

Minnesota Plant Studies

V.
GUIDE
TO THE
AUTUMN FLOWERS OF MINNESOTA
FIELD AND GARDEN

F. E. CLEMENTS, C. O. ROSENDAHL
AND
F. K. BUTTERS

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University of Minnesota
Minneapolis
June 1913

Preface

The present number of "Minnesota Plant Studies" is the third edition of "Spring Flowers." It is prepared for the high schools to begin work with flowering plants in the fall, and to depend some preliminary knowledge and training as a basis for the more extensive work in the spring. For this reason, cultivated species as well as native plants are included, and special attention is given to the weeds, grasses and composites, which play such a large and practical part in fall vegetation. An endeavor has been made to include all the species found in bloom after September first. The majority are to bloom in July and August, so that autumn and spring guides together will do fairly well for the recognition of the summer species. For the sake of plants, generally, as well as for the increasing number of colleges and high schools and greenhouses, all of the common species blooming during the winter have been included also.

The flowering plants of the whole school year, from September 1 to June 1, both cultivated and native, are now covered by the two guides to spring flowers and to autumn flowers. In a few years it is expected that a summer guide will be prepared in anticipation of the time when a completely illustrated book of all the flowers of the state will be possible.

Britton and Brown's "Illustrated Flora" and Gray's "Manual" have been freely drawn upon in the preparation of the present guide, and acknowledgment is hereby made of their aid. The grouping of the families is essentially that of the Besseyan system of classification. The sequence is from pines and buttercups to pinks and mints to roses and asters, and then to lilies, grasses and orchids.

In addition to the list of publications in the following series, "Minnesota Trees and Shrubs" is also available for students and plant lovers generally. In fact, it supplants the "Guide to Trees and Shrubs," which will not be republished hereafter. "Minnesota Algae" is also valuable for schools, health officers, water and fish commissioners, as well as to others who possess microscopes.

MINNESOTA PLANT STUDIES

1. Guide to Spring Flowers, third edition (15 cents).
2. Guide to Trees and Shrubs, second edition (10 cents).
3. Guide to Ferns and Fern Allies (10 cents).
4. Minnesota Mushrooms (paper, 50 cents; cloth, \$1.00).
5. Guide to Autumn Flowers (15 cents).
6. School Gardens and Greenhouses (15 cents). (In preparation.)

Copies of the above publications are sent free to residents of Minnesota. Free copies of Nos. 1, 5 and 6 will be furnished free to the schools and colleges of the state. Additional copies may be secured at the price indicated. This is the price also for non-residents, who are not on the exchange list of the Botanical Survey.

FREDERIC E. CLEMENTS,

Head of the Department of Botany and State Plant Survey.

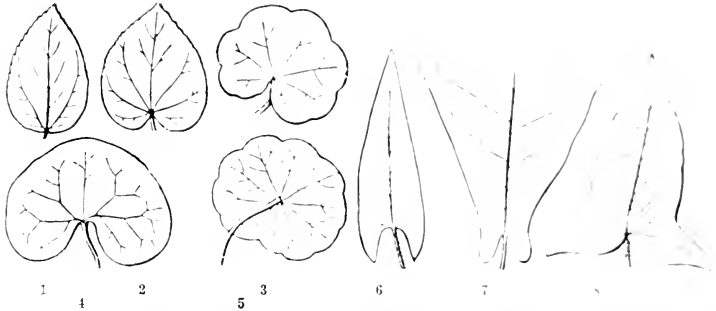
The University of Minnesota
May, 1913.

Introduction

HOW TO USE THE KEY

The method of using the keys for finding the names of plants is illustrated by the common flower as an example. If we choose the morning glory for this purpose, we find "Key to Families" on page xi. Here it is necessary to decide first whether the petals are present or absent. Since petals and sepals are both clearly present, choice is made for "1. Petals present." Under this heading it is then necessary to decide between "1. Flower regular" and "2. Flowers in heads."

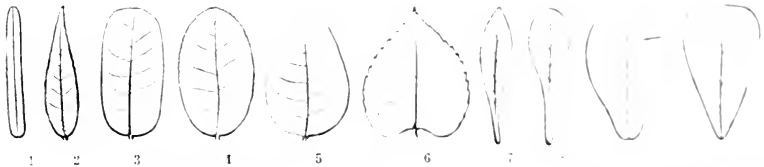
I. LEAF OUTLINES



1. Rounded. 2. Cordate (heart-shaped). 3, 4. Reniform (kidney-shaped). 5. Petiote shield-shaped.
6. Sagittate (arrow-shaped). 7. Auriculate (eared). 8. Hastate (halberd-shaped).

"2. Flowers in heads." Examples of the latter are clover, sunflower, asters, etc. The morning glory evidently falls under "1." The next choice is between "a. Petals 3," and "b. Petals 4 or more." Since the morning glory has five petals grown into a funnel-shaped tube, "b" is chosen, and the decision then rests between "(1) Petals separate" and "(2) Petals united" and then between "2. Ovary superior, i. e., within the other parts," and "(b) Ovary inferior, i. e., below the other parts." The ovary is found within the corolla tube and is, consequently, superior. An

II. LEAF OUTLINES AND BASES



1. Linear. 2. Lanceolate (lance-shaped). 3. Oblong. 4. Elliptic. 5. Oval. 6. Ovate (egg-shaped).
7. Oblanceolate. 8. Spatulate (spatula-like). 9. Obovate (reversed ovate).
10. Cuneate (wedge-shaped).

ferior ovary is found at the bottom of the calyx and corolla, as in the case of the morning glory. In the case of single flowers of dandelions, asters, etc. It is next necessary to know the number of cells in the ovary. This can be told readily from the ripe fruit as a rule. In the case of the morning glory the fruit is divided into three cells so that choice is first made of "x. Ovary 3-celled," and then of "x. Ovary 3-celled, one-celled," or "y. Ovary 2-4-celled," fitting the plant in the list.

and "(y) Erect herbs, or tendril climbers." The morning glory twines or climbs without tendrils, and our plant thus belongs to the "Convulvaceae." This family is found in the text on page 14. Here the first step is to read carefully the description of the morning glory family. If there are no points of disagreement, the plant has been traced to the right family, and it is then necessary to

III. LEAF EDGES



1. Serrate (saw-toothed). 2. Dentate (toothed). 3. Crenate (scalloped).
4. Tundulate (wavy). 5. Sinuate (bayed). 6. Incised (gagged).

determine the particular genus by reference to the key which follows the family description. The morning glory clearly falls under "1. Stems leafy, green; flowers large." The choice then lies be-

IV. LEAF TIPS



1. Acuminate. 2. Acute. 3. Obtuse. 4. Truncate. 5. Retuse.
6. Emarginate. 7. Obcordate. 8. Cuspidate. 9. Mucronate.

tween "a. Stigma capitate or head-like" and "b. Stigmas 2, linear." Since the stigma is one and capitate, the choice then falls between "(1) Leaves pinnately parted; corolla salver-form" and "(2)

V. LOBED LEAVES



- Pinnately: 1. Lobed. 3. Cleft. 5. Parted. 7. Divided.
Palmately: 2. Looed. 4. Cleft. 6. Parted. 8. Divided.

INTRODUCTION

Leaves not pinnate; corolla funnel-form. The name is in "1" and "2" in "(2)" and hence belongs to the genus "Ipomoea." Under "1" "1. Flowers opening in the morning" and "2" "2. Flowers opening in the afternoon," the morning glory belongs in "1." Under "1" the choice falls upon "a," and under "a" the choice falls upon "(1) Leaf bipinnate."



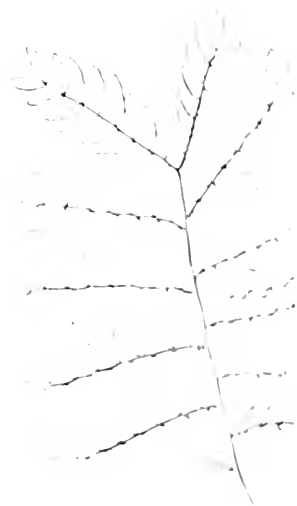
1. Odd-pinnate. 2. Tendril-pinnate. 3. Even-pinnate

The same method is used in locating any plant whose name is given. In using the key are: first, that the choice must be made between two alternatives; second, that the alternatives are indented the same distance from the margin, and alternate in order; for example, "I" and "II," "a" and "b," and "(1)" and "(2)," "x" and "y," and so on. After choice has been made of one alternative, no further attention is given to the other. In making the choice between them, however, it is essential to read both.

VI. COMPOUND LEAVES



4. Palmate or digitate.



Two bipinnate

upon the other. In the last place, it is necessary to examine the plant carefully and not merely guess at the points in question. This applies also to the technical terms which cannot be avoided if leaves and flowers are to be described accurately.

In the case of a common weed, it will often be found convenient to make use of the "Key to Weeds" on page xv. This is particularly true of weeds in the fall, since their flowers have often disappeared. It is quite possible to place them, however, from the characters of leaves and fruits by the use of the key indicated. In finding the botanical name of the sweet clover, the first choice is between "1. Leaves simple," and "2. Leaves compound." Since the leaf of the sweet clover consists of three leaflets, it evidently falls under "2." The next choice is between "a. Leaves with three leaflets," and "b. Leaves with more than three leaflets." The choice here falls upon "a" and then the decision rests between "(1) Leaf margin entire" and "(2) Leaf margin serrate or toothed." Under "(2)" the choice lies between "(a) Leaf margin coarsely serrate or toothed" and "(b) Leaf margin finely serrate." This distinction requires some experience for entire certainty, but the small teeth on the leaflet of the sweet clover would seem to indicate fairly clearly that the choice would fall upon "(b)." Under "(b)" the height of the plant and the arrangement of the flowers in a long cluster or raceme indicate that the choice should rest upon "x. Upright plants 2-6 feet tall—*Melilotus alba*: sweet clover," page xviii.

EXPLANATION OF THE CHART

The chart on page ix is designed to show the general lines of descent of flowering plants from the ancestral ferns, and to indicate the relationships of the various orders. It is based primarily upon the development of the flower as a special organ for pollination and seed-production. Families with the simplest flowers, that is, those with the flowers least changed from the fruiting organs of the ferns, are placed at the bottom of the chart. Such families are found in the gymnosperms and in the buttercup order. The flowers of the former are wind-pollinated, and lack both calyx and corolla. The flowers of most buttercups, on the other hand, are pollinated by insects, and possess both calyx and corolla, or a showy calyx. These are regarded as the primitive or earliest type of flower of the angiosperms. From the specialization of these, in response to insect and wind pollination, have been derived the orders and families of the three lines of evolution shown in the chart.

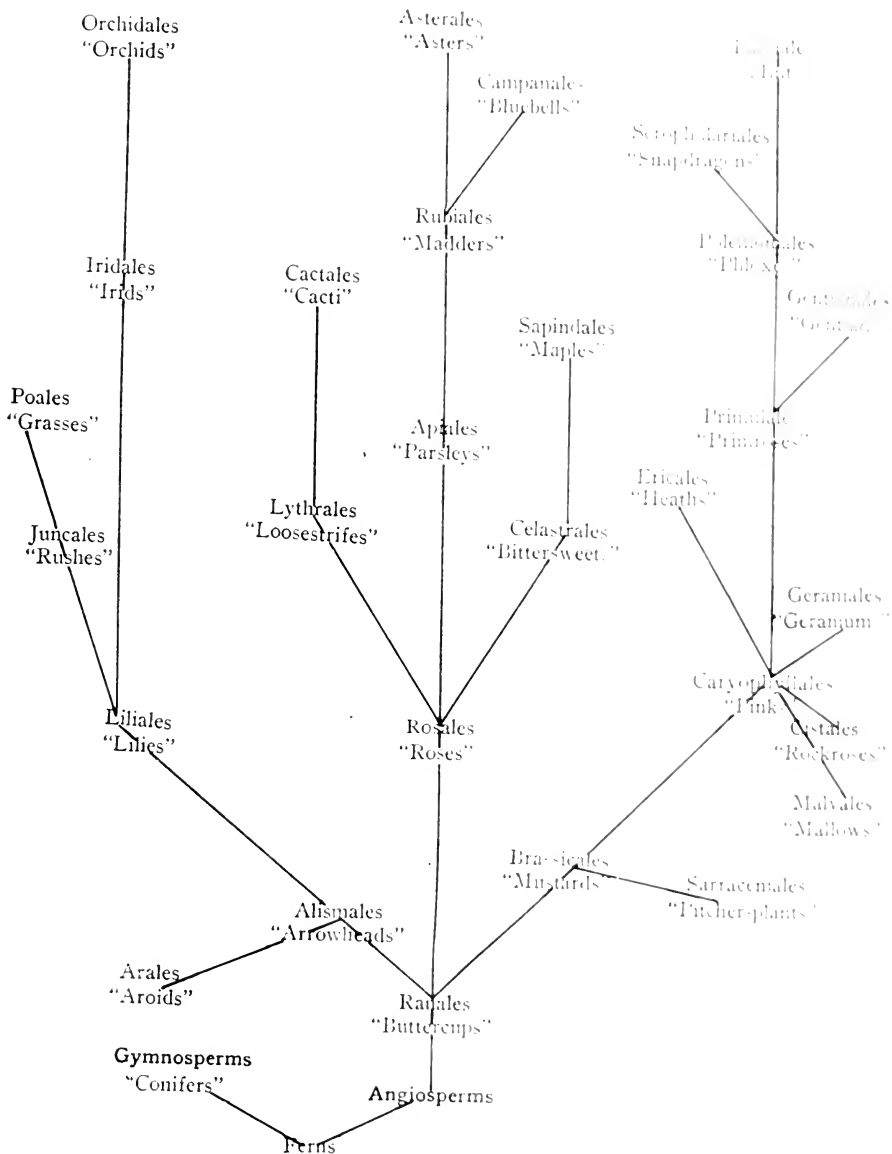
In detail, the primitive flower shows a large number of separate stamens and separate pistils, the petals are alike and separate, and there is no union between any of the four parts, sepals, petals, stamens and pistils. In the increasing adaptation of a flower to its work of pollination and seed-production, this primitive form has given rise to the higher or more specialized forms characteristic of the various orders of the chart. The chief steps by which this has been brought about are four, namely, reduction in number of parts, union, change in shape, change in position of the corolla, or elevation, but these changes have not appeared in the same sequence in all three lines. Reduction in number to a flower plan of 3, 4 or 5 has been almost universal in the groups just above the buttercups, though flowers occasionally occur with number plans of 6, 7, 8 and even 9. In flower structure, the arrowheads are essentially buttercups with parts in threes, while the lilies are arrowheads with the stamens and pistils reduced in number, and the latter united to form a compound pistil. In the irises, the colored perianth of sepals and petals is upon or above the ovary, and in the orchids, the corolla is strikingly irregular, one petal usually taking the form of a lip or sack.

In the roses, the buttercup type is modified by the gradual growing together of the calyx and receptacle, and finally of the ovary also, with the result that the corolla and stamens are above the calyx and ovary. In the lower roses, the number of stamens, and usually of pistils also is large, and the pistils are separate. In the higher families, the pistils are united into a compound pistil. In the madders and honeysuckles, the petals have become united, and finally, in most of the asters, some or all of the flowers of the characteristic heads become irregular as to their petals. In the mustards, pinks, and geraniums, the flower parts are regularly reduced to the number plan of 4 or 5, and the pistils are united. In the primroses, the petals become united, and in the snapdragons and mints, the corolla as a rule is highly irregular.

EVOLUTION AND RELATIONSHIP OF THE ORDERS

Monocotyledons

Dicotyledons



Key to Families

Page

I. Petals present

1. Flowers single or in clusters

a. Petals 3

(1) Ovary superior

(a) Pistils several-many, simple

Utricularia 44

(b) Pistil 1, compound

x. Sepals green, or stiff and dry, unlike the petals

(x) Air plants with gray foliage

Utricularia 44

(y) Land plants with green leaves and sepals

Cyperaceae 44

y. Sepals and petals similar in color and texture

(x) Sepals and petals very small, scale-like, usually greenish-brown

Lunaria 45

(y) Sepals and petals not scale-like nor greenish brown

m. Aquatic plants, flowers irregular

Pontederiacae 48

n. Land plants, flowers regular or nearly so

Liliaceae 46

(2) Ovary inferior

(a) Aquatic, leaves submerged, flowers floating

Hydrocharitaceae 45

(b) Not aquatic

x. Stamens 3-6, flowers regular or moderately irregular

(x) Stamens 6

Amaranthaceae 54

(y) Stamens 3

Utricularia 44

y. Fertile stamens 1-2, flowers very irregular

(x) Stamen not attached to style, seeds few

Cannaceae 61

(y) Stamen or stamens attached to the style, seeds very numerous

Orchidaceae 61

b. Petals 4 or more

(1) Petals separate

(a) Petals 4

x. Flowers regular

(x) Stamens 4, at least the anther bearing ones

Hamamelidaceae 28

(y) Stamens 6 or more

m. Stamens 6

Rubiaceae 3

n. Stamens 8 or more

(m) Stamens 8-10

r. Fleshy plants

Utricularia 44

s. Not fleshy

(r) Ovary superior, i.e. within the other parts

h. Pod bladderly; flowers white

Sapindaceae 28

i. Pod not bladderly; flowers yellowish

Rubiaceae 3

(s) Ovary inferior, i.e. below the other parts

Onagraceae 28

(n) Stamens 12 or more

Rubiaceae 3

y. Flowers irregular

(x) Stamens many

Utricularia 44

(y) Stamen 1

Utricularia 44

(b) Petals 5 or more

x. Petals 5

(x) Flowers regular

m. Pistils few-many

Utricularia 44

(m) Plants fleshy; stamens few

Utricularia 44

(n) Plants not fleshy; stamens many		
r. Stamens and petals coming off with the calyx	<i>Rosaceae</i>	24
s. Stamens and pistils entirely free from the calyx	<i>Ranunculaceae</i>	1
n. Pistil 1		
(m) Pistil with a single stigma	<i>Rosaceae</i>	24
(o) Pistil with 2 or more stigmas, or the ovary lobed		
r. Stamens 5-10		
(r) Ovary 4-5-celled or 10-celled		
h. Leaves simple, entire	<i>Linaceae</i>	12
i. Leaves lobed to compound		
(h) Leaves of 3 leaflets	<i>Oxalidaceae</i>	11
(i) Leaves not of 3 leaflets		
p. Flowers yellowish	<i>Rutaceae</i>	12
q. Flowers never yellow	<i>Geraniaceae</i>	10
(s) Ovary 1-2-celled		
h. Ovary 2-celled		
(h) Ovary superior, i.e. within the other parts	<i>Saxifragaceae</i>	27
(i) Ovary inferior, i.e. below the other parts	<i>Apiaceae</i>	30
i. Ovary 1-celled		
(h) Styles 2, the ovary lobed at tip	<i>Saxifragaceae</i>	27
(i) Styles 3-5, when 2 the ovary not lobed	<i>Caryophyllaceae</i>	4
s. Stamens many		
(r) Stamens united into a column	<i>Malvaceae</i>	8
(s) Stamens not united into a column	<i>Portulacaceae</i>	6
(y) Flowers irregular		
m. Flowers spurred		
(m) Spur formed by a petal	<i>Violaceae</i>	4
(n) Spur formed by a sepal	<i>Tropaeolaceae</i>	11
n. Flowers not spurred		
(m) Stamens 6-8; ovary 2-celled	<i>Polygalaceae</i>	4
(n) Stamens 10; ovary 1-celled	<i>Fabaceae</i>	25
y. Petals apparently 6		
(x) Stamens 5; flower very irregular, one sepal spurred	<i>Balsaminaceae</i>	11
(y) Stamens 6, pistil 1; petals really 3	<i>Liliaceae</i>	46
(z) Stamens and pistils many; petals really sepals	<i>Ranunculaceae</i>	1
z. Petals many; double flowers of many families, to be determined by the beginner only when single		
(2) Petals united		
(a) Ovary superior, i.e., within the other parts		
x. Ovary 1-celled, or pistils 5, separate		
(x) Ovary 1-celled		
m. Corolla regular		
(m) Stigma 1		
r. Stamens opposite the corolla lobes	<i>Primulaceae</i>	13
s. Stamens alternate with the corolla lobes	<i>Gentianaceae</i>	17
(n) Stigmas 5	<i>Plumbaginaceae</i>	13
n. Corolla irregular		
(m) Calyx teeth with hooked bristles	<i>Verbenaceae</i>	21
(n) Calyx not bristly	<i>Gesneriaceae</i>	20
(y) Pistils 5, separate	<i>Crassulaceae</i>	27
y. Ovary 2-4-celled, rarely the 2 cells separate or 4-lobed		
(x) Ovary 2-celled, or 2 ovaries united by the stigmas		
m. Corolla papery, tiny, 4-lobed	<i>Plantaginaceae</i>	14
n. Corolla not papery and tiny, rarely 4-lobed		
(m) Flowers regular; stamens as many as the corolla lobes		
r. Ovary 2-celled		

KEY TO FAMILIES

(r) Ovary and fruit few seeded	4
(s) Ovary and fruit many seeded	13
s. Ovaries 2, united at the tip only	5
(n) Flowers irregular; stamens 2-4, rarely 5	1
r. Shrubs	2
s. Herbs	3
(r) Seeds borne directly on the ovary wall	8
(s) Seeds borne on cup- or hook-like process	10
(y) Ovary 4 celled or 4 lobed	15
m. Ovary 4 celled	16
(m) Leaves rising directly from a creeping rootstock	15
(n) Leaves borne on above-ground stems	17
r. Leaves opposite	21
s. Leaves alternate, at least above	18
(r) Leaves alternate throughout; fruit of 4 nutlets	17
(s) Leaves opposite below; fruit a hooked pod	20
n. Ovary 4-lobed or 4 divided	19
(m) Leaves opposite; flowers mostly irregular	21
(n) Leaves alternate; flowers mostly regular	17
z. Ovary 3-celled	22
(x) Twiners	14
(y) Erect herbs, or tendril climbers	14
(b) Ovary inferior, i.e., below the other parts	23
x. Woody plants	32
y. Herbs	24
(x) Stamens 1-3	25
m. Erect herbs	32
n. Climbing or trailing plants, usually with tendrils	29
(y) Stamens 4-5	26
m. Sap milky; stamens often united	32
n. Sap not milky; stamens separate	31
(z) Stamens many; flowers monoecious or dioecious	30
2. Flowers in heads	27
a. Ovary superior; flowers pea-like	25
b. Ovary inferior; flowers not pea-like	28
(1) Stamens united by their anthers	33
(2) Stamens separate	32
II. Petals absent	29
1. Sepals present, often petal-like, rarely very minute	34
a. Calyx funnel-form, bright-colored; involucre calyx-like	8
b. Calyx not funnel-form	9
(1) Pistils several-many	1
(2) Pistil 1, at least the ovary	2
(a) Stamens as many as the sepals	3
x. Flowers in dense fleshy spikes	4
y. Flowers not in fleshy spikes	5
(x) Ovary superior	6
m. Flower clusters papery because of papery bracts	7
n. Flower clusters without papery bracts	11
(m) Sepals 3	4
(n) Sepals 4 or more	5
r. Stipules papery and sheathing the joints; calyx corolla-like	7
s. Stipules not papery, or lacking	10
(r) Stigma 1	12
(s) Stigmas 2-4	13

KEY TO FAMILIES

h. Fruit a capsule; stigmas 3	<i>Molluginaceae</i>	6
i. Fruit an achene or utricle; stigmas mostly 2		
(h) Flowers perfect or monoecious	<i>Chenopodiaceae</i>	7
(i) Flowers dioecious	<i>Moraceae</i>	10
(j) Ovary inferior		
m. Petal-like sepals forming a tube; style 1	<i>Allioniaceae</i>	8
n. Styles 2; tube lacking	<i>Ajaciaceae</i>	30
(b) Stamens more numerous than the sepals		
x. Sepals 4; stamens 6	<i>Brassicaceae</i>	3
y. Sepals 5, or apparently so, often petal-like		
(x) Stamens apparently numerous; fruit a capsule	<i>Euphorbiaceae</i>	12
(y) Stamens 6-8; fruit an achene	<i>Polygonaceae</i>	7
2. Sepals absent, or occasionally very minute		
a. Flowers in small heads, surrounded by 5 petal-like parts	<i>Euphorbiaceae</i>	12
b. Flowers in spikes or spikelets		
(1) Spike fleshy, with a petal-like spathe	<i>Araceae</i>	45
(2) Flowers in papery spikelets with scales		
(a) Flower enclosed in 2 scales, stem hollow, round	<i>Graminaceae</i>	50
(b) Flower with a single scale; stem solid, mostly triangular	<i>Cyperaceae</i>	49

Key to Weeds

For weeds among the grasses and composites, see the keys on pages 33 and 50

1. Leaves simple

a. Leaves not lobed or cut

(1) Plants rosette-like, mat like or creeping

(a) Leaves large, 5-10 cm. or more, rounded, biennial or perennial

x. Leaves elliptic to ovate, in a rosette

(x) Leaves parallel veined

Panicum polyanthemum

(y) Leaves netted veined, very large

m. Leaves densely woolly, hairy

Leptochloa juncea

n. Leaves not woolly

Aristida purpurea

y. Leaves round, on creeping stems

Misoprotina tenax

Eleusine

(b) Leaves small, 1-3 cm. linear to ovate, annuals

x. Leaves and stem thick and fleshy, not milky

Portulaca oleraceae

y. Leaves and stem milky

(x) Leaves and stems hairy

Euphorbia hirta

patula

(y) Leaves and stems smooth

m. Seeds faintly transversely ridged and pitted

Euphorbia cypripedium

spure

n. Seeds strongly transversely ridged, not pitted

Euphorbia clypeolata

patula

z. Leaves and stems neither fleshy nor milky

(x) Leaves narrow, in whorls

Muhlenbergia verticillata

spure

(y) Leaves broader, alternate

m. Flowers solitary in the axils

Pennisetum polyanthemum

spure

n. Flowers clustered in the axils

Aristida purpurea

spure

(2) Plants erect, ascending, decumbent or climbing

(a) Stems climbing

x. Fruits triangular, flowers inconspicuous

Polygonum convolvulus

spure

y. Fruits rounded, flowers large white

Cenchrus pennisetoides

spure

(b) Stems not twining nor climbing

x. Annuals

(x) Stems and leaves milky

Euphorbia hirta

(y) Stems and leaves not milky

m. Plants bushy, tumble weeds

(m) Leaves obovate or spoon-shaped

Amaranthus spinosus

spure

(n) Leaves linear, somewhat fleshy

o. Stems with spiny bracts

Sida acuta

p. Stems not spiny, often red

Kuhnia neopurpurea

spure

n. Plants not bushy, not tumble weeds

(m) Flowers and fruits in terminal clusters or spikes

- o. Fruit a many-seeded 4-celled pod *Onágra biénnis*: evening primrose
- p. Fruit 1-seeded
- (o) Fruit inclosed in greenish, white or pink sepals, nodes enlarged, stipules sheathing
- r. Plants 1-3 feet, racemes short and thick *Polýgonum pennsylvánicum*: persicaria
- s. Plants 1-1½ feet, racemes narrow
- (r) Sepals white or pink *Polýgonum lapathifolium*: pale persicaria
- (s) Sepals greenish *Polýgonum hydropiper*: smartweed
- (p) Fruit inclosed in fleshy-mealy sepals, stems ridged *Chenopódium álbum*: goose-foot
- (q) Fruit inclosed in dry spiny sepals
- r. Dull green, spikes dense *Amaránthus retrofléxus*: pigweed
- s. Deeper green, spikes slender *Amaránthus híbridus*: green pigweed
- (n) Flowers and fruits in the axils of the leaves
- o. Fruit a blue-black berry *Solánum nígrum*: nightshade
- p. Fruit dry, not berries
- (o) Stems four-sided, leaves cordate *Lámium amplexicaúle*: henbit
- (p) Stems round, leaves ovate to lanceolate
- r. Leaves alternate, fruits surrounded with leafy bracts
- (r) Leaves parallel-veined, petioles sheathing *Commelína comúnis*: day-flower
- (s) Leaves net-veined, petioles not sheathing *Acalýpha virgínica*: 3-seeded mercury
- s. Leaves opposite
- (r) Plants smooth, transparent and watery *Pílea púmila*: clearweed
- (s) Plants more or less hairy, not transparent
- t. Plants tall, fruit 1 cm. or more *Siléne noctiflóra*: night-flowering catchfly
- u. Plants low, spreading, fruit less than 1 cm.
- (t) Leaves all sessile and viscid hairy *Cerástium vulgátum*: mouse-ear chickweed
- (u) Lower leaves petioled, slightly hairy *Stellária média*: chickweed
- y. Perennials or biennials
- (x) Leaves densely gray-woolly, large and basal *Verbáscum thápsus*: mullein
- (y) Leaves not woolly, mostly on the stem
- m. Leaves linear *Lindría vulgaris*: butter and eggs
- n. Leaves oblong to ovate or lanceolate
- (m) Leaves alternate with sheathing stipules *Rúmex crispus*: dock
- (n) Leaves opposite without sheathing stipules
- o. Margin of leaf entire
- (o) Fruit surrounded by large green involucre *Alliónia nyctagéina*:
- (p) Fruit surrounded by close-fitting calyx *Saponaria officinális*: soapwort
- p. Margin of leaf serrate or toothed
- (o) Flowers in spikes or racemes, leaves not strong scented
- r. Leaves sessile, spikes dense *Verbéna stricta*: hoary vervain

KEY TO WEEDS

- s. Leaves petioled, spikes slender
 - (r) Flowers in long, slender terminal spikes
 - (s) Flowers in numerous axillary spikes
 - (p) Flowers in axillary clusters, leaves not cut
 - b. Leaves lobed or cut
 - (1) Leaves opposite
 - (a) Stems climbing, rough, almost prickly
 - (b) Stems not climbing, square or squarish
 - x. Stems prostrate, bracted, fruit unarmored
 - y. Stems erect, not bracted, fruits spiny
 - (2) Leaves alternate
 - (a) Stems climbing, fruit spiny
 - x. Fruits borne singly, four-seeded
 - y. Fruits in clusters, one-seeded
 - (b) Stems erect or nearly so, fruit mostly smooth
 - x. Fruit small, flattened, 1-seeded, in clusters
 - y. Fruit a several to many seeded pod
 - (x) Pod elongated or narrow
 - m. Pod 6-10 cm. long, flowers cream colored
 - n. Pod 1-2 cm. long, flowers yellow
 - (m) Pod sessile
 - (n) Pod stalked
 - o. Pod 1 cm. or less, shorter than the spreading pedicel
 - p. Pod 1-2 cm., longer than pedicel, appressed
 - ing
 - (o) Beak $\frac{1}{3}$ as long as pod
 - r. Pod 10-15 mm. long
 - s. Pod 2.5 cm. long
 - (t) Beak very short, pods appressed
 - (y) Pod rounded or triangular
 - m. Pod large, spiny
 - n. Pod small, flat and smooth
 - (m) Pod rounded, 2-seeded
 - (n) Pod triangular, many seeded
2. Leaves compound
 - a. Leaves with 3 leaflets
 - (1) Leaf-margin entire
 - (a) Plants strong scented, leaflets not notched at apex
 - (b) Plants scentless, leaflets notched at apex
 - (2) Leaf margin serrate or toothed

- | | |
|--|--|
| (a) Leaf margin coarsely serrate or toothed | <i>Potentilla monspeliensis:</i>
cinqufoil |
| (b) Leaf margin finely serrate | |
| x. Upright plants, 2-6 feet tall | <i>Melilotus alba:</i> sweet clover |
| y. Plants lower, flowers in heads | |
| (x) Flowers white or whitish | <i>Trifolium repens:</i> white
clover |
| m. Plants creeping | <i>Trifolium hybridum:</i> alsike |
| n. Plants ascending or erect | <i>Trifolium pratense:</i> red
clover |
| (y) Flowers deep pink | |
| b. Leaves with more than 3 leaflets | |
| (1) Leaves palmate | |
| (a) Leaves silvery underneath, plants creeping | <i>Potentilla argentea:</i> silvery
cinqufoil |
| (b) Leaves green both sides, plants tall | <i>Cannabis sativa:</i> hemp |
| (2) Leaves pinnate | |
| (a) Leaves with 5 (rarely 3) leaflets, flowers purple, in spikes | <i>Petalostemon purpureus:</i>
prairie clover |
| (b) Leaves with numerous leaflets, flowers yellow, not in spikes | <i>Cassia chamaecrista:</i> part-
ridge pea |

Spermatophytes Flowering Plants

Angiospermae Angiosperms

Dicotyledons

Ranales Buttercup Order

Ranunculácea—Buttercup Family

Herbs or climbing shrubs; sepals 3-15, petals 0-15, stamens 6-∞; fruit capsule, achene, follicle or berry; flower apocarpous, apopetalous or apetalous; leaflets 1-3

1. Flowers regular

a. Climbing vine

Clematis

b. Erect herbs

(1) Petals present, often much smaller than the sepals

(a) Petals conspicuous, yellow

Primula

(b) Petals much smaller than the colored sepals

x. Sepals whitish; leaves palmately divided

Helleborus

y. Sepals bluish; leaves finely cut

Viola

(2) Petals absent; sepals colored

Anemone

2. Flowers irregular

a. Upper sepal hood-like

Urtica

b. Upper sepal funnel-like or spurred

Delphinium

Clematis—Virgin's Bower, Clematis

(Gr. *klematis*, a climbing plant)

1. Leaflets toothed; flowering in summer

Clematis vitalba

2. Leaflets entire; flowering in autumn

Clematis integrifolia

Ranunculus—Buttercup, Crow-foot

(Lat. *ranunculus*, a little frog, perhaps from its habit)

1. Leaves lobed or cut

a. Flowers yellow

(1) Flowers 1-3 cm. wide

(a) Flowers 1-2 cm. wide; stems smooth

Ranunculus acris

(b) Flowers 2-3 cm. wide; stems hairy

Ranunculus repens

(2) Flowers 4-5 cm. wide, often double

Ranunculus flammula

b. Flowers white

Ranunculus abortivus

2. Leaves not lobed

a. Leaves entire, oblong or lanceolate

Ranunculus abortivus

b. Leaves crenate, rounded

Ranunculus abortivus

Helleborus—Hellebore, Christmas Rose

(Gr. *helleboros*, hellebore, of ancient repute as a food for horses)

Leaves lobed; flowers white to pink

Helleborus viridis

Nigella—Ragged Lady, Maid in a Mist

(Lat. *niger*, black, *ella*, small, from the black color of the seed)

Leaves finely dissected, the upper enclosing the flower

Nigella arvensis

Anemone—Anemone, Windfall-wort

(Gr. *anemone*, shaken by the wind, because wind-wort)

1. Stamens blue; peduncles 1-2

Anemone hepatica

2. Stamens yellow; peduncles 2-5

Anemone pulsatilla

PAPAVERACEAE—CAPPARIDACEAE

Aconitum—Aconite, Monkshood

(Gr. *akoniton*, monkshood, perhaps from an original rocky home)

- | | |
|--|-----------------------|
| 1. Leaves 3-parted, but not divided to the base | <i>A. columbianum</i> |
| 2. Leaves 4-9-lobed, usually divided to the base | |
| a. Helmet closed | <i>A. autumnale</i> |
| b. Helmet open | |
| (1) Helmet narrow and cone-like | <i>A. lycoctonum</i> |
| (2) Helmet broad and low | <i>A. napellus</i> |

Delphinium—Larkspur, Rocket

(Gr. *delphinion*, larkspur)

- | | |
|---|---------------------|
| 1. Pistils 2-3; leaves coarsely lobed | <i>D. formosum</i> |
| 2. Pistil 1; leaves finely cut | |
| a. Pod smooth; flowers scattered | <i>D. consolida</i> |
| b. Pod downy; flowers in a dense raceme | <i>D. ajacis</i> |

Brassicales Mustard Order

Papaveraceae—Poppy Family

Herbs with colored or milky sap; sepals 2, petals 4-12, stamens many, ovary 1-celled, fruit a capsule; flower syncarpous, apopetalous, hypogynous, regular.

- | | |
|--------------------------------------|----------------------|
| 1. Leaves spiny | <i>Argemone</i> |
| 2. Leaves not spiny | |
| a. Buds drooping | |
| (1) Flowers 5-15 cm. wide; sap white | <i>Papaver</i> |
| (2) Flowers 1-2 cm. wide; sap yellow | <i>Chelidonium</i> |
| b. Buds erect or nearly so | |
| (1) Leaves pinnatifid; sap saffron | <i>Glaucium</i> |
| (2) Leaves dissected; sap colorless | <i>Eschscholtzia</i> |

Argemone—Prickly Poppy

(Gr. *argemone*, a kind of poppy)

- | | |
|--------------------------------------|----------------------|
| 1. Flowers yellow; leaves spotted | <i>A. mexicana</i> |
| 2. Flowers white; leaves not spotted | <i>A. intermedia</i> |

Papáver—Poppy

(Lat. *papaver*, poppy)

- | | |
|--|---|
| 1. Stems leafy | |
| a. Leaves oblong, toothed, smooth and glaucous | <i>P. somniferum: opium p.</i> |
| b. Leaves pinnatifid, bristly, green | |
| (1) Plant 1 m. high; flowers 1-2 dm. wide | <i>P. orientale: oriental p.</i> |
| (2) Plant ½ m. high; flowers ½ dm. wide | <i>P. rhoas: corn p.</i>
<i>Shirley p.</i> |
| 2. Stems leafless | |
| a. Leaf divisions entire or somewhat cleft; capsule roundish | <i>P. nudicaule: Iceland p.</i> |
| b. Leaf divisions finely cut; capsule club-shaped | <i>P. alpinum: alpine p.</i> |

Chelidonium—Celandine

(Gr. *chelidonium*, swallow)

- | | |
|--|-----------------|
| Leaves pinnate or twice pinnatifid; flowers yellow | <i>C. május</i> |
|--|-----------------|

Glaucium—Horned Poppy

(Gr. *glaucium*, the juice of the horned poppy)

- | | |
|---|------------------|
| Leaves pinnatifid; flowers yellow; pod beaked | <i>G. luteum</i> |
|---|------------------|

Eschscholtzia—California Poppy

(Named for the collector, Eschscholtz)

- | | |
|---|-----------------------|
| Leaves dissected; flowers orange-yellow | <i>E. californica</i> |
|---|-----------------------|

Capparidaceae—Caper Family

Herbs with compound leaves; sepals 4, petals 4, stamens 6-12, ovary 2-celled, flower syncarpous, apopetalous, hypogynous, regular.

- | | |
|-------------------------------------|------------------|
| 1. Flowers pink; stamens 6 | <i>Clcome</i> |
| 2. Flowers yellowish; stamens 10-12 | <i>Polanisia</i> |

BRASSICACEAE

Cleome Cleome, Rocky Mountain Hoop-pole
(Gr. *uncertain origin and meaning*)

Leaves of 3 leaflets; flower pink; ovary stalked

Polunisia Polunisia

(Gr. *polys*, many, *anisos*, unequal; improperly formed, but not original)

Leaves of 3 leaflets; flowers yellowish; ovary nearly sessile

Brassicaceae—Mustard Family

Herbs; sepals 4, petals 4, stamens 6 or 4, 2 shorter, ovary 2-lobed; fruit syncarpous, apopetalous, hypogynous, usually regular.

1. Pod globose, rounded or triangular

a. Pod globose

b. Pod round and flat

(1) Flowers tiny, whitish or greenish

(2) Flowers larger, white or purple, two petals larger

c. Pod triangular

2. Pod oblong to linear

a. Pod remaining closed when ripe

b. Pod opening by two valves when ripe

(1) Pod beaked at the tip

(2) Pod not beaked at the tip

x. Seeds in one row in each cell; flowers usually purple to red

y. Seeds in two rows in each cell; flowers yellow or white

(x) Pods awl-shaped

(y) Pods oblong to almost round

Mýssum—Sweet Myssum

(Gr. *alyssos*, curing madness, probably from supposed medicinal qualities)

Leaves lanceolate or linear; flowers white, fragrant

Lepidium—Pepper-grass

(Gr. *lepidion*, little scale, referring to the pods)

1. Flowers greenish; petals lacking

2. Flowers white; petals present

Hérís—Candytuft

(From Her, the early name of St. Anne)

Leaves lanceolate to linear; flowers purplish

Bursa—Shepherd's Purse

(Lat. *bursa*, purse, referring to the pods)

Leaves deeply cut, often entire on the stem; flowers white

Brassica—Cabbage, Mustard

(Lat. *brassica*, cabbage)

1. Cultivated

a. Leaves smooth, glaucous; flowers pale yellow

b. Leaves hairy, green; flowers brighter yellow

2. Weeds

a. Pod 2½–5 cm. long, beak 6–15 mm. long

b. Pod 1–2½ cm. long, beak 2–10 mm. long

(1) Beak 2–4 mm. long

(2) Beak 8–10 mm. long

Raphanus—Radic

(Gr. *rha*, quick, *phanos*, appearing, referring to the color of the flowers)

1. Cultivated; flowers pink to white, pods 2–3 so 4-l.

2. Weed; flowers yellow, then white; pods 4–10 so 4-l.

Matthiola—Stock, Gilliflower

(Named for the Italian botanist, Matthioli)

- | | |
|----------------------------------|------------------|
| 1. Stem herbaceous; annual | <i>M. annua</i> |
| 2. Stem woody at base; perennial | <i>M. incana</i> |

Sisymbrium—Hedge Mustard

(Gr. name of some mustard)

- | | |
|---|----------------------|
| 1. Pod 1-2 cm. long; flowers yellow | <i>S. officinale</i> |
| 2. Pod 6-10 cm. long; flowers cream-colored | <i>S. altissimum</i> |

Nasturtium—Cress, Horseradish

(Lat. *nasturtium*, cress, from *nasus tortus*, due to its pungency)

- | | |
|---|------------------------------------|
| 1. Cultivated; flowers white | |
| a. Aquatic; leaves pinnate | <i>N. officinale</i> : water cress |
| b. Terrestrial; leaves large, simple, crenate | <i>N. armoracia</i> : horse-radish |
| 2. Native; flowers yellow | |
| a. Stems spreading, 1-2 dm. high | <i>N. sinuatum</i> |
| b. Stems erect, 3-8 dm. high | <i>N. palustre</i> |

Polygalaceae—Milkwort Family

Herbs with entire leaves; sepals 5, 2 larger, petals 3, somewhat united, stamens 8, ovary 2-celled, fruit a capsule; flower syncarpous, slightly sympetalous, hypogynous, somewhat zygomorphic.

Polygala—Milkwort

(Gr. *polys*, much, *gala*, milk, from its supposed virtue in increasing the flow of milk)Leaves linear, whorled; flowers whitish *P. verticillata*

Resedaceae—Mignonette Family

Low herbs, with simple entire or lobed leaves; sepals 4-7, petals 4-7, irregular, stamens 10-40, ovary 1-celled, of 3-6 carpels, fruit a capsule; flower syncarpous, apopetalous, hypogynous, zygomorphic.

Reseda—Mignonette

(Lat. *reseda*, a medicinal plant, from *resedare*, to allay)Leaves oblong, entire or 3-lobed; flowers greenish, fragrant *R. odorata*

Violaceae—Violet Family

Low herbs, with simple entire to deeply cut leaves; sepals 5, petals 5, 1 spurred, stamens 5, ovary 1-celled, carpels 3, fruit a capsule; flower syncarpous, apopetalous, hypogynous, zygomorphic.

Viola—Violet, Pansy, Heart's-ease

(Lat. *viola*, violet)

- | | |
|---|-------------------------------|
| 1. Flowering stems leafy; stipules large | |
| a. Spur short, blunt | |
| (1) Flowers large, 3-5 cm. wide | <i>V. tricolor</i> : pansy |
| (2) Flowers small, 1-2 cm. wide | <i>V. arvensis</i> : field p. |
| b. Spur long, acute | <i>V. cornuta</i> |
| 2. Flowering stems leafless; stipules lacking | |
| a. Lobes of the leaf broad, especially the middle one | <i>V. palmata</i> |
| b. Lobes narrow, linear | <i>V. pedata</i> |

Caryophyllales Pink Order

Caryophyllaceae—Pink Family

Herbs with opposite entire leaves; sepals 4-5, petals 4-5, rarely none, stamens 4-10, ovary 1-celled, rarely 2-5-celled, styles 2-5, fruit a capsule; flower syncarpous, apopetalous, hypogynous, regular.

- | | |
|---|-----------------|
| 1. Sepals united | |
| a. Styles 2 | |
| (1) Calyx with scales at base | <i>Dianthus</i> |
| (2) Calyx without basal scales | |
| (a) Calyx pyramidal, the angles winged in fruit | <i>Vaccaria</i> |

CARYOPHYLLACEAE

- (b) Calyx oblong or bell-shaped
 - x. Calyx oblong; flowers large
 - y. Calyx bell-shaped; flowers tiny

b. Styles 3-5

(1) Styles 3

(2) Styles 4-5

2. Sepals not united

a. Styles 3-4

b. Styles 5

Dianthus—Pink, Carnation

(Gr. *diōs*, of Jupiter, *anthes*, flower)

1. Flowers in a flat-topped cluster; petals toothed

2. Flowers single or but 2-3 in a cluster

a. Petals cut-fringed

b. Petals merely toothed

(1) Flowers 3-5 cm. wide, usually double

(2) Flowers 1-2 cm. wide, single

Vaccaria—Vaccaria, Cow Pink

(Lat. *vacca*, cow; of doubtful application)

Leaves lanceolate, clasping; flowers pink

Saponaria—Bouncing Bet, Soapwort

(Lat. *sapo*, soap, from the soapy juice)

Leaves ovate to lanceolate; flowers pinkish

Gypsophila—Gypsophila

(Gr. *gypsos*, chalk, *philos*, loving)

1. Stems 3 dm. high, annual; flowers 6-8 mm. wide

2. Stems 6-10 dm. high, perennial; flowers 2-3 mm. wide

Silene—Catchfly, Campion

(Probably from Gr. *sialos*, saliva, from the sticky seed)

1. Plant more or less sticky

a. Plant very sticky and hairy; night-flowering

b. Plant sticky near the joints, not hairy; day-flowering

(1) Leaves lance-linear; flowers small, panicle

(2) Leaves lance-ovate, glaucous; flowers showy in cymes, pink

2. Plant not sticky; calyx bladderly; petals white

Lychnis—Corn-cockle, Ragged Robin

(Gr. *lychnos*, lamp, from the use of one petal for a wax-candle)

1. Sepal lobes long and leaf-like

2. Sepal lobes not leaf-like

a. Plant white-cottony

b. Plant not white-cottony

(1) Petals heart-shaped

(2) Petals deeply lobed

(a) Petals 2-lobed

x. Flower red, perfect

y. Flower white, dioecious

(b) Petals 4-lobed; flower often double

Stellaria—Starwort, Chickweed

(Lat. *stellaria*, star-like, from the flower)

Leaves oblong to ovate; petals 2-cleft

Ceratium—Chickweed

(Gr. *kerastion*, little horn, from the form of the pod)

Leaves ovate, soft-hairy; petals shorter than calyx

C. vulgatum

Portulacaceae—Purslane Family

Fleshy herbs; sepals 2, rarely 5, petals 4-5, stamens 4-30, ovary 1-celled, style usually 3-cleft; flower syncarpous, apetalous, hypogynous, somewhat irregular.

Portulaca—Purslane, Moss Rose

(Lat. *portulaca*, purslane)

1. Leaves flat, wedge-shaped; flowers 5-6 mm. wide, yellow

P. oleracea

2. Leaves round, linear; flowers 3-5 cm., many-colored

P. grandiflora

Mollugaceae—Carpetweed Family

Low herbs with opposite or whorled leaves; sepals 5, petals 0, stamens 3, 5 or more, ovary 3-5-celled, stigmas 3, fruit a capsule; flower syncarpous, apetalous, hypogynous, regular.

Mollugo—Carpetweed

(Lat. *mollis*, soft, from its carpet-like nature)

Leaves spatulate, whorled; sepals white inside

M. verticillata

Amarantaceae—Amaranth Family

Herbs with simple leaves; sepals 5, rarely 3, petals 0, stamens 5, rarely fewer, pistil 1-celled, stigmas 2-3, fruit a utricle; flower syncarpous, apetalous, sometimes monoecious or dioecious, hypogynous, regular.

1. Leaves alternate

a. Bracts greenish; flowers imperfect

(1) Pistillate flowers with calyx

Amarantus

(2) Pistillate flowers without calyx

Acnida

b. Bracts colored; flowers perfect

Celosia

2. Leaves opposite

a. Flower cluster a dense terminal head

Gomphrena

b. Flowers in small terminal and axillary clusters

(1) Leaves lanceolate to spatulate; stamens 5, staminoids 5

Telanthera

(2) Leaves broad ovate or orbicular; stamens 5

Iresine

Amarantus—Amaranth

(Gr. *amarantos*, unfading, from the papery bracts)

1. Flowers in dense terminal clusters

a. Spikes red, drooping

A. caudatus: *prince's*
feather

b. Spikes green, erect

(1) Spikes 8-16 mm. thick

A. retrofractus: *pigweed*

(2) Spikes 4-6 mm. thick

A. hybridus

2. Flowers in small axillary clusters

a. Erect, bushy; sepals 3

A. graecizans

b. Prostrate, spreading; sepals 4-5

A. blitoides

Acnida—Water-hemp

(Gr. *a-*, without, *knide*, nettle, the bracts not spiny)

Leaves lanceolate, entire; flowers green

A. tamariscina

Celosia—Cockscomb

(Gr. *kelos*, burning, dry, from the color or texture of the flowers)

1. Spikes comb-like

C. cristata

2. Spikes plummy to cylindrical

C. argentea

Gomphrena—Globe Amaranth, Everlasting

(Of doubtful origin and meaning)

Leaves oblong, sessile; heads round, crimson to white

G. globosa

CHENOPODIACEAE—POLYGONACEAE

Telánthera—Telanthera

(Gr. *telos*, end, *anthera*, flower, or the; perhaps from the fact that the

Leaves lanceolate to spatulate, varicolored.

Iresine—Ireine

(Gr. *iresione*, a wreath, wound with a cord; perhaps from the fact that

Leaves ovate or rounded, red; calyx woolly.

Chenopodiáceae—Goosefoot Family

Herbs with simple fleshy leaves; sepals 5-6, more or less united at the base, 1-celled, stigmas 2-4, fruit an achene or utricle; flower syncarpous, 4-5-merous, hypogynous, regular.

1. Cultivated

a. Flowers perfect

(1) Leaves large, oblong ovate

(2) Leaves small, linear

b. Flowers dioecious

2. Weeds

a. Leaves flat, usually lobed

b. Leaves awl-shaped, prickly pointed

Bêta—Beet, Mangel Wurzel

(Lat. *beta*, beet)

Leaves long ovate, large; root globose to conical.

Kôchia—Mock Cypress

(Named for the German botanist, Koch)

Leaves linear, ciliate, 5-8 cm. long; plant pyramidal.

Spinácia—Spinach

(Lat. *spina*, spine, perhaps from the spines of the fruit)

Leaves ovate to deltoid; flowers dioecious, axillary.

Chenopodium—Goosefoot, Lambs Quarters

(Gr. *chen*, goose, *podion*, little foot, from the shape of the seed)

1. Leaves mealy, pale, lanceolate to ovate; edible.

2. Leaves smooth, green, cordate, angle-toothed; unpleasantly scented.

Salsola—Russian Thistle

(Lat. *salsus*, salty, *-ola*, little, from its being on coastal soil)

Leaves awl-shaped, prickly; bracts spiny, calyx winged.

Polygonáceae—Buckwheat Family

Herbs with entire leaves and papery sheathing stipules; sepals 4-6, more or less united at the base, 1-celled, stigmas 2-3, fruit an achene; flower syncarpous, 4-5-merous, hypogynous, regular.

1. Calyx of 4-5 sepals, often petal-like

a. Leaves halberd- or arrow-shaped; flowers white

b. Leaves linear to ovate; flowers greenish to pink

2. Calyx of 6 sepals, usually of 2 kinds

a. Leaves rounded, 4-8 dm. wide, with edible stalks

b. Leaves oblong to arrow-shaped, small to medium

Fagopyrum—Buckwheat

Stamens 8, styles 3; achene triangular.

Polygonum—Knotweed, Heartsease

(Gr. *polys*, many, *gonu*, knee, from the jointed stem)

1. Flowers single or clustered in the axils of the leaves

a. Cultivated; 2-4 m. high; leaves 2-3 dm. long

b. Native; less than 1 m. high

(1) Low, spreading, 1-2 dm. high

- (2) Tall, erect, 5-10 dm. high
2. Flowers in terminal clusters
- a. Leaves lance-shaped to ovate
- (1) Leaves dotted and sharp to the taste
- (2) Leaves neither dotted nor sharp
- x. Spikes nodding
- (x) Leaves ovate; flowers pink; stamens 7
- (y) Leaves long lanceolate; flowers flesh-colored; stamens 6
- y. Spikes erect
- (x) Flowers bright pink; stamens 8
- (y) Flowers greenish-pink; stamens 6
- (z) Flowers white
- b. Leaves heart-shaped or arrow-shaped; twining or climbing
- (1) Calyx winged in fruit
- (2) Calyx not winged

*P. tenue**P. hydrophilæ: smartweed**P. orientalis: prince's feather**P. lapathifolium**P. pennsylvanicum**P. persicaria: lady's thumb**P. bistorta: bistorta**P. scandens: climbing buckwheat**P. convolvulus: bindweed***Rûmex—Dock, Sorrel**(Lat. *rumex*, sorrel)

1. Leaves arrow-shaped, sour
2. Leaves lance-oblong, somewhat bitter
- a. Leaves curled at edges; valves of flower grain-bearing
- b. Leaves hardly curled; usually 1 valve grain-bearing

*R. acetosella: sheep sorrel**R. crispus: dock**R. obtusifolius: dock***Rhêum—Rhubarb, Pie-plant**(Gr. *rheon*, name of a medicinal plant)

Leaves large, rounded, petiole fleshy, sour; flowers white

*R. rhaponticum***Allioniaceae—Four O'Clock Family**

Herbs with simple leaves; sepals 5, united into a bright corolla-like tube, petals 0, stamens 3-5, ovary 1-celled, fruit 1-seeded, achene-like, enclosed in the base of the calyx; flower syncarpous, synsepalous, apetalous, apparently epigynous, usually regular.

1. Flowers many in an involucre of 5 separate bracts
2. Flowers few in a 5-lobed involucre; stamens 3
3. Flowers single in a 5-parted involucre; stamens 5

*Abronia**Allionia**Mirabilis***Abrônia—Abronia**(Gr. *abros*, pretty, which the flowers are)

1. Stems prostrate; flowers day-blooming, rose-purple
2. Stems ascending; flowers night-blooming, white

*A. umbellata**A. fragrans***Alliônia—Wild Four O'Clock**

(Named for the Italian botanist, Allioni)

1. Leaves ovate, petioled
2. Leaves oblong, lance-shaped or linear
- a. Leaves oblong to lance-shaped, hairy
- b. Leaves linear, smooth

*A. nyctaginea**A. hirsuta**A. linearis***Mirabilis—Four O'Clock, Marvel-of-Peru**(Lat. *mirabilis*, wonderful, from the beautiful night-blooming flowers)

Leaves ovate, entire; flowers varicolored

*M. jalapa***Malvales Mallow Order****Malvaceae—Mallow Family**

Herbs or shrubs, with alternate, simple, often lobed leaves; sepals 5, petals 5, stamens many, united by their filaments, ovaries several to many, separate or usually united, often falling away as one-seeded fruits, or the fruit a capsule.

MALVACEAE

1. Anthers clustered at top of filament tube; fruit a 3-seeded capsule
 arating in fruit
- a. Stigmas linear
- (1) Cells 1-seeded
- (a) Involucre of 6-9 more or less unequal bracts
- (b) Involucre of 1-3 bracts, or lacking
- x. Involucre of 3 bracts; carpels not beak-like
- y. Involucre of 1-3 bracts or none; carpels beak-like
- (2) Cells 3 several seeded; involucre none
- b. Stigmas capitate; flowers yellow to orange red
2. Anthers along the filament tube; fruit a 3-seeded capsule
- a. Style branches or stigmas 10
- b. Style-branches or stigmas 3-5
- (1) Involucre of many narrow bracts; seeds 1-3
- (2) Involucre of 3 large leaf-like bracts; seeds 3-5

Althaea—Marsh Mallow, Hell-bone?

(Gr. *althaia*, marsh mallow, from its being in the marshes)

1. Flowers 2-4 cm. wide, rose, in axillary clusters *A. rosea* L.
2. Flowers 6-15 cm. wide, varicolored, often doubled in long spikes *A. officinalis* L.

Málva—Mallow, Cheeses

(Gr. *malache*, Lat. *malva*, mallow, from its being in the marshes)

1. Flowers about 1 cm. wide, white or pale blue, carpels about 15 *M. sylvestris* L.
2. Flowers 2-5 cm. wide
- a. Leaves with shallow lobes; flowers red-purple; carpels 10 *M. rotundifolia* L.
- b. Leaves deeply lobed; flowers pink to white; carpels 15-20
- (1) Leaves twice-lobed, divisions linear; carpels hairy *M. fruticosa* L.
- (2) Leaves once-lobed; carpels smooth *M. coccinea* L.

Callirrhoe—Callirhoe

(Gr. *kallirrhoe*, beautiful-flowing, a family spring at Aegina)

1. Leaves triangular-ovate, somewhat lobed; flowers deep purple *C. coccinea* L.
2. Leaves round, deeply palmately lobed; flowers red-purple *C. grandiflora* L.

Abútilon—Velvet Leaf

(Arabic name)

- Leaves large, velvety, round-ovate; flowers yellow *A. portulacastrum* L.

Malvástrum—Red Mallow

(Lat. *malva*, mallow, *-astrum*, like, from its being in the marshes)

- Leaves palmate, 3-5-parted, silvery-scuffy; flowers 1-2 cm. wide *M. sylvestris* L.

Malvaviscus—Malvaviscus

(Lat. *malva*, mallow, *viscus*, glue, from the sticky juice)

- Leaves heart-shaped; flowers scarlet *M. officinalis* L.

Hibiscus—Hibiscus, Rose-Mallow

(Gr. *hibiskos*, name of some mal w)

1. Shrub; flowers red or varicolored, about 1 dm. wide *H. syriacus* L.
2. Herbs
- a. Low coarsely hairy weed; flower 2-5 cm. wide *H. trionum* L.
- b. Tall smooth or downy herbs
- (1) Capsule ovoid, 2-4 cm. long; flowers pink to white
- (a) Leaves smooth on both sides *H. rosa-sinensis* L.
- (b) Leaves hairy below, sometimes above also *H. mutabilis* L.
- (2) Capsule long and pod-like, 1-3 dm. long; flower yellowish *H. sabdariffa* L.

Gossypium—Cotton
(Name from the Arabic)

Leaves 5-lobed; flowers yellow, purple inside at base *G. herbaceum*

Moraceae—Mulberry Family

Herbs with opposite or alternate lobed leaves; sepals 5, more or less united, petals 0, stamens 5 ovary 1-celled, stigmas 2, fruit an achene; flower syncarpous, synsepalous, apetalous, dioecious, hypogynous, regular.

1. Tall erect herb, leaves divided to the base into 5-11 lance-linear divisions *Cannabis*
2. Twining herb with 3-7 lobed leaves; fruit cone-like *Humulus*

Cannabis—Hemp
(Lat. *cannabis*, hemp)

Plant 1-4 m. high; flowers green, in axillary spikes *C. sativa*

Humulus—Hop

(Lat. *humus*, ground, *-ulus*, little, perhaps from its clambering habit)
Leaves rough, ovate in outline; fruit clusters 3-8 cm. long *H. lupulus*

Urticaceae—Nettle Family

Herbs with opposite or alternate leaves, sometimes with stinging hairs; sepals 3-5, sometimes united, petals 0, stamens 3-4, ovary 1-celled, stigma 1, fruit an achene; flower syncarpous, apetalous, polygamous, monoecious or dioecious, hypogynous, regular.

1. Leaves opposite
 - a. Armed with stinging hairs *Urtica*
 - b. Smooth and without stinging hairs *Pilea*
2. Leaves alternate, without stinging hairs *Parietaria*

Urtica—Nettle

(Lat. *urtica*, nettle, from *uro*, to burn, from the stinging hairs)

1. Leaves hairy, heartshaped at base *U. dioeca*
2. Leaves smooth or nearly so, round at base *U. gracilis*

Pilea—Richweed, Clearweed

(Lat. *pileus*, cap, from the cap-like sepal of one species)
Stems clear, 1-4 dm. high; leaves ovate, 3-ribbed *P. pámila*

Parietaria—Pellitory

(Lat. *parietaria*, on walls, from *paries*, wall)
Low annual herb; leaves lance-oblong *P. pensilvánicá*

Geraniales Geranium Order

Geraniaceae—Geranium Family

Herbs, or some shrubby, with simple lobed or compound leaves; sepals 5, petals 5, stamens 5 or 10, ovary 5-celled, stigmas 5, fruit separating at maturity into 5 achene-like parts; flower syncarpous, apetalous, hypogynous, regular.

1. Leaves entire to palmately divided
 - a. Flowers regular; stamens with anthers 10 *Geranium*
 - b. Flowers somewhat irregular; stamens with anthers 7-8 *Pelargonium*
2. Leaves pinnate; stamens with anthers 5 *Erodium*

Geranium—Cranesbill

(Gr. *geranos*, crane, referring to the form of the fruit)

1. Flowers red
 - a. Flowers 1 cm. wide; leaves 3-parted *G. robertianum*: herb
Robert
 - b. Flowers 2-4 cm. wide; leaves 7-parted *G. sanguineum*
2. Flowers blue or violet *G. ibericum*
3. Flowers white or pink *G. Richardsónii*

OXALIDACEAE—TROPAEOLACEAE

Pelargonium—Geranium

(Gr. *pelargos*, stork, referring to the form of the stem.)

1. Plant trailing; leaves ivy-like, petiole attached to lower angle. P. *triviale*
2. Plant erect, not trailing
 - a. Leaves with shallow lobes, marked with a semi-circular zone of reddish or yellowish fleshy P. *rostratum*
 - b. Leaves distinctly or deeply lobed, usually not zoned; lower lobes usually smaller than the upper
 - (1) Leaves rarely lobed to the middle, fragrant P. *grandiflorum*
 - (2) Leaves lobed beyond the middle, often to the base, fragrant
 - (a) Lobes oblong P. *carolinense*
 - (b) Lobes linear P. *crispum*

Erodium—Storks-bill

(Gr. *erodios*, heron, referring to the form of the stem.)

Low, spreading; leaves pinnate, hairy; flowers pink E. *cicutarium*

Oxalidaceae—Oxalis Family

Low, usually stemless herbs, with 3-foliate leaves and acid-scented flowers; ovary 5-celled, stigmas 5, fruit a capsule; flower syncarpous, apopetalous, hypogynous, irregular.

Oxalis—Oxalis, Wood-sorrel

(Gr. *oxalis*, sorrel, from *oxys*, sour, referring to the taste.)

1. Native; flowers yellow, 5-10 mm. wide O. *stricta*
2. Cultivated; flowers varicolored, 10-25 mm. wide
 - a. Stems leafy; leaflets deeply notched; flowers yellow O. *corniculata*
 - b. Stems leafless; leaflets not deeply notched; flowers rose
 - (1) Leaves fleshy, 5-6 cm. wide; stem from bulb O. *terrestris*
 - (2) Leaves thin, hairy, 3-4 cm. wide; stem from thickened roots O. *caerulea*

Balsaminaceae—Touch-me-not Family

Herbs with simple alternate leaves; sepals 4, one of them spurred, petals 5, 2-lobed; ovary 5-celled, stigma 1, fruit a capsule which coils elastically, exserted, apopetalous, hypogynous, irregular.

Impatiens—Touch-me-not, Balsam, Jewel-weed

(Lat. *impatiens*, impatient, hence touch-me-not, from the ease of bruising.)

1. Native; flowers pale yellow to orange
 - a. Flowers pale yellow, with scattered reddish dots I. *capitata*
 - b. Flowers orange, densely dotted with red brown I. *capitata*
2. Cultivated; flowers red to white, varicolored
 - a. Flower flat, red; spur long, narrow I. *capitata*
 - b. Flower cup-like, varicolored, often double; spur short, broad I. *capitata*

Tropaeolaceae—Tropaeolum Family

Fleshy herbs, climbing with their long petioles, or more or less prostrate; leaves heart-shaped, alternate; sepals 5, united at the base into a long spur, petals 5, 2-lobed; ovary 3-celled, stigma 1, fruit of 3 fleshy achene-like bodies, flower apopetalous, hypogynous, irregular.

Tropaeolum—Tropaeolum, Nasturtium, Indian Cress

(Gr. *tropaeion*, Lat. *tropaeum*, trophy, perhaps from the resemblance to a trophy.)

1. Petals large, spreading
 - a. Leaves entire or wavy
 - (1) Leaf veins ending in points; petals narrow, pointed T. *erectum*
 - (2) Leaf veins not pointed; petals broad, not pointed T. *erectum*
 - b. Leaves deeply lobed; flowers bright yellow; spur green, broad T. *erectum*
2. Petals small, projecting from the vermilion calyx T. *erectum*

Linácea—Flax Family

Herbs with simple alternate entire leaves; sepals 5, petals 5, stamens 5, ovary 5-celled, styles 5, fruit a 10-celled capsule; flower syncarpous, apopetalous, hypogynous, regular.

Línium—Flax

(Gr. *linon*, Lat. *linum*, flax)

- | | |
|----------------------------|--|
| 1. Flowers blue | |
| a. Annual; sepals pointed | <i>L. usitatissimum</i> : com-
mon flax |
| b. Perennial; sepals blunt | <i>L. perenne</i> : blue flax |
| 2. Flowers red | <i>L. sanguineum</i> : red flax |

Rutácea—Rue Family

Herbs, shrubs or trees with compound leaves, sometimes reduced to the terminal leaflet, and appearing simple; sepals 4-5, or lacking, petals 4-8, stamens 4-60, ovary 2-5-celled, styles 1-5, or 2-5 separate pistils; fruit various, capsule, samara, drupe or berry; flower apocarpous or syncarpous, apopetalous, perfect, polygamous or dioecious, hypogynous, regular.

- | | |
|---|---------------|
| 1. Flowers greenish-yellow; leaves compound | <i>Ruta</i> |
| 2. Flowers white, fragrant; leaves of one leaflet | <i>Citrus</i> |

Rúta—Rue

(Lat. *ruta*, rue)

Bushy herb, woolly at base; leaflets oblong to obovate, dotted *R. graveolens*

Cítus—Orange, Lemon, Citron

(Gr. *kitron*, the citron tree)

- | | |
|----------------------------------|----------------------|
| 1. Leaves 1-foliolate, evergreen | <i>C. aurantium</i> |
| 2. Leaves 3-foliolate, deciduous | <i>C. trifoliata</i> |

Euphorbiácea—Spurge Family

Herbs or shrubs usually with milky juice and alternate simple leaves; sepals 3-5, somewhat united, or lacking, petals 0, or rarely 5-6, stamens 1-30, ovary 3-lobed or 3-celled, stigmas 3-6, fruit a 3-celled capsule; flower syncarpous, apetalous, monoecious or dioecious, hypogynous. In the genus *Euphorbia*, a cup-like involucre, resembling a calyx, contains 1 pistillate and several-many staminate flowers of 1 stamen each, and frequently bears 1-4 brightly colored glands at the edge, simulating a corolla.

- | | |
|---|------------------|
| 1. Leaves very large, 3-6 dm. wide, 7-11 cleft | <i>Ricinus</i> |
| 2. Leaves not cleft | |
| a. Calyx present | |
| (1) Staminate flowers with 8-16 stamens and no petals | <i>Acalypha</i> |
| (2) Staminate flowers with 15-30 stamens and 5-6 petals | <i>Codiaeum</i> |
| b. Flowers tiny, many in a calyx-like involucre | <i>Euphorbia</i> |

Ricinus—Castor-bean, Castor-oil Plant

(Lat. name of the castor bean)

Plant 1-4 m. tall; capsules spiny *R. communis*

Acalýpha—Acalypha

(Gr. *ákalyphe*, nettle)

- | | |
|--|---------------------|
| 1. Flowers in red spikes, 1-3 dm. long | <i>A. hispida</i> |
| 2. Flower clusters small and inconspicuous | |
| a. Greenhouse shrub with colored leaves | <i>A. tricolor</i> |
| b. Low native weed with green leaves | <i>A. virginica</i> |

Euphórbia—Spurge

(Gr. *euphorbion*, name of a resinous plant)

- | | |
|---|---|
| 1. Shrubs, often with spines | |
| a. Smooth shrubs with the upper leaves flower-like; involucre with 1 yellow gland | <i>E. pulcherrima</i> : poin-
settia |
| b. Spiny shrubs with green leaves; involucre with 2 red petal-like glands | <i>E. splendens</i> |
| 2. Smooth herbs | |

PLUMBAGINACEAE—PRIMULACEAE

a. Stems 1-2 m. tall; involucre with 5 white petals; corolla yellow.

(1) Upper leaves white or white margined; corolla yellow.

(2) Leaves scattered, not white and not margined; corolla yellow.

b. Stems prostrate, or 1-3 dm. high.

(1) Stems prostrate or spreading.

(a) Leaves hairy.

(b) Leaves smooth.

x. Seeds wrinkled and pitted.

y. Seeds strongly wrinkled, not pitted.

(2) Stems erect, 2-3 dm. high; leaves serrate.

Codiicetum—*Codineum*, *Codoneum*
(Latinized form of the Malay name)

Shrub; leaves ovate-lanceolate, varicolored.

Primulales Primrose Order

Plumbaginaceae—Leadwort Family

Herbs or woody plants with entire leaves; sepals 5, united, petals 5, united, stamens 5, opposite the petals, ovary 1-celled, stigmas 5, fruit a utricle; flowers usually 5 times apetalous, hypogynous, regular.

1. Stems leafy; corolla with a long tube.

2. Stems leafless; corolla of nearly or quite separate petals.

Plumbago—Leadwort

(Lat. *plumbum*, lead, application obscure)

1. Shrubby, climbing; leaves not ciliate; flowers light blue.

2. Low bushy herb; leaves ciliate, flowers deep blue.

Arméria—Thrift

(Lat. form of the Celtic name)

Stems tufted, with narrow entire leaves; flowers rose.

Primulaceae—Primrose Family

Herbs with simple leaves; sepals 5, united, petals 5, united, stamens 5, 1-celled, stigma 1, carpels 5, fruit a capsule or a pyxis; flower sometimes 5 times usually regular.

1. Flowering stems leafless

a. Flowers in an umbel, erect.

b. Flowers single, inverted.

2. Flowering stems leafy

a. Flowers yellow.

b. Flowers red, blue or white.

Primula—Primrose, Cowslip

(Lat. *primus*, spring, referring to the time of flowering)

1. Flowers pink to purple or white.

a. Leaves round-ovate, lobed; calyx inflated.

b. Leaves spatulate, not lobed; calyx not inflated; lobes 5.

2. Flowers yellow to red.

a. Flowers 1-2 cm. wide, drooping; corolla limb cup-like.

b. Flowers 2-4 cm. wide; corolla limb flat.

(1) Leaves thick, 5-8 cm. long.

(2) Leaves thinner, 1-2 dm. long.

(a) Flowers stemless or nearly so, among the leaves.

(b) Flowers on leafless scapes.

Cyclamen—Cyclamen

(Gr. *kyklaminos*, cyclamen, from *kyklos*, referring to the coiled flower stalk of some species)
Flowering stems leafless, from a large corm; flowers varicolored *C. persicum*

Lysimachia—Loosestrife

(Gr. *lysimachia*, loose-strife, from its reputed medical properties)
Stems creeping; the leaves round, opposite, with single yellow flowers in the axils *L. nummularia*: moneywort

Anagallis—Pimpernel

(Gr. name of the pimpernel, from *agallomai*, to delight)

1. Low and spreading; leaves ovate; flowers 4-6 mm. wide *A. arvensis*
2. Erect; leaves lance-linear; flowers 10-15 mm. wide *A. linifolia*

Plantaginaceae—Plantain Family

Low herbs with parallel-veined leaves at the base of the flowering stems; sepals 4, united, petals 4, united, stamens 4, rarely 2, exerted in flowering, ovary 2-celled, stigma 1, hairy and thread-like, fruit a pyxis; flower syncarpous, sympetalous, hypogynous, regular.

Plantago—Plantain

(Lat. *planta*, sole, perhaps from the broad flat leaf)

1. Leaves ovate
 - a. Pod ovoid, splitting circularly near the middle *P. major*
 - b. Pod oblong, splitting near the base *P. rugelii*
2. Leaves lanceolate to linear
 - a. Leaves lanceolate to oblong, 8-40 mm. wide
 - (1) Leaves lanceolate, 3-5-ribbed, 8-25 mm. wide *P. lanceolata*
 - (2) Leaves oblong to spatulate, 5-9-ribbed, 15-40 mm. wide *P. eriopoda*
 - b. Leaves linear, 3-8 mm. wide
 - (1) Leaves silky-hairy; bracts little longer than flowers *P. pürshii*
 - (2) Leaves smooth or hairy; bracts several times longer than flowers *P. aristata*

Polemoniales Phlox Order

Polemoniaceae—Phlox Family

Herbs with opposite or alternate, simple or compound leaves; sepals 5, united, petals 5, united, stamens 5, ovary 3-celled, stigmas 3, fruit a capsule; flower syncarpous, sympetalous, hypogynous, regular.

1. Climber; leaves pinnate; corolla bell-shaped *Cobaea*
2. Erect herbs; leaves simple; corolla salver-form *Phlox*

Cobaea—Cobaca

(Named for a Mexican priest, Cobo)

Leaves ovate; flower greenish or purplish, 5-6 cm. long *C. scandens*

Phlox—Phlox, Sweet William

(Gr. *phlox*, flame, from the brilliant colors)

1. Plants hairy
 - a. Perennial; blooming in May, and sparsely again in autumn *P. divaricata*
 - b. Annual; blooming in summer and autumn *P. Drummondii*
2. Plants smooth, perennial *P. paniculata*

Convolvulaceae—Morning Glory Family

Twining or trailing herbs, with simple alternate leaves, or leafless; sepals 4-5, usually united, petals 4-5, united, stamens 4-5, ovary 2-4-celled, stigmas 2-3, fruit a capsule; flower syncarpous, sympetalous, hypogynous, regular.

1. Stems leafy, green; flowers large
 - a. Stigma capitate, somewhat lobed
 - (1) Leaves pinnately parted; corolla salver-form *Quamoclit*

SOLANACEAE

- (2) Leaves not pinnately parted; corolla funnel-form
- b. Stigmas 2, linear
- 2. Stems leafless, orange or yellow; flowers tiny

Quinacelit—Cypress Vine (The Mexican name)

Leaf segments linear; flowers single, red

Ipomœa—Morning Glory, Sweet Potato

- 1. Flowers opening in the morning
 - a. Corolla funnel-form, 3-7 cm. wide, never scarlet yellow
 - (1) Leaves cordate-ovate, entire; stem hairy
 - (2) Leaves angled to deeply lobed
 - (a) Plant hairy
 - (b) Plant smooth
 - b. Corolla salver-form, 1-2 cm. wide, scarlet yellow
- 2. Flowers opening at night; corolla white, 10-15 cm. wide

Convolvulus—Bindweed

(Lat. *convolvere*, to twine, from the Latin)

- 1. Corolla white to rose; weeds
 - a. Calyx enclosed in 2 leafy bracts; flowers 4-5 cm. long
 - b. Calyx without leafy bracts; flowers 2 cm. long
- 2. Corolla blue, with white throat and yellow tube; bushy herb, cultivated

Cuscuta—Dodder

(Of uncertain origin and meaning)

- 1. Sepals separate
 - a. Styles as long as the ovary
 - b. Styles 2-3 times as long as the ovary
- 2. Sepals united
 - a. Flowers sessile
 - b. Flowers stalked

Solanaceae—Potato Family

Herbs or shrubs, with alternate, usually strong-scented leaves; ovary usually 2-celled, sometimes 3-5-celled, stigma 1, sometimes 2; flower syncarpous, sympetalous, hypogynous, regular or sometimes irregular

- 1. Shrub, often spiny, with green-purple flowers and red berries
- 2. Herbs

- a. Corolla wheel-shaped or cup-shaped, more or less flat
 - (1) Calyx bladdery, inflated in fruit
 - (2) Calyx not bladdery
 - (a) Filaments much longer than the anthers
 - (b) Filaments not longer, usually shorter than the anthers
 - x. Anthers united at the tip; flower yellow
 - y. Anthers not united; flower not yellow, except in one species
- b. Corolla tubular to funnelliform or salverform
 - (1) Fruit spiny; flowers long tubular, solitary
 - (2) Fruit not spiny
 - (a) Fruit a purple berry; corolla long bell-shaped
 - (b) Fruit a capsule
 - x. Calyx enclosing the pod
 - (x) Calyx with a spreading net-like border in fruit
 - (y) Calyx bell-shaped, without a spreading border
 - y. Calyx not enclosing the pod

Lycium—Matrimony Vine
(Named from the country Lycia)

Leaves spatulate, entire; branches trailing

L. vulgare

Physalis—Ground Cherry
(Gr. *physalis*, bubble, from the inflated calyx)

1. Fruiting calyx red

P. alkekégia: straw-
berry, tomato

2. Fruiting calyx not red

P. heterophýlla

a. Plant glandular, hairy

b. Plant smooth or sparsely hairy

(1) Corolla dull yellow with brown center; berry yellowish

P. lanceolata

(2) Corolla bright yellow with purple center; berry purple

P. ixocarpa

Capsicum—Red Pepper, Cayenne Pepper, Green Pepper

(Gr. *kapsis*, gulping down, perhaps from its pungency)

1. Annual or biennial; fruit oblong linear to round

C. annuum

2. Perennial; fruit oblong-pointed as a rule

C. frutescens

Lycopersicum—Tomato
(Gr. *lykos*, wolf, *persikon*, peach)

Leaves pinnate, hairy, strong-scented; flowers yellow; fruit red or yellow

L. esculéntum

Solanum—Potato, Egg-plant, Nightshade
(Lat. *sola-*, solace, perhaps from the use as food or medicine)

1. Plant prickly

a. Prickly calyx enclosing the dry fruit

S. rostrátum: buffalo bur

b. Calyx less prickly, or smooth, not enclosing the berry

(1) Fruit globose, orange-yellow, 1-2 cm. wide; native

S. carolinéscé: horse
nettle

(2) Fruit various in form and color, large, $\frac{1}{2}$ -2 dm. long; cultivated

S. melongéna: egg-plant

2. Plant not prickly

a. Shrubby house-plant with white flowers and red berries

S. pseudo-capsicum:
Jerusalem cherry

b. Plant not shrubby

(1) Leaves lobed or compound

(a) More or less climbing, many of the leaves 3-lobed; flowers purple; berry red

S. dulcamára: bitter-sweet

(b) Erect or spreading; berry green

x. Leaves pinnate; cultivated for its tubers

S. tuberosum: potato

y. Leaves pinnatifid; native

S. triflórum

(2) Leaves not lobed, nearly entire, fruit black, edible; wild, and cultivated as the "wonderberry"

S. nígrum: nightshade

Datura—Thorn-apple, Stramonium, Jimson Weed

(Name from the Arabic)

1. Flower white

a. Leaves lobed

D. stramonium

b. Leaves entire or merely wavy

(1) Plant smooth; corolla 5-toothed

D. cornucópia

(2) Plant viscid, hairy; corolla 10-toothed

D. meteloides

2. Flower violet or lilac

D. tátula

Atropa—Belladonna

(Named for Atropos, one of the Fates)

Leaves ovate, entire; corolla and berry purple

A. belladónna

Hyoścýamus—Henbane

(Gr. *hyos*, hog, *kyamos*, bean)

Leaves clasping, toothed, clammy; flowers yellowish

H. níger

BORAGINACEAE—GENTIANACEAE

Nicotiana—Nicotiana—Tobacco

(Named for Nicot, an early discoverer)

1. Flowers white, at least within, opening at night
2. Flowers usually some shade of red, day-blooming
 - a. Leaves sessile, decurrent; flowers red or purple
 - b. Leaves stalked; flowers yellowish or greenish

Petunia—Petunia

(Native name of tobacco)

Leaves ovate, hairy, nearly sessile; flowers variegated, purple

Boraginaceae—Borage Family

Herbs with simple alternate leaves, often rough hairy, flowers blue

5, ovary 4-celled or deeply 4-lobed, separating at maturity into 4 syncarpous, sympetalous, hypogynous, regular, or irregular carpels

1. Ovary divided into 4 parts

a. Corolla regular

(1) Corolla wheel-shaped, tube lacking

(2) Corolla more or less tubular, with scale-like appendages at throat

(a) Flowers blue to purple

x. Nutlets bur-like, with hooked prickles

y. Nutlets smooth

(b) Flowers yellowish white

b. Corolla irregular

2. Ovary entire, but the ripe fruit separating into 2 or 4 nutlets

Borago—Borage

(Supposed to be from *corago*, because of repeated whorls, as

Leaves oval to lance-oblong, bristly; flowers blue to purple

Cynoglossum—Houndstongue

(Gr. *kynos*, dog, *glossa*, tongue)

Leaves spatulate to lance-oblong, downy, flowers red-purple

Anchusa—Alkanet

(Gr. *enchusa*, alkanet, because the root yields a blue dye)

Leaves lance-ovate, rough; flowers large

Symphytum—Comfrey

(Gr. *symphyton*, comfrey, from *symphyo*, to unite, *phuton*, plant, because of

Leaves lance-oblong, soft-hairy, decurrent

Heliotropium—Heliotrope

(Gr. *heliotropion*, a plant which turns toward the sun)

1. Corolla tube hardly longer than the calyx

2. Corolla tube twice longer than the calyx

Gentianales—Gentian Order

Gentianaceae—Gentian Family

Herbs with opposite simple entire sessile leaves

4-5, alternate with the corolla lobes, ovary 4-lobed, fruit 2-lobed capsule; flower syncarpous, sympetalous, hypogynous, regular

1. Corolla tubular, blue; flowers solitary or whorled

2. Corolla wheel-shaped, green; flowers in a flower-stem

Gentiana—Gentian

(Named for King's gentian, a blue dye)

1. Corolla lobes fringed; flower open

2. Corolla lobes not fringed; flower closed

Frásera—Fraseria

(Named for the botanist Fraser)

Corolla 4-parted, with 4 fringed nectaries

F. speciosa

Apocynáceae—Dogbane Family

Herbs or shrubs, usually with milky juice, and with opposite simple leaves; sepals 5, united, petals 5, united, stamens 5, ovaries 2, the styles or at least the stigmas united, fruit a follicle; flower apocarpous, sympetalous, hypogynous, regular.

1. Shrubs; leaves somewhat whorled, leathery
2. Herbs, or woody at base; leaves opposite

Nerium
Vinca

Nérium—Oleander, Rose Bay

(Gr. *nerion*, oleander)

Flowers rose to white, in terminal clusters

N. oleánder

Vinca—Periwinkle

(Lat. *vincio*, to bind, from the cord-like stems)

Leaves oblong, veiny, shining; flowers salverform, rose to white

V. rósea

Scrophulariales Snapdragon Order

Scrophulariáceae—Snapdragon Family

Herbs with mostly simple leaves; sepals united, the calyx often 2-lipped, petals usually 5, and united into an irregular or 2-lipped corolla, rarely 4 and regular, stamens 4, rarely 2 or 5, ovary 2 celled, stigma 1, entire or 2-lobed, fruit a capsule; flower syncarpous, sympetalous, hypogynous, typically irregular.

1. Stamens, or the anther-bearing ones, only 2

a. Corolla 2-lipped

- (1) Leaves opposite; both corolla lips sac-like
- (2) Leaves alternate; one lip slightly sac-like

Calceolaria
Schizanthus
Veronica

b. Corolla not 2-lipped, often nearly regular

2. Anther-bearing stamens 4

a. Fifth stamen present as a sterile filament

(1) Corolla strongly 2-lipped

- (a) Corolla wide open; sterile filament conspicuous
- (b) Corolla nearly closed; sterile filament shorter than others

Pentstemon
Chelone
Salpiglossis

(2) Corolla not 2-lipped, somewhat irregular

b. Fifth stamen entirely lacking

(1) Base of the corolla with a spur or sack

- (a) Corolla spurred
- (b) Corolla with a sack at base

Linaria
Antirrhinum

(2) Corolla without spur or sack

- (a) Corolla salverform, not 2-lipped
- (b) Corolla more or less tubular and 2-lipped

Browallia

x. Climbing by coiling leaf stalks

y. Not climbing

- (x) Leaves alternate; flowers terminal
- (y) Leaves opposite; flowers axillary

Digitalis

m. Calyx 2-lipped; corolla 4-lobed

n. Calyx 5-toothed; corolla 2-lipped

Torenia
Mimulus

3. Stamens with anthers 5, corolla wheel-shaped

Verbascum

Calceolária—Calceolaria

(Lat. *calceolus*, slipper, from the form of the flower)

1. Leaves simple; flower yellow, with red-orange dots
2. Leaves pinnate; flower yellow

C. péndula
C. pinnáta

Schizánthus—Butterfly Flower

(Gr. *schizos*, split, *anthos*, flower, from the lobed petals)

Petals much lobed, the lower sack-like, varicolored

S. pinnáta

SCROPHULARIACEAE

Veronica—Speedwell

(Of doubtful origin and meaning.)

1. Leaves in whorls; flowers white to blue, in terminal spikes
2. Leaves opposite or alternate; flowers blue, axillary

Pentstemon—Pentstemon, Beard Tongue

(Gr. **pente**, five, **stemon**, stamen, from the sterile stamens.)

1. Flowers pink to red, narrow; leaves linear to lanceolate
2. Flowers white; leaves ovate to oblong

Chelone—Turtle-head, Balmwort

(Gr. **chelone**, turtle, from the form of the corolla.)

- Leaves lanceolate to oblong; flowers white to pale purple

Salpiglossis—Garden Trumpet

(Gr. **salpingos**, trumpet, **glossa**, tongue, incorrectly, trumpet.)

- Leaves lanceolate, entire to pinnatifid; flowers varicolored

Linaria—Butter-and-Eggs

(Lat. **linum**, flax, from the resemblance.)

1. Plant creeping; leaves round; flowers blue
2. Plant erect; leaves linear or lance-linear
 - a. Flowers blue
 - b. Flowers yellow

Antirrhinum—Snapdragon

(Gr. **anti-**, like, **rhinos**, nose, from the form of the flowers.)

1. Plant erect; leaves linear to oblong
 - a. Flowers 3-5 cm. long; leaves lanceolate to oblong
 - b. Flowers 1-2 cm. long; leaves linear
2. Plant climbing by coiling petioles; leaves halberd-like

Browallia—Browallia

(Named for a Swedish botanist, B. Browallia.)

- Leaves ovate, cuneate or rounded; flowers varicolored

Maurandia—Maurandia

(Named for the botanist Meibomia.)

- Stem and leaves smooth; corolla purple

Digitalis—Foxglove

(Lat. **dig.italis**, finger-like, from the form of the flowers.)

1. Flowers yellowish
2. Flowers purple

Torenia—Torenia

(Named for the Swedish botanist, Torsten.)

1. Corolla yellow
2. Corolla blue to white
 - a. Corolla 4-lobed
 - b. Corolla 2-lipped

Mimulus—Monkey Flower

(Gr. **mimos**, Lat. **mimus**, comic actor from the genus.)

1. Flowers yellow; cultivated
 - a. Creeping, hairy, musk-scented
 - b. Erect, smooth
2. Flowers red-purple; native

Verbascum—Mullein
(Lat. *verbascum*, mullein)

- | | |
|---|---------------------|
| 1. Leaves woolly, white to gray | , |
| a. Leaves densely woolly, decurrent on the stem | <i>V. thapsus</i> |
| b. Leaves thinly woolly, not decurrent | <i>V. lychnitis</i> |
| 2. Leaves smooth, green | <i>V. blattaria</i> |

Acanthaceae—Acanthus Family

Herbs with opposite simple leaves; sepals 5, united, petals 5, united, stamens 4 or 2, ovary 2-celled, stigmas 1 or 2, fruit a capsule; flower syncarpous, sympetalous, hypogynous, usually irregular.

- | | |
|---|-------------------|
| 1. Leaves pinnatifid; corolla of one 3-lobed lip | <i>Acanthus</i> |
| 2. Leaves arrow-shaped; corolla 5 lobed, nearly regular | <i>Thunbergia</i> |

Acanthus—Acanthus

(Gr. *akantha*, prickle, from the prickly leaves)

- | | |
|---|--------------------|
| 1. Leaves spiny, deeply cut | <i>A. spinosus</i> |
| 2. Leaves nearly or quite smooth, lobed | <i>A. mollis</i> |

Thunbergia—Thunbergia

More or less climbing; flowers varicolored *T. alida*

Gesneraceae—Gesnera Family

Herbs with simple leaves; sepals 5, united, petals 5, united, ovary 1-celled with 2 parietal placentae, stigma entire or 2-lobed, fruit a capsule; flower syncarpous, sympetalous, hypogynous, regular or irregular.

- | | |
|--|----------------------|
| 1. Stems leafless | |
| a. Stamens 4 | <i>Sinningia</i> |
| b. Stamens, at least the anther-bearing, 2 | <i>Streptocarpus</i> |
| 2. Stems leafy | <i>Achimenes</i> |

Sinningia—Gloxinia

(Named for the botanist, Sinning)

Leaves spatulate to rounded; flowers varicolored *S. speciosa*

Streptocarpus—Streptocarpus

(Gr. *streptos*, twisted, *karpós*, fruit, from the twisted pods)

- | | |
|--|---------------------|
| 1. Leaf single, basal; flowers several on each scape | <i>S. polyantha</i> |
| 2. Leaves several to many; flowers usually single | <i>S. Rétzii</i> |

Achimenes—Achimenes

(Gr. *achimenes*, not disturbed by winter, i. e., blooming late)

- | | |
|------------------------|-----------------------|
| 1. Flowers violet blue | <i>A. longiflora</i> |
| 2. Flowers reddish | <i>A. grandiflora</i> |

Bignoniaceae—Catalpa Family

Herbs, or woolly plants with simple or compound leaves, sepals united, petals 5, united mostly into a 2-lipped corolla, stamens 4 or 2, ovary 1-4-celled, stigma 2-lobed; fruit a capsule or silique; flower syncarpous, sympetalous, hypogynous, irregular.

- | | |
|--|--------------------|
| 1. Leaves pinnate; flowers on a scape, rose | <i>Incarvillea</i> |
| 2. Leaves simple; flowers on the leafy stem, whitish | <i>Martynia</i> |

Incarvillea—Incarvillea

(Named for Incarville, a French missionary)

- | | |
|----------------------------------|----------------------|
| 1. Leaflets entire or toothed | |
| a. Leaflets toothed or nearly so | <i>I. olgae</i> |
| b. Leaflets toothed throughout | <i>I. Delavayi</i> |
| 2. Leaflets cleft | <i>I. variabilis</i> |

Martynia—Unicorn Plant

(Named for the English botanist, Martyn)

Leaves heart-shaped, entire, hairy; flowers whitish to lilac or yellowish *M. proboscidea*

VERBENACEAE—LAMIACEAE

Lamiales Mint Order

Verbenaceae—Verbena Family

Herbs or shrubs with simple opposite leaves and flowers with 5 united, usually irregular, stamens 4, ovary 1-4 cleft, upper lip 2-lobed or dry and then usually separating into 4 rather than 2 lobes; corolla usually irregular.

1. Shrubs; corolla 4 lobed
2. Herbs; corolla 5 lobed or 2 lipped
 - a. Calyx 2-lipped, with spiny teeth; corolla 2-lipped and spiny
 - b. Calyx not 2 lipped and spiny; corolla irregularly 5-lobed

Lantana—Lantana

(of uncertain origin and no number)

Flowers yellow, then orange and finally reddish; leaves ovate

Phytolacca—Lopseed

(of uncertain origin and no number)

Leaves ovate; flowers small, in a loose spike; fruits spiny

Verbena—Verbena, Vervain

(Lat. *verbena*, a sacred herb)

1. Native weeds
 - a. Plant spreading; bracts longer than the flowers
 - b. Plant tall, erect; bracts shorter than the flowers
 - (1) Flowers white; spike very narrow
 - (2) Flowers blue; spike broader
 - (a) Leaves lanceolate, somewhat hairy
 - (b) Leaves ovate, very hairy
2. Garden plants, extensively hybridized and known as

Lamiaceae—Mint Family

Herbs, mostly aromatic, usually with opposite leaves and 4 equal or nearly so, united, usually irregular, stamens 4 or 2, ovary 4-lobed, rarely 2-lobed

5. Corolla regular or nearly so
 - a. Calyx 5-toothed; corolla 4 cleft
 - b. Calyx 2-lipped in fruit; corolla 5-cleft
2. Corolla irregular, usually 2 lipped
 - a. Stamens 2
 - (1) Herbs
 - (a) Flowers in racemes or spikes; calyx 2-lipped
 - (b) Flowers in heads; calyx 5-toothed
 - (2) Shrubs
 - b. Stamens 4
 - (1) Calyx 2 lipped
 - (a) Calyx cup-shaped, lips entire
 - (b) Calyx lips toothed
 - x. Flower bracts large, round, purplish
 - y. Flower bracts neither round nor purplish
 - (x) Corolla apparently with one long lip
 - (y) Corolla clearly 2 lipped
 - m. Corolla yellowish to white
 - n. Corolla purple or blue
 - (2) Calyx more or less equally 4-5-toothed, rarely 10-toothed
 - (a) Calyx 10-toothed; leaves whorled
 - (b) Calyx 4-5-toothed
 - x. Upper tooth much larger than the others
 - (x) Corolla with upper lip 4-lobed, the 2 lateral

LAMIACEAE

- m. Leaves green; filaments separate
 n. Leaves colored; filaments united
 (y) Corolla with upper lip 2-lobed, lower 3-lobed
 m. Native herb; leaves lanceolate to ovate
 n. Hoary undershrub, cultivated; leaves lance-linear
 y. Teeth equal in size or nearly so
 (x) Calyx swollen in fruit
 (y) Calyx not swollen
 m. Calyx teeth rigid, spiny
 n. Calyx teeth not spiny
 (m) Flowers in heads
 (n) Flowers not in heads
 r. Stamens projecting, at least 2 of them
 (r) Leaves linear to oblong; bracts green
 (s) Leaves ovate; bracts purple
 s. Stamens not projecting
 (r) Lower or outer stamens shorter than the inner
 h. Anther halves parallel
 i. Anther halves spreading
 (s) Lower or outer stamens longer than the inner
 h. Upper lip of the corolla flat, erect
 i. Upper lip hooded or concave
 (h) Calyx 5-nerved
 (i) Calyx 10-nerved

Ocimum
Coleus
Dracocephalum
Lavandula
Physostegia
Leonurus
Koellia
Hyssopus
Origanum
Lopanthus
Nepeta
Satureia
Lamium
Stachys

Méntha—Mint

(Gr. *mintha*, Lat. *mentha*, mint)

1. Leaves sessile
 2. Leaves petioled
 a. Flowers mostly in terminal spikes
 (1) Leaves lanceolate
 (2) Leaves ovate
 b. Flowers in axillary whorls

M. spicata: spearmint
M. piperita: peppermint
M. citrata: bergamot
 mint
M. canadensis: wild mint

Perilla—Perilla

(From the native name in India)

Leaves ovate, bronze-purple, fragrant; flowers rose or whitish

P. crispa

Sálvia—Sage

(Lat. from *salvus*, well, referring to its medical use)

1. Flowers blue
 a. Tall; leaves green; flowers large, 2-3 cm.
 b. Low; leaves white-woolly; flowers 1-2 cm.
 2. Flowers red
 a. Floral leaves and calyx green
 b. Floral leaves and calyx red

S. azurea: blue sage
S. officinalis: garden sage
S. fulgens
S. splendens: red sage

Monárda—Balm, Horse-mint

(Named for Monardes, a Spanish writer on medical plants)

1. Corolla red
 2. Corolla rose-purple to white

M. didyma: Oswego tea
M. fistulosa: wild bergamot

Rosmarínus—Rosemary

(Lat. *ros*, dew, *marínus*, of the sea)

Shrub with evergreen linear leaves, hoary beneath; flowers blue

R. officinalis

LAMIACEAE

Scutellaria—Skullcap

(Lat. *scutella*, flat dish, referring to its shape)

1. Leaves sessile; flowers 2-3 cm. long, solitary
2. Leaves petioled; flowers 6-8 mm. long, in racemes

Prunella—Heal-all, Sch. Knap

(Gr. *uncertain*, *uncertain*)

Leaves oblong to ovate; bracts round; flowers blue-purple

Teucrium—Germander

(Gr. *teucrion*, germander, perhaps named for Teucer, a Greek hero)

Leaves lance-ovate, serrate; flowers purplish

Melissa—Bee-balm

(Gr. *melissa*, bee, referring to its attraction to bees)

Leaves ovate, crenate; flowers yellowish or white

Thymus—Thyme

(Gr. *thymon*, thyme, from its fragrance)

1. Creeping, leaves petioled; flowers axillary
2. Erect; leaves sessile; flowers in terminal spikes

Marrubium—Hearthard

(Lat. name from the Hebrew word for bitter)

Leaves ovate-rounded, crenate; flowers small, white

Dracocéphalum—Dragon-head

(Gr. *drakon*, dragon, *kephale*, head)

Leaves lanceolate to oblong, toothed; flowers light blue

Ocimum—Sweet Basil

(Gr. *ocimon*, an aromatic plant, basil)

Leaves ovate, toothed; flowers bluish-white

Coleus—Foliage-plant

(Gr. *koleos*, sheath, referring to the shape of the leaf)

Leaves ovate, toothed, colored; flowers blue

Lavandula—Lavender

(Lat. *lavandus*, for washing, referring to its use in perfumery)

Leaves lance-linear; flowers blue

Physostégia—Dragon-head

(Gr. *physis*, bladder, *stéga*, roof, referring to the bladder-shaped calyx)

1. Corolla pale purple or rose, 2-3 cm. long
2. Corolla purple, 1-1½ cm. long

Leonurus—Motherwort

(Gr. *leon*, lion, *cura*, tail, of no evident origin)

Leaves palmately cleft; calyx spiny; corolla pink to white

Koëllia—Mountain Mint

(Named for a German botanist, Koëlle, of the 19th century)

Leaves lance-linear, sessile; flowers white in round heads

Hyssopus—Hyssop

(Gr. *hyssopos*, an aromatic plant)

Leaves lance-linear, entire; flowers blue

Origanum—Marjoram

(Gr. name of a plant resembling a lion's mane)

1. Leaves broadly ovate; bracts colored; calyx of 5 round teeth
2. Leaves oblong-ovate; bracts green; calyx 2-lipped

ROSACEAE

Lopántlus—Giant Hyssop
(Gr. *lophos*, crest, *anthos*, flower)

- | | |
|--|-----------------------------|
| 1. Corolla yellowish; calyx nearly equalling corolla | <i>L. nepetoides</i> |
| 2. Corolla blue or purple | |
| a. Leaves white beneath, anise scented | <i>L. anisátus</i> |
| b. Leaves green beneath, not anise-scented | <i>L. scrophularifólius</i> |

Népetá—Catnip, Gill
(Lat. name of the catnip)

- | | |
|--|--------------------|
| 1. Erect; leaves oblong; flowers whitish | <i>N. catária</i> |
| 2. Creeping; leaves round; flowers blue | <i>N. glechóma</i> |

Saturéa—Savory
(Lat. name of the savory, Gr. *satyrion*)

- | | |
|---|---------------------|
| Leaves oblong linear; flowers small, purplish | <i>S. horténsis</i> |
|---|---------------------|

Lámium—Dead-nettle, Henbit
(Gr. *lamia*, throat, referring to the gaping corolla)

- | | |
|--|-----------------------|
| 1. Corolla red or purplish; upper leaves sessile | <i>L. amplexicóde</i> |
| 2. Corolla white; leaves petioled | <i>L. álbum</i> |

Stáchys—Hedge Nettle
(Gr. *stachys*, spike, referring to the flower cluster)

- | | |
|-------------------------------------|---------------------|
| 1. Leaves sessile or short-petioled | <i>S. palústris</i> |
| 2. Leaves distinctly petioled | <i>S. áspera</i> |

Rosales Rose Order

Rosáceae—Rose Family

Herbs or woody plants, with alternate leaves; sepals usually 5, sometimes 4 or apparently twice the number, petals usually 5, stamens 4-many, pistils separate, 1-many, or 2-5, united, fruit various; flower apocarpous or syncarpous, apopetalous, or apetalous, perigynous, regular.

- | | |
|---|-------------------|
| 1. Flowers large, 3-many cm. wide; shrubs with pinnate leaves | <i>Rosa</i> |
| 2. Flowers small to medium, 1-3 cm. wide | |
| a. Petals present | |
| (1) Flowers yellow to red | |
| (a) Styles long and hairy, persisting on the fruit | <i>Geum</i> |
| (b) Styles short, inconspicuous | <i>Potentilla</i> |
| (2) Flowers white to pink | |
| (a) Herbs; clusters few-flowered | <i>Fragaria</i> |
| (b) Shrubs; clusters many-flowered | <i>Spiraea</i> |
| b. Petals absent; calyx lobes petal-like | <i>Poterium</i> |

Rosa—Rose
(Lat. *rosa*, Gr. *rhodon*, rose)

- | | |
|--|------------------|
| Leaflets thick, wrinkled; stem densely prickly | <i>R. rúgosa</i> |
|--|------------------|

Géum—Avens
(Gr. *geuma*, taste, perhaps from the root)

- | | |
|--|---------------------|
| Stem leaves 3 parted; flowers paniced, red | <i>G. coccíneum</i> |
|--|---------------------|

Potentilla—Potentilla, Cinqfoil, Five-finger
(Lat. *potens*, powerful, from reputed medical properties)

- | | |
|--|--|
| 1. Shrubs; leaflets 5-7, hairy; flowers 1½-3 cm. wide | <i>P. fruticósa</i> |
| 2. Herbs; flowers ½-1½ cm. wide | |
| a. Leaflets 5, silvery white below; plants spreading | <i>P. argénteá</i> |
| b. Leaflets 3, hairy on both sides, not silvery; erect | <i>P. monspeliensis</i> <i>nortwíg-ica</i> |

Fragária—Strawberry
(Lat. *fragum*, strawberry)

- | | |
|--|----------------------|
| Leaves thick, hairy; flower stalks shorter than the leaves | <i>F. virginíána</i> |
|--|----------------------|

FABACEAE

Spiraea—*Spiraea*, Meadowsweet, *Spiraea alba* L.
(Gr. *spiraea*, meadowsweet, part.)

1. Flowers white, in simple umbels
2. Flowers pink
 - a. Flowers in umbels or corymbs
 - b. Flowers in dense panicles

Poterium—Burnet

(Gr. *poterion*, a drinking cup from its shape)

Leaves of 7-19 small leaflets; flowers green to purple; a. l.

Fabáceae—Pea Family

Herbs or woody plants, with alternate usually compound leaves; petals typically 5, and of three different forms, standard, wing, keel; less similar, stamens 5-many, pistil single, simple, fruit type; flower apocarpous, apopetalous, hypogynous, irregular.

1. Leaves compound

a. Leaflets digitate or apparently so, 2-15

- (1) Leaflets 2
- (2) Leaflets more than 3
- (3) Leaflets 3
 - (a) Leaflets toothed
 - x. Flowers in slender racemes
 - y. Flowers in spikes or heads
 - (x) Flowers blue or yellow
 - (y) Flowers red or white

(b) Leaflets entire

- x. Fruit a legume; mostly climbers
 - (x) Calyx 5-toothed; cultivated
 - (y) Calyx 4-toothed; native
- y. Fruit a loment or achene; erect herbs
 - (x) Fruit a 1-seeded achene
 - (y) Fruit a loment with 2 several seeds

b. Leaflets pinnate, 4 many, or when fewer, tendrils bearing

(1) Climbers or twiners, usually with tendrils

- (a) Leaves odd-pinnate; flowers brown-purple
- (b) Leaves even-pinnate, tendril-bearing as a rule
 - x. Style bearded down one face
 - y. Style bearded at tip only

(2) Erect herbs; tendrils mere remnants when present

- (a) Leaflets 4; flowers yellow; cultivated
- (b) Leaflets 5 or more
 - x. Leaves sensitive, closing and drooping at touch
 - y. Leaves not sensitive to touch
 - (x) Flowers pea-like
 - m. Leaflets 2-14
 - n. Leaflets 15-21
 - (y) Flowers not pea like
 - m. Flowers tiny, 4-6 mm. wide, in dense racemes
 - (m) Stamens 5
 - (n) Stamens 10

2. Leaves simple; flowers yellow; shrubby

Lupinus—Lupine

(Lat. *lupus*, wolf)

Leaflets 13-15, lanceolate; flowers blue to white

Melilotus—Sweet Clover

(Gr. *melis*, honey, *lotus*, clover, from the fragrant leaves)

- | | |
|---|-----------------------|
| 1. Flowers white; stem 1-3 m. tall; leaflets notched at tip | <i>M. alba</i> |
| 2. Flowers yellow; stem 1/2-1 m. tall; leaflets blunt | <i>M. officinalis</i> |

Medicago—Alfalfa, Nonessuch

(Gr. *medike*, alfalfa, Lat. *-ago*, like)

- | | |
|---|---|
| 1. Flowers blue; perennial | <i>M. sativa</i> : alfalfa,
<i>lucerne</i> |
| 2. Flowers yellow; annual | |
| a. Leaves oval to rounded; pod smooth, black, 1-seeded | <i>M. lupulina</i> : nonessuch |
| b. Leaves cuneate, spotted; pod spiny, coiled, several seeded | <i>M. maculata</i> : spotted
<i>medic</i> |

Trifolium—Clover, Alsike

(Lat. *tri-*, three, *folium*, leaf)

- | | |
|---|--------------------------------------|
| 1. Heads round or nearly so | |
| a. Flowers red, rarely white | <i>T. pratense</i> : red c. |
| b. Flowers white to pinkish | |
| (1) Stems erect or ascending, 3-6 dm. high | <i>T. hybridum</i> : alsike |
| (2) Stems creeping, 1-2 dm. high | <i>T. repens</i> : white c. |
| 2. Heads oblong to cylindrical | |
| a. Heads 3-6 cm. long; red corolla exceeding calyx | <i>T. incarnatum</i> : crimson
c. |
| b. Heads 1-2 cm. long; whitish corolla shorter than calyx | <i>T. arvense</i> : rabbit-foot |

Phaseolus—Bean

(Gr. *phaselus*, string-bean)

- | | |
|--|---|
| 1. Flower clusters longer than the leaf; flowers usually red | <i>P. multiflorus</i> : scarlet
runner |
| 2. Flower clusters shorter than the leaf; flowers not red | |
| a. Flowers greenish-white; pod broad; seeds flat | <i>P. lunatus</i> : lima bean |
| b. Flowers white to purplish; pod narrow; seeds swollen | |
| (1) Twining | <i>P. vulgaris</i> : common b.
kidney b. |
| (2) Bushy, not twining | <i>P. nanus</i> : bush b. |

Falcata—Wild Peanut

(Lat. *falcatus*, sickle-like, from the form of the keel)Leaflets ovate; flowers purplish to white; pods both aerial and subterranean *F. comosa*

Lespedeza—Bush Clover

(Named for Lespedez, a Spanish governor of Florida)

- | | |
|---|--------------------|
| 1. Flowers in heads, creamy or white; native | <i>L. capitata</i> |
| 2. Flowers in racemes, red-purple; cultivated | <i>L. bicolor</i> |

Desmodium—Tick-Trefoil, Telegraph Plant

(Gr. *desmos*, bond, chain, from the loment)Leaflets 3; end leaflet large, lateral ones small, moving up and down *D. gyrans*

Apios—Groundnut

(Gr. *apios*, pear, from shape of the tubers)Flowers purple-brown, fragrant; stems from strings of starchy tubers *A. tuberosa*

Lathyrus—Sweet Pea, Everlasting Pea

(Gr. *lathyros*, a kind of pulse)

- | | |
|--|----------------------|
| 1. Peduncles 2-4-flowered; flowers fragrant; annual | <i>L. odoratus</i> |
| 2. Peduncles many-flowered; flowers scentless; perennial | <i>L. latifolius</i> |

SAXIFRAGACEAE—CRASSULACEAE

Vicia—Vetch, Vase

(Lat. *vicia*, vetch)

1. Climbing; leaflets 20-24; flowers blue, small, reflexed
2. Erect; flowers large, not reflexed
 - a. Leaflets 10-14; flowers in 2's, purplish
 - b. Leaflets 2-6; flowers clustered, white

Arachis—Peanut

(Gr. *arakos*, a pea-like plant)

Leaflets 4, oblong; flowers yellow, the pod forming below ground

Mimosa—Sensitive Plant

(Gr. *mimos*, actor, from its sensitive leaves)

Leaves digitate on the common petiole, leaflets many; flowers rose, in racemes

Coronilla—Purple Coronilla

(Lat. *corona*, crown, *alla*, small)

Leaflets 15-21; flowers pink to white, in head-like umbels

Petalostemon—Prairie Clover

(Gr. *petalon*, petal, *stemon*, stamen, from the petals and stamens)

Leaflets 5, linear; flowers in a short spike, rose-purple

Dalea—Dalea

(Named for the English botanist, Dale)

Leaflets 15-30, linear-oblong; flowers white to pink in an oblong spike

Cassia—Senna, Partridge Pea

(Gr. *cassia*, a spice-bearing plant)

Leaflets 20-30, oblong; flower nearly regular, large, yellow

Genista—Genista, Whin

(Celtic, meaning little bush)

Leaves lanceolate; flowers in racemes, small, yellow

Saxifragaceae—Saxifrage Family

Herbs with simple or compound leaves; sepals 4-5, sometimes united; petals 4-5, sometimes united; ovary 1-2-celled, usually 2-beaked, or sometimes the two ovaries separate, stigmas 2-4 or an achene; flower typically syncarpous and apogynous; hypogynous; fruit

1. Leaves simple
 - a. Stamens 4-5
 - b. Stamens 8-10
2. Leaves 3-ternate; flowers white, in panicles

Héuchera—Alum-root

(Named for the German botanist, Heuchner)

Leaves rounded, lobed; flowers red

Saxifraga—Saxifrage

(Lat. *saxum*, rock, *frango*, to break, from its growth on rocks)

Leaves heart-shaped, toothed, with long runners; flowers in groups, 3-5 small, rose, 2 large, white

Astilbe—Astilbe

(Gr. *asté*, without, *stilbe*, lump, from the flowers)

Leaflets oblong to lance-ovate; flowers small in a dense raceme

Crassulaceae—Stonecrop Family

Herbs with fleshy leaves; sepals 3-5, petals 3-5, sometimes united; ovary 3-5, separate as a rule, fruit a small follicle; flowers in racemes

1. Petals separate

2. Petals united at the very base

- a. Flower in 5's
- b. Flower in 4's

Cotyledon
Bryophyllum

Sédum—Stonecrop

(Lat. *sedeo*, to sit, from the habit of growing on walls and rocks)

1. Creeping; leaves 4-6 mm. long; flowers yellow
2. Erect; leaves 2-5 cm. long; flowers pink to white

S. acre: wall pepper
S. telephium: live-for-ever

Cotylédon—Cotyledon

(Gr. *kotyledon*, cup, from the form of the corolla)

Leaves basal, wedge-shaped, glaucous; flowers red

C. orbiculata

Bryophýllum—Bryophyllum

(Gr. *bryon*, bud, *phylon*, leaf, from the buds which form on the leaf)

Leaves ovate, simple or ternate; flowers large, greenish, hanging

B. calycinum

Hamamelidáceae—Witch-Hazel Family

Shrubs or trees, with simple alternate leaves; sepals 4, petals 8, 4 more or less imperfect, ovary 2-celled, styles 2, fruit a capsule; flower syncarpous, apopetalous, hypogynous, regular.

Hamamélis—Witch Hazel

(Gr. *hamamelis*, a kind of tree)

Tall shrub with obovate leaves; flowers yellow, appearing in autumn just before leaf-fall

H. virginica

Sapindales Maple Order

Sapindáceae—Soapberry Family

Woody plants or climbing herbs, mostly with compound leaves; in the following genus, the sepals are 4, petals 4, stamens 8, ovary 3-celled, styles 3, fruit a bladderly 3-lobed pod; flower syncarpous, apopetalous, hypogynous, nearly regular.

Cardiospérmum—Balloon-Vine, Heart-Seed

(Gr. *kardia*, heart, *sperma*, seed, from the heart-shaped seed scale)

Leaves 2 ternate, alternate; flower clusters with hook-like tendrils; flowers white; seed with a heart-shaped scale

C. haledacabum

Lythrales Loosestrife Order

Lythráceae—Loosestrife Family

Herbs with simple opposite entire leaves; sepals 5-7, united into a tube enclosing the ovary, petals 4-7 or none, stamens 4-14, ovary 1-4-celled, stigma 1, sometimes 2-lobed, fruit a capsule; flower syncarpous, apopetalous, rarely apetalous, hypogynous, regular, or somewhat irregular.

1. Petals present; calyx not spurred
2. Petals absent; calyx spurred at base

Lythrum
Cuphea

Lýthrum—Loosestrife

(Gr. *lythron*, blood, from the color)

Leaves lanceolate; flowers with 6-7 pink petals

L. salicaria

Cúphea—Cigar Plant

(Gr. *kuphos*, hump, from the spur)

Leaves lance-ovate, glossy; flowers bright red

C. platycentra

Onagráceae—Evening-Primrose Family

Herbs or shrubs with simple leaves; sepals 2-6, united and grown to the ovary, petals 2-6, mostly 4, stamens 2-12, mostly 8, ovary usually 2-4 celled, stigma one, often 4-lobed; fruit a capsule or berry; flower syncarpous, apopetalous, epigynous, regular, rarely irregular.

CUCURBITACEAE

1. Flowers regular
 - a. Herbs; calyx not brightly colored
 - (1) Seeds hairy; flowers rose purple in a bell
 - (2) Seeds not hairy; flowers yellow, white, or green
 - b. Shrubs; calyx bright colored, spreading
2. Flowers irregular; petals apparently 5; stamens 4

Chamaecrista—Tropaenopsis

(Named for the Greek word *chamai*, meaning "low" and the Latin word *cris*, meaning "crisp")

Leaves lanceolate, entire; flowers 2-3 cm. wide

Oenothera—Evening Primrose—C. amar.

(Gk. *oinotheras*, a plant which blooms at night)

1. Flowers yellow
 - a. Capsule winged
 - (1) Plant low, almost trailing; leaves petioled
 - (2) Plant erect, 3-10 dm. high; leaves sessile
 - b. Capsule 4 angled, not winged
 - (1) Petals about 2 cm. long; native weed
 - (2) Petals 3-7 cm. long; cultivated
2. Flowers white to pink or red
 - a. Stemless
 - (1) Blooming by day
 - (2) Blooming at nightfall
 - b. Stemmed
 - (1) Flowers white; capsule winged
 - (2) Flowers rose to purple

Fuchsia—Fuchsia

(Named for the German botanist Fuchs)

1. Flowers hanging
 - a. Tube of calyx shorter than lobes
 - b. Tube of calyx 2-5 times longer than the lobes
2. Flowers erect
 - a. Erect shrub; flowers in a panicle
 - b. Trailing; flowers solitary

Lopezia—Lopezia

(Named for an early Spanish naturalist, Lopez)

Leaves lance-oblong to ovate; flowers rose, 5-6 mm. wide

Cactales Cactus Order

Cucurbitaceae—Gourd Family

Herbs, usually with tendrils and alternate lobed leaves; sepals 5, united, covering the ovary, petals usually 5, united, stamens usually 3, ovary 1-3, fruit usually a berry, rarely a capsule or achene; flower syncarpous, mono- or polygamous; flowers usually regular.

1. Flowers large, 3-15 cm. mostly yellow or yellowish
 - a. Staminate flowers solitary
 - (1) Flowers white
 - (2) Flowers yellow
 - (a) Flowers bright yellow, bell-shaped; stigma lobes 3
 - (b) Flowers pale yellow, shallow; stigma lobes 3
 - b. Staminate flowers clustered
 - (1) Tendrils present; fruit 3-6 dm. long
 - (2) Tendrils lacking; fruit 3-5 cm. long, bristly, slender
2. Flowers small, 1-2 cm., white or greenish
 - a. Leaves compound; leaflets 3-7

b. Leaves simple, lobed

(1) Ovary and fruit 1-seeded

Sicyos

(2) Ovary and fruit several-seeded

Micrampelis

Lagenária—Gourd, Calabash
(Lat. *lagena*, bottle, from the fruit)

Leaves rounded; the fruit club- or flask-shaped

L. vulgaris

Cucúrbita—Pumpkin, Squash
(Lat. *cucub.ita*, squash)

1. Leaves lobed; fruit stalks strongly ridged

C. pepo: pumpkin

2. Leaves not lobed; fruit stalks scarcely ridged

C. maxima: squash

Cúcumis—Cucumber, Muskmelon
(Lat. *cucumis*, cucumber)

1. Leaves lobed

C. sativa: cucumber

2. Leaves rounded, not lobed

C. melo: melon

Lúffa—Dishcloth Gourd, Vegetable Sponge
(The Arabic name)

Leaves round, many-lobed; flowers yellowish

L. aegyptiaca

Ecbállium—Squirting Cucumber
(Gr. *ekballo*, to cast out, from the fruit)

Leaves ovate, heart-shaped at base; flowers yellow

E. elatérium

Cyclanthéra—Cyclanthera
(Gr. *kyklos*, circle, *ánthera*, anther)

Leaflets oval, toothed or lobed; fruit ovoid, spiny

C. dissécta

Sicyos—Star Cucumber
(Gr. *sikyos*, cucumber)

Leaves with shallow lobes; fruits yellowish, spiny, clustered

S. angulátus

Micrampelis—Wild Cucumber, Mock Apple
(Gr. *mikros*, small, *ampelis*, vine, from the climbing habit)

Leaves deeply 3-7-lobed; flowers fragrant; fruit bladdery, spiny

M. lobáta

Begoniáceae—Begonia Family

Herbs with alternate simple leaves; sepals 2, petals 2-5, stamens many, ovary 2-4-celled, styles 2-4, fruit a triangular capsule; flower syncarpous, monoecious, apopetalous, epigynous, often irregular.

Begónia—Begonia, Elephant's Ear
(Named for Begon, a governor of Santo Domingo)

The species and varieties are numerous and closely related; see Bailey's Cyclopaedia of Horticulture, 1:143.

Apiales Parsley Order

Apiáceae—Carrot Family

Herbs, with alternate mostly compound leaves; sepals united and completely fused with the ovary, the calyx usually appearing absent as a consequence, petals 5, stamens 5, ovary 2-celled, styles 2, fruit of twin achenes; flower syncarpous, apopetalous, epigynous, usually regular, the flowers typically in umbels.

1. Flowers in umbels; leaves not prickly

a. Flowers white or cream-colored

(1) Leaves simple, lobed, 2-4 dm. wide; umbels 1-2 dm. wide

Heracleum

(2) Leaves compound

(a) Fruits prickly

Daucus

(b) Fruits smooth

Apium

RUBIACEAE

b. Flowers yellow, yellowish or greenish

(1) Flowers yellow

(a) Leaf divisions thread-like

(b) Leaf divisions broad

(2) Flowers yellowish or greenish

(a) Leaf divisions thread-like

(b) Leaf divisions wedge-shaped, low

2. Flowers in heads

Heracleum—Cow Parsnip

(Gr. *Herakleios*, of Heracles, from the fact that it is a very strong plant)

Tall, 1-3 m. high; leaves very hairy

Daucus—Carrot

(Gr. *daukos*, carrot)

Leaves finely cut; fruiting umbel cup-shaped

Apium—Celery

(Lat. *apium*, parsley)

Leaves 3-7-pinnately divided; umbels small; in one variety, the root is more or less like

Foeniculum—Fennel

(Lat. *foenum*, fennel)

Smooth, 1-2 m. high; sweet aromatic

Pastinaca—Parsnip

(Lat. *pastus*, food)

Leaflets coarse, toothed or lobed; poisonous when wild

Anethum—Dill

(Gr. *anethon*, anison, anise, dill)

Stem smooth, about 1 m. high; petals falling quickly

Carum—Parsley

(Gr. *karon*, carum, draw up)

Flowers greenish; cultivated

Eryngium—Sea Holly

(Gr. *eryngion*, name of a plant)

1. Bracts below the head 7-8

2. Bracts below the head 10-20

Rubiales—Madder Order

Rubiaceae—Madder Family

Herbs or shrubs with opposite or whorled leaves; sepals 4-5; petals 4-5; ovary, or with 4-5 free lobes, petals 4-5 or more united, 3-merous; fruit a 2-seeded capsule; flower syncarpous, sympetalous, epigynous, regular

1. Leaves whorled; flowers tiny, 4 parted

2. Leaves opposite; flowers large

a. Flowers solitary, fragrant; corolla 5-9 lobed

b. Flowers clustered; corolla 4 lobed

Galium—Bedstraw

(Gr. *galion*, bedstraw, *gala*, milk, from the fact that it is a milk-producing plant)

Leaves lance-linear, in 4's; flowers white, in a panicle

Gardenia—Gardenia, Cape Jasmine

(Named for Dr. Garden, an American surgeon)

Leaves oblong, bright green; flowers large, white, often double

Bouvardia—Bouvardia

(Named for Etienne de Bouvard, a French naturalist)

Leaves opposite, ovate-acuminate; flowers white

Caprifoliaceae—Honeysuckle Family

Shrubs or vines, rarely herbs, with mostly simple opposite leaves; sepals united, more or less completely fused with the ovary, petals 5, united, ovary 2-5 celled, stigma 1-3, fruit a capsule or berry; flower syncarpous, sympetalous, epigynous, regular or irregular.

Lonicera—Honeysuckle

(Named for the German herbalist, Lonitzer)

Leaves oblong, united in pairs above; flowers trumpet-like, red or yellow; berry red

L. sempervirens: trumpet
et h.

Campanales Bluebell Order

Campanulaceae—Bluebell Family

Herbs with alternate leaves and milky juice; sepals 5, united, petals 5, united, stamens 5, ovary 2-5 celled, stigmas 2-5, fruit a capsule; flower syncarpous, sympetalous, epigynous, regular or irregular.

1. Flowers regular

a. Flowers bell-shaped

Campanula

b. Flowers cup- or saucer-shaped

Platycodon

2. Flowers irregular, the tube slit

Lobelia

Campanula—Bluebell, Harebell

(Lat. *campana*, bell, from the form of the corolla)

1. Stigmas 3; calyx without appendages

a. Native; flowers nodding; leaves linear

C. rotundifolia

b. Cultivated

(1) Flowers solitary; leaves ovoid, petioled

C. carpathica

(2) Flowers in a raceme; leaves lance-ovate, sessile

C. rapunculoides

2. Stigmas 5; calyx with leafy appendages

C. medium: Canterbury
bells

Platycodon—Platycodon

(Gr. *platys*, flat, *kodon*, bell, from the corolla)

Leaves ovate, toothed; corolla blue or white, 4-6 cm. wide

P. grandiflorum

Lobelia—Lobelia

(Named for the herbalist Lobelius)

Stems tufted, 4-6 in. high; leaves lanceolate; flowers blue

L. crines

Asterales Aster Order

Valerianaceae—Valerian Family

Herbs with opposite leaves; sepals adherent to the ovary, often invisible in flower, becoming pappus-like in fruit, petals 5, united, stamens 1-3, ovary 3-celled, but only one cell with an ovule, stigmas 1-3, fruit an achene; flower syncarpous, sympetalous, epigynous, regular or irregular.

1. Stamens 3; corolla without basal spur

Valeriana

2. Stamen 1; corolla with basal spur

Centranthus

Valeriana—Valerian

(Lat. *valeo*, to be well, from the medicinal root)

1. Leaflets 11-21

V. officinalis

2. Leaflets 3-7

a. Rootstalk horizontal

V. phu

b. Rootstalk long, tuberous

V. edulis

Centranthus—Spurred Valerian

(Gr. *kentron*, spur, *anthos*, flower)

Leaves lance-ovate, nearly entire; flowers red to white

C. ruber

Dipsaceae—Teasel Family

Herbs with opposite leaves; calyx tube forming a border above the ovary, corolla 4-5-lobed, stamens 4, ovary 1-celled, stigma 1, fruit an achene; flower syncarpous, sympetalous, epigynous, regular or irregular.

ASTERACEAE

1. Flowers in an oblong prickly head
2. Flowers in a flat head, without prickles

Dipsacis—Lead-plant
(Gr. *dipsakos*, lead)

Leaves lance-oblong; flowers bluish

Scabiosa—Sweet-Scabious
(Lat. *scabies*, itch, from its prickles)

1. Flowers purple, red or white
2. Flowers light blue

Asteraceae—Aster Family

Herbs with flowers in dense involucre heads; seeds 1, rugose, etc., or wanting; petals 5, united by the corolla tube; stamens 5 or 0, united by the corolla tube; stigmas 2; flower syncarpous, sympetalous, regular or irregular; head may be all tube-shaped, or the outer row or so may be ribbon-like shaped. The receptacle is flat or more or less conical, naked or bearing scales among the flowers. The head is surrounded by 1 or 2 rows

Key to the Genera

1. Flowers tubeshaped, no ray or ribbon-like flowers present



Tubular heads of *Laciniola longicaulis* (Griseb.) Robinson

- a. Flowers brightly colored; heads conspicuous

- (1) Leaves or involucre spiny

- (a) Leaves spiny

- x. Pappus of plummy bristles

- (x) Involucral scales thick and fleshy, fruit ed.

- (y) Involucral scales not thick and fleshy, fruit ed.

- y. Pappus none

- (b) Involucre spiny with hooked spines

- (2) Leaf and involucre without spines

- (a) Heads in long spikes

- (b) Heads in flat-topped clusters, or single
- x. Involucral scales dry and papery, yellow to white or red
- (x) Leaves white-cottony, extending along the stem as wings *Ammobium*
- (y) Leaves not white-cottony, stem not winged *Helichrysum*
- y. Involucral scales not papery, usually green
- (x) Heads white, yellowish or purplish; native
- m. Heads white, pink or purplish *Eupatorium*
- n. Heads yellowish *Kuhnia*
- (y) Heads deep purple or blue
- m. Heads deep purple; native *Vernonia*
- n. Heads blue, rarely white; cultivated *Ageratum*
- b. Flowers greenish; heads inconspicuous
- (1) Leaves broad, ovate, not deeply lobed
- (a) Involucre forming a hooked bur *Xanthium*
- (b) Involucre not hooked *Iva*
- (2) Leaves narrow or deeply lobed
- (a) Leaves strong-scented
- x. Pappus a short crown *Tanacetum*



Radiate head of *Cosmos* with long section, ray flower and tubular or disk flower.

ASTERACEAE

- y. Pappus none
 - (x) Receptacle smooth
 - (y) Receptacle chaffy
 - (b) Leaves not strong scented
 - x. Pappus a crown, or none
 - y. Pappus of two or more barbed awns
 - 2. Flowers of two kinds, tubular and ray, or all ray or all tubular
 - a. Heads with chaff, i. e., each flower with a scale
 - (1) Ray flowers trumpet-shaped
 - (2) Ray flowers flat, ribbon- or strap-shaped
 - (a) Rays white
 - x. Leaves pinnately dissected, strong scented
 - y. Leaves not dissected or strong scented
 - (b) Rays yellow or purple
 - x. Disk globose to cylindrical
 - (x) Chaff stout or spiny; rays white, red or purple
 - m. Chaff equalling the disk flowers
 - n. Chaff much longer than the disk flowers
 - (y) Chaff soft; rays yellow
 - m. Disk globose; achenes 4 angled
 - n. Disk oblong to cylindrical; achenes wing margined
 - y. Disk flat or slightly convex
 - (x) Bracts of the involucre united, at least one series
 - m. Chaff broad; achenes flat, winged margined
 - n. Chaff linear or long-pointed; achenes not flat or winged
 - (m) Rays white to pink or red
 - (n) Rays yellow to maroon
 - r. Pappus teeth barbed upward or downward
 - s. Pappus teeth smooth or lacking
 - (y) Bracts not united, or somewhat so at base
 - m. Achenes broad, winged
 - (m) Rays in 2-3 rows; disk flowers sterile
 - (n) Rays in 1 row; disk flowers fertile
 - n. Achenes not winged
 - (m) Rays neutral, deciduous
 - r. Pappus of two triangular awns; achenes 4 angled
 - s. Pappus of two awns and small scales; achenes flat
 - (n) Rays pistillate, persistent; pappus crown-like
- b. Heads without chaff; the receptacle slightly bristly in one or two cases
 - (1) Pappus of capillary bristles
 - (a) Rays yellow
 - x. Heads small, 2-8 mm.
 - y. Heads larger, 1-3 cm.
 - (b) Rays white to blue or purple
 - x. Heads single, on short scapes
 - y. Heads several-many
 - (x) Rays narrow and many; bracts in 1-3 rows
 - (y) Rays broader and fewer; bracts in 3-5 rows
 - m. Pappus double; cultivated annual
 - n. Pappus single; native
 - (m) Heads in a panicle
 - (n) Heads in a cymose cluster
 - (2) Pappus none, or of 5-12 scales or bristles
 - (a) Pappus none
 - x. Achenes of disk small and abortive

- y. Achenes of disk normal
 - (x) Achenes flat *Achillea*
 - (y) Achenes 4-angled *Chrysanthemum*
- (b) Pappus present
 - x. Rays white
 - (x) Pappus of bristles and awns *Boltonia*
 - (y) Pappus a short-toothed crown
 - m. Receptacle nearly flat *Chrysanthemum*
 - n. Receptacle conic or ovoid *Matricaria*
 - y. Rays yellow or orange
 - (x) Bracts united into a deep cup
 - m. Leaves finely cut; heads very small *Dysodia*
 - n. Leaves coarsely cut; heads large *Tagetes*
 - (y) Bracts not united
 - m. Bracts squarrose-spreading *Grindelia*
 - n. Bracts not squarrose-spreading
 - (m) Leaves typically lobed; achenes densely hairy *Gaillardia*
 - (n) Leaves not lobed; achenes smooth or nearly so *Helenium*
- 3. Flowers strap-shaped, all alike



Ligulate head of dandelion, *Taraxacum*: showing the habit of the plant, long section of the head, a ligulate or strap-shaped flower, and a parachute fruit.

ASTERACEAE

- a. Heads on a scape
- b. Heads on a leafy stem
 - (1) Pappus branches united by hairs
 - (2) Pappus branches not so united
 - (a) Pappus capillary
 - x. Achenes flattened
 - (x) Achenes blunt
 - (y) Achenes beaked
 - y. Achenes cylindrical or angled
 - (x) Flowers yellow or orange
 - m. Pappus brown or brownish
 - n. Pappus white
 - (y) Flowers white or cream-colored
 - (b) Pappus of blunt scales; flowers blue

Cynara—Artichoke, Cardoon (Gr. *kinara*, artichoke)

- 1. Leaves woolly below; head smooth
- 2. Leaves smooth; heads prickly

Carduus—Thistle (Lat. *carduus*, thistle)

- 1. Heads less than 3 cm.
 - a. Lower surface of leaf brown hairy
 - b. Lower surface of leaf densely white woolly
 - (1) Leaves usually lobed or dentate
 - (2) Leaves typically pinnatifid
 - (a) Leaves white woolly above
 - (b) Leaves green above

Carthamus—Safflower, False Saffron (Ar. *qartama*, paint, because of the yellow dye it yields)

Leaves oblong-ovate; flowers orange

Arctium—Burdock

(Gr. *arktion*, a plant, from *arktos*, bear, referring to the leaves)

A biennial weed with large ovate leaves

Laciniaria—Blazing Star

(Lat. *lacinia*, tear, fringe, referring to the leaf tips)

- 1. Bracts pointed
 - a. Heads 15-60-flowered
 - (1) Tips of bracts rigid and spreading
 - (2) Tips closely appressed
 - b. Heads 3-6-flowered
 - (1) Heads crowded in a long spike; bract tips spreading
 - (2) Heads loose in a short spike; bracts appressed
- 2. Bracts obtuse, not pointed
 - a. Heads 10-25 mm., 15-45-flowered
 - b. Heads 4-8 mm., 5-15-flowered

Ammobium—Everlasting (Gr. *amos*, sand, *bios*, life)

Leaves lanceolate, cottony, extending down the stem as well as the branches

Helichrysum—Everlasting

(Gr. *helios*, sun, *chrysos*, gold, referring to the golden heads of some varieties)Leaves lance-oblong, entire; scales papery, yellow, white or pink *H. bracteatum*

Eupatorium—Eupatorium

(Gr. *eupatorion*, a kind of medicinal plant)

1. Leaves petioled
 - a. Leaves in whorls of 3-6
 - (1) Leaves hairy and wrinkled *E. maculatum*
 - (2) Leaves smooth *E. purpureum*: Joe-pye weed
 - b. Leaves opposite *E. ageratoides*: sanicle
2. Leaves sessile, opposite as a rule
 - a. Leaves narrowed at base *E. altissimum*
 - b. Leaves clasping, perfoliate *E. perfoliatum*: boneset

Kubnia—Kuhnia

(Named for Dr. Kuhn, a botanical collector of the 18th century)

Leaves lanceolate; heads cream-colored *K. eupatorioides*

Vernonia—Ironweed

(Named for Vernon, an English botanist)

1. Bracts with long spreading awns *V. noveboracensis*
2. Bracts merely acute *V. fasciculata*

Ageratum—Ageratum

(Gr. *ageraton*, everlasting)Leaves ovate or cordate; flowers blue, rarely white *A. mexicana*

Xanthium—Cocklebur

(Gr. name of a plant yielding a yellow dye; *xanthos*, yellow)Leaves ovate; involucre with hooked spines *X. canadense*

Iva—Marsh Elder

(Of doubtful meaning)

Leaves ovate, white below; involucre smooth *I. xanthifolia*

Tanacetum—Tansy

(From *tansy*, everlasting, from Gr. *athanasia*, immortality)Leaves twice pinnatifid, strong-scented; flowers greenish yellow *T. vulgare*

Artemisia—Wormwood

(From *Artemisia*, wife of Mausolus)

1. Leaves entire or lobed at tip
 - a. Leaves glabrous, linear *A. dracunculoides*
 - b. Leaves densely hairy or woolly
 - (1) Leaves linear *A. glauca*
 - (2) Leaves oblong to lanceolate *A. gnaphalodes*
2. Leaves divided
 - a. Heads erect
 - (1) Leaves typically hairy; perennial *A. canadensis*
 - (2) Leaves glabrous; annual or biennial *A. biennis*
 - b. Heads drooping
 - (1) Leaves silvery
 - (a) Leaf segments linear *A. frigida*
 - (b) Leaf segments broad, ovoid *A. absinthium*
 - (2) Leaves green *A. abrotanum*

Ambrosia—Ragweed, Kinghead

(Gr. name of a plant)

1. Leaves palmately divided; tall *A. trifida*

ASTERACEAE

2. Leaves pinnately divided

- a. Annual; fertile heads clustered; involucre spiny
- b. Perennial; fertile heads solitary; involucre naked or spiny

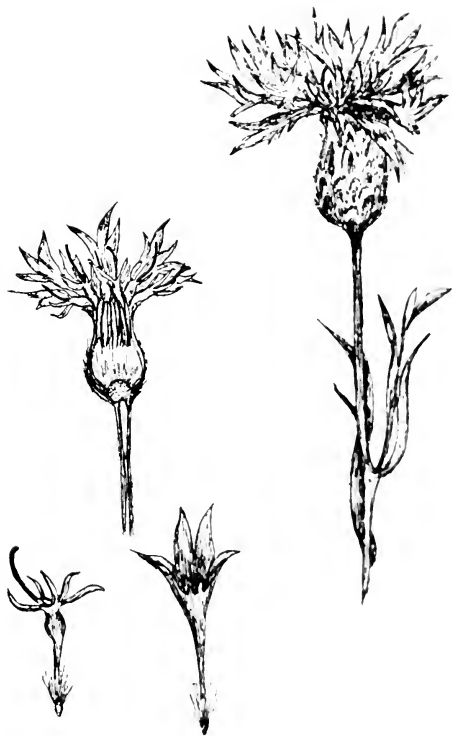
Bidens—*Bidens*, Beggar's Tick
(Lat. *bi*-, two, *dens*, tooth, from the beak of the seed)

1. Heads yellow

- a. Heads nodding after flowering
- b. Heads always erect
 - (1) Rays conspicuous; heads 4-6 cm. wide
 - (2) Rays small or wanting; heads 1-4 cm. wide
 - (a) Leaves not divided
 - x. Outer bracts 2-4 times longer than head
 - y. Outer bracts not longer than head
 - (b) Leaves pinnately 3-5-divided

2. Heads red

Centaurea—Bachelor's Button, Bluebottle
(Gr. name of the centaur)



Head of bluebottle, *Centaurea*, with long section at base of rays
Leaves gray, linear; rays blue, more rarely white or pink

Anthemis—Chamomile, Mayweed

(Gr. *anthemis*, flower, perhaps referring to the many flowers)

1. Rays white
 - a. Rays pistillate
 - (1) Chaff acute or pointed *A. arvensis*
 - (2) Chaff blunt or rounded *A. nobilis*
 - b. Rays without pistils *A. cótula*
2. Rays yellow *A. tinctoria*

Galinsóga—Galinsoga

(Named for Galinsoga, a Spanish botanist)

Low weed, with inconspicuous rays and broad leaves *G. parviflora*

Zinnia—Zinnia

(Named for Zinn, a German botanist)

Cultivated annuals, generally with double or partly double flower heads of various shades of dull yellow, orange, red and purple *Z. elegans*

Echinácea—Purple Coneflower

(Gr. *echinos*, hedgehog, referring to the bristly head)

1. Leaves dentate; rays 15-20, dull purple *E. purpúrea*
2. Leaves entire; rays 12-15, rose-purple *E. angustifolia*

Rudbéckia—Coneflower

(Named for the Swedish botanists, Rudbeck)

1. Heads single
 - a. Leaves entire or nearly so; disk purple-brown *R. hirta*
 - b. Leaves deeply cut, except the upper; disk yellow *R. laciniata*
2. Heads doubled *R. laciniata: golden glow*

Ratibida—Coneflower

(Of doubtful meaning)

1. Disk cylindric, yellow *R. columnaris*
2. Disk oblong, brown *R. pinnata*

Dahlia—Dahlia

(Named for Dahl, a Swedish botanist)

Roots tuberous, fascicled; leaves pinnate; flowers white to red *D. variabilis*

Cósmos—Cosmos

(Gr. *kosmos*, order, world)Leaves twice pinnatifid; flowers white to red, rarely yellow *C. bipinnatus*

Coreópsis—Coreopsis, Tickseed

(Gr. *koris*, bug, *opsis*, likeness)

1. Leaves 2-pinnate; rays often maroon *C. tinctoria*
2. Leaves 1-pinnate or simple
 - a. Annual; leaves or leaflets oval *C. Drummondii*
 - b. Perennial; leaves or leaflets lanceolate
 - (1) Leaves with 3, sometimes 5, leaflets *C. tripteris*
 - (2) Leaves simple *C. lanceolata*
3. Leaves palmately 3-lobed *C. palmata*

Silphium—Silphium

(Gr. name of a resinous plant)

1. Leaves simple, united at base into a cup *S. perfoliatum: cup plant*
2. Leaves very large, deeply pinnatifid *S. laciniatum: compass plant*

Verbésina

(Of doubtful meaning)

Tall cultivated perennial with rough lanceolate leaves and yellow flowers; disk flowers large, campanulate *V. alternifolia*

Helianthus—Sunflower

(Gr. **helios**, sun, **anthos**, flower, *Helianthus annuus*, L., *Helianthus scaberrimus*, L.)

1. Disk brown or purplish
 - a. Leaves opposite, thick, lanceolate; perennial
 - (1) Leaves mostly alternate, thinner, ovate; annual, heads yellow in the cultivated forms
 - b. Leaves mostly alternate, thinner, ovate; annual, heads yellow
2. Disk yellow
 - a. Leaves long, mostly lance-shaped
 - (1) Leaves petioled; stem glaucous
 - (2) Leaves sessile
 - (a) Stem smooth
 - (b) Stem rough
 - x. Leaves mostly entire, usually folded
 - y. Leaves toothed, flat
 - (2) Leaves mostly entire, usually folded
 - b. Leaves ovoid
 - (1) Stem smooth or soft hairy
 - (2) Stem rough or bristly hairy

Helianthella—Alpine Sunflower

(A Greek-Latin hybrid, meaning little sand-worm)

Leaves opposite, very long; heads 5-10 cm. wide, yellow

Helianthus—Oxeye

(Gr. **helios**, sun, **opsis**, look, from the yellow rays)

Leaves ovate; rays pistillate, yellow

Solidago—Golden-rod

(Lat. **solidus**, whole, from its reputed healing properties)

1. Heads in a flat-topped cluster
 - a. Rays fewer than the disk flowers
 - (1) Leaves ovate to oblong, rough
 - (2) Leaves long, lanceolate, smooth
 - b. Rays more numerous than the disk flowers; leaves linear
2. Heads in a terminal much-branched conical cluster
 - a. Stem and leaves glabrous or nearly so
 - (1) Heads in a compact rounded thyrse
 - (2) Heads in one-sided spreading clusters
 - (a) Leaves 3-nerved
 - x. Tall, 1-2 m. high; along streams and in meadows
 - y. Low, ½ m. high; on prairies and plains
 - (b) Leaves without a strong pair of lateral veins
 - x. Racemes few; heads 4-6 mm. high
 - y. Racemes many; heads 3-4 mm. high
 - b. Stems and leaves hairy
 - (1) Leaves lanceolate, serrate, long-pointed
 - (2) Leaves oblanceolate to broadly spatulate
 - (a) Leaves green, rough on both sides
 - (b) Leaves gray or ashy
 - x. Leaves faintly 3-nerved
 - y. Leaves strongly 3-nerved
 3. Heads mostly in axillary clusters
 - a. Rays white; leaves hairy, blunt
 - b. Rays yellow; leaves smooth, long-pointed

Chrysopsis—Chrysothrix

(Gr. **chrysos**, gold, **opsis**, look)

Leaves hairy, oblong; heads yellow

Bellis—English Daisy

(Lat. *bellis*, daisy, from *bellus*, beautiful)

Leaves basal, spatulate; heads usually double, white to pink

B. perennis

Erigeron—Daisy

(Gr. *eri-*, very, *geron*, old man, referring to the hoary heads)

1. Heads 2-3 mm. wide; rays inconspicuous

E. canadensis

2. Heads 5-20 mm. wide; rays conspicuous

a. Rays 40-70

E. annuus

b. Rays 100-150

E. philadelphicus

Callistephus—Garden Aster

(Gr. *kalli-*, beautiful, *stephos*, wreath)

Double asters of the garden

C. chinensis

Aster—Aster

(Gr. *aster*, star, in reference to the head)

1. Lower leaves heart-shaped, petioled

a. Rays white, violet or pink

(1) Rays white, 6-10

A. divaricatus

(2) Rays violet, 5-16

A. macrophyllus

b. Rays blue to purple

(1) Leaves entire

A. azureus

(2) Leaves toothed

(a) Stem smooth

x. Heads 4-6 mm. high; leaves hairy

A. cordifolius

y. Heads 6-10 mm. high; leaves smooth

A. sagittifolius

(b) Stem finely hairy

A. Drummondii

2. Lower leaves not petioled and heart-shaped

a. Stem leaves clasping by a heart-shaped base

(1) Stem smooth or nearly so

(a) Leaves entire

x. Leaves oblong to ovate

A. lœvis

y. Leaves linear or lance-linear

(x) Bracts of the involucre in 3-4 rows

A. juncus

(y) Bracts of the involucre in 1-2 rows

A. longifolius

(b) Leaves toothed

A. lœvis

(2) Stem rough or hairy

(a) Leaves entire

x. Stem rough

A. patens

y. Stem hairy

A. novae-angliae

(b) Leaves toothed

A. puniceus

b. Leaves sessile, slightly or not at all clasping

(1) Leaves densely silky-silvery, entire; rays blue

A. sericeus

(2) Leaves not silky-silvery

(a) Stem leaves linear, entire

x. Heads 16-25 mm. wide

A. ptarmacoïdes

y. Heads 6-12 mm. wide

(x) Heads in 1-sided racemes

A. multiflorus

(y) Heads not in 1-sided racemes

A. ericoïdes

(b) Stem leaves oblong to lanceolate

x. Stem and leaves hairy

A. oblongifolius

y. Stem and leaves not hairy

(x) Heads 10-15 mm. wide

A. Tradescanti

(y) Heads 15-25 mm. wide

A. salicifolius(incl. *A. paniculatus*)

Doellingeria—Doellingeria

(Named for Doellinger, a botanical explorer)

Leaves lanceolate; rays small, white

D. umbellata

ASTERACEAE

Achilléa—Yarrow, Milfoil

(Named for Achilles)

1. Heads white
 - a. Heads single; leaves finely dissected
 - b. Heads double; leaves simple
2. Heads yellow

Chrysánthemum—Chrysanthemum, Daisy

(Gr. *chryso*, gold, *antheion*, flowers)

1. Heads large, few or solitary
 - a. Heads with a single row of white rays
 - (1) Leaves spatulate
 - (a) Weed with narrow, deeply cut leaves
 - (b) Cultivated plant with thick crenate leaves
 - (2) Leaves lance-ovate, toothed; cultivated
 - b. Heads variously colored, usually with many rows of rays
 - (1) The various showy "chrysanthemums" are hybrids of *C. aureum* and *C. morifolium*
 - (2) Heads rose or pink, single garden form
2. Heads small, numerous, often double; leaves deeply cut pinnatifid

Matricária—Chamomile

(From its use in medicine; Gr. Lat. *matrica*)

Annual, with smooth aromatic deeply cut leaves and small white heads, single or double

Boltónia—Boltonia

(Named for Bolton, an English botanist of the 18th century)

Leaves entire; rays white to purplish

Tagétes—Marigold

(of doubtful meaning)

Leaves pinnate; head single or double; rays yellow or orange

Grindélia—Grindelia

(Named for Grindel, a Russian botanist)

Leaves simple, toothed; heads yellow, sticky

Helénium—Oxeye, Sneezeweed

(Gr. *helenion*, name of a plant)

1. Stems winged; heads 2-4 cm. wide
2. Stems not winged; heads 6-8 cm. wide

Gaillardía—Gaillardia

(Named for the botanist, Gaillard)

1. Annual; rays brown-purple, yellow at tip
2. Perennial; rays yellow, or brown-purple at base

Caléndula—Marigold

(Lat. *kalendae*, months, referring to its persistent flowering)

Leaves oblong, sessile; heads single or double

Taráxacum—Dandelion

(Gr. *tarasso*, to disturb)

Leaves lobed or dissected; heads yellow

Dysódia—Dysodia

(Gr. *dysodes*, ill-smelling, referring to the strong odor)

Leaves deeply pinnatifid; heads small, yellow

Tragopógon—Salsify, Oyster plant, Goatbeard

(Gr. *tragos*, goat, *pogon*, beard, referring to its beard)

1. Heads yellow; bracts not longer than the rays
2. Heads purple; bracts much longer than rays

ASTERACEAE

Sónchus—Sow-thistle
(Gr. name of the sow-thistle)

- | | |
|---|---------------------|
| 1. Perennial; heads 2-3 cm. wide | <i>S. arvensis</i> |
| 2. Annual | |
| a. Achenes wrinkled crosswise; ears of leaves acute | <i>S. oleraceus</i> |
| b. Achenes 3-striate on each side; ears rounded | <i>S. ásper</i> |

Lactúca—Lettuce
(Lat. *lactuca*, lettuce, from *lac*, milk, referring to the milky juice)

- | | |
|---|-----------------------|
| 1. Pappus white | |
| a. Flowers blue | <i>L. pulchella</i> |
| b. Flowers yellow or cream-colored | |
| (1) Cultivated | <i>L. satíva</i> |
| (2) Native | |
| (a) Leaves twisted into a vertical position, midrib spiny | <i>L. scariósa</i> |
| (b) Leaves normal, pinnatifid; margin spiny | <i>L. ludoviciana</i> |
| 2. Pappus brown | <i>L. spicáta</i> |

Hierácium—Hawkweed
(Gr. *hieracium*, hawkweed, from *hierax*, hawk)

- | | |
|--|----------------------|
| 1. Leaves and stem with hairs 2-3 cm. long; achene long-beaked | <i>H. longipilum</i> |
| 2. Leaves and stem with short stout hairs; achenes truncate | <i>H. scábrum</i> |

Crépis—Hawksbeard
(Gr. *krepis*, boot, base, perhaps from the basal rosette)
Leaves lanceolate, pinnatifid; heads yellow

C. tectorum

Nábalus—Nabalus
(Latinized form of the Indian name)

- | | |
|-----------------------|----------------------|
| 1. Pappus dark brown | <i>N. álbus</i> |
| 2. Pappus straw-color | |
| a. Involucre hairy | <i>N. ásper</i> |
| b. Involucre smooth | <i>N. altíssimus</i> |

Cichórium—Chicory
(Latinized form of the Arabic name)

- | | |
|--------------------------|-------------------|
| Leaves lobed; heads blue | <i>C. íntybus</i> |
|--------------------------|-------------------|

Monocotyledons

Alismales Arrowhead Order

Alismáceae—Arrow-head Family

Aquatic and marsh herbs, with fibrous roots, flowers in clusters; sepals 3, not petal-like, petals 3, stamens 6-many, pistils several-many; flowers apocarpous, apopetalous, hypogynous, regular.

- | | |
|--|-------------------|
| 1. Each pistil 1-seeded | |
| a. Flowers perfect; pistils in a ring | <i>Alisma</i> |
| b. Pistillate and staminate flowers separate; pistils covering a convex receptacle | <i>Sagittaria</i> |
| 2. Each pistil many-seeded | |
| a. Stamens 9, fertile | <i>Butomus</i> |
| b. Numerous fertile and sterile stamens | <i>Hydrocleis</i> |

Alisma—Water-plantain
(Gr. *alisma*, a water plant)

Native plant with ovate leaves, and many small flowers in an upright panicle *A. plantago-aquática*

Sagittária—Arrow-head
(Lat. *sagitta*, arrow, from the shape of the leaves)

Several species, mostly blooming in midsummer

- | | |
|---|---------------------|
| 1. Leaves arrow-shaped; pistillate flowers obviously stalked | <i>S. latifolia</i> |
| 2. Leaves linear, ovate, or rarely arrow-shaped; pistillate flowers not stalked | <i>S. rígida</i> |

HYDROCHARITACEAE—ARACEAE

Bitoum

(Gr. *bous*, ox, *tomos*, cut, book)

A single European species sometimes cultivated

Hydrocleis—Water poppy

(Gr. *hydros*, water, *kleis*, poppy)

A single tropical species; often cultivated; plant floating; flowers yellow

Hydrales Water Weed Order

Hydrocharitaceae—Water-weed Family

Submerged or floating aquatic herbs; sepals 3, petals 3 or 0, stamens 3-9, 3-9-parted, ovary 1-9-celled; flower syncarpous, apetalous, a cyme; fruit regular, usually dioecious.

1. Stems elongated, branched; leaves small, in whorls of 3, flowers on a thread-like tube
2. Stems undeveloped; leaves long, grass-like

Philotria—Water-weed

(Gr. *philos*, loving, *tria*, three)

Small native submerged aquatic, often cultivated in aquaria; pistillate flowers with a long, thread-like perianth-tube

Vallisneria—Eel-grass

(Named for Vallisneri, an Italian botanist)

Submerged grass-like aquatic; pistillate flowers on long coiled stalks

Arales Arum Order

Araceae—Arum Family

Herbs, or somewhat shrubby, with flowers in a dense fleshy spike, or surrounded by a spathe; sepals 4-6 or 0, petals 0, stamens 4-7, ovary 1-7-celled, apetalous, ovary sunk in the fleshy axis. The autumn and winter flowers of cultivated greenhouse plants.

1. Spadix covered with flowers to the tip
 - a. Stem thick, elongated; leaves perforated
 - b. Stem not appearing above ground; spathe expanded, white
2. End of spadix without flowers
 - a. Spathe hood-like; leaves simple, entire
 - b. Spathe expanded, ill-smelling, preceding the large compound fruit

Monstera

(For an uncertain origin)

Half-climbing plant with aerial roots and edible fruit

Zantedeschia—Calla

(Named for Zantedeschia, an Italian botanist)

Commonly cultivated plant with arrow-shaped leaves and large flowers on long stalks

Arum

(The Greek name)

Flowers on lower part of spadix, the staminate and pistillate flowers arated by fringe-like sterile flowers

Amorphophallus

Flowers on lower part of spadix; spathe brown, odoriferous

Liliales Lily Order

Commelinaceae—Spiderwort Family

Upright or trailing herbs with fleshy leaves of moderate thickness; mucilaginous sap; sepals 3 or 0, petals 3, stamens 3 or 6, pistil 1, ovary 2-3-celled; flower syncarpous, apopetalous or sympetalous, hypogynous, regular or irregular; sepals not petal-like, petals usually withering in one day.

1. Flowers regular; stamens 6
 - a. Petals separate *Tradescantia*
 - b. Base of petals united to form a tube *Zebrina*
2. Flowers irregular; fertile stamens 3 *Commelina*

Tradescantia—Spiderwort, Wandering Jew

(Named for Tradescant, an English gardener)

1. Native species with linear leaves; flowers chiefly in early summer
 - a. Sepals and pedicels smooth *T. reflexa*
 - b. Sepals glandular pubescent
 - (1) Leaves and bracts 5-10 mm. wide *T. occidentalis*
 - (2) Leaves and bracts 1-2 cm. wide *T. bracteata*
2. Cultivated species with ovate or lanceolate leaves
 - a. Creeping plant, rooting at the joints; leaves green or white striped; flowers white *T. fluminensis*
 - b. Plant half prostrate, not widely creeping; flowers rose-colored *T. micrantha*

Zebrina—Wandering Jew

(From *zebra*, referring to the striped leaves)

Creeping plant with variegated leaves, purple beneath *Z. pendula*

Commelina—Day Flower

(Named for the brothers Commelin, Dutch botanists)

Branching annual weed with bright blue flowers *C. communis*

Liliaceae—Lily Family

Herbaceous plants with scapes or leafy stems growing from bulbs, corms or rootstocks, rarely shrubby; sepals 3, petals 3, stamens 6, pistil 1, ovary 3-celled, superior; flowers syncarpous, apopetalous or sympetalous, hypogynous, regular or nearly so; sepals usually petal-like.

1. Plants with evident above-ground stems bearing the leaves, or leaf-like twigs
 - a. Plants with true leaves
 - (1) Leaves thick and fleshy; flowers small, numerous, in elongated leafless spikes or racemes
 - (a) Perianth tubular, with scarcely any limb *Aloe*
 - (b) Tips of petals and sepals free, spreading, irregular *Haworthia*
 - (2) Leaves not thick and fleshy; flowers large, solitary or in loose leafy clusters
 - (a) Flower solitary; stem bearing 1-2 leaves *Tulipa*
 - (b) Flowers usually several; stem bearing many leaves *Lilium*
 - b. True leaves reduced to minute scales, foliage consisting of needle-like or leaf-like twigs in the axils of the scale-leaves
 - (1) Herbaceous; flowers and fruit borne on ordinary twigs *Asparagus*
 - (2) Shrubby; flowers and fruit borne on the leaf-like twigs *Ruscus*
2. Stemless plants
 - a. Flowers borne on erect leafless scapes, usually in clusters
 - (1) Leaves ovate to lanceolate
 - (a) Flowers trumpet-shaped, each lasting one day *Funkia*
 - (b) Flowers bell-shaped, persistent *Convallaria*
 - (2) Leaves linear, each flower lasting several days
 - (a) Plants with thickened roots and no true bulb
 - x. Flowers in umbels, blue or white *Agapanthus*

LILIACEAE

y. Flowers in an elongated spike, orange red.

z. Flowers in a branched panicle, white.

(b) Plants with true bulbs

x. Flowers with an involucre

(x) Flower solitary

(y) Flowers in a cluster

y. Flower cluster without an involucre

(x) Petals and sepals separate

m. Petals and sepals white or greenish, marked with red

n. Petals and sepals blue (rarely white), unmarked

(y) Petals and sepals united at the base into a tube

b. Flowers solitary, borne directly on the underground stem

(1) Plant with a corm; flower conspicuous

(2) Plant with a creeping rootstock; flowers inconspicuous

Alœ--Alœ

(The Greek name)

Fleshy greenhouse plants; the leaves usually spiny

1. Leaves many-ranked

a. Stem obvious, branching; leaves 3-7 dm. long with sheathing bases

b. Stems short, covered with the small warty leaves

2. Leaves 3-ranked, warty and mottled

Haworthia

(Named for Haworth, an English botanist)

Fleshy greenhouse plant with short stem, and small whitish flowers

Tulipa—Tulip

(N. L. *tulipa*, turban, from the form of the flower)

Spring-flowering bulbs, often forced into winter blooming. The cultivated

forms are generally considered as forming the two species:

1. Early flowering, pubescent

2. Late flowering, smooth

Lilium—Lily

(Lat. name of the lily, Gr. *leirion*)

1. Autumn-blooming species, sometimes delayed for indoor winter flowering; flowers usually spotted or striped on a white ground

a. Flower flat; petals reflexed from the base

b. Flower open bell-shaped; petals reflexed only at the tips, marked with a broad central stripe

2. Early summer-blooming species, often forced; flowers white

a. Basal leaves broad; flower open bell-shaped

b. Leaves all narrow lanceolate; flower trumpet-shaped

Asparagus—Asparagus

(The Greek name)

1. Foliage twigs thread-like

a. Hardy vegetable with upright stems

b. Greenhouse twiner

2. Foliage twigs broader, leaf-like

a. Foliage twigs linear; branches drooping

b. Foliage twigs ovate lanceolate; stems twining

Ruscus—Butcher's Broom

(The Latin name)

Foliage twigs leathery, ovate lanceolate

Fúnkia—Day Lily

(Named for Funck, a German botanist)

Garden plants with trumpet-shaped flowers

- | | |
|--|----------------------|
| 1. Flowers white, fragrant | <i>F. subcordata</i> |
| 2. Flowers bluish | |
| a. Leaves broad ovate; flowers deep blue | <i>F. ovata</i> |
| b. Leaves narrow ovate to lanceolate; flowers pale lilac | <i>F. lancifolia</i> |

Convallária—Lily-of-the-valley

(Lat. *convallis*, a deep valley)

Spring-blooming hardy plant with racemes of fragrant bell-shaped flowers; often forced for winter blooming

C. majalis

Agapánthus

(Gr. *agape*, love, *anthos*, flower)

Large half-hardy pot plant with umbels of blue or white trumpet-shaped flowers

A. umbellatus

Kniphófia—Red-hot Poker

(Named for Kniphof, a German botanist)

Half-hardy plant with an elongated spike of tubular scarlet and yellow flowers

K. aloides

Chloróphytum

(Gr. *chloros*, green, *phyton*, plant)

Pot plant with stolons, and loose panicles of white flowers

C. ciliatum

Tritélia

(Gr. *tri-*, three, *teleos*, complete)

Bulbous plant with solitary whitish flowers, spring-blooming but forced in late winter

T. uniflora

Állium—Onion

(Lat. name of the onion)

Bulbous plant with umbels of small white flowers, often forced in greenhouses

A. neapolitanum

Ornithógalum

(Gr. *ornis*, *ornithos*, bird, *gala*, milk)

- | | |
|---|--------------------|
| 1. Flowers over 2 cm. across, white with a black pistil | <i>O. arabicum</i> |
| 2. Flowers less than 2 cm. across, white with green stripes | <i>O. caudatum</i> |

Scílla

(Lat. *scilla*, Gr. *skilla*, sea-onion)

Very early spring-blooming bulb, sometimes forced; flowers bright blue

S. sibirica

Hyacínthus—Hyacinth

(The Greek name)

Spring-blooming bulbous plant, often forced in winter; fragrant flowers in a dense raceme

H. orientalis

Cólchicum

(Greek name of some poisonous plant)

Flowers in autumn without leaves or stems, pink-purple, crocus-like

C. autumnale

Aspidístra

Pot plant with large leathery lanceolate leaves (sometimes variegated) from a creeping rootstock; flowers fleshy, almost concealed in the earth, their parts in 4's

A. lívida

Pontederiáceae—Pickerel-weed Family

Aquatic and marsh plants; flower clusters subtended by leaf-like spathes; sepals 3, petals 3, stamens 6, pistil 1, ovary 3-celled or 1-celled; flower syncarpous, sympetalous, hypogynous, irregular; sepals and petals similar, united, and forming a 2-lipped perianth.

CYPERACEAE

Pontedericiaceae—Pondweed Family
(Name for Pontederica and Peltandra)

A single native species growing in swamps of lowland Florida.

Poales—Grass Order

Cyperaceae—Sedge Family

Grass-like herbs, annual or perennial, roots fibrous, stems mostly long and narrow, with three distinct angles (triangular spikelets), each flower in the axil of a scale (glume), bearing one or two stamens with 2-3 cleft anthers, or a pistil with 2-3 cleft style, ovary 1-3 angled, triangular nutlet or achene.

Key to the Genera

1. Flowers perfect, spikes (spikelets) all of one sort.
 - a. Spikes cone-shaped; scales very numerous and small (perianths).
 - (1) Achene crowned by a cap or tubercle.
 - (2) Achenes without a cap or tubercle.
 - b. Spikes (spikelets) flattened; scales 2-ranked.
 - (1) Flowers without bristles, achenes beakless.
 - (2) Flowers with 6-10 bristles, achenes beaked.
2. Flowers monoecious, in the same or in separate spikes.
 - (1) Dioecious; achene enclosed in a sack.

Heleocharis—Spike Rush

(Gr. *helos*, marsh, *chairo*, delight in referring to)

1. Plants tufted, without conspicuous rootstocks.
2. Plants not tufted, perennial from an elongated rootstock.

Scirpus—Bulrush, Club Rush

(Lat. *scirpus*, bulrush)

1. Tall aquatic rush, inflorescence without leafy involucre.
2. Swamp or wood plants, involucre leafy.
 - a. Style 3-cleft, achene 3-angled, bristles 6.
 - b. Style 2-cleft, achene plano-convex, bristles 4.



Cyperus diureticus
Cluster and spikelet

GRAMINACEAE

Cyperus—Cyperus
(Gr. *kypeiros*, a sedge)

1. Styles 2-cleft, achene lenticular, not 3-angled
 - a. Stamens 2, style much exerted, scales dull *C. diandrus*
 - b. Stamens 3, style scarcely exerted, scales shining *C. rivularis*
2. Styles 3-cleft, achene 3-angled
 - a. Spikelets in heads *C. filiculmis*
 - b. Spikelets in spikes
 - (1) Spikelets flat, linear, falling away from the spikes *C. esculéntus*
 - (2) Spikelets thicker, oblong-linear, scales falling away from the spikelets *C. Schweinitzii*

Dulichium—Dulichium
(Of doubtful origin and meaning)

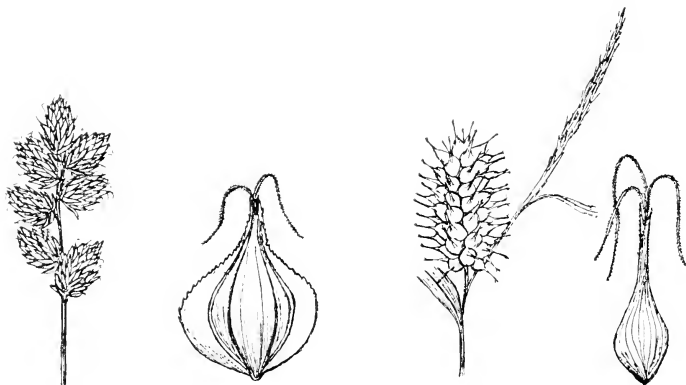
A single species

D. arundináceum

Cárex—Sedge

(Lat. *carex*, sedge, i. e. that which cuts)

A large and difficult genus. Most of the species ripen and shed the fruit before the middle of

Carex festucea
Cluster of spikelets and fruitCarex lurida
Pistillate and staminate spikes and fruit

September and are not in condition to be identified subsequent to that time. The following swamp species retain the fruit longer and may be looked for through October.

1. Spikes 2-5, stalked and pendulous *C. comósa*
2. Spikes 2 (1-3), sessile or very short-stalked *C. intumescens*

Gramináceae—Grass Family

Annual or perennial herbs (shrubs and trees in the Bambuseae); stems usually hollow, with nodes and internodes; leaves narrow, 2-ranked, with sheathing base split on the side opposite the blade; flowers in spikelets, in panicle, racemose or spicate inflorescences; spikelets consisting of 2-many, 2-ranked bracts, the two lower of which are empty, the succeeding ones, called lemmas (1-many), each bear a naked, usually perfect flower; the flower is subtended on the inside by a thin scale called the palea; stamens 3, rarely 1, 2, or 6; filaments very slender, anthers long, attached at the middle; pistil 1, styles 2, rarely 1-3, stigmas feathery, fruit a 1-seeded grain or caryopsis, usually inclosed at maturity by the lemma and palea.

KEY TO THE TRIBES

- I. Plants with herbaceous stems
 1. Spikelets all monoecious
 - a. Spikelets in different inflorescences, the staminate in tassels, pistillate in ears *Zea in Maydeae*

GRAMINACEAE

- b. Spikelets in the same inflorescence
 - (1) Pistillate spikelets below, surrounded by an involucre
 - (2) Pistillate spikelets above, without ivory like involucre
- 2. Spikelets all perfect or of two kinds, perfect and staminate
 - a. Spikelets in different inflorescences, the staminate in one and the other imperfect and stalked
 - b. Spikelets all alike
 - (1) Glumes 3-4
 - (a) Glumes shorter than the fertile lemma and palea, lemma and palea indurated in fruit
 - (b) Outer glumes enclosing the lemma and palea, lemma and palea indurated in fruit; third and fourth glumes small and hair-like
 - (2) Glumes 2
 - (a) Spikelets in one-sided spikes
 - (b) Spikelets not in one-sided spikes
 - x. Spikelets 1-flowered
 - (x) Glumes small or minute
 - (y) Glumes variable, mostly as long or longer than lemma
 - y. Spikelets 2-many-flowered
 - (x) Spikelets sessile on the main zigzag axis
 - (y) Spikelets more or less stalked, main axis not zigzag
 - m. Glumes enclosing the spikelet, lemma usually awned at the back
 - n. Glumes not enclosing the spikelet, lemma awnless at the top
 - (3) Glumes none

II. Plants with tall woody stems or canes

Artificial Key

- I. Spikelets in panicles (or cylindric spikes)
 - 1. Spikelets one-flowered
 - a. Three or four empty glumes



Agrostideae
Agrostis vulgaris, panicle and spikelet



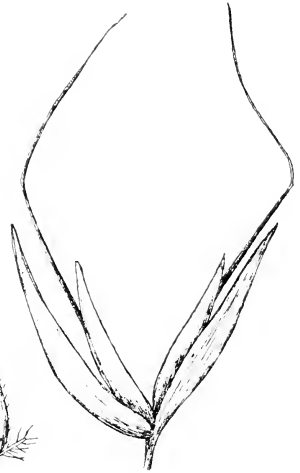
- b. Two empty glumes
 - (1) Flowers naked at base, or with one hairy bristle
 - (2) Flowers with two scales or bristles at base
- c. No empty glumes



Oryzoae
Leersia oryzoides
Cluster and spikelet



Phalarideae
Phalaris arundinacea
Spikelet and flower



Aveneae
Avena sativa
Spikelet

2. Spikelets more than one-flowered

a. Empty glumes longer than the spikelet; lemma awned on the back

Aveneae

b. Empty glumes shorter than the spikelet, lemma awned at the tip

(1) Herbs

Festuceae

(2) Tall reeds

Bambuseae



Bambuseae
Arundinaria japonica
Spikelet and flower



Festuceae
Bromus ciliatus
Spikelet and flower



II. Spikelets not in panicles

1. Spikelets monoecious

Maydeae

GRAMINACEAE



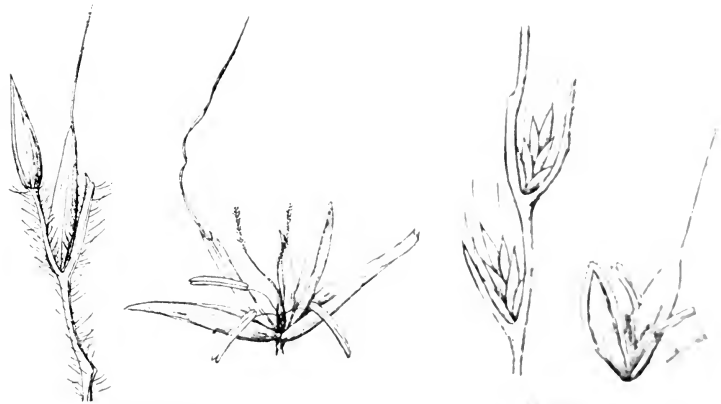
Maydaceae
Zea mays

Staminate and pistillate spikelets



Bromelaceae
Stenandrium

2. Spikelets in one-sided spikes
3. Spikelets in pairs (one sessile, the other stalked)



Andropogoneae
Andropogon furcatus

Pair of spikelets and open spikelet

4. Spikelets on a zig-zag axis

MAYDEAL—COEN—0000

1. Staminate and pistillate spikelet in different inflorescences
2. Staminate and pistillate spikelets in the same inflorescence
3. Staminate and pistillate spikelets enclosed by a bead-like involucre

Zéa—Corn, Maize

(Gr. *zeia*, a kind of coarse grain)

A single cultivated species

Z. mays

Cóix—Job's Tears

(Gr. *koix*, a kind of palm)

A single cultivated species

C. láchryma

ANDROPOGÓNEAE—BLUESTEM TRIBE

1. Spikelets in many-jointed, spike-like hairy racemes *Andropogon*
2. Spikelets in a panicle
 - a. Panicle very hairy, golden, stalked spikelets reduced to 1 or 2 hairy pedicels *Chrysopogon*
 - b. Panicle smooth or nearly so, brownish, stalked spikelets 1-2, staminate or empty *Sorghum*

Andropogón—Bluestem, Beard Grass

(Gr. *aner*, *andros*, man, *pogon*, beard, referring to the hairy axis)

1. Racemes solitary, stems 4-8 dm. high *A. scopáriu*
2. Racemes in clusters, stems 10-15 dm. high *A. furcátus*

Chrysopogón—Goldstem, Goldbeard

(Gr. *chrysos*, gold, *pogon*, beard, referring to the hairy pedicels)

A single species

C. nútus

Sórghum—Sorghum

(of doubtful origin and meaning)

A single cultivated species

S. vulgáris

PANÍCEAE—MILLET TRIBE

1. Spikelets inclosed in a spiny bur *Cenchrus*
2. Spikelets not inclosed in a spiny bur
 - a. Spikelets borne in more or less one-sided spikes
 - (1) Spikes long and slender, in a digitate cluster; glumes not awned *Digitaria*
 - (2) Spikes shorter, in a panicle; glumes more or less awned *Echinochloa*
 - b. Spikelets not in one-sided spikes
 - (1) Spikelets subtended by bristles, in a cylindrical spike *Setaria*
 - (2) Spikelets not subtended by bristles, in a panicle *Panicum*

Cénchrus—Sandbur

(Gr. name of a kind of millet)

A single species

C. caroliníanus

Digitária—Finger Grass

(Lat. *digitus*, finger, referring to the flower cluster)

1. Axis of spikes flat, broadly winged; stems spreading
 - a. Spikelets with 3 glumes, 2-3 mm. long *D. sanguinális*
 - b. Spikelets with 2 glumes, 2 mm. long *D. humifúsa*
2. Axis of spikes not winged, 3-angled, stems erect *D. filifórmis*

Echinóchloa—Barnyard Grass

(Gr. *echinos*, hedgehog, *chloe*, grass, referring to the bristly spikelets)

A single species with awned spikelets, awn very variable in length

E. crusgállii

Setária—Foftail, Pigeon Grass

(Lat. *seta*, bristle, referring to the awns)

1. Bristles five or more below each spikelet *S. gláuca*
2. Bristles 1-3 below each spikelet
 - a. Spikes thick and dense, 1-2 dm. long, spikelets 3 mm. long *S. itálica*
 - b. Spike slender, 3-10 cm. long, spikelets 2 mm. long *S. virídís*

GRAMINACEAE

Panicum—Panic Grass

(Lat. *panicum*, millet, from *panis*, bread)

1. Plants glabrous throughout, 8-20 dm. high, erect
2. Plants bristly pubescent at least on the sheaths, more or less upright or spreading, 3-10 dm. high
 - a. Annual, panicle ample, branches long and slender
 - b. Perennial, panicle short, less than 10 cm.

Phalaris—Canary Grass

(Gr. name of this grass, from *phalos*, = pharos)

1. Panicle very dense, spike-like; glumes winged on keel
2. Panicle branched; glumes not winged on the keel
 - a. Leaves green
 - b. Leaves striped with white

Orýzae—RICE TRIBE

1. Cultivated grass; glumes present, small
2. Native grasses; spikelets monoecious, or perfect and staminate, glumes lacking
 - a. Tall aquatic grass, pistillate spikelets at the summit of the panicle
 - b. Low marsh grass with closely crowded spikelets, the perfect ones less inclosed in the sheaths

Orýza—Rice

(Gr. *oryza*, rice)

A single cultivated species

Zizania—Wild Rice, Indian Rice

(Gr. *zizanon*, a woolly grass)

1. Stems 2-3 m. high; panicle open
2. Stems about 1 m. high; panicle more appressed

Leersia—Cut-grass, White Grass

(Named for the German botanist, Lee)

1. Panicle simple, branches stiffly spreading; spikelets 2-3 mm. long
2. Panicle twice branched; spikelets 4-5 mm. long

Chlorideae—RAMBLE TRIBE

1. Tall marsh grass with long, sharp-edged leaves
2. Prairie grass with short blunt-edged leaves

Spartina—Slough Grass

(Gr. *spartine*, cord, referring to it)

A single species

Bouteloua—Grama Grass

(Named for Boutelou, a Sp. botanist)

1. Spikes 15 or more, pendant
2. Spikes 1-4 usually curved, horizontal or ascending
 - a. Leaves smooth
 - b. Leaves hairy

AGROSTIDEAE—REDTOP TRIBE

1. Spikelets in a cylindrical spike
 - a. Lemma without an awn; glumes awn-pointed or aristate *Phleum*
 - b. Lemma awned; glumes not aristate *Alopecurus*
2. Spikelets in a panicle or spike-like panicle
 - a. Spikelets in a dense spike-like panicle *Muhlenbergia*
 - b. Spikelets in an open panicle
 - (1) Lemma firm and hard at maturity, closely enveloping the grain *Oryzopsis*
 - (2) Lemma thin or membranous at maturity, glumes coarse, grain loose
 - x. Lemma with a tuft of straight hairs at its base
 - (x) Rachilla prolonged behind the palet, bristle-like *Calamagrostis*
 - (y) Rachilla not prolonged behind the palet *Calamovilfa*
 - y. Lemma without a tuft of hairs at its base
 - (x) Glumes longer than, and inclosing, the lemma *Agrostis*
 - (y) Glumes shorter than, and not inclosing, the lemma
 - m. Stems wiry or rigid; lemma and palet not raised on a short pedicel *Sporobolus*
 - n. Stems not wiry; lemma and palet raised on a short pedicel *Cinna*

Phleum—Timothy
(Gr. *phleos*, a kind of reed)

- A single cultivated species *P. pratense*

Alopecurus—Foxtail Grass

(Gr. *alopex*, fox, *cura*, tail, referring to the spike)

- A single species *A. geniculatus*

Muhlenbergia—Muhlenbergia

(Named for Muhlenberg, an American botanist of the 18th century)

1. Glumes equalling the lemma *M. mexicana*
2. Glumes much longer than the lemma *M. racemosa*

Oryzopsis—Mountain Rice

(Gr. *oryza*, rice, *opsis*, likeness; of little meaning)

- A single species (at this season) *O. melanocarpa*

Calamagrostis—Bluejoint Grass

(Gr. *kalamos*, reed, *agrostis*, grass)

- A single species *C. canadensis*

Calamovilfa—Reed Grass

(A hybrid name of doubtful meaning)

- A single species *C. longifolia*

Agrostis—Red Top

(Gr. *agros*, field, from its home)

1. Palet at least one-half as long as the lemma, 2-nerved *A. alba*
2. Palet minute and nerveless or wanting *A. hiemalis*

Sporobolus—Rush-grass, Drop-seed

(Gr. *spora*, seed, *bolos*, throwing)

1. Slender plants, the spike-like panicle exerted beyond the upper leaf sheath *S. cuspidatus*
2. Coarse wiry plant, the much branched panicle more or less inclosed by the upper leaf sheath *S. cryptandrus*

Cinna—Wood Reed-grass

(Gr. *kinna*, a kind of grass)

- A single species *C. arundinacea*

AVENEAE—OAT TRIBE

- A single genus *Avena*

GRAMINACEAE

Avena—Oat

(Gr. *avena*, a oat)

1. Lemma with a ring of hairs at the base, awn 3 cm. long
2. Lemma without a ring of hairs, awn less than 3 cm. long

Panicum—Bottle-brush

1. Tall reed-like swamp grass, spikelets with long flexuous awns
2. Lower meadow or woodland grasses
 - a. Spikelets 8-12 mm. wide, about as long as broad
 - (1) Panicle dense and spike like, shining
 - (2) Panicle open, not shining
 - (a) Spikelets in one-sided, capitate clusters
 - (b) Spikelets not collected into one-sided clusters; spikelets large
 - x. Lemmas more than 6 mm. long, 2-toothed at apex, awns near the apex
 - y. Spikelets smaller; lemmas less than 6 mm. long, awns awned at the apex
 - (x) Spikelets 3-5-flowered
 - m. Glumes compressed and keeled; lemma awned at base, hairs at the base, awnless
 - n. Glumes rounded, at least at the base; lemma awned at base, mostly awned at the apex
 - (y) Spikelets 5-30-flowered, much flattened

Phragmites—Reed grass

(Gr. *phragmites*, growing in hedges; of doubtful origin)

A single swamp species, 4-8 feet tall

Briza—Quaking Grass

(Gr. *brizo*, a kind of grass)

A single cultivated species

Koeleria—Koeleria

(Named for Koeler, a German writer on botany)

A single species

Diactylis—Orchard Grass

(Gr. *daktylos*, finger, of doubtful origin)

A single introduced species

Bromus

(Gr. *bromos*, a kind of grass)

1. Spikelets densely silky-hairy all over
2. Spikelets not densely silky-hairy all over
 - a. Lemma awned, awn over 1 cm. long
 - b. Lemma awnless or with an awn less than 1 cm. long
 - (1) Lemma awnless or merely awn-pointed
 - (2) Lemma with a short straight awn

Poa—Whitegrass

(Gr. *poa*, grass)

1. Low, spreading annual, less than 2 dm. high
2. Perennials; stem erect, over 3 dm. high
 - a. Stems not tufted, from extensively creeping roots
 - (1) Panicle crowded; stems much exceeding the leaves
 - (2) Panicle open and spreading; stems scarcely exceeding the leaves
 - b. Stems tufted
 - (1) Panicle crowded; stems much exceeding the leaves
 - (2) Panicle open and spreading; stems scarcely exceeding the leaves

Festuca—Fescue Grass
(Lat. *festuca*, stem, straw)

- | | |
|--|---|
| 1. Leaves narrow and involute; lemma awned | <i>F. ovina</i> : sheep's fescue |
| 2. Leaves flat; lemma not awned | <i>F. nutans</i> : nodding
<i>fescue grass</i> |

Eragrostis—Eragrostis

(Gr. *era*, ground, *agrostis*, grass, from the spreading habit)

- | | |
|---|-----------------------|
| 1. Perennial, reddish; branches of panicle long and stiff | <i>E. pectinacea</i> |
| 2. Annual; branches shorter | |
| a. Spikelets 2-8 mm. long | <i>E. pilosa</i> |
| b. Spikelets 5-16 mm. long | <i>E. megastachya</i> |

HÓRDEAE—BARLEY OR RYE TRIBE

- | | |
|---|------------------|
| 1. Spikelets 1 at each joint of the zigzag axis | |
| a. Spikelets with edge turned towards the axis | <i>Lolium</i> |
| b. Spikelets with flat side turned towards axis | |
| (1) Native perennials | <i>Agropyrum</i> |
| (2) Cultivated annuals | |
| (a) Spikelets 2-several-flowered, glumes broadly ovate | <i>Triticum</i> |
| (b) Spikelets 2-flowered, glumes acute | <i>Secale</i> |
| 2. Spikelets 2-several (sometimes 1 or more rudimentary) at each joint of the zigzag axis | |
| a. Spikelets 1-flowered, in 3's at each joint, the lateral reduced | <i>Hordeum</i> |
| b. Spikelets 2-6 flowered | |
| (1) Spikelets ascending, glumes about the same size as lemmas | <i>Elymus</i> |
| (2) Spikelets spreading horizontally, glumes very small or lacking | <i>Hystrix</i> |

Lólium—Darnel

(Lat. name of the darnel)

- | | |
|-----------------------------|--------------------------------------|
| A single introduced species | <i>L. perenne</i> : common
darnel |
|-----------------------------|--------------------------------------|

Agropýrum—Wheat Grass
(Gr. *agros*, field, *pyros*, wheat)

- | | |
|---|---|
| 1. Stems tufted, no creeping rootstocks or stolons; lemma awned | |
| a. Awn about twice the length of the lemma; spike thick | <i>A. Richardsonii</i> |
| b. Awn shorter than the lemma; spike slender | <i>A. ténérum</i> |
| 2. Stems solitary or few, from creeping rootstocks; lemma mostly awnless or awn-pointed | <i>A. repens</i> : quackgrass,
couch grass |

Triticum—Wheat
(The Latin name)

- | | |
|--|-------------------------------------|
| 1. Grain remaining within the glumes when ripe | <i>T. spelta</i> : spelt |
| 2. Grain easily falling out when ripe | <i>T. vulgare</i> : common
wheat |

Secále—Rye

(NL. from *seco*, cut)

- | | |
|-----------------------------|-------------------|
| A single cultivated species | <i>S. cereale</i> |
|-----------------------------|-------------------|

Hórdenm—Barley

(Lat. name of the barley)

- | | |
|---|--|
| 1. Cultivated; glumes short, not awn-like | <i>H. vulgare</i> : barley |
| 2. Native weed; glumes long and awn-like | <i>H. jubatum</i> : squirrel-tail
grass |

Élymus—Rye Grass, Wild Rye

(Gr. *elymos*, a kind of grass, from *elyo*, roll up)

- | | |
|--|----------------------|
| 1. Spike erect, awns shorter than the spikelet | <i>E. virginicus</i> |
| 2. Spike more or less nodding, awns longer than spikelet | |
| a. Glumes narrowly awl-shaped; spike slender | <i>E. striatus</i> |

AMARYLLIDACEAE

b. Glumes linear lanceolate; spike stouter

- (1) Spike loosely flowered, nodding at the summit; 1-3 flowers per leaf sheath
- (2) Spike densely flowered, compact and strict, 2-5 flowers per leaf sheath in the upper leaf sheath

Hystrix—Bottlebrush

(Gr. *hystrix*, porcupine, referring to the long, stiff hairs)

A single woodland species

BAMBUSALAE—BAMBOO Family

A single cultivated genus and species

Iridales—Iris Order

Amaryllidaceae—Amaryllis Family

Herbaceous plants, usually with scapes or leafy stems; roots fibrous; sepals 3, petals 3, stamens 6, pistil 1, ovary 3-celled, inferior; flowers usually rarely apopetalous, epigynous, regular or somewhat irregular; corolla often bearing a conspicuous crown within the petals.

1. Flowers with a crown-like appendage within the perianth

2. Flowers without a crown-like appendage

a. Stems leafy; flowers white

b. Bulbous plants with scapes; flowers pink to red

(1) Scales present at the base of the stamens

(a) Flowers in an umbel, regular

(b) Flower solitary, irregular

(2) No scales at base of the stamens

(a) Sepals and petals distinctly united below

(b) Sepals and petals scarcely united

x. Flowers pink or whitish

y. Flowers orange

Narcissus

(The Greek name)

Spring-blooming bulbous plants often forced in winter

1. Crown as long as the petals and sepals; flowers solitary

2. Crown small; flowers in clusters

a. Leaves 10-30 mm. wide

b. Leaves 3-5 mm. wide

Polyanthes—Tuberose

(Gr. *polios*, white, *anthos*, flower)

Autumn-flowering garden plant often with double flowers

Hippeastrum—"Amaryllis"—Johannesbuddelund

(Gr. *hippos*, horse, *astron*, star from its many-pointed form)

The house and greenhouse forms are largely hybrids of

Sprekelia—Jacobean Lily

(Named for Sprekelien, a German lily grower)

Bulbous greenhouse plant with solitary irregular scarlet flower

Amaryllis—Belladonna Lily

(Named for the stemless *Amorpha* lily)

Half-hardy bulbous plant with umbel of lily-like pink or white bell-shaped flowers

Clivia

1. Leaves acute, flowers upright, funnel-shaped

2. Leaves obtuse, flowers pendulous, bell-shaped

IRIDACEAE

Nerine

(Gr. *neréis*, a sea-nymph)

- | | |
|--|----------------------|
| 1. Flowers scarlet; stamens straight | <i>N. curvifolia</i> |
| 2. Flowers pale pink; stamens curved | <i>N. flexuosa</i> |
| 3. Flowers bright pink (hybrid of 1. and 2.) | <i>N. Mansellii</i> |

Iridaceae—Iris Family

Herbaceous plants with bulbs, corms, or rootstocks, from which come the solitary flowers, scapes, or leafy stems; sepals 3, petals 3, stamens 3, pistil 1, ovary 3-celled, inferior, style with three branches; flower syncarpous, sympetalous or apopetalous, epigynous, regular or somewhat irregular; sepals petal-like, but sometimes differing considerably from the petals.

- | | |
|--|------------------|
| 1. Style branches petal-like, concealing the stamens | |
| a. Perianth-tube present; plants with bulbs or creeping rootstocks | <i>Iris</i> |
| b. Sepals and petals separate to the base; plants with corms | <i>Moraea</i> |
| 2. Style branches not petal-like; stamens obvious | |
| a. Stemless; flowers rising directly from the corm | <i>Crocus</i> |
| b. Leafy stemmed; flowers in spikes or racemes | |
| (1) Style branches cleft into 2 thread-like subdivisions | <i>Freesia</i> |
| (2) Style branches not cleft | |
| (a) Flowers regular, salver-shaped | <i>Ixia</i> |
| (b) Flowers somewhat irregular, funnel-shaped | |
| x. Bracts leafy; flowers decidedly irregular | <i>Gladiolus</i> |
| y. Bracts papery; flowers slightly irregular | <i>Tritonia</i> |

Íris—Iris

(Gr. *iris*, rainbow)

- | | |
|--|---------------------|
| 1. Garden plants with creeping rootstocks, blooming in early summer, often with a few autumn flowers | |
| a. Flowers lavender; leaves about 2 dm. long | <i>I. cengialti</i> |
| b. Flowers dark purple; leaves 3-4 dm. long | <i>I. germanica</i> |
| 2. Bulbous spring-blooming plants, sometimes forced into winter blooming | |
| a. Stemless, blue, flowering in the greenhouse in early winter | <i>I. alata</i> |
| b. Long stemmed, variously colored, flowering in late winter | <i>I. xiphium</i> |

Moræa—Peacock Iris

(Named for Moræas, father-in-law of Linné)

- | | |
|---|-------------------|
| Slender plant with white and blue iris-like flowers | <i>M. pavonia</i> |
|---|-------------------|

Crócus—Crocus

(The Greek name)

Spring flowering plants often forced into winter blooming

- | | |
|---|---------------------|
| 1. Flowers yellow | |
| a. Anthers orange; sepals brownish on outside | <i>C. susianus</i> |
| b. Anthers pale; sepals clear yellow | <i>C. moesiacus</i> |
| 2. Flowers violet to white | <i>C. vernus</i> |

Fréesia

Greenhouse bulbous plants with fragrant flowers in irregular racemes

- | | |
|-------------------------------------|-------------------------|
| 1. Flowers whitish-green and purple | <i>F. refracta</i> |
| 2. Flowers pure white | <i>F. refracta alba</i> |
| 3. Flowers yellow and orange | <i>F. Leichtlinii</i> |

Íxia

(Gr. *ixos*, birdlime, from the sticky sap)

Greenhouse bulbous plants with flowers in spikes

- | | |
|--|-------------------------|
| 1. Flowers white or yellow with a dark eye | <i>I. maculata</i> |
| 2. Flowers purplish with a dark eye | <i>I. columbellaris</i> |

Gladiolus

(Lat. *gladiolus*, small sword, from the shape of the leaf)Various garden hybrids of *G. cardinalis*, *G. psittacinus*, and other species.

BROMELIACEAE—ORCHIDACEAE

Tritonia—Montbretia (From the sea zed, Tritonia)

1. Perianth tube longer than the slightly spreading spathe lobes.
2. Perianth tube about the length of the widely spreading spathe lobes.

The latter is a garden hybrid of *T. Pittieri* and *C. (Tritonia) bicolor*.

Bromeliaceae—Pineapple Family

Herbs, many of them epiphytic; leaves usually gray-green, sometimes glaucous; pistil 1, ovary 3-celled; flowers syncarpous, apocarpous, or sympetalous; petals regular or somewhat irregular; sepals not petal-like, usually 3; tropical or subtropical plants, sometimes grown in greenhouses; ovary inferior, plant growing in earth or on rocks; air plant.

Ananas—Pineapple

(Brazilian name of the pineapple)

Plant with a fleshy multiple fruit, surmounted by a crown of leaves.

Tillandsia—Spanish Moss, Tillandsia

Named for Tillands, a Swedish botanist.

1. Plant hanging in festoons; stem branched, thread-like; flowers solitary (Spanish Moss)

2. Plant with a tuft of erect leaves; flowers in a cluster

a. Stamens shorter than the petals; flowers few, blue

b. Stamens longer than the petals

(1) Base of plant bulb-like; leaves about 1 dm. long

(2) Base of plant not bulb-like

(a) Leaves awl-shaped, about 15 cm. long

(b) Leaves 1 cm. or more wide, 5 dm. long

Scitaminales—Canna Order

Cannaceae—Canna Family

Large herbs, with rootstocks and leafy stems; flowers zygomorphic; stamens 3-4, fertile stamen 1, pistil 1, ovary 3-celled, inferior; flower tubular, epigynous, irregular; sterile stamens petal-like and larger than the petals; others, fertile stamen petal-like with the anther along one edge, style 3-lobed; seeds.

One genus

Canna—Canna

(Lat. *canna*, reed, cane)

The garden Cannas are hybrids of numerous wild species from the West Indies, South America, and northern India.

Orchidales—Orchid Order

Orchidaceae—Orchid Family

Herbaceous plants with rootstocks, rhizomes, or subterranean stems; some air-plants; sepals 3, or apparently 2 as a result of union; petals 2, stamens 1 or 2, pistil 1, ovary 1-celled (rarely 3-celled), superior, axillary; apocarpous or sympetalous, epigynous, irregular; sepals and petals unequal; one petal (the "lip") differing from the others, stamens 1, fertile stamen 1, sterile stamens variable, the pollen of the fertile stamen deposited on the lip; usually bent or twisted so as to invert the flower, fruit with 2 seeds.

Many tropical and subtropical forms are cultivated; some temperate and ous native plants of this family, nearly all of which are epiphytic.

1. Fertile stamens 2; lip slipper-like

2. Fertile stamen solitary, the 2 anther-sacs sometimes widely separated
- a. Native plants with small and inconspicuous flowers
 - (1) Stems leafy; lip not sack-like, appendaged at base *Spiranthes*
 - (2) Leaves all basal; lip sack-like *Epipactis*
 - b. Greenhouse plants of tropical origin; flowers large and conspicuous; mostly growing with little earth, and having thick leaves, aerial roots, and thickened tuberous stems (pseudo-bulbs).
 - (1) Flower clusters terminal upon the pseudo-bulbs; chambers of anther distinct
 - (a) Lip flat and spreading; pollen masses 4; flower clusters usually many-flowered *Epidendrum*
 - (b) Lip rolled about the base of the column; flower clusters few-flowered
 - x. Pollen masses 4 *Cattleya*
 - y. Pollen masses 8 *Laelia*
 - (2) Flower clusters not terminal upon the pseudo-bulbs
 - (a) Flowers borne singly or in small clusters upon the sides of the pseudo-bulbs *Dendrobium*
 - (b) Flowering shoots springing from the base of the pseudo-bulbs; chambers of anther confluent
 - x. Base of lip parallel with the column, often adhering to it *Odontoglossum*
 - y. Lip spreading from the base of the column *Oncidium*

Cypripédium

(Gr. *Kypris*, Venus, *pedilon*, slipper, from the slipper-like lip)

A genus comprising our native "Moccasin flowers" as well as many exotic forms. Flowers green, brown, and white *C. insigne*

Spiránthes

(Gr. *speira*, spiral, *anthos*, flower, from the spiral cluster)

1. Sepals and petals forming a hood-like structure *S. romanóffiana*
2. Sepals and petals spreading *S. cernua*

Epipáctis

(Gr. name of a plant)

Leaves white netted; lip sack-like *E. pubescens*

Epidéndrum

(Gr. *epi*-, upon, *dendron*, tree, from its habit)

1. Base of lip slightly joined to the column; flowers red and orange *E. vitellinum*
2. Base of lip completely joined to the column; flowers pink, green, and chocolate *E. venosum*

Cattleya

(Named for Cattley, an English collector)

1. Pseudo-bulbs 1-leaved; flowers 15 cm. in diameter *C. labiata*
2. Pseudo-bulbs 2-3 leaved; flowers about 10 cm. in diameter *C. Skinneri*

Láelia

(Named for Laellus, a Roman statesman)

1. Pseudo-bulbs compressed and margined; sepals and petals with a green line along the outside of the midrib *L. anceps*
2. Pseudo-bulbs not compressed or margined; sepals and petals not marked with a green line *L. autumnalis*

Dendróbium

(Gr. *dendron*, tree, *bios*, living, from its habit)

1. Pseudo-bulbs black-hairy; flowers white, marked with yellow *D. formosum*
2. Pseudo-bulbs not black-hairy; flowers white, pink, and crimson *D. nobile*

Celonoglossum

(Gr. *odontos*, tooth, *glossa*, tongue; from the form of

Flowers few, large, yellow with red brown markings; sepals large, rounded

Oncidium

(Gr. *oncidion*, a little hood)

1. Lip yellow

a. Lip 4-lobed; other petals and sepals very small, rounded; brown

b. Lip round, obcordate; other petals and sepals lanceolate, brown

2. Flower soft purple-rose

Glossary

- Achene** A dry, one-seeded fruit
- Acuminate** Gradually tapering to a point
- Acute** Sharp-pointed
- Alternate** Not opposite; with a single leaf at each place of attachment
- Annual** Lasting only one growing season
- Anther** The upper part of the stamen, containing the pollen; the pollen pouch
- Apetalous** Without petals
- Apex** Tip or upper end
- Apocarpous** Having or consisting of separate carpels
- Apopetalous** Having or consisting of separate petals
- Appressed** Lying close to or against another organ
- Aquatic** Growing in the water
- Aristate** Drawn out into a long needle-like point
- Ascending** Growing obliquely upward
- Awl-shaped** Narrowed upward from the base to a slender, rigid point
- Awn** A slender bristle-like structure
- Awn-pointed** Tipped with an awn
- Axil** The angle between leaf and stem
- Axillary** Borne in the axils of leaves
- Axis** A term generally applied to that portion of a branch which bears the flowers or the parts of a flower
- Barbed** Having a tip like a fish-hook
- Basal** Arising from the base
- Beak** An elongated tapering structure
- Beaked** Bearing a beak
- Bearded** With hairs limited more or less to a certain area of an organ
- Berry** A fruit in which the seeds are imbedded in a soft or fleshy substance
- Bitenate** Twice ternate
- Blade** The flat, expanded part of a leaf
- Bract** A leaf, usually small, standing below a flower or a flower-cluster
- Bracteole** A small leaf or scale on the pedicel below the flower
- Bristle** A stiff hair or any similar outgrowth
- Bulb** A short stem with fleshy scales, usually subterranean
- Bulbets** Small bulbs
- Bulbous** Like a bulb; bearing bulbs
- Capsule** A dry fruit consisting of two or more carpels
- Carpel** A simple pistil, or one member or division of a compound pistil
- Catkin** An elongated axis covered with scales all around that bear either stamens or pistils
- Cell** A cavity or chamber in an ovary
- Chaff** Thin scales between the disk flowers of composite heads
- Ciliate** Provided with marginal hairs
- Claw** Applied to the much narrowed lower portion of a petal
- Cleft** Cut about half way to the middle
- Climbing** Growing upon a support of some kind
- Compound** Composed of two or more similar parts united into one whole

GLOSSARY

- Compound leaf** One divided into separate leaflets
- Cone** An elongated axis bearing stamens or flowers, as in the flower and fruit of conifers
- Convolute** Rolled up lengthwise
- Cordate** Heart-shaped
- Corm** A swollen fleshy base of a stem
- Corymb** A flat-topped or convex open flower cluster
- Creeping** Growing along the ground
- Crenate** Scalloped; with rounded, shallow teeth
- Crenate-toothed** With rounded teeth
- Cyme** A flower cluster in which the terminal or axillary flowers are somewhat flat
- Deciduous** Falling off at the close of the growing period
- Declined** Bent down
- Decurrent** Applied to leaf bases, running down the stem
- Dentate** Toothed, with outwardly projecting teeth
- Denticulate** With small teeth
- Depressed** Vertically flattened
- Dioecious** Bearing pistils and stamens on different plants
- Disk** An enlargement of the axis of a flower around the base of the lobes of tubular flowers in the Asteraceae
- Dissected** Cut or divided into numerous segments
- Divided** Lobed to the base
- Entire** Without lobes, divisions, or teeth
- Epigynous** Applied to a flower with the parts upon the ovary
- Erect** Standing upright
- Exserted** Projecting beyond the surrounding parts
- Fascicle** A dense cluster
- Fascicled** Borne in dense clusters
- Fertile** Bearing seeds, or bearing pollen
- Filament** The stalk bearing the anther
- Fleshy** Soft, containing more or less sap
- Flower** An axis bearing stamens or pistils or both, generally so associated with these
- Fruit** A ripened ovary, sometimes that part of the axis which bears the seeds ripen
- Glabrous** Without hairs
- Gland** A secreting surface or structure; any small appendage, or the appearance of such an organ
- Glandular** With glands or gland-like
- Glaucous** Covered with a bluish or white, fine, mealy substance
- Globose** Spherical or nearly so
- Glume** The small scale of the spikelets of grasses and sedges
- Hastate** Arrow-shaped but with the basal lobes divergent
- Head** A dense cluster of sessile or nearly sessile flowers, as in the umbels of the Umbelliferae
- Herb** A non-woody plant which dies down to the ground each year
- Herbaceous** Of the nature of herbs
- Hirsute** With somewhat coarse, stiff hairs
- Hispid** With bristly stiff hairs
- Hypogynous** Applied to a flower with the other parts below the ovary
- Included** Not projecting beyond the surrounding part
- Indehiscent** Applied to fruits that do not open or split at maturity
- Inferior** Applied to an organ situated below another one

- Inflorescence** The portion of a plant bearing the flowers; mode of arrangement of flowers
- Integument** A protecting layer or coat, as the covering of a seed
- Internode** The part of the stem between two successive nodes
- Involucere** A group of leaves or scale-like leaves borne just underneath a flower or a close cluster of flowers
- Involucral** Of an involucre
- Irregular** Applied to a flower in which the petals, or other parts, are unlike
- Keel** The two fused lower petals of the flower of the Pea Family
- Keeled** Ridged, like the keel of a boat
- Lanceolate** Shaped like a lance
- Lemma** The outer scale of a grass flower
- Lenticular** Shaped like a lens
- Ligule** A strap-shaped organ, as the rays in the Asteraceae
- Ligulate** In the form of a strap
- Linear** Long and narrow with sides nearly parallel
- Linear-lanceolate** Narrowly lance-shaped
- Lip** Each of the main upper and lower divisions of a zygomorphic corolla or calyx; the peculiar modified petal of an orchid flower
- Lipped** Having a lip
- Monoecious** Bearing stamens and pistils on the same plant but in different flowers
- Nerve** One of the lines or ridges running through a leaf
- Net-veined** Veins running in various directions and connecting with each other
- Netted-veined** Veins running in various directions and connecting with each other
- Nodding** Hanging on a bent pedicel
- Node** The part of the stem which normally bears a leaf
- Nut** A dry, one-seeded, indehiscent fruit with a stony shell or covering
- Nutlet** A diminutive nut
- Obcordate** Inversely heart-shaped
- Oblanceolate** Inverse of lanceolate
- Oblong** Somewhat longer than broad, with the sides nearly parallel
- Oblong-lanceolate** Broadly lance-shaped
- Obtuse** Rounded or blunt
- Opposite** Applied to organs inserted at the same level but 180 degrees apart
- Orbicular** Circular
- Ovary** The part of the pistil in which the young seeds are borne
- Ovate** Shaped like the outline of an egg
- Ovule** A young seed
- Palet** The inner scale of a grass flower
- Palmate** Radiately lobed or divided
- Palmately** In a palmate manner
- Panicle** A compound flower-cluster, the lower branches longest and blossoming first
- Pappus** The bristles, hairs, awns and like structures which are borne upon the fruit in the Chicory and Aster Families
- Parasitic** Growing upon and getting its nourishment from some other plant
- Parted** Deeply cleft
- Peduncle** The stalk of a flower or of a flower-cluster
- Pedicel** The stalk of a flower in a flower-cluster
- Peltate** Shaped like a shield with a stalk attached in the middle below
- Perennial** Lasting from year to year
- Perfect** A flower having both stamens and pistles
- Perfoliate** Leaves appearing to be pierced by the stem

- Perianth** Applied to the leaves of the flower where the corolla and calyx meet
- Perigynium** The sack-like membrane enclosing the ovary of the seed
Carex
- Perigynous** Applied to a flower in which the parts are united to the ovary
- Persistent** Organs that remain attached after the growth of the fruit
- Petal** One of the inner set of flower leaves, usually five
- Petaloid** Resembling a petal, especially as to color
- Petiole** The stalk of a leaf
- Pilose** With long soft hairs
- Pinnate** Leaves divided into leaflets or segments along the axis
- Pinnately** In a pinnate manner
- Pinnatifid** Pinnately cleft to the middle or beyond
- Pistil** The central or terminal organ in a flower, containing the ovary
- Pistillate** With pistils but without stamens
- Plumose** Having fine hairs on each side like a feather
- Plumy** Feathery
- Pod** A dry fruit made up of one carpel and splitting along two sides
- Pollen** The minute grains found in the anther
- Puberulent** With very short hairs
- Pubescent** With hairs
- Raceme** A more or less elongated axis bearing flowers with short pedicels
- Rachilla** The axis of a spikelet
- Rachis** The axis of a spike
- Ray** One of the marginal flowers in the Asteraceae
- Receptacle** The end of a flower stalk or axis bearing the floral organs
Asteraceae bearing flowers
- Recurved** Bent back
- Regular** Having the members of each part alike in size and shape
- Reniform** Kidney-shaped
- Resinous** Bearing resin
- Retrose** Turned downward or backward
- Rhombic** In outline like a rhombus; obliquely four-sided
- Rootstock** An underground stem
- Rotate** Flat and circular in outline; wheel-shaped
- Rush-like** Resembling a rush
- Salverform** Having a slender tube, abruptly expanded into a wide limb
- Samara** A winged fruit
- Scabrous** Rough
- Scale** A minute or much reduced leaf
- Scape** A leafless or nearly leafless stalk bearing a flower or fruit
arising from the underground portion of a plant
- Scurfy** With small bran-like scales on the epidermis
- Segment** One of the parts of a leaf or similar organ
- Sepal** One of the outer set of flower leaves, usually five
- Serrate** With teeth projecting forward
- Serrulate** Finely serrate
- Sessile** Without a stalk or pedicel
- Sheath** The part of a leaf or leaf base which clasps around the stem
- Sheathing** A term applied to the manner in which the leaf base surrounds the stem
- Shrub** A woody plant; smaller than a tree
- Simple** Of one piece, not compound
- Sinuate** With strongly wavy margins
- Spadix** A fleshy axis bearing sessile flowers

- Spathe** A leaf-like structure standing below an inflorescence
- Spatulate** Spoon-shaped, shaped like a spatula
- Spike** An axis bearing sessile flowers
- Spikelet** A small few-flowered spike, the flower cluster of grasses and sedges
- Spine** A sharp, woody or rigid outgrowth from the stem
- Spiny** Provided with spines
- Spur** A hollow projection from the sepal or petal of a flower
- Stamen** The organ of a flower which bears the pollen
- Staminate** With stamens but without pistils
- Staminoids** A sterile stamen
- Standard** The large upper petal of the flower of the Pea Family
- Stigma** The top of the pistil to which pollen grains become attached
- Stipule** Outgrowths of, or appendages to, the base of a petiole
- Strap-shaped** Long and narrow in outline
- Style** The narrowed or pointed part of the pistil, bearing on its top the stigma
- Stylopodium** A disk-like expansion at the base of the style, as in the Apiaceae
- Submerged** Under water
- Subtend** To stand below on the axis
- Superior** Applied to an organ situated above another one
- Sympetalous** Having or consisting of united petals
- Syncarpous** Having or consisting of carpels joined together
- Teeth** The regular projections along the margin of a leaf
- Tendril** A slender coiling organ
- Ternate** Consisting of three leaflets
- Terrestrial** Growing on the ground
- Thorn** A stiff sharp-pointed outgrowth from the bark or rind
- Tomentose** Covered with dense, matted, wool-like hairs
- Trailing** Creeping along the ground
- Trifoliate** Having three leaflets
- Truncate** Terminated by a nearly straight edge or surface
- Twining** Winding spirally about a support
- Umbel** A flower-cluster with all the pedicels arising from the same point
- Umbellate** Borne in umbels
- Unarmed** Without spines, thorns, or prickles
- Valve** One of the portions into which some dry fruits split; a trapdoor-like opening in the pollen chambers of some anthers
- Vestigial** Reduced almost to disappearance
- Villous** With long soft hairs not matted together
- Webby** With a tuft of slender, curly hairs
- Whorl** A group of three or more similar organs, as leaves, radiating from the place of attachment
- Whorled** Borne in a whorl
- Wing** One of the two lateral petals of the flower of the Pea Family
- Zygomorphic** Applied to a flower with petals of different form

Index to Common Names

| Page | | Page | | Page | |
|--------------------------|----|-------------------------|-------|------------------|-----------|
| A. | | | | | C. |
| <i>Abronia</i> | 8 | <i>Beard Trough</i> | 19 | <i>Ceanothus</i> | 1 |
| <i>Acalypha</i> | 12 | <i>Bedstraw</i> | 31 | <i>Celastrus</i> | 1 |
| <i>Acanthus</i> | 20 | <i>Bedstraw</i> | 23 | <i>Celastrus</i> | 1 |
| <i>Acanthus Family</i> | 20 | <i>Beet</i> | 7 | <i>Celastrus</i> | 1 |
| <i>Achimenes</i> | 20 | <i>Begonia ticks</i> | 39 | <i>Celastrus</i> | 1 |
| <i>Aconite</i> | 2 | <i>Begonia</i> | 39 | <i>Celastrus</i> | 1 |
| <i>Agapanthus</i> | 48 | <i>Begonia Family</i> | 39 | <i>Celastrus</i> | 1 |
| <i>Ageratum</i> | 38 | <i>Belladonna</i> | 16 | <i>Celastrus</i> | 1 |
| <i>Alfalfa</i> | 26 | <i>Belladonna Lily</i> | 59 | <i>Celastrus</i> | 1 |
| <i>Alkanet</i> | 17 | <i>Bergamot Mint</i> | 22 | <i>Celastrus</i> | 1 |
| <i>Aloe</i> | 47 | <i>Bidens</i> | 39 | <i>Celastrus</i> | 1 |
| <i>Alsike</i> | 29 | <i>Bindweed</i> | 8, 15 | <i>Celastrus</i> | 1 |
| <i>Alum-root</i> | 27 | <i>Bistorta</i> | 8 | <i>Celastrus</i> | 1 |
| <i>Amaranth</i> | 6 | <i>Bittersweet</i> | 19 | <i>Celastrus</i> | 1 |
| <i>Amaranth Family</i> | 6 | <i>Blazing Star</i> | 37 | <i>Celastrus</i> | 1 |
| <i>Amaryllis</i> | 59 | <i>Bluebell</i> | 32 | <i>Celastrus</i> | 1 |
| <i>Amaryllis Family</i> | 59 | <i>Bluebell Family</i> | 32 | <i>Celastrus</i> | 1 |
| <i>Amorphophallus</i> | 45 | <i>Bluebell Order</i> | 32 | <i>Celastrus</i> | 1 |
| <i>Anemone</i> | 1 | <i>Bluebottle</i> | 39 | <i>Celastrus</i> | 1 |
| <i>Angiosperms</i> | 1 | <i>Bluegrass</i> | 57 | <i>Celastrus</i> | 1 |
| <i>Arrow-head</i> | 44 | <i>Bluegrass Tribe</i> | 57 | <i>Celastrus</i> | 1 |
| <i>Arrow-head Family</i> | 44 | <i>Bluejoint Grass</i> | 56 | <i>Celastrus</i> | 1 |
| <i>Arrowhead Order</i> | 44 | <i>Bluestem</i> | 54 | <i>Celastrus</i> | 1 |
| <i>Artichoke</i> | 37 | <i>Bluestem Tribe</i> | 54 | <i>Celastrus</i> | 1 |
| <i>Arum</i> | 45 | <i>Boltonia</i> | 43 | <i>Celastrus</i> | 1 |
| <i>Arum Family</i> | 45 | <i>Boneset</i> | 38 | <i>Celastrus</i> | 1 |
| <i>Arum Order</i> | 45 | <i>Borage</i> | 17 | <i>Celastrus</i> | 1 |
| <i>Asparagus</i> | 47 | <i>Borage Family</i> | 17 | <i>Celastrus</i> | 1 |
| <i>Aspidistra</i> | 48 | <i>Bottlebrush</i> | 59 | <i>Celastrus</i> | 1 |
| <i>Aster</i> | 42 | <i>Bouncing Bet</i> | 5 | <i>Celastrus</i> | 1 |
| <i>Aster Family</i> | 33 | <i>Bouvardia</i> | 31 | <i>Celastrus</i> | 1 |
| <i>Aster Order</i> | 32 | <i>Bridal Wreath</i> | 25 | <i>Celastrus</i> | 1 |
| <i>Astilbe</i> | 27 | <i>Bromus</i> | 57 | <i>Celastrus</i> | 1 |
| <i>Avens</i> | 24 | <i>Browallia</i> | 19 | <i>Celastrus</i> | 1 |
| B. | | <i>Bryophyllum</i> | 28 | <i>Celastrus</i> | 1 |
| <i>Bachelor's Button</i> | 39 | <i>Buckebent</i> | 7 | <i>Celastrus</i> | 1 |
| <i>Balloon-Vine</i> | 28 | <i>Buckebent Family</i> | 7 | <i>Celastrus</i> | 1 |
| <i>Balm</i> | 22 | <i>Buffalo Bur</i> | 16 | <i>Celastrus</i> | 1 |
| <i>Balmomy</i> | 19 | <i>Bulrush</i> | 49 | <i>Celastrus</i> | 1 |
| <i>Balsam</i> | 11 | <i>Burdock</i> | 37 | <i>Celastrus</i> | 1 |
| <i>Bamboo Tribe</i> | 59 | <i>Burnet</i> | 25 | <i>Celastrus</i> | 1 |
| <i>Barley</i> | 58 | <i>Burnet's Beeson</i> | 47 | <i>Celastrus</i> | 1 |
| <i>Barley Tribe</i> | 58 | <i>Bursera</i> | 48 | <i>Celastrus</i> | 1 |
| <i>Barnyard Grass</i> | 54 | <i>Butter and Eggs</i> | 19 | <i>Celastrus</i> | 1 |
| <i>Bean</i> | 26 | <i>Buttercup</i> | 1 | <i>Celastrus</i> | 1 |
| <i>Beard Grass</i> | 54 | <i>Buttercup Family</i> | 1 | <i>Celastrus</i> | 1 |
| | | <i>Buttercup Order</i> | 1 | <i>Celastrus</i> | 1 |
| | | <i>Butterfly Lily</i> | 18 | <i>Celastrus</i> | 1 |

| | Page | | Page | | Page |
|-----------------------|--------|-----------|------|--------------------------------|-----------|
| <i>Clover</i> | 26 | | | | |
| <i>Club-Rush</i> | 49 | | | | |
| <i>Cobaea</i> | 14 | | | | |
| <i>Cocklebur</i> | 38 | | | | |
| <i>Cockscomb</i> | 6 | | | | |
| <i>Codiaeum</i> | 13 | | | | |
| <i>Colechicum</i> | 48 | | | | |
| <i>Comfrey</i> | 17 | | | | |
| <i>Compass-Plant</i> | 40 | | | | |
| <i>Coneflower</i> | 40 | | | | |
| <i>Cereopsis</i> | 40 | | | | |
| <i>Corn</i> | 54 | | | | |
| <i>Corn-cockle</i> | 5 | | | | |
| <i>Corn-Tribe</i> | 53 | | | | |
| <i>Cotton</i> | 10 | | | | |
| <i>Cotyledon</i> | 28 | | | | |
| <i>Cosmos</i> | 40 | | | | |
| <i>Couch-Grass</i> | 58 | | | | |
| <i>Cow-Parsonip</i> | 31 | | | | |
| <i>Cowslip</i> | 13 | | | | |
| <i>Cranchbill</i> | 10 | | | | |
| <i>Cress</i> | 4 | | | | |
| <i>Crocus</i> | 60 | | | | |
| <i>Croton</i> | 13 | | | | |
| <i>Crowsfoot</i> | 1 | | | | |
| <i>Cucumber</i> | 30 | | | | |
| <i>Cup-Plant</i> | 40 | | | | |
| <i>Cut-grass</i> | 55 | | | | |
| <i>Cyclamen</i> | 14 | | | | |
| <i>Cyclanthera</i> | 30 | | | | |
| <i>Cyperus</i> | 50 | | | | |
| <i>Cypress-Fine</i> | 15 | | | | |
| <i>Cypripedium</i> | 62 | | | | |
| | | D. | | E. | |
| <i>Dahlia</i> | 40 | | | <i>Eel-grass</i> | 45 |
| <i>Daisy</i> | 42, 43 | | | <i>Egg-plant</i> | 16 |
| <i>Dalca</i> | 27 | | | <i>Elephant's Ear</i> | 30 |
| <i>Dandelion</i> | 43 | | | <i>Epidendrum</i> | 62 |
| <i>Darnel</i> | 58 | | | <i>Eupactis</i> | 62 |
| <i>Day-Flower</i> | 46 | | | <i>Eragrostis</i> | 58 |
| <i>Day-Lily</i> | 48 | | | <i>Eupatorium</i> | 38 |
| <i>Dead-nettle</i> | 24 | | | <i>Evening-Primrose</i> | 29 |
| <i>Dendrobium</i> | 62 | | | <i>Evening-Primrose Family</i> | 28 |
| <i>Dill</i> | 31 | | | <i>Everlasting</i> | 6, 37, 38 |
| <i>Dock</i> | 8 | | | <i>Everlasting-Pea</i> | 26 |
| <i>Dodder</i> | 15 | | | | |
| <i>Doellingera</i> | 42 | | | F. | |
| <i>Dogbane Family</i> | 18 | | | <i>Faise-Saffron</i> | 37 |
| <i>Dragon-head</i> | 23 | | | <i>Fennel</i> | 31 |
| <i>Drop-seed</i> | 56 | | | <i>Fescue-Grass</i> | 58 |
| <i>Dulichium</i> | 50 | | | <i>Feverfew</i> | 43 |
| <i>Dysodia</i> | 43 | | | <i>Finger-Grass</i> | 54 |
| | | | | <i>Fireweed</i> | 29 |
| | | | | <i>Five-finger</i> | 24 |
| | | | | <i>Flax</i> | 12 |
| | | | | <i>Flax-Family</i> | 12 |
| | | | | <i>Flower-of-an-Hour</i> | 9 |
| | | | | <i>Foliage-plant</i> | 23 |
| | | | | <i>Four O'Clock</i> | 8 |
| | | | | <i>Four O'Clock Family</i> | 8 |
| | | | | <i>Foxglove</i> | 19 |
| | | | | <i>Foxtail</i> | 54 |
| | | | | <i>Foxtail-Grass</i> | 56 |
| | | | | <i>Fraseria</i> | 18 |
| | | | | <i>Freesia</i> | 60 |
| | | | | <i>Fuchsia</i> | 29 |
| | | | | | |
| | | | | G. | |
| | | | | <i>Gaillardia</i> | 43 |
| | | | | <i>Galinsoya</i> | 40 |
| | | | | <i>Gardenia</i> | 31 |
| | | | | <i>Garden-Trumpet</i> | 19 |
| | | | | <i>Genista</i> | 27 |
| | | | | <i>Gentian</i> | 17 |
| | | | | <i>Gentian-Family</i> | 17 |
| | | | | <i>Gentian-Order</i> | 17 |
| | | | | <i>Geranium</i> | 11 |
| | | | | <i>Geranium-Family</i> | 10 |
| | | | | <i>Geranium-Order</i> | 10 |
| | | | | <i>Gernander</i> | 23 |
| | | | | <i>Gesnera-Family</i> | 20 |
| | | | | <i>Giant-Hyssop</i> | 24 |
| | | | | <i>Gill</i> | 24 |
| | | | | <i>Gillflower</i> | 4 |
| | | | | <i>Gladiolus</i> | 60 |
| | | | | <i>Gloxinia</i> | 20 |
| | | | | <i>Goatsbeard</i> | 43 |
| | | | | | |
| | | | | <i>Godetia</i> | 29 |
| | | | | <i>Goldbeard</i> | 54 |
| | | | | <i>Golden-Glow</i> | 40 |
| | | | | <i>Golden-rod</i> | 41 |
| | | | | <i>Goldstem</i> | 54 |
| | | | | <i>Goosefoot</i> | 7 |
| | | | | <i>Goosefoot-Family</i> | 7 |
| | | | | <i>Gourd</i> | 30 |
| | | | | <i>Gourd-Family</i> | 29 |
| | | | | <i>Gramma-Grass</i> | 55 |
| | | | | <i>Gramma-Tribe</i> | 55 |
| | | | | <i>Grass-Family</i> | 50 |
| | | | | <i>Grass-Order</i> | 49 |
| | | | | <i>Green-Pepper</i> | 16 |
| | | | | <i>Grindelia</i> | 43 |
| | | | | <i>Ground-Cherry</i> | 16 |
| | | | | <i>Groundnut</i> | 26 |
| | | | | <i>Gypsophila</i> | 5 |
| | | | | | |
| | | | | H. | |
| | | | | <i>Harebell</i> | 32 |
| | | | | <i>Harebeard</i> | 44 |
| | | | | <i>Hawweed</i> | 44 |
| | | | | <i>Haworthia</i> | 47 |
| | | | | <i>Heal-all</i> | 23 |
| | | | | <i>Heart's-ease</i> | 4 |
| | | | | <i>Heartscase</i> | 7 |
| | | | | <i>Heart-Seed</i> | 28 |
| | | | | <i>Hedge-Mustard</i> | 4 |
| | | | | <i>Hedge-Nettle</i> | 24 |
| | | | | <i>Heliotrope</i> | 17 |
| | | | | <i>Hellebore</i> | 1 |
| | | | | <i>Hemp</i> | 10 |
| | | | | <i>Henbane</i> | 16 |
| | | | | <i>Henbit</i> | 24 |
| | | | | <i>Herb-Robert</i> | 10 |
| | | | | <i>Hibiscus</i> | 9 |
| | | | | <i>Hickweed</i> | 23 |
| | | | | <i>Hollyhock</i> | 9 |
| | | | | <i>Honeysuckle</i> | 32 |
| | | | | <i>Honeysuckle-Family</i> | 32 |
| | | | | <i>Hop</i> | 10 |
| | | | | <i>Horse-bean</i> | 27 |
| | | | | <i>Horse-mint</i> | 22 |
| | | | | <i>Horse-Nettle</i> | 16 |
| | | | | <i>Horseradish</i> | 4 |
| | | | | <i>Houndstongue</i> | 17 |
| | | | | <i>Hyacinth</i> | 48 |
| | | | | <i>Hyssop</i> | 23 |
| | | | | | |
| | | | | I. | |
| | | | | <i>Incarvillea</i> | 20 |
| | | | | <i>Indian-Cress</i> | 11 |
| | | | | <i>Iresine</i> | 7 |

| | Page | | Page | | Page |
|---------------------------------|------|-----------------------------|------|----------------------------|------|
| <i>Plantain</i> | 14 | <i>Rye Grass</i> | 58 | <i>Storksbill</i> | 11 |
| <i>Plantain Family</i> | 14 | <i>Rye Tribe</i> | 58 | <i>Stramonium</i> | 16 |
| <i>Platyodon</i> | 32 | | | <i>Strawberry</i> | 24 |
| <i>Poinsettia</i> | 12 | S. | | <i>Strawberry Geranium</i> | 27 |
| <i>Polanisia</i> | 3 | <i>Safflower</i> | 37 | <i>Streptocarpus</i> | 20 |
| <i>Poppy</i> | 2 | <i>Sage</i> | 22 | <i>Sunflower</i> | 41 |
| <i>Poppy Family</i> | 2 | <i>Salsify</i> | 43 | <i>Sweet Alyssum</i> | 3 |
| <i>Potentilla</i> | 24 | <i>Sandbur</i> | 54 | <i>Sweet Basil</i> | 23 |
| <i>Potato</i> | 16 | <i>Sauicle</i> | 38 | <i>Sweet Clover</i> | 26 |
| <i>Potato Family</i> | 15 | <i>Savory</i> | 24 | <i>Sweet Pea</i> | 26 |
| <i>Prairie Clover</i> | 27 | <i>Saxifrage</i> | 27 | <i>Sweet Potato</i> | 15 |
| <i>Primrose</i> | 13 | <i>Saxifrage Family</i> | 27 | <i>Sweet Scabious</i> | 33 |
| <i>Primrose Family</i> | 13 | <i>Scarlet Runner</i> | 26 | <i>Sweet William</i> | 14 |
| <i>Primrose Order</i> | 13 | <i>Scilla</i> | 48 | <i>Sweet-William</i> | 5 |
| <i>Prince's Feather</i> | 6, 8 | <i>Sea Holly</i> | 31 | T. | |
| <i>Pumpkin</i> | 30 | <i>Sedge</i> | 50 | <i>Tansy</i> | 38 |
| <i>Purple Coronilla</i> | 27 | <i>Sedge Family</i> | 49 | <i>Tare</i> | 27 |
| <i>Purslane</i> | 6 | <i>Self-heal</i> | 23 | <i>Teasel</i> | 33 |
| <i>Purslane Family</i> | 6 | <i>Soma</i> | 27 | <i>Teasel Family</i> | 32 |
| Q. | | <i>Sensitive Plant</i> | 27 | <i>Telandra</i> | 7 |
| <i>Quack Grass</i> | 58 | <i>Shepherd's Purse</i> | 3 | <i>Telegraph Plant</i> | 26 |
| <i>Quaking Grass</i> | 57 | <i>Silphium</i> | 40 | <i>Thistle</i> | 37 |
| R. | | <i>Skullcap</i> | 23 | <i>Thorn-apple</i> | 16 |
| <i>Rabbit-foot</i> | 26 | <i>Slough Grass</i> | 55 | <i>Thrift</i> | 13 |
| <i>Radish</i> | 3 | <i>Smartweed</i> | 8 | <i>Thumbergia</i> | 20 |
| <i>Ragged Lady</i> | 1 | <i>Snapdragon</i> | 19 | <i>Thyme</i> | 23 |
| <i>Ragged Robin</i> | 5 | <i>Snapdragon Family</i> | 18 | <i>Tickseed</i> | 40 |
| <i>Ragweed</i> | 38 | <i>Snapdragon Order</i> | 18 | <i>Tick-Trefoil</i> | 26 |
| <i>Red-hot Poker</i> | 48 | <i>Succerweed</i> | 43 | <i>Tillandsia</i> | 61 |
| <i>Red Mallow</i> | 9 | <i>Snow-on-the-Mountain</i> | 13 | <i>Timothy</i> | 56 |
| <i>Red Pepper</i> | 16 | <i>Soapberry Family</i> | 28 | <i>Tobacco</i> | 17 |
| <i>Red Top</i> | 56 | <i>Soapwort</i> | 5 | <i>Tomato</i> | 16 |
| <i>Red Top Tribe</i> | 56 | <i>Sorghum</i> | 54 | <i>Torenia</i> | 19 |
| <i>Reed Grass</i> | 56 | <i>Sorrel</i> | 8 | <i>Touch-me-not</i> | 11 |
| <i>Reed-grass</i> | 57 | <i>Sow-thistle</i> | 44 | <i>Touch-me-not Family</i> | 11 |
| <i>Rhubarb</i> | 8 | <i>Spanish Moss</i> | 61 | <i>Tritelia</i> | 48 |
| <i>Rice</i> | 55 | <i>Spearmint</i> | 22 | <i>Tropacolum</i> | 11 |
| <i>Rice Tribe</i> | 55 | <i>Speedwell</i> | 19 | <i>Tropacolum Family</i> | 11 |
| <i>Richweed</i> | 10 | <i>Spelt</i> | 58 | <i>Tuberose</i> | 59 |
| <i>Rocket</i> | 2 | <i>Spiderwort</i> | 46 | <i>Tulip</i> | 47 |
| <i>Rocky Mountain Bee Plant</i> | 3 | <i>Spiderwort Family</i> | 46 | <i>Turnip</i> | 3 |
| <i>Rose</i> | 24 | <i>Spike Rush</i> | 49 | <i>Turtle-head</i> | 19 |
| <i>Rose Bay</i> | 18 | <i>Spinach</i> | 7 | U. | |
| <i>Rose Family</i> | 24 | <i>Spiraea</i> | 25 | <i>Unicorn Plant</i> | 20 |
| <i>Rose-Mallow</i> | 9 | <i>Spiranthes</i> | 62 | V. | |
| <i>Rosemary</i> | 22 | <i>Spotted Medic</i> | 26 | <i>Vaccaria</i> | 5 |
| <i>Rose of China</i> | 9 | <i>Spurge</i> | 12 | <i>Valerian</i> | 32 |
| <i>Rose Order</i> | 24 | <i>Spurge Family</i> | 12 | <i>Valerian Family</i> | 32 |
| <i>Rue</i> | 12 | <i>Squash</i> | 30 | <i>Vegetable Sponge</i> | 30 |
| <i>Rue Family</i> | 12 | <i>Squirrel-tail Grass</i> | 58 | <i>Violet Leaf</i> | 9 |
| <i>Rush-grass</i> | 56 | <i>Starwort-chickweed</i> | 5 | <i>Verbena</i> | 21 |
| <i>Russian Thistle</i> | 7 | <i>Stock</i> | 4 | <i>Verbena Family</i> | 21 |
| <i>Rye</i> | 58 | <i>Stonecrop</i> | 28 | | |
| | | <i>Stonecrop Family</i> | 27 | | |

INDEX TO COMMON NAMES

| | Page | | Page | |
|-----------------------|------|--------------------------|------|-----------|
| <i>Verbesina</i> | 40 | <i>Water-pepper</i> | 47 | |
| <i>Vervain</i> | 21 | <i>Water-weed</i> | 47 | |
| <i>Vetch</i> | 27 | <i>Water-weed Family</i> | 47 | |
| <i>Violet</i> | 4 | <i>Water-weed Order</i> | 47 | |
| <i>Violet Family</i> | 4 | <i>Wheat</i> | 58 | |
| <i>Virgin's Bower</i> | 1 | <i>Wheat Grass</i> | 58 | |
| W. | | <i>Wheat</i> | 27 | Y. |
| | | <i>White Grass</i> | 55 | |
| <i>Wall-pepper</i> | 28 | <i>Wild Bergamot</i> | 22 | 4 |
| <i>Wandering Jew</i> | 46 | <i>Wild Peanut</i> | 26 | |
| <i>Water-hemp</i> | 6 | <i>Wild Rye</i> | 58 | Z. |
| <i>Water-plantain</i> | 44 | <i>Woolflower</i> | 1 | 4 |

Index to Scientific Names

| | Page | | Page | | Page |
|-----------------------|------|----------------------|------|------------------------|------|
| A. | | | | | |
| <i>Abigma</i> | 8 | <i>Arachis</i> | 27 | <i>Callirrhoe</i> | 9 |
| <i>Abutilon</i> | 9 | <i>Arales</i> | 45 | <i>Callistephus</i> | 42 |
| <i>Acalypha</i> | 12 | <i>Arctium</i> | 37 | <i>Campanales</i> | 32 |
| <i>Acanthaceae</i> | 20 | <i>Argemone</i> | 2 | <i>Campanula</i> | 32 |
| <i>Acanthus</i> | 20 | <i>Armeria</i> | 13 | <i>Campanulaceae</i> | 32 |
| <i>Achillea</i> | 43 | <i>Artemisia</i> | 38 | <i>Canna</i> | 61 |
| <i>Achimenes</i> | 20 | <i>Arum</i> | 45 | <i>Cannabis</i> | 10 |
| <i>Acnida</i> | 6 | <i>Arundinaria</i> | 59 | <i>Cannaceae</i> | 61 |
| <i>Aconitum</i> | 2 | <i>Asparagus</i> | 47 | <i>Capparidaceae</i> | 2 |
| <i>Agapanthus</i> | 48 | <i>Aspidistra</i> | 48 | <i>Caprifoliaceae</i> | 32 |
| <i>Ageratum</i> | 38 | <i>Aster</i> | 42 | <i>Capsicum</i> | 16 |
| <i>Agropyrum</i> | 58 | <i>Asteraceae</i> | 33 | <i>Cardiospermum</i> | 28 |
| <i>Agrostideae</i> | 56 | <i>Asterales</i> | 32 | <i>Carduus</i> | 37 |
| <i>Agrostis</i> | 56 | <i>Astilbe</i> | 27 | <i>Carex</i> | 50 |
| <i>Aizma</i> | 44 | <i>Atropa</i> | 16 | <i>Carthamus</i> | 37 |
| <i>Alismaceae</i> | 44 | <i>Atveneae</i> | 56 | <i>Carum</i> | 31 |
| <i>Alismales</i> | 44 | <i>Artena</i> | 57 | <i>Caryophyllaceae</i> | 4 |
| <i>Allionia</i> | 8 | B. | | | |
| <i>Alloniaceae</i> | 8 | <i>Balsaminaceae</i> | 11 | <i>Cassia</i> | 27 |
| <i>Allium</i> | 48 | <i>Bamboseae</i> | 59 | <i>Cattleya</i> | 62 |
| <i>Aloe</i> | 47 | <i>Begonia</i> | 30 | <i>Celosia</i> | 6 |
| <i>Alopocurus</i> | 56 | <i>Begoniaceae</i> | 30 | <i>Cenchrus</i> | 54 |
| <i>Althaea</i> | 9 | <i>Bellis</i> | 42 | <i>Centaurea</i> | 39 |
| <i>Alyssum</i> | 3 | <i>Beta</i> | 7 | <i>Centranthus</i> | 32 |
| <i>Amarantaceae</i> | 6 | <i>Bidens</i> | 39 | <i>Cerastium</i> | 6 |
| <i>Amarantus</i> | 6 | <i>Bignoniaceae</i> | 20 | <i>Chamaenerium</i> | 29 |
| <i>Amaryllidaceae</i> | 59 | <i>Boltonia</i> | 43 | <i>Chelidonium</i> | 2 |
| <i>Amaryllis</i> | 59 | <i>Boraginaceae</i> | 17 | <i>Chelone</i> | 19 |
| <i>Ambrosia</i> | 38 | <i>Borago</i> | 17 | <i>Chenopodiaceae</i> | 7 |
| <i>Ammobium</i> | 37 | <i>Bouteloua</i> | 55 | <i>Chenopodium</i> | 7 |
| <i>Amorphophallus</i> | 45 | <i>Boutardia</i> | 31 | <i>Chlorideae</i> | 55 |
| <i>Anagallis</i> | 14 | <i>Brassica</i> | 3 | <i>Chlorophytum</i> | 48 |
| <i>Ananas</i> | 61 | <i>Brassicaceae</i> | 3 | <i>Chrysanthemum</i> | 43 |
| <i>Anchusa</i> | 17 | <i>Brassicales</i> | 2 | <i>Chrysopogon</i> | 54 |
| <i>Andropogon</i> | 54 | <i>Briza</i> | 57 | <i>Chrysoopsis</i> | 41 |
| <i>Andropogoneae</i> | 54 | <i>Bromeliaceae</i> | 61 | <i>Cichorium</i> | 44 |
| <i>Anemone</i> | 1 | <i>Bromus</i> | 57 | <i>Cinna</i> | 56 |
| <i>Anethum</i> | 31 | <i>Browallia</i> | 19 | <i>Citrus</i> | 12 |
| <i>Angiospermae</i> | 1 | <i>Bryophyllum</i> | 28 | <i>Cleome</i> | 1 |
| <i>Anthemis</i> | 40 | <i>Bursa</i> | 3 | <i>Cleome</i> | 3 |
| <i>Antirrhinum</i> | 19 | <i>Butomus</i> | 45 | <i>Clivia</i> | 59 |
| <i>Apiaceae</i> | 30 | C. | | | |
| <i>Apiales</i> | 30 | <i>Cactales</i> | 29 | <i>Cobaca</i> | 14 |
| <i>Apios</i> | 26 | <i>Calamagrostis</i> | 56 | <i>Codiaeum</i> | 13 |
| <i>Apium</i> | 31 | <i>Calamovilfa</i> | 56 | <i>Coix</i> | 54 |
| <i>Apocynaceae</i> | 18 | <i>Calceolaria</i> | 18 | <i>Colchicum</i> | 48 |
| <i>Araceae</i> | 45 | <i>Calceolaria</i> | 18 | <i>Coleus</i> | 23 |
| | | <i>Calceolaria</i> | 43 | <i>Commelina</i> | 46 |
| | | | | <i>Commelinaceae</i> | 46 |
| | | | | <i>Convallaria</i> | 48 |

INDEX TO SCIENTIFIC NAMES

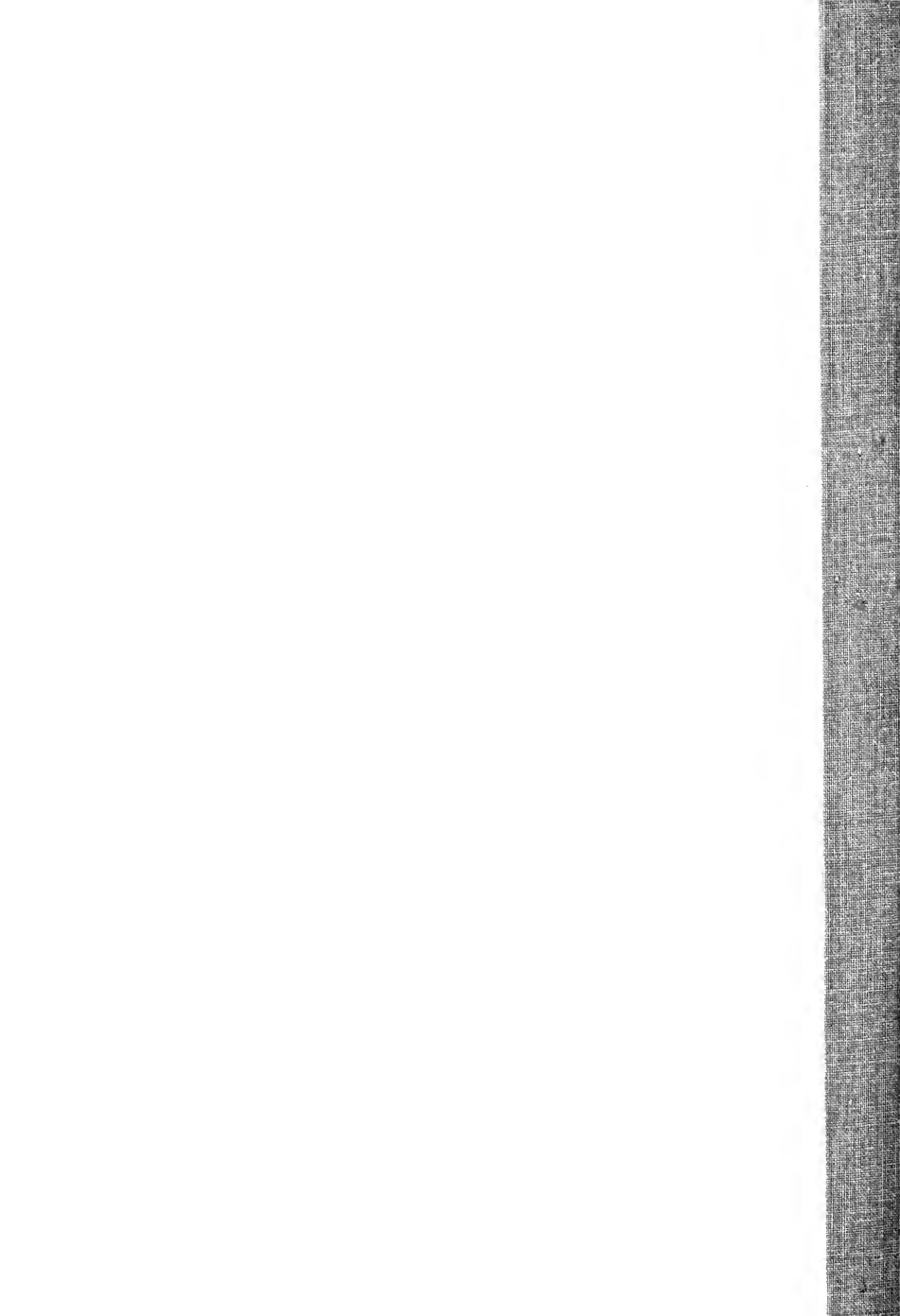
| Page | | Page | | Page | |
|-----------------------|----|----------------------|-----------------------|-------------------|----|
| <i>Convolvulaceae</i> | 14 | <i>Euphorbia</i> | 12 | <i>Uppulium</i> | 11 |
| <i>Convolvulus</i> | 15 | <i>Euphorbiaceae</i> | 12 | <i>Urtica</i> | 18 |
| <i>Coreopsis</i> | 40 | | F. | <i>Urticaceae</i> | 18 |
| <i>Coronilla</i> | 27 | | <i>Faba, cae</i> | <i>Urtica</i> | 40 |
| <i>Cosmos</i> | 40 | | <i>Fagopyrum</i> | <i>Urtica</i> | 4 |
| <i>Cotyledon</i> | 28 | | <i>Falcata</i> | <i>Urtica</i> | 4 |
| <i>Crassulaceae</i> | 27 | | <i>Festuca</i> | <i>Urticaceae</i> | 47 |
| <i>Crepis</i> | 44 | | <i>Festuceae</i> | <i>Urtica</i> | 19 |
| <i>Crocus</i> | 60 | | <i>Foeniculum</i> | <i>Urtica</i> | 73 |
| <i>Cucumis</i> | 30 | | <i>Fragaria</i> | <i>Urtica</i> | 59 |
| <i>Cucurbita</i> | 30 | | <i>Fragaria</i> | | |
| <i>Cucurbitaceae</i> | 29 | | <i>Frasera</i> | | |
| <i>Cuphea</i> | 28 | | <i>Freesia</i> | 60 | |
| <i>Cuscuta</i> | 15 | | <i>Fuchsia</i> | 29 | |
| <i>Cyclamen</i> | 14 | | <i>Funkia</i> | 48 | |
| <i>Cyclanthera</i> | 30 | | | | |
| <i>Cynara</i> | 37 | | G. | <i>Gentiana</i> | 17 |
| <i>Cynoglossum</i> | 17 | | <i>Gaillardia</i> | 43 | |
| <i>Cyperaceae</i> | 49 | | <i>Galinsoga</i> | 40 | |
| <i>Cyperus</i> | 50 | | <i>Galium</i> | 31 | |
| <i>Cypripedium</i> | 62 | | <i>Gardenia</i> | 31 | |
| | D. | | <i>Genista</i> | 27 | |
| <i>Dactylis</i> | 57 | | <i>Gentiana</i> | 17 | |
| <i>Dahlia</i> | 40 | | <i>Gentianaceae</i> | 17 | |
| <i>Dalea</i> | 27 | | <i>Gentianales</i> | 17 | |
| <i>Datura</i> | 16 | | <i>Geraniaceae</i> | 10 | |
| <i>Daucus</i> | 31 | | <i>Geraniales</i> | 10 | |
| <i>Delphinium</i> | 2 | | <i>Geranium</i> | 10 | |
| <i>Dendrobium</i> | 62 | | <i>Gesneraceae</i> | 20 | |
| <i>Desmodium</i> | 26 | | <i>Geum</i> | 24 | |
| <i>Dianthus</i> | 5 | | <i>Gladiolus</i> | 60 | |
| <i>Digitalis</i> | 19 | | <i>Glaucium</i> | 2 | |
| <i>Digitaria</i> | 54 | | <i>Gomphrena</i> | 6 | |
| <i>Dipsacaceae</i> | 32 | | <i>Gossypium</i> | 10 | |
| <i>Dipsacus</i> | 33 | | <i>Graminaeae</i> | 50 | |
| <i>Doellingera</i> | 42 | | <i>Grindelia</i> | 43 | |
| <i>Dracocephalum</i> | 23 | | <i>Gypsophila</i> | 5 | |
| <i>Dulichium</i> | 50 | | | H. | |
| <i>Dysodia</i> | 43 | | <i>Hamamelidaceae</i> | 28 | |
| | E. | | <i>Hamamelis</i> | 28 | |
| <i>Ecballium</i> | 30 | | <i>Haworthia</i> | 47 | |
| <i>Echinacea</i> | 40 | | <i>Helenium</i> | 43 | |
| <i>Echinochloa</i> | 54 | | <i>Heleocharis</i> | 49 | |
| <i>Elymus</i> | 58 | | <i>Helianthella</i> | 41 | |
| <i>Epidendrum</i> | 62 | | <i>Helianthus</i> | 41 | |
| <i>Epipactis</i> | 62 | | <i>Helichrysum</i> | 38 | |
| <i>Eragrostis</i> | 58 | | <i>Heliopsis</i> | 41 | |
| <i>Erigeron</i> | 42 | | <i>Heliotropium</i> | 17 | |
| <i>Erodium</i> | 11 | | <i>Helleborus</i> | 1 | |
| <i>Eryngium</i> | 31 | | <i>Heracleum</i> | 31 | |
| <i>Eschscholtzia</i> | 2 | | <i>Heuchera</i> | 27 | |
| <i>Eupatorium</i> | 38 | | <i>Hibiscus</i> | 9 | |
| | | | <i>Hieracium</i> | 44 | |
| | | | | I. | |
| | | | | <i>Impatiens</i> | 11 |
| | | | | <i>Impatiens</i> | 20 |
| | | | | <i>Ipomoea</i> | 7 |
| | | | | <i>Ipomoea</i> | 60 |
| | | | | <i>Ipomoea</i> | 14 |
| | | | | <i>Ipomoea</i> | 60 |
| | | | | <i>Ipomoea</i> | 38 |
| | | | | <i>Ipomoea</i> | 60 |
| | | | | K. | |
| | | | | <i>Kuhnia</i> | 48 |
| | | | | <i>Kuhnia</i> | 7 |
| | | | | <i>Kuhnia</i> | 67 |
| | | | | <i>Kuhnia</i> | 13 |
| | | | | <i>Kuhnia</i> | 68 |
| | | | | L. | |
| | | | | <i>Lactuca</i> | 17 |
| | | | | <i>Lactuca</i> | 44 |
| | | | | <i>Lactuca</i> | 62 |
| | | | | <i>Lactuca</i> | 30 |
| | | | | <i>Lactuca</i> | 71 |
| | | | | <i>Lactuca</i> | 71 |
| | | | | <i>Lactuca</i> | 74 |
| | | | | <i>Lactuca</i> | 71 |
| | | | | <i>Lactuca</i> | 26 |
| | | | | <i>Lactuca</i> | 23 |
| | | | | <i>Lactuca</i> | 65 |
| | | | | <i>Lactuca</i> | 23 |
| | | | | <i>Lactuca</i> | 3 |
| | | | | <i>Lactuca</i> | 26 |
| | | | | <i>Lactuca</i> | 40 |
| | | | | <i>Lactuca</i> | 40 |
| | | | | <i>Lactuca</i> | 47 |
| | | | | <i>Lactuca</i> | 12 |
| | | | | <i>Lactuca</i> | 14 |
| | | | | <i>Lactuca</i> | 12 |
| | | | | <i>Lactuca</i> | 32 |
| | | | | <i>Lactuca</i> | 68 |

| | Page | | Page | | Page |
|----------------------|------|-----------------------|------|-------------------------|------|
| <i>Lonicera</i> | 32 | <i>Onagraceae</i> | 28 | <i>Potentilla</i> | 24 |
| <i>Lopanthus</i> | 24 | <i>Oncidium</i> | 63 | <i>Poterium</i> | 25 |
| <i>Lopezia</i> | 29 | <i>Orchidaceae</i> | 61 | <i>Primula</i> | 13 |
| <i>Luffa</i> | 30 | <i>Orchidales</i> | 61 | <i>Primulaceae</i> | 13 |
| <i>Lupinus</i> | 25 | <i>Origanum</i> | 23 | <i>Primulales</i> | 13 |
| <i>Lycchnis</i> | 5 | <i>Ornithogalum</i> | 48 | <i>Prunella</i> | 23 |
| <i>Lycium</i> | 16 | <i>Oryza</i> | 55 | | |
| <i>Lycopersicum</i> | 16 | <i>Oryzae</i> | 55 | | |
| <i>Lysimachia</i> | 14 | <i>Oryzopsis</i> | 56 | <i>Quamoclit</i> | 15 |
| <i>Lyttracae</i> | 28 | <i>Oxalidaceae</i> | 11 | | |
| <i>Lythrales</i> | 28 | <i>Oxalis</i> | 11 | | |
| <i>Lythrum</i> | 28 | | | | |
| | | P. | | | |
| M. | | <i>Paniccae</i> | 54 | <i>Ranales</i> | 1 |
| <i>Malt a</i> | 9 | <i>Panicum</i> | 55 | <i>Ranunculaceae</i> | 1 |
| <i>Malvaceae</i> | 8 | <i>Papaver</i> | 2 | <i>Ranunculus</i> | 1 |
| <i>Malvales</i> | 8 | <i>Papaveraceae</i> | 2 | <i>Raphanus</i> | 3 |
| <i>Malvastrum</i> | 9 | <i>Parietaria</i> | 10 | <i>Ratibida</i> | 40 |
| <i>Malvaviscus</i> | 9 | <i>Pastinaca</i> | 31 | <i>Reseda</i> | 4 |
| <i>Marrubium</i> | 23 | <i>Pelargonium</i> | 11 | <i>Resedaceae</i> | 4 |
| <i>Martynia</i> | 20 | <i>Pentstemon</i> | 19 | <i>Rheum</i> | 8 |
| <i>Matricaria</i> | 43 | <i>Perilla</i> | 22 | <i>Ricinus</i> | 12 |
| <i>Matthiola</i> | 4 | <i>Petalostemon</i> | 27 | <i>Rosa</i> | 24 |
| <i>Maurandia</i> | 19 | <i>Petunia</i> | 17 | <i>Rosaceae</i> | 24 |
| <i>Maydeae</i> | 53 | <i>Phalarideae</i> | 55 | <i>Rosales</i> | 24 |
| <i>Medicago</i> | 26 | <i>Phalaris</i> | 55 | <i>Rosmarinus</i> | 22 |
| <i>Melilotus</i> | 26 | <i>Phaseolus</i> | 26 | <i>Rubiaceae</i> | 31 |
| <i>Melissa</i> | 23 | <i>Philotria</i> | 45 | <i>Rubiales</i> | 31 |
| <i>Mentha</i> | 22 | <i>Phleum</i> | 56 | <i>Rudbeckia</i> | 40 |
| <i>Micranpeltis</i> | 30 | <i>Phlox</i> | 14 | <i>Rumex</i> | 8 |
| <i>Mimosa</i> | 27 | <i>Phragmites</i> | 57 | <i>Ruscus</i> | 47 |
| <i>Mimulus</i> | 19 | <i>Phryma</i> | 21 | <i>Ruta</i> | 12 |
| <i>Mirabilis</i> | 8 | <i>Physalis</i> | 16 | <i>Rutaceae</i> | 12 |
| <i>Mollugaceae</i> | 6 | <i>Physostegia</i> | 23 | | |
| <i>Mollugo</i> | 6 | <i>Pilea</i> | 10 | S. | |
| <i>Monarda</i> | 22 | <i>Plantaginaceae</i> | 14 | <i>Sagittaria</i> | 44 |
| <i>Monstera</i> | 45 | <i>Plantago</i> | 14 | <i>Salpiglossis</i> | 19 |
| <i>Moraceae</i> | 10 | <i>Platycodon</i> | 32 | <i>Salsola</i> | 7 |
| <i>Moraea</i> | 60 | <i>Plumbaginaceae</i> | 13 | <i>Salvia</i> | 22 |
| <i>Muhlenbergia</i> | 56 | <i>Plumbago</i> | 13 | <i>Sapindaceae</i> | 28 |
| | | <i>Poa</i> | 57 | <i>Sapindales</i> | 28 |
| N. | | <i>Poales</i> | 49 | <i>Saponaria</i> | 5 |
| <i>Nabalus</i> | 44 | <i>Polanisia</i> | 3 | <i>Satureia</i> | 24 |
| <i>Narcissus</i> | 59 | <i>Polemoniaceae</i> | 14 | <i>Saxifraga</i> | 27 |
| <i>Nasturtium</i> | 4 | <i>Polemoniales</i> | 14 | <i>Saxifragaceae</i> | 27 |
| <i>Nepeta</i> | 24 | <i>Polianthes</i> | 59 | <i>Scabiosa</i> | 33 |
| <i>Nerine</i> | 60 | <i>Polygala</i> | 4 | <i>Schizanthus</i> | 18 |
| <i>Nerium</i> | 18 | <i>Polygalaceae</i> | 4 | <i>Scilla</i> | 48 |
| <i>Nicotiana</i> | 17 | <i>Polygonaceae</i> | 7 | <i>Scirpus</i> | 49 |
| <i>Nigella</i> | 1 | <i>Polygonum</i> | 7 | <i>Scitaminales</i> | 61 |
| | | <i>Pontederia</i> | 49 | <i>Scrophulariaceae</i> | 18 |
| O. | | <i>Pontederiaceae</i> | 48 | <i>Scrophulariales</i> | 18 |
| <i>Ocimum</i> | 23 | <i>Portulaca</i> | 6 | <i>Scutellaria</i> | 23 |
| <i>Odontoglossum</i> | 63 | <i>Portulacaceae</i> | 6 | <i>Secale</i> | 58 |
| <i>Oenothera</i> | 29 | | | <i>Sedum</i> | 28 |
| | | | | <i>Setaria</i> | 54 |
| | | | | <i>Sicyos</i> | 30 |

INDEX TO SCIENTIFIC NAMES

77

| | Page | | Page | | Page |
|----------------------|------|----------------------|------|---------------|-----------|
| <i>Silene</i> | 5 | <i>Taraxacum</i> | 43 | <i>Urtica</i> | 32 |
| <i>Silphium</i> | 40 | <i>Telanthera</i> | 7 | <i>Urtica</i> | 32 |
| <i>Simingia</i> | 20 | <i>Teucrium</i> | 23 | <i>Urtica</i> | 4 |
| <i>Sisymbrium</i> | 4 | <i>Thuobergia</i> | 20 | <i>Urtica</i> | 20 |
| <i>Solanaceae</i> | 15 | <i>Thymus</i> | 23 | <i>Urtica</i> | 24 |
| <i>Solanum</i> | 16 | <i>Tillandsia</i> | 61 | <i>Urtica</i> | 7 |
| <i>Solidago</i> | 41 | <i>Torenia</i> | 19 | <i>Urtica</i> | 4 |
| <i>Sonchus</i> | 44 | <i>Tradescantia</i> | 46 | <i>Urtica</i> | 8 |
| <i>Sorghum</i> | 54 | <i>Tragopogon</i> | 43 | <i>Urtica</i> | 11 |
| <i>Spartina</i> | 55 | <i>Trifolium</i> | 26 | <i>Urtica</i> | 17 |
| <i>Spinacea</i> | 7 | <i>Tritelia</i> | 48 | <i>Urtica</i> | 17 |
| <i>Spiraea</i> | 25 | <i>Triticum</i> | 58 | <i>Urtica</i> | 4 |
| <i>Spiranthes</i> | 62 | <i>Tritonia</i> | 61 | <i>Urtica</i> | 4 |
| <i>Sporobolus</i> | 56 | <i>Tropaeolaceae</i> | 11 | | |
| <i>Sprekelia</i> | 59 | <i>Tropaeolum</i> | 11 | | X. |
| <i>Stachys</i> | 24 | <i>Tulipa</i> | 47 | | |
| <i>Stellaria</i> | 5 | | | | Z. |
| <i>Streptocarpus</i> | 20 | U. | | | |
| <i>Symphytum</i> | 17 | <i>Urtica</i> | 10 | <i>Zinnia</i> | 4 |
| | | <i>Urtica</i> | 10 | <i>Zinnia</i> | 14 |
| | | | | <i>Zinnia</i> | 4 |
| T. | | | | <i>Zinnia</i> | 4 |
| <i>Tagetes</i> | 43 | V. | | <i>Zinnia</i> | 7 |
| <i>Tanacetum</i> | 38 | <i>Vaccinia</i> | 5 | | |



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