRY. (*P. pubescens*.)*
- 10 NIEREMBÉRGIA.....CUP-FLOWER. (*N. gracilis*.)*
- 11 PHYSALÔDES.....APPLE-OF-PERU. (*P. physalodes*.)*
- 12 PETÛNIA.
 1 a Flowers whiteWHITE PETUNIA. (*P. axillaris*.)
 b Flowers violet or variously colored, often double
 COMMON PETUNIA. (*P. hybrida*.)*
- 13 SALPIGLÔSSIS.....SALPIGLOSSIS. (*S. sinuata*.)*
- 9 SCROPHULARIACEAE. Figwort Family.
- 1 VERBÂSCUM.
 1 a Plant densely woolly throughout
 COMMON MULLEN. (*V. thapsus*.)
 b Plant not woollyMOTH MULLEN. (*V. blattaria*.)
- 2 PAULÔWNIA.....EMPRESS TREE. (*P. tomentosa*.)*
- 3 LINÀRIA.
 1 a Flowers yellow, the lip orange
 BUTTER AND EGGS. (*L. linaria*.)
 b Flowers blue or purplish..BLUE TOADFLAX. (*L. canadensis*.)
- 4 ANTIRRHÏNUM.
 1 a Erect plant cultivated in gardens and escaped
 SNAPDRAGON. (*A. majus*.)
 b Climbing or trailing vine cultivated in hanging baskets
 MAURANDIA. (*A. maurandioides*.)*
- 5 SCROPHULÀRIA.
 1 a Flowers shining within; sterile stamen purple
 MARYLAND FIGWORT. (*S. marylandica*.)
 b Flowers dull within; sterile stamen greenish-yellow
 HARE FIGWORT. (*S. leporèlla*.)
- 6 CHELÔNE.....SNAKE-HEAD. (*C. glabra*.)
- 7 ALONSÒA.....ALONSOA. (*A. incisifolia*.)*
- 8 PENTSTÈMON.
 1 a Flowers scarlet, sterile filament not hairy
 SCARLET BEARD-TONGUE. (*P. barbatus*.)
 b Flowers not scarlet, sterile filament hairy or bearded.. 2
- 2 a Flowers $\frac{3}{4}$ -1 in. long, violet or purple
 HAIRY BEARD-TONGUE. (*P. hirsutus*.)
 b Flowers 1-2 in. long, purple to red
 GARDEN BEARD-TONGUE. (*P. campanulatus*.)*
- 9 MÍMULUS.
 1 a Flowers violet; leaves oblong to lanceolate; wild herb
 SQUARE-STEMMED MONKEY-FLOWER. (*M. ringens*.)
 b Flowers yellow, often spotted; leaves ovate to heart-shaped; cultivated species
 GARDEN MONKEY-FLOWER. (*M. luteus*.)*

SCROPHULARIACEAE (FIGWORT FAMILY)

- 10 GRATIOLOA.
 1 a Flowers white....CLAMMY HEDGE-HYSSOP. (*G. virginiana.*)
 b Flowers yellow.....GOLDEN HEDGE-HYSSOP. (*G. aurea.*)
- 11 ILYSANTHES.
 1 a Flowering stalks longer than the leaves; calyx lobes shorter than the mature capsule
 LONG-STALKED FALSE PIMPERNEL. (*I. dubia.*)
 b Flowering stalk shorter than the leaves; calyx lobes longer than the mature capsule
 SHORT-STALKED FALSE PIMPERNEL. (*I. attenuata.*)
- 12 VERÓNICA.
 1 a Plants cultivated in gardens 2
 b Plants not cultivated 3
 2 a Leaves with entire or wavy margins; racemes leafy
 GENTIAN-LEAVED SPEEDWELL. (*V. gentianoides.**)
 b Leaves toothed; racemes dense, not leafy
 LONG-LEAVED SPEEDWELL. (*V. longifolia.**)
 3 a Flowers solitary in the axils of the leaves 4
 b Flowers in terminal or axillary racemes or spikes.... 6
 4 a Plant densely hairy; leaves ovate, entire or blunt-toothedCORN SPEEDWELL. (*V. arvensis.*)
 b Plants not densely hairy; leaves usually oblong or linear, sometimes ovate 5
 5 a Flowers pale blue, in the axils of bracts
 THYME-LEAVED SPEEDWELL. (*V. serpyllifolia.*)
 b Flowers white, in the axils of the leaves
 PURSLANE SPEEDWELL. (*V. peregrina.*)
 6 a Racemes terminal; leaves $\frac{1}{4}$ - $\frac{1}{2}$ in. long
 THYME-LEAVED SPEEDWELL. (*V. serpyllifolia.*)
 b Racemes axillary; leaves $\frac{1}{2}$ -4 in. long 7
 7 a Racemes densely-flowered, spike-like; plant 3-10 in. longCOMMON SPEEDWELL. (*V. officinalis.*)
 b Racemes loosely-flowered; plants $\frac{1}{2}$ -3 ft. long 8
 8 a Leaves linear to linear-lanceolate
 MARSH SPEEDWELL. (*V. scutellata.*)
 b Leaves broadly ovate to lanceolate 9
 9 a Stem leaves sessile
 WATER SPEEDWELL. (*V. anagallis-aquatica.*)
 b Stem leaves petioled.AMERICAN BROOKLINE. (*V. americana.*)
- 13 LEPTÁNDRA.....CULVER'S-ROOT. (*L. virginica.*)
 14 DIGITALIS.....FOXGLOVE. (*D. purpurea.**)
 15 DASÝSTOMA.
 1 a Corolla hairy on the outside
 FERN-LEAVED FALSE FOXGLOVE. (*D. pedicularia.*)
 b Corolla not hairy on the outside 2

LENTIBULARIACEAE (BLADDERWORT FAMILY)

- 2 a Plant hairy; only the lower leaves pinnatifid
 DOWNY FALSE FOXGLOVE. (*D. flava*.)
 b Plant not hairy; usually all but the uppermost leaves
 pinnatifidSMOOTH FOXGLOVE. (*D. virginica*.)
- 16 GERÁRDIA.
 1 a Flowers about 1 in. broad; leaves 1-2 in. long
 PURPLE GERARDIA. (*G. purpurea*.)
 b Flowers $\frac{1}{2}$ - $\frac{3}{4}$ in. broad; leaves $\frac{1}{2}$ -1 in. long 2
 2 a Flowers somewhat hairy within; flower-stalk about the
 length of the calyx
 SMALL-FLOWERED GERARDIA. (*G. paupercula*.)
 b Flowers not hairy within; flower-stalk longer than the
 calyxSLENDER GERARDIA. (*G. tenuifolia*.)
- 17 CASTILLÈJA.....SCARLET PAINTED-CUP. (*C. coccinea*.)
 18 SCHWÁLBEA.....CHAFF-SEED. (*S. americana*.)
 19 PEDICULÁRIS.
 1 a Calyx cleft on the lower side
 WOOD BETONY. (*P. canadensis*.)
 b Calyx not cleft on the lower side, merely 2-lobed
 SWAMP LOUSEWORT. (*P. lanceolata*.)
- 20 CALCEOLÁRIA.....CALCEOLARIA. (*C. hybrida*.)
 21 TORÈNIA.....TORENIA. (*T. fournieri*.)
 22 MELAMPÛRUM.....COW WHEAT. (*M. lineare*.)

10 LENTIBULARIACEAE. Bladderwort Family.

- 1 UTRICULÁRIA.
 1 a Stem root-like; leaves few, entire
 HORNED BLADDERWORT. (*U. cornuta*.)
 b Stem not root-like; leaves divided 2
 2 a Leaves 2-3-pinnately divided, the segments thread-like
 GREATER BLADDERWORT. (*U. vulgaris*.)
 b Leaves 4-5-forked, the segments linear
 FLAT-LEAVED BLADDERWORT. (*U. intermedia*.)

11 OROBANCHACEAE. Broom-rape Family.

- 1 THALÈSIA.....CANCER-ROOT. (*T. uniflora*.)
 2 CONÓPHOLIS.....SQUAW-ROOT. (*C. americana*.)
 3 LEPTÁMNIUM.....BEECH-DROPS. (*L. virginianum*.)

12 BIGNONIACEAE. Trumpet-creeper Family.

- 1 TECÒMA.....TRUMPET CREEPER. (*T. radicans*.)
 2 CATÁLPA.
 1 a Flowers white, spotted within with yellow and purple
 CATALPA. (*C. catalpa*.)
 b Flowers yellow, striped within with orange and violet
 DWARF CATALPA. (*C. ovata*.)

13 MARTYNIACEAE. Unicorn-plant Family.

- 1 MARTÝNIA.....UNICORN PLANT. (*M. louisiana*.)

PLANTAGINACEAE (PLANTAIN FAMILY)

14 ACANTHACEAE. *Acanthus* Family.

- 1 DIANTHÈRA.....WATER WILLOW. (*D. americana*.)
 2 THUNBÈRGIA.....THUNBERGIA. (*T. alata*.)
 3 FITTÒNIA.....FITTONIA. (*F. argyoneura*.)

15 PHRYMACEAE. *Lopseed* Family.

- 1 PHRYMA.....LOPSEED. (*L. leptostachya*.)

6 PLANTAGINALES. Plantain Order.

1 PLANTAGINACEAE. *Plantain* Family.

1 PLANTAGO.

- 1 *a* Leaves linear, usually $\frac{1}{2}$ in. or less broad 2
b Leaves oblong, lanceolate, or ovate, usually $\frac{3}{4}$ in. or more broad 3
 2 *a* Bracts subtending each flower 6-10 times longer than the flower ...LARGE-BRACTED PLANTAIN. (*P. aristata*.)
b Bracts subtending each flower not longer than the flower
 SEASIDE PLANTAIN. (*P. maritima*.)
 3 *a* Leaves ovate, often with rounded or heart-shaped base 4
b Leaves lanceolate, oblong, or obovate 5
 4 *a* Spike densely flowered throughout, blunt at apex
 COMMON PLANTAIN. (*P. major*.)
b Spike loosely flowered at base, tapering to apex
 RUGEL'S PLANTAIN. (*P. rugelii*.)
 5 *a* Plant very hairy throughout; leaves obovate to oblong
 DWARF PLANTAIN. (*P. virginica*.)
b Plant slightly hairy; leaves narrowly oblong-lanceolate
 RIB-GRASS. (*P. lanceolata*.)

7 RUBIALES. *Madder* Order.

1 RUBIACEAE. *Madder* Family.

- 1 CEPHALÁNTHUS.....BUTTON-BUSH. (*C. occidentalis*.)
 2 BOUVÁRDIA.....BOUVARDIA. (*B. triphylla*.)
 3 GARDÈNIA.....CAPE JASMINE. (*G. jasminoides*.)
 4 COFFÈA.....COFFEE. (*C. arabica*.)
 5 MANÈTTIA.....MANETTIA VINE. (*M. bicolor*.)
 6 MITCHÈLLA.....PARTRIDGE BERRY. (*M. repens*.)
 7 HOUSTÒNIA.
 1 *a* Flowers violet or blue, solitary on elongated stalks
 BLUETS. (*H. coerulea*.)
b Flowers purple or white, in cymes
 LONG-LEAVED HOUSTONIA. (*H. longifolia*.)
 8 DIÒDIA.....ROUGH BUTTON-WEED. (*D. tères*.)
 9 GÀLIUM.
 1 *a* Plants with rough or very hairy stems 2
b Plants with smooth or not hairy stems 7

CAPRIFOLIACEAE (HONEYSUCKLE FAMILY)

- 2 a Leaves 6-8 in a whorl, 1-3 in. long, oblanceolate or linearCLEAVERS. (*G. aparine*.)
 b Leaves 4-6 in a whorl, or not completely as in a 3
- 3 a Fruit hairy; leaves oval to ovate-lanceolate 4
 b Fruit not hairy; leaves linear to oblanceolate, sometimes oval 5
- 4 a Flowers yellowish-purple; leaves $\frac{1}{2}$ -1 in. long
 HAIRY BEDSTRAW. (*G. pilosum*.)
 b Flowers greenish; leaves $\frac{1}{2}$ -2 in. long
 WILD LIQUORICE. (*G. circaezans*.)
- 5 a All leaves 4 in a whorl. SMALL BEDSTRAW. (*G. trifidum*.)
 b Leaves 4 or 6 in a whorl 6
- 6 a Corolla 3-lobed; leaves linear to oblanceolate
 CLAYTON'S BEDSTRAW. (*G. claytoni*.)
 b Corolla 4-lobed; leaves oval to oblanceolate
 ROUGH BEDSTRAW. (*G. asprellum*.)
- 7 a Leaves 6-8 in a whorl 8
 b Leaves mostly 4 in a whorl 10
- 8 a Leaves 1-4 in. long; fruit covered with hooked bristles
 SWEET-SCENTED BEDSTRAW. (*G. triflorum*.)
 b Leaves $\frac{1}{4}$ -1 in. long; fruit not covered with hooked bristles 9
- 9 a Flowers yellow; leaves narrowly linear
 YELLOW BEDSTRAW. (*G. verum*.)
 b Flowers white; leaves oblanceolate to linear
 WILD MADDER. (*G. mollugo*.)
- 10 a Fruit not hairy; leaves linear to lanceolate
 STIFF MARSH BEDSTRAW. (*G. tinctorium*.)
 b Fruit hairy; leaves lanceolate to oval 11
- 11 a Leaves hairy on both sides; flowers greenish
 WILD LIQUORICE. (*G. circaezans*.)
 b Leaves hairy on the margins and midrib beneath; flowers yellowish-green to purple
 TORREY'S WILD LIQUORICE. (*G. lanceolatum*.)

2 CAPRIFOLIACEAE. Honeysuckle Family.

1 SAMBUCUS.

- 1 a Shrub or small tree 12-25 ft. high with rough bark
 EUROPEAN ELDER. (*S. nigra*.)
 b Shrubs 3-12 ft. high with smooth bark 2
- 2 a Cymes broader than long; fruit purple or black; pith in twigs white.....COMMON ELDER. (*S. canadensis*.)
 b Cymes usually longer than broad; fruit red; pith in twigs reddish-brown....RED-BERRIED ELDER. (*S. pubens*.)

2 VIBURNUM.

- 1 a Leaves more or less lobed 2
 b Leaves not lobed, either toothed or entire 3

CAPRIFOLIACEAE (HONEYSUCKLE FAMILY)

- 2 a All or at least the outer flowers of the cyme $\frac{1}{2}$ -1 in. broadSNOW-BALL. (*V. ópulus*.)
 b Flowers about $\frac{1}{4}$ in. broad
 MAPLE-LEAVED ARROW-WOOD. (*V. acerifólium*.)
- 3 a Some or all of flowers $\frac{1}{2}$ -1 in. broad, sterile
 JAPANESE SNOWBALL. (*V. tomentósum*.)
 b Flowers usually less than $\frac{1}{2}$ in. broad, not sterile 4
- 4 a Leaves 3-7 in. broad, rounded or broadly ovate
 HOBBLE-BUSH. (*V. alnifólium*.)
 b Leaves $\frac{1}{2}$ -4 in. broad 5
- 5 a Leaves scurfy and woolly beneath
 WAYFARING TREE. (*V. lantána*.)
 b Leaves not scurfy and woolly beneath 6
- 6 a Leaves coarsely toothed, the teeth often $\frac{1}{4}$ in. long, the veins very prominent beneath.ARWOW-WOOD (*V. dentátum*.)
 b Leaves finely toothed or entire 7
- 7 a Leaves abruptly pointed at apex; petioles often winged
 SHEEPBERRY. (*V. lentágo*.)
 b Leaves not abruptly pointed at apex 8
- 8 a Stalk of cyme usually less than $\frac{3}{4}$ in. long; common speciesBLACK HAW. (*V. prunifólium*.)
 b Stalk of cyme usually 1 in. or more long 9
- 9 a Leaves finely and irregularly toothed; stalk shorter than the cymeWITHE-ROD. (*V. cassinoides*.)
 b Leaves entire or obscurely toothed; stalk as long or longer than the cyme....LARGE WITHE-ROD. (*V. núdum*.)
- 3 TRIÓSTEUM.
- 1 a Leaves strongly clasping at the base; stamens as long as the corollaHORSE-GENTIAN. (*T. perfoliátum*.)
 b Leaves scarcely clasping at the base; stamens much shorter than the corolla
 SCARLET-FRUITED HORSE-GENTIAN. (*T. aurantiácum*.)
- 4 SYMPHORICÁRPOS.
- 1 a Fruit snow-white; axillary clusters few-flowered, terminal clusters many-flowered..SNOWBERRY. (*S. racemósus*.)
 b Fruit purplish-red; all clusters densely-flowered
 CORALBERRY. (*S. symphoricàrpos*.)
- 5 LONÍCERA.
- 1 a Erect shrubs, the flowers in pairs 2
 b Climbing or trailing shrubs 4
- 2 a Leaves densely hairy beneath.HONEYSUCKLE. (*L. xylósteum*.)
 b Leaves not densely hairy beneath 3
- 3 a Ovaries and fruit united in pairs; leaves nearly evergreen; shrub not common
 STANDISH'S HONEYSUCKLE. (*L. stándishii*.)
 b Ovaries and fruit not completely united; shrub common in parks.....TARTARIAN HONEYSUCKLE. (*L. tartárica*.)

VALERIANACEAE (VALERIAN FAMILY)

- 4 a All leaves short-petioled 5
 b Uppermost leaves joined at the bases, not petioled.. 6
- 5 a Flowers in pairs in the upper axils; leaves usually hairy beneath.... JAPANESE HONEYSUCKLE. (*L. japonica*.)
 b Flowers in heads; leaves whitish beneath, not hairy
 WOODBINE. (*L. periclymenum*.)
- 6 a Corolla nearly regular, scarlet or yellow; fruit scarlet, in somewhat distant whorls
 TRUMPET HONEYSUCKLE. (*L. sempervirens*.)
 b Corolla 2-lipped, purplish to whitish; fruit red, in rather close whorls 7
- 7 a Flowers 1-2 in. long, not hairy within; uppermost leaves rounded or oval
 ITALIAN HONEYSUCKLE. (*L. caprifolium*.)
 b Flowers 1/2-1 in. long, hairy within; uppermost leaves oblong SMOOTH-LEAVED HONEYSUCKLE. (*L. dioica*.)
- 6 DIERVILLA.
- 1 a Wild shrub; flowers yellow
 FLY HONEYSUCKLE. (*D. diervilla*.)
 b Cultivated shrubs; flowers not yellow 2
- 2 a Calyx lobes lanceolate, about the length of the calyx tube WEIGELA. (*D. florida*.)
 b Calyx lobes linear, much longer than the calyx tube
 HYBRID WEIGELA. (*D. hybrida*.)

8 VALERIANALES. Valerian Order.

1 VALERIANACEAE. Valerian Family.

- 1 VALERIANA.....GARDEN VALERIAN. (*V. officinalis*.)

2 DIPSACACEAE. Teasel Family.

1 DIPSACUS.

- 1 a Scales of head with a straight awn
 TEASEL. (*D. sylvestris*.)
 b Scales of head with a hooked awn
 FULLER'S TEASEL. (*D. fullonum*.)

2 SCABIOSA.

- 1 a Plant cultivated in gardens
 MOURNING BRIDE. (*S. atropurpurea*.)
 b Plant not cultivated.....FIELD SCABIOUS. (*S. arvensis*.)

9 CAMPANULALES. Bellflower Order.

1 CUCURBITACEAE. Gourd Family.

- 1 LAGENARIA.....BOTTLE GOURD. (*L. vulgaris*.)
 2 MICRAMPELIS.....WILD BALSAM APPLE. (*M. lobata*.)
 3 SICYOS.....ONE-SEEDED BUR CUCUMBER. (*S. angulatus*.)

CAMPANULACEAE (BELLFLOWER FAMILY)

4 CŪCUMIS.

1 *a* Lobes of leaves pointed; fruit oblong, prickly
CUCUMBER. (*C. sativus*.*)

b Lobes of leaves usually rounded, fruit ribbed, not
 prickly MUSK MELON. (*C. melo*.*)

5 CITRŪLLUS..... CITRON. WATERMELON. (*C. vulgaris*.*)

6 CUCŪRBITA.

1 *a* Leaves usually not lobed; fruiting stalk soft and spongy
COMMON WINTER SQUASH. (*C. maxima*.*)

b Leaves usually lobed; fruiting stalk hard and rigid.. 2

2 *a* Fruiting stalk enlarged next the fruit
WINTER CROOKNECK SQUASH. (*C. moschata*.*)

b Fruiting stalk not enlarged next the fruit
PUMPKIN. (*C. pepo*.*)

2 CAMPANULACEAE. Bellflower Family.

1 CAMPANULA.

1 *a* Flowers about $\frac{1}{4}$ in. long or broad; stems usually rough
 with bristles..... MARSH BELLFLOWER. (*C. aparinoides*.)

b Flowers $\frac{1}{2}$ -3 in. long or broad 2

2 *a* Flowers usually 1 in. or less long or broad; wild species
BLUEBELL. (*C. rotundifolia*.)

b Flowers usually more than 1 in. long or broad; culti-
 vated species 3

3 *a* Plant usually 1 ft. or less high, tufted
CARPATHIAN BELLFLOWER. (*C. carpatica*.*)

b Plants 2-4 ft. high 4

4 *a* Calyx with an appendage at the base of each sinus
CANTERBURY BELLS. (*C. medium*.*)

b Calyx without an appendage at the base of each sinus 5

5 *a* Flowers saucer-shaped or broadly bell-shaped
NARROW-LEAVED BELLFLOWER. (*C. persicifolia*.*)

b Flowers narrowly bell-shaped
EUROPEAN BELLFLOWER. (*C. trachelium*.*)

2 SPECULARIA..... VENUS' LOOKING-GLASS. (*S. perfoliata*.)

3 PLATYCŌDON.. JAPANESE BELLFLOWER. (*P. grandiflorum*.*)

3 LOBELIACEAE. Lobelia Family.

1 LOBELIA.

1 *a* Flowers scarlet..... CARDINAL FLOWER. (*L. cardinalis*.)

b Flowers some shade of blue 2

2 *a* Flowers $\frac{3}{4}$ -2 in. long; leaves 2-6 in. long
BLUE CARDINAL FLOWER. (*L. siphilitica*.)

b Flowers $\frac{1}{4}$ - $\frac{3}{4}$ in. long; leaves $\frac{1}{2}$ -4 in. long 3

3 *a* Plant cultivated in gardens.. GARDEN LOBELIA. (*L. erinus*.*)

b Plants not cultivated in gardens 4

CHICORIACEAE (CHICORY FAMILY)

- 4 a Plant usually branched; capsule much swollen
INDIAN TOBACCO. (*L. inflàta.*)
b Plant usually not branched; capsule not swollen
SPIKED LOBELIA. (*L. spicàta.*)
- 4 CHICORIACEAE. *Chicory Family.*
- 1 a Heads 1-20-flowered, usually less than ½ in. broad.. 2
b Heads 30 or more flowered, usually ½ in. or more broad 3
- 2 a Flowers blue or yellow 9. *Lactuca.* p 219
b Flowers whitish, greenish, or purplish, never bright
yellow 12. *Nabulus.* p 220
- 3 a Flowers blue, purple, or pink 4
b Flowers yellow, orange, or orange-red 5
- 4 a Outer bracts of involucre shorter than the head
1. *Chicorium.* p 219
b Outer bracts of the involucre longer than the head
6. *Tragopogon.* p 219
- 5 a Leaves all basal; heads borne on leafless stalks 6
b Leaves not all basal; heads borne on leafy stems.... 9
- 6 a Flowering stalk hollow 7. *Taraxacum.* p 219
b Flowering stalk not hollow 7
- 7 a Leaves more or less entire..... 11. *Hieracium.* p 219
b Leaves pinnatifid or coarsely toothed 8
- 8 a Heads 1 in. or more broad 4. *Leontodon.* p 219
b Heads ¼-¾ in. broad 3. *Adopogon.* p 219
- 9 a Bracts of the involucre 15 or less, in 1 or 2 rows with
no smaller outer ones; heads 1-3 in. broad 10
b Bracts of the involucre usually 20 or more, or fewer
and with several smaller outer ones 11
- 10 a Bracts of involucre 9-15; leaves lanceolate to obovate,
mostly basal 3. *Adopogon.* p 219
b Bracts of involucre 6-10; leaves linear, not mostly
basal 6. *Tragopogon.* p 219
- 11 a Bracts of involucre in several rows, each row success-
ively smaller; at least some leaves pinnatifid
8. *Sonchus.* p 219
b Principal bracts of involucre in 1-3 rows usually with
several smaller outer ones, but not successively smaller 12
- 12 a Pappus wanting; heads ¼-½ in. broad, numerous, in
panicles 2. *Lapsana.* p 219
b Pappus of capillary bristles; plants not completely as
in a 13
- 13 a Basal leaves pinnatifid or very coarsely toothed
10. *Crepis.* p 219
b Basal leaves when present entire or somewhat toothed 14
- 14 a Pappus white; plant not common..... 5. *Picris.* p 219
b Pappus brownish; plants rather common
11. *Hieracium.* p 219

CHICORIACEAE (CHICORY FAMILY)

- 1 CHICORIUM.....CHICORY. (*C. intybus.*)
- 2 LÁPSANA.....NIPPLEWORT. (*L. commúnis.*)
- 3 ADOPOGON.
- 1 a Stem with 2-6 heads; stem leaves 1-3
CYNTHIA. (*A. virginicum.*)
- b Stem with 1 head; stem leaves wanting
DWARF DANDELION. (*A. carolinianum.*)
- 4 LEÓNTODON.....FALL DANDELION. (*L. autumnále.*)
- 5 PÌCRIS.....HAWKWEED PICRIS. (*P. hieracioides.*)
- 6 TRAGOPOGON.
- 1 a Flowers yellowGOAT'S BEARD. (*T. praténsis.*)
- b Flowers purpleSALSIFY. (*T. porrifolius.**)
- 7 TARÁXACUM.
- 1 a Outer bracts of involucre reflexed; achenes greenish-brownCOMMON DANDELION. (*T. taráxacum.*)
- b Outer bracts of involucre ascending or spreading; achenes reddish
RED-SEEDED DANDELION. (*T. erythrospermum.*)
- 8 SÓNCHUS.
- 1 a Bracts of involucre with glandular hairs; heads 1-2 in. broadFIELD SOW THISTLE. (*S. arvensis.*)
- b Bracts of involucre not with glandular hairs; heads $\frac{1}{2}$ - $\frac{3}{4}$ in. broad 2
- 2 a Basal lobes of the upper leaves pointed; basal leaves pinnatifid.....COMMON SOW THISTLE. (*S. oleraceus.*)
- b Basal lobes of the upper leaves rounded; basal leaves lobed or pinnatifid
SPINY-LEAVED SOW THISTLE. (*S. ásper.*)
- 9 LACTÛCA.
- 1 a Leaves with spiny margin and with spiny midrib beneathPRICKLY LETTUCE. (*L. scariola.*)
- b Leaves not completely as in a 2
- 2 a Flowers blue; pappus brown
TALL BLUE LETTUCE. (*L. spicata.*)
- b Flowers yellow; pappus white 3
- 3 a Basal leaves pinnatifid; wild species
WILD LETTUCE. (*L. canadensis.*)
- b Basal leaves not pinnatifid; cultivated for the leaves
GARDEN LETTUCE. (*L. sativa.**)
- 10 CRÈPIS.
- 1 a Heads $\frac{1}{2}$ - $\frac{3}{4}$ in. broad; principal bracts of involucre not hairy within.....SMOOTH HAWKSBEARD. (*C. virens.*)
- b Heads 1-2 in. broad; principal bracts of involucre hairy within.....ROUGH HAWKSBEARD. (*C. biennis.*)
- 11 HIERÁCIUM.
- 1 a Flowering stem leafless or with 1-3 bract-like leaves.. 2
- b Flowering stem with leaves 4

AMBROSIACEAE (RAGWEED FAMILY)

- 2 a Flowers orange or orange-red
ORANGE HAWKWEED. (*H. aurantiacum*.)
- b Flowers yellow 3
- 3 a Flowering stem with 1 head; head 1 in. or more broad
MOUSE-EAR HAWKWEED. (*H. pilosella*.)
- b Flowering stem with more than 1 head; heads $\frac{1}{2}$ - $\frac{3}{4}$
in. broad..... RATTLESNAKE-WEED. (*H. venosum*.)
- 4 a A tuft of basal leaves present at flowering time..... 5
- b No tuft of basal leaves present at flowering time..... 6
- 5 a Basal leaves obovate to oblong, usually with glandular
teeth; achenes oblong
MARYLAND HAWKWEED. (*H. marianum*.)
- b Basal leaves ovate to obovate, entire; achenes spindle-
shaped; stem covered with long hairs at the base
GRONOVIIUS' HAWKWEED. (*H. gronovii*.)
- 6 a Plant very hairy, with glandular hairs above
ROUGH HAWKWEED. (*H. scabrum*.)
- b Plants not noticeably hairy 7
- 7 a Leaves coarsely toothed especially below the middle;
principal bracts of involucre in 2 or 3 rows
CANADA HAWKWEED. (*H. canadense*.)
- b Leaves remotely toothed; principal bracts of involucre
in 1 row PANICLED HAWKWEED. (*H. paniculatum*.)
- 12 NÁBULUS.
- 1 a Bracts of involucre very hairy; flowers purplish
GLAUOUS WHITE LETTUCE. (*N. racemosus*.)
- b Bracts of involucre not hairy, or with few scattered
hairs; flowers rarely purplish 2
- 2 a Heads 5-7-flowered; principal bracts of involucre about 5
TALL WHITE LETTUCE. (*N. altissimus*.)
- b Heads 8-15-flowered; principal bracts of involucre 6-10 3
- 3 a Heads in a spike-like raceme, often 1-sided; plant not
branched.... SLENDER RATTLESNAKE-ROOT. (*N. virgatus*.)
- b Heads in a panicle; plants more or less branched above 4
- 4 a Pappus reddish-brown..... RATTLESNAKE-ROOT. (*N. albus*.)
- b Pappus light-brown or straw-colored 5
- 5 a Small outer bracts of involucre lanceolate; branches of
panicle widely spreading.. LION'S-FOOT. (*N. serpentarius*.)
- b Small outer bracts of involucre ovate to triangular;
branches of panicle ascending
TALL RATTLESNAKE-ROOT. (*N. trifoliatum*.)
- 5 AMBROSIACEAE. Ragweed Family.
- 1 AMBRÓSIA.
- 1 a Leaves pinnatifid, the segments lobed or coarsely toothed
COMMON RAGWEED. (*A. artemisiaefolia*.)
- b Leaves 3-5-lobed, the lobes toothed
GREAT RAGWEED. (*A. trifida*.)

COMPOSITAE (THISTLE FAMILY)

- 2 İVA.....MARSH ELDER. (*I. frutescens.*)
 3 XANTHIUM.
 1 a Leaves lanceolate to ovate-lanceolate, usually with
 spines in the axils.....SPINY CLOTBUR. (*X. spinosum.*)
 b Leaves broadly ovate or rounded, without spines.... 2
 2 a Fruit $\frac{1}{4}$ - $\frac{3}{4}$ in. long; beaks of bur nearly straight
 SMOOTH CLOTBUR. (*X. glabratum.*)
 b Fruit $\frac{3}{4}$ -1 in. long; beaks of bur hooked or incurved
 COMMON CLOTBUR. (*X. commune.*)

6 COMPÓSITAE. Thistle Family.

- 1 a Plant cultivated in hanging baskets.. 6. *Othonna*. p 227
 b Plants not cultivated in hanging baskets 2
 2 a Ray flowers wanting, all flowers in a head nearly alike
 and usually regular 3
 b Some or sometimes all of flowers in a head irregular
 and with strap-shaped corollas 40
 3 a Plants with spiny-toothed leaves 4
 b Plants not with spiny-toothed leaves 8
 4 a Stems winged by the petioles of the leaves; plants
 b Stems not winged by the petioles of the leaves 5
 white-woolly 62. *Onopordon*. p 239
 5 a Outer flowers with corolla obliquely 5-cleft, somewhat
 irregular 63. *Centaurea*. p 239
 b Each flower with corolla regularly 4-5-toothed 6
 6 a Heads globose; flowers blue 66. *Echinops*. p 240
 b Heads not globose; flowers purple, pink, or yellow.... 7
 7 a Outer bracts of involucre with pinnately-branched spines
 65. *Cnicus*. p 240
 b Outer bracts of involucre with or without spines, not
 branched 61. *Carduus*. p 239
 8 a Outer bracts of involucre with hooked bristles
 60. *Arctium*. p 239
 b Outer bracts of involucre not with hooked bristles.... 9
 9 a Single flowers conspicuous, the corolla somewhat ir-
 regularly and obliquely 5-cleft 10
 b Single flowers regular, the corolla regularly 4-5-toothed 11
 10 a Heads 2-4 in. broad; outer bracts of involucre leaf-like
 64. *Stokesia*. p 240
 b Heads $\frac{1}{2}$ -2 in. or more broad; outer bracts of involucre
 not leaf-like 63. *Centaurea*. p 239
 11 a Twining vine; flowers 4 in a head 5. *Willugbaeya*. p 227
 b Not twining vines; flowers more than 4 in a head.... 12
 12 a Some or all of leaves pinnately divided or dissected.. 13
 b Leaves entire, toothed, or lobed, not pinnately divided.. 18
 13 a Leaves with leaflets 1-6 in. long, ovate or lanceolate;
 pappus of barbed awns 44. *Bidens*. p 236
 b Plants not completely as in a 14

COMPOSITAE (THISTLE FAMILY)

- 14 *a* Only the lower leaves pinnately divided 15
b All leaves more or less pinnately divided 16
- 15 *a* Plants cultivated; leaves lanceolate to oblanceolate
 28. *Gaillardia*. p 234
b Plants wild; leaves ovate to triangular
 30. *Polymnia*. p 234
- 16 *a* Heads erect or pendulous, not arranged in a corymb
 53. *Artemisia*. p 238
b Heads erect, arranged in a corymb; flowers yellow.. 17
- 17 *a* Plant aromatic 52. *Tanacetum*. p 237
b Plants not aromatic 58. *Senecio*. p 238
- 18 *a* Flowers pink or purple, the heads in a dense raceme;
 leaves all basal, round-heart-shaped, appearing with
 or after the flowers 55. *Petasites*. p 238
b Plants not completely as in *a* 19
- 19 *a* All leaves entire or some with wavy margins 20
b Some or all of leaves toothed or incised 27
- 20 *a* Plants not woolly; flowers not whitish 21
b Plants more or less white-woolly 23
- 21 *a* Heads in spikes or spike-like racemes; bracts of in-
 volucre in 4-6 rows 7. *Lacinaria*. p 227
b Heads not in spikes or spike-like racemes 22
- 22 *a* Bracts of involucre in several rows, usually not green
 16. *Helichrysum*. p 233
b Bracts of involucre in 1 or 2 rows, green
 15. *Erigeron*. p 233
- 23 *a* Basal leaves present, broader than the stem leaves
 23. *Antennaria*. p 233
b No conspicuous basal leaves present 24
- 24 *a* Bracts of involucre pearly-white, numerous, spreading
 24. *Anaphalis*. p 234
b Bracts of involucre not pearly-white and spreading.... 25
- 25 *a* Cultivated herb; heads usually solitary; bracts of in-
 volucre variously colored.... 26. *Xeranthemum*. p 234
b Wild herbs; heads 2-30 in a cluster 26
- 26 *a* Heads 12-30 in a cluster; bracts of involucre light
 yellow 21. *Gifola*. p 233
b Heads 2-10 in a cluster; bracts of involucre not yellow
 25. *Gnaphalium*. p 234
- 27 *a* Shrub with obovate leaves 1-3 in. long
 20. *Baccharis*. p 233
b Herbs 28
- 28 *a* Some or all of leaves opposite or in whorls, few or none
 alternate 29
b All of leaves alternate 33
- 29 *a* Flowers white, pink, purple, or blue 30
b Flowers not colored as in *a* 32

COMPOSITAE (THISTLE FAMILY)

- 30 a Wild herbs 2. *Eupatorium*. p 227
 b Cultivated herbs 31
- 31 a Leaves ovate to heart-shaped; styles much longer than
 the corolla 4. *Ageratum*. p 227
 b Leaves lanceolate to oblong; styles not longer than the
 corolla 3. *Piqueria*. p 227
- 32 a Achenes crowned by a pappus of 2-4 barbed awns
 44. *Bidens*. p 236
 b Achenes not crowned by a pappus .. 30. *Polymnia*. p 234
- 33 a Flowers yellowish or orange 34
 b Flowers not yellowish or orange 36
- 34 a Wild herbs; pappus of 2-4 stiff, barbed awns
 44. *Bidens*. p 236
 b Cultivated herbs; pappus not of barbed awns 35
- 35 a Heads $\frac{1}{2}$ -1 in. broad; leaves clasping at the base
 29. *Emilia*. p 234
 b Heads 1-4 in. broad; leaves not clasping at the base
 28. *Gaillardia*. p 234
- 36 a Plant with sticky hairs, with a camphor-like odor,
 growing in salt marshes 22. *Pluchea*. p 233
 b Plants not completely as in a 37
- 37 a Heads $\frac{1}{2}$ -1 in. broad..... 15. *Erigeron*. p 233
 b Heads $\frac{1}{2}$ in. or less broad 38
- 38 a Flowers usually purplish;
 pappus purplish
 1. *Vernonia*. p 227
 b Flowers white, green, or pink; pappus whitish..... 39
- 39 a Lower leaves lanceolate or ovate lanceolate; involucre
 swollen at the base especially before flowering
 56. *Erechtites*. p 238
 b Lower leaves triangular-lanceolate or arrow-shaped;
 involucre not swollen at the base
 57. *Synosma*. p 238
- 40 a Leaves wanting at flowering time; flowering stalk with
 alternate bracts; flowers yellow.. 54. *Tussilago*. p 238
 b Leaves present at flowering time 41
- 41 a Leaves basal; plant cultivated for the flowers
 11. *Bellis*. p 230
 b Leaves not all basal 42
- 42 a Some or all of the stem leaves opposite 43
 b Stem leaves all alternate 60
- 43 a Upper leaves united at their bases to form a cup-like
 disk 31. *Silphium*. p 234
 b Upper leaves not united as in a 44
- 44 a Irregular or ray flowers very numerous, in several rows;
 plants cultivated for the flowers 45
 b Irregular or ray flowers usually in 1 or 2 rows, usually
 less numerous than the regular or disk flowers 47

COMPOSITAE (THISTLE FAMILY)

- 45 a Leaves entire 41. *Zinnia*. p 235
 b Leaves pinnately compound 46
- 46 a Leaflets ovate 43. *Dahlia*. p 235
 b Leaflets linear 42. *Cosmos*. p 235
- 47 a Ray flowers white or pink 48
 b Ray flowers yellow or yellowish 53
- 48 a Leaves pinnately compound, the segments linear
 42. *Cosmos*. p 235
 b Leaves simple 49
- 49 a Leaves ovate or triangular-ovate, usually rounded at
 the base 50
 b Leaves linear to lanceolate, narrowed at the base..... 51
- 50 a Wild herb; heads about $\frac{1}{4}$ in. broad
 45. *Galinsoga*. p 236
 b Cultivated herb; heads 1-3 in. broad 46. *Arctotis*. p 236
- 51 a Ray flowers 4-8, pink, rarely white.. 40. *Coreopsis*. p 235
 b Ray flowers several 52
- 52 a Ray flowers whitish; wild herbs.... 33. *Eclipta*. p 234
 b Ray flowers purple to crimson..... 34. *Brauneria*. p 234
- 53 a Outer bracts of involucre leaf-like, much larger than
 the inner 54
 b Outer bracts of involucre usually conspicuously smaller
 than the inner 55
- 54 a Achenes crowned by a pappus of 2-4 stiff, barbed awns
 44. *Bidens*. p 236
 b Achenes not crowned by a pappus.. 30. *Polymnia*. p 234
- 55 a Heads $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; achenes not crowned by a pap-
 pus 33. *Eclipta*. p 234
 b Heads $\frac{1}{2}$ in. or more broad 56
- 56 a Receptacle of head conic or convex 57
 b Receptacle of head more or less flat 58
- 57 a Bracts of involucre in 1-3 rows; achenes sometimes
 crowned by a pappus of 2-4 teeth 32. *Heliopsis*. p 234
 b Bracts of involucre in 3 or more rows; achenes usually
 crowned by scales or awns..... 36. *Helianthus*. p 235
- 58 a Achenes crowned by a pappus of 2-4 stiff, barbed awns
 44. *Bidens*. p 236
 b Achenes not crowned by a pappus of barbed awns.... 59
- 59 a Bracts of the involucre in 2 rows united at the base
 40. *Coreopsis*. p 235
 b Bracts of the involucre in several rows, not united at
 the base 36. *Helianthus*. p 235
- 60 a Leaves pinnatifid, pinnately compound, or dissected.... 61
 b Leaves entire, toothed, or incised 71
- 61 a Heads $\frac{1}{4}$ - $\frac{1}{2}$ in. broad 62
 b Heads $\frac{1}{2}$ in. or more broad 63

COMPOSITAE (THISTLE FAMILY)

- 62 a Flowers yellow 52. *Tanacetum*. p 237
 b Flowers white, pink, or purple.... 48. *Achillea*. p 236
- 63 a Irregular or ray flowers numerous, more numerous than
 the regular or disk flowers 64
 b Irregular or ray flowers in 1 or 2 rows, usually less
 numerous than the regular or disk flowers 66
- 64 a Flowers usually orange, sometimes spotted or striped
 with purple; plants strong scented 38. *Tagetes*. p 235
 b Flowers variously colored, rarely orange; plants not
 scented 65
- 65 a Irregular flowers yellow; heads 2-4 in. broad
 35. *Rudbeckia*. p 234
 b Flowers and heads not completely as in a
 50. *Chrysanthemum*. p 237
- 66 a Heads 2-4 in. broad 67
 b Heads 2 in. or less broad 68
- 67 a Irregular flowers 6-10 35. *Rudbeckia*. p 234
 b Irregular flowers numerous 28. *Gaillardia*. p 234
- 68 a Receptacle of head chaffy 69
 b Receptacle of head not chaffy 70
- 69 a Irregular or ray flowers white or yellow; leaf segments
 usually linear 49. *Anthemis*. p 236
 b Irregular or ray flowers purple, red, or yellow; leaf
 segments not linear 28. *Gaillardia*. p 234
- 70 a Receptacle of head conic or hemispheric; leaf segments
 usually linear or thread-like.... 51. *Matricaria*. p 237
 b Receptacle of head flat or convex; leaf segments not
 as in a 50. *Chrysanthemum*. p 237
- 71 a Irregular flowers numerous, in several rows; garden
 plants 72
 b Irregular flowers in 1 or 2 rows 74
- 72 a Leaves usually entire or sparingly toothed
 37. *Calendula*. p 235
 b Leaves coarsely toothed or lobed 73
- 73 a Plant 3-10 ft. high; flowers yellow 35. *Rudbeckia*. p 234
 b Plant 1-2 ft. high; flowers usually not yellow
 39. *Callistephus*. p 235
- 74 a Irregular or ray flowers yellow 75
 b Irregular or ray flowers not yellow 84
- 75 a Heads 2-4 in. broad 76
 b Heads 2 in. or less broad 78
- 76 a Outer bracts of involucre ovate; leaves 4-20 in. long,
 broadly oblong 27. *Inula*. p 234
 b Outer bracts of involucre usually lanceolate 77

COMPOSITAE (THISTLE FAMILY)

- 77 a Plant 1-2 ft. high, cultivated..... 28. *Gaillardia*. p 234
 b Plant 2-10 ft. high, wild or cultivated; leaves smooth
 above 35. *Rudbeckia*. p 234
 c Plant 1-7 ft. high, wild or cultivated; leaves rough
 above 36. *Helianthus*. p 235
- 78 a Leaves more or less toothed 79
 b Leaves entire 81
- 79 a Heads 1-2 in. broad, the disk globose 47. *Helenium*. p 236
 b Heads 1-2 in. broad, the disk convex 36. *Helianthus*. p 235
 c Heads 1 in. or less broad, the disk not globose 80
- 80 a Principal bracts of involucre in 1 row, sometimes with
 a few shorter outer ones 58. *Senecio*. p 238
 b Bracts of involucre in several rows, the outer usually
 successively shorter 9. *Solidago*. p 228
- 81 a Heads $\frac{3}{4}$ -1 in. broad 8. *Chrysopsis*. p 228
 b Heads $\frac{1}{2}$ in. or less broad 82
- 82 a Leaves not linear 9. *Solidago*. p 228
 b Leaves linear 83
- 83 a Irregular or ray flowers usually more numerous than
 the regular flowers 10. *Euthamia*. p 230
 b Irregular or ray flowers less numerous than the regular
 flowers 8. *Chrysopsis*. p 228
- 84 a Bracts of the involucre in 1 or 2 rows 85
 b Bracts of the involucre in 3 or more rows 88
- 85 a Heads $\frac{1}{4}$ in. or less broad 17. *Leptilon*. p 233
 b Heads $\frac{1}{2}$ in. or more broad 86
- 86 a Wild plants 15. *Erigeron*. p 233
 b Cultivated plants 87
- 87 a Leaves ovate-heart-shaped 59. *Cineraria*. p 238
 b Leaves lanceolate to oblong..... 28. *Gaillardia*. p 234
- 88 a Heads arranged in a single, terminal, interrupted spike
 9. *Solidago*. p 228
 b Heads not arranged as in a 89
- 89 a Pappus of 2 or 4 slender bristles and several scales
 12. *Boltonia*. p 230
 b Pappus of numerous capillary bristles 90
- 90 a Irregular flowers numerous, shorter than the pappus;
 heads $\frac{1}{4}$ in. or less broad..... 17. *Leptilon*. p 233
 b Irregular flowers usually not shorter than the pappus 91
- 91 a Pappus of a single row of capillary bristles 92
 b Pappus of 2 rows of bristles, the outer row shorter,
 sometimes scale-like 93
- 92 a Involucre very narrow, less than $\frac{1}{4}$ in. broad; heads
 12-20-flowered; irregular or ray flowers 4-7
 13. *Sericocarpus*. p 230
 b Plants not completely as in a 14. *Aster*. p 230

COMPOSITAE (THISTLE FAMILY)

- 8 CHRYSÓPSIS.
 1 a Heads $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; leaves linear
 SICKLE-LEAVED GOLDEN ASTER. (*C. falcata*.)
 b Heads $\frac{3}{4}$ -1 in. broad; leaves oblong to oblanceolate
 MARYLAND GOLDEN ASTER. (*C. mariàna*.)
- 9 SOLIDÀGO.
 1 a Outer flowers white WHITE GOLDEN-ROD. (*S. bicolor*.)
 b Outer flowers yellow 2
 2 a Bracts of the involucre all strongly spreading or re-
 curved RAGGED GOLDEN-ROD. (*S. squarròsa*.)
 b Bracts of the involucre erect and appressed 3
 3 a Upper surface of leaves very rough or very uneven.. 4
 b Upper surface of leaves more or less smooth 7
 4 a Stem not hairy; lower leaves 4-15 in. long
 ROUGH-LEAVED GOLDEN-ROD. (*S. pátula*.)
 b Stem densely hairy 5
 5 a Heads arranged in a compound corymb, not in racemes;
 leaves rough on both sides. STIFF GOLDEN-ROD. (*S. rigida*.)
 b Heads in 1-sided racemes arranged in a panicle 6
 6 a Plant covered with fine gray hairs; leaves oblanceolate,
 usually blunt at apex. GRAY GOLDEN-ROD. (*S. nemoralis*.)
 b Plant covered with rather coarse hairs; leaves oval to
 oblong-lanceolate, usually pointed at apex
 WRINKLED-LEAVED GOLDEN-ROD. (*S. rugòsa*.)
 7 a Heads in clusters in the axils of the upper leaves 8
 b Heads not in axillary clusters 10
 8 a Stem and leaves densely hairy
 HAIRY GOLDEN-ROD. (*S. hispida*.)
 b Stem and leaves not densely hairy 9
 9 a Leaves lanceolate or oblong-lanceolate; stem rounded,
 often bluish or purple
 BLUE-STEMMED GOLDEN-ROD. (*S. caesia*.)
 b Leaves broadly ovate; stem angled, often zigzag
 ZIG-ZAG GOLDEN-ROD. (*S. flexicàulis*.)
- 10 a Heads in a compact, often spike-like panicle, not ar-
 ranged in 1-sided racemes 11
 b Heads in 1-sided, spreading or recurved racemes ar-
 ranged in a panicle 14
- 11 a Stem and leaves densely hairy
 HAIRY GOLDEN-ROD. (*S. hispida*.)
 b Stem and leaves not densely hairy 12
- 12 a Lower and basal leaves 2-4 in. long, oblanceolate, rather
 blunt at apex DOWNY GOLDEN-ROD. (*S. pubérula*.)
 b Lower and basal leaves 4-10 in. long, lanceolate to oval,
 usually pointed at apex 13

COMPOSITAE (THISTLE FAMILY)

- 13 a Lower and basal leaves lanceolate to oblong-lanceolate
 BOG GOLDEN-ROD. (*S. uliginosa*.)
 b Lower and basal leaves oval to ovate, the margins
 roughSHOWY GOLDEN-ROD. (*S. speciosa*.)
- 14 a Lower and basal leaves entire 15
 b Lower and basal leaves more or less sharply toothed 16
- 15 a Irregular flowers 8-10; basal leaves long-petioled; plant
 growing on salt marshes
 SEA-SIDE GOLDEN-ROD. (*S. sempervirens*.)
 b Irregular flowers 3-4; basal leaves sessile or short-
 petioled; plant not growing on salt marshes
 SWEET GOLDEN-ROD. (*S. odora*.)
- 16 a Lower leaves more or less distinctly 3-nerved..... 17
 b Lower leaves pinnately veined, not 3-nerved..... 19
- 17 a Plant hairyCUT-LEAVED GOLDEN-ROD. (*S. serotina*.)
 b Plants not distinctly hairy 18
- 18 a Lower leaves narrowly lanceolate
 CANADA GOLDEN-ROD. (*S. canadensis*.)
 b Lower leaves oblanceolate
 GRAY GOLDEN-ROD. (*S. nemoralis*.)
- 19 a Basal leaves similar to the 30-200 stem leaves, sessile
 or short-petioled 20
 b Basal leaves long-petioled, conspicuously larger than
 the 10-20 stem leaves 21
- 20 a Lower leaves coarsely and sharply toothed; achenes
 usually not hairy.ELM-LEAVED GOLDEN-ROD. (*S. ulmifolia*.)
 b Lower leaves sparingly toothed; achenes hairy
 ELLIOTT'S GOLDEN-ROD. (*S. elliottii*.)
- 21 a Lower leaves broadly ovate or ovate-lanceolate, abruptly
 narrowed to a margined petiole; upper leaves usually
 toothedTOOTHED GOLDEN-ROD. (*S. arguta*.)
 b Lower leaves lanceolate to oblong-lanceolate, gradually
 narrowed into a petiole; upper leaves usually entire 22
- 22 a Irregular flowers 7-12; panicle usually, not always, as
 broad as high; basal leaves lanceolate to ovate-lanceo-
 lateEARLY GOLDEN-ROD. (*S. juncea*.)
 b Irregular flowers 1-8; panicle usually longer than
 broad; basal leaves lanceolate to oblong-lanceolate.. 23
- 23 a Irregular flowers 1-4; upper leaves linear to lanceolate;
 panicle comparatively small
 FEW-RAYED GOLDEN-ROD. (*S. uniligulata*.)
 b Irregular flowers 3-8; upper leaves lanceolate
 SWAMP GOLDEN-ROD. (*S. neglecta*.)

COMPOSITAE (THISTLE FAMILY)

- 10 EUTHAMIA.
 1 a Irregular flowers 12-20; leaves linear-lanceolate, 3-5-nerved BUSHY GOLDEN-ROD. (*E. graminifolia*.)
 b Irregular flowers 6-12; leaves narrowly linear, usually 1-nerved
 SLENDER FRAGRANT GOLDEN-ROD. (*E. caroliniana*.)
- 11 BÉLLIS.....GARDEN DAISY. (*B. perennis*.)*
- 12 BOLTÒNIA.....ASTER-LIKE BOLTONIA. (*B. asteroides*.)
- 13 SERICOCÁRPUS.
 1 a Leaves linear
 NARROW-LEAVED WHITE-TOPPED ASTER. (*S. linifolius*.)
 b Leaves lanceolate to obovate
 TOOTHED WHITE-TOPPED ASTER. (*S. asteroides*.)
- 14 ÁSTER.
 1 a Some or all of lower and basal leaves petioled and heart-shaped at base 2
 b Lower leaves more or less tapering at the base or else sessile 12
- 2 a Ray flowers white 3
 b Ray flowers blue or violet 7
- 3 a Leaves smooth above. WHITE WOOD ASTER. (*A. divaricatus*.)
 b Leaves noticeably rough above 4
- 4 a Branches of the corymb with glandular hairs
 LARGE-LEAVED ASTER. (*A. macrophýllus*.)
 b Branches of the corymb or panicle not with glandular hairs 5
- 5 a Ray flowers about 6; heads in a rounded corymb
 BERNHARDI'S ASTER. (*A. glomeratus*.)
 b Ray flowers 10-20; heads in a flat-topped corymb or panicle 6
- 6 a Basal sinus of the basal leaves more or less rectangular; heads in a corymb.....SCHREBER'S ASTER. (*A. schreberi*.)
 b Basal sinus of basal leaves rounded; heads in a panicle
 BLUE WOOD ASTER. (*A. cordifolius*.)
- 7 a Branches of the inflorescence with glandular hairs
 LARGE-LEAVED ASTER. (*A. macrophýllus*.)
 b Branches of the inflorescence not with glandular hairs.. 8
- 8 a Stem leaves with winged petioles spreading and clasping at the base WAVY-LEAF ASTER. (*A. undulatus*.)
 b Stem leaves sessile or with slender petioles sometimes winged but not clasping at the base 9
- 9 a Bracts of the involucre spreading, not appressed, pointed at the apex.....ARROW-LEAVED ASTER. (*A. sagittifolius*.)
 b Bracts of the involucre appressed, usually not pointed at apex 10
- 10 a Heads in corymbs...WHITE WOOD ASTER. (*A. divaricatus*.)
 b Heads in panicles 11

COMPOSITAE (THISTLE FAMILY)

- 11 *a* Leaves usually rough above, not glaucous beneath
 BLUE WOOD ASTER. (*A. cordifolius.*)
b Leaves smooth, usually glaucous beneath
 LOWRIE'S ASTER. (*A. lowrieanus.*)
- 12 *a* At least the lower leaves, and sometimes the stem leaves,
 narrowed or constricted below the middle and widened
 and clasping at the base 13
b Leaves not completely as in *a* 15
- 13 *a* Leaves toothed above the middle
 CROOKED-STEM ASTER. (*A. prenanthoides.*)
b Leaves usually entire 14
- 14 *a* Leaves ovate to oblong-lanceolate, ½-3 in. long, usually
 rough LATE PURPLE ASTER. (*A. patens.*)
b Leaves lanceolate to oblong, 1-6 in. long, not usually
 rough.... THIN-LEAVED PURPLE ASTER. (*A. phlogifolius.*)
- 15 *a* Stem leaves more or less clasping at the base 16
b Stem leaves sessile or petioled, not clasping at the base 22
- 16 *a* Bracts of involucre with glandular hairs 17
b Bracts of involucre not with glandular hairs 19
- 17 *a* Ray flowers 40-60; leaves lanceolate; branchlets with
 glandular hairs. NEW ENGLAND ASTER. (*A. novae-angliae.*)
b Ray flowers 20-30; leaves ovate to oblong-lanceolate or
 sometimes lanceolate; branchlets not with glandular
 hairs 18
- 18 *a* Leaves lanceolate to oblong
 THIN-LEAVED PURPLE ASTER. (*A. phlogifolius.*)
b Leaves ovate to oblong-lanceolate
 LATE PURPLE ASTER. (*A. patens.*)
- 19 *a* Upper branches densely hairy 20
b Upper branches not densely hairy 21
- 20 *a* Leaves entire.... NEW ENGLAND ASTER. (*A. novae-angliae.*)
b Leaves usually coarsely toothed and rough above
 PURPLE-STEM ASTER. (*A. punicens.*)
- 21 *a* Stem usually glaucous; involucre bell-shaped, its bracts
 appressed SMOOTH ASTER. (*A. laevis.*)
b Stem not glaucous; involucre hemispheric, its bracts
 spreading NEW YORK ASTER. (*A. novi-belgii.*)
- 22 *a* Leaves silvery-silky on both sides; heads in wand-like
 racemes SILVER ASTER. (*A. concolor.*)
b Leaves not silvery-silky on both sides 23
- 23 *a* Heads when open ¾-2 in. broad 24
b Heads when open ½ in. or less broad 31
- 24 *a* Lower leaves oval to oblanceolate, petioled; branches
 and bracts of involucre usually with glandular hairs
 SHOWY PURPLE ASTER. (*A. spectabilis.*)
b Lower leaves lanceolate to oblong; no glandular hairs
 present 25

COMPOSITAE (THISTLE FAMILY)

- 25 *a* Upper stem leaves entire, the lowest sometimes toothed 26
b Stem leaves more or less toothed 27
- 26 *a* Lower leaves oblanceolate, sometimes toothed; plant
 not growing on salt marshes. .BUSHY ASTER. (*A. dumòsus*.)
b Lower leaves linear to linear-lanceolate, entire; plant
 growing on salt marshes
 PERENNIAL SALT-MARSH ASTER. (*A. tenuifòlius*.)
- 27 *a* Heads when open 1-2 in. broad, not in panicles 28
b Heads 1 in. or less broad when open, in loose panicles
 or racemose-panicles 29
- 28 *a* Leaves 1-2 in. long; heads few or solitary on slender
 stalksBOG ASTER. (*A. nemoralis*.)
b Leaves 2-6 in. long; heads several in a corymb
 MOUNTAIN ASTER. (*A. acuminàtus*.)
- 29 *a* Heads numerous in leafy racemes on the branches; ray
 flowers whiteTRADESCANT'S ASTER. (*A. tradescànti*.)
b Heads in a loose panicle; ray flowers violet, purplish,
 or white 30
- 30 *a* Ray flowers usually white; leaves smooth
 PANICLED ASTER. (*A. paniculàtus*.)
b Ray flowers not usually white; leaves often rough above
 WILLOW ASTER. (*A. salicifòlius*.)
- 31 *a* Heads in loose panicles, or terminal on the branches,
 not in 1-sided racemes 32
b Heads in more or less 1-sided racemes, often recurved,
 on the branches 38
- 32 *a* Stem densely hairy, not merely hairy in lines
 HAIRY-STEMMED ASTER. (*A. hirsuticàulis*.)
b Stem not densely hairy, sometimes hairy in lines 33
- 33 *a* Lower leaves toothed 34
b All leaves entire 35
- 34 *a* Bracts of the involucre lanceolate; basal leaves narrowed
 into winged petioles.WHITE HEATH ASTER. (*A. ericoides*.)
b Bracts of involucre linear; basal leaves not petioled
 BUSHY ASTER. (*A. dumòsus*.)
- 35 *a* Plants growing in salt marshes..... 36
b Plants not growing in salt marshes..... 37
- 36 *a* Heads $\frac{1}{2}$ -1 in. broad when open; bracts of involucre
 lanceolate.PERENNIAL SALT-MARSH ASTER. (*A. tenuifòlius*.)
b Heads $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; bracts of involucre linear
 ANNUAL SALT-MARSH ASTER. (*A. subulàtus*.)
- 37 *a* Bracts of involucre lanceolate; basal leaves narrowed
 into winged petioles.WHITE HEATH ASTER (*A. ericoides*.)
b Bracts of involucre linear; basal leaves not petioled
 BUSHY ASTER. (*A. dumòsus*.)
- 38 *a* Stems conspicuously rough or hairy throughout..... 39
b Stems not rough or hairy throughout, often hairy in lines 41

COMPOSITAE (THISTLE FAMILY)

- 39 a All leaves entire, rough
 DENSELY-FLOWERED ASTER. (*A. multiflorus*.)
 b Some of the leaves usually toothed, not rough 40
- 40 a Lower leaves oblanceolate to linear-lanceolate, usually
 petioled, long-pointed at apex
 HAIRY-STEMMED ASTER. (*A. hirsuticaulis*.)
 b Lower leaves linear to lanceolate, sessile, pointed at apex
 TRADESCANT'S ASTER. (*A. tradescanti*.)
- 41 a Lower leaves ovate to lanceolate, usually petioled
 STARVED ASTER. (*A. lateriflorus*.)
 b Lower leaves linear to lanceolate, sessile 42
- 42 a Branches nearly horizontal; lower leaves entire or some-
 times toothed SMALL WHITE ASTER. (*A. vimineus*.)
 b Branches ascending; lower leaves toothed
 TRADESCANT'S ASTER. (*A. tradescanti*.)
- 15 ERIGERON.
- 1 a Heads 1-2 in. broad; stem not usually branched above
 ROBIN'S PLANTAIN. (*E. pulchellus*.)
 b Heads usually $\frac{1}{2}$ -1 in. broad; stems usually branched
 above 2
- 2 a Ray flowers rose-purple, 100 or more to a head
 PHILADELPHIA FLEABANE. (*E. philadelphicus*.)
 b Ray flowers white or purple tinged, 70 or less to a head 3
- 3 a Stem leaves toothed SWEET SCABIOUS. (*E. annuus*.)
 b Stem leaves entire DAISY FLEABANE. (*E. ramosus*.)
- 16 HELICHRYSUM GOLDEN IMMORTELLE. (*H. bracteatum*.*)
- 17 LÉPTILON HORSE-WEED. (*L. canadense*.)
- 18 DOELLINGERIA.
- 1 a Heads comparatively numerous; leaves lanceolate to
 oblong FLAT-TOPPED WHITE ASTER. (*D. umbellata*.)
 b Heads comparatively few; leaves obovate to oblong-
 lanceolate CORNELL-LEAVED ASTER. (*D. infirma*.)
- 19 IONÁCTIS STIFF ASTER. (*I. linariifolius*.)
- 20 BÁCCHARIS GROUNDSEL TREE. (*B. halimifolia*.)
- 21 GÍFOLA CUDWEED. (*G. germanica*.)
- 22 PLÛCHEA SALT-MARSH FLEABANE. (*P. camphorata*.)
- 23 ANTENNARIA.
- 1 a Basal leaves $\frac{1}{4}$ - $\frac{3}{4}$ in. broad, distinctly 1-nerved 2
 b Basal leaves $\frac{1}{2}$ -2 in. broad, distinctly 3-5-nerved 4
- 2 a Mature basal leaves 1 in. or less long, obovate; stolons
 leafy throughout SMALLER CAT'S-FOOT. (*A. neodioica*.)
 b Mature basal leaves usually more than 1 in. long, ob-
 lanceolate 3
- 3 a Stolons leafy throughout; basal leaves 1-2 in. long
 CANADIAN CAT'S-FOOT. (*A. canadensis*.)
 b Stolons leafy only toward the tip; basal leaves 1-3
 in. long FIELD CAT'S-FOOT. (*A. neglecta*.)

COMPOSITAE (THISTLE FAMILY)

- 4 a Plant with purplish, glandular hairs; young leaves not usually hairy above..PARLIN'S CAT'S-FOOT. (*A. parlinii.*)
 b Plants not with glandular hairs; young leaves hairy above 5
- 5 a Basal leaves 1-3 in. long, with petiole usually shorter than the blade
 PLANTAIN-LEAF EVERLASTING. (*A. plantaginifolia.*)
 b Basal leaves 2-5 in. long, with petiole as long as the bladeTALL CAT'S-FOOT. (*A. fallax.*)
- 24 ANÁPHALIS.....PEARLY EVERLASTING. (*A. margaritácea.*)
- 25 GNAPHÁLÍUM.
 1 a Plants erect, branched only toward the top 2
 b Plants ascending or erect, branched at the base 3
- 2 a Stem clothed with glandular hairs
 CLAMMY EVERLASTING. (*G. decurrens.*)
 b Stem not with glandular hairs, merely woolly
 COMMON EVERLASTING. (*G. obtusifolium.*)
- 3 a Heads in leafy-bracted clusters, not in spikes
 LOW CUDWEED. (*G. uliginosum.*)
 b Heads in a terminal, interrupted spike
 PURPLISH CUDWEED. (*G. purpureum.*)
- 26 XERÁNTHÉMUM.....IMMORTELLE. (*X. ánnuum.**)
- 27 ÍNULA.....ELECAMPANE. (*I. helénium.*)
- 28 GAILLÁRDIA.
 1 a Flowers purple or red.SHOWY GAILLARDIA. (*G. pulchélla.**)
 b Flowers yellow
 GREAT-FLOWERED GAILLARDIA. (*G. aristáta.**)
- 29 EMÍLIA.....TASSEL FLOWER. (*E. flámmea.**)
- 30 POLÝMNIA.
 1 a Ray flowers bright yellow, about 1/2 in. long
 YELLOW LEAF-CUP. (*P. uvedàlia.*)
 b Ray flowers whitish or yellowish, about 1/4 in. long, or sometimes wanting
 SMALL-FLOWERED LEAF-CUP. (*P. canadénsis.*)
- 31 SÍLPHÍUM.....CUP-PLANT. (*S. perfoliátum.*)
- 32 HELIÓPSIS.
 1 a Leaves and stem rough.....ROUGH OX-EYE. (*H. scàbra.*)
 b Leaves and stem not rough....OX-EYE. (*H. helianthòides.*)
- 33 ECLÍPTA.....ECLIPTA. (*E. álba.*)
- 34 BRAUNÈRIA.....PURPLE CONE-FLOWER. (*B. purpúrea.**)
- 35 RUDBÉCKIA.
 1 a Leaves entire or sparingly toothed
 YELLOW DAISY. (*R. hirta.*)
 b Leaves pinnately divided or lobed
 GOLDEN GLOW. (*R. laciniáta.**)

COMPOSITAE (THISTLE FAMILY)

- 36 HELIÁNTHUS.
 1 a Disk flowers purple or brown, especially in older flowers; cultivated species 2
 b Disk flowers yellow 3
 2 a Leaves broadly ovate, rounded at the base; heads 3-18 in. broad.....COMMON SUNFLOWER. (*H. ánnuus.**)
 b Leaves oblong to lanceolate; heads 2-6 in. broad GARDEN SUNFLOWER. (*H. rígídu.s.**)
 3 a Upper stem leaves alternate 4
 b Usually all leaves opposite 5
 4 a Upper leaves narrowly lanceolate, usually 1 in. or less broadTALL SUNFLOWER. (*H. gigantèus.*)
 b Upper leaves broadly lanceolate, usually more than 1 in. broad.....JERUSALEM ARTICHOKE. (*H. tuberòsus.*)
 5 a Leaves usually lanceolate; heads about 1-2 in. broad WOODLAND SUNFLOWER. (*H. divaricátus.*)
 b Leaves ovate to lanceolate; heads 2-4 in. broad 6
 6 a Leaves usually slender petioled, sharply toothed THIN-LEAVED SUNFLOWER. (*H. decapétalus.*)
 b Leaves short-petioled, entire or sometimes toothed PALE-LEAVED SUNFLOWER. (*H. strumòsus.*)
 37 CALÉNDULA.....POT MARIGOLD. (*C. officinális.**)
 38 TAGÈTES.
 1 a Ray flowers usually 5....DWARF MARIGOLD. (*T. signàta.**)
 b Ray flowers 8 or more 2
 2 a Involucre angular; ray flowers usually of uniform color AFRICAN MARIGOLD. (*T. erécta.**)
 b Involucre not angular; ray flowers blotched or striped FRENCH MARIGOLD. (*T. pátula.**)
 39 CALLÍSTEPHUS.....CHINA ASTER. (*C. horténsis.**)
 40 COREÓPSIS.
 1 a Ray flowers pink, rarely white PINK TICKSEED. (*C. ròsea.*)
 b Ray flowers yellow or brown 2
 2 a Lower leaves entire or sparingly toothed or lobed LANCE-LEAVED TICKSEED. (*C. lanceolàta.*)
 b Lower leaves pinnately divided 3
 3 a Cultivated species; ray flowers often with a brown or yellow base or entirely brown, the rays toothed or lobedGARDEN TICKSEED. (*C. tinctoria.**)
 b Wild species; ray flowers entirely yellow, the rays entireTALL TICKSEED. (*C. trípteris.*)
 41 ZÍNNIA.....GARDEN ZINNIA. (*Z. èlegans.**)
 42 CÓSΜOS.....COSMOS. (*C. bipinnátus.**)
 43 DÀHLIA.....COMMON DAHLIA. (*D. híbrida.**)

COMPOSITAE (THISTLE FAMILY)

- 44 BÌDENS.
- 1 a Plant growing in water, the submerged leaves dissected into capillary segments... WATER MARIGOLD. (*B. béckii*.)
 b Plants not growing in water 2
- 2 a Ray flowers present, $\frac{1}{4}$ in. or more long 3
 b Ray flowers wanting or less than $\frac{1}{4}$ in. long 5
- 3 a Leaves pinnately divided into 3-7 leaflets
 TICK-SEED SUNFLOWER. (*B. trichospérma*.)
 b Leaves toothed, not pinnately divided 4
- 4 a Heads 1-3 in. broad; bases of opposite leaves not joined around the stem... SMOOTH BUR-MARIGOLD. (*B. laëvis*.)
 b Heads $\frac{1}{2}$ -1 in. broad; bases of opposite leaves often joined around the stem STICK-TIGHT. (*B. cérnua*.)
- 5 a Lower leaves lanceolate to oblong, toothed but not pinnately divided 6
 b Lower leaves pinnately divided into 3-5 leaflets 8
- 6 a Outer bracts of involucre 1-3 in. long, lanceolate, usually toothed... LEAFY-BRACTED TICKSEED. (*B. comòsa*.)
 b Outer bracts of involucre 1 in. or less long, entire.... 7
- 7 a Leaves sessile; heads nodding after flowering
 STICK-TIGHT. (*B. cérnua*.)
 b Leaves petioled; heads erect after flowering
 SWAMP BEGGAR-TICK. (*B. connàta*.)
- 8 a Achenes $\frac{1}{2}$ - $\frac{3}{4}$ in. long, much longer than the bracts; outer bracts of involucre about the length of the inner SPANISH NEEDLES. (*B. bipinnàta*.)
 b Achenes less than $\frac{1}{2}$ in. long; outer bracts of involucre much longer than the inner 9
- 9 a Heads $\frac{1}{4}$ - $\frac{1}{2}$ in. broad; outer bracts of involucre usually 4 SMALL BEGGAR-TICK. (*B. discoidea*.)
 b Heads $\frac{1}{2}$ - $\frac{3}{4}$ in. broad; outer bracts of involucre usually 5-8 BEGGAR-TICK. (*B. frondòsa*.)
- 45 GALINSÒGA..... GALINSOGA. (*G. parviflòra*.)
- 46 ARCTÒTIS..... ARCTOTIS. (*A. breviscàpa*.)*
- 47 HELÈNIUM..... SNEEZEWEED. (*H. autumnàle*.)
- 48 ACHILLÈA.
- 1 a Ray flowers 4-6..... YARROW. (*A. millefòlium*.)
 b Ray flowers numerous..... WHITE TANSY. (*A. ptármica*.)*
- 49 ÁNTHEMIS.
- 1 a Ray flowers yellow.... YELLOW CAMOMILE. (*A. tinctoria*.)*
 b Ray flowers white 2
- 2 a Cultivated, aromatic species
 GARDEN CAMOMILE. (*A. nobilis*.)*
 b Wild species 3

COMPOSITAE (THISTLE FAMILY)

- 3 a Plant with fetid odor, sparingly hairy
MAYWEED. (*A. còtula.*)
b Plant not with fetid odor, densely hairy
CORN CAMOMILE. (*A. arvensis.*)
- 50 CHRYSANTHEMUM.
- 1 a Leaves deeply divided to the midrib or nearly so.... 2
b Leaves merely toothed or lobed, but not deeply lobed
as in a 7
- 2 a Flowers borne in corymbs 3
b Flowers borne singly at the ends of the branches or
stems 4
- 3 a Stem grooved or angled; plant 1-3 ft. high
FEVERFEW. (*C. parthènum.*)
b Stem not grooved or angled; plant ½-1 ft. high
GOLDEN FEATHER. (*C. praealtum.**)
- 4 a Disk flowers dark purple
KEELED CHRYSANTHEMUM. (*C. carinatum.**)
b Disk flowers yellow 5
- 5 a Plant not usually branched; ray flowers never wholly
yellow PYRETHRUM. (*C. coccineum.**)
b Plants branched; ray flowers yellow or white 6
- 6 a Plant cultivated in gardens, not shrubby at base
SUMMER CHRYSANTHEMUM. (*C. coronarium.**)
b Plant cultivated in pots and greenhouses; shrubby at
base MARGUERITE. (*C. frutescens.**)
- 7 a Foliage glaucous; ray flowers golden yellow
CORN MARIGOLD. (*C. segètum.**)
b Foliage not glaucous; ray flowers variously colored,
often numerous 8
- 8 a Ray flowers in several rows, numerous, variously
colored; disk flowers few or wanting
COMMON CHRYSANTHEMUM. (*C. hybridum.**)
b Ray flowers in 1 or 2 rows, white; disk flowers more
numerous than ray flowers 9
- 9 a Plant not cultivated.... WHITE DAISY. (*C. leucanthemum.*)
b Plants cultivated in gardens and greenhouses 10
- 10 a Leaves sessile, usually hairy or rough
GIANT DAISY. (*C. uliginosum.**)
b Lower leaves usually petioled
LARGE-FLOWERED CHRYSANTHEMUM. (*C. maximum.**)
- 51 MATRICARIA.
- 1 a Ray flowers 10-20; plant aromatic
WILD CAMOMILE. (*M. chamomilla.*)
b Ray flowers 20-30; plant not aromatic
SCENTLESS CAMOMILE. (*M. inodora.*)
- 52 TANACETUM..... TANSY. (*T. vulgare.*)

COMPOSITAE (THISTLE FAMILY)

- 53 ARTEMÍZIA.
- 1 a Segments of leaves linear 2
 b Segments of leaves oblong, lanceolate, or ovate..... 4
- 2 a Leaves white-woolly beneath
 COMMON MUGWORT. (*A. vulgàris*.)
 b Leaves sometimes hairy but not white-woolly beneath 3
- 3 a Heads in a leafy, branched panicle; bracts of involucre
 ovate; flowers greenish..WILD WORMWOOD. (*A. caudàta*.)
 b Heads in a racemose-panicle; bracts of involucre lanceo-
 late to obovate; flowers yellowish
 SOUTHERNWOOD. (*A. abrotanum*.*)
- 4 a Plant shrubby; receptacle of head hairy; heads nodding
 COMMON WORMWOOD. (*A. absinthium*.*)
 b Plants not shrubby; receptacle of head not hairy; heads
 erect 5
- 5 a Heads in spikes; bracts of involucre oblong
 COMMON MUGWORT. (*A. vulgàris*.)
 b Heads in spike-like racemes, bracts of involucre lanceo-
 late or oblong; plant usually white-woolly through-
 outBEACH WORMWOOD. (*A. stellariàna*.*)
- 54 TUSSILÀGO.....COLTSFOOT. (*T. fàrfara*.)
- 55 PETASÌTES.....BUTTER-BUR. (*P. petasìtes*.*)
- 56 ERECHTÌTES.....FIRE-WEED. (*E. hieracifolia*.)
- 57 SYNÓSMA..SWEET-SCENTED INDIAN PLANTAIN. (*S. suaveolens*.)
- 58 SENÈCIO.
- 1 a Twining vine, cultivated in pots
 GERMAN IVY. (*S. mikanioides*.*)
 b Erect herbs 2
- 2 a Plants cultivated for their foliage 3
 b Plants not cultivated for their foliage 4
- 3 a Plant white-woolly.....DUSTY MILLER. (*S. cinerària*.*)
 b Plant not white-woolly; leaves often spotted
 LEOPARD PLANT. (*S. kàempferi*.*)
- 4 a Ray flowers wanting; all leaves more or less pinnatifid
 COMMON GROUNDSEL. (*S. vulgàris*.)
 b Ray flowers present; basal leaves not usually pinnatifid 5
- 5 a Basal leaves round-ovate, heart-shaped at the base
 GOLDEN RAGWORT. (*S. aureus*.)
 b Basal leaves tapering at the base into winged petioles 6
- 6 a Basal leaves obovate or oblanceolate, rounded at the
 apexROUND-LEAF SQUAW-WEED. (*S. obovatus*.)
 b Basal leaves usually oblong, rarely oblanceolate, not
 noticeably rounded at the apex
 BALSAM GROUNDSEL. (*S. balsàmitea*.)
- 59 CINERÀRIA.....CINERARIA. (*C. cruènta*.*)

COMPOSITAE (THISTLE FAMILY)

60 **ÁRCTIUM.**

- 1 *a* Heads 1-2 in. broad; inner bracts of involucre as long or longer than the flowers..GREAT BURDOCK. (*A. láppa.*)
b Heads $\frac{1}{2}$ - $\frac{3}{4}$ in. broad; inner bracts of involucre usually shorter than the flowers..COMMON BURDOCK. (*A. mínus.*)

61 **CÁRDUUS.**

- 1 *a* Flowers yellowYELLOW THISTLE. (*C. spinosíssimus.*)
b Flowers not yellow, usually purple or white 2
2 *a* Upper branches winged by spiny segments; pappus not plumoseCURLED THISTLE. (*C. crispus.*)
b Upper branches not winged as in *a*; pappus usually plumose 3
3 *a* Heads 1 in. or less broad, several in a corymb
CANADA THISTLE. (*C. arvénsis.*)
b Heads 1-2 in. broad, usually solitary at the ends of the branches 4
4 *a* Bracts of involucre without prickles, more or less cottonySWAMP THISTLE. (*C. mùticus.*)
b Bracts of involucre tipped with bristles or prickles 5
5 *a* Leaves green on both sides, not woolly beneath
PASTURE THISTLE. (*C. odorátus.*)
b Leaves more or less woolly beneath 6
6 *a* Leaves, excepting sometimes the lowest, not pinnatifid, merely toothed with bristly tips
TALL THISTLE. (*C. altíssimus.*)
b All leaves more or less pinnatifid, not merely toothed.. 7
7 *a* Lobes of leaves triangular-lanceolate; all bracts of involucre tipped with prickles
BULL THISTLE. (*C. lanceolátus.*)
b Lobes of leaves linear or linear-lanceolate; inner bracts of involucre not tipped with bristles; prickles of outer bracts long and slenderFIELD THISTLE. (*C. discolor.*)

62 **ONOPÓRDON**.....COTTON THISTLE. (*O. acánthium.*)

63 **CENTAÚREA.**

- 1 *a* Plant very woolly, cultivated as bedding plant
WOOLLY DUSTY MILLER. (*C. cinerària.**)
b Plants not very woolly, especially when old, not cultivated as in *a* 2
2 *a* Outer bracts of involucre tipped with stout, spreading spinesSTAR THISTLE. (*C. calcítropa.*)
b Outer bracts of involucre not tipped with spines 3
3 *a* Heads $\frac{1}{2}$ -1 in. broad; pappus wanting
KNAPWEED. (*C. nìgra.*)
b Heads 1-3 in. broad; pappus of short bristles 4

GLOSSARY

Definition of Terms Used in This Handbook

- Achene.* A small hard, dry, indehiscent fruit in which the covering is not tightly united to the seed, as in the buttercup.
- Acrid.* Sharp, hot, or bitter to the taste.
- Acute.* Pointed, applying to the apex of the leaf.
- Adherent.* See adnate.
- Adnate.* Growing together of different organs or parts of organs, as the stamens to the corolla.
- Aerial rootlets.* Small roots appearing on the stem above ground.
- Air bladders.* Little sacs containing air, and serving to float the plant in water.
- Alternate.* Applied to leaves which are not opposite but are arranged at different heights on the stem.
- Ament.* A spike of small flowers which are imperfect and are without a perianth; each flower is usually subtended by a bract.
- Ament-like.* Similar to an ament.
- Annual.* Applied to plants which live but one year or season.
- Annular.* In the form of a ring.
- Annular disk.* A swollen or enlarged ring in the flower inside the petals.
- Anther.* The upper enlarged part of the stamen which contains the pollen.
- Apex.* The top or tip of an organ.
- Apical.* Referring to the top of the plant or organ.
- Appendage.* A part added to another.
- Appressed.* Lying close against another.
- Aquatic.* Applied to plants living partly or wholly in water.
- Aril.* An appendage on a seed, more usually at the place of attachment of seed.
- Armed.* Protected.
- Aromatic.* Having an odor.
- Arrow-shaped.* Somewhat triangular, usually with two basal lobes.
- Ascending.* Growing somewhat obliquely or curving upward from the base.
- Awl-shaped.* Narrow and tapering from the base to a rigid tip.
- Awn.* A bristle-like or hair-like appendage, as seen in many grasses.
- Axil.* A point on the stem just above where a leaf is attached.
- Axillary.* Attached to the stem just above a leaf or branch.
- Axis.* An organ around which other organs are attached.

GLOSSARY

- Barbed.** Furnished with very small rigid points or sharp bristles which are usually turned downward.
- Basal.** Coming from the base, as basal leaves.
- Beak.** A pointed projection.
- Bearded.** Having a tuft of hairs.
- Bell-shaped.** Tubular and enlarged, shaped more or less like a bell.
- Berry.** A fruit fleshy throughout, the seeds usually small.
- Berry-like.** Similar to a berry.
- Bi-** Used in compound words to mean twice or double.
- Biennial.** Applied to plants which live for two years, usually producing the fruit and flowers the second year.
- Bipinnate.** Pinnate leaves which have secondary petioles each bearing more than one leaflet.
- Bladder.** Small sac filled with air.
- Blade.** The expanded portion of a leaf.
- Bloom.** A thin coating on the surface of some fruits and leaves often grayish or bluish in color.
- Blunt.** Having a rounded end, not tapering or abruptly cut off.
- Boat-shaped.** Shaped somewhat like a rowboat with or without a keel, more or less pointed at each end and hollowed.
- Bract.** Leaf-like organ usually smaller than the ordinary leaves of the plant and often found near the flowers.
- Branch.** A division of the stem.
- Branchlet.** A small branch or a division of a branch.
- Bristle.** A stiff hair or hair-like structure.
- Bristly.** Covered with bristles.
- Bud.** An undeveloped stem or branch with the undeveloped leaves.
An unopened flower.
- Bulb.** A bud differing from ordinary buds by growing in the ground and having thickened scales containing nutriment.
- Bulblet.** A very small bulb usually above ground.
- Bulbous.** Growing from or producing bulbs.
- Bur.** A seed or head bearing hooked, barbed, or pointed appendages.
- Bush.** A low woody plant with numerous branches.
- Calyx.** The outer whorl of leaf-like organs of the flower, usually green.
- Calyx-tube.** The tube formed by the growing together of the sepals, with no other organs attached to it.
- Capillary.** Long and narrow like a coarse hair.
- Capsule.** A dry fruit which opens to shed its seed, usually composed of two or more carpels.
- Carpel.** A single pistil or one part of a compound pistil.
- Caruncle.** An appendage or protuberance on a seed growing near its place of attachment.
- Catkin.** The same as ament, which see.

GLOSSARY

- Chaff.* Small bracts which subtend the flowers in a head of the Compositae.
- Channeled.* Hollowed or grooved, usually longitudinally.
- Ciliate.* The margins covered with hairs.
- Clasping.* Extending part way around.
- Cleft.* With indentations extending half way or more inward.
- Cleistogamous.* Referring to flowers which never open but are self-fertilized.
- Climbing.* Ascending or rising by using other objects as support.
- Cluster.* Several growing close together.
- Cohesion.* The growing together of like organs or parts.
- Colored.* Any color other than green.
- Column.* A solid body formed by the union of the stamens and styles, as in the orchids.
- Compound.* Consisting of a number of similar parts which form a complete whole.
- Compound leaf.* A leaf having two or more distinct blades.
- Compound ovary.* An ovary made up of several ovaries joined together.
- Concave.* Hollowed out like a saucer.
- Cone.* The fruit of a conifer or Gymnosperm, having overlapping scales.
- Cone-like.* Similar to a cone.
- Cone-shaped.* In the form of a cone, the geometric figure.
- Connective.* The portion of the stamen which connects the two lobes of the anther, usually very short.
- Contiguous.* Referring to parts which are in contact or nearly so.
- Cordate.* The shape of a heart as it is usually pictured, with the point outward.
- Corm.* The enlarged fleshy base of the stem shaped like a bulb, only solid.
- Corolla.* The inner whorl or whorls of leaf-like organs of the flower, usually the conspicuous part; the corolla may be tubular or of separate parts called petals.
- Corona.* An appendage which is between the corolla and the stamens, often attached to the former.
- Corymb.* A flat-topped or convex cluster of flowers with the stalk of each flower attached at different levels on the stem, the outer flowers opening first.
- Corymbose.* Similar to a corymb.
- Cotyledon.* The first leaf or leaves of a plant, usually found in the seed.
- Creeping.* Extending along the ground.
- Crest-like.* With a flattened ridge or elevation, similar to a crest on a helmet.
- Crisp.* Having the surface toward the margin strongly waved or curled.

GLOSSARY

- Crinkly.* Same as crisp, which see.
- Crown.* An appendage which is between the corolla and the stamens, often attached to the former.
- Culm.* The stem of grass or sedge.
- Cultivated plant.* One which has been planted or the seeds sown, not growing wild.
- Cup.* A concave involucre shaped somewhat like a cup with a concave bottom, as in the fruit of the oak.
- Cup-shaped.* Shaped like a cup, usually with concave bottom and the sides straight or concave.
- Cylindric, cylindrical.* More or less circular in cross section.
- Cyme.* A flat-topped or convex cluster of flowers with the stalk of each flower attached at different levels on the stem, the center or terminal flowers opening first.
- Cymous.* Similar to a cyme.
- Deciduous.* Falling off at close of season, referring especially to leaves.
- Decomound.* More than once compounded; leaves in which the secondary parts are compound or composed of leaflets.
- Decumbent.* Stems or branches in a horizontal or oblique position with the ends more or less vertical.
- Definite.* Of a constant number, usually not exceeding twenty.
- Deflexed.* Bent or turned abruptly outward.
- Dehiscent.* Opening in a regular or definite manner to discharge the contents.
- Dense.* Crowded together.
- Depressed-globose.* Globose but flattened at the poles or ends.
- Diadelphous.* Stamens with the filaments united into two sets as in some Papilionaceae.
- Diffuse.* Widely or loosely spreading.
- Dioecious.* Having staminate flowers on one individual and pistillate flowers on another.
- Discoid.* Flat and circular like a disk.
- Disk.* A portion of the receptacle of a flower just outside and at the base of the pistils.
- Disk flowers.* The regular or tubular flowers in a head of the Compositae.
- Dissected.* Cut deeply into many lobes or parts as in dissected leaves.
- Distinct.* Applied to parts of the same kind when not united. Plainly visible.
- Divided.* Having indentations extending to the midrib or to the petiole as in the leaf.
- Dotted.* More or less covered with dots.
- Double.* Referring to flowers which have more than one whorl of petals or petal-like organs.

GLOSSARY

- Doubly compound.* More than once compound, as in leaves.
- Doubly toothed.* Having the large teeth toothed with smaller teeth.
- Downy.* Covered with short fine hairs.
- Drooping.* Inclined downward.
- Drupe.* A fruit usually fleshy with a stony pit or seed in the center, as the cherry, peach, plum, etc.
- Ear.* A spike of corn.
- Elliptic.* Oblong with rounded ends, shaped like an ellipse.
- Elongated.* Longer than the average.
- Embryo.* The rudimentary plant within the seed.
- Entire.* With a smooth or even edge, not toothed or lobed.
- Epigynous flower.* One in which the ovary is surrounded by and joined to the receptacle to which the other organs of the flower are attached.
- Epiphytic.* Applied to a plant growing upon another plant but securing no nourishment from it; an air plant.
- Equal.* Regular. Of the same number.
- Equilateral.* Equal-sided.
- Erect.* More or less perpendicular to the surface to which it is attached.
- Even.* Without inequalities of surface.
- Evergreen.* Having green leaves throughout the entire year.
- Exserted.* Extending beyond, as the stamens beyond the corolla.
- Fan-shaped.* Shaped like a fan, somewhat triangular with the outer margin usually rounded in outline.
- Fertilized.* Having the nucleus from the pollen fused with a nucleus in the ovule.
- Fiber.* The slender thread-like cells or hairs used economically.
- Filament.* The stalk of the stamen.
- Filiform.* Like a thread.
- Fleshy.* Usually enlarged and somewhat soft.
- Floating.* Applied to plants in which the blades of the leaves remain on the surface of the water.
- Flower.* The part of the plant which is directly concerned in producing the seed.
- Flowering scale.* The inner bract in the flower of grasses which enfolds the stamens and pistils.
- Flower stalk.* The stem which bears the flowers, especially when the leaves are all basal.
- Foliage.* The leaves of the plant.
- Forage.* Grass, clover, and such plants, eaten by horses, cattle, etc.
- Forked.* Having two, sometimes more, main stems or stalks arising from nearly the same point.
- Fringed.* Bordered by slender appendages.

GLOSSARY

- Fruit.* The seed-bearing product of the plant, the mature ovary and its contents.
- Funnel-shaped.* Tubular and gradually enlarging upward with a spreading border.
- Furrowed.* Having one or more straight, longitudinal grooves or channels.
- Gamopetalous.* Having the petals more or less united.
- Gland.* A small protuberance which may or may not secrete a liquid.
- Glandular hairs.* Those which usually have the tips enlarged and filled with a liquid.
- Glaucous.* Whitish or light bluish-green because of a bloom.
- Globose, globular.* Spherical or nearly so.
- Glume.* One of the small bracts which usually subtends a flower with its flowering scale on a spikelet in the grasses.
- Grain.* The seed or fruit of any of the Gramineae.
- Hair.* A protuberance from the plant usually thread-like and less than $\frac{1}{2}$ in. long, sometimes scale-like or star-shaped.
- Hairy.* The surface more or less covered with hairs.
- Head.* A more or less compact rounded or flattened cluster of sessile or short-stalked flowers.
- Heart-shaped.* The shape of a heart as it is usually pictured, with the point outward.
- Herb.* A plant without a woody stem above ground, always dying down at least to the ground at the end of the season.
- Herbaceous.* Like an herb.
- Hoary.* Grayish-white with very fine hairs.
- Hood-shaped.* Somewhat conical with the sides often inrolled.
- Horn.* A pointed, tapering appendage found in the flowers of *Asclepias*.
- Husk.* A dry outer covering in some fruits, as in the corn.
- Hyaline.* Colorless, thin, papery.
- Hybrid.* The plant obtained by the use of pollen from one plant placed on the stigma of another plant of a different species.
- Hypogynous flower.* One in which the organs are attached to the receptacle successively above or at least not below each other in the order of calyx, corolla, stamens, and pistils, the latter in the center of the flower and at the top of the receptacle.
- Immersed.* Growing wholly under water.
- Imperfect flower.* One in which the stamens or pistils are wanting.
- Incised.* With indentations irregular and deep.
- Inconspicuous.* Small, not readily observed.
- Incurved.* Bending inward.
- Indefinite.* Not a constant number, or more than twenty.

GLOSSARY

- Indehiscent.* Not opening in a regular manner to discharge the contents.
- Indentations.* The spaces between the lobes of the leaf.
- Inferior ovary.* An ovary having part of the receptacle united to it and the other organs of the flower above it; found in all epigynous flowers.
- Inflated.* Bladdery.
- Inflexed.* Abruptly bent inward and downward.
- Inflorescence.* A cluster of flowers.
- Inserted.* Attached to or growing out of.
- Internode.* The portion of the stem between two nodes or joints.
- Interrupted.* Applied to a spike of flowers in which there is a whorl of flowers alternating with a space without flowers.
- Involucel.* A set of small leaves or bracts subtending a part of a compound umbel.
- Involucre.* A set of bracts immediately subtending a flower, a cluster of flowers, or an umbel.
- Involute.* Rolled inward from both sides.
- Irregular flower.* One which can be halved in only one plane, resulting in two equal parts; one in which one petal is different from all the others.
- Joint.* A place where a leaf or branch appears on the stem; a node.
- Juice.* The liquid contents of the plant tissue.
- Keel.* A ridge somewhat like the keel of a boat. The two petals in the flower of the Papilionaceae which are united into a keel-shaped structure.
- Lanceolate.* Applied to a leaf which is at least three times longer than broad, usually tapering toward each end, and broadest half way or less from the base.
- Lateral.* Attached to the side of an organ.
- Leaf.* An appendage of the stem, usually more or less expanded.
- Leaflet.* One of the divisions or leaves of a compound leaf.
- Leaf-sheath.* The petiole or base of the leaf which envelopes the stem, as in grasses.
- Lemma.* The lower of the two bracts which enclose the flower in grasses.
- Lenticel.* Corky spots or lines on the bark, especially on the younger branches.
- Ligule.* A thin projection from the top of the leaf-sheath in grasses.
- Linear.* Usually at least ten times longer than broad, narrow, with the sides more or less parallel.
- Linear-lanceolate.* Intermediate between linear and lanceolate.
- Lip.* One of the two large lobes in an irregular, tubular flower; in the orchids, the one modified petal.

GLOSSARY

- Lobe.* A division of an organ, usually more than $\frac{1}{4}$ in. long, larger than a tooth.
- Loculed.* Applied to the number of cavities in a compound ovary.
- Lodicule.* A small scale just outside and at the base of the stamens in the flower of grasses.
- Lyrate.* Referring to a leaf which is lobed with the lobes decreasing in size toward the base of the leaf.
- Margin.* The edge, especially of a leaf.
- Mealy.* Appearing like small grains of fine flour or meal on the surface.
- Mid-rib.* The large central vein of a leaf usually appearing as a continuation of the petiole.
- Milky.* Having the color of milk.
- Monadelphous.* Applied to stamens having the filaments all united to form a tube.
- Monoecious.* Having stamens and pistils in separate flowers but on the same plant.
- Mottled.* Covered with dots or blotches of varying intensity.
- Narcotic.* Containing nicotine, as the leaves of tobacco.
- Native plant.* One which originated in this region.
- Naturalized.* Introduced from another country but now growing as native.
- Nectar.* A sweet secretion.
- Nectar disk.* A disk which secretes nectar.
- Nectar gland.* A gland which secretes nectar.
- Needle-shaped.* Shaped like a very coarse needle, usually narrower than linear.
- Nerve.* A large vein.
- Net-veined.* Having the veins in the form of an irregular net.
- Node.* The place on the stem where a leaf or a branch is attached.
- Notched.* With a very shallow indentation.
- Numerous.* Too many to be readily counted.
- Nut.* A fruit with a hard shell enclosing the seed.
- Nutlet.* A small nut.
- Nut-like.* Similar to a nut.
- Oblanceolate.* Lanceolate in form but broader toward the apex and more tapering toward the base.
- Oblique.* Slanting, between parallel and perpendicular.
- Oblong.* At least three times longer than broad, with the sides parallel and the ends more or less blunt.
- Obovate.* Ovate in form but broader toward the apex and more tapering toward the base.
- Obovoid.* Ovoid in form but broader toward the apex and more tapering toward the base.

GLOSSARY

- Oddly-pinnate.* With an uneven number of leaflets pinnately arranged, having a single terminal leaflet.
- One-sided.* With the parts arranged mostly on one side of the stem or axis.
- Opposite.* Applied to leaves or branches which are arranged in pairs at the same height on the stem and on different sides.
- Organ.* Any part having a special function.
- Oval.* About twice as long as broad with regularly curved outline.
- Ovary.* The part of the pistil which contains the ovules or seeds.
- Ovate.* Like the outline or longitudinal section of a hen's egg with the broadest end toward the base.
- Ovate-heart-shaped.* Ovate with the base shaped like a heart as it is usually pictured.
- Ovate-lanceolate.* Intermediate between ovate and lanceolate.
- Ovoid.* A solid shaped like a hen's egg.
- Ovule.* The young seed or body in the ovary before fertilization.
- Palea.* The inner bract of a flower in grasses, the flowering scale.
- Palet.* The same as palea, which see.
- Palmate.* Lobed or divided so that the indentations all point toward the petiole.
- Palmately compound.* Having the leaflets all attached to the apex of the petiole.
- Palmately lobed.* See palmate.
- Palmately veined.* Having the principal veins proceeding from the apex of the petiole.
- Panicle.* An inflorescence with numerous, rather irregular branches which are again branched and often rebranched, with each flower at the end of a stalk.
- Papery.* Having the texture of common paper.
- Pappus.* The calyx in each flower of the Compositae at the top of the seed, as bristles, hairs, scales or awns.
- Parallel veined.* Having all of the principal veins extending side by side from the base to the apex of the leaf.
- Parasite.* A plant which grows upon another plant by deriving part or all of its food from it.
- Parted.* Applied to parts which are distinctly separate, not at all united.
- Pendulous.* Hanging downward.
- Pepo.* A fruit with a hard outer rind and a fleshy interior, like the melon or pumpkin.
- Perennial herb.* One which lives more than two years but dies to the ground each winter.
- Perfect flower.* One which has both stamens and pistils.
- Perianth.* The floral leaves, or the tube formed by them, when not differentiated into a green calyx and colored corolla.
- Perigynium.* The sac-like envelope which encloses the ovary in *Carex*.

GLOSSARY

- Perigynous flower.* One in which part of the receptacle forms a free tube around the ovary, to the top of which tube the other organs of the flower are attached.
- Persistent.* Remaining longer than is usual for such organs.
- Petal.* A leaf of the corolla or colored part of the flower when there is a green calyx.
- Petal-like.* Similar to a petal.
- Petiole.* The stalk or stem of the leaf.
- Pinnae.* A primary division of a pinnately compound leaf.
- Pinnately compound.* A leaf with the leaflets borne along a central stalk or petiole; a 2-3-pinnately compound leaf is one which is 2 or 3 times compounded.
- Pinnately lobed.* Having several lobes of about the same size on each side of the midrib.
- Pinnatifid.* Pinnately lobed with the indentations extending nearly to the midrib.
- Pistil.* The central organ of the flower which produces the seed, consisting of ovary, style and stigma.
- Pistillate flower.* One which bears pistils but no stamens.
- Pitcher-shaped.* More or less like a pitcher, usually narrowed at the opening.
- Plume-like.* Similar to a plume or large feather.
- Plumose.* Having fine hairs on each side of a central stalk, similar to a feather.
- Pod.* Any dry fruit which splits open in a regular manner.
- Pollen.* The powder, usually yellow, produced in the anther.
- Pollinium.* A mass of pollen grains which cohere.
- Pome.* A fleshy fruit like the apple.
- Prickle.* A small sharp stiff outgrowth from the outer part of an organ.
- Prickly.* More or less covered with prickles.
- Prickly pointed.* Pointed or ending in a prickle.
- Procumbent.* Lying flat on the ground.
- Prominent.* Standing out more than usual, or beyond adjoining parts.
- Prostrate.* Lying flat on the ground.
- Pubescent.* With soft hairs.
- Pungent.* Sharp or bitter to the taste or smell.
- Raceme.* An inflorescence with each flower stalked and all arranged around one central axis or stem.
- Racemose.* Arranged in racemes, or similar to a raceme.
- Rachilla.* The axis of a spikelet in grasses.
- Rachis.* The axis of an inflorescence or of a pinnately compound leaf.
- Raphe.* The stalk of the seed or ovule which adheres to it and forms a ridge.

GLOSSARY

- Ray flower.* The flower in a head of Compositae which has a strap-shaped or quill-shaped corolla.
- Receptacle.* The region which bears the various organs of the flower.
- Receptacle of head.* The region which bears the flowers of a head of Compositae.
- Receptacle tube.* A tube formed by the growth of a part of the receptacle around the ovary and which may or may not be adnate to it.
- Recurved.* Curved outward or backward.
- Reduced.* Much smaller than ordinary.
- Reflexed.* Abruptly bent or turned outward or backward.
- Regular flower.* One in which two or more planes may be cut giving two equal halves; one in which no one petal is different from all of the others.
- Resin-dotted.* More or less covered with resin dots.
- Revolvute.* Rolled back from the margin.
- Rhizome.* An underground stem of more or less uniform thickness.
- Rhombic.* Shaped more or less like the geometric figure; an equilateral oblique-angled figure.
- Rib.* A prominent ridge or vein.
- Rootstock.* Same as rhizome, which see.
- Rosette.* A cluster of leaves having a circular arrangement.
- Rostellum.* A small projection from the column in orchids.
- Rounded.* More or less circular.
- Rusty.* The color of iron rust, brownish-red.
- Saline.* Where salt water is found.
- Salt-marsh.* A wet, marshy place where salt water may be found.
- Salver-form.* Having a slender tube with an abruptly spreading border.
- Samara.* An indehiscent fruit with a flat, membraneous attachment or wing, as in the maples, ashes, etc.
- Sap.* The liquid or juice in plant tissue.
- Saprophyte.* A plant which lives upon dead animal or vegetable matter.
- Scale.* A small, thin structure often similar to a small leaf but usually not green.
- Scale-like.* Similar to a scale.
- Scape.* A leafless stalk which arises from the ground and bears flowers.
- Scar.* The mark left by the separation of a leaf or other organ from the stem.
- Scurfy.* More or less covered with small scales.
- Seed.* A structure containing a rudimentary plant.
- Segment.* A division or part of a deeply lobed or divided leaf.

GLOSSARY

- Sepal.* One of the leaf-like organs, usually green, in the outer whorl of the flower.
- Sessile.* Having no stalk.
- Sheath.* A thin tubular structure surrounding the stem and usually a part of the leaf or at least attached near the leaf.
- Sheathing.* Surrounding the stem for some distance.
- Shrub.* A woody plant less than 20 ft. high usually with several stems branching from near the ground.
- Silique.* The pod of the Cruciferae, with two carpels.
- Silks.* The styles of corn.
- Silky.* Covered with soft, glossy, appressed hairs.
- Silvery.* White tinged with bluish-gray and shining.
- Simple leaf.* With but one blade although sometimes lobed.
- Simple stem.* An unbranched stem.
- Singly.* Alone, without another organ of the same kind closely associated.
- Singly compound.* Applied to leaves in which the leaflets are attached directly to the petiole or rachis.
- Sinus, sinuses.* The indentations in a lobed leaf; the spaces between the lobes.
- Smooth.* Not rough; without hairs.
- Solid.* Without cavities.
- Solitary.* Without other organs of the same kind closely associated.
- Spadix, spadices.* A spike, usually fleshy, enclosed or subtended by a leaf-like spathe.
- Spathe.* A large, leaf-like bract usually colored, enclosing or subtending an inflorescence; applied in the Araceae and Palmaceae.
- Spike.* An inflorescence of sessile or nearly sessile flowers on a single, elongated axis.
- Spikelet.* A small spike as found in the grasses and sedges.
- Spindle-shaped.* Tapering toward each end.
- Spine.* A sharp-pointed, woody or hardened outgrowth.
- Spiny.* Having spines.
- Spiny-toothed.* The teeth tipped with spines.
- Sporangium, sporangia.* A case enclosing spores.
- Sporophyl.* An organ which bears the sporangium.
- Spreading.* Extending outward.
- Spur.* A tubular appendage of a petal or sepal.
- Stalk.* A lengthened support or stem of an organ or part.
- Stamen.* An organ of the flower which produces pollen, located between the pistil and the petals when present.
- Staminate flower.* One bearing stamens but no pistils.
- Standard.* The large upper petal in a flower of the Papilionaceae.
- Stem.* The main axis of the plant.
- Sterile stamen.* One which does not produce pollen.
- Stigma.* The upper part of the pistil which receives the pollen.
- Stinging-hair.* One which secretes a fluid which irritates the flesh.

GLOSSARY

- Stipules.* Leaf-like or scale-like appendages in pairs at the base of the leaf, joined to the stem and sometimes adnate to the petiole.
- Stolon.* A slender branch running on the ground and rooting at the joints or nodes.
- Straggling.* Spreading at wide angles.
- Strap-shaped.* Flat and linear like a strap or belt.
- Striped.* Having longitudinal lines of color other than green.
- Strobilus, strobili.* An inflorescence made of overlapping scales and sporangia, as in the pines.
- Style.* The slender part of the pistil connecting the ovary and stigma.
- Subglobose.* Nearly globose.
- Submerged.* Growing under water.
- Subtend.* Attached immediately beneath.
- Succulent.* Soft and fleshy or juicy.
- Superior ovary.* One to which the receptacle is not adnate.
- Swollen.* Enlarged more than ordinary.
- Tap-root.* A main root which extends directly downward.
- Tassel.* The staminate inflorescence in the corn.
- Teeth.* See tooth.
- Tendril.* A slender appendage which serves to support the plant by coiling around or adhering to other objects.
- Terminal.* At the outer or free end.
- Ternately compound.* Having three secondary petioles.
- Terrestrial.* Growing on land, not in water.
- Thallus.* A vegetative body without true leaf or stem.
- Thorn.* A sharp-pointed branch, or a sharp appendage arising from the woody part of the stem.
- Thread-like.* Similar to a thread but usually coarser.
- Throat.* The opening of a tubular flower, the part between the tube and the lobes.
- Tooth.* A small lobe usually less than $\frac{1}{4}$ in. long.
- Trailing.* Prostrate on the ground.
- Translucent dots.* Those which permit white light to pass through.
- Tree.* A woody plant capable of growing at least twenty feet high, with a single self-supporting stem or axis.
- Triangular.* Having three sides or angles.
- Trifoliolate.* Applied to a compound leaf with three leaflets.
- Trunk.* The stem or axis of a tree.
- Tuber.* A short, thickened portion of an underground stem, as the potato.
- Tubercle.* A small wart-like projection.
- Tuberous.* Bearing tubers.
- Tubular.* In the form of a tube, or having the parts joined together to form a tube.
- Tuft.* A number close together; a cluster.

GLOSSARY

- Tufted.* In tufts or bunches.
- Twig.* A small branch of a tree or shrub.
- Twining.* Ascending by coiling around some support in a spiral manner.
- Umbel.* An inflorescence in which the stalk of each flower or cluster of flowers arises from the same place at the end of the stem.
- Unarmed.* Without thorns, spines, or prickles.
- Unequal.* Not the same in size.
- Unequilateral base.* Applied to the base of a leaf in which one side of the blade is longer or larger than the other side.
- Utricle.* A fruit with the seed contained in a bladdery membrane or sac.
- Variable.* Differing from the typical ones.
- Variegated.* Having two or more colors.
- Vegetable.* A plant cultivated for some edible part other than the fruit.
- Vein.* A strand of tissue appearing as lines or ridges in the blade of a leaf, or in any organ.
- Vine.* A plant which cannot support itself in an upright position without the aid of another body; either a climbing or trailing plant.
- Wavy.* Alternately concave and convex.
- Wedge-shaped.* Broad above and narrowed to the base in straight lines.
- Weed.* A plant which grows where it is not wanted and is troublesome.
- Wheel-shaped.* Applied to flowers in which the corolla has a very short tube and nearly flat spreading lobes.
- White-woolly.* Covered with white wool.
- Whorl.* A set of organs arranged in a circle around the stem, especially the leaves when there are three or more in a circle and at the same level.
- Wild plant.* One which grows without care or cultivation and is native.
- Wing.* One of the side petals in a flower of the Papilionaceae. A thin membranous appendage on a seed. Any comparatively thin appendage or ridge on an organ.
- Winged petiole.* One in which a narrow blade-like appendage is attached to each side.
- Wool.* Long, dense, usually curled hairs.

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