

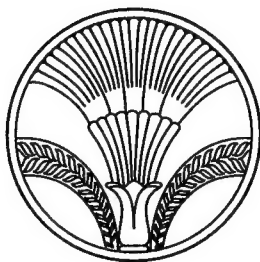
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WESTERN FLORA

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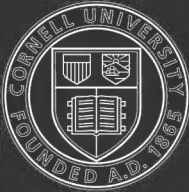
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SELECTED WESTERN FLORA
MANITOBA, SASKATCHEWAN, ALBERTA

MACMILLAN'S CANADIAN SCHOOL SERIES

SELECTED WESTERN FLORA

MANITOBA, SASKATCHEWAN,
ALBERTA

BY

B. J. HALES, B.A.

PRINCIPAL, NORMAL SCHOOL, BRANDON

AUTHORIZED BY THE ADVISORY BOARD OF THE DEPARTMENT
OF EDUCATION FOR USE IN HIGH SCHOOLS AND
COLLEGIATE INSTITUTES IN MANITOBA

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PREFACE

THIS Flora contains 81 families, 291 genera, and more than 650 species. While making no claim to being a complete flora of the territory covered, it is believed that it contains all the species likely to be studied by students in the High Schools and Collegiate Institutes of the Prairie Provinces.

The arrangement of families follows the order of Engler & Prantl which has now been almost universally adopted, and the nomenclature has been made to conform as closely as possible to the Vienna rules. The capitalization is that of the *Index Kewensis*, which is now being largely followed, and differs from that of many of the earlier floras in that adjectives derived from names of places are spelled without the capital.

In the descriptions the aim has been to introduce only such characteristics as can be observed by the beginner, and as far as possible to bring out the points of contrast between species found in the same locality. While the descriptions have mostly been written with the plant in hand, yet full reference has been made to all the well-known floras covering the area. The author wishes especially to acknowledge the help derived from the following: "Gray's New Manual of Botany," revised by Robinson and Fernald; "Illustrated Flora," Britton & Brown, both first and second editions; Gray's "Synoptical Flora of North America"; Piper's "Flora of Washington"; and "A New Manual of Rocky Mountain Botany," Coulter & Nelson.

Thanks are also due to the following persons for help: Miss M. E. Moodie and Mr. G. S. Johnson for checking the lists for Alberta and Saskatchewan, respectively; Mr. D. W. Yuill for trying out and checking the key; Professor B. L. Robinson, Harvard University, for confirming a list of names; Mr. J. M. Macoun, Curator of the Herbarium of the Geological Survey, Ottawa, for constant and invaluable assistance in furnishing descriptions and confirming the determination of species; and to many ex-students of my own who have so kindly sent specimens for identification from all parts of the Canadian West.

Special mention should also be made of the assistance received from Professor John Macoun's "Catalogue of Canadian Plants."

B. J. H.

BRANDON,

August 1, 1915.

ANALYTIC KEY TO THE FAMILIES OF THE COMMON PLANTS OF MANITOBA, SAS- KATCHEWAN, AND ALBERTA

(Carried out to genera where the genus differs in characteristics from the family.)

DIVISION I. PTERIDOPHYTA

Fern-like or rust-like plants without true flowers and reproducing by means of spores.

- A. Rush-like plants with jointed stems, the joints surrounded by conspicuous toothed sheaths ; the stems terminating in conical spikes. *Equisetaceæ*, p. 4
- AA. Fern-like plants with leaf-like fronds.
 - Fronds from a creeping rootstock *Polypodiaceæ*, p. 1
 - Fronds from fleshy roots *Ophioglossaceæ*, p. 2

DIVISION II. SPERMATOPHYTA

Plants with true flowers and reproducing by means of seeds.

SUBDIVISION I. GYMNOSPERMÆ

Trees or shrubs with needle-shaped leaves and ovules not enclosed in an ovary.

- A. Flowers in catkin-like spikes which become cones in fruit . *Pinaceæ*, p. 4

SUBDIVISION II. ANGIOSPERMÆ

Plants having the ovules borne in a closed ovary which matures into a fruit.

CLASS 1. MONOCOTYLEDONEÆ

Stems, when present, without central pith or annual rings ; seeds with only one cotyledon ; leaves usually straight-veined.

- A. Small, elliptical or flask shaped, aquatic plants without true stems or leaves, and swimming freely on the water . . . *Lemnaceæ*, p. 14
- AA. Plants with true stems and leaves, the latter sometimes reduced to scales.
- B. Perianth free from the ovary or wanting.
- C. Perianth wanting or scale-like.
- D. Flowers enclosed in husk-like scales (glumes); grass-like plants with jointed stems, sheathing leaves and 1-seeded fruit.
- Stems hollow; leaf-sheaths split . . . *Gramineæ*, p. 10
- Stems generally solid, often triangular; leaf-sheaths not split . . . *Cyperaceæ*, p. 13
- DD. Flowers not enclosed in glumes.
- Rush-like marsh plants with an ovary of 3 carpels
Juncaceæ, p. 14
- Leafy immersed plants with perfect flowers
Nojaceæ, p. 8
- Flag-like marsh plants with flowers in dense cylindrical spikes . . . *Typhaceæ*, p. 7
- CC. Perianth always present, either colored or herbaceous but never scale-like.
- E. Pistils numerous in a head or ring . . . *Alismaceæ*, p. 9
- EE. Pistil one; compound.
- Stamens 3; marsh herbs with rush-like leaves and flowers in spikes . . . *Juncaginaceæ*, p. 8
- Stamens 4 . . . MIANthemum, p. 17
- Stamens 6;
- Divisions of the perianth alike.
- Rush-like plants . . . *Juncaceæ*, p. 14
- Not rush-like . . . *Liliaceæ*, p. 15
- Divisions of the perianth not alike; leaves net-veined . . . TRILLIUM, p. 19
- BB. Perianth adhering to the ovary.
- Immersed aquatic herbs . . . *Hydrocharitaceæ*, p. 9
- Terrestrial herbs.
- Stamens 2; flowers irregular . . . *Orchidaceæ*, p. 22
- Stamens 3 . . . *Iridaceæ*, p. 21
- Stamens 6 . . . *Amaryllidaceæ*, p. 21

CLASS 2. DICOTYLEDONEÆ

Stems with a central pith; if woody, the wood arranged in annual rings; leaves net-veined; embryo with two cotyledons.

A. Corolla absent.

B. Flowers monœcious or diœcious; one or both kinds in catkins or catkin-like clusters.

- Fertile flowers, only, in catkins *Urticaceæ*, p. 32
- Sterile flowers, only, in catkins; the fertile in a cup-like involucre *Fagaceæ*, p. 31
- Both sterile and fertile flowers in catkins.
- Ovary many-ovuled *Salicaceæ*, p. 45
- Ovary 1-2-seeded; cell 1-ovuled.
- Calyx regular, succulent in fruit. *Urticaceæ*, p. 32
- Calyx wanting; two or three fertile flowers in the axil of each scale *Betulaceæ*, p. 28
- BB. Flowers not in catkins.**
- c. Ovary or its cells 1-4-ovuled.
- d. Pistils more than one, distinct.
- Stamens on the calyx; leaves with stipules *Rosaceæ*, p. 60
- Stamens on the receptacle; petioles spreading at the base *Ranunculaceæ*, p. 44
- dd. Pistil one, either simple or compound.
- e. Ovary superior.
- Stipules sheathing the stem *Polygonaceæ*, p. 35
- Stipules not sheathing the stem.
- f. Herbs.
- Style or stigma 1; flowers unisexual *Urticaceæ*, p. 32
- Style 2-3-branched; inflorescence not a spike *Euphorbiaceæ*, p. 81
- Flowers small in dense heads or spikes accompanied by scarious or colored bracts *Amaranthaceæ*, p. 39
- Flowers small; densely clustered; no scarious bracts *Chenopodiaceæ*, p. 37
- f. Shrubs or trees.
- Leaves opposite.
- Fruit 3-celled *Rhamnaceæ*, p. 85
- Fruit a double samara *Aceraceæ*, p. 83
- Fruit a single samara *Oleaceæ*, p. 107
- Leaves alternate;
- Styles 2 *Urticaceæ*, p. 32
- ee. Ovary inferior or apparently so.
- Aquatic herbs *Haloragidaceæ*, p. 96
- Terrestrial.
- Herbs with colored calyx.
- Leaves opposite, simple *Nyctaginaceæ*, p. 40
- Leaves alternate, simple **COMMANDRA**, p. 34
- Shrubs.
- Leaves silvery or brownish scurvy *Eleagnaceæ*, p. 93
- cc. Ovary or its cells many-ovuled.
- d. Ovary superior; calyx present.
- Ovaries 2 or more *Ranunculaceæ*, p. 44
- Ovary single, of 1 or 2 cells.

- Calyx of separate sepals *Caryophyllaceæ*, p. 40
 Calyx 5-toothed GLUX, p. 105
- AA. Calyx and corolla both present.
- B. Corolla of separate parts.
- C. Stamens more than twice as many as the sepals.
- D. Calyx free from the ovary.
- E. Pistils several or many; distinct.
- Aquatic herbs with peltate leaves . . . *Nymphaeaceæ*, p. 44
 Terrestrial plants.
 Filaments united in a tube . . . *Malvaceæ*, p. 89
 Filaments not united, inserted on the calyx
 Rosaceæ, p. 60
- EE. Pistils forming 1 ovary but may have several styles or stigmas.
- Ovary 1-celled, simple.
- Ovules 2 *Rosaceæ*, p. 60
 . Ovules many *Ranunculaceæ*, p. 44
- Ovary compound.
- Ovary 1-celled.
- Sepals 2; succulent plants with watery juice
 and free central placenta . . . *Portulacaceæ*, p. 43
 Sepals 3-5; placenta parietal . . . *Cistaceæ*, p. 89
- Ovary several-celled.
- Terrestrial herbs; filaments united forming a
 | tube *Malvaceæ*, p. 89
 Aquatic or marsh herbs.
 Leaves pitcher-shaped . . . *Sarraceniaceæ*, p. 57
 Leaves peltate *Nymphaeaceæ*, p. 44
 Trees with 2-celled anthers . . . *Tiliaceæ*, p. 89
- DD. Calyx adherent to the compound ovary.
- Ovary 1-5-celled.
- Fleshy-stemmed plants without true foliage
 Cactaceæ, p. 92
- Leaf-bearing plants.
- Calyx 2-parted *Portulacaceæ*, p. 43
 Calyx of more than 2 parts.
 Leaves opposite, without stipules *Saxifragaceæ*, p. 58
 Leaves alternate, with stipules . . . *Rosaceæ*, p. 60
 Leaves opposite, with stipules; rough-leaved
 herbs *Loasaceæ*, p. 92
- CC. Stamens not more than twice as many as the petals.
- D. Stamens of the same number as the petals and opposite to them.
- Ovary one.
- Ovary 2-5-celled.
- Calyx minute, petals valvate in bud . . . *Vitaceæ*, p. 86
 Calyx 4-5-cleft, folded inward in bud *Rhamnaceæ*, p. 85

- Ovary 1-celled.
- Anthers opening by lids *Berberidaceæ*, p. 50
- Anthers not opening by lids.
- Style 1, unbranched, stigma 1 *Primulaceæ*, p. 104
- DD. Stamens not of the same number as the petals, or if of the same number alternate with them.
- E. Calyx free from the ovary.
- F. Ovaries 2 or more, separate or slightly united.
- Stamens united, with a large common stigma *Asclepiadaceæ*, p. 111
- Stamens free from each other.
- Stamens on the receptacle.
- Leaves fleshy *Crassulaceæ*, p. 58
- Leaves not fleshy.
- Ovary 5-lobed with 1 style *Primulaceæ*, p. 104
- Ovaries distinct, styles and stigmas separate *Ranunculaceæ*, p. 44
- Stamens on the calyx.
- With stipules *Rosaceæ*, p. 60
- Without stipules *Saxifragaceæ*, p. 58
- FF. Ovary 1.
- Ovary simple with 1 parietal placenta. . . . *Leguminosæ*, p. 68
- Ovary compound.
- G. Ovary 1-celled.
- Corolla irregular.
- Petals 4, stamens 6 *Fumariaceæ*, p. 50
- Petals and stamens 5 *Violaceæ*, p. 90
- Corolla regular.
- Ovule solitary.
- Shrubs *Anacardiaceæ*, p. 82
- Herbs *Crucifereæ*, p. 51
- Ovules not solitary.
- Ovules at the bottom of the cell *Caryophyllaceæ*, p. 40
- Ovules attached to the sides of the cell.
- Leaves glandular hairy *Drosoraceæ*, p. 57
- Leaves not glandular hairy.
- Petals 4.
- Stamens 6, equal, pod on a stipe *Capparidaceæ*, p. 56
- Stamens 6, 4 long and 2 short, pod sessile *Crucifereæ*, p. 51
- Petals 3 or 5.
- Calyx 5-lobed, lobes equal *Saxifragaceæ*, p. 58

- Calyx of 3 equal or 5 unequal lobes
Cistaceæ, p. 89
- gg. Ovary 2-several-celled.
Flowers irregular.
Anthers opening by a pore at the top
Polygalaceæ, p. 80
Anthers opening down the side
Balsaminaceæ, p. 84
Flowers regular.
Stamens just as many or twice as many as the petals.
Ovules 1 or 2 in a cell.
Herbs.
Flowers unisexual . *Euphorbiaceæ*, p. 81
Flowers perfect.
Cells of the ovary the same number as the sepals *Geraniaceæ*, p. 79
Cells of the ovary twice as many as the sepals . *Linaceæ*, p. 78
Shrubs or trees.
Leaves compound or palmately lobed *Aceraceæ*, p. 83
Leaves simple, alternate; a climbing shrub . . . CELASTRUS, p. 82
Ovules several or many in a cell.
Leaves compound, of three obcordate leaflets *Oxalidaceæ*, p. 78
Leaves simple.
Style 1, stamens free from calyx.
Ericaceæ, p. 100
Styles 2 or 5; leaves opposite from swollen joints *Caryophyllaceæ*, p. 40
Stamens not just as many or twice as many as the petals.
Trees or shrubs.
Stamens fewer than the petals
Oleaceæ, p. 107
Stamens more numerous than the petals *Aceraceæ*, p. 83
- ee. Calyx attached to the ovary for at least part of its length.
Tendril-bearing, herbaceous vines *Cucurbitaceæ*, p. 132
Not tendril-bearing.
Ovules more than 1 to a cell.
Ovary 1-celled; sepals 2 . . . *Portulacaceæ*, p. 43

- Ovary 2-many-celled; stamens on the calyx.
 Style 1; stamens 4-8 . . . *Onagraceæ*, p. 93
 Styles 2 or 3; stamens 5 or 10 *Saxifragaceæ*, p. 58
 Ovules only 1 in a cell.
 Stamens 5 or 10.
 Trees or shrubs *CRATÆGUS*, p. 67
 Herbs.
 Fruit dry, styles 2 . . . *Umbelliferaæ*, p. 97
 Fruit berry-like; styles 2-5 *Araliaceæ*, p. 97
 Stamens 2, 4 or 8.
 Style 1, stigma 1; fruit a drupe *Cornaceæ*, p. 100
 Style 1, stigma 2-4-lobed; fruit dry
Onagraceæ, p. 93
- BB. Parts of the corolla more or less united.**
 c. Stamens more numerous than lobes of corolla.
 Ovary 1-celled
 Placenta 1, parietal *Leguminosæ*, p. 68
 Placentæ 2, parietal *Fumariaceæ*, p. 50
 Ovary 2-celled; cells 1-ovuled *Polygalaceæ*, p. 80
 Ovary 5-many-celled.
 Stamens free from the corolla.
 Style 1; leaves simple *Ericaceæ*, p. 100
 Styles 5; leaves 3-foliate *Oxalidaceæ*, p. 78
 Stamens attached to the corolla.
 Trees or shrubs; style 1 *Ericaceæ*, p. 100
 Herbs; filaments united in a tube . . *Malvaceæ*, p. 89
- cc. Stamens not more numerous than the corolla lobes.**
 d. Stamens of the same number as the corolla lobes and
 opposite to them; style 1 *Primulaceæ*, p. 104
- DD. Stamens alternate with the corolla lobes or fewer.**
 e. Ovary free from the calyx tube.
 f. Corolla regular.
 g. Stamens as many as the corolla lobes.
 h. Ovaries more than 1, or if 1, deeply lobed.
 Ovaries 2, or if 1, then 2-horned.
 Stamens united . . *Asclepiadaceæ*, p. 111
 Stamens distinct . . *Apocynaceæ*, p. 110
 Ovary 1, deeply 4-lobed.
 Leaves alternate . . *Boraginaceæ*, p. 114
 Leaves opposite . . . *Labiataæ*, p. 117
- HH. Ovary 1, not deeply lobed.**
 i. Ovary 1-celled.
 Seed 1, corolla dry *Plantaginaceæ*, p. 127
 Seeds several-many.
 Leaves entire and opposite.
Gentianaceæ, p. 108

- Leaves more or less divided, or compound.
 Corolla white, bearded within, leaves compound of 3 leaflets
 MENEANTHES, p. 109
 Corolla white or purplish, not bearded within, leaves toothed, lobed, or divided -
 Hydrophyllaceæ, p. 121
- ii. Ovary 2-10-celled.
 Leafless twining parasite CUSCUTA, p. 112
 Leaves alternate.
 Stamens free from the corolla; style
 1 Ericaceæ, p. 100
 Stamens on the corolla tube.
 Stamens 4.
 Leafy stemmed, leaves opposite
 Verbenaceæ, p. 117
 Stemless, corolla dry and membranous Plantaginaceæ, p. 127
 Stamens 5.
 Fruit 2 or 4 seed-like nutlets
 Boraginaceæ, p. 114
 Fruit a pod or berry; few-many-seeded.
 Style or stigma 3-branched
 Polemoniaceæ, p. 113
 Style 2-branched; pod 4-seeded.
 Convolvulaceæ, p. 112
 Style and stigma single, fruit a berry . . . Solanaceæ, p. 120
- gg. Stamens fewer than the corolla lobes.
 Stamens, with anthers, 2 or 3.
 Ovary 4-lobed Lycopus, p. 120
 Ovary 2-celled.
 Stemless herbs . . . Plantaginaceæ, p. 127
 Leafy stemmed herbs with capsule flattened and notched at the apex
 VERONICA, p. 125
 Trees Oleaceæ, p. 107
- ff. Corolla irregular.
 Stamens, with anthers, either 2 or 4.
 Ovary 4-lobed, splitting, at maturity, into 4 nutlets Labiata, p. 117
 Ovary 1-celled.
 Stamens 2; aquatic, often free swimming
 Lentibulariaceæ, p. 125

- Stamens 4; root parasite without green
 foliage *Orobanchaceæ*, p. 126
- Ovary 2-celled; seeds numerous
 *Scrophulariaceæ*, p. 122
- EE. Ovary adhering to the calyx tube.
- Tendril-bearing, trailing or climbing herbs
 *Cucurbitaceæ*, p. 132
- Tendrils absent.
- Stamens separate.
- Stamens as many as the lobes of the corolla.
- Stamens free from the corolla *Campanulaceæ*, p. 132
- Stamens inserted on the corolla tube.
- Leaves opposite or perfoliate
 *Caprifoliaceæ*, p. 129
- Leaves opposite with stipules or whorled
 without stipules *Rubiaceæ*, p. 128
- Stamens 1 less than the lobes of the corolla
 *Linnaæ*, p. 130
- Stamens united by their anthers.
- Flowers separate, corolla irregular and split
 down one side *Lobeliaceæ*, p. 133
- Flowers united in heads on a common recep-
 tacle and surrounded by an involucre
 *Compositæ*, p. 134

SELECTED WESTERN FLORA

MANITOBA, SASKATCHEWAN, AND ALBERTA

DIVISION I. PTERIDÓPHYTA.

(VASCULAR CRYPTOGRAMS.)

Plants without true flowers, and reproducing with an alternation of generations. The sexual generation, the prothallus, is inconspicuous, while the asexual consists of conspicuous fronds, some of which bear the reproductive bodies or spores.

I. POLYPODIACEÆ (FERN FAMILY).

Leaf-like herbaceous fronds springing from a creeping rootstock; spores enclosed in sporangia (spore-cases) collected in groups called sori or fruit dots, each of which is covered by a scale called an indusium; sori arranged in lines or clusters on the back or margin of the frond division.

1. ASPÍDIUM. WOOD FERN.

Fronds pinnate; fruit dots round, borne on the back of the fertile fronds which scarcely differ from the sterile; stipes not jointed.

1. *A. cristatum*, (L.) Sw.

Fronds lanceolate to oblong, the pinnæ oblong to triangular, deeply cut into 6 to 10 pairs of sharply serrate segments; fruit dots about half way between the margin and the midvein, the covering almost rounded and smooth; stipe and rootstock covered with light brown scales. Moist cold woods, Man. and westward.

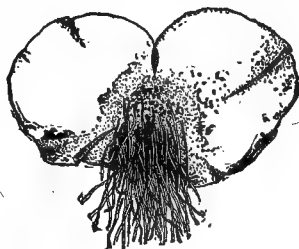


FIG. 1. — Prothallus of a Fern.

2. CYSTÓPTERIS. BLADDER FERN.

Fruit dots on the back of the frond, the covering inflated. Delicate ferns with 2-3-pinnate fronds.

1. *C. frágilis*, (L.) BERNH.

Fronds lanceolate, 2 or 3-pinnate, the pinnules cut-toothed. Coolies, Alta.

3. PTÈRIS. BRACKEN.

Spore case a continuous line on the back of the frond around the margin, and covered by the edge of the frond folding backwards over it. Fronds 1-3-pinnate.

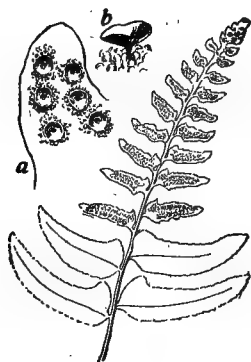


FIG. 2.— Fruiting Frond of Fern.

Sori at *a*. One sorus with its indusium at *b*.

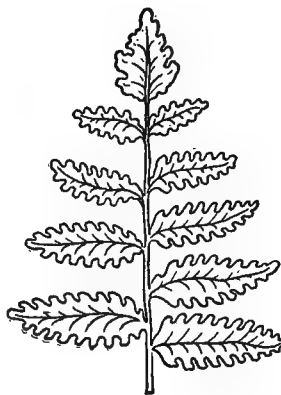


FIG. 3.— *Aspidium cristatum*.

1. *P. aquilina*, L. BRAKE.

Frond stout, 1-2 ft. high, 3-forked at the top, each branch 2-pinnate; rootstock black, widely spreading. Rocky Mts. and E. Man.

II. OPHIOGLOSSÀCEÆ.

More or less fleshy or succulent plants, consisting of a frond-like stem and leaf growing from a short rootstock or fleshy root. The frond consists of two parts, the one fern-like and sterile, the other a spike or panicle of rather large sporangia, which open at maturity

by a transverse slit. The spores are developed from the main tissue of the fruiting stem, and the prothallus is underground.

1. BOTRYCHIUM. MOONWORT.

Fleshy plants from a short, erect rootstock. The sterile portion ternately or pinnately compound; the fertile portion pinnately divided, with sessile separate sporangia in rows on the sides of the branches; spores yellow.

1. *B. virginianum*, (L.) Sw. RATTLESNAKE FERN.

Sterile portion sessile, attached above the middle of the plant, the main divisions on short stalks, 1 or 2-pinnate, and the leaflets pinnatifid; fertile part 2 or 3-pinnate. Cool rich woods, Man.—Alta.

2. *B. Lunaria*, (L.) Sw.

The sterile part of the frond almost sessile, 1-pinnate, the divisions entire and somewhat fan-shaped, very succulent. Foothills of Rocky Mts.

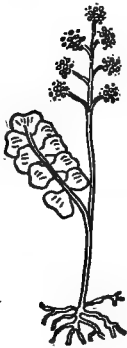


FIG. 4. — *Botrychium Lunaria*.

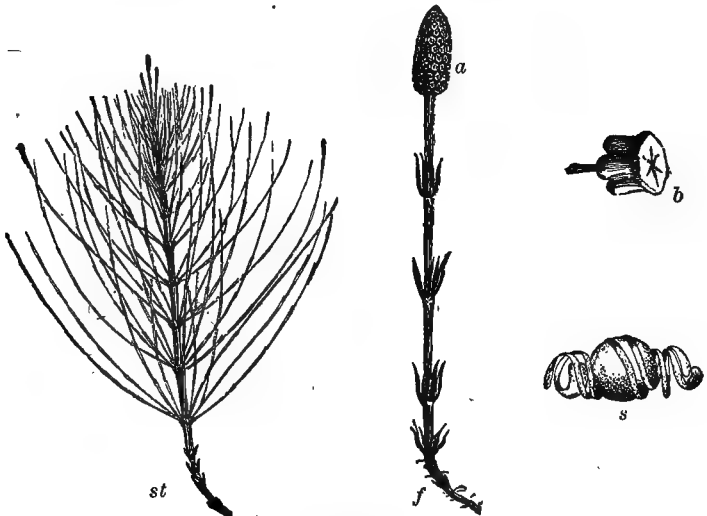


FIG. 5. — *Equisetum arvense*.

st, sterile shoot; *f*, fertile shoot showing the spike at *a*; *b*, sporophyll, with sporangia; *s*, spore.

III. EUISETÀCEÆ (HORSETAIL FAMILY).

Rush-like plants from a perennial creeping rootstock; stems hollow, jointed, and sheathed at the joints.

1. EUISETUM. HORSETAIL.

Stems simple or branched, the nodes solid and surrounded by a toothed sheath; fruit borne in a terminal cone-shaped organ formed by a number of shield-like bodies, closely fitted together, and bearing the sporangia on their inner surfaces.

1. *E. arvense*, L. COMMON HORSETAIL.

Fertile stems 2-10 in. high, simple or with very few branches, destitute of chlorophyll; sterile stems green and profusely branched, the branches springing in whorls from the nodes. Wet places, common.

2. *E. fluviatile*, L. PIPES.

Stems 3 in.-4 ft. high, sparingly branched, all green and bearing on the top the fruit, which soon falls off, leaving a withered tip. Deep, damp soil, common.

DIVISION II. SPERMATÓPHYTA.

(PHANEROGAMS, OR FLOWERING PLANTS.)

Plants bearing flowers with stamens or pistils or both, and reproducing by seeds.

SUBDIVISION I. GYMNOSPÉRMÆ.

Seeds naked at the base of a scale.

IV. PINÀCEÆ (PINE FAMILY).

Trees or shrubs with a resinous juice, and mostly entire needle-shaped leaves; flowers borne in a scaly catkin which at maturity becomes a cone, or else berry-like by the scales becoming fleshy; seeds naked, at the base of each scale; mostly evergreen.

1. PÏNUS. PINE.

Cones formed of imbricated woody scales maturing the second year, and spreading when ripe, allowing the seed to fall; leaves never springing singly from the branch, when in 2's the pair forming a cylinder, when in more than 2, each triangular.

1. *P. Banksiana*, Lamb. JACK PINE.

Leaves in 2's, stout, about 1 in. long, divergent along the branches; cones usually curved, the scales blunt or ending with a minute prickle; a low tree. Sandy soil, E. and N. Man., N. Sask., and Alta.

2. *P. stròbus*, L. WHITE PINE.

Leaves in 5's, long and slender, the fascicles clustered in large tassels at the ends of the branches; cones 3-6 in. long, cylindrical, nodding, often slightly curved. A lofty tree with white wood, the most valuable timber tree of all the pines, but now scarce. S. E. Man.



FIG. 6.—Cone of *Pinus strobus*.

3. *P. sylvéstris*, L. SCOTCH PINE.

Leaves in 2's about 2 in. long; fascicles given off all along the branch, but more clustered at the end; cones $1\frac{1}{2}$ -3 in. long, the scales thick and rigid with a tubercle on the centre; bark gray. A small tree, introduced, but thoroughly hardy in the prairie region, being extensively used for decorative purposes and for wind-breaks.



FIG. 7.—*Pinus sylvestris*.

4. *P. resinòsa*, Ait. RED OR NORWAY PINE.

Leaves in 2's; cones erect, about 2 in. long, conical, the scales somewhat thickened, but smooth; bark rather smooth, reddish. A tall, graceful tree with somewhat hard wood; valuable as timber. S. E. Man.

5. *P. albicaulis*, Engelm. WHITE-BARK PINE.

Leaves in 5's, $1\frac{1}{2}$ -2 $\frac{1}{2}$ in. long; cones oval, sessile, dark purple, the scales thickened at the ends and often beaked but never awned, not spreading at maturity. A low, much branched tree with rough gray bark. Rocky Mts.

6. *P. Murrayana*, Balfour. LODGE-POLE PINE, BLACK PINE.

Leaves in 2's, about 2 in. long, somewhat rigid; cones small, appressed, often persistent, the scales armed with prickles. A rather tall and often very slender tree usually growing in thick groves; the source from which the western Indians secured poles for their lodges. Rocky Mts. and east to Meridian 114° and a small area in the Cypress Hills.

2. *LÀRIX*. LARCH.

Leaves soft, many in a fascicle, and deciduous; cones lateral, the fertile red while in flower.

1. *L. laricina*, (Du Roi) Koch. TAMARACK, HACKMATACK.

Cones roundish, consisting of a few scales. A slender tree with reddish bark and hard resinous wood. (*L. Americana*, Michx.) Swamps, Man.-Alta.

3. *PÍCEA*. SPRUCE.

Leaves about $\frac{1}{2}$ in. long, scattered on all sides of the stem, needle-shaped, stiff; cones pendulous, maturing the first year; otherwise resembling *Pinus*.

1. *P. canadensis*, (Mill.) B. S. P. WHITE SPRUCE.

Branchlets smooth, leaves slender, somewhat pale green; cones cylindrical, deciduous. A fine tree with white wood, much used for both timber and decoration. (*P. alba*, Link.) Wet or sandy places, Man.-Alta.

2. *P. mariàna*, (Mill.) B. S. P. BLACK SPRUCE.FIG. 8. — *Picea mariana*.

Branchlets pubescent, leaves shorter, stouter, and darker green than in the preceding; cones smaller, almost globular, persistent. A valuable tree much resembling the preceding and found in the same range. (*P. nigra*, Link.)

3. *P. Engelmánnii*, (Parry) Engelm.

Leaves $\frac{1}{2}$ -1 in. long, four cornered, distributed singly and evenly along the branches; branchlets slightly pubescent; cones oval, about 2 in. long, the scales thin and blunt. A tall conical tree with reddish bark, but becoming shrubby at high elevations. Rocky Mts.

4. *ÀBIES*. FIR.

Leaves flattened, arranged on two sides of the branch; cones erect, maturing the first year, deciduous.

1. *A. balsàmea* (L.) Mill. BALSAM.

Leaves narrowly linear; cones cylindrical, violet-colored when immature. A conical shaped tree with rather smooth, gray bark, containing numerous blisters of resinous juice. E. and N. Man. to Lat. 58° and north-westward.

5. *THÛJA*. ARBOR VITÆ.

Leaves appressed, imbricated, some awl-shaped and others scale-like; cones of few scales, spreading at maturity.

1. *T. occidentàlis*, L. WHITE CEDAR.

Leaves appressed in 4 rows on flat branchlets; scales of cones blunt. A

FIG. 9. — *Thuja occidentalis*.

tree with gray, shreddy bark and light, but very durable wood, the latter with a strong resinous odor. Swamps, S. E. Man., and about the mouth of the Saskatchewan River.

6. JUNÍPERUS. JUNIPER.

Leaves either needle-shaped or scale-like; fruit composed of 3-6 fleshy scales, each containing an ovule, and coalescing to form a sort of berry.

1. *J. commûnis*, L. COMMON JUNIPER.

Leaves sharp-pointed, linear, arranged in whorls of 3; fruit axillary. An erect shrub often widely spreading. Wooded banks, Man.-Alta.

2. *J. horizontâlis*, Moench. GROUND CEDAR.

Leaves scale-like; fruit terminal, borne on short re-curved peduncles. A prostrate shrub spreading over the ground like a mat. (*J. Sabina*, var. *procumbens*, Pursh.) Sandy hills, Man.-Alta.

7. PSEUDOTSÛGA. DOUGLAS FIR.

Leaves short-petioled and arranged on the branches like teeth in a comb; cone oblong, drooping, maturing in one season. A large, rough-barked tree.

1. *P. mucronâta*, Raf.

An exceedingly large tree, 100-240 ft. high and 3-12 ft. in diameter, with very thick rough bark; cones somewhat fringed from the projection of the bracts beyond the scales. East side of Rocky Mts. from Lat. 53° southward.

SUBDIVISION II. ANGIOSPÉRMÆ.

Seeds enclosed in an ovary.

CLASS I. MONOCOTYLEDÔNEÆ.

Parallel-veined leaves, endogenous stems, monocotyledonous seeds, and flowers mostly in 3's.

V. TYPHÂCEÆ (CAT-TAIL FAMILY).

Perennial marsh herbs with long, nerved, sword-shaped leaves, and monœcious flowers; inflorescence a spike borne on a long stem, the flowers destitute of floral envelopes.

1. *TYPHA*. CAT-TAIL FLAG.

Flowers in a long and very dense spike terminating the stem, the upper part containing the sterile, and the lower part the fertile flowers. At maturity the sterile flowers fall off, leaving a part of the stem projecting beyond the fruit; seeds attached to bristles forming a copious down.

1. *T. latifolia*, L. COMMON CAT-TAIL.

Stout, with flag-like leaves and conspicuous spikes. Marshes, Man.-Alta.

VI. *NAJADACEÆ* (PONDWEED FAMILY).

Immersed aquatic herbs with jointed stems, and leaves either sheathing or stipulate; flowers perfect with 4-6-parted perianth, 1-6 stamens, and 1-6 distinct 1-celled ovaries, each usually 1-ovuled.

1. *POTAMOGETON*. PONDWEED.

Perianth 4-parted; stamens 4, opposite the segments of the perianth; anthers 2-celled; ovaries 4; style short or wanting; fruit drupe-like when fresh. Immersed aquatic herbs, generally rooting at the joints, with alternate leaves some of which frequently float on top of the water.

1. *P. pectinatus*, L.

Stem thread-like, branched; leaves very narrowly linear; peduncles thread-like; flower spikes of 2-6 whorls somewhat widely separated. A common submerged plant in still or slow-running water, Man.-Alta.

2. *P. perfoliatus*, L.

Stem branching; leaves round, ovate, or lanceolate from a heart-shaped, clasping base, usually obtuse and crinkled on the edges; peduncles thick and spongy. Still or slow-running water, more local than the preceding, Man.

3. *P. zosterifolius*, Schumacher.

Stem branching, with a flattened wing; leaves linear and grass-like, usually floating on top of the water for part of their length; spike cylindrical and shorter than the peduncle. Still or slow-running water, Man.-Alta.

VII. *JUNCAGINACEÆ* (ARROW GRASS FAMILY).

Marsh plants with cylindrical leaves, and perfect flowers in a raceme or spike supported on a naked scape. Perianth 3 or 6-lobed, carpels 3 or 6, united; fruit a follicle or capsule.

1. TRIGLÔCHIN. ARROW GRASS.

Perianth 6-parted, greenish; stamens 3-6, with short filaments; pistil a 3 or 6-celled ovary, splitting when ripe into 3 or 6 carpels around a central axis. Low herbs with rush-like leaves sheathing the scape at the base.

1. *T. marítima*, L.

Scape 6 in. - 2 ft. high; leaves rather fleshy; carpels mostly 6-grooved on the back. Wet alkaline soil, Man.-Alta.

2. *T. palústris*, L.

Scape 2-18 in. high; leaves slender. Marshes, Alta.

VIII. ALISMACEÆ (WATER-PLANTAIN FAMILY).

Marsh herbs with scape-like stems and radical petiolate leaves, the petiole sheathing the stem at the base; perianth of 3 herbaceous, persistent sepals, and 3 white, deciduous petals; stamens 6 or more; ovaries distinct, 1-celled, and usually 1-ovuled.

1. SAGITTÀRIA. ARROW-HEAD.

Sepals spreading in fruit; petals imbricated in the bud; ovaries crowded on a globular receptacle forming winged achenes when ripe.

1. *S. latifolia*, Willd.

Glabrous; scape angled; petals waxy white; lower whorls of flowers fertile; leaves mostly arrow-shaped. In water or wet places, easily recognized by its arrow-shaped leaves and large white flowers. Common and exceedingly variable, Man.-Alta.

2. ALÍ SMA. WATER PLANTAIN.

Flowers small, the whitish petals rolled inwardly in the bud; ovaries many, in a circle on the flattened receptacle; scape with whorled panicle branches.

1. *A. Plantàgo-aquática*, L.

Perennial, from a strong corm; leaves ovate or oblong, acute, and sometimes heart-shaped at the base, somewhat resembling those of the plantain; panicle very loose. Common in shallow water, Man.-Alta.

IX. HYDROCHARITACEÆ (FROG'S-BIT FAMILY).

Aquatic herbs with regular perfect or diceious flowers; stamens, when present, 3-12, united in our species; stigmas 3; fruit ripening under water.

1. ELODĒA. WATER-WEED.

Flowers dicecious, or the fertile bearing stamens; sterile flowers minute, the fertile ones larger, with a 6-parted perianth. Slender, submerged, perennial herbs with somewhat transparent veinless leaves arranged opposite or in whorls.

1. *E. canadensis*, Michx. CANADIAN WATER-WEED.

Leaves linear to oval; stamens 9 in sterile flowers, 3 or 6 sessile anthers in the fertile; a good aquarium plant, not uncommon on the bottom of slow-running or still water. (*Anacharis canadensis* of Planchon), Man. and westward.

X. GRAMINEÆ (GRASS FAMILY).

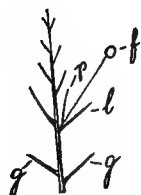


FIG. 10. — Diagram showing the structure of a spikelet of grass.

g, glume; *l*, lemma; *p*, palea; *f*, flower.

Herbs with hollow stems, closed at the nodes, and two-ranked parallel-veined leaves; leaves divided into blade and sheath, the sheath enveloping the stem with the edges overlapping; flowers small, perfect, without distinct perianth, and arranged in spikelets consisting of a short axis, or rhachis, and 2-many bracts arranged in two vertical ranks; the two lowest bracts (glumes) empty, and each succeeding one (lemma) bearing in its axil a single flower; the flower usually subtended by another bract (palea) with its back to the rhachis of the spikelet, the two bracts enclosing the flower; floral envelopes wanting; stamens 3; ovary 1-celled and 1-ovuled; fruit a caryopsis; spikelets arranged in spikes, racemes, or panicles.

1. HÓRDEUM. BARLEY.

Spikelet 1 or rarely 2-flowered, three together at each joint of the flat-jointed rhachis, the centre one sessile, perfect, the lateral pair usually pediceled, and generally reduced to awns; the spikes becoming disjointed at maturity, the joints fall with the spikelets attached.

1. *H. jubatum*, L. SQUIRREL-TAIL OF SKUNK-TAIL GRASS.

Biennial, either erect, or with the stems declining at the base; the lateral pair of spikelets and the glumes of the perfect spikelet reduced to spreading awns; spike nodding. Waste ground and damp prairie, often a troublesome weed, and frequently, but wrongly, called fox-tail. Man.—Alta.

2. ÉLYMUS. WILD RYE.

Spikelets 2-6-flowered, in pairs, sessile, arranged alternately at notches in a continuous rhachis; glumes rigid, forming awns. Tufted perennials.

1. *E. canadensis*, L.

Spike exerted on a long stem above the somewhat coarse, either green or glaucous leaves; spikelets not closely arranged on the rhachis; spike nodding at maturity. A coarse, tufted, bearded grass very common in light soil and in waste places, with spikes somewhat resembling heads of rye. Man.-Alta.

3. ANDROPÒGON. BEARD GRASS.

Spikelets in pairs, one sessile and perfect, the other pediceled and sterile, arranged at joints of the rhachis; bracts containing perfect flowers awned.

1. *A. furcatus*, Muhl. FORKED BEARD GRASS.

Stems stout, in tufts, and branching above; leaves often hairy on the surface near the base; racemes purplish; joints of the rhachis hairy. Dry ground, fairly common, Man.-Alta.

4. STÌPA. FEATHER GRASS.

Spikelets 1-flowered; glumes sharp and narrow, often terminating in a bristle; bract below the flower continued into a persistent awn, abruptly bent and twisted. Coarse perennial grasses.

1. *S. comata*, Trin. and Rupr.

Stem erect, simple; 6 in. to 3 ft. high; sheaths longer than the internodes, the upper inflated and often enclosing the base of the somewhat loose and spreading panicle. Dry prairie, Alta.

2. *S. viridula*, Trin.

Stems erect, clustered, sometimes branched, 1-3 ft. high; sheaths shorter than the internodes; panicle strict, erect, and rather densely flowered. Prairie, Man.-Alta.

5. BOUTELOÛA.

Spikelets 1 or 2-flowered, arranged in 2 rows along one side of the rhachis which often projects; usually short-awned. Annual or perennial grasses with flat leaves and conspicuous one-sided spikes.

1. *B. oligostachya*, (Nutt.) Torr.

Stems 6-18 in. high, simple, erect or ascending, smooth; sheaths shorter than the internodes; spike 1-3 on a stem, each 1-2 in. long, sometimes curved, the rhachis terminating in a point which is more or less hidden by the crowded spikelets. Dry prairies, Man.-Alta.

6. PHRAGMITES. REED GRASS.

Spikelets 3-7-flowered; bracts narrow, purplish. Tall, leafy, perennial grasses with large, terminal, rather soft-hairy panicles.

1. *P. communis*, Trin.

Stems very tall, stout, erect, 4-12 ft. high, from a creeping rootstock which frequently runs a long distance on the surface of the ground; leaves large, flat, with overlapping sheaths; panicle large, 6-12 in. long. Marshes, Man.-Alta.

7. AGROPYRON.

Spikelets 3-many-flowered, sessile, and alternate in the notches of the rachis; flowering scales rigid, sometimes awned, the two lower empty; stamens 3; styles short and distinct; stigmas feathery. Mostly perennial grasses with flat leaves, and spikelets in close strict spikes.

1. *A. repens*, L. Beauv. COUCH GRASS, QUACK GRASS.

Bright green or more rarely glaucous; rootstock long and stout, often with very conspicuous scales, and bright yellowish green internodes. An introduced form, often very troublesome owing to its habit of spreading by the rootstock. Cultivated fields and waste places.

2. *A. Smithii*, Rydb.

Resembling the preceding, but glaucous throughout with bluish green leaves; rootstock more slender with less conspicuous scales, and internodes not yellowish or greenish. (*Agropyron repens*, var. *glaucum*, Schribn.) Moist land, Man.-Alta. A somewhat troublesome grass in cultivated fields.

8. LOLIUM. RYE-GRASS.

Spikelets several-flowered, solitary, alternate in the notches of the rachis; flowering scales rigid, the lowest empty in the lateral spikelets, the two lower empty in the terminal spikelet; stamens 3; styles short; stigmas 2. Annual or perennial grasses with flat leaves and spikelets in strict terminal spikes.

1. *L. temulentum*, L. Darnel.

Stem erect, 1-3 ft. high, simple, glabrous; sheaths shorter than the internodes; spikelets 2-8-flowered, the empty scale long and strongly nerved; flowering scales without awns. Often a troublesome weed with bitter poisonous seeds. Introduced locally.

9. AVENA. OAT.

Spikelets 2-many-flowered, the lower flowers perfect, the upper often staminate; glumes long, usually exceeding the flower; lemma

bearing long, often twisted awns, except in the cultivated forms when the awns are straight or lacking. Annual grasses with flat leaves and spikelets in large loose panicles.

1. *A. fátua*, L. WILD OAT.

Stem 1-3 ft. high, simple, erect, smooth; sheaths sometimes roughened towards the top; spikelets 2-4-flowered; flowering scales covered with stiff brown hairs; awn long and twisted. A troublesome annual weed in cultivated fields.

XI. CYPERACEÆ (SEDGE FAMILY).

Grass-like or rush-like herbs with solid stems; stem leaves, when present, 3-ranked, with closed sheaths; flowers in spikes each in the axil of a bract, and destitute of perianth, except in some cases a few bristles; style 2-cleft; ovary 1-celled; fruit an achene.

1. SCÍRPUS. BULRUSH.

Spikelets few or many-flowered, solitary, or in terminal clusters surmounted by an involucre of one-several bracts, which often appear as a withered continuation of the stem; perianth of a few bristles; stems sheathed at the base, but blades of leaves not always appearing.

1. *S. válidus*, Vahl. GREAT BULRUSH.

Stem 2-8 ft. high, stout, springing from a strong scaly rootstock; sheaths at the base of the stem soft, not green. A very large rush, common around the edges of lakes and deep ponds. Man.-Alta.

2. *S. rubrotinctus*, Fernald.

Not so stout as the preceding, 1-3 ft. high; upper sheaths green, leaf blades broadly linear, the upper rising above the flower spike; sheaths mostly red-tinted at the base. Marshy places, Man.-Alta.

3. *S. occidentális*, (Wats.) Chase.

Similar to *S. válidus*, but stems firmer and darker green; basal sheaths firmer; flower bracts spotted with red and viscid at the top. Edges of lakes, Man.-Alta.

2. CÀREX. SEDGE.

Perennial grass-like herbs with mostly 3-ranked leaves and triangular stems; flowers unisexual, the staminate and pistillate in separate spikes or different parts of the same spike, the staminate consisting of 3 stamens in the axil of a bract, the pistillate of a single pistil with a 2 or 3-parted style developing into an achene. A

very common genus, making up a large part of our grass-like marsh plants, but very difficult to determine as to species. The beginner will generally do well to content himself with the power to recognize the genus, and if attempting species should be careful to get fully matured specimens.

1. *C. rostrata*, Stokes.

Stems stout, 1-3 ft. high, spongy at the base; leaves long and flat, resembling a coarse grass; flowers in spikes, the fertile developing into large, somewhat flask-shaped achenes. Marshes, Man.-Alta.

2. *C. trichocarpa*, Muhl.

Stout, 1-3 ft. high, rough, sharp-angled; leaves very rough, often cutting the hands; spikes 2-5, scattered.

Var. *aristata*, Bailey. A common western form, stouter and coarser than the type. Marshes, Man.-Alta.

XII. LEMNACEÆ (DUCKWEED FAMILY).

Small plants consisting of a leaf-like frond floating freely on the water, producing one or more small monœcious flowers on its margin, and roots hanging from the lower surface. The smallest flowering plant, often very plentiful, and covering the surface of stagnant water like a green scum.

1. LEMNA. DUCKWEED.

Flowers usually three together surrounded by a bract.

1. *L. trisúlca*, L.

Fronds produced into a stalk at one end, obscurely 3-nerved, generally several adhering. Stagnant water, Man.-Alta.

2. *L. minor*, L.

Fronde ovate, usually separated. Stagnant water, Man.-Alta.

XIII. JUNCACEÆ (RUSH FAMILY).

Grass-like or rush-like plants with very small, regular, perfect, hypogenous flowers. Sepals 3; petals 3; stamens 3 or 6; ovary 3-celled, or 1-celled with 3 parietal placenta. A rather curious family with flowers resembling the lily in structure, but the whole plant having the appearance of a sedge.

1. *JÚNCUS*. RUSH.

Stamens mostly 3, opposite the sepals; capsule 3-celled, but frequently apparently 1-celled, the divisions not reaching the centre. Rush-like perennials.

1. *J. nodòsus*, L.

Stem erect, 6-18 in. high, from a very slender tuber-bearing rootstock; usually with 2 or 3 slender leaves. Common in wet, sandy places, Man.-Alta.

2. *J. bàlticus*, Willd.

Stem erect, 6 in.-3 ft. high, stout, rising at intervals from a creeping rootstock; leaves reduced to bladeless sheaths; panicle appearing lateral; divisions of the perianth sharp, brown with green midrib. Sandy and alkaline shores, Man.-Alta.

XIV. LILIÀCEÆ (LILY FAMILY).

Herbs, with regular symmetrical flowers; their parts — except in *Maianthemum* — always in 3's or 6's; leaves parallel-veined except in *Trillium* and *Smilax*; divisions of the perianth similarly colored — except in *Trillium* and *Calochortus* — and free from the 3-celled ovary; stamens 6; fruit a pod or berry.

1. *LÍLIUM*. LILY.

Perianth bell-shaped, of 6 similarly colored parts, deciduous, the 6 stamens adhering to the base; anthers linear, attached to the filament near the middle; style club-shaped; stigma 3-lobed; capsule oblong with seeds densely packed in 2 rows in each cell. Herbs with simple stems springing from bulbs, and bearing showy flowers.

1. *L. philadélphicum*, L. WILD ORANGE LILY.

Stem 6-18 in. high; leaves linear to lanceolate; flowers erect, showy, reddish-orange with purplish spots inside. Moist prairie and edges of thickets, Man.-Alta.



FIG. 11. — *Lilium philadelphicum*.

2. *FRITILLÀRIA*

Perianth bell-shaped, of 6 deciduous segments each with a pit or gland at the base; stamens 6, hypogenous, the filaments flattened and the anthers linear; ovary cleft at the top with 3 stigmatic lobes;

capsule 6-angled, many-seeded. Herbs springing from scaly bulbs and bearing large nodding flowers.

1. *F. pudica*, (Pursh.) Spreng.

Stem simple, 4-8 in. high; bulb very scaly; leaves 3-8, rather scattered flowers 1-6 on the stem, usually solitary, nodding, yellow tinged with purple. S. Alta. "McLeod and Lethbridge the only known stations east of the Rocky Mts." — *Macoun*.

3. ZYGADÈNUS.

Flowers perfect; perianth spreading, persisting after it withers; sepals with conspicuous glands near the base. Very smooth perennials with simple stems, usually from a bulb, and bearing a panicle of rather large, conspicuous, whitish flowers.

1. *Z. chloranthus*, Richards.

Stem 1-2 ft. high; leaves somewhat grass-like; perianth coherent with the base of the ovary; sepals marked with a large heart-shaped gland, the inner narrowed to a claw. (*Z. elegans*, Pursh.) Low, grassy land, Man.-Alta.

2. *Z. venenosus*, Wats.

Differing from the preceding by having the perianth free from the ovary, the sepals with broad, short claw, and the gland at the base not well defined. W. Sask. and Alta.

4. SMILACINA. FALSE SOLOMON'S SEAL.

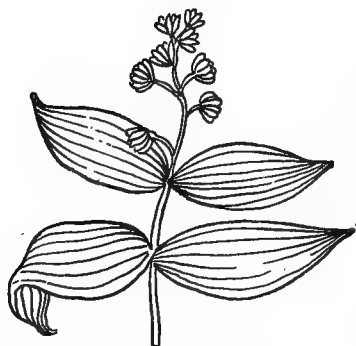


FIG. 12. — *Smilacina stellata*.

Perianth 6-parted, spreading, persistent; filaments 6, slender; ovary 3-celled; style short with an obscurely 3-lobed stigma. Perennial herbs with simple stems from a creeping rootstock, simple sessile leaves and white flowers.

1. *S. stellata*, (L.) Desf.

Stem 6-15 in. high from a slender rootstock; leaves usually arranged on opposite sides of the stem; raceme simple, few-flowered; stamens included; fruit a globu-

lar berry, striped at first and then turning dark. Moist soil, common, Man.-Alta.

2. *S. racemosa*, (L.) Desf.

Flowers almost sessile in a terminal raceme-like panicle; stamens exserted; rootstock stout and fleshy; berry red or speckled; otherwise resembling the preceding. Moist, rich woods, Man.-Alta.

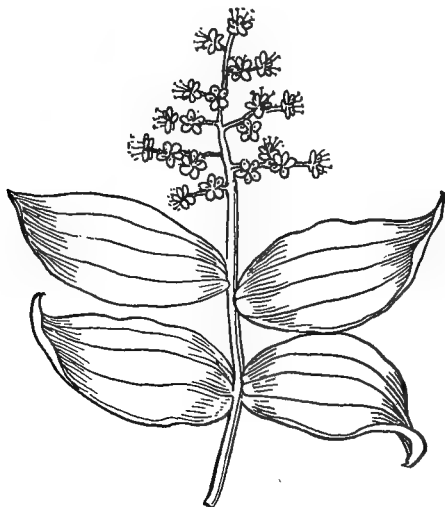


FIG. 13. — *Smilacina racemosa*.

4. MAIÁNTHEMUM.

Perianth 4-parted; stamens 4; ovary 2-celled; stigma 2-parted. Low herbs with few-leaved stems.

1. *M. canadense*, Desf.

Stem slender, smooth or slightly hairy, usually bearing 2 ovate or ovate-lanceolate leaves. Moist woods, common, Man.-Alta.

5. TOFIËLDIA. FALSE ASPHODEL.

Perianth spreading, persistent, white or greenish; stamens 6, filiform; ovary 3-lobed above; styles 3, short, recurved. Tufted perennial herbs with short rootstocks, slender, simple, erect stems, linear leaves clustered at the base, and flowers in a terminal raceme or spike.

1. *T. glutinosa*, (Michx.) Pers.

Stem 4-16 in. high, pubescent, covered with dark glands, and sticky to touch; leaves short, linear; seeds with a crooked tail at each end. Cold bogs and borders of mountain streams or lakes. From Hudson Bay westward, and in the Rocky Mts., and valleys of streams flowing eastward.

6. CALOCHÓRTUS.

Perianth segments narrow, separate, the three outer sepal-like, the three inner petal-like, bearded or spotted, and glandular within; stamens 6, hypogenous; ovary 3-celled; stigmas 3, recurved; seeds flat. Perennial herbs from coated corms, with narrowly linear leaves and large showy flowers.

1. *C. Nuttállii*, T. and G.

Stem 3-12 in. high, few-leaved, usually branched; leaves narrowly linear, the lowest generally with a bulblet in the axil; flowers, white, purplish, or yellowish, yellow within, with a gland at the base of each petal. Foothills of Rocky Mts.

7. ÁLLIUM. ONION.

Perianth of 6 colored sepals, distinct or but slightly united, and often persistent when dry; stamens 6, filaments frequently dilated at the base; style persistent, thread-like, and stigma only slightly, if at all, 3-lobed; capsule 3-valved. Strong-scented herbs from a coated bulb, with round scape-like leaves and flowers in a simple umbel, some of the flowers being frequently replaced by bulblets.

1. *A. Schœnóprasum*, L.

Scape 8-20 in. high, rather stout; bulbs narrowly ovoid, clustered, and fibrous-coated; umbel globular, many-flowered; flowers rose-purple; segments of the perianth lanceolate. Moist places, Man.-Alta.

2. *A. stellatum*, Ker.

Scape 6-15 in. high, slender, rather stiff above; bulbs narrowly ovoid, usually solitary, membranous-coated; leaves somewhat flat; umbel several or many-flowered, erect; flowers rose-pink; segments of the perianth ovate. Prairie, Man.-Alta., widely distributed, but never plentiful.

3. *A. cernuum*, Roth. NODDING WILD ONION.

Scape slender, 8-20 in. high; bulbs usually clustered, not fibrous-coated; leaves mostly shorter than the scape, flat or grooved; umbel many-flowered, nodding; flowers white or pink; segments of the perianth ovate. Prairies, Man.-Alta.

4. *A. reticulatum*, Don.

Scape 3-8 in. high; bulb usually solitary, covered with a network of fibres; umbel several-flowered, flowers white or pinkish. Dry prairie, Man.-Alta.

8. *DÍSPORUM*.

Perianth of 6 equal deciduous segments; stamens 6, with filaments longer than the anthers, exerted; style slender; stigma 3-cleft or entire; ovary 3-celled, usually with 2 ovules in a cell; berry red. Rather hairy branching herbs from slender rootstocks, with terminal drooping flowers.

1. *D. trachycarpum*, Wats.

Stem 1-2 ft. high; leaves oval to lanceolate, scarcely at all cordate; flowers yellowish white; style 3-lobed; berry leathery and roughened. Poplar groves, Man.-Alta.

9. *STRÉPTOPUS*. TWISTED STALK.

Perianth somewhat bell-shaped with the 6 separate segments spreading or recurved, the inner 3 keeled; stamens 6, filaments short, anthers long and arrow-shaped; style slender, 3-cleft; ovary 3-celled, the ovules in 2 rows in each cell. Branching herbs with sessile, clasping, alternate leaves, and flowers solitary or in pairs from the axils.

1. *S. amplexifolius*, (L.) DC.

Stem glabrous, 1-2 ft. high, usually branching below, from a short, stout rootstock closely covered with fibrous roots; leaves large, pointed, glaucous beneath, clasping, with a cordate base; flowers greenish white, the segments of the perianth narrow; peduncles often 2-flowered. Cool moist woods, never plentiful, Man.-Alta.

2. *S. röseus*, Michx.

Resembling the former, but the leaves narrower and only slightly, if at all, heart-shaped at the base, green on both sides; peduncles usually 1-flowered; flowers purple or rose-colored. Same range as preceding, but in rather drier soil.

10. *TRÍLLIUM*. WAKE ROBIN.

Sepals 3, spreading, herbaceous, persistent; petals 3, colored, withering; stamens 6; ovary 3 or 6-angled; fruit a berry. Low perennial herbs with simple stems springing from short rootstocks, and bearing at the top a whorl of 3 broad net-veined leaves, and a large terminal flower on a fairly long peduncle.

1. *T. cernuum*, L.

Flower white, turning pink; petals recurved; peduncle curved downward so that the flower is usually hidden by the large foliage leaves. May or June. Moist woods, Man.

11. *POLYGONATUM*. SOLOMON'S SEAL.

Perianth 6-lobed; stamens 6, inserted about the middle of the tubular perianth, included; ovary 3-celled with two ovules in each cell; style slender, jointed, and easily dropping off at the joint; berry black in our species. Perennial herbs with simple stems from knotted rootstocks, bearing nearly sessile or half-clasping simple leaves; flowers axillary, greenish, nodding, on jointed pedicels.

1. *P. commutatum*, (R. and S.) Dietr. GREAT SOLOMON'S SEAL.

Stem stout, 1-4 ft. high; leaves ovate, clasping below, sessile or nearly so above; peduncle several-flowered. Wooded river banks, Man. and westward.

12. *SMILAX*.

Leaves simple, prominently ribbed, petioled, net-veined; flowers dioecious; perianth segments similar, separate, deciduous, greenish yellow; stamens of pistillate flowers on the base of the perianth; ovary in fertile flowers 3-celled, with 1 or 2 ovules in each cell; stigma almost sessile; inflorescence an umbel on an axillary peduncle; fruit a berry. Shrubby or herbaceous plants with tendrils on the petioles.

1. *S. herbacea*, L. CARRION FLOWER.

Stem herbaceous, often tall and climbing; leaves ovate, smooth, 7-9-nerved; peduncles usually exceeding the leaves; flowers carrion-scented; berries black with a bloom. Rich woods and thickets, Man. and Sask.

13. *ERYTHRONIUM*. DOGTOOTH VIOLET.

Flowers large, nodding, usually solitary; perianth of 6 separate, narrow, colored, recurved segments, each with a gland or groove, and sometimes two short projections at the base; style long, 3-cleft at the apex; capsule oval or elliptical, 3-celled with several seeds in a cell. Low herbs from deep-seated corms or bulbs, and bearing 2 leaves at or near the base.



FIG. 14. — *Erythronium grandiflorum*.

1. *E. parviflorum*, (Wats.) Gooding.

Segments of the perianth bright yellow, greenish at the base, strongly recurved; anthers white or yellowish. (*E. grandiflorum*, var. *parviflorum* Wats.) a subalpine species. Rocky Mts.

2. *E. grandiflorum*, Pursh.

Resembling the preceding but with larger flowers and purple anthers. Rocky Mts.

14. CLINTONIA

Perianth divisions similar, deciduous; anthers attached near the centre. Stemless or short-stemmed herbs with flowers in umbels on a scape sheathed by the bases of the 2-4 large oblong leaves.

1. *C. borealis*, (Ait.) Raf.

Flowers greenish yellow in terminal or lateral umbels; scape 4-10 in. long; fruit a blue berry. Cool woods, E. Man.

XV. AMARYLLIDACEÆ (AMARYLLIS FAMILY).

Bulbous herbs with flat linear root leaves, closely resembling Liliaceæ, except that the perianth is adherent to the ovary and the flowers are usually borne on a scape.

1. HYPÓXIS. STAR GRASS.

Perianth spreading, withering, persistent in fruit; seed globular. Small stemless herbs with grass-like leaves and a few-flowered scape.

1. *H. hirsuta*, (L.) Coville. YELLOW STAR GRASS.

Leaves longer than the scape; perianth hairy, greenish outside, yellow within. Moist prairie, Man. and Sask.

XVI. IRIDACEÆ (IRIS FAMILY).

Herbs with equitant, 2-ranked, linear leaves and perfect flowers; parts of the perianth petal-like, the tube adnate to the 3-celled ovary; stamens 3, distinct, with extorse anthers. Perennials from fibrous roots or rootstocks; flowers from a spathe of 2 or more leaves.

1. IRIS. FLEUR-DE-LIS. FLAG.

Flower tube prolonged above the ovary, stamens distinct, the anthers sheltered by arching, somewhat petal-like branches of the style. Perennials with sword-shaped leaves and large showy flowers.

1. *I. versicolor*, L. LARGE BLUE FLAG.

Stem stout, angled on one side; leaves glaucous; fruit large, triangular flowers blue, variegated with green, yellow, and white towards the centre. Wet ground, E. Man.

2. SISYRÍNCIUM. BLUE-EYED GRASS.

Perianth spreading; fruit globular, 3-angled. Low, slender perennials with grass-like leaves and 2-winged stems; flowers from a 2-leaved spathe.

1. *S. angustifolium*, Mill.

Stems 1-12 in. high, stiff, glaucous, distinctly winged; flowers bright blue. Moist prairie, Man.-Alta.

2. *S. septentrionâle*, Bicknell.

Resembles the preceding but very much smaller, with relatively larger capsules. Moist prairie, Man.-Alta.

3. *S. mucronâtum*, Michx.

More tufted than *S. angustifolium*, and altogether more slender, with narrower leaves and stem very slightly winged; spathe often red or purple; bracts thin, the outer slender and much prolonged, enclosing the inner and more scarious bracts at the base; flowers deep blue. Man.-Alta.

4. *S. campêstre*, Bicknell.

Resembling *S. mucronâtum* but stiffer, the stem not winged, the spathe more one-sided; flowers pale blue or white; the outer bract not greatly prolonged, about twice the length of the inner, not clasping the other bracts at the base. Prairies, S. Man.

XVII. ORCHIDACEÆ (ORCHID FAMILY).

Perennial herbs with perfect but peculiarly irregular flowers. Perianth usually of 6 divisions, but sometimes apparently only of 5, the three outer mostly of the same color and texture as the inner. Of the inner divisions one called the lip differs from the others in shape, and is frequently prolonged backwards into a spur. This lip is really the upper petal, but in our species, owing to a half turn in the pedicel or ovary, it appears to be the lower. Rising from the base of the lip is the column, composed of one or two stamens, with sometimes the rudiments of a third, variously joined to the style. The anther, usually single, is 2-celled, each cell containing the pollen masses or grains; stigma rough and sticky; fruit 1-celled with 3 valves. A very large family containing many beautiful flowers.

1. *CYPRIPËDIUM*. LADY'S SLIPPER.

Lip large and inflated; 2 fertile stamens, one on each side of the column, and each bearing a 2-celled anther; pollen loose and pulpy or granular, but not in masses. On the upper side of the column there is a somewhat petal-like sterile stamen. Flowers mostly solitary and showy.

Flowers yellow.

1. *C. parviflorum*, Salisb. SMALL YELLOW LADY'S SLIPPER.

Stem 8-15 in. high, leafy, 1-several-flowered; the outer divisions of the perianth purplish, and the lip strongly marked with purplish spots or lines, and not as much inflated as in the next species; usually slightly fragrant. Low woods, Man.-Alta.

2. *C. pubescens*, (Willd.) Knight. LARGER YELLOW LADY'S SLIPPER.

Somewhat larger than the preceding, more hairy, and with larger lip less strongly marked with purple; often growing in clusters. Low woods or moist prairie, Man.-Alta.

Flowers pink.

3. *C. hirsutum*, Mill. SHOWY LADY'S SLIPPER.

Stem stout, leafy, 1-2 ft. high, hirsute, usually in clumps; leaves ovate, sepals rounded, rather longer than the petals; lip oblong, much inflated, white marked with crimson. (*C. spectabile*, Salisb.) Moist woods, Man.

4. *C. passerinum*, Richards.

Stem 6-10 in. high, softly pubescent; leaves lanceolate; upper sepal nearly circular, yellowish; lip globular, pink, spotted with crimson at the base. Wooded valleys of foothills of Rocky Mts.

2. HABENÀRIA.

Flowers small, greenish in our species, arranged in a spike or raceme, each in the axil of a bract; lip entire or toothed, but not fringed in any of our species; pollen in masses.

1. *H. bracteata*, (Willd.) R. Br.

Stem rather stout; lip 2 or 3-toothed at the apex, more than twice the length of the spur; flower bracts 2-4 times the length of the flowers. Moist thickets, Man.-Alta.

2. *H. hyperborea*, (L.) R. Br.

Stem more slender than the preceding; lip entire, lanceolate, curved upward, and about the same length as the spur; flower bracts not projecting above the flower. Cold moist woods or bogs, Man.-Alta.

3. ÓRCHIS.

Sepals and petals almost equal; lip spurred at the base, turned downward to join with the base of the column; pollen in coarse waxy grains cohering in two large masses; leaves 1 or 2; flowers pink, in a raceme.

1. *O. rotundifolia*, Banks.

Stemless; leaf solitary; scape 4-8 in. high; flowers pink; lip 3-lobed
Moist woods and banks, Alta.

4. *EPIPACTIS*. RATTLESNAKE PLANTAIN.

Lip sac-shaped, with recurved tip; upper sepals and petals united over the lip; pollen masses 2. Herbs consisting of a clump of dark green, somewhat mottled leaves from a fleshy rootstock, and a scape bearing a racème of whitish downy flowers.

1. *E. repens*, (L.) Crantz; var. *ophioides*. (Fernald), A. A. Eaton.

Scape 4-6 in. high; leaves ovate to oblong, with dark veins bordered with white; lip inflated. Cold damp woods, N. Man.-Alta.

5. *CALÝPSO*.

Sepals and petals alike and nearly equal; lip large, inflated, 2-parted; column petal-like with the anther just below the apex; pollen masses 2. Bog plants from solid corms, with solitary flowers borne on scapes sheathed with 2 or 3 scaly bracts, and a solitary leaf at the base.

1. *C. bulbosa*, (L.) Oakes.

Scape 3-6 in. high; leaf almost round; flower richly colored in purple, pink, and yellow; lip hairy near the point of division; petals and sepals narrow. (*C. borealis*, Salisb.) Bogs and mossy woods, Rocky Mts.

6. *LISTÈRA*.

Sepals and petals nearly alike, spreading; lip 2-lobed, drooping; anther erect, jointed to the back of the column; pollen powdery, in two masses. Small plants with fibrous roots, and a simple stem with 1 or 2 scales at the base, a pair of opposite leaves about the middle, and a terminal raceme of small spurless flowers.

1. *L. convallarioides*, (Sw.) Torr.

Stem 4-10 in. high, pubescent above the leaves; leaves smooth, ovate; flowers greenish yellow, with petals and sepals shorter than the lip. Rich woods, Rocky Mts.

7. *SPIRÁNTES*. LADIES' TRESSES.

Perianth somewhat gaping, the upper sepal united with the petals, lip spreading and crisped or crinkled, but rarely toothed, and bearing two hard projections at the base; column short, with the

stigma on the front and the anther on the back; pollen masses 2. Slender herbs from fleshy or tuberous roots bearing spikes of small spurless flowers in 1-3 more or less spirally twisted rows.

1. *S. Romanzoffiana*, Cham.

Stem 3-15 in. high, leafy below and bracted above; leaves oblong to linear; scape pubescent above; spike dense, the flowers appearing in several rows; flowers yellowish white, the lip constricted near the middle, and the apex recurved. Wet places, Man.-Alta.

2. *S. gracilis*, (Bigel.) Beck.

Stem slender, 8 in.-2 ft. high, from a cluster of spindle-shaped tuberous roots; flowers white with a greenish lip, fragrant, in a single row, usually spirally twisted around the axis. Open woods and grassy slopes, N. Man., westward and northward.

8. CORALLORRHIZA. CORAL ROOT.

Perianth gaping, very slightly spurred, the sepals and petals colored alike. Reddish or yellowish saprophytic herbs, without green leaves, springing from branched and knotted rootstocks; flowers in a raceme and about the color of the stem.

1. *C. trifida*, Chatelain.

Stem rather slender, 4-12 in. high, glabrous, yellowish, with a few scales; lip whitish without red markings, notched at the apex, and a small tooth on each side near the base; spur obscure. Cool, moist woods, Man.-Alta.

2. *C. maculata*, Raf.

Stem stouter than the preceding, 6-18 in. high, clothed with several scales, reddish purple; lip white, spotted or marked with red, deeply 3-lobed, the middle lobe broad, rather square, and curved downward at the apex. Red River Valley at Winnipeg.

CLASS II. DICOTYLEDONEÆ.

Net-veined leaves, exogenous stems, and dicotyledonous seeds.

XVIII. SALICACEÆ (WILLOW FAMILY).

Dioecious trees or shrubs with both kinds of flowers in catkins, without perianth, and each in a bract or scale; fruit a pod, 1-celled and 2-4-valved, with numerous seeds furnished with long, silky down; stigmas 2; leaves alternate, stipulate, the stipules often deciduous or scale-like.

1. *SALIX*. WILLOW.

Sterile flowers generally of 2 more or less distinct stamens, with 1 or 2 small glands at the base; fertile flowers a single pistil with 2 stigmas or one 2-lobed stigma and a gland at the base. Trees or shrubs with long, supple branches, long, pointed and entire leaves, and catkins usually appearing before the leaves.



FIG. 15. — Catkins of a Willow.

A staminate flower is shown at *s*, and a pistillate flower at *p*. The staminate and pistillate are on different plants.

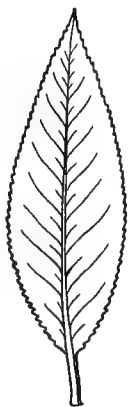


FIG. 16. — *Salix amygdaloides*.



FIG. 17. — *Salix longifolia*.

1. *S. amygdaloides*, Anders. PEACH-LEAVED WILLOW.

Leaves lanceolate or ovate-lanceolate, pale beneath, petioles slender, stipules deciduous; fertile catkins loose in fruit. A large, rough-barked tree. Sandy shores, Man.-Alta.

2. *S. longifolia*, Muhl. SAND BAR WILLOW.

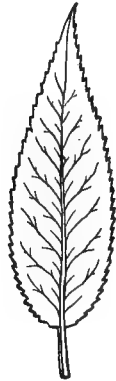
Leaves long and narrow, tapering at each end, more or less hairy when young, smooth and green when older; stipules small, deciduous; catkins slender, usually clustered at the ends of the branches. A shrub spreading extensively from the roots, forming dense thickets. Sandy shores or alluvial flats, Man.-Alta.

3. *S. candida*, Flügge. SAGE WILLOW.

Leaves oblong to lanceolate, somewhat rigid, downy above when young and densely tomentose beneath, the margin almost entire and turned under; catkins cylindrical, densely flowered; style and stamens red; capsule densely white-woolly. A low shrub with hoary leaves, the young shoots white-woolly, becoming red when older. Cold bogs, Man.-Alta.

4. *S. cordata*, Muhl.

Leaves pubescent when young, oblong-lanceolate, serrate, green on both sides or paler beneath, acute at the apex and subcordate at the base; stipules large, oblique, serrulate, usually persistent; catkins appearing before the leaves, with two bracts at the base, the sterile about 1 in. long, the fertile becoming much longer in fruit; stamens 2; style short. A large shrub 6-12 ft. high, usually growing in clumps. Moist places, Man.-Alta.

FIG. 18. — *Salix candida*.FIG. 19. — *Salix desertorum*.FIG. 20. — *Salix cordata*.5. *S. desertorum*, Richards. DESERT WILLOW.

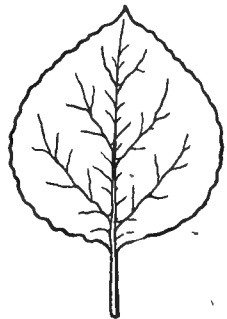
Leaves oblong to lanceolate, tapering to both ends, pubescent at least while young, entire or nearly so; stipules early deciduous; catkins appearing with the leaves, with leafy bracts at the base about $\frac{1}{2}$ in. long; stamens 2; stigma 2-cleft; capsule densely tomentose. A tall shrub with purplish green twigs. Dry slopes, Cypress Hills to Rocky Mts., and northward.

2. PÓPULUS. POPLAR.

Flowers from an irregular cup-shaped disk; bracts irregularly out at the apex; stamens 8-60, distinct; stigmas 2 or 4, long; seed pods 2-4-valved; catkins appearing before the leaves. Trees with broad, often heart-shaped leaves on flattened petioles.

1. *P. tremuloides*, Michx. AMERICAN ASPEN.

A slender tree with smooth greenish white bark; leaves heart-shaped, sharp-pointed; petioles long, slender, and flat. The common 'white poplar' of the prairie region. Man.-Alta.

FIG. 21. — *Populus tremuloides*.

2. *P. balsamifera*, L. BALSAM POPLAR.

A larger tree than the preceding, with the bark becoming rougher as the tree increases in size; buds large and smeared with a fragrant resin; leaves ovate-lanceolate, taper-pointed. The tree commonly called black poplar or Balm of Gilead, and widely distributed over the prairie region. Man.—Alta.

3. *P. deltoides*, Marsh. COTTON-WOOD.

A large tree with very rough bark and broad deltoid leaves on flattened petioles often tinged with red; stamens about 60; catkins long, easily dropping, and spreading the seeds, which, being furnished with copious down, become very noticeable. River valleys, Man.—Alta.

4. *P. alba*, L. WHITE POPLAR.

Leaves oval, coarsely sinuate, toothed, densely white-woolly when young, becoming smooth and dark green above. A fair sized tree with the branches white-woolly when young; often spreading from the root. Introduced, but frequently used for ornamental purposes in Manitoba.

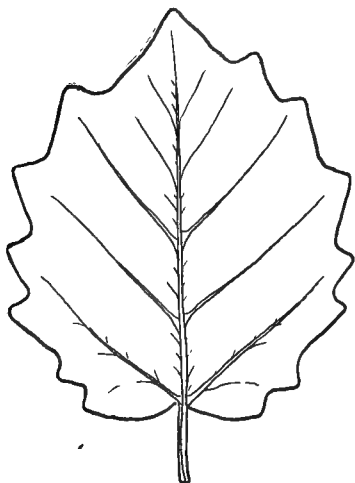


FIG. 22. — *Populus alba*.

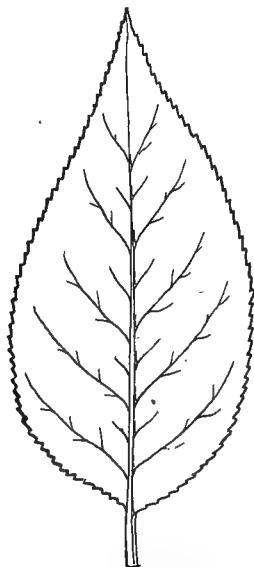


FIG. 23. — *Populus balsamifera* (Western form).

XIX. BETULACEÆ (BIRCH FAMILY).

Monococious trees or shrubs with alternate simple leaves and deciduous stipules; the sterile flowers in catkins, the fertile often in dense cylindrical spikes; ovary 2-celled; styles 2.

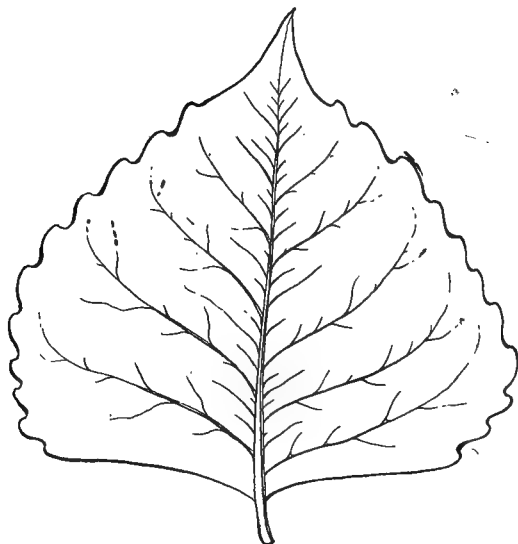


FIG. 24. — *Populus deltoides*.

1. *CÓRYLUS*. HAZELNUT.

Sterile flowers consisting of 8 stamens and a pair of scaly bracts, in catkins in the axils of the branches of the preceding year; fertile flowers clustered in a scaly bud at the ends of the shoots, easily recognized by the long, slender red stigmas appearing before the leaves in early spring; fruit a nut with much thickened cotyledons and enclosed in a leaf-like involucre. Shrubs with thin double-toothed leaves folded lengthwise in the bud.

1. *C. americana*, Walt. HAZELNUT.

Involucre of 2-toothed and somewhat distinct bracts opening down to and disclosing the globular nut. Thickets, Man. and Sask.

2. *C. rostrata*, Ait. BEAKED HAZELNUT.

Bracts of the involucre united and prolonged above the nut into a tubular beak densely covered with minute bristles; nut ovoid. Thickets, Man.-Alta.

2. *ÓSTRYA*. IRONWOOD.

Sterile flowers in slender drooping catkins with several stamens in the axil of each bract; fertile flowers in shorter catkins, two in

the axil of each bract, each consisting of a more or less 2-celled ovary with the rudimentary calyx and 2 long stigmas attached, and enclosed by a bract which becomes enlarged and bladder-like in fruit, these overlapping to form a sort of hop. Slender trees with simple alternate leaves.

1. *O. virginiana*, (Miller) Koch.

Leaves sharply double-serrate and prominently veined. A small tree with hard wood and gray, shreddy bark. S. E. Man.

3. **BÉTULA. BIRCH.**

Sterile flowers 3 to each scale of the catkin, rudiments of a calyx present, bract shield-shaped; fertile flowers 2 or 3 to each bract of the catkin, no rudimentary calyx, bract 3-lobed; ovary naked, becoming a winged nutlet. Trees or shrubs with smooth outer bark, separable into sheets.

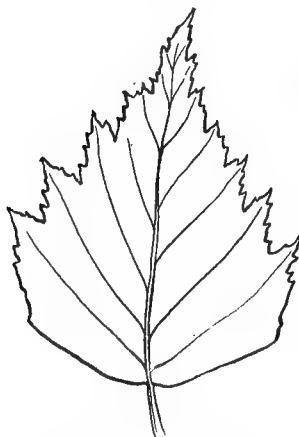


FIG. 25.—*Betula alba*.

1. *B. álba*, L. WHITE or CANOE BIRCH.

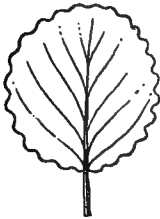
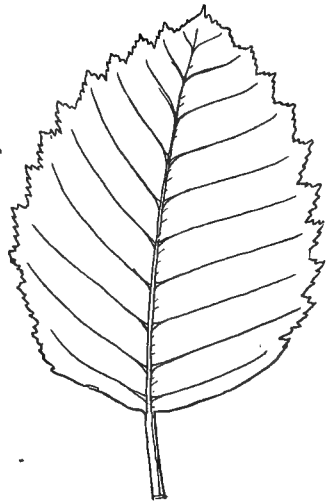
Branchlets erect; leaves ovate, tapering to a point, unequally doubly serrate, pale green beneath, slightly hairy on the veins; fruiting catkins generally drooping on slender peduncles. A small to medium-sized graceful tree in our range, but the species varies widely, containing many varieties ranging from shrubs to large trees. Across the continent.

2. *B. pùmila*, L. SWAMP BIRCH.

Young branchlets and lower sides of young leaves downy; leaves obovate to orbicular, coarsely dentate, glabrous above when mature but the pubescence often persisting beneath; fruiting catkins erect, about 1 in. long. A shrub sometimes reaching 15 ft. in height. Bogs and wet places, Man.—Alta. (Var. *glandulifera*, Regel, young branchlets and leaves, glandular-dotted, is also found. The variety is probably the more common western form, but the distinctions between it and the type are not always clearly marked.)

3. *B. glandulôsa*, Michx. DWARF BIRCH.

Branchlets brown, rough, glandular, not pubescent, erect; leaves obovate or orbicular, coarsely crenate dentate, glabrous on both sides and glandular beneath; fruiting catkin erect, $\frac{1}{2}$ to 1 in. long. A shrub 2-4 ft. high. Hudson Bay to Rocky Mts. and southward in the mountains and foothills. When alpine often procumbent.

FIG. 26. — *Betula pumila*.FIG. 27. — *Betula glandulosa*.FIG. 28. — *Alnus incana*.4. *ÁLNUS*. ALDER.

Sterile flowers with 4 or 5 bractlets and usually 3 flowers to each scale of the catkin, each flower with a 3-5-parted calyx and the same number of stamens; fertile catkins cylindrical or ovoid, made up of fleshy scales, with 2 or 3 flowers in the axil of each; calyx of 4 bracts. Small trees or shrubs usually growing in clumps.

1. *A. incana*, (L.) Moench. TAG ALDER.

Flowers developed before the leaves; catkins clustered; fruit wingless; leaves broadly ovate, serrate, or doubly serrate, downy beneath. Borders of streams or wet places, Man.-Alta.

XX. FAGACEÆ (BEECH FAMILY).

Monœcious trees or shrubs with alternate pinnately-veined leaves and deciduous stipules; sterile flowers in catkins or clusters; fertile flowers solitary or in small clusters; ovary 3-7-celled; ovules 1 or 2 in each cell, but only one ripening; styles 3; the 1-seeded nut at least partly enclosed in a hard covering composed of more or less united bracts.

1. QUÉRCUS. OAK.

Sterile flowers in slender naked catkins; stamens 3-12; calyx, 2-8-parted; fertile flowers not in catkins but sometimes clustered; ovary enclosed in a scaly cup-like involucre forming a fruit called an acorn. Trees with heavy durable wood, rough bark, and usually sinuate-pinnatifid leaves.



FIG. 29. — *Quercus macrocarpa*.

1. *Q. macrocarpa*, Michx. BUR OAK.

Leaves lyrate-pinnatifid or deeply sinuate; cup deep, almost enclosing the nut, and furnished with a fringe of bristles around the edge. A valuable tree in moist climates, but in our range seldom reaching large size. Rich soil, Man. north to Lake Winnipegosis and into eastern Sask.

XXI. URTICACEÆ (NETTLE FAMILY).

Herbs, trees, or shrubs, with alternate or opposite stipulate leaves (stipules often deciduous) and monœcious, diœcious, or (in the elm) perfect flowers; calyx free from the ovary; ovary 1 or 2-celled forming a 1-seeded fruit; stamens as many as the lobes of the calyx.

1. ÚLMUS. ELM.

Flowers perfect; calyx 4-9-cleft, bell-shaped; stamens 4-9, with slender filaments; ovary 1 or 2-celled with a single ovule in each cell; fruit winged all around. Trees with tough wood and rough scaly bark.

1. *U. americana*, L. AMERICAN WHITE ELM.

Buds and branchlets smooth; leaves obovate or oval, abruptly pointed, soft-pubescent beneath, and usually oblique at the base; flowers in close fascicles. A rough-barked tree, usually with long spreading branches, and often with drooping branchlets, much used for ornamental purposes. Rich moist soil, especially along rivers, Man. and E. Sask.



FIG. 30. — *Ulmus americana*.

2. CÉLTIS. HACKBERRY.

Flowers monœcious with sometimes a few perfect; calyx 5 or 6-parted, persistent; stamens the same number as the calyx lobes; ovary 1-celled with a single ovule; stigmas 2, long, recurved; fruit a drupe. Trees with large pointed leaves, very oblique at the base,

and bark prominently marked by broken spiral layers of very much thickened cork; flowers greenish, the fertile solitary or in pairs, the sterile fascicled.

1. *C. occidentâlis*, L. HACKBERRY.

Leaves ovate, pubescent, particularly beneath, usually taper-pointed and oblique at the base, variable in texture; fruit dark purple when mature, edible. A tree with something the appearance of the elm, but easily distinguished by its larger leaves and the thickened bands of cork in the bark. Very local and usually growing in colonies of fairly mature trees. The south end of Lake Manitoba.

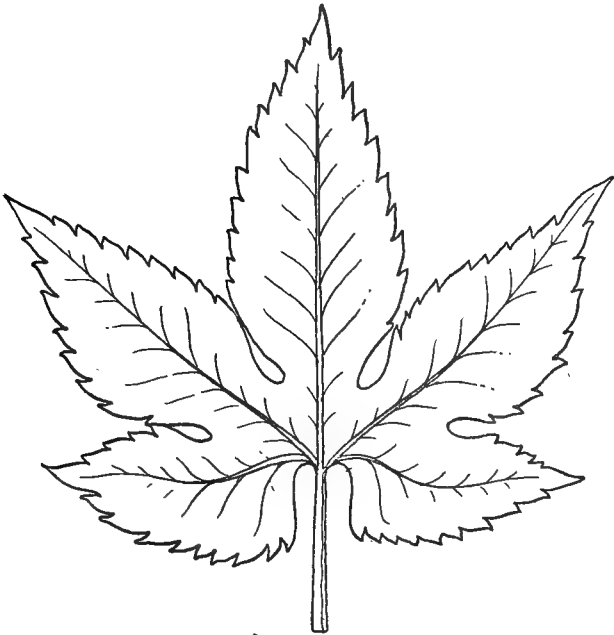


FIG. 31. — *Humulus Lupulus*.

3. *HUMULUS*. HOP.

Flowers dioecious, axillary, the sterile in long loose panicles, the fertile in short spikes (hops) with foliaceous bracts; calyx of sterile flowers 5 sepals, that of fertile a single bract; stamens 5; fruit an

achene enclosed by the large calyx scale. Rough, twining, perennial herbs.

1. *H. lupulus*, L. COMMON HOP.

Leaves 3-5-lobed; the calyx of the fertile flowers sprinkled with somewhat resinous grains giving it a peculiar (hop) aroma. Moist places, Man. north to Lat. 53°, and westward in river valleys.

4. *URTICA*. NETTLE.

Flowers monœcious or diœcious, in clusters; in sterile flowers sepals 4, stamens 4; in fertile flowers sepals 4, in pairs, the 2 outer smaller, spreading, the two inner enclosing the flattened achene. Herbs with opposite leaves, greenish flowers, and armed with stinging hairs.

1. *U. grácilis*, Ait.

Perennials; leaves ovate-lanceolate, pointed, serrate; flowers in loose panicles; sparingly armed with stinging hairs. Moist ground, Man.-Alta.

2. *U. diõica*, L. STINGING NETTLE.

Resembling the preceding but stouter, the leaves on shorter petioles, and the stems densely beset with coarse stinging hairs. Introduced, but frequently found in waste places about towns.

XXII. *SANTALACEÆ* (SANDALWOOD FAMILY).

Herbs, shrubs, or trees (in our species somewhat woody herbs) with entire leaves; calyx 4 or 5-cleft, its tube coherent with the 1-celled ovary; ovules 2-4, suspended from the top of the column of a free central placenta; fruit indehiscent, and only 1-seeded, owing to all the ovules not developing.

1. *COMÁNDRA*. BASTARD TOAD-FLAX.

Calyx urn-shaped, erect, having a disk adhering to the base; anthers connected by hairs to the calyx tube. Smooth perennial herbs from a woody base, with alternate leaves and greenish flowers.

1. *C. Richardsiãna*, Fernald.

Rootstock spreading near the top of the ground; stems leafy, 4-10 in. high; leaves lanceolate, ascending; inflorescence a sort of corymb. Dry soil, Man. and Sask.

2. *C. pállida*, A. DC.

Leaves linear or nearly so, glaucous, acute. Dry soil, S. Man. and Sask.-Alta.

3. *C. lívida*, Richards.

Stems slender, 4-10 in. high; leaves oval, thin, short-petioled; cymes axillary, not numerous, and few-flowered; fruit red, globular, the calyx teeth persisting as a crown. Bogs and mountains, N. Man.-Alta.

XXIII. POLYGONACEÆ (BUCKWHEAT FAMILY).

Herbs with alternate entire leaves and stipules sheathing the stem above the swollen joints; flowers perfect, usually with persistent calyx; ovary 1-celled with 2 or 3 styles or stigmas, one-seeded; fruit usually a 3 or 4-angled achene.

1. RUMEX. DOCK.

Calyx of 6 sepals, the three inner slightly colored and enclosing the 3-angled achene; stamens 6; styles 3. Coarse herbs with loose racemes of small dull-colored flowers.

1. *R. venòsus*, Pursh.

Stems 1-2 ft. high from a creeping rootstock; leaves oblong to lanceolate, petioles slender, stipules dilated; raceme short and dense, appearing pink in fruit from the color of the sepals enclosing the achene. Light soil, W. Sask.

2. *R. occidentàlis*, Wats.

Stems stout, erect, 2-4 ft. high, usually tinged with purple; leaves large; sepals enclosing the achene large and blunt-pointed. Damp alkaline soil Man.-Alta.

3. *R. persicarioides*, L. GOLDEN DOCK.

Stem 8 in.-2 ft. high branched, finely pubescent; leaves linear to lanceolate, wavy on the margin, the lower heart-shaped at the base; inner sepals with 2 or 3 spines on the back. Wet alkaline soil, Man.-Alta.

4. *R. mexicànus*, Meisn.

Erect; leaves lanceolate to oblong, pale, glaucous; panicle strict, dense; calyx brown. Alkaline soil, Man.-Alta.

5. *R. acetosélla*, L. SHEEP SORREL.

Stem low, 6-10 in.; leaves, or at least the lower ones, halberd-shaped, sour to the taste; sepals not sufficiently enlarged to enclose the achene, dull reddish in fruit. Sandy soil, introduced.

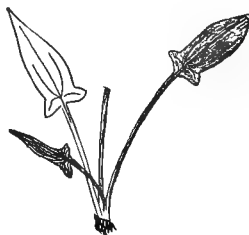


FIG. 32. — *Rumex acetosella*.

2. POLYGNONUM. KNOTGRASS.

Calyx mostly 5-parted, the divisions often petal-like, and usually withering; styles or stigmas 2 or 3; achene angled according to the number of stigmas. Slender or prostrate herbs usually from fibrous roots.

1. *P. aviculare*, L. KNOTGRASS.

Leaves small, lanceolate, with the flowers in the axils; sepals small, green with pink borders; stamens 5 or 8. Slender or prostrate herbs of a bluish green color forming a mat on the ground. Very common around dwellings; introduced.

2. *P. amphibium*, L.

Stem slender, ascending or prostrate; leaves elliptical to lanceolate; pike dense; flowers bright rose-pink.

Aquatic herbs but continuing to grow in the mud after the water has dried up; the leaves long-petioled, floating, and the spikes of rose-colored flowers protruding from the surface of

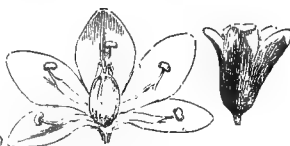


FIG. 33. — *Polygonum aviculare*.

the water or standing erect above the decumbent or prostrate stems. Man.-Alta.

3. *P. Convólvulus*, L. WILD BUCKWHEAT or BLACK BINDWEED.

A twining or procumbent annual with slightly halberd-shaped leaves and irregular racemes of small whitish flowers; achene 3-angled, black. A common introduced weed.

4. *P. vivíparum*, L.

Stem low, simple, glabrous, erect, from a corm-like rootstock; root leaves oblong, petioled, cordate; stem leaves linear or lanceolate, sessile; raceme terminal, strict, rather dense, with some dark-colored bulblets just below the base. Swampy places, W. Alta.

3. ERIÓGNONUM.

Calyx 6-parted, colored, persistent; stamens 9, on the calyx; styles 3; achene triangular. Mostly perennial herbs with the flowers on short pedicels mixed with narrow chaffy bracts, and surrounded by a 4-8-lobed involucre.

E. flavum, Nutt.

Stem simple or tufted, woody, more or less creeping; scape 2-10 in. high, erect; leaves linear to oblong, crowded on the short stem; the whole plant white-woolly throughout; flowers in heads surrounded by an involucre, the heads arranged in an umbel with leaf-like bracts at the base. Dry gravelly ridges, W. Man.-Alta.

XXIV. CHENOPODIACEÆ (GOOSEFOOT FAMILY).

Coarse and somewhat succulent herbs with alternate exstipulate leaves and minute greenish flowers; calyx 3-5-parted, or of a single sepal, or wanting; stamens about as many as the lobes of the calyx; ovary 1-celled becoming a 1-seeded utricle mostly enclosed by the persistent calyx. A family containing many of our most prevalent weeds.

1. CHENOPÏDIUM. GOOSEFOOT.

Calyx 5-parted, enclosing the fruit; stamens mostly 5; styles 2 or 3; seed with its longest diameter across the flower. Weedy plants, generally more or less covered with a white mealiness; containing many weeds, mostly introduced.

1. **C. capitatum**, (L.) Asch. STRAWBERRY BLITE.

Stem ascending, branched; leaves triangular to halberd-shaped and sinuate-toothed; flower spikes interrupted, the calyx becoming fleshy in fruit, making the spike look like clumps of strawberries. Moist sandy soil. Man.-Alta.

2. **C. rubrum**, L. COAST BLITE.

Stem 6-18 in. high, angled, much branched; leaves rather thick, not mealy, pointed at both ends — the upper almost linear — sparingly and coarsely toothed; calyx lobes 2-5, somewhat fleshy, turning dull red in fruit; stamens 1 or 2; flower clusters scattered in leafy spikes in the axils of the leaves; seed black, shiny. Alkaline soil, Man.-Alta.

3. **C. humile**, Hook.

Resembling the preceding but dwarf, with somewhat spatulate leaves. Alkaline marshes, Man.-Alta.

4. **C. hybridum**, L. MAPLE-LEAVED GOOSEFOOT.

Stem erect, widely branched, 1-3 ft. high; leaves thin, somewhat triangular, taper-pointed, the margin with a few large pointed teeth; racemes loose, leafless; calyx not covering the fruit. Waste places, Man.-Alta.



FIG. 34. — *Chenopodium album*.

An unsightly weed in waste places about towns in Man., and extending westward along the railways.

5. *C. glaucum*, L. OAK-LEAVED GOOSEFOOT.

Stem low, spreading, mealy; leaves oblong, pale beneath, sinuately-toothed; flowers in small axillary spikes. Waste places and alkaline soil, Man.—Alta.

6. *C. album*, L. LAMB'S QUARTERS, FIGWEED.

Erect, 1–4 ft. high, generally mealy; leaves varying from almost linear above to ovate below, the lower angular-toothed; flower clusters dense; lobes of the calyx covering the seeds. A common weed in cultivated ground.

2. ÁXYRIS

Flowers monœcious; sterile very small with 3–5-parted calyx and 2–5 stamens, fertile with 3–4-parted calyx, 2 stigmas and flattened ovary, rather hairy and arranged below the sterile; utricle enclosed in the perianth.

1. *A. amarantoides*, L. RUSSIAN FIGWEED.

Erect, 1–2½ ft. high, slightly pubescent, much branched; leaves ovate to lanceolate, mostly entire, on slender petioles; flowers in dense leafy clusters the minute staminate ones towards the ends of the stems; fruit oval, flattened; seed black but not shiny.

3. ÁTRIPLEX.

Herbs resembling the last genus except that the flowers are monœcious or dicecious, the sterile resembling the flowers of the *Chenopodium*, with an undeveloped pistil, the fertile consisting of a naked pistil enclosed by a pair of bracts which become enlarged in fruit; the long axis of the seed lengthwise with the flower.

1. *A. argentea*, Nutt.

Low, much branched, gray-scurfy; leaves varying from deltoid to hastate; sterile flowers in terminal spikes, the fertile in axillary clusters; bracts of the fertile flowers united, with their margins toothed or wavy. Waste places, Man.—Alta.

2. *A. Nuttállii*, Wats.

A whitish or pale green scurfy shrub 1–2 ft. high, with rather stiff, erect branches; leaves linear to oblong or oblanceolate; flowers in dense clusters

along short axillary branches; fruiting bractlets toothed or spiny. Dry or alkaline soil, W. Sask. and Alta.

3. *A. pátula*, L.; var. *hastáta*, Gray.

Annual, erect or spreading, 1-2 ft. tall, pale green or slightly scurfy; leaves on slender petioles, the lower broadly triangular, the upper lanceolate; flowers in interrupted leafy spikes; fruiting bractlets often tubercled. Margins of alkaline sloughs, Man.-Alta.

4. MONÓLEPIS.

Flower small, calyx of one entire bract-like fleshy sepal; utricle somewhat flattened, containing a very much flattened seed.

1. *M. Nuttalliána*, (R. and S.) Wats.

Stem branched from the base, the lower branches often resting on the ground, pale green, very slightly, if at all, mealy; lower leaves hastate, passing above into leaf-like bracts. Alkaline soil, Man.-Alta.

5. SÁLSOLA. SALTWORT.

Flowers perfect; calyx 5-parted; stamens 5; styles 2. Branching herbs with fleshy linear leaves, at least while young, and sessile axillary flowers.

S. Kâli, L. COMMON SALTWORT.

Annual, diffusely branched; leaves alternate, awl-shaped, becoming stiff and prickle-pointed. Var. *Tenuifolia*, G. F. W. Mey, Russian Thistle, introduced from Europe, has become a most troublesome weed.

XXV. AMARANTHÀCEÆ (AMARANTH FAMILY).

Coarse weedy plants very much resembling the preceding family except that the flower is enclosed in a number (usually 3) of dry persistent bracts, which often change color, making the plant showy. Mostly tropical.

1. AMARÁNTHUS. AMARANTH.

Bracts surrounding the flower 3; stamens 2-5, separate; stigmas 2 or 3; fruit dry, containing one black shiny seed. Coarse annual weeds, or, in one case, an ornamental plant, owing to the coloring of the bracts.



FIG. 35. — *Amaranthus retroflexus*.

1. *A. retroflexus*, L. REDROOT PIGWEED.

Rough, pubescent; leaves ovate, long-petioled; flowers in a spike made large and somewhat rigid by the presence of the stiff sharp-pointed bracts. A common weed in cultivated ground.

XXVI. NYCTAGINACEÆ (FOUR-O'CLOCK FAMILY).

Herbs with opposite entire leaves, stems swollen at the joints, and calyx colored like a corolla, the persistent base becoming restricted above the 1-celled ovary forming a nut-like fruit.

1. OXYBAPHUS.

Calyx tube short; stamens 3, hypogenous; style filiform with a somewhat club-shaped stigma; fruit several-angled. Perennial herbs with rose-colored flowers, 3-5 in a cluster, surrounded by a saucer-shaped involucre.

O. nyctagineus, (Michx.) Sweet.

Stem smooth or nearly so; leaves ovate, petiolate except at the top; inflorescence axillary, consisting of a single cluster in each axil below, but becoming crowded above; involucre broad. Sandy shores, local and rare. Wood End, Souris River, (Dawson) Delta, Man.

O. hirsutus, (Pursh) Sweet.

Stem glandular, hairy, lanceolate, sessile or nearly so; fruit not so sharply angled as the preceding. Dry sandy plains, local but more frequent. Sand Hills along the Red River Valley, Qu'Appelle Valley, sandy places W. Sask.

XXVII. CARYOPHYLLACEÆ (PINK FAMILY).

Herbs with opposite entire leaves; stems swollen at the joints; flowers with or without petals, 4 or 5-merous; stamens distinct, never more than twice the number of the sepals, and arranged either on the receptacle or on the corolla; styles 2-5; fruit a 1-5-celled pod with the seeds attached around the base of the central column. A large family containing a few more or less troublesome weeds and a large number of our most beautiful cultivated flowers.

1. STELLÀRIA. CHICKWEED.

Sepals 4 or 5; petals when present white, deeply 2-cleft so as frequently to look like 10 petals; stamens not more than 10; styles 3. Low annual or perennial plants with white star-shaped flowers.

1. *S. boreàlis*, Bigel.

Stems weak, reclining, many times forked, and ending in leafy cymes of small and inconspicuous flowers. Damp shady places, Man.-Alta.

2. *S. lóngipes*, Goldie.

Erect or nearly so, 4-10 in. high, glabrous; leaves linear to lanceolate, gradually narrowing from near the base, shining; inflorescence terminal; pod ovoid, protruding beyond the sepals, dark, shining. Dry soil, Man.-Alta.

3. *S. longifòlia*, Muhl. LONG-LEAVED STITCHWORT.

Stem erect, weak, generally roughened on the angles, 6-15 in. high; leaves linear, tapered at both ends; inflorescence a leafy cyme; fruit pale. Damp grassy places, Man. Alta., not common in our range.

4. *S. mèdia*, (L.) Cyrill. COMMON CHICKWEED.

Low, annual, or sometimes living over winter; stem hairy in lines; leaves ovate, some on hairy petioles; petals 2-cleft and shorter than the calyx. An introduced weed becoming common on neglected lawns and other waste places, where it forms a close mat on the ground, smothering out the grass.



FIG. 36. — *Stellaria media*.

2. CERÀSTIUM. MOUSE-EAR CHICKWEED.

Sepals 5 (4 in one species); petals the same number as the sepals, notched at the apex but not deeply cleft; styles as many as the sepals and opposite to them; pod 1-celled.

1. *C. arvénse*, L. FIELD CHICKWEED.

Flowering stems erect or nearly so and almost destitute of leaves; the other stems ascending, leafy; leaves linear to lanceolate, usually hairy; petals much longer than the calyx. Dry places, common, Man.-Alta.

2. *C. vulgàtum*, L. COMMON MOUSE-EAR CHICKWEED.

Stem low, spreading, densely viscid-pubescent; leaves ovate to spatulate; flowers clustered, and pedicels longer than the calyx. An introduced doorway weed, but not yet very common in the West.

3. AGROSTÉMMA. CORN COCKLE.

Calyx 5-cleft, the long narrow divisions much exceeding the 5 large petals; stamens 10; styles 5, opposite the petals. Soft-hairy annual or biennial herbs occurring in grain crops.

1. *A. Githago*, L. PURPLE COCKLE.

Erect, 1-3 ft. high, little if at all branched; leaves linear or nearly so; flowers large, solitary, purplish red often spotted with black, and paler towards the centre of the flowers. A fairly common introduced weed in cultivated crops.

4. SILÈNE. CATCHFLY OF CAMPION.

Calyx 5-toothed, usually strongly marked with not less than 10 nerves; stamens 10; styles 3; flowers mostly solitary or in cymes, but occasionally racemose.

Calyx not inflated.

1. *S. noctiflora*, L. NIGHT-FLOWERING CATCHFLY.

Stem tall; lower leaves large and somewhat spatulate, upper smaller and narrower; both stem and leaves viscid-pubescent; flowers few, large, white or pinkish, sweet-scented, and opening at night. A field weed in cultivated ground, introduced.

2. *S. Menzièsii*, Hook.

Stem low, weak, forked-branched; petals 2-cleft, flowers small, white, in leafy cymes. N. Man.-Alta.

Calyx much inflated.

3. *S. latifolia*, (Mill.) Britten and Rendle. BLADDER CAMPION.

Stem weak, growing in clumps, glaucous; leaves opposite, ovate-lanceolate; calyx much inflated; petals 2-cleft. An introduced weed occasionally found about dwellings.

5. LÝCHNIS. CAMPION.

Closely resembling *Silène* but with 5 styles, and the pod opening with 10 teeth.

1. *L. álba*, Mill. WHITE COCKLE.

Leaves ovate to oblong; flowers white, opening in the evening. A biennial weed in cultivated ground distinguished from *Silène noctiflora* by its 5 styles.



FIG. 37. —
Agrostemma
githago.

6. ARENÀRIA. SANDWORT.

Sepals 5; petals 5, not notched at the apex; stamen 10; styles 3; pod short. Low tufted herbs with white flowers.

1. *A. lateriflora*, L.

Stem not much branched, very slightly pubescent; leaves oval to oblong; peduncles usually 2-flowered. Moist places, prairies, common, Man.—Alta.

2. *A. vérna*, L.; var. *propinqua*, Fernald.

Stems numerous, slender, 1-5 in. high, tufted or matted; leaves awl-shaped; flowers 2-5 on a stem; sepals longer than the somewhat obscure petals. Rocky Mts.

7. SAGÏNA. PEARLWORT.

Sepals 4 or 5; petals 4 or 5, united, or none; stamens mostly as many as the sepals; pod many-seeded. Small matted herbs with thread-like leaves without stipules, and small terminal flowers.

1. *S. decumbens*, (Ell.) T. and G.

Annual; stem ascending, smooth, 2 or 5 in. high; leaves narrowly linear; peduncles thread-like, rising above the leaves; flowers 5-parted. Rocky Mts. On the open prairie 30 miles east of Hand Hills. (Macoun.)

8. SAPONÀRIA. SOAPWORT.

Calyx 5-parted; petals 5; stamens 10; styles 2; pod mostly 1-celled or with some incomplete divisions. Weedy annuals.

1. *S. Vaccària*, L. COW-CKLE.

Glabrous; leaves lanceolate; flowers red, the calyx with five sharp angles. (*Vaccària vulgaris*, Host.) Local, Man. and Sask.

XXVIII. PORTULACÀCEÆ (PURSLANE FAMILY).

Succulent and usually spreading herbs with regular but unsymmetrical flowers. Sepals 2; petals 5 or none, opening in the sun; stamens 5-20; styles 2-8, often united below; pod 1-celled.

1. PORTULÁCA. PURSLANE.

Calyx 2-parted with the tube adhering to the ovary; petals 5, inserted on the calyx; stamens 7-20; style 3-8-parted; pod 1-celled, many-seeded, opening by the removal of the upper part like a lid.

1. *P. oleracea*, L. COMMON PURSLANE.

Stem spreading, succulent; leaves fleshy, smooth, opposite; flowers sessile, with pale yellow but inconspicuous petals, soon withering. A troublesome garden weed, introduced.

XXIX. NYMPHÆACEÆ (WATER LILY FAMILY).

Aquatic perennial herbs with horizontal, fleshy, and apparently endogenous rootstocks, floating or emersed leaves, and solitary axillary flowers. Sepals 3-5; petals 5-many; stamens 5-many; carpels 5-many, distinct or united; stigmas distinct, or (as in our species) united into a large radiate disk.

1. NYMPHÆA. POND LILY.

Leaves cordate with a deep sinus at the base; flowers showy yellow or sometimes tinged in places with purple; sepals 5 or 6, thick, concave; petals and stamens many, the one gradually merging into the other, hypogenous; carpels many, united; stigmas united into a disk of 8-24 rays.

1. *N. advena*, Ait. LARGE YELLOW POND LILY.

Floating leaves large, orbicular, thick, with a deep sinus; submerged leaves, if present, thin; submerged parts of the plant often pubescent; flowers large, yellow or tinged with purple. Slow streams, Man.-Alta.

XXX. RANUNCULACEÆ (CROWFOOT FAMILY).

Herbs or woody vines, with a colorless, bitter, and sometimes poisonous juice; parts of the flower all separate, and inserted on the receptacle; petals 2-15, or wanting; sepals 3-15, and may be colored like the petals; stamens numerous; fruit a dry pod, achene or berry; leaves usually lobed or finely dissected, the petiole clasping the stem by a spreading base.

1. RANÚNCULUS. BUTTERCUP.

Sepals usually 5; petals 5 or more, with a pit or gland at the base. Mostly annuals or perennials, with alternate leaves and somewhat solitary flowers.

* AQUATIC.

† PETALS WHITE.

1. *R. aquatilis*, L. WHITE WATER CROWFOOT.

Leaves finely dissected, submerged, collapsing when withdrawn from the water. Common in stagnant or slow-running water, Man.-Alta.

2. *R. circinatus*, Sibthorp.

Resembling the preceding but the leaves with broad stipules and rigid, not collapsing when taken from the water. A rarer form but not uncommon in the prairie region.



FIG. 38. — Flower of a Buttercup in Section.

†† PETALS YELLOW.

3. *R. delphinifolius*, Torr. YELLOW WATER CROWFOOT.

Leaves either floating or immersed, all repeatedly 3-forked into long thread-like divisions. Common in slow-running water, but continuing to grow in the mud if the water dries up, in which case the leaves are not cut, and the flowers are smaller. (*R. multifidus*, Pursh.) Man.-Alta.

** TERRESTRIAL, but often growing in wet places.

‡ CREEPING.

4. *R. cymbalaria*, Pursh. SEASIDE CROWFOOT.

Smooth, spreading by means of long runners; scapes several-flowered; leaves rounded, crenate, and clustering at the base. Very common in low places, preferring alkaline soil; Man.-Alta.

5. *R. Flammula*, var. *réptans*, (L.) Mey. CREEPING SPEARWORT.

Stem slender, creeping, rooting at the joints, pubescent or glabrous; peduncles erect; leaves linear or nearly so, usually entire, narrowing into petioles; flowers small, solitary, bright yellow, the petals greatly exceeding the calyx; achenes flattened, beaked. Sandy shores of lakes and rivers, Man.-Alta.

6. *R. répens*, L. CREEPING BUTTERCUP.

Stem creeping and rooting at the joints; leaves 3-parted or 3-lobed, the divisions or lobes variously cut or toothed, usually more or less pubescent, sometimes spotted with white; flowers large, yellow. Low ground and along ditches or streams. "Numerous places on the great plains." — *Macoun*. "Swamps, foothills of Rocky Mts." — *Dawson*.

†† ERECT, or nearly so.

7. *R. sceleratus*, L. CURSED CROWFOOT.

Annual, glabrous; leaves deeply 3-lobed or 3-parted; stem large and hollow, often appearing rather naked; flowers small and pale yellow. Common around the edges of ponds, Man.-Alta.

8. *R. acris*, L. COMMON BUTTERCUP.

Tall, erect, hairy; leaves deeply cleft; flowers large and bright yellow. Introduced, but fairly common along the railways.

9. *R. abortivus*, L. SMALL-FLOWERED CROWFOOT.

Biennial, slightly hairy; root leaves round or 3-lobed, stem leaves 3-5-parted; petals small, pale yellow, making the flower very inconspicuous. Cool, moist woods, Man.-Alta.

10. *R. rhomboideus*, Goldie. DWARF BUTTERCUP.

Low, hairy; root leaves entire, roundish, crenate; stem leaves 3-5-lobed, the lobes becoming more deeply divided and the petioles shorter until the upper leaves are 3-5-parted and sessile or nearly so. Common on prairies, April-June, Man.-Alta.

11. *R. Macdonii*, Britton.

Annual, stout, hairy, reclining; stems few-leaved; achenes with a stout beak. Moist places. Man. and westward.

12. *R. affinis*, R. Brown.

Stem 4-12 inches in height, pubescent or glabrous; leaves various but at least the upper cut into linear lobes; flowers few-several; petals light yellow or wanting; achenes short, woolly, with a short recurved style not more than one third the length of the ovary and sometimes persisting as a beak. Sask. and Alta.

2. ACTÆA. BANE BERRY.

Sepals 4 or 5, falling off when the flower opens, making it appear to have only one set of floral envelopes; petals 4-10, small; stamens numerous; inflorescence a naked raceme; fruit a large and poisonous berry. Erect perennial herbs with large compound leaves and terminal racemes of small white flowers.

1. *A. rubra*, (Ait.) Willd. RED BANE BERRY.

Raceme ovoid; petals somewhat broadly spatulate; berries bright red. Rich moist woods and occasionally in waste places near the woods, Man.-Alta.

2. *A. alba*, (L.) Mill. WHITE BANE BERRY.

Raceme more slender than in the preceding; petals slender, like modified stamens; berries white on much thickened pedicels. Rich woods only, Man.-Alta.

3. THALÍCTRUM. MEADOW RUE.

Apetalous; sepals 4 or 5, greenish. Perennial herbs with 2 or 3 ternately compound leaves, both the divisions and the leaflets stalked. Flowers dioecious in our species.

1. *T. diodicum*, L. EARLY MEADOW RUE.

Stems smooth; 12-18 inches high; leaflets thin, light green, drooping; sepals purplish or greenish white. Common, Man.-Alta.

2. *T. dasycarpum*, Fisch. and Lall.

Stem purplish, 1½-3 ft. high; leaflets mostly 3-toothed, often finely pubescent beneath; sepals and thread-like filaments purplish white. Common about the edge of groves, Man.-Alta.

4. *MYOSÛRUS*. MOUSE-TAIL.

Sepals 5-spurred; petals 5, on a slender claw; stamens 5-20; achenes numerous and crowded on a very long, spike-like receptacle; flowers greenish. Low tufted annuals with linear root leaves and naked 1-flowered scapes.

1. *M. minimus*, L.

Fruiting spike ½-2½ inches long. Moist rich ground, Southern Man. and westward.

5. *ANEMONE*. ANEMONE.

Sepals usually few and petal-like; petals wanting or stamen-like; fruit an achene sometimes with a long tail. Perennial herbs with radical leaves and a whorl of 2 or 3 stem leaves forming a sort of involucre below the flower.

1. *A. patens*, L.; var. *Wolfgangiana*, (Bess.) Koch. PASQUE FLOWER.

Flower erect, solitary, appearing in early spring before the leaves, silky pubescent; involucre deeply cleft; leaves of 3 divisions, the middle division stalked, and each division deeply cleft; sepals 5-7, pale blue, spreading and turning whitish with age; fruit an achene with a long feathery tail formed from the elongated style. Prairies, early spring, common, Man.-Alta.

2. *A. multifida*, Poir.

Stem hairy, 4-12 in. high; involucre of 2 or 3 short-petioled leaves bearing one naked and one or two 2-leaved peduncles; flowers red or occasionally greenish white; fruit head globular. Dry prairies, local, Man.-Alta. and northward.

3. *A. cylindrica*, Gray.

Stem slender, 6-15 in. high, pubescent; flowers 2-6, borne on long, upright peduncles springing from an involucre composed of 2 or 3 times as many 3-parted leaves as there are peduncles; root leaves long-petioled; sepals 5, greenish white; fruit head cylindrical. Dry prairies, Man.-Alta.

4. *A. riparia*, Fernald.

Resembling the former, but more slender and less pubescent; the sepals white or rarely reddish; the fruit head only sub-cylindrical. Same range as preceding, but flowering somewhat earlier, and not so common.

5. *A. canadensis*, L.

Stem hairy, 6-12 in. high; involucre at first 3-leaved with one naked peduncle, but later two other peduncles appear, each bearing a 2-leaved involucre about its middle; these may branch similarly; radical leaves 5-7-parted; sepals large, white; fruit head globular. Common around the edges of groves or on damp prairie, Man.-Alta.

6. *A. quinquefolia*, L. WOOD ANEMONE.

Stem low, smooth; involucre of 3 petioled leaves each in turn 3-parted; peduncle short; flower large for size of plant, white or tinged with purple; carpels with a hooked beak. Moist woods, spring, Man. and westward.

7. *A. parviflora*, Michx.

Stem slender, 4-8 in. high from a creeping rootstock; leaves 3-parted, the divisions 2-3-lobed; flowers solitary, white. River banks, Alta. and northward.

6. CLÉMATIS. VIRGIN'S BOWER.

Perennial, more or less woody vines climbing by means of clasping petioles of the leaves; sepals 4 or 5, petal-like; stamens numerous; pistils numerous; achenes with a long, plumose style.

1. *C. virginiana*, L.

Leaves 3-parted, leaflets acute, thin, dark green above; flowers small, in cymose panicles, dioecious, but the pistillate usually with a few sterile stamens. Climbing over shrubs in moist woodland, south end of Lake Winnipeg. (Drummond.)

2. *C. ligusticifolia*, Nutt.

Similar to the preceding, but leaves 5-foliolate, the leaflets smaller, paler in color and thicker in texture. "Climbing over bushes or sand at the source of the Qu'Appelle." — *Macoun*. Southern Alta.

3. *C. verticillaris*, DC.

Stem woody, climbing, smooth; leaves 3-parted; flowers large, each on a separate peduncle; sepals thin, spreading, pinkish purple. Through the wooded district, Man.-Alta.

7. CÀLTHA. MARSH MARIGOLD.

Sepals 5-9, large, deciduous and petal-like; petals wanting; stamens numerous; carpels few to numerous, sessile, forming in fruit

a many-seeded follicle. Stout glabrous perennials with large round to heart-shaped leaves.

C. palústris, L.

Stem hollow, furrowed, low; leaves round or kidney-shaped, crenate-dentate or entire, the upper sessile or short-petioled; flowers bright yellow. Wet places, spring, Man.-Alta.

8. AQUILÈGIA. COLUMBINE.

Sepals 5, petal-like; petals 5, longer than the sepals, produced backward into large hollow spurs; pistils 5, with slender styles; pod a many-seeded follicle. Perennial herbs with decom pound leaves and large showy flowers.



FIG. 39. — *Aquilegia canadensis*.

1. A. canadénsis, L. WILD COLUMBINE.

Stem short, erect, 1-3 ft. high; flowers large, scarlet lined with yellow, nodding; stamens and styles longer than the sepals. Wooded regions, Man.-Alta.

2. A. brevístyla, Hook. SMALL-FLOWERED COLUMBINE.

Stem slender, erect, with few leaves; flowers small, blue, the spurs short and slightly incurved, making the flowers no longer than they are broad. Cool woods, Qu'Appelle and Sask. valleys, Southern and Central Alta.

3. A. flavéscens, Wats. YELLOW COLUMBINE.

Slender, 1-2 ft. high, branching; flower yellow or yellowish white, the sepals sometimes tinged with scarlet without. Foothills of Rocky Mts. and eastward.

9. DELPHÍNIUM. LARKSPUR.

Sepals 5, petal-like, irregular, the upper one prolonged with a spur; petals 4, irregular, the upper pair prolonged into spurs which are contained in the spur of the calyx, the lower pair with short claws; flowers in terminal racemes, showy; fruit a many-seeded pod.

1. D. scopulòrum, Gray. ROCKY MOUNTAIN LARKSPUR.

Stem 1-6 ft. high, glabrous at least below; leaves 5-7-parted, the divisions of the lower wedge-shaped, those of the upper linear; only the lowest petioles spreading at the base; flowers blue or rarely white. Calgary to Rocky Mts. and northward.

2. *D. azureum*, Michx. PRAIRIE LARKSPUR.

Stem 1-2 ft. high, grayish, pubescent; leaves deeply 3-5-parted, the divisions also deeply cleft into narrow linear lobes; flowers sky-blue. South of Lake Winnipeg (Dr. Houghton). Plains near Wood Mountain (Dawson). Cypress Hills (Macoun). Prairies and foothills of Alta.

XXXI. BERBERIDACEÆ.

Shrubs or herbs with colorless juice but sometimes yellow wood; leaves with petioles dilated at the base or stipulate; flowers regular, hypogenous, perfect, symmetrical, usually 3-merous, the parts distinct, deciduous, and each arranged in 2 series.

1. *BÉRBERIS*. BARBERRY.

Flowers small, yellow, mostly in racemes and scented, the filaments sensitive. Shrubs with yellow bitter wood and inner bark.

1. *B. repens*, Lindl.

Dwarf, less than 1 ft. high; leaflets 3-7, glaucous, obtuse, weakly spiny-toothed. Crow's-nest Pass, Rocky Mts. (Dawson).

XXXII. FUMARIACEÆ (FUMITORY FAMILY).

Smooth succulent herbs with compound much-dissected leaves and irregular flowers. Sepals 2, small; petals 4, in two pairs, the one pair with spreading tips, and one or both spurred, the other pair narrow with the tips united over the stigma; stamens 6, in two sets of 3 each, opposite the larger petals, hypogenous; pods 1-celled and 1 or many-seeded. Harmless herbs.

1. *CORÝDALIS*.

Corolla 1-spurred, deciduous; style persistent; pod many-seeded; flowers in racemes. Leafy glaucous herbs.

1. *C. aurea*, Willd. GOLDEN CORYDALIS.

Usually spreading; corolla golden yellow, about $\frac{1}{2}$ in. long, spur barely half the length of the body of the corolla. Waste places and newly cleared land, Man.-Alta.

Var. *occidentális*, Engelm. With spur almost as long as the body of corolla. Prairies, Alta.

2. *C. sempérvirens*, (L.) Pers.

Strict, erect, 6-24 in. high; corolla pink tipped with yellow, spur short; flowers in panicled racemes. Rocky places, N. Man.-Alta., not common.

XXXIII. CRUCÍFERÆ (MUSTARD FAMILY).

Herbs with a pungent juice, alternate leaves and cross-shaped corollas; sepals 4, deciduous; petals 4, hypogenous, arranged in form of a cross; stamens 6, in two groups, 4 long and 2 short; pod usually of two cells separated by a thin partition, and bearing several to many seeds. A large family containing some of our most troublesome weeds.

1. DRÀBA.

Pods oval or oblong, flattened; seeds in two rows in each cell. Low herbs with leaves either toothed or entire, and with white or yellow flowers.

1. *D. nemerôsa*, L.

Leaves somewhat lanceolate and more or less toothed; pods oblong on spreading pedicels which are about twice the length of the pods. Sandy soil, Man.-Alta.

2. ERÝSIMUM. TREAÇLE MUSTARD.

Pods linear, generally 4-sided, valves strongly keeled; stigma lobed; seeds oblong, in 1 row in each cell. Erect annual or biennial herbs more or less pubescent, often rough, with simple leaves, entire or not deeply lobed.

1. *E. cheiranthoides*, L. WORM-SEED MUSTARD.

Stem slender, erect, branching, 6 in.-2 ft. high, rough; leaves lanceolate, entire or slightly toothed, the lower short-petioled, the upper sessile but not clasping; flowers small, yellow; pods short, obtusely 4-angled, spreading on short pedicels. Moist ground and waste places, Man.-Alta.

2. *E. ásperum*, DC. WESTERN WALL-FLOWER. Prairie Rocket.

Stout, erect, 1-2 ft. high, simple or branching, rough; upper leaves sessile, usually entire, lower leaves petioled, lanceolate or linear, and entire or dentate; flowers large, yellow, showy; pods long, linear, rough, spreading on short pedicels. Dry sandy prairie, Man.-Alta.

3. *E. parvifórum*, Nutt.

Stem erect, simple or sparingly branched, roughish, 1-2 ft. tall; leaves oblanceolate to linear, the upper sessile, the lower on slender petioles; flowers small; pods narrow, ascending on short pedicels. Touchwood Hills, Hand Hills, Cypress Hills, and similar localities:

3. **THLÁSPI.** PENNY CRESS.

Pod obovate, flattened, with the partition forming the short axis; seeds 2-8 in a cell. Low plants with the stem leaves clasping, and racemes of small white flowers.

1. **T. arvénsé,** L. FRENCHWEED OF STINKWEED.

A smooth annual or winter annual with wings on the petioles of the lower leaves, and a broadly winged pod with a deep notch at the top. Fields and waste places, a very troublesome introduced weed.

4. **LEPÍDIUM.** PEPPER GRASS.

Pods small, round, slightly notched at the top, flattened as in the preceding, with a solitary seed in each cell; flowers minute.

1. **L. apétalum,** Willd.

Leaves toothed or pinnatifid; pod slightly winged; petals usually wanting. Dry waste places, Man'-Alta.



FIG. 40.—*Capsella*
Bursa-pastoris.

5. **CAPSÉLLA.** SHEPHERD'S PURSE.

Pod triangular, flattened, wingless; seeds numerous; petals white.

1. **C. Búrsa-pastóris,** (L.) Medic.

Stem leaves arrow-shaped, sessile; root leaves forming a rosette, but extremely variable. A common weed in cultivated places, particularly about dwellings.

6. **NÉSLIA.** BALL MUSTARD.

Pod globular, slightly beaked, with a single seed; flowers yellow.

1. **N. paniculáta,** (L.) Desv.

A slender annual with simple stem, sagittate clasping leaves, and an elongated raceme of small yellow flowers. Grain fields and waste places, introduced.

7. **BRÁSSICA.** TURNIP, MUSTARD.

Pod stout, sometimes 4-sided, with a stout beak; leaves lyrate to pinnatifid; annuals or winter annuals.

1. **B. arvénsis,** (L.) Ktze. WILD MUSTARD, CHARLOCK.

Erect, 1-2 ft. high, usually hairy, branching above; lower leaves petioled, lyrate; upper leaves sessile, entire or nearly so; flowers large, bright yellow;

pod constricted between the seeds, and tipped with a flattened, often 1-seeded beak. A troublesome field weed, introduced.

2. *B. nigra*, (L.) Koch. BLACK MUSTARD.

More slender and not so rough as the preceding; lower leaves with a large terminal lobe; pods short, erect; seeds black. The mustard of commerce, frequently introduced as a weed.

8. *ARABIS*. ROCK CRESS.

Pods linear, long and flat, often appressed, seeds in 1 or 2 rows; stigma 2-lobed; leaves pinnatifid if at all divided, the

root leaves more or less petiolate, often forming a rosette, the stem leaves sessile, often clasping. Usually annual or biennial herbs, glabrous or nearly so, with white, yellowish, pink, or purple flowers.

* SEEDS IN ONE ROW IN THE CELL.

† SEEDS OBLONG OR ELLIPTICAL, SMALL, NOT WINGED.

1. *A. lyrata*, L.

Root leaves lyrate-pinnatifid in a rosette; stem leaves spatulate or linear, base tapering; flowers with white petals but yellowish sepals, the petals much longer than the sepals; pods long, flat, usually ascending. Sandy waste places, Alta.

2. *A. glabra*, (L.) Bernh. TOWER MUSTARD.

Biennial, tall, 1-3 ft., erect, glaucous above, slightly pubescent below, stem usually simple; root leaves petioled, oblanceolate to oblong, dentate and hairy; stem leaves sessile, lanceolate with sagittate base, glabrous, entire or the lower sparingly dentate; flowers yellowish white, the petals only slightly longer than the calyx; pods linear, erect, and appressed. (*A. perforata*, Lam.) Waste places and fields, Man.-Alta.

†† SEEDS ORBICULAR AND WINGED.

3. *A. hirsuta*, (L.) Scop.

Stem erect, usually simple, rough, hairy or nearly glabrous; root leaves obovate or spatulate, dentate, on margined petioles; stem leaves lanceolate, dentate, sessile, clasping the stem at the base; flowers white or greenish white; pods linear, appressed. Rocky or sandy banks, Man.-Alta.



FIG. 41. — *Brassica arvensis*.



FIG. 42. — *Brassica nigra*.

4. *A. Lyállii*, Wats.

Perennial, stems several from the same root, less than 1 ft. high; lower leaves spatulate to lanceolate, $\frac{1}{2}$ -3 in. long; upper leaves oblong to lanceolate, 1-2 in. long; pods $1\frac{1}{2}$ -3 in. long, erect; flowers white or pinkish. Rocky Mts., and eastward in river valleys.

** SEEDS IN 2 ROWS IN THE CELL.

5. *A. Drummóndii*, Gray.

Stem erect, simple, 1-2 ft. high, glabrous or nearly so, and somewhat glaucous; root leaves spatulate, more or less petioled; stem leaves narrowly lanceolate clasping by the base; flowers white; pods erect. Rocky banks of streams, Man.-Alta.

6. *A. brachycárpa*, (T. and G.) Britton.

Resembling the preceding in size and general habit, but the root leaves densely pubescent, and the pods longer and widely spreading. Light or rocky soil, usually in woods, Man.-Alta.

7. *A. Holboéllii*, Hornem.

Stems 6 in.-2 ft. high, branched, or more than one stem from the same rosette of root leaves, pubescent at the base, glabrous above; stem leaves sessile, erect, clasping; lower leaves spatulate and sparingly toothed; flowers pink, purple, or whitish; pods mostly on one side of the stem, drooping and spreading. Rocky and sandy places, Man.-Alta.

9. SISÝMBRIUM. HEDGE MUSTARD.

Pods long, flattened, or somewhat 4-sided, valves nerved; seeds small, slightly oblong, in 1 or 2 rows in the cell; leaves generally divided; flowers small, whitish or pale yellow.

1. *S. altíssimum*, L. TUMBLING MUSTARD.

Tall, branched, the branches widely spreading; stem leaves deeply pinnatifid, root leaves not so deeply cut; flowers pale yellow; pods very long, rigid, standing out from the stem, and scarcely thicker than the pedicels. Annual or biennial weed, introduced, abundant in waste places.

2. *S. canéscens*, Nutt. GRAY TANSY MUSTARD.

Leaves 1-3 times pinnatifid, whitish with minute soft hairs; flowers very small, yellowish, in long racemes; pods linear or club-shaped, and shorter than the pedicels. Waste places, Man.-Alta.

3. *S. incísum*, Engelm. GREEN TANSY MUSTARD.

Resembling the preceding, but green or only slightly whitish; pods more slender and about equal to the pedicels in length. Waste places, Man. to Alta., usually represented by the following varieties.

Var. *filipes*, Gray. Slender spreading pedicels longer than the pods.

Var. *Hartwegianum*, (Fourn.) Wats. Short erect pedicels with short pods, but the pods longer than the pedicels.

10. CONRINGIA. HARE'S-EAR MUSTARD.

Pods long, 4-angled; seeds in a single row in each cell; leaves entire, elliptical, clasping.

1. *C. orientalis*, (L.) Dumort.

A glabrous, succulent annual occurring occasionally in cultivated ground, introduced.

11. BRAYA.

Flowers white or purplish; fruit linear to lanceolate in outline, the septum so constructed that the cells are longer transversely or obliquely than along the axis of the pod; leaves usually tufted at the base.

1. *B. humilis* (C. A. Mey.) Robinson.

Pubescent with branched hairs; stems usually several from the same root, low, 2-8 in. high; leaves mostly basal, linear to spatulate, slightly pinnatifid; flowers purplish white. (*Sisymbrium humile*, C. A. Meyer.) Rocky Mts.

12. RADICULA. WATER CRESS.

Pods short, varying from slender to globular; seeds in 2 irregular rows. Marsh plants with yellow or whitish flowers and pinnatifid leaves.

1. *R. palustris*, L. MARSH CRESS.

Erect, 1-2 ft. high; leaves pinnately divided, or the upper cut into narrow pointed lobes; pods short, cylindrical, about as long as the pedicels (*nasturtium palustre*, Gray.) Wet places, Man.-Alta.

Var. *hispida*, Robinson. Hairy, with globular pods, not common.

13. CAMÉLINA. FALSE FLAX.

Pods pear-shaped with a broad partition; seeds numerous; flowers small, yellow.

1. *C. sativa*, (L.) Crantz.

Annual, with large pear-shaped pods, and lanceolate to arrow-shaped leaves. Cultivated fields, introduced.

14. LESQUERÉLLA. BLADDER-POD.

Pods globular and inflated, with a semi-transparent partition; seeds flat, in 2 rows, never numerous. Low, rather hoary herbs with yellow flowers.

1. *L. ludoviciana*, var. *arenosa*, Wats.

Stem low, slender, decumbent; leaves linear, the basal forming a rosette, greenish stellate pubescent throughout; pods globose or oval, drooping on recurved pedicels; cells 4-6-ovuled. Sandy banks, Man. and Sask.

2. *L. Macounii*, Greene.

Stems slender, tufted, sometimes branched; basal leaves oblong to oval, in a dense rosette, stem leaves few, oblanceolate to linear; densely silvery stellate, pubescent throughout; pods somewhat broadly ovate. Man. and Sask.

3. *L. alpina*, (Nutt.) Wats.

Stems very low from a branched rootstock; leaves all linear, crowded at the base; pedicels slender, much longer than the pod; pod ovate, very slightly compressed. Gravelly knolls on top of Cypress Hills (Macoun).

15. PHYSÀRIA.

Resembling *Lesquerella* except that the fruit is double, the two parts separated by a narrow partition.

1. *P. didymocarpa*, (Hook.) Gray.

Densely whitish, pubescent with stellate hairs; stem slender, spreading; cauline leaves entire, spatulate; root leaves rounded, petioled, more or less toothed or lobed, or entire; flowers pale yellow; fruit inflated, double. Sand or gravel, Rocky Mts.

XXXIV. CAPPARIDÀCÈÆ (CAPER FAMILY).

Herbs with cross-shaped corolla, and in other ways resembling the *Cruciferae*, but the stamens are all the same length and the pod is 1-celled with 2 parietal placentæ; leaves alternate, palmate.

1. CLEÔME.

Petals with claws; stamens 6; receptacle produced between the petals and stamens; ovary on a stipe; pod linear to oblong, with numerous seeds.

1. *C. serrulata*, Pursh. PINK CLEOME.

Erect, glabrous, branching; leaves 3-foliolate, the lower on long slender petioles, the upper sessile or nearly so; leaflets entire or sparingly serrulate, flowers white or pink, showy; pod on a stipe as long as the pedicel. (*C. integrifolia*, T. and G.) Dry and often alkaline soil, Man.-Alta.

XXXV. SARRACENIACEÆ (PITCHER-PLANT FAMILY).

Bog plants with hollow pitcher-shaped or trumpet-shaped leaves.

1. SARRACÈNIA.

Sepals 5, persistent, colored, with 3 bractlets at the base; petals 5, incurved, deciduous; stamens numerous, hypogenous; ovary 5-celled with a short style expanded above into a peculiar 5-rayed umbrella-shaped body, the rays terminating beneath as many stigmas. Yellowish or purplish perennials with hollow leaves and large, solitary, nodding flowers on a long naked scape.

1. *S. purpùrea*, L. PITCHER-PLANT.

Leaves pitcher-shaped, broadly winged on one side, with a one-sided, erect hood at the top which is beset with bristles pointing downward. Conspicuous bog plants with greenish purple flowers. Bogs, Man.—Alta., very local.

XXXVI. DROSERACEÆ (SUNDEW FAMILY).

Herbs with regular hypogenous flowers; calyx and corolla each of 5 parts, persistent; stamens 5, anthers fastened by the middle; leaves in bud rolled from apex to base, when open covered with glandular hairs each with a small drop of mucilaginous secretion at the tip. A small and peculiar family of insectivorous bog plants.

1. DRÓSERA. SUNDEW.

Stamens 5; styles 3 or 5, forked so as to appear like 6 or 10. Low perennials with reddish succulent leaves and flowers on a naked scape in a 1-sided raceme, or solitary.

1. *D. rotundifolia*, L. ROUND-LEAVED SUNDEW.

Leaves round or broader than long; flowers white or pinkish. Peat bogs, N. Man.—Alta.

2. *D. ánglica*, Huds.

Leaves erect, spatulate to linear; scape $1\frac{1}{2}$ –3 in. high, 1–8-flowered; flowers white. (*D. longifolia*, L. in part.) Cold bogs, N. Man.—Alta.

3. *D. lineàris*, Goldie.

Leaves linear, erect, petioles naked; scape 1–4 in. high, 1–8-flowered; flowers white or pink. Cold bogs, N. Man.—Alta.

XXXVII. CRASSULÀCÆ.

Shrubby or succulent herbs with ex-stipulate leaves, and flowers mostly in cymes; calyx 4-5-cleft or parted, persistent, free from the ovary; petals the same number as the calyx lobes, mostly distinct; stamens as many or twice as many as the petals; carpels the same number as the sepals, free at least above, with a scale at the base of each.

1. SÈDUM. STONECROP.

Calyx 4-5-lobed; petals 4-5, distinct; stamens 8-10, periginous, half of them usually attached to the petals; carpels 4-5, distinct, or united at the base, the scale at the base entire. Fleshy, glabrous, often tufted herbs, with alternate or overlapping leaves.

1. *S. stenopetalum*, Pursh.

Perennial, glabrous, tufted; flowering stems 3-6 in. high; leaves alternate, or overlapping on the sterile branches; flowers yellow. Gravelly hills, Rocky Mts.

XXXVIII. SAXIFRAGÀCÆ (SAXIFRAGE FAMILY).

Herbs or shrubs strongly resembling the Rosacæ, but mostly differing in the following respects: leaves opposite as well as alternate; no stipules; stamens a definite number; carpels fewer than the sepals. The calyx is usually persistent, and may or may not adhere to the ovary.

1. MITÈLLA. MITERWORT.

Calyx short, 5-cleft, adhering to the ovary at the base; petals 5, slender; stamens 5-10; styles 2, short; capsule 2-beaked. Low perennial herbs with rounded heart-shaped leaves on slender petioles springing from the root or rootstock, and slender, almost naked flowering stems.

1. *M. nuda*, L.

Leaves deeply and doubly crenate; stem usually leafless and few-flowered. Moist woods about Lake Winnipeg, westward to Alta.

2. PARNÁSSIA. GRASS OF PARNASSUS.

Sepals 5, united at the base, persistent; petals 5, white with greenish veins, spreading, bearing what resembles a tuft of sterile stamens at the base; fertile stamens 5, alternate with the petals; ovary

1-celled, seeds numerous. Smooth perennial herbs with entire leaves, and large solitary flowers on long scape-like stems which often bear a single leaf.

1. *P. palústris*, L.

Slender, 4-12 in. high, the root leaves broad and usually cordate at the base, stem leaf clasping the stem. Wet places, Man.-Alta.

2. *P. parviflora*, DC.

More slender than the preceding, about the same height, but with a smaller flower. Stem leaf only slightly clasping, and root leaves ovate, tapering to the base, which is not cordate. Wet places, Man.-Alta.

3. HEUCHÈRA. ALUM ROOT.

Calyx 5-cleft, often oblique; petals 5, slender, spatulate, inserted on the throat of the calyx; stamens 5, inserted on the calyx with the petals; ovary 1-celled; styles 2, slender; pod 2-beaked. Erect perennial herbs with large, rounded, heart-shaped leaves on long petioles mostly from the root.

1. *H. hispida*, Pursh.

Stems 1-2 ft. high, hispid with long spreading hairs; stamens longer than the petals, exserted; leaves rounded, slightly lobed. Dry prairie, Man.-Alta.

4. RÌBES. CURRANT, GOOSEBERRY.

Calyx 5-lobed, often colored, the tube adhering to the ovary; petals 5, small, inserted on the throat of the calyx; stamens 5, alternate with the petals; ovary 1-celled; styles 2, distinct or united; fruit a berry with the withered calyx adhering. Low, often prickly shrubs with palmately divided leaves and edible fruit.

1. *R. Cynósbati*, L. PRICKLY GOOSEBERRY.

Leaves on long slender petioles with generally 1-3 slender spines just below the axil, nearly orbicular, somewhat pubescent, and rounded or subcordate at the base, deeply 3-5-lobed, crenate-dentate or incised; spines of the stem few or none; flowers green, calyx lobes shorter than the tube; fruit large, usually armed with stout prickles. Pembina Mts. and similar locations in Man.

2. *R. oxyacanthoides*, L. SMOOTH GOOSEBERRY.

Leaves thin and leathery, somewhat glabrous; spines few and long; flowers greenish yellow; stamens equalling the calyx lobes; fruit smooth or armed with a few whitish prickles. Moist places, Man.-Alta.

3. *R. flóridum*, L'Hér. WILD BLACK CURRANT.

Leaves sharply 3-5-lobed, doubly serrate; flowers large, yellowish; racemes drooping, downy; calyx bell-shaped, smooth. Moist thickets, Man. and E. Sask.

4. *R. hudsonianum*, Richards.

FIG. 43.—*Ribes flóridum*.

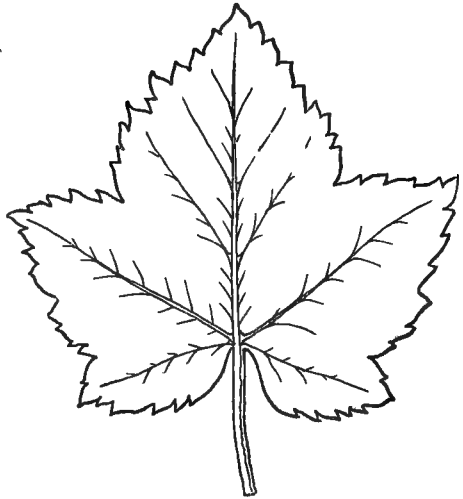


FIG. 44.—*Ribes hudsonianum*.

Similar to the preceding, but the racemes upright or spreading; calyx whitish, the tubes shorter than the ascending lobes. Moist woods, Man.-Alta.

5. *R. prostrátum*, L'Hér. SKUNK BERRY.

Stems reclining; leaves 5-7-lobed, smooth, doubly serrate; racemes erect, slender; fruit glandular-bristly, giving the fruit a disagreeable taste which suggests the smell of a skunk. Damp woods, Hudson Bay-Alta.

XXXIX. ROSACEÆ (ROSE FAMILY).

Herbs, shrubs, or small trees with alternate stipulate leaves and regular flowers. Calyx generally of 5 sepals united at the base, frequently having 5 alternating bracts; petals the same number as the sepals, inserted on the calyx; stamens numerous, distinct, inserted on the calyx; pistils 1-many, and either distinct, or united with the calyx tube to form a fleshy fruit. A large family of



FIG. 45.—Section of Fruit of *Rosa*.

plants furnishing many of our most valuable fruits and flowers. Closely resembling the Saxifragaceæ in the flower, and the Leguminosæ in the leaf.

* OVARY NEITHER ADHERING TO THE CALYX TUBE, NOR SURROUNDED BY, NOR ENCLOSED IN IT.

1. *Prunus*, pistil solitary, becoming a drupe.
2. *Spirea*, pistils 5-8, forming several-seeded follicles.
3. *Geum*, pistils numerous, on a dry receptacle forming dry achenes with styles elongating at maturity.
4. *Dryas*, same as preceding, but shrubby.
5. *Potentilla*, pistils numerous on a dry receptacle forming achenes, but the styles not elongating at maturity.
6. *Fragaria*, pistils numerous in pits on the surface of a fleshy receptacle.
7. *Chamærhodus*, pistils 5-20 on a dry receptacle.
8. *Rubus*, pistils numerous as drupelets on a fleshy receptacle.

** OVARY ENCLOSED IN THE CALYX TUBE, BUT NOT ADHERING TO IT.

9. *Agrimonia*, pistils 2, enclosed in a dry calyx tube armed with hooked prickles around the top.
10. *Rosea*, pistils, many, enclosed in an urn-shaped fleshy calyx tube.

*** OVARY ADHERING TO THE CALYX TUBE TO FORM A FLESHY FRUIT.

11. *Pyrus*, fruit a large fleshy pome.
12. *Cratægus*, fruit a small drupe-like pome with 1-5 bony kernels.
13. *Amelanchier*, fruit a small and berry-like pome with 10 hard seeds.

1. PRÛNUS. PLUM, CHERRY.

Calyx 5-cleft; petals 5, separate, spreading; stamens 15-20; pistil solitary; fruit a fleshy drupe. Small trees or shrubs with white flowers and edible fruit.

1. *P. nigra*, Ait. WILD PLUM.

A short or small tree armed with thorns; leaves thin, ovate, doubly crenate or serrate, usually glandular at the points of the teeth; fruit yellowish red, somewhat oblong. Thickets, Man. west not far past meridian 100.

2. *P. virginiana*, L. CHOKE CHERRY.

A tall shrub with grayish brown bark; leaves oval, oblong, or obovate, blunt, sharply serrate or double serrate; flowers on short pedicels in axillary

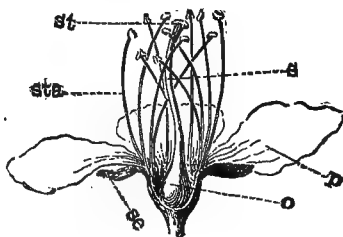


FIG. 46.—Section of Flower of *Prunus*.
st. stigma; *s.* style; *sta.* stamens; *se.* sepal;
p. petal; *o.* ovary.



FIG. 47. — *Prunus nigra*.

racemes; fruit red, turning dark crimson or brown, and very astringent. Man.—Alta.

3. *P. pennsylvanica*, L. PIN CHERRY.

A tree 10–30 ft. high, with smooth reddish brown bark; leaves oblong-lanceolate, pointed, finely and sharply serrate, bright green and smooth on both sides; flowers in clusters on long pedicels; fruit light red, sour. Man.—Alta.

4. *P. pumila*, L. SAND CHERRY.

Stem dwarf or trailing; leaves obovate, tapering to the base and toothed near the apex, pale beneath; flowers 2–4 in a cluster; fruit dark red or almost black, sour, and astringent. Sandy land, west to about meridian 106.

2. SPIRÆA. MEADOW-SWEET.

Calyx 5-cleft, persistent; petals 5, deciduous; stamens 10–50; pistils 5–8, forming follicles containing several seeds each. Shrubs or shrubby perennial herbs with simple pinnate leaves, and white or rose-colored flowers.

1. *S. salicifolia*, L. COMMON MEADOW-SWEET.

Smooth or nearly so, 1–3 ft. high; leaves wedge-shaped, serrate or doubly serrate; flowers white in a crowded terminal panicle. A somewhat herbaceous shrub growing in low ground, common, Man.—Alta.

3. GÈUM.

Calyx bell-shaped or flat, 5-cleft, with alternating bracts; petals 5; stamens many; achenes many on a dry receptacle, the styles persisting and elongating, feathery or naked, straight or hooked. Perennial herbs with lyrate or pinnate leaves, and differing from the *Potentilla* chiefly in the elongation of the styles.

1. *G. strictum*, Ait. YELLOW AVENS.

Stem erect, stout, hairy, 1–3 ft. high; root leaves interruptedly pinnate, of 5–7 leaflets; stem leaves sessile or nearly so, 3–5 leaflets; flowers yellow; styles long, jointed and bent near the middle, the upper portion hairy and deciduous, the lower part naked and becoming elongated and hooked in fruit. Moist prairie and thickets, common, Man.—Alta.

2. *G. macrophyllum*, Willd. LARGE-LEAVED AVENS.

Stem erect, coarse, hairy, 1–2 ft. high; leaves as in the preceding except that the terminal leaflet of the root leaves is very large, with a rounded

heart-shaped base; otherwise the plant is smaller and more hairy. Moist prairie or mountain woods, local, Sask. and Alta.

3. *G. triflorum*, Pursh. THREE-FLOWERED AVENS.

Low, soft-hairy; root leaves interruptedly pinnate, leaflets numerous; flowers usually 3, on a long peduncle; flowers reddish purple, the bracts on the calyx longer than the lobes of the calyx; styles persistent, forming long feathery tails to the achenes. Dry prairie, common, Man.-Alta.

4. *DRYAS*. MOUNTAIN AVENS.

Calyx 8-9-lobed, persistent, without bracts; petals 8-9, larger than the calyx lobes; stamens numerous; carpels numerous on a dry receptacle; style terminal, persistent, elongated into a feathery tail in fruit. Low, tufted, shrubby plants with simple, petioled, stipulate leaves, and rather large white or yellow flowers.

1. *D. octopétala*, L. WHITE MOUNTAIN AVENS.

Stem prostrate and woody at the base; leaves ovate, coarsely crenate, glabrous above, and densely white-tomentose beneath; stipules linear; flowers white, about 1 in. across. Rocky Mts.

2. *D. Drummondii*, Richards. DRUMMOND'S MOUNTAIN AVENS.

Similar to preceding, but the leaves rather dentate than crenate; the scape pubescent; flowers yellow, with glandular-pubescent sepals. Rocky Mts.

5. *POTENTILLA*. CINQUEFOIL.

Calyx flat, deeply 5-cleft, but appearing 10-cleft because of 5 bracts alternating with the lobes of the calyx; petals 5, roundish; stamens numerous; pistils numerous, forming achenes collected on a dry receptacle. Herbs — or in one case a shrub — with compound leaves and large solitary or cymose flowers.

1. *P. arguta*, Pursh.

Stem erect, stout, 1-2 ft. high, hairy and rather clammy towards the top; leaflets 7-11, downy beneath; stamens about 30; flowers large, white, in a close cyme. Open prairies, and thickets, Man.-N. Alta.

2. *P. monspeliensis*, L.

Stout, erect, coarse, hairy, 6 in. to 2 ft. high; leaves 3-foliolate, leaflets obovate, variously toothed; flowers yellow, rather small, in a close leafy cyme. (*P. norvegica*, L.) Common in cultivated ground and waste places across the prairies.

3. *P. rivâlis*, Nutt.; var. *millegrâna*, (Engelm.) Wats.

Resembling the preceding, but more slender and branched, either erect or ascending, and the cyme less leafy; petals minute; achenes small, light-

colored. Common in thick masses about the margins of ponds in Man. and S. Sask.

4. *P. pennsylvánica*, L.

Stem erect, or reclining at the base, 6 in. to 2 ft. high; leaflets 5-9, white-tomentose beneath, green above; flowers yellow in a somewhat open cyme. Var. *strigosa*, Pursh. Stems lower, mostly reclining, white silky-tomentose throughout; leaflets deeply pinnatifid, the margins of the lobes revolute; cyme short and close. The variety more plentiful than the type. Man.-Alta.

5. *P. Hippiána*, Lehm.

Densely silvery-silky throughout, the upper surfaces of the leaves darker; stem ascending, slender, branched above into a diffuse cyme; leaflets 5-11, incisely toothed, getting smaller towards the stem; carpels 10-30. Common, Man.-Alta.

6. *P. effûsa*, Dougl.

Tomentose throughout, and more or less covered with scattered hairs; stem reclining, diffusely branched above; leaves pinnate, leaflets 5-11, smaller leaflets alternating with the larger; carpels 10. Common in parts of Manitoba and Eastern Saskatchewan, but not well differentiated from the preceding species farther west.

7. *P. palústris*, (L.) Scop.

Stem stout, ascending, glabrous; leaves pinnate, of 5-7 leaflets, serrate; flowers purple in an open cyme. Bogs across the northern part of the prairie region.

8. *P. fruticôsa*, L. SHRUBBY CINQUEFOIL.

Stem erect, shrubby, much branched, 1-2 ft. high; leaves pinnate, margins of leaflets revolute; flowers yellow. Sandy soil, common, Man.-Alta.

9. *P. tridentâta*, Ait. THREE-TOOTHED CINQUEFOIL.

Stems low, 2-8 in. high, tufted, rather woody at the base; leaves of three leaflets, wedge-shaped to oblong, smooth, coarsely 3-toothed at the apex; flowers white in a few-flowered cyme. In wooded districts but not common, Man.-Alta.

10. *P. anserina*, L. SILVER WEED.

Widely spreading by slender runners; leaves all radical of 7-21 leaflets with smaller leaflets between the larger; white silky-tomentose beneath, usually green above; flowers large, yellow. Very common on low alkaline ground, Man.-Alta.

Var. *concolor*, Ser. Leaves canescent above as well as below. W. Alta.

11. *P. Nuttallii*, Lehm.

Stems several from a perennial root, ascending; leaves 5-9-foliolate, green above, whitish beneath, deeply toothed; flowers in a small compact cyme. Low lying prairie, Man.-Alta.

6. FRAGARIA. STRAWBERRY.

Flowers very much as in *Potentilla*, but often diœcious; receptacle much enlarged in fruit, bearing the achenes scattered over its surface. Stemless perennial herbs with 3-foliolate leaves, white flowers, and slender runners.



FIG. 48. — *Fragaria virginiana*.

1. *F. virginiana*, Duchesne.

Leaflets not deeply toothed; flowers arranged in a rather flat cyme; achenes sunken in pits on the surface of the enlarged receptacle. Moist rich ground, common, Man.—Alta.

7. CHAMÆRHODUS.

Calyx 5-cleft, without bracts; petals 5, about as long as the calyx lobes, white or purplish; stamens 5, opposite the petals; carpels 5–20; styles lateral. Erect pubescent herbs with 3-foliolate leaves, the leaflets usually cut into linear segments.

1. *C. erecta*, (L.) Bunge.

Erect, 1–3 ft. high, glandular-pubescent; root woody; flowers small, crowded in cymes. Light gravelly soil, Sask. and Alta.

8. RÛBUS. BRAMBLE.

Calyx deeply 5-parted, without bracts, persistent, the tube short and broad; petals 5, deciduous; stamens numerous, on the calyx, distinct; styles nearly terminal; carpels numerous, collected on a convex or elongated, more or less succulent receptacle, and ripening into small drupes forming an aggregate fruit. Perennial herbs, shrubs, or vines with alternate stipulate leaves, and frequently armed with prickles.

1. *R. idaëus*, L. (var. *aculeatissimus*, C. A. Mey.) RED RASPBERRY.

Stems upright, shrubby, 2–5 ft. high, usually covered with weak glandular prickles (or on the older stems hooked prickles); leaves 3-foliolate, the leaflets ovate and sharply serrate; flowers white, the petals as long as the sepals; calyx hairy; fruit red, separating freely from the elongated receptacle. Common in newly burned woods, Man.—Alta.

2. *R. Chamæmorus*, L. CLOUD BERRY.

Herbaceous, creeping as a rootstock, sending up branches 3–10 in. high, often finely pubescent; leaves simple, orbicular, somewhat 5-lobed, serrate,

wrinkled; flowers white, solitary, dicëous; fruit red or yellowish, separating from the dry receptacle. In great bog at Porcupine Mts. and similar locations, but not common south of Lat. 53°.

3. *R. triflorus*, Richards. DWARF RASPBERRY.

Stem ascending and short, or trailing and longer, unarmed, herbaceous above and woody towards the base; leaves 3 or rarely 5-foliolate, leaflets rhombic-ovate and sharply serrate or double-serrate; flowers white, the 5-7 petals erect and longer than the reflexed sepals; peduncles 1-3-flowered; fruit red, not separating from the receptacle. Wet woods, common, extending far northward.

4. *R. árticus*, L. ARCTIC RASPBERRY.

Stems somewhat erect, 3-10 in. high, unarmed; leaves 3-foliolate, leaflets often sessile, obovate, coarsely and unevenly serrate, or sometimes slightly lobed; flowers large, pink, or rarely white, terminal and usually solitary; fruit red, not separating easily from the receptacle. In cold peat bogs in the spruce woods along the northern borders of the prairies.

9. *AGRIMONIA*. AGRIMONY.

Calyx 5-cleft, tube somewhat hemispherical, the throat armed with hooked bristles and enclosing the two achenes; petals 5, yellow; stamens 5-15. Perennial herbs with pinnate leaves, and small flowers in a spike-like raceme.

1. *A. striata*, Michx.

Stem erect, 1-2 ft. high, usually simple below the flowering branches, softly pubescent with appressed hairs; leaflets somewhat ribbed and narrowing to a point; calyx turned abruptly outward in fruit. Damp ground about thickets, extending westward almost to Rocky Mts.

10. *RÒSA*. ROSE.

Calyx tube cup-shaped, drawn in at the throat and becoming fleshy in fruit; petals and stamens inserted on the edge of a disk lining the calyx tube; ovaries becoming bony achenes attached to the hollow receptacle inside the calyx tube. Prickly shrubs with large showy flowers.

1. *R. blánda*, Ait.

Stems 1-5 ft. high, slightly prickly or naked; stipules dilated, sometimes glandular-toothed; leaflets 5-7, oblong-lanceolate; flowers large, white or pink, solitary or in corymbs. Eastern Man.



FIG. 49. —
Stipules
of *Rosa*
acicularis.

2. *R. acicularis*, Lindl.

Stem 1-4 ft. high, very prickly; stipules dilated, glandular-ciliate or resinous; leaflets 3-7, oblong, sessile; flowers mostly solitary. Thickets, Man.-Alta., not well defined.

3. *R. pratincola*, Greene.

Stems low, very prickly; stipules narrow, more or less glandular-toothed; leaflets 7-11, elliptical to oblanceolate, prominently veined; flowers pink turning white, usually in corymbs. (*R. arkansana*, Porter.) Prairies, Man.-Alta.



FIG. 50. —
Stipules of
Rosa
pratincola.

11. PYRUS.

Calyx urn-shaped, 5-cleft; petals 5, roundish; stamens numerous; styles 2-5; fruit a pome, either large and fleshy or small and berry-like. Trees or shrubs with flowers in umbel-like or corymb-like cymes.

1. *P. americana*, (Marsh.) DC. AMERICAN MOUNTAIN ASH.

Leaves odd-pinnate with 13-15 leaflets, lanceolate, sharply serrate; flowers small, in large flat cymes; fruit berry-like, bright red. Damp woods, Eastern Man.

12. CRATÆGUS. HAWTHORN.

Calyx 5-cleft; petals 5, almost round; stamens 5-25, in 1-3 rows; carpels 1-5; styles 1-5, distinct, persistent, usually somewhat hairy around the base; fruit a small red or yellow pome containing 1-5 horny nutlets. Thorny shrubs or small trees with pink or white flowers in corymbs, and simple leaves usually lobed.



FIG. 51. — *Cratægus coccinea*.

1. *C. coccinea*, L.

Leaves on slender petioles, broadly ovate, tapering towards the apex to a sharp point, sharply incised or serrate, truncate or sub-cordate at the base; stamens about 10; fruit reddish brown when ripe. Very variable. In thickets west almost to the Rocky Mts.

13. AMELANCHIER. JUNE BERRY.

Calyx tube bell-shaped, 5-cleft; petals 5, usually obovate to oblong; stamens numerous; styles 5, united part of their length;

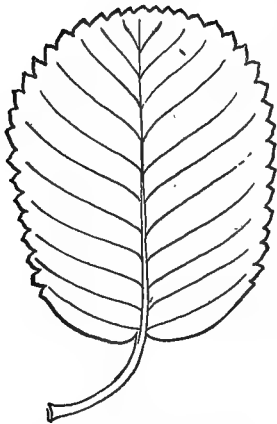


FIG. 52. — *Amelanchier alnifolia*.

ovary 5-celled, each cell 2-seeded, and partly divided into 2 by a false partition. Shrubs or small trees with alternate, simple, petioled leaves, white flowers and red or purple edible fruit.

1. *A. alnifolia*, Nutt. SASKATOON.

A shrub 4–12 ft. high; silvery-tomentose when young, afterwards becoming glabrate throughout; leaves thick, almost orbicular, blunt or rounded at the apex, sub-cordate at the base, coarsely dentate above the middle; racemes short; petals oblanceolate; fruit purple, covered with a bloom. Rich woods, Man.—Alta.

XL. LEGUMINOSÆ (PEA FAMILY).

Herbs, shrubs or trees with alternate, stipulate, compound leaves and peculiarly irregular flowers; calyx 5-parted; corolla of 5 petals, the upper, or *standard*, larger than the others, enclosing them in the bud and later spreading; the two lateral petals, *wings*, more narrow and often more or less joined to the lower; the two lower petals united to form the *keel*, and enclosing the stamens and pistil; the whole forming what is known as a *papilionaceous* corolla; stamens usually 10, and arranged in groups of 9 and 1, but more rarely distinct or all joined together; ovary 1-celled, forming a legume in fruit.



FIG. 53. — Pistil of Garden Pea.

* STAMENS ENTIRELY DISTINCT.

1. *Thermopsis*, flowers yellow, leaves 3-foliolate.

** STAMENS ALL UNITED IN ONE GROUP (MONADELPHOUS).

2. *Amorpha*, stamens joined at the base, corolla of a single petal.

3. *Petalostemon*, stamens 5, their filaments united in a tube split down one side, and bearing 4 petals attached to it.

4. *Lupinus*, stamens united in a closed tube, anthers of two kinds.

*** STAMENS IN TWO GROUPS (DIADELPHOUS), USUALLY IN GROUPS OF 9 AND 1.

† LEAVES PALMATELY 3-5-FOLIATE.

5. *Psoralea*, leaves 3 or 5-foliolate, glandular-dotted.

6. *Trifolium*, leaves 3-foliolate, flowers in heads, pods straight.
7. *Medicago*, leaves 3-foliolate, flowers in heads or short spikes, pod coiled or curved.
8. *Melilotus*, leaves 3-foliolate, flowers in racemes.

-†† LEAVES PINNATELY 3-FOLIATE.

9. *Amphicarpa*, some tiny inconspicuous flowers at the base of the plant on stems which are usually underground.

††† LEAVES PINNATELY COMPOUND OF MORE THAN THREE LEAFLETS.

‡ LEAVES ODD-PINNATE, WITHOUT TENDRILS.

10. *Astragalus*, keel blunt-pointed.
11. *Oxytropis*, keel ending in a sharp beak.
12. *Hedysarum*, pod constricted between the seeds.
13. *Glycyrrhiza*, pod covered with hooks.

‡‡ LEAVES EVEN-PINNATE, THE TERMINAL LEAFLET BEING REPLACED BY A TENDRIL.

14. *Vicia*, style slender, with a tuft of hair at the end.
15. *Lathyrus*, style flat and bearded down the inner side.

1. THERMÓPSIS.

Calyx 5-parted, or sometimes 4-parted by the joining of the two upper lobes; corolla papilionaceous, the standard orbicular and about equalling the wings and keel in length; stamens 10, incurved and distinct; pod flat, sessile or on a short stipe. Perennial herbs with palmately 3-foliolate leaves, foliaceous stipules, and large showy flowers in terminal or axillary racemes.

1. *T. rhombifolia*, (Nutt.) Richards.

Erect or decumbent at the base, 6-15 in. high, silky-pubescent with fine appressed hairs; leaves petioled, with broad leaf-like stipules; flowers large, yellow, in terminal or axillary racemes of few flowers; pod usually strongly recurved and stalked. Dry open ground, S-W, Man.-Alta.

2. AMÓRPHA.

Calyx 5-cleft, persistent; corolla wanting, except the standard, which is wrapped about the stamens and style; stamens 10, united at the base, otherwise distinct; pod longer than the calyx, 1 or 2-seeded. Shrubs with odd-pinnate leaves, the midrib of the leaflet projecting; flowers purple, in a terminal spike.

1. *A. canescens*, Pursh. LEAD PLANT.

Erect, 1-3 ft. high, whitish-pubescent; leaflets 29-51, oblong to elliptical; flowers bluish purple; spikes clustered at the summit. In bunches on sandy prairie, Man.

2. *A. microphylla*, Pursh.

Low, less than 1 ft. high, nearly glabrous; leaflets rigid; flowers purplish; spikes solitary. Moist prairies, Red River Valley.

3. *A. fruticôsa*, L. FALSE INDIGO.

A rather tall shrub, not so pubescent as *A. canescens*; flowers violet-purple; leaflets 9-25, rather scattered. Along the Red River.

3. PETALOSTÈMON. PRAIRIE CLOVER.

Calyx 5-toothed; petals on slender claws, four of them alike and borne on the sheath of the monadelphous stamens, the other, the standard, attached to the calyx tube; pod 1-2-seeded, enclosed in the calyx. Perennial herbs with odd-pinnate leaves, minute stipules, and small flowers crowded in dense terminal heads or spikes.

1. *P. purpûreus*, (Vent.) Rydb.

Smoothish; leaflets 5, linear; heads short, cylindrical; flowers rose-colored. (*P. violacens*, Michx.) Dry prairies, Man.-Alta.

2. *P. cândidus*, Michx.

Smooth; leaflets 7-9, lanceolate; heads cylindrical; flowers white. Dry prairies, Man.-Alta.

4. LUPÏNUS. LUPINE.

Calyx 2-lipped; sides of standard recurved; stamens monadelphous, the tube entire; anthers of two kinds, alternately round and oblong; pod flat and often constricted between the seeds. Herbs with palmately compound leaves, the stipules adhering to the base of the petiole, and racemes or spikes of rather showy flowers.

1. *L. argénteus*, Pursh. SILVERY LUPINE.

A perennial shrubby herb, 1-2 ft. high, much branched and densely silky-pubescent; leaflets 6-8, rounded at the apex and tapering towards the base; flowers bluish purple or yellowish; pod silky-pubescent, 3-5-seeded. Var. *argophyllus*, Wats., more silky than the type, is reported from Cypress Hills, Wood Mountain, foothills S-W. of Calgary, and similar localities of N. Sask. and Alta.

2. *L. Kingii*, Wats.

Dwarf, clustered, perennial, 3-6 in. high, from a rootstock; villous throughout; leaflets oblong to lanceolate, shorter than the petioles; flowers

purple, the standard shorter than the wings; racemes on peduncles about the height of the leaves; pod 1-2-seeded. Dry sandy soil, W. Sask.

3. *L. pusillus*, Pursh.

Annual, low, 4-8 in. high, stout, diffusely branched, hairy with coarse hairs; leaflets mostly 5, wedge-shaped or oblong, nearly glabrous above; flowers blue in numerous dense short-peduncled racemes; pods 1-2-seeded. S. Alta.

5. PSORÀLEA.

Calyx 5-toothed; stamens usually diadelphous, half the anthers smaller than the others; pod thick, indehiscent, 1-seeded, seldom projecting beyond the calyx. Perennial herbs usually roughened with glandular dots, having 3-5-foliolate leaves, and flowers in spikes or racemes.

1. *P. argophýlla*, Pursh.

Erect, 6-18 in. high, branched, whitish silky-pubescent throughout; leaves linear to obovate, acute; flowers deep blue, in interrupted spikes. Dry soil, Man.-Alta.

2. *P. lanceolàta*, Pursh.

Glabrous or nearly so, yellowish green, densely covered with glandular dots; leaflets 3, linear to oblanceolate; flowers small, bluish white, in short spikes; fruit globular. Sandy hills, W. Sask. and Alta.

3. *P. esculénta*, Pursh.

Rough; hairy, stout, 6-12 in. high; leaves palmately 5-foliolate; leaflets obovate; flowers pale blue; raceme spike-like, short, dense, on a long peduncle. Low perennial herbs from a spindle-shaped edible root. Dry plains, Man.-Alta.

6. TRIFÒLIUM. CLOVER.

Calyx 5-cleft, teeth bristle-like; corolla papilionaceous, the petals more or less united to the stamen tube; stamens usually diadelphous, 9 and 1, but the separation of the tenth stamen not always complete; pods small, straight, and membranous, included in the persistent calyx and withered corolla. Diffuse herbs with palmately 3-foliolate leaves and flowers in heads.

1. *T. rèpens*, L. WHITE CLOVER.

Smooth, creeping, perennial; leaflets notched at the apex; flowers white, in small loose heads. A common importation in lawn grass mixtures.

2. *T. praténse*, L. RED CLOVER.

Perennial, stems ascending, hairy; leaflets ovate, sometimes notched at the apex, with a pale spot on the upper surface; stipules broad; heads ovoid,

of red or reddish-white flowers. Commonly introduced as a fodder plant, but not hardy enough to become very widespread. Frequently found around fields in the Red River Valley.

7. MEDICAGO. MEDICK.

Flowers as in *Melilotus*; pod 1-several-seeded, curved or twisted; leaves 3-foliolate, leaflets toothed, stipules often cut.



FIG. 54.—*Medicago sativa*.

1. *M. sativa*, L. LUCERNE, ALFALFA.

Erect, smooth, perennial; leaflets obovate; flowers purple; pods twisted. Introduced into America from Europe and now being largely used as a fodder plant.

2. *M. lupulina*, L. BLACK MEDICK, NONESUCH.

Creeping, pubescent, annual; leaflets toothed at the apex; flowers yellow, in short spikes; pods 1-seeded. Waste places, not uncommon, Man.-Alta.

8. MELLÏTUS. SWEET CLOVER.

Flowers as in *Trifolium*, but with corolla free from the stamen tube, and arranged in long terminal racemes; pod more leathery in texture and with fewer seeds. Annual or biennial herbs with rigid stems, and 3-foliolate leaves fragrant in drying.



FIG. 55.—*Melilotus officinalis*.

1. *M. officinalis*, (L.) Lam.

YELLOW SWEET CLOVER.

Erect, tall; leaflets somewhat broadly ovate, closely serrate; petals yellow, all nearly equal in length. Waste ground, not uncommon, introduced, Man.-Alta.

2. *M. alba*, Desv. WHITE SWEET CLOVER.

Erect, tall; leaflets narrower than in the preceding;



FIG. 56.—*Melilotus alba*.

corolla white, standard longer than the other petals. Waste places, fairly common, introduced, Man.-Alta.

9. AMPHICÁRPA. HOG PEANUT.

Flowers of two kinds, — small white or violet perfect flowers in axillary racemes, and solitary apetalous fertile flowers on filiform creeping branches from the base and generally underground; calyx 4 or rarely 5-toothed; stamens diadelphous; pods of the upper flowers curved and stalked, those of the lower pear-shaped, 1-seeded. Low slender perennial herbs with pinately 3-foliolate leaves.



FIG. 57. — *Amphicarpa monoica*, showing a leaf, and a cleistogamous flower at *a*.

1. *A. monòica*, (L.) Ell.

Leaflets thin, broadly ovate, acute at the apex and rounded at the base; upper flowers purplish white in nodding racemes; pods of the perfect flowers pubescent along the margin. Rich moist woods, Red River Valley.

10. ASTRÁGALUS. MILK VETCH.

Calyx 5-toothed; corolla papilionaceous, the standard long and narrow with reflexed sides; keel blunt; stamens diadelphous; pod several-seeded, often turgid, and frequently apparently 2-celled by the intrusion of one or both sutures. Perennial herbs with odd-pinnate leaves, and flowers in spikes or racemes. A very large genus, and impossible to determine all the species without matured pods.

* POD SUCCULENT AND INDEHISCENT.

1. *A. caryocárpus*, Ker. GROUND PLUM.

Tufted, ascending, minutely pubescent with appressed hairs; flowers purple, in a short spike; fruit glabrous, ovoid-globular, with very thick walls, and completely divided into 2 cells. Prairies, common, Man.-Alta.

** POD DRY AND DEHISCENT.

† POD COMPLETELY 2-CELLED.

2. *A. canadénsis*, L.

Erect, 1-3 ft. high, somewhat pubescent, leaflets 21-27; flowers yellowish white, in a long, dense spike; pod sessile, erect, very slightly grooved on the back, almost straight and pointed. Light soil, common, Man.-Alta.

3. *A. adsurgens*, Pall.

Ascending or decumbent, minutely pubescent or glabrate; leaflets 15-25, linear-oblong; peduncles exceeding the leaves; flowers purplish, in dense short spikes; pod sessile, pointed, coriaceous, deeply furrowed on the back. Moist prairie, common, Man.-Alta.

4. *A. hypoglóttis*, L.

Resembling the preceding, but more diffusely branched; pod membranous, oblong, and densely villous. Dry prairie, Man.-Alta.

†† POD INCOMPLETELY 2-CELLED.

5. *A. racemósus*, Pursh.

Erect or ascending, 1-1½ ft. high, finely pubescent, branched at the base, somewhat zigzag; leaflets 17-21, linear-oblong; peduncles equalling or exceeding the leaves; flowers long, yellowish white, in a loose raceme or spike; pods stalked, triangular in section, imperfectly 2-celled by the intrusion of the dorsal suture. Prairies, S. Man. and S. Sask.

6. *A. lotiflórus*, Hook.

Low, gray with appressed hairs; leaflets 7-13, lance-oblong; flowers yellowish white, in few-flowered heads; peduncles may or may not exceed the leaves in length; pod sessile, oblong-ovate, villous-pubescent, slightly keeled and often curved along the dorsal suture, ventral suture nearly straight. Rather rare, Man.-Alta.

††† POD NOT AT ALL 2-CELLED.

7. *A. Drummóndii*, Dougl.

Erect, 1-2 ft. high, growing in clumps, loosely woolly-pubescent; leaflets 19-33, rounded or obtuse at the apex, tapering to the base; flowers yellowish white, the keel often tinged with purple, in somewhat loose spikes, the peduncles equalling or frequently exceeding the leaves in height; pod 1-celled, talked, pendent. Cypress Hills, Red Deer Hills, Hand Hills; probably hilly regions generally.

8. *A. pectinátus*, (Hook.) Dougl.

Ascending, 10-18 in. high, much branched, canescent or glabrate; leaflets 11-21, very narrowly linear; peduncles may or may not exceed the leaves; flowers yellowish white, in loose spike-like racemes, standard much longer than the wings or keel; pod 1-celled, sessile, oblong, leathery in texture, keeled on the upper suture and terminating in a long point.

9. *A. aboriginórum*, Richards.

Erect, 6-12 in. high, somewhat branched, canescent with fine appressed hairs, or glabrate; leaflets 7-13, linear or oblong; flowers white, tinged with purple or violet, in loose racemes, the peduncles exceeding the leaves in height; pod 1-celled, inflated, on a long stipe, dorsal suture slightly intruded. On gravelly ground across the prairies and far north.

10. *A. flexuosus*, (Hook.) Dougl.

Ascending, or rarely erect, branched at the base and loosely spreading, 10-15 in. high; leaflets 9-21, linear, oblong, or oblanceolate; flowers purple, in a very loose raceme, peduncles exceeding the leaves in height; pod 1-celled, sessile, cylindrical. Common across the prairies, usually growing in patches, Man.-Alta.

11. *A. tenellus*, Pursh.

Slender, decumbent, 6-12 in. high, diffusely branched; leaflets 11-15, linear to oblong, pale green; racemes axillary, very loose-flowered, on short peduncles; flowers small, yellowish white or pinkish; pod 1-celled, flattish, oblong, pointed at both ends, on a slender stipe. (*A. multiflorus*, Gray.) Prairies from W. Man. to Rocky Mts.

12. *A. missouriensis*, Nutt.

Stems very low, tufted; leaflets 7-21, elliptical to obovate, usually obtuse; whole plant densely hoary-pubescent throughout; flowers violet-purple, few in heads or short spikes; pod 1-celled, about 1 in. long, wrinkled, sessile, oblong, tapering to a point, leathery in texture, circular in section with the ventral suture slightly keeled. Clay and alkaline flats, Sask. and Alta.

13. *A. pauciflorus*, Hook.

Dwarf from a woody rootstock, densely whitish-pubescent, leaves crowded forming mats on the ground; leaflets 7-11, oblong to lanceolate; flowers violet, 2-5 to a peduncle; pod linear, minutely silky-pubescent, less than $\frac{1}{2}$ in. long. W. Alta.

14. *A. triphyllus*, Pursh.

Stems numerous from a woody rootstock; leaves usually 3-foliolate, crowded, on long petioles exceeding the peduncles, silvery-silky-pubescent, flowers white or yellowish in crowded heads or spikes; pod enclosed in the calyx, soft, hairy, somewhat conical. Dry gravelly ridges, Sask. and Alta.

11. OXYTRORIS.

Stemless herbs, with odd-pinnate leaves of numerous leaflets, from an erect rootstock, and with flowers resembling those of *Astragalus* except that the keel terminates in a sharp beak and the spike is borne on a long naked scape.

1. *O. Lamberti*, Pursh.

Silky-pubescent with fine appressed hairs, 6-14 in. high, growing in clumps; leaflets 9-19, mostly linear; flowers in short dense spikes or heads, showy, reddish purple or yellowish white; scapes exceeding the leaves; pod sessile, erect, incompletely 2-celled, leathery in texture and densely silky-pubescent. Dry prairies, Man.-Alta.

2. *O. splendens*, Dougl.

Densely white silky-villous, 6-12 in. high, in clumps; leaflets numerous, usually in fascicles of 3-5; flowers very showy, in dense spikes, rose-pink to purple; scapes exceeding the leaves; pod erect, 2-celled or nearly so, villous-pubescent. Dry prairies, Man.-Alta.

3. *O. deflexa*, DC.

Low, with leaves prostrate and scapes ascending, never more than 1 ft. high, loosely pubescent throughout; leaflets 25-33, lanceolate to oblong; flowers small, scarcely seen, in a short close spike which becomes much lengthened in fruit; scapes exceeding the leaves; pod 1-celled, longer than the calyx. Sandy soil, local, Man.-Alta.

12. HEDYSARUM.

Calyx 5-cleft; standard and keel longer than the wings; stamens diadelphous, 9 and 1; pod flat and jointed, being composed of several separable parts. Perennial herbs with a tendency to become shrubby, with odd-pinnate leaves and showy flowers in axillary racemes or spikes.

1. *H. boreale*, Nutt.

Erect, 1-2 ft. high, smooth; leaflets 13-21; flowers purplish red to whitish, deflexed, in a long raceme; calyx teeth shorter than the tube; pods of 3 or 4 joints. Prairies, N. Man.-Alta.

2. *H. Mackenzii*, Richards.

Resembling the preceding, but the stem frequently decumbent, minutely pubescent; leaflets 11-19; flowers slightly larger, violet-purple, calyx teeth longer than the tube or at least equalling it; pod 3-8-jointed. Prairies, Sask. and Alta.

13. GLYCYRRHIZA. LIQUORICE.

Calyx 5-toothed, the two upper shorter or partly united; corolla long and narrow, the standard reflexed at the sides; stamens diadelphous, the anthers alternating larger and smaller; pod ovate, compressed, sessile, covered with prickles, hooks or glands. Perennial herbs from thick sweet roots, with odd-pinnate leaves, flowers in axillary spikes and foliage spotted with glands.

1. *G. lepidota*, (Nutt.) Pursh. WILD LIQUORICE.

Erect, 1-3 ft. high, branching; leaflets 15-19, sprinkled with scales or dots; flowers whitish, in peduncled spikes; pods oblong, covered with hooks. Edges of thickets or moist ground generally, common, Man.-Alta.

14. VÍCIA. VETCH, TARE.

Calyx 5-toothed, somewhat unequally; wings of corolla adhering to the keel at the middle; stamens mostly diadelphous, 9 and 1, the stamen tube oblique; style filiform with a tuft of hairs at the summit; pod dehiscent, 2-valved, several-seeded. Herbs climbing by tendrils which replace the terminal leaflets; flowers axillary.

1. *V. americana*, Muhl.

Smooth, 2-3 ft. long, trailing or climbing; leaves nearly sessile, of 10-14 ovate leaflets; flowers purple; peduncles 4-8-flowered. Common in wooded districts across the prairies. (Var. *linearis*, Wats.), shorter, with linear leaflets, is common in open ground, trailing rather than climbing, Man.-Alta.

15. LÁTHYRUS. EVERLASTING PEA.

Similar to *Vicia*, except that the style is somewhat paddle-shaped and hairy on the inner surface, and the filament tube is not oblique. Smooth perennials.

1. *L. maritimus*, (L.) Bigel. BEACH PEA.

Stout, trailing, with 6-12 thickish ovate-oblong leaflets, and large leaf-like stipules; flowers large, purple, peduncles 6-10-flowered. Trailing on the sand on the shores of Lakes Manitoba and Winnipeg.

2. *L. palustris*, L.

Slender, glabrous, 1-3 ft. high, the stem more or less winged down the two sides; stipules somewhat sagittate and linear; flowers purple, peduncles 3-5-flowered. Climbing on grass and bushes in moist thickets across the prairie region. Some varieties are found more slender than the type. Man.-Alta.

3. *L. venosus*, Muhl.

Stout, somewhat pubescent, 2-3 ft. long; stipules small; leaflets 8-12, oblong-ovate, obtuse; peduncles shorter than the leaves; flowers purple, the calyx persistent; pod linear, sessile, glabrous. In mixed woodland and prairie regions, Man.-Alta.

4. *L. ochroleucus*, Hook.

Slender, 1-2½ ft. long; stipules half cordate, large; leaflets 6-10, thin; peduncles 7-10-flowered, shorter than the leaves; flowers yellowish white. Sparsely wooded districts, Man.-Alta.

XLI. LINACEÆ (FLAX FAMILY).

Annual or perennial herbs, often woody at the base, with regular, perfect, symmetrical, hypogenous flowers, and simple sessile leaves: sepals 5; petals 5; stamens 5, monadelphous; ovary 4 or 5-celled and 8-10-seeded.

1. LINUM. FLAX.

Sepals 5, persistent; petals 5, alternate with the sepals, deciduous; stamens 5, alternate with the petals; styles 5; ovary 5-celled with 2 seeds in each cell, or more or less completely 10-celled with 1 seed in each cell. Tough fibrous herbs, sometimes woody at the base, with simple sessile leaves either opposite or alternate, and perfect flowers.

1. *L. Lewisii*, Pursh.

Perennial, 1-2 ft. high from a woody root, glabrous and glaucous throughout, the stems simple or branching above, but growing in clumps; leaves linear, acute; flowers few, blue, rather large, the petals very deciduous. (*L. perenne*, L.) Dry prairies, Man.-Alta.

2. *L. rigidum*, Pursh. YELLOW FLAX.

Usually perennial, glabrous or minutely pubescent or roughened on the angles, 4-12 in. high, branched, but often growing in tufts or mats, the branches stiff and angled; leaves narrow, erect; flowers large, yellow. Dry prairies, Sask. and Alta.

3. *L. sulcatum*, Riddell.

Annual, glabrous; stem sparingly, if at all, branched towards the base, but profusely branched towards the top, the branches all rising to about the same height; branchlets more or less grooved; leaves linear or lanceolate, sharp-pointed, the lowest entire, the upper smaller and serrulate, usually with dark glands in place of stipules; flowers yellow, about $\frac{1}{2}$ in. broad, rather scattered in few-flowered raceme-like or corymb-like clusters. Dry sandy soil, rare; Qu'Appelle Valley west of Fort Ellice. (Macoun.)

XLII. OXALIDACEÆ (WOOD SORREL FAMILY).

Low herbs with a sour watery juice, regular flowers, and delicate palmate leaves of three obovate leaflets; sepals 5, often unequal; petals 5, pink or yellow; stamens 10-15; ovary 5-celled; styles united or distinct.

1. *OXALIS*. WOOD SORREL.

Sepals 5, persistent; petals 5, united at the base; stamens 10, monadelphous, alternately longer and shorter; styles 5, distinct; pods erect, often on bent pedicels.

1. *O. stricta*, L.

Stems usually more than one, decumbent; leaves pale green, sensitive; flowers yellow, peduncles mostly 2-flowered, the deflexed pedicels and stems covered with appressed hairs.

2. *O. corniculata*, L. LADY'S SORREL.

Stems resembling the preceding; leaves deep green often tinged with purple; flowers yellow, the peduncles several-flowered, the pedicels ascending and spreading, with very little, if any, pubescence. Dry soil, across the prairies. Some confusion exists regarding this and the preceding species.

XLIII. GERANIACEÆ (GERANIUM FAMILY).

Herbs with palmately lobed or cleft, usually stipulate leaves, and perfect, regular, hypogenous flowers, either solitary or in axillary clusters. Sepals 5, persistent; petals 5, hypogenous; stamens as many, or two or three times the number of sepals, distinct; ovary 5-lobed and 5-celled.

1. *GERANIUM*. CRANESBILL.

Sepals 5, imbricated; petals 5, hypogenous, imbricated; stamens 10, 5 long and 5 short; ovary 5-lobed, 5-celled, beak-like, often tipped with the persistent style; ovules 2 in each cell.

1. *G. maculatum*, L.

Perennial, erect, 4-12 in. high, hairy; leaves 5-parted, the divisions still further cut towards the ends; flowers large, light purple, petals bearded at the base; pedicels and beak of the fruit hairy. Mostly a woodland species and to be looked for in eastern Manitoba.

2. *G. carolinianum*, L.

Low, much branched, and hairy, with spreading, sometimes glandular hairs; leaves deeply cut into many oblong segments; flowers pale pink, in cymose clusters; fruit tipped with a short style. Newly burnt woods or around thickets, Man.-Alta.

3. *G. incisum*, Nutt.

Rather coarse, leafy-branched; pedicels, peduncles, or entire plant glandular-hairy with short hairs; leaves 3-5-cleft, or the lower still more divided;

petals purple; beak of the fruit very glandular. * Foothills of Rocky Mts. and eastward to Cypress Hills and Wood Mt.

4. *G. Richardsónii*, Fisch. & Mey.

Stem slender, slightly pubescent; pedicels, peduncles, and sometimes the upper part villous with white hairs tipped with purple glands; leaves usually few, 3-5-parted, the parts of the lower further divided, the terminal lobe much longer than the lateral in the upper; flowers white veined with red; beak of the fruit somewhat glandular-hairy. Foothills of Rocky Mts. and prairies of S. Sask. and Alta.

5. *G. pusillum*, L.

Annual, stem slender, weak, spreading, pubescent; leaves on long petioles, round, and cut into 7 or 9 lobes, which are either entire or 3-toothed at the apex; peduncles rather short, 2-flowered; flowers small, pale reddish purple, the stamens with anthers often 5 instead of 10; capsule hairy, but the long slender beak naked or nearly so. Introduced about towns.

2. ERÒDIUM. STORKSBILL.

Resembling the Geranium, but the short stamens sterile, and the styles, in fruit, spirally twisted.

1. *E. cicutàrium*, (L.) L'Hér.

A low hairy annual with leaves 1 or 2-pinnate, and sepals tipped with bristles. Portage la Prairie. Introduced about towns.

2. *E. moschàtum*, (L.) L'Hér.

Stouter than the preceding, with leaflets less divided. Introduced, rare.

XLIV. POLYGALÀCEÆ (MILKWORT FAMILY).

Herbs or shrubs with very irregular hypogenous flowers arranged in a variety of ways. Sepals 5, the two lateral ones large and colored; petals 3 or 5, hypogenous, more or less united; stamens 4-8, generally in 2 sets; ovary 2-celled with a single ovule in each cell.

1. POLÝGALA.

Sepals 5, persistent, the upper one and the two lower small and greenish, the two lateral ones large and colored; petals 3, hypogenous, connected with the stamen tube, the lower one keel-shaped; stamens 6 or 8, their filaments united into a tube split down the back, or joined in 2 sets to the petals; ovary 2-celled with a single ovule. Low bitter herbs with simple entire leaves.

1. *P. paucifolia*, Willd. FLOWERING WINTERGREEN.

A low glabrous perennial from a creeping rootstock, with the leaves on the lower part of the stem either much reduced or absent, and a clump of crowded ovate leaves on short petioles at the summit, surmounted by 1-3 large rose-purple flowers rising from the axils of the upper leaves; keel of the corolla with a fringed crest; stamens 6. Shady woods, E. Man. and westward.

2. *P. sénega*, L. SENECA SNAKEROOT.

Stems simple, glabrous, erect or ascending, several from hard knotty rootstocks; leaves simple, lanceolate to oblong; flowers small, white, crest short, in close terminal spikes. Common across the prairie, Man.-Alta.

XLV. EUPHORBIACEÆ (SPURGE FAMILY).

Plants with a bitter milky juice, and monœcious or diœcious flowers. The floral envelopes may vary greatly or be wanting, or, as in our representatives, greatly reduced, and enclosed in a calyx-like involucre. Ovary 3-celled; ovules 1 or 2 in each cell; styles as many as the cells of the ovary; fruit a 3-lobed capsule. A very large family, but mostly tropical, and only represented here by the genus *Euphorbia*.

EUPHÓRBIA. SPURGE.

Flowers monœcious, enclosed in a 4 or 5-lobed involucre which resembles a calyx, and bears in the angles large glands which are easily mistaken for petals. Sterile flowers numerous in each involucre, each one just a single stamen from a minute bract; fertile flowers solitary in the involucre, consisting of just a 3-lobed and 3-celled ovary, soon protruded by the lengthening of the pedicel. Low spreading herbs with a bitter milky juice.

1. *E. glyptosérma*, Engelm.

Spreading, glabrous; leaves linear-oblong, about $\frac{3}{8}$ in. long, sometimes slightly curved, very oblique at the base and minutely serrulate towards the apex; stipules divided into bristles; flowers very small in dense lateral clusters; seeds with 5 or 6 distinct cross-wrinkles and sharply 4-angled but not pitted. Gravelly soil, Man.-Alta., becoming a common dooryard weed.

2. *E. serpyllifolia*, Pers.

Resembling the preceding, but darker green with a tendency to become reddish as the plant gets older; leaves not curved and often sharply serrulate to about the middle; seeds only very slightly wrinkled and often pitted. Dry soil, Man.-Alta.

XLVI. ANACARDIACEÆ.

Trees or shrubs with an acrid, milky, or somewhat resinous juice, alternate exstipulate leaves, and regular, 5-merous, generally polygamous flowers; ovary 1-celled and 1-ovuled; styles or stigmas 3. Some species exceedingly poisonous.

1. RHÚS. SUMACH.

Calyx 5-parted; petals 5; stamens 5, inserted on a disk at the bottom of the calyx; flowers greenish or yellowish; fruit drupe-like.

1. *R. toxicodéndron*, L. POISON IVY; POISON OAK.

Low, erect from a creeping root-stock, usually glabrate; leaves 3-foliolate, ovate to rhombic, rather thick, often irregularly few-toothed; berries whitish, persisting through the winter. Poisonous to the touch to many people. Common in thickets, Man.-Alta.



FIG. 58.—*Rhus toxicodendron*.

Gray.) Leaflets small, usually about $\frac{3}{4}$ in. long, lobed or incised, mostly at the summit. S-W. Sask. and Alta.

2. *R. canadensis*, Marsh.

A shrub 3-7 ft. high, scented; leaves thin, 3-foliolate, soft-pubescent when young; leaflets ovate or obovate, the terminal sometimes 3-cleft, and all coarsely toothed or incised, 1-3 in. long; flowers yellow; drupes rather large. (Var. *trilobata*, (Nutt.)

XLVII. CELASTRACEÆ

Shrubs with alternate simple leaves and regular flowers; sepals and petals 4 or 5, inferior; stamens as many as the petals, alternate with them, periginous; seeds with an appendage (aril) growing up from the point of attachment, and sometimes covering the seed.

1. CELÁSTRUS. BITTER-SWEET.

Flowers polygamous, with a tendency to be dioecious, in raceme-like clusters terminating the branches; petals and stamens 5,

inserted on a disk lining the bottom of the calyx; pod 3-celled and 3-valved, berry-like, a deep orange color when ripe, the coat soon splitting and disclosing the scarlet pulpy aril enclosing the seeds, making the fruit very showy.

1. *C. scândens*, L. CLIMBING BITTER-SWEET.

Leaves ovate-oblong and finely serrate. A twining shrub often growing very tall and twining around the stems of trees. Moist woods, Man.

XLVIII. ACERÁCEÆ (MAPLE FAMILY).

Trees or shrubs with a sweet watery sap, dicœcious flowers, and simple, opposite palmately lobed or pinnately compound leaves. Calyx 5-parted; petals 5 or wanting; stamens 4-12, filaments long; ovary 2-lobed with 2 styles inserted between the lobes; fruit a double samara.

1. ÀCER. MAPLE.

The only genus, and having generally the characteristics of the family.

1. *A. saccharinum*, L. SILVER MAPLE; SOFT MAPLE.

A lofty tree with gray flaky bark; leaves large, deeply 5-lobed, the lobes narrow and irregularly toothed; white-pubescent beneath; flowers greenish, preceding the leaves; petals wanting; samara large, pubescent when young. Introduced for ornamental purposes and becoming somewhat common about Winnipeg and Portage la Prairie. It thrives well in the Red River Valley.

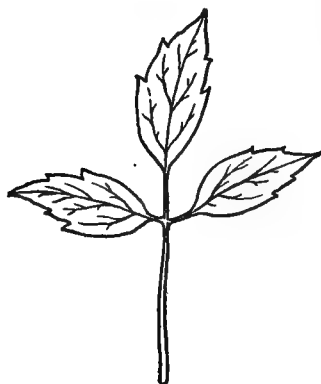


FIG. 59. — *Acer negundo*.

2. *A. spicatum*, Lam. MOUNTAIN MAPLE.

A shrub or very small tree with somewhat greenish bark. Leaves 3-



FIG. 60. — *Acer saccharinum*.

lobed, or obscurely 5-lobed, serrate, glabrous above and whitish-pubescent below, at least when young; racemes dense, upright. Moist woods through Manitoba.

3. *A. Negúndo*, L. BOX ELDER, MANITOBA MAPLE.

A fair-sized tree with rough gray bark, and compound leaves, of 3 or 5 leaflets; leaflets smooth when old, ovate, irregularly toothed; flowers small, clustered, appearing before the leaves, drooping on long slender pedicels. Common as far west as Meridian 112°, and north to the Sask. River.

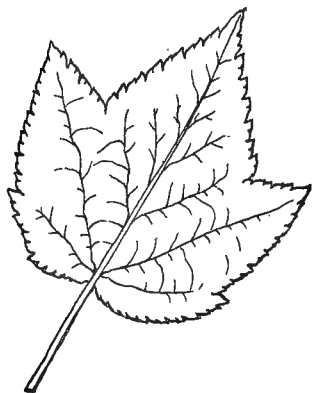


FIG. 61. — *Acer spicatum*.



FIG. 62. — *Acer glabrum*.

4. *A. glâbrum*, Torr.

A shrub, or low, rather spreading tree with smooth light-brown twigs; leaves mostly small, 3-5-lobed or 3-foliolate, the lobes or leaflets unequally but somewhat sharply serrate, glabrous or almost so. (Var. *tripartitum*), a form in which the leaves are mostly 3-foliolate. Rocky Mts.

XLIX. BALSAMINACEÆ (BALSAM FAMILY).

Succulent herbs with alternate, simple, exstipulate leaves and irregular flowers. Sepals 3, two small and green, the other large, petal-like and spurred; petals 2, each 2-lobed; stamens 5, with short flat filaments; ovary 5-celled.

1. **IMPÀTIENS.** TOUCH-ME-NOT.

Herbs with orange or yellow flowers and seed pods which burst suddenly on being touched.

1. *I. pállida*, Nutt. PALE TOUCH-ME-NOT.

Flowers pale yellow, very little dotted; spur shorter than it is wide; larger than the next species. Wet shady places, Man. and Sask.

2. *I. biflora*, Walt. SPOTTED TOUCH-ME-NOT.

Flowers orange, thickly spotted with reddish brown; spur longer than broad, and incurved. (*I. fulva*, Nutt.) Wet shady places, Man.-Alta. and far north.



FIG. 63. — *Impatiens pallida*.



FIG. 64. — *Impatiens biflora*.

L. RHAMNÀCEÆ (BUCKTHORN FAMILY).

Shrubs with simple, alternate, stipulate leaves (the stipules small and very deciduous) and small regular flowers. Calyx 4 or 5-toothed; petals 4 or 5 on the calyx, or none; stamens the same number as the petals and opposite to them, inserted with them on the calyx; ovary 2-5-celled with one ovule in each cell; fruit a drupe or capsule.

1. RHÁMNUS. BUCKTHORN.

Calyx 4 or 5-toothed, petals 4 or 5, clawed; stamens same number as petals; ovary 3 or 4-celled; style 3-4-cleft; drupe berry-like. Shrubs with pinnately veined leaves and (with us) usually dioecious flowers.

1. *R. alnifolia*, L'Hér.

A small shrub with ovate or elliptical leaves, each with 6 or 7 pairs of prominent veins; flowers mainly dioecious, in 2's or 3's on short pedicels in the axils of the leaves, appearing with the leaves. Moist wooded regions, Man.-Alta.

2. CEANÒTHUS. RED-ROOT.

Calyx 5-lobed, the tube adhering to the ovary; petals 5, hooded, clawed, longer than the calyx lobes; stamens 5, the filaments elongated; style short, 3-cleft; fruit dry, 3-lobed, separating when mature into 3 nutlets. Shrubs with alternate petioled leaves and white, blue, or yellowish flowers in terminal or axillary clusters.

1. *C. velutinus*, Dougl.

A large shrub with brownish twigs; leaves broadly elliptical, 3-nerved, closely serrate-dentate; dark green, smooth, shiny above and slightly canes-

cent beneath, 2 or 3 in. long; flowers white. (Var. *lævigatus*, Torrey and Gray.) Leaves glabrous, light green, rather glaucous below. Crow's Nest Pass.

2. *C. ovatus*, Desf.

Leaves elliptical to lanceolate, finely serrate, glabrous; flowers clustered on short peduncles. Dry sandy soil, E. Man.

LI. VITACEÆ (GRAPE FAMILY).

Shrubs erect, or climbing by tendrils, with watery sap, alternate petioled leaves, and small greenish flowers in panicles, cymes, or racemes. Calyx 4 or 5-toothed, sometimes minute; petals 4 or 5,

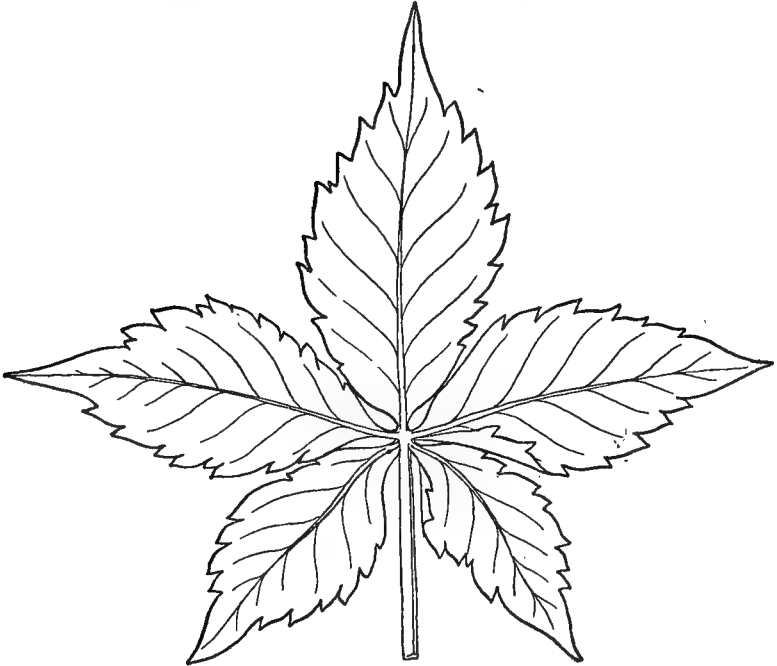


FIG. 65.—*Psedera vitaceæ*.

separate or united; stamens 4 or 5, opposite the petals, inserted on a disk at the bottom of the calyx; ovary 2-6-celled; fruit berry-like.

1. *PSÉDERA*. VIRGINIA CREEPER. WOODBINE.

Calyx slightly 5-toothed; petals 5, separate, spreading; berry 2-4-seeded, inedible. Climbing vines with digitate leaves, and flowers in cymose clusters. (*Ampelopsis*, Michx.)

1. *P. vitæca*, (Knerr.) Greene.

Leaflets 5, coarsely serrate, glabrous, turning red in the fall; tendrils branched and with few, if any, adhesive disks at the ends; fruit dark purple. (*A. quinquefolia*, Michx.). Moist woods, Man.

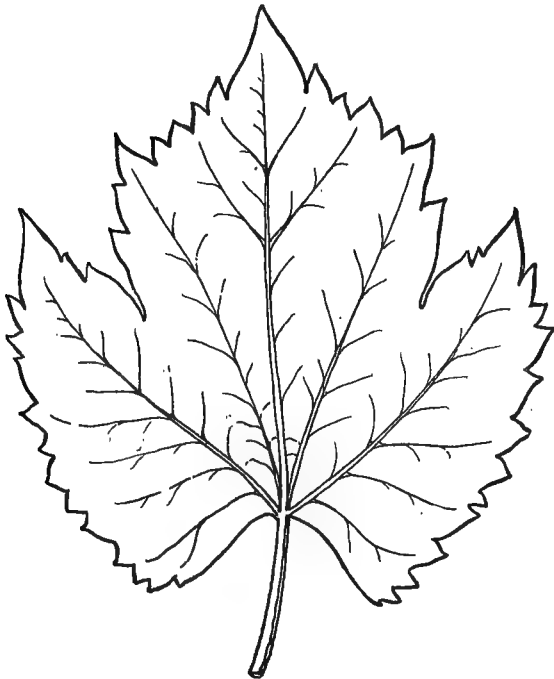


FIG. 66. — *Vitis vulpina*.

2. VITIS. GRAPE.

Flowers perfect, or staminate with rudimentary ovary; calyx 5-parted, teeth very short; petals 5, separate at the base and falling without opening; stamens 5, on a disk with glands between them; berry pulpy. Vines with simple leaves, clustered flowers, and climbing by tendrils without adhesive disks.

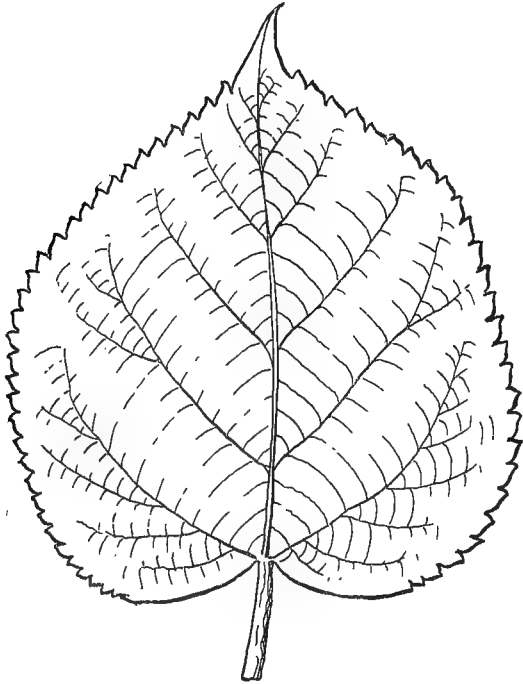


FIG. 67. — *Tilia americana*.

1. *V. vulpina*, L.

Glabrous, except a slight pubescence on the veins on the lower sides of the leaves; leaves thin, shiny, 3-7-lobed, deeply and sharply toothed; berries bluish black with a bloom. (*V. riparia*, Michx.) River valleys, Man.

LII. TILIACEÆ (LINDEN FAMILY).

Trees with alternate simple leaves, fibrous inner bark, and flowers in axillary or terminal panicles or cymes. Sepals 5, deciduous; petals the same number, fewer or none; stamens numerous, often in groups; fruit drupe-like or berry-like.

1. TÍLIA. BASSWOOD.

Sepals 5; petals 5, spatulate, with scales at the base; stamens numerous, united in 5 groups; fruit dry, woody, and indehiscent. Large trees with soft white wood, and cymes of cream-colored, sweet-scented flowers.

1. *T. americana*, L.

Leaves large, glabrous, heart-shaped, serrate, oblique; fruit ovoid. Rich woods, Red River Valley.

LIII. MALVACEÆ (MALLOW FAMILY).

Herbs or shrubs with alternate, mostly palmately veined leaves with deciduous stipules and regular flowers. Sepals 5, united at the base, persistent, sometimes with a number of bracts on the outside; petals 5, with short claws, united at the base; stamens numerous, their filaments united in a tube and joined with the base of the petals; styles mostly as many as the cells of the ovary, united below, distinct above, and generally projecting beyond the stamen tube; pistils several, united in a ring.

1. MALVÁSTRUM. FALSE MALLOW.

Calyx with 2 or 3 bractlets or none; petals often notched at the apex; styles 5 or more; seeds kidney-shaped.

1. *M. coccineum*, (Pursh.) Gray.

A low, hoary, perennial herb with 5-parted palmate leaves, and reddish pink flowers in short racemes or spikes. Dry soil, from the Red River Valley westward.

LIV. CISTACEÆ (ROCK ROSE FAMILY).

Shrubs or low, somewhat shrubby herbs with simple leaves and regular flowers, solitary or variously clustered; sepals 3-5, persistent, when 5 the two outer smaller; petals 3 or 5 or wanting;

stamens numerous, hypogenous; style simple; stigma entire or 3-lobed; ovary simple, sessile, 1-several-celled.

1. HELIANTHEMUM.

Flowers of two kinds, the earlier with large yellow petals, numerous stamens and many-seeded pods, the later with small petals or none, and small few-seeded pods. The early flowers open only in the sunshine, hence the name. Woody herbs, more or less branched.

1. *H. canadense*, Michx. FROSTWEED.

Erect, hoary-pubescent, with some slender branches; leaves alternate, linear-oblong; early flowers large, solitary, terminal, but later overtopped by elongating branches; later flowers clustered, axillary. The plant gets its name from crystals of ice bursting through the bark at the base in the fall. MacGregor, Man.

LV. VIOLACEÆ (VIOLET FAMILY).

Herbs with alternate stipulate leaves and irregular, axillary, nodding flowers; sepals 5, persistent; petals 5, irregular; stamens 5, hypogenous; fruit a 1-celled pod opening by 3 valves, with 3 parietal placentæ.

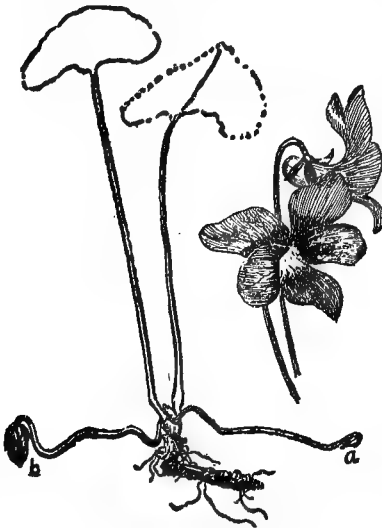


FIG. 68. — *Viola cucullata*.

1. VIOLA. VIOLET.

Petals unequal, the lower spurred at the base; some of the stamens with spurs projecting into the spur of the corolla; producing inconspicuous flowers at the base which never open.

* PLANTS WITHOUT STEMS.

1. *V. cucullata*, Ait. COMMON BLUE VIOLET.

Leaves all without divisions, all except the earliest pointed, crenate or dentate, cordate at

the base; petals violet-blue, the spurred one glabrous; peduncles taller than the leaves. Wet places, common, somewhat variable, Man.-Alta.

2. *V. pedatifida*, Don. BIRD-FOOT VIOLET.

Leaves palmately parted and variously cleft into narrow lobes; peduncles exceeding the leaves bearing showy violet flowers; rootstock short and erect. (*V. delphinifolia*, Nutt.) Moist prairies, Man.-Alta.

3. *V. blanda*, Willd. SWEET WHITE VIOLET.

Leaves acute, midribs and petioles tinged with red, almost glabrous; flowers small, sweet-scented, white with the lower petals veined with purple. Damp places, mostly northward.

4. *V. palustris*, L.

Glabrous, from a jointed rootstock; leaves round or kidney-shaped, slightly crenate; flowers small, pale blue with purple veining. Bogs, N. Man. and westward.

**PLANTS WITH STEMS.

5. *V. Nuttallii*, Pursh.

Slightly, if at all, pubescent, leaves ovate to lanceolate, entire or only slightly crenate, tapering into winged petioles; petals yellow, often tinged with purple on the outside. Dry prairies, occurring locally, Man.-Alta.

6. *V. pubescens*, Ait. DOWNY YELLOW VIOLET.

Stems often solitary, softly pubescent; root leaves long-petioled, usually gone before the flower appears; stem leaves 2-4, on short petioles near the summit, blades ovate to reniform; petals yellow veined with purple, the lateral bearded. Rich woods, Man. and E. Sask.

7. *V. canadensis*, L. CANADA VIOLET.

Stem 4-12 in. high, minutely pubescent; leaves large, heart-shaped, pointed, serrate; flowers white, lasting throughout the summer, the spurred petal yellow at the base and marked with dark lines, lateral petals bearded. Rich woods, common, Man.-Alta.

8. *V. arenaria*, DC.

Stems low, growing in tufts; leaves thickish, densely pubescent on both surfaces, ovate, narrowing to an obtuse apex, and only slightly, if at all, cordate at the base; flowers small, blue, with short blunt spur. (*V. canina* var. *puberula*; Wats.) Sandy soil, Man. and Sask.

9. *V. adunca*, Gray.

Glabrous or nearly so, very short-stemmed; leaves rounded to ovate, rarely cordate; flowers large, side petals bearded; spur almost as long as the petals, either curved or straight. (*V. canina*, var. *adunca*, Wats.) Dry soil, W. Sask. and Alta.

LVI. LOASACEÆ (LOASA FAMILY).

Erect or climbing herbs armed with hooked or stinging hairs, with alternate or opposite exstipulate leaves and regular perfect flowers either solitary or clustered. Calyx 4-5-cleft, its tube adhering to the ovary; petals as many or twice as many as the divisions in the ovary; stamens numerous, in clusters opposite the petals, inserted with the petals; style entire or 2-3-lobed, ovary 1-celled, with 2 or 3 parietal placentæ, and crowned with the persistent calyx teeth.

1. MENTZÈLIA. BARTONIA.

Calyx 5-lobed; petals 5 or 10, spreading, deciduous; stamens 20 or more; styles 3, somewhat united; capsule few-seeded. Erect herbs with alternate leaves and showy terminal flowers.

1. *M. decapétala*, (Pursh.) Urban and Gilg.

Stout, 1-2 ft. high, rough-pubescent; leaves ovate to lanceolate, sinuate-pinnatifid, the upper sessile, the lower petioled; flowers mostly solitary, yellowish white, opening in the evening. (*M. ornata*, T. and G.) Clay banks, S. Alta.

LVII. CACTACEÆ (CACTUS FAMILY).

Mostly leafless plants, the thickened fleshy stems usually covered with prickles. Flowers sessile and solitary; sepals and petals numerous, adhering to the tube formed by the union of petals and sepals; ovary 1-celled; style 1; stigmas many.

1. MAMILLÀRIA.

Globose or ovoid, covered with spine-bearing tubercles with the flowers springing from woolly or bristly projections between the tubercles.

1. *M. vivípara*, (Nutt.) Haw.

Single or in clumps; tubercles with 5-8 brownish spines surrounded by 12-20 gray ones, often dark on the tips; flowers reddish or purplish with fringed petals; berry ovoid, succulent. Dry sand hills, S. W. Man. and westward to S. Alta.

2. OPÚNTIA. PRICKLY PEAR.

Sepals and petals not united; stems in joints, flattened, with very small, awl-shaped, deciduous leaves and clusters of bristles or spines in the axils.

O. polyacantha, Haw.

Prostrate, the joints light green, ovate or orbicular, forming large spreading masses, covered with spiny tubercles; leaves minute; flowers yellow, sometimes orange within or rarely purple; fruit dry and spiny. Dry prairies and hillsides, W. Man.—Alta.

LVIII. **ELEAGNACEÆ** (OLEASTER FAMILY).

Shrubs with simple scurfy leaves, and regular perfect or dioecious flowers; calyx colored, mostly 4-cleft; petals wanting; stamens as many or twice as many as the calyx teeth; fruit drupe-like or berry-like, owing to the thickening of the calyx tube.

1. **ELEÁGNUS**.

Calyx teeth 4, deciduous; stamens 4, inserted in the throat of the calyx; style linear with the stigma down one side; fruit drupe-like; leaves alternate.

1. **E. argétea**, Pursh. SILVERBERRY; WOLF WILLOW.

A thornless shrub with silvery leaves and numerous flowers, silvery without and yellow within, and very fragrant; fruit dry. Common on rich prairie, Man.—Alta.

2. **SHEPHÉRDIA**.

Flowers dioecious; calyx 4-cleft; stamens 8; style slender, stigma down one side; fruit pulpy, berry-like; leaves opposite.

1. **S. canadensis**, (L.) Nutt.

A thornless shrub 3-8 ft. high; leaves elliptical, almost naked above, silvery-scurfy beneath; fruit yellowish red. Wooded valleys, N. Sask., Alta., and northward.

2. **S. argétea**, Nutt. BUFFALO BERRY.

A thorny shrub higher than the preceding; leaves silvery on both sides; fruit scarlet. Valleys of Red, Assiniboine and Souris Rivers, and westward to Alta.

LIX. **ONAGRACEÆ** (EVENING PRIMROSE FAMILY).

Herbs with either alternate or opposite leaves and regular, symmetrical, usually 4-parted flowers; calyx adheres to the ovary and may project beyond in a long tube; petals sometimes wanting; stamens as many or twice as many as the calyx lobes or petals; ovary 2 or 4-celled; style slender; stigma often deeply lobed.

1. EPILÒBIUM. WILLOW-HERB.

Calyx tube scarcely, if at all, prolonged beyond the ovary; petals 4, shading from violet to white; pod slender; seeds many, tufted with downy hairs (a coma). Innocent perennial herbs with sessile flowers.

1. *E. angustifolium*, (L.). GREAT WILLOW-HERB.

Calyx tube not prolonged beyond the ovary; petals large, not notched at the apex, reddish purple; stigma deeply 4-lobed; flowers in showy terminal racemes. Common in newly burned ground, Man.-Alta.

2. *E. mólle*, Torr.

Erect, branched, 1-3 ft. high, densely pubescent; calyx tube slightly prolonged beyond the ovary; petals notched at the apex; stamens and style erect; stigma entire or nearly so; flowers small, pink, solitary, in the upper axils. Wet places, local and not common.

3. *E. dénsium*, Raf.

Slender, erect, 1-2 ft. high, branched, minutely hoary-pubescent with incurved hairs; leaves linear or nearly so, acute at both ends, opposite or alternate, erect; flowers pink or white, small, erect, in the upper axils; stigma entire or nearly so. (*E. palustre*, var. *lineare*, Gray.) Peat bogs and wet places, Man.-Alta.

4. *E. palústre*, L.

Decumbent, with a tendency to root by prostrate branches, minutely pubescent or glabrate; leaves thin, green, mostly opposite, oblong to lanceolate, somewhat spreading; flowers small, pink or whitish, few, in the upper axils, usually nodding, at least when young. Bogs and wet places, Man.-Alta.

5. *E. adenocàulon*, Haussk.

Erect, 1-3 ft. high, minutely pubescent, sometimes sticky; leaves ovate to lanceolate, almost sessile, sparingly toothed; flowers pink, nodding at first; seeds with a white coma. Moist ground, Man.-Alta.

6. *E. latifolium*, L.

Erect, branched, 6-18 in. high, glabrate below, canescent above; leaves ovate to lanceolate, sessile, those on the branches opposite; flowers perfect, in leafy racemes; coma white. River valleys, Alta., and north and east to Hudson Bay.

2. OENOTHÈRA. EVENING PRIMROSE.

Calyx tube much prolonged beyond the ovary, deciduous; calyx lobes 4, reflexed; petals 4; stamens 8; pod 4-valved, many-seeded; stem leaves alternate; flowers yellow, white, or pink.

1. *Œ. biennis*, L. COMMON EVENING PRIMROSE.

Biennial, producing a strong root and a large rosette of leaves the first year; stout, erect, 2-4 ft. high, usually simple, somewhat pubescent with spreading hairs; leaves lanceolate to oblong; flowers large, yellow, erect, closing in the hot sun; lobes of the stigma linear. Open ground, common, Man.-Alta.

2. *Œ. pallida*, Lindl. WHITE-STEMMED EVENING PRIMROSE.

Erect, simple or branched, 1-3 ft. high; stem white, often with shreddy bark; leaves linear to oblong, mostly sessile; flowers large, axillary, white, turning pink. (*Œ. albicaulis*.) Dry prairies, Man.-Alta.

3. *Œ. triflora*, Nutt.

Perennial, glabrous, stemless or nearly so; leaves pinnatifid or sinuate-toothed, petioled; flowers white or pink, the petals often 3-lobed; pod short. Clay soil, S. W. Man. and S. Sask.

4. *Œ. cæspitosa*, Nutt.

Stemless perennial from woody root; leaves oval to oblanceolate, tapering to a slender petiole, often densely pubescent, more or less pinnatifid but not deeply cut; flowers white, the petals broad and obcordate. Dry hills, Sask. and Alta.

5. *Œ. serrulata*, Nutt.

Slender, erect or ascending, simple or branched, 6-18 in. high, mostly glabrous, but canescent on the younger parts; leaves linear to lanceolate, sharply but shallowly dentate or denticulate; calyx tube funnel-form, often silvery-canescens; petals yellow, broadly obovate; stigma scarcely lobed. Dry slopes, Man.-Alta.



FIG. 69.—*Enothera biennis* (Fruit).

3. GAÛRA.

Calyx tube much prolonged, deciduous, 4-lobed, the lobes reflexed; petals 4, clawed, rose-colored; stamens 8, often turned down; style long, slender, deflexed; stigma 4-lobed, surrounded by a sort of ring; fruit hard, 1-celled, 1-4-seeded; flowers rather small, in spikes or racemes.

1. *G. coccinea*, Pursh.

Ascending, 4-12 in. high, usually canescent; leaves linear to lanceolate; flowers rose-colored turning red, in simple spikes. Gravelly banks, Man.-Alta.

4. *CIRCËA*. ENCHANTER'S NIGHTSHADE.

Calyx tube hairy, slightly prolonged, deciduous, 2-lobed, the lobes reflexed; petals 2, obcordate; stamens 2, alternate with the petals; fruit 1-2-celled, small, densely covered with hooked hairs. Low perennial herbs with opposite leaves and small white flowers in terminal or axillary racemes.

1. *C. alpina*, L.

Slender, 3-8 in. high; leaves ovate, slender petioled, more or less cordate, strongly dentate; flowers small, white; fruit covered with weak hooks. Moist woods, Rocky Mts., northward and eastward.

LX. *HALORAGIDACEÆ* (WATER MILFOIL FAMILY).

Aquatic or marsh plants with inconspicuous sessile flowers in the axils of the leaves. Calyx tube adhering to the ovary, the teeth minute or wanting; petals small or none; stamens 1-8; fruit 1-4-celled, indehiscent.

1. *MYRIOPHYLLUM*. WATER MILFOIL.

Flowers monœcious or perfect; calyx 4-parted or toothed; petals 4 or none; stamens 4-8; fruit 4-lobed and 4-celled. Perennial water herbs with the leaves often in whorls, and the submerged ones cut into capillary divisions; flowers in the axils of the upper leaves, usually above the water.

1. *M. spicatum*, L.

Leaves somewhat rigid, not entirely collapsing when removed from the water; staminate flowers purplish, in clusters, more or less whorled on the upper part of the stem. Slow streams, Man.-Alta.

2. *M. verticellatum*, L.; var. *pectinatum*, Wallr.

Much resembling the preceding, but the leaves entirely collapsing when withdrawn from the water; staminate flowers pale green or pinkish, and the fruit of four distinct carpels. Ponds, local. Marshes of Porcupine Mts. (Macoun.)

2. *HIPPÜRIS*. MARE'S-TAIL.

Flowers perfect, calyx entire; petals none; stamen 1, on the calyx; style thread-like and stigmatic down one side; fruit 1-celled and 1-seeded. Aquatic herbs with simple erect stems and linear leaves arranged in whorls.

1. *H. vulgàris*, L.

Stems 6-18 in. high; leaves 6-12 in a whorl. Wet places, very common, Man.-Alta.

LXI. ARALIACEÆ (GINSENG FAMILY).

Herbs, shrubs or trees with alternate or whorled leaves, and perfect or polygamous flowers, usually in umbels. Calyx tube adnate to the ovary; stamens alternate with the petals, on a disk on the ovary; ovary 1-several-celled.

1. ARÀLIA.

Perennial herbs (with us) with compound leaves and small, perfect, greenish-white flowers in umbels; fruit a berry.

1. *A. nudicaùlis*, L. WILD SARSAPARILLA.

Stemless or nearly so; leaf usually solitary, rising from a strong rootstock; petiole 6-15 in. high; leaf divided into three parts, and each part subdivided into 3-5 leaflets; peduncle shorter than the petiole; flowers whitish, usually in 3 umbels; fruit dark purple. Woods, Man.-Alta.

LXII. UMBELLIFERÆ (PARSLEY FAMILY).

Herbs with hollow stems, alternate, usually compound leaves with sheathing petioles, and small flowers in simple or compound umbels. Calyx adhering to the ovary, the 5 teeth usually minute; petals 5, stamens 5, both on a disk on the ovary; styles 2; fruit 2 seed-like carpels adhering to each other but separating when ripe. A large family comprising many of our most useful garden vegetables and aromatic herbs, but also with some poisonous members. Extremely difficult for inexperienced students.

1. SANÍCULA. BLACK SNAKEROOT.

Calyx teeth present and persistent; carpels not separating when ripe and covered with hooks. Glabrous perennial herbs with palmately lobed leaves and irregular umbels of greenish flowers.

1. *S. marilándica*, L.

Erect, 1-3 ft. high; leaves 5-7-parted, the divisions serrate, basal petioled, upper sessile; flowers greenish white, the styles slender and spreading, longer than the hooks on the carpels. Rich woods, Man.-Alta.

2. OSMORRHIZA. SWEET CICELY.

Calyx teeth wanting; petals incurved at the apex; fruit narrow, linear, bristly on the ribs, with short beak but tapering to a long slender base. Perennial herbs from fleshy clustered roots, with decompound leaves and small umbels of white flowers.

1. *O. Claytonii*, (Michx.) Clarke.

Rather slender, 1-2 ft. high, pubescent; leaves 2 or 3-ternate, hairy, leaflets deeply cut; style very short. Rich damp woods, Man.-Alta.

2. *O. longistylis*, (Torr.) DC.

Coarser than the preceding, 1-3 ft. high, glabrous or nearly so; leaflet less deeply cut; style longer. Rich woods, less common, Man.-Alta.

3. *O. obtusa* (Coul. and Rose) Fernald.

Slender, 12-20 in. high, glabrous or nearly so; rays of the umbels spreading or the lateral deflexed. (*O. nuda*, Torr.) Rocky Mts. and eastward.

3. CICUTA. WATER HEMLOCK.

Calyx teeth prominent; fruit orbicular; herbs with pinnately compound leaves and white flowers.

1. *C. maculata*, L. SPOTTED COWBANE.

Stem stout, 1-6 ft. high, marked with purple lines; leaves 2-3-pinnate, the lower on long petioles. A coarse poisonous plant frequent in wet places, Man.-Alta. This includes *C. virosa* in early references.

2. *C. bulbifera*, L.

Similar but more slender, with narrower leaflets, and bulblets clustered in the axils of the upper leaves, which are often simple or but little divided. Swamps, chiefly northward.

4. Sium. WATER PARSNIP.

Calyx teeth minute; fruit oblong. Smooth perennial plants with simple pinnate leaves and large compound umbels of white flowers.

1. *S. cicutæfolium*, Schrank.

Stout, 3-6 ft. high; leaflets 3-8 pairs, sharply serrate, the lower finely dissected when submerged. Wet places, Man.-Alta. and far northward.

5. Zizia.

Calyx teeth prominent; fruit oblong. Smooth perennials with ternate or ternately compound leaves, — sometimes the root leaves

not divided, — and compound umbels of yellow flowers, the central fruit of each umbel sessile.

1. *Z. àurea*, (L.) Koch. GOLDEN ALEXANDER.

Radical leaves 2 or 3-ternate with long petioles, leaflets sharply serrate. Banks of streams, Man.

2. *Z. cordàta*, (Walt.) DC.

Root leaves long-petioled, cordate, crenately toothed, but rarely lobed; stem leaves, except the highest, 3-foliolate, with the leaflets serrate, or more or less deeply cut. Prairies, Man.—Alta.

6. MUSÍNEON.

Calyx teeth prominent, ovate; petals with a claw; involucre wanting; fruit ovate to oblong, slightly compressed. Low, sometimes stemless, perennial herbs with pinnately decomposed leaves, and yellow or white flowers. (Musenium, Nutt.)

1. *M. divaricàtum*, Nutt.

Stem leafy, decumbent, branched, 6–12 in. high, glabrous; leaves bi-pinnatifid, the rhachis winged; umbels on long peduncles; flowers yellow. Dry hillsides, Man.—Alta.

7. HERACLÈUM. COW PARSNIP.

Calyx teeth obsolete or very small; petals clawed, the outer often 2-lobed; fruit broadly oval, much flattened dorsally. Stout, erect, usually pubescent, perennial herbs with ternately compound leaves and large umbels of white flowers.

1. *H. lanàtum*, Michx.

Very stout, 3–8 ft. high, woolly-pubescent; leaflets broad and irregularly cut. Wet ground, Man.—Alta.

8. LOMÀTIUM.

Calyx teeth obsolete or nearly so; fruit oval to oblong, dorsally flattened. Stemless perennial herbs with bi-pinnate or finely dissected leaves, and compound umbels of white or yellow flowers.

1. *L. orientàle*, Coult. and Rose.

Peduncles 3–8 in. high; leaves bi-pinnate, the divisions generally pinnatifid into linear lobes, finely pubescent; root often swollen in places, flowers white or pinkish; umbels with 5–8 equal rays; fruit glabrous, broadly oval. Dry sandy soil, S. Man. and westward.

2. *L. macrocárpum*, Nutt.

Closely resembling the preceding, but often higher; root never swollen; umbel 3-10-rayed; flowers always white. Dry plains, Sask. and Alta.

3. *L. fœniculáceum*, (Nutt.) Raf.

Peduncles 4-12 in. high; the whole plant finely and densely villous when young; leaves finely dissected, the primary divisions almost always in 3's; umbel of 5-15 rays; flowers yellow, the ovaries densely pubescent. Dry plains, local, Man.-Alta.

LXIII. CORNÀCEÆ (DOGWOOD FAMILY).

Shrubs or trees with simple entire leaves and regular flowers in cymes or heads. Calyx tube adhering to the ovary, teeth 4 or 5 or none; petals 4 or 5 or wanting; stamens as many as the petals or more, inserted with the petals on a disk on top of the ovary; ovary 1 or 2-celled; style 1; ovules 1 in each cell; fruit a drupe with a 1 or 2-celled stone.

1. CÓRNUS. Dogwood.

Calyx tube bell-shaped, minutely 4-toothed; petals 4; stamens 4; ovary 2-celled; drupe globular with a 2-celled stone. Shrubs with opposite or whorled entire leaves, and small white or greenish flowers in cymes, or in heads surrounded by a corolla-like involucre.

1. *C. canadénsis*, L. BUNCHBERRY.

Stem simple, low, 4-8 in. high, from a slender rootstock; leaves sessile or almost so, the lower scale-like, the upper large, in a sort of whorl; flowers small, greenish white, in a terminal head surrounded by an involucre of white petal-like bracts; fruit deep red. Common in cool woods, Man.-Alta.

2. *C. stolonifera*, Michx. RED-OSIER DOGWOOD.

A shrub 2-12 ft. high, the twigs bright red or reddish, only the youngest at all pubescent. Leaves opposite, petioled, ovate, acute, often pubescent with fine appressed hairs, whitish beneath; flowers white, in cymes; fruit white, berry-like. Common in wet places, particularly along streams, Man.-Alta.

LXIV. ERICÀCEÆ (HEATH FAMILY).

Shrubs or woody herbs with regular perfect flowers and simple exstipulate leaves. Calyx free from the ovary, mostly 4 or 5-parted; corolla 4 or 5-parted, or lobed; stamens as many or twice as many as

the petals or lobes of the corolla; ovary 3-10-celled; style 1. A large family divided into a number of well-marked sub-families, but mostly represented only in wooded regions.

1. PÝROLA. SHIN LEAF.

Calyx 5-parted, persistent; petals 5, with points usually turned inward; stamens 10; capsule 5-valved; seed minute; stigma 5-lobed. Low, smooth, somewhat woody, evergreen perennials, with clusters of petioled leaves, and a simple flower scape rising from a slender creeping rootstock.

* STYLE STRAIGHT.

† STYLE INCLUDED.

1. *P. minor*, L.

Leaves rounded, with margined petioles; flowers small, white, crowded on the scape. Cool woods, Rocky Mts. and northward.

†† STYLE LONG AND EXSERTED.

2. *P. secúnda*, L.

Leaves ovate; flowers greenish white, crowded all on one side of the scape. Rich woods, Man.-Alta.

** STYLE STRONGLY DECLINED, APEX TURNED UP.

3. *P. chlorántha*, Sw.

Leaves small, rounded, thick; flowers small, greenish white, few on the scape; style not much exserted. Sandy soil in evergreen woods, Man.-Alta.

4. *P. ellíptica*, Nutt.

Leaves thin, elliptical, longer than the petiole; flowers white in a many-flowered raceme. Dry woods, Man. and Sask.

5. *P. americána*, Sweet.

Leaves orbicular or nearly so, thick, shiny; flowers white, in a long, many-flowered raceme. (*P. rotundifolia* of many authors.) Dry woods, swamps, or mountain tops, Man.-Alta., especially northward.

6. *P. asarifolia*, Michx.

Leaves often longer along the transverse axis, cordate at the base, thick and shiny; flowers pink or rose color. (*P. rotundifolia*, var. *asarifolia*, Hook.) Cool dry woods, Man.-Alta.

2. VACCĪNIUM. BLUEBERRY, CRANBERRY.

Calyx 4 or 5-lobed or cleft, persistent; corolla 4 or 5-cleft; stamens 8-10; fruit a berry crowned with the persistent calyx teeth, 4 or 5-celled or 8 or 10-celled, many-seeded. Shrubs or vines with solitary, clustered or racemed flowers.

* *Cowberry* — Creeping or tufted shrubs; flowers in clusters; corolla 4-toothed; filaments hairy.

1. *V. Vitis-Idaëa*, L. COWBERRY.

Low, 4-10. in. high; stems creeping, with erect branches; leaves dark green, obovate with revolute margins, evergreen, shiny above, bristly dotted beneath; corolla 4-cleft, white or pink; flowers in short, terminal, nodding clusters; fruit dark red, sour. Rocky Mts. and northward in the wooded districts.

** *Blueberries* — Low, ascending or erect shrubs; flowers in racemes; corolla 5-toothed; filaments hairy.

2. *V. pennsylvanicum*, Lam. LOW BLUEBERRY.

Stem low, 6-15 in. high; branches green, angled, warty; leaves lanceolate or oblong, smooth, serrulate, the teeth bristle-pointed; flowers white or pink, in short racemes; berry blue, black, or reddish, usually with a bloom. Sandy barrens and swamps, N. Man.—Rocky Mts.

3. *V. canadense*, Kalm. COMMON BLUEBERRY.

Stem 6 in. to 2 ft. high; leaves oblong to elliptical, entire, pubescent; flowers in few-flowered clusters on naked branches in the upper axils; pedicels shorter than the greenish white corolla; fruit blue or black with a bloom. Sandy barrens, northward.

*** *Bilberries* — Low shrubs, flowers solitary or few on drooping pedicels; corolla 4 or 5-toothed; filaments naked.

4. *V. cæspitòsum*, Michx. DWARF BILBERRY.

Stem dwarf, tufted, 3-12 in. high, with smooth round branches; leaves obovate, serrate, smooth; corolla urn-shaped, pink or red; berries blue, sweet. Grassy woods or plains and exposed mountain ridges, Cypress Hills, Rocky Mts. from Bow River northward.

5. *V. uliginòsum*, L. BOG BILBERRY.

Stem 1-2 ft. high, branching; leaves obovate or oblong, entire, slightly pubescent beneath, dull green; parts of the flower mostly in 4's or 8's; flowers in bunches of 1-3; berries black with a bloom, sweet. Northern swamps.

**** *Cranberries* — Very slender trailing shrubs; corolla 4-parted; berries sour.

6. *V. oxycoccus*, L. SMALL CRANBERRY.

Stems very slender, trailing, with slender erect branches; leaves evergreen, oblong or ovate, small, with revolute margins, and whitened beneath; corolla pink; flowers in terminal fascicles; berry globose, sour, brown-spotted, especially when young. Sphagnum bogs, N. Man.—Alta.

7. *V. macrocarpon*, Ait. LARGE CRANBERRY.

Stems somewhat stouter than the preceding; leaves larger and scarcely revolute; flowers in lateral clusters; berry large, turning deep red, at least on one side. Bogs, northward.

3. MONÈSES.

Calyx 4 or 5-parted, persistent; petals 4 or 5, spreading; stamens 8–10; ovary 4–5-celled; style straight; stigma 4 or 5-lobed; capsule many-seeded. Low, perennial, somewhat woody herbs, decumbent at the base, with evergreen leaves, and solitary drooping pink or white flowers.

1. *M. uniflora*, (L.) Gray.

Scape with 2 bracts; flower waxy white or rose, fragrant. Cold woods, N. Man.—Alta.

4. ARCTOSTÁPHYLOS. BEARBERRY.

Calyx 4 or 5-parted, persistent; corolla 4 or 5-lobed, recurved; stamens 8 or 10, included; ovary 4–10-celled; style slender; fruit a drupe with 4–10 hard nutlets cohering to form a sort of stone. Shrubs with alternate leaves and nodding pink or white flowers in terminal racemes.

1. *A. Ūva-Ūrsi*, (L.) Spreng. BEARBERRY.

Prostrate; leaves evergreen, thick, obovate, entire, smooth and shiny; fruit red, inedible. Sandy hills, Man.—Alta.

2. *A. alpina*, (L.) Spreng. ALPINE BEARBERRY.

Low; leaves deciduous, wrinkled, prominently veined, obovate; fruit black, edible. Alpine in habit, Rocky Mts.

5. KALMIA. AMERICAN LAUREL.

Sepals 5; lobes of the corolla 5; filaments long, and anthers often imbedded in depressions in the corolla; capsule 5-celled, many-seeded. Evergreen shrubs with opposite leaves and showy flowers.

1. *K. polifolia*, Wang.

A straggling bush 1–2 ft. high, with large, rose-purple flowers in loose terminal corymbs. Cold bogs, E. Man. and northward.

6. LÈDUM. LABRADOR TEA.

Calyx small, 5-toothed; petals 5, spreading; capsule 5-celled, many-seeded; flowers in terminal clusters. A low shrub with alternate entire leaves with strongly revolute margins, and covered with rusty wool beneath.

1. *L. grœnlândicum*, Oeder. (*L. latifolium*, Ait.)

Erect, 1-2 ft. high; leaves linear to oblong; stamens mostly 5. Bogs and swamps, N. Man.-Rocky Mts.

2. *L. palústre*, L.

Lower with narrowly linear leaves and 7-11 stamens. An Arctic species coming south to Hudson Bay.

7. MONÓTROPA. INDIAN PIPE.

Calyx of 2-5 bract-like scales, deciduous; petals 5 or 6, erect, often withering persistent; stamens 10-12; capsule 5-celled, many-seeded. Succulent, white, yellowish, or reddish saphrophytic herbs, destitute of chlorophyll, with solitary nodding flowers, and leaves reduced to scales; usually growing in clumps from a mass of fibrous roots.

1. *M. uniflôra*, L.

Smooth, waxy white, or occasionally tinged with red, drying black. Rich shady woods, Man.-Alta.

LXV. PRIMULACEÆ (PRIMROSE FAMILY).

Herbs with simple leaves and perfect regular flowers, either solitary or in terminal or axillary clusters; calyx usually 5-parted, free from the ovary; corolla usually 5-cleft, gamopetalous (wanting in glauc); stamens as many as the lobes of the corolla and opposite to them; ovary 1-celled with a free central placenta; seeds few to many.

1. PRÍMULA. PRIMROSE.

Calyx 5-lobed, persistent; corolla 5-cleft, usually salver-form, the tube longer than the calyx; stamens 5, inserted on the corolla tube, included; ovary superior, capsule many-seeded. Perennial herbs with a rosette of root leaves, and flowers in an umbel on a simple scape.

1. *P. farinôsa*, L. BIRD'S-EYE PRIMROSE.

Scape 3-18 in. high; leaves spatulate or oblong, obtuse at the apex, and sometimes tapering into petioles, mealy white, at least when young; flowers pale lilac or pinkish, usually with a yellow eye. Moist ground, N. W. Man.-Alta.

2. *P. mistassinica*, Michx.

Scape 2-8 in. high; leaves spatulate or wedge-shaped, rather thin with prominent veins, and not mealy as in the preceding; corolla pale pink or white, with a long tube. Wet banks, local, Lake Winnipeg and west to Rocky Mts.

2. *LYSIMACHIA*. LOOSESTRIFE.

Calyx 5 or 6-parted; corolla wheel-shaped or bell-shaped, 5-7-parted, tube very short; stamens 5-7, on the corolla; style thread-like; capsule ovoid, few to several-seeded. Leafy stemmed perennials with yellow flowers, solitary or clustered in the axils of the leaves.

1. *L. thyrsoïdora*, L. TUFTED LOOSESTRIFE.

Stem simple, 8-24 in. high, smooth or slightly pubescent when young; flowers in heads or spikes in the axils of some of the leaves about halfway up the stem. Wet places, Man.-Alta.

3. *STEIRONEMA*.

Calyx 5-parted, persistent; corolla 5-parted, wheel-shaped, with no tube; stamens 5, distinct or united at the base; capsule several or many-seeded. Leafy perennial herbs with opposite simple leaves and nodding yellow flowers on slender peduncles in the axils.

1. *S. ciliatum*, Raf.

Stem erect, simple; leaves lanceolate to ovate, tapering to a point, and heart-shaped at the base; petioles ciliate. Low-lying thickets, Man.-Alta.

2. *S. lanceolatum*, Gray.

Stem erect, or reclining and rooting at the joints; leaves lanceolate, usually tapering into a petiole generally margined but never ciliate, the lower leaves sometimes broader on slender petioles. Low ground, local, or doubtful.

3. *S. quadriflorum*, (Sims) Hitchc.

Stems slender, 4-angled, 8 in. to 2½ ft. high, branched towards the base; upper leaves sessile, linear, smooth, shining, and rather rigid, lower leaves spatulate; corolla longer than the calyx. (*S. longifolium*, Gray). Banks of streams, E. Man.

4. *GLAUX*. SEA MILKWORD.

Calyx bell-shaped, 5-cleft, the lobes petal-like; corolla wanting; stamens 5, on the calyx and alternate with the lobes; capsule few-seeded. Low, succulent, and leafy perennials with opposite sessile leaves, and solitary flowers in the axils.

1. *G. maritima*, L.

Glabrous perennial from a creeping rootstock, usually branched, ascending or erect, 3-6 in. high; leaves linear; flowers white or pink. Common, forming mats, on low alkaline soil, Man.-Alta.

5. ANDRÓSACE.

Calyx 5-cleft, with a short tube; corolla salver-shaped or funnel-shaped, the tube shorter than the calyx, 5-parted; stamens 5, on the corolla-tube, included; capsule few to many-seeded. Small herbs with clustered root leaves and very small flowers in umbels.

1. *A. occidentâlis*, Pursh.

Annual, small, 2-3 in. high; minutely pubescent; leaves ovate to oblong, entire; scape one or more; flowers white, with leafy calyx lobes longer than the corolla. Dry sandy ground, S. Man.-Alta.

2. *A. puberulênta*, Rydb.

Resembling the former, but pubescence even less marked; scapes often several; leaves oblanceolate, acute, in a rosette; calyx lobes lanceolate, acute, strongly keeled; corolla white, about equal in length to the calyx. Dry soil, Man.-Alta.

3. *A. septentrionâlis*, L.

Glabrous; leaves lanceolate to oblong, irregularly toothed; scape 2-6 in. high; corolla white, longer than the calyx. Dry plains and gravelly ridges, Man.-Alta.

4. *A. subumbellâta*, Small.

Almost glabrous, 2-3 in. high; peduncles several, often spreading, and shorter than the pedicels, which lengthen in fruit; leaves oblong, rather thick; corolla white, longer than the calyx. Dry soil and alpine regions, Man.-Alta.

6. DODECÀTHEON. AMERICAN COWSLIP.

Calyx 5-cleft; corolla 5-parted, with a short tube, the lobes reflexed; stamens 5, united at the base, filaments short, anthers long and united into a cone or beak, exserted; style thread-like, exserted; capsule oblong, many-seeded. Glabrous perennial herbs with basal leaves, and rather showy rose-pink flowers in an umbel supported by a naked scape.

1. *D. Meadia*, L. SHOOTING STAR.

Leaves obtuse at the apex, narrowing into margined petioles. Moist, slightly alkaline soil, Man.-Alta.

7. TRIENTÀLIS. STAR FLOWER.

Sepals mostly 7, persistent; corolla rotate, without a tube; filaments united at the base. Low glabrous perennial herbs with slender erect stems, and ovate to lanceolate leaves clustered at the top.

1. *T. americana*, (Pers.) Pursh. STAR FLOWER.

Peduncles one or more, slender; flowers white, star-shaped; rootstock slender, spreading. Woods about Lake Manitoba and eastward.

LXVI. OLEACEÆ (OLIVE FAMILY).

Trees with opposite pinnate leaves; calyx 4-cleft or wanting; stamens usually 2; ovary usually 2-celled with 2 ovules in each cell.

1. FRÁXINUS. ASH.

Flowers diœcious, monœcious, or polygamous; calyx small, 4-cleft, or obsolete; petals wanting in our species; stamens 2, fruit a samara. Valuable timber trees.

1. *F. pennsylvànica*, Marsh.; var. *lanceolata*, (Borkh.) Sarg. GREEN ASH.

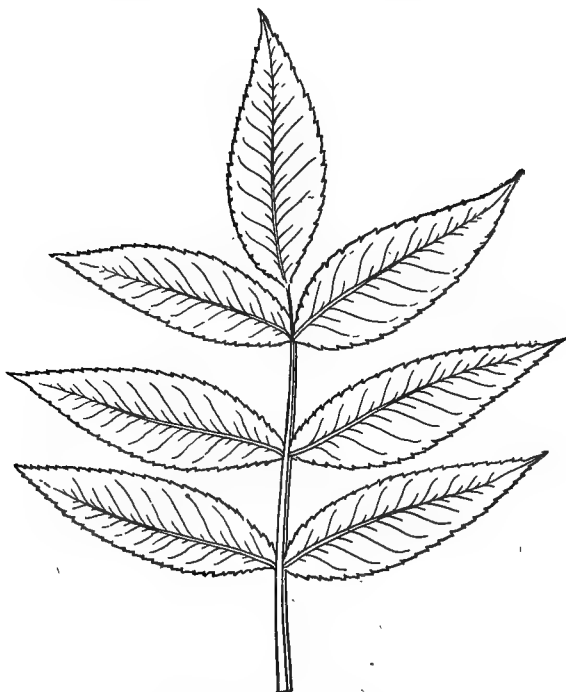
Leaflets 5-9, petioled, oblong to lanceolate, acute at the apex, green on both sides; flowers diœcious, the calyx of the pistillate persistent; anthers oblong; fruit a samara; the body round, winged for about half its length and clearly distinguishable from the wings. (*F. viridis*, Michx.) Along streams, Man. north to Lat. 54°, and S.E. Sask. to Meridian 110°.



FIG. 70. — *Fraxinus pennsylvanica*.

2. *F. nigra*, Marsh. BLACK ASH.

Leaflets 7-11, lanceolate, serrate, sessile and rounded at the base, midrib slightly hairy when young; fruit flat, the body winged throughout, and the wing and body not clearly distinguishable. A large tree with light but valuable timber. Low woods and swamps, N. and E. Man. and the Red River Valley.

FIG. 71. — *Fraxinus nigra*.

LXVII. GENTIANACEÆ (GENTIAN FAMILY).

Smooth herbs with a bitter watery juice, opposite, simple, entire, sessile leaves, and regular perfect flowers. Calyx inferior, 4-12-lobed or toothed, persistent; corolla gamopetalous, 4-12-lobed; stamens as many as the lobes of the corolla, alternate with them, and situated on the tube; ovary 1-celled, many-seeded.

1. CENTAURIUM.

Calyx 4-parted; corolla 4 or 5-cleft, funnel-form with slender tube, style slender, anthers exserted. Low-branching annuals with reddish flowers, mostly introduced from Europe.

1. *C. umbellatum*, Gilib. CENTAURY.

Erect, 6-18 in. high, branched, the branches all ending on the same level; leaves linear at the top, getting broader down the stem; flowers rose-purple, in flat-topped cymes. Sask., introduced.

2. *HALÈNIA*. SPURRED GENTIAN.

Calyx 4 or 5-parted; corolla 4 or 5-cleft, without folds between the lobes; each lobe with a spur at the base; stigmas 2, persistent; capsule flattened. Small herbs with yellowish or purplish flowers.

1. *H. deflexa*, (Sm.) Griseb.

Leafy annual with the lower leaves petioled, spatulate, the upper lanceolate; corolla 4-lobed, purplish-white. Cool woods, Man.-Alta.

3. *MENYÁNTHES*. BUCKBEAN.

Calyx 5-parted; corolla 5-cleft, short, the upper surfaces bearded; style slender, persistent; stigma 2-lobed; capsule many-seeded. Perennial glabrous marsh herbs with 3-foliate leaves on long sheathing petioles, and white or purplish flowers.

1. *M. trifoliata*, L.

Rootstock thick; flowers in a raceme on a long scape-like peduncle. Bogs, Man.-Alta.

4. *GENTIÀNA*. GENTIAN.

Calyx tubular, usually 5-cleft; corolla 4 or 5-lobed, often with plaited folds between the lobes; stamens on the corolla tube; stigmas persistent; capsule with innumerable small seeds. Low herb; with showy, usually blue flowers, and blooming in late summer.

* WITHOUT FOLDS OR PLAITS BETWEEN THE LOBES OF THE COROLLA.

† COROLLA LARGE, BLUE.

1. *G. crinata*, Froel.

Erect, leafy, 6-18 in. high; leaves lanceolate or ovate from a heart-shaped or rounded base; corolla large, blue, strongly fringed around the summit. Low-lying prairie in late summer, Man. and Sask.

2. *G. procera*, Holm.

Erect, more slender and not so high as the preceding; leaves linear or lance-linear; corolla blue, ciliate-fringed on the sides of the lobes and finely dentate around the summit. (*G. serrata* of some authors.) Moist ground, late summer, Man.-Alta.

3. *G. propinqua*, Richards.

Stem slender, branched; leaves spatulate below, lanceolate above, calyx 4-cleft, 2 lobes linear and 2 oblong; corolla 4-cleft, blue. Hillsides and Alpine swamps, Hudson Bay to Rocky Mts.

†† COROLLA SMALL, WHITE OR YELLOWISH.

4. *G. Amarélla*, L., var. *acûta*, (Michx.) Herder.

Erect, 6-18 in. high; upper leaves lanceolate, but the very lowest often obovate or spatulate; flowers small, clustered in the axils of the upper leaves. (*G. plebeja*, Cham.) Moist grassy places, Man.-Alta.

** WITH FOLDS OR PLAITS BETWEEN THE LOBES OF THE COROLLA.

‡ COROLLA OPEN.

5. *G. affinis*, Griseb.

Stems clustered, 6-12 in. high, very leafy; leaves oblong to linear; flowers blue, numerous, in raceme-like clusters; the plaits between the corolla lobes with projections sometimes equalling the lobes. Damp soil in late summer, Man.-Alta.

‡‡ COROLLA CLOSED.

6. *G. Andréwsii*, Griseb. CLOSED GENTIAN.

Stem upright or ascending; leaves ovate-lanceolate; corolla closed at the mouth, the lobes equalled by the projections of the plaits, blue with whitish folds. Damp soil, Man.

LXVIII. APOCYNACEÆ (DOGBANE FAMILY).

Perennial herbs with a bitter milky juice, opposite entire leaves and regular flowers; calyx 5-parted, free from the ovary; corolla 5-parted, twisted in the bud; stamens distinct, on the corolla; seeds often having a tuft of down.

1. APÓCYNUM. DOGBANE.

Calyx teeth sharp; corolla bell-shaped with an appendage on the tube at the base of each lobe; stamens 5, on the base of the corolla, filaments shorter than the anthers, anthers adhering to the stigma; flowers pink or white in cymose clusters.

1. *A. androsæmifolium*, L. SPREADING DOGBANE.

Stem smooth, erect, branching, 1-2 ft. high; leaves ovate to oblong, spreading on slender petioles, usually pale and somewhat pubescent beneath; flowers pink, nodding, in cymes with the central flower the largest, and all the cymes opening at the same time. Dry thickets, Man.-Alta.

2. *A. cannabinum*, L. INDIAN HEMP.

Stems smooth, usually erect or ascending; leaves ovate to lanceolate, usually appressed, sometimes slightly pubescent beneath, those on the main stem petioled; flowers white, in cymes, the central cyme the first to flower. Very variable and represented by a large number of varieties. Moist open places, Man.—Alta.

LXIX. ASCLEPIADACEÆ (MILKWEED FAMILY).

Perennial herbs with milky juice, usually opposite leaves, and regular flowers arranged mostly in umbels. Calyx free from the ovary, 5-cleft; corolla 5-parted with a 5-lobed crown between the corolla and the stamens, and attached to either one; stamens 5, inserted on the base of the corolla, short and mostly monadelphous, the pollen in waxy masses; fruit a 2-many-seeded follicle.

1. ASCLÈPIAS. MILKWEED.

The type species having the characteristics of the family, but the crown attached to the stamen tube and made of 5 bodies covered with concave or spreading hoods, each having within it a slender horn; follicles large, on bent pedicels; seed with down attached.

* FLOWERS RED.

1. *A. incarnata*, L. SWAMP MILKWEED.

Smooth, erect, 1-4 ft. high, leafy; leaves oblong to lanceolate, usually tapering to a point and often heart-shaped at the base; hoods scarcely as long as the horn. Wet places, Man. and westward.

** FLOWERS GREENISH WHITE OR TINGED WITH PURPLE.

2. *A. syriaca*, L. COMMON MILKWEED.

Stout, tall, 2-4 ft. high, softly pubescent; leaves oblong to oval, densely pubescent beneath, soon smooth above; corolla whitish to purplish with a tooth on each side of the horn. (*A. Cornuti*, Dcne.) Rich soil, Man. and Sask.

3. *A. ovalifolia*, Dcne.

Low, 6-18 in. high, soft-pubescent; leaves ovate to lanceolate, short-petioled, downy beneath; flowers greenish-white, sometimes tinged with purple on the outside, the horn about the length of the lobes of the corolla. Rich prairies, Man. and Sask.

4. *A. verticillata*, L.

Stems slender, 1-2 ft. high; leaves linear, whorled; flowers greenish-white, hoods about half the length of the horn. Around thickets, Man. and Sask.

5. *A. speciosa*, Torr.

Stout, 1-2½ ft. high; stem, leaves, and calyx finely canescent-tomentose; leaves thick, oval to oblong, very slightly cordate; corolla purplish-white, the hood slightly longer than the lobes; horn short, incurved; follicles densely woolly and somewhat spiny, erect on recurved pedicels. Moist places, Man.-Alta.

LXX. CONVULVACEÆ (MORNING GLORY FAMILY).

Twining herbs with alternate leaves, sometimes reduced to scales, and regular flowers. Sepals 5; corolla 5-lobed, often twisted in the bud; stamens 5, on the tube of the corolla; ovary superior, 2-3-celled.

1. CONVULVUS. BINDWEED.

Calyx of 5 sepals often with a pair of bracts enclosing the flower in bud; corolla funnel-form, obscurely 5-lobed; stamens 5, included, inserted on the corolla tube; ovary 2-celled, or somewhat 4-celled by partial partitions between the seeds, or more rarely 1-celled. Twining perennial herbs with large flowers and entire or lobed leaves.

1. *C. sepium*, L.

Stems glabrous, twining extensively; leaves halberd-shaped; flowers showy, white or pink. Moist soil, especially along streams, Man.-Alta.



FIG. 72. — *Cuscuta Cronovii*.

2. CUSCUTA. DODDER.

Calyx 5-parted; corolla bell-shaped with a spreading 5-cleft border; stamens as many as the corolla lobes and alternate with them, each with a scale-like or fringed appendage at the base; ovary 2-celled with 2 ovules in each cell; styles 2, usually distinct. Annuals with yellow stems, and leaves reduced to minute scales, rooting in the ground, but later becoming entirely parasitic on the plant around which they twine.

1. *C. Gronovii*, Willd.

Corolla lobes obtuse, spreading, shorter than or equalling the tube. Wet shady places twining around other plants, very often on the *Solidagos*, Man.

2. *C. arvensis*, Beyrich.

Corolla lobes sharp, incurved, longer than the tube. Dry sandy ridges, climbing on such plants as *Lygodesmia juncea*, and *Artemisia frigida*. Man. and westward. (Macoun.)

LXXI. POLEMONIACEÆ (PHLOX FAMILY).

Innocent, and often ornamental herbs with usually simple leaves, either opposite or alternate, and regular flowers. Calyx inferior, tubular, 5-cleft; corolla gamopetalous, funnel-form or salver-shaped; stamens 5, inserted on the tube of the corolla and alternate with the lobes; ovary mostly 3-celled and many-ovuled.

1. PHLOX.

Calyx tubular, 5-cleft; corolla 5-lobed; salver-shaped, with a narrow tube; stamens short, included, inserted unequally on the corolla tube; ovary 3-celled; style slender; ovules 1-4 in each cell. Perennial or annual herbs; either erect or diffuse, with opposite entire leaves, and flowers solitary or in terminal cymes.

1. *P. Hoóðii*, Richards.

Low, diffuse, and branched, forming a mat on the ground from a woody root; leaves erect, crowded on the stem, linear, rigid; flowers white, solitary, and sessile, at the ends of branches. Dry sandy prairie, Man.-Alta.

2. *P. canéscens*, T. and G.

Resembling the preceding, but the corolla tube yellowish, hairy at the base within, and twice as long as the calyx. Turtle Mts. (Dawson), Cypress Hills, (Macoun.)

3. *P. alyssifólia*, Greene.

Stems stout and prostrate; leaves oblong-linear, thickish, hard and white on the margins; flowers few, large, purple or white. Gravelly hills, S. Sask. (A. Nelson.)

4. *P. pilósa*, L.

Slender, erect, 1-3 ft. high, usually pubescent; leaves lanceolate to linear, calyx teeth sharp and narrow; corolla lobes scarcely or not at all notched; flowers pink to purple, in compact leafy cymes. Open sandy woods. Vicinity of Winnipeg. (Bourgeau.) West to the Saskatchewan River. (Gray.)

2. GÍLIA.

Calyx lobes sharp and narrow, the tube thin and dry; leaves usually alternate; ovules solitary or few. Otherwise as Phlox.

1. *G. linearis*, (Nutt.) Gray.

Annual, erect, viscid and finely pubescent, leafy, 3-15 in. high; flowers whitish-purple in a leafy head-like cluster. (*Collomia linearis*, Nutt.) Dry prairies, Man.-Alta.

3. POLEMONIUM.

Calyx herbaceous, 5-cleft to about the middle; stamens equally inserted near the base of the corolla; ovules few or several in a cell; seed mucilaginous. Perennial herbs with alternate pinnate leaves, and flowers in a corymb-like cluster.

P. pulcherrimum, Hook.

Stem rather slender, 4-12 in. high, minutely pubescent or glandular and sticky; leaflets 9-21, oblong to lanceolate; flowers on slender pedicels in clusters of small cymes; corolla blue with a white tube. (*P. humile*, var. *pulchellum*, Gray.) Rocky Mts.

LXXII. BORAGINACEÆ (BORAGE FAMILY).

Rough herbs with entire alternate leaves, and regular symmetrical flowers arranged on one side of the stem which is rolled from the tip and straightens as the flowers open from the bottom upward. Calyx inferior, 5-parted, persistent; corolla gamopetalous, usually regular, 5-lobed, sometimes with scales on the throat; stamens as many as the corolla lobes and alternate with them, inserted on the tube; ovary of 2 carpels each containing 2 ovules, sometimes the carpels deeply grooved making it appear like 4 carpels.

1. LÁPPULA. BLUE BUR.

Corolla salver-form, the tube closed by scales in the throat; stamens included; nutlets fastened to the base of the style, their backs armed with barbed prickles. Rough weedy annuals or biennials with small blue or whitish flowers, and fruit acting as a bur.

* RACEMES WITHOUT BRACTS, PEDICELS REFLEXED IN FRUIT, CALYX-LOBES SHORT AND REFLEXED WHEN OLD.

1. *L. deflexa*, (Wahlenb.) Garcke; var. *americana*, (Gray) Greene.

Erect, 1-3 ft. high, pubescent, diffusely branched; leaves oblong, tapering to both ends; nutlets keeled and roughened on the back, and a few prickles along the middle. Waste ground and around thickets, Man.-Alta.

2. *L. floribúnda*, (Lehm.) Greene.

Erect, 1-3 ft. high; leaves linear-lanceolate to oblong, rather erect; flowers blue, numerous, crowded in a somewhat dense strict raceme; nutlets keeled, rough on the back, armed along the margins with a single row of flat prickles, sometimes confluent at the base, giving them a saw-tooth appearance. Man.-Alta.

** RACEMES WITH BRACTS, FRUITING PEDICELS NOT REFLEXED, CALYX-LOBES LEAF-LIKE.

3. *L. echinàta*, Gilib.

Erect, pubescent, 6 in. to 2 ft. high; nutlets roughened on the back and with two rows of slender prickles on each margin. (*L. lappula*, L.) Waste cultivated ground, introduced, Man.-Alta.

4. *L. Redówskii*, (Hornem.) Greene; var. *occidentális*, (Wats.) Rydb.

Erect, 6 in. to 2 ft. high, branched; leaves linear-oblong, small, gradually passing into bracts; nutlets with a single row of 7-11 flat prickles often united at the base. Waste places, Man. and Sask.

2. ONOSMÒDIUM.

Calyx 5-cleft, the lobes linear and erect; corolla 5-cleft, tubular, the lobes acute and scarcely, if at all, spreading; stamens inserted on the throat of the corolla; style thread-like and much exerted; nutlets bony. Coarse perennial herbs with sessile rib-veined leaves and whitish or greenish flowers.

1. *O. occidentále*, Mackenzie.

Stout, somewhat rigid, 1-2 ft. high; densely gray pubescent; leaves lanceolate to ovate, sharply rib-veined; nutlets smooth or nearly so. (*O. carolinianum*, var. *molle*, Gray.) Moist ground about thickets, Man.-Alta.

3. MERTÉNSIA. LUNGWORT.

Calyx 5-cleft; corolla 5-lobed, the tube much longer than the calyx, open at the throat, but sometimes with a small crest at the base of each lobe; style long and thread-like; nutlets wrinkled when dry. Smooth or softly pubescent perennial herbs with entire leaves and small clusters of rather large blue flowers.

1. *M. paniculàta*, (Ait.) Don.

Erect, 1-2 ft. high, more or less hairy; leaves ovate to lanceolate, thin, taper-pointed; corolla funnel-form, much longer than the calyx, with small crests in the throat. N. Man. and westward in sparsely wooded districts.

2. *M. lanceolata*, (Pursh.) DC.

Erect, branched, 8-16 in. high; leaves spatulate to linear, rather thick, minutely pubescent on the upper surface, the whole plant otherwise glabrous; flowers in a loose panicle, the corolla tube hairy at the base and never more than twice the length of the calyx-tube. Dry hills, S. Sask.

4. LITHOSPÉRMUM. PUCCOON.

Calyx and corolla 5-cleft; throat of the corolla open, naked, or with a scale-like fold opposite each lobe; stamens included; nutlets bony; flowers solitary in the axils of the leaves or leaf-like bracts. Roughish herbs from a thick, often red root.

1. *L. canescens*, (Michx.) Lehm. HOARY PUCCOON.

Soft-pubescent, more or less hoary; leaves oblong to ovate, obtuse, somewhat downy beneath, and roughened with appressed hairs above; flowers orange, sessile, with a naked throat. Dry prairies, Man. and westward.

2. *L. angustifolium*, Michx.

Erect, or spreading by diffuse branches from the base, minutely rough-pubescent; leaves linear; flowers pediceled, orange-yellow, the earlier showy, the later inconspicuous and paler. Dry soil, Man.-Alta.

3. *L. pilosum*, Nutt.

Hairy, somewhat pale green; stems 6-18 in. high, stout, often clustered; leaves lanceolate to linear, usually tapering to both ends; flowers small, dull yellow, crowded; lobes of the calyx densely hairy; throat of the corolla slightly pubescent below each lobe. Gravelly ridges, W. Sask. and Alta.

5. OREOCARYA.

Calyx deeply 5-parted, the divisions spreading in fruit; corolla 5-lobed, salver-form, crested in the throat; stamens 5, included; ovary dividing into 4 nutlets, their margins sharp or sometimes winged. Hairy perennial herbs with narrow leaves and small white flowers.

1. *O. glomerata*, (Pursh.) Greene.

Stems erect, 6-18 in. high, rather stout; leaves spatulate below, linear above, the lower tufted; flowers in small axillary clusters closely grouped at the top of the stem; the whole plant densely hairy. (*Eritrichium glomeratum*, DC.) (*Krynitzkia glomerata*, Gray.) Dry soil, Man.-Alta.

6. MYOSÔTIS. FORGET-ME-NOT.

Calyx 5-cleft, the lobes erect in fruit; corolla 5-lobed, salver-form; stamens 5, included; ovary dividing into 4 glabrous nutlets.

Low pubescent perennials with alternate entire leaves and small blue flowers often in one-sided bractless racemes.

1. *M. alpéstris*, Schmidt.

Perennial, slender, tufted, ascending, 4-8 in. high, softly pubescent; leaves oblong to lanceolate; racemes bractless when fully matured, densely flowered; flowers blue. (*M. sylvatica*, var. *alpestris*, Koch.) Rocky Mt. foothills.

LXXIII. VERBENACEÆ (VERVAIN FAMILY).

Herbs with opposite leaves, somewhat irregular flowers and didynamous stamens. Not unlike the Labiateæ, except that the ovary is not 4-lobed and the plant is not aromatic. Mostly tropical.

1. VERBÈNA. VERVAIN.

Calyx 5-toothed, one usually short; corolla tubular or salver-shaped, unequally 5-cleft; stamens 4, didynamous, included; style simple; stigmas 1 or 2; fruit composed of 2 carpels, each of 2 ovaries which separate into 4 nutlets.

1. *V. hastàta*, L. BLUE VERVAIN.

Tall; leaves lanceolate, or the lower lobed; flowers blue, in long, slender, paniced spikes. Damp ground, Man.

LXXIV. LABIATÆ (MINT FAMILY).

Herbs with square stems, opposite leaves, two-lipped corolla, stamens either 2 or in 2 groups, and a deeply 4-lobed ovary forming 4 nutlets in fruit. The foliage is frequently glandular, giving to many members of the family a pleasing aromatic odor.

1. TEÛCRIUM.

Calyx 5-toothed; corolla apparently without the upper lip on account of a deep cleft in the upper side, which makes the two lobes on each side of it seem to join with the large lower lobe to form the lower lip; stamens 4, exerted from the cleft in the corolla; style 2-cleft. Slender herbs.

1. *T. canadéne*, L.

Somewhat slender, 1-3 ft. high, more or less pubescent, with a rather dense spike of pink or purplish flowers. Rich low land; Man.-Alta.

2. SCUTELLÀRIA. SKULLCAP.

Calyx bell-shaped, 2-lipped, the upper having a peculiar crest on the back and usually deciduous in fruit. Corolla with a curved tube, the upper lobe usually entire, the lateral joined to it, the lower lobe spreading and notched at the apex; stamens ascending under the upper lip.

1. *S. galericulàta*, L.

A slender herb from a stoloniferous rootstock, erect or leaning for support on surrounding plants; flowers violet-blue, solitary in the axils of the upper leaves. Low places, Man.—Alta.

3. AGÁSTACHE.

Calyx 5-toothed, the upper teeth longer than the others; corolla 2-lipped, the upper erect, the lower 3-cleft, the central lobe broader and crenate; stamens 4, the longer pair declined. Tall perennials with serrate leaves and small flowers in a dense, sometimes interrupted, terminal spike.

1. *A. Fœniculum*, (Pursh.) Ktze.

A tall, rather smooth herb with blue flowers and foliage having the odor of anise. Around thickets, Man.—Alta.

4. NÉPETA. CAT MINT.

Calyx 5-toothed, tubular, the teeth unequal; corolla 2-lipped, the upper erect, 2-lobed, the lower 3-lobed, the middle larger than the others. Rather low perennial herbs.

1. *N. hederàcea*, (L.) Trevisan. GROUND IVY.

Low, creeping; leaves round or kidney-shaped; flowers blue. Introduced, but becoming common in shady places about towns.

5. DRACOCÉPHALUM. DRAGON HEAD.

Calyx 5-toothed, tubular; corolla 2-lipped, the upper arched and notched, the lower 3-cleft, the middle lobe notched; stamens 4, ascending under the upper lip; flowers small, whorled, in short, very leafy spikes.

1. *D. parviflòrum*, Nutt.

The upper tooth of the calyx almost as long as the corolla; flowers light blue, crowded in a dense spike, and sometimes in the axils of the upper leaves. Leafy annuals or biennials. Newly burnt or cultivated ground, Man.—Alta.

6. PRUNÉLLA. SELF-HEAL.

Calyx 2-lipped, closed in fruit; corolla 2-lipped, the upper entire, arched, and the lower 3-lobed; stamens 4, ascending under the upper lip, filaments of the longer 2-toothed at the summit, one tooth bearing the anther, the other with none. Low, often procumbent herbs with purple or whitish flowers in dense leafy terminal or axillary spikes.

1. *P. vulgâris*, L.

Leaves ovate or oblong, pubescent or smooth; corolla violet-purple; calyx purplish; procumbent or erect. Moist grassy places, Man.-Alta.

7. PHYSOSTÈGIA. FALSE DRAGON HEAD.

Calyx equally 5-toothed, slightly inflated in fruit; corolla much longer than the calyx, strongly 2-lipped, the upper somewhat arched, entire, and the lower 3-lobed; stamens 4, ascending under the arch of the upper lip, the filaments pubescent. Erect, usually glabrous herbs with entire serrate leaves, and showy flowers in naked, often panicled, terminal spikes.

1. *P. virginiana*, (L.) Benth.

Stem 1-4 ft. high; leaves thickish, sharp-serrate; flowers rose-color or pale purple. Edges of streams or lakes, Man. and westward.

2. *P. parviflora*, Nutt.

Stem 1-3 ft. high, simple up to the flowers; leaves thin, lanceolate, serrate or dentate; flowers bright rose-purple in short, rather dense spikes. Wet places, Man.-Alta.

8. STÀCHYS. HEDGE NETTLE.

Calyx 5-toothed, the teeth about equal; corolla strongly 2-lipped, the upper erect, entire, slightly arched or concave, the lower spreading, 3-cleft, the middle lobe sometimes notched, tube small, no longer than the calyx; stamens 4, ascending under the upper lip of corolla. Erect or diffuse perennials with flowers in spikes, both terminal and in the upper axils.

1. *S. palústris*, L.

Erect, pubescent, from a somewhat tuberous rootstock, frequently stoloniferous; calyx hispid, with somewhat spiny teeth diverging in fruit, corolla purplish or reddish. Marshy ground, Man.-Alta.

9. **MONÁRDA.** HORSE MINT.

Calyx 5-toothed, tubular, hairy in the throat; corolla elongated, gradually widening, 2-lipped, the upper lip erect, usually entire, the lower 3-lobed, spreading; fertile stamens 2, usually exerted. Aromatic herbs with dentate or serrate leaves and showy reddish-purple flowers in dense terminal clusters, the bracts sometimes colored.

1. **M. móllis**, L. WILD BERGAMOT.

Throat of the calyx densely hairy; upper lip of the corolla hairy on the outside; leaves oblong to ovate, rather taper-pointed, somewhat canescent, especially beneath. About thickets, Man.—Alta.

10. **LÝCOPUS.** WATER HOREHOUND.

Calyx 4-toothed, naked in the throat; corolla equally 4-cleft, or one lobe slightly broader than the others; perfect stamens 2, the other pair rudimentary or wanting. Perennial stoloniferous herbs with small whitish or purplish flowers in dense axillary clusters.

1. **L. lúcidus**, Turcz.; var. **americânus**, Gray.

Rather stout and strict; leaves oblong to lanceolate, sharply serrate, sessile. Wet places, Man.—Alta.

2. **L. americânus**, Muhl.

Somewhat slender, glabrous, stoloniferous, and sharply 4-angled; leaves oblong to lanceolate, irregularly and deeply cut, or the upper narrow and more sinuate. Wet places, Man.—Alta.

11. **MÉNTHA.** MINT.

Calyx equally 5-toothed; corolla irregularly 4-toothed, the tube shorter than the calyx; stamens 4, equal. Diffuse or stoloniferous herbs with thick glandular leaves and whorls of white or purplish flowers in terminal spikes, the foliage having a strong mint odor.

1. **M. arvênsis**, L.; var. **canadensis**, (L.) Briquet.

Diffusely branching; leaves oblong to lanceolate, narrowed at the base, pubescent. (*M. canadensis*, L.) Damp places, Man.—Alta.

LXXV. **SOLANÂCEÆ** (NIGHTSHADE FAMILY).

Succulent herbs with alternate exstipulate leaves and regular perfect flowers. Calyx gamosepalous, mostly 5-lobed, persistent;

corolla gamopetalous, generally 5-lobed, mostly rotate; stamens as many as the lobes of the corolla, alternate with them and inserted on the tube, all equal and perfect; style slender and simple; ovary superior, 2-celled, many-seeded.

1. SOLANUM. NIGHTSHADE.

Calyx 5-parted; corolla wheel-shaped, 5-parted; stamens 5, exerted from the short corolla tube, the anthers converging around the style forming a sort of beak; fruit a berry, usually 2-celled. A very large genus, but mostly warm climate plants, represented with us by a few spreading annual herbs.

1. *S. triflorum*, Nutt.

Low, spreading; leaves pinnatifid; peduncles 1-3-flowered; corolla white; fruit green, turning whitish, about the size of a cherry, but resembling the tomato. A common weed. Man.-Alta.

2. *S. nigrum*, L. COMMON NIGHTSHADE.

More glabrous, stem rough on the angles; leaves wavy-toothed; flowers white, in umbel-like clusters; fruit black. Rich shady ground, local, Man.-Alta.

LXXVI. HYDROPHYLLACEÆ. WATERLEAF FAMILY.

Hairy herbs with alternate leaves, and regular flowers in racemes, spikes, or heads. Calyx and corolla each 5-parted; stamens 5, inserted on the base of the corolla tube alternate with the lobes; ovary superior, 2-celled or 1-celled with 2 placentæ; styles 2, sometimes partly united; stigma small.

1. PHACÈLIA.

Calyx somewhat inflated in fruit; corolla bell-shaped, wheel-shaped, or funnel-shaped, often with appendages opposite the lobes; ovary 1-celled with 2 placentæ. Annual or biennial hairy herbs with alternate, entire, toothed, pinnatifid, or dissected leaves, and blue, purple, or white showy flowers.

1. *P. linearis*, (Pursh.) Holz. (*P. Menziesii*, Torr.)

Stem 4-12 in. high, branched; leaves linear or lanceolate and entire, or some deeply cleft; flowers violet or white, in spikes or racemes which are curved at first but afterwards erect. S. Alta. and Rocky Mts. in Crow's Nest Pass.

2. *P. sericèa*, (Graham) Gray.

Stem 4–12 in. high from a branching rootstock, leafy to the top; leaves pinnately parted into numerous narrow lobes, these being sometimes further pinnatifid, the upper nearly sessile; flowers violet-blue or white on short spikes, crowded in a close panicle. S. Alta. and Rocky Mts. north to Bow River.

LXXVII. SCROPHULARIÀCÈÆ (FIGWORT FAMILY).

Herbs with exstipulate leaves and perfect, complete, but irregular flowers. Calyx inferior, persistent, 4 or 5-cleft; corolla gamopetalous, 2-lipped, or, in some cases, almost regular; stamens 2–5, didynamous or equal; fruit usually a many-seeded capsule.

1. LINÀRIA. TOADFLAX.



FIG. 73. — *Linaria vulgaris*.

Calyx 5-parted; corolla 2-lipped, spurred at the base on the lower side; stamens 4, didynamous; capsule thin-walled. Herbs with alternate upper leaves and showy flowers.

1. *L. vulgaris*, Hill. BUTTER AND EGGS.

Erect, glabrous, leafy; leaves pale, linear; flowers yellow, showy, in a dense raceme. Introduced to some extent.

2. PENTSTÈMON. BEARD-TONGUE.

Calyx 5-parted; corolla tubular, expanding above, 2-lipped, the upper lip 2-lobed, the lower 3-lobed; stamens 4 fertile, and 1 sterile, which is usually bearded down one side; fruit a many-seeded capsule. Perennial herbs with opposite entire leaves and showy flowers.

1. *P. grácilis*, Nutt.

Stem erect or slightly bent at the base, 6–15 in. high, minutely pubescent; stem leaves linear to lanceolate, sessile, more or less toothed; root leaves oblong to spatulate, obtuse, tapering into a petiole; corolla purple, open at the throat, the sterile filament bearded for half its length; flower cluster loose. Dry prairies, Man.—Alta.

2. *P. álbidus*, Nutt.

Stems rather stout, 6–10 in. high, clustered, several from a branched erect rootstock, erect or reclining at the base, slightly pubescent; leaves oblong to linear; calyx viscid-pubescent; corolla purple or whitish, dilated at the

throat, the lobes rather large and spreading widely, the sterile filament slightly bearded; flower cluster narrow and dense. Dry prairies, Man. and Sask.

3. *P. cristatus*, Nutt.

Rather stout, 6-15 in. high, villous and viscid towards the upper part of the stem; leaves entire, the upper linear or lanceolate, somewhat clasping, the lower oblong to spatulate, tapering into petioles; flowers purple or red, almost sessile, the lower lip villous within, the sterile filament densely long-bearded along one side, exserted, curled upward. Prairies, Man. and westward.

4. *P. acuminatus*, Dougl.

Stem stout, leafy, 6-20 in. high, glabrous and glaucous throughout; leaves entire, the upper lanceolate, clasping, the lower oblong to spatulate, petioled; flower cluster narrow, often one-sided, the sterile filament expanded towards the summit and bearded all around. Dry gravelly slopes, Man.-Alta.

3. *MIMULUS*. MONKEY FLOWER.

Calyx 5-angled, 5-toothed, the upper the largest; corolla 2-lipped, the upper reflexed, or at least erect, the lower spreading, 3-lobed. Herbs with opposite leaves and showy flowers.

1. *M. ringens*, L.

Glabrous, stem erect, stout, 1-3 ft. high, square; leaves lanceolate to oblong, clasping; flowers large, blue or purple, solitary from the axils of the upper leaves. Wet places, Man. and westward.

4. *ORTHOCAËRUS*.

Flower as in *Castelleja* except that the upper lip of the corolla is no longer than the lower. Annuals with alternate leaves and the flowers in leafy spikes.

1. *O. luteus*, Nutt.

Leafy, erect, pubescent; leaves usually linear but often 3-cleft; spike dense with uncolored, usually 3-cleft bracts; flowers yellow. Prairies, Man.-Alta.

5. *PEDICULARIS*. LOUSEWORT.

Calyx 2-5-toothed, cleft on the lower or the upper side; corolla 2-lipped, the upper laterally compressed, curved, sometimes prolonged to a beak; lower erect, 3-lobed; stamens 4, didynamous, enclosed in the upper lip; capsule many-seeded. Herbs with alternate pinnatifid leaves, and yellowish, reddish, or white flowers in dense terminal spikes.

1. *P. grœnlândica*, Retz.

Flowers red or purple, the upper lip produced into a long beak which curves first downward and then outward. Swamps, Hudson Bay-Rocky Mts.

2. *P. canadensis*, L. COMMON LOUSEWORT.

Hairy; stems tufted, simple, ascending or erect, 6-15 in. high; leaves oblong-lanceolate, the lower pinnately parted and on slender petioles, the upper almost sessile; flowers yellowish or reddish, the tube much longer than the calyx, the upper lip arched but not beaked. Moist woods and about thickets, Man.

3. *P. lanceolâta*, Michx.

Usually smooth; stem stout, erect, 1-3 ft. high; leaves at least partly opposite and doubly pinnatifid; calyx 2-lobed, the lobes leafy on the margins; corolla yellowish, the upper lobe curved in and ending in a short beak, the lower lip ascending and partly closing the throat. Rich damp prairie, Man.-Alta.

6. RHINÂNTHUS. YELLOW RATTLE.

Calyx 4-toothed, flattened, thin and inflated in fruit; corolla 2-lipped, the upper lip arched, flattened, with a tooth on each side near the point, the lower 3-lobed; stamens 4, didynamous, anthers hairy; capsule round, flattened; seeds winged. Annual herbs with opposite leaves and yellow flowers crowded on a one-sided spike.

1. *R. Crista-gâlli*, L.

Stem slender, 6-18 in. high, branched, the branches somewhat erect; leaves lanceolate to oblong, coarsely serrate-dentate; corolla yellow with a purple spot on one or both lips, the tube longer than the calyx; capsule flat. Moist places, Rocky Mts. and eastward and northward.

7. CASTILLÈJA. PAINTED CUP.

Calyx tubular, compressed, split on upper and lower sides; corolla 2-lipped, enclosed in the calyx, the upper lip arched, usually keeled, compressed laterally; stamens 4, didynamous, enclosed in the upper lip of the corolla; style thread-like; capsule many-seeded. Herbs with alternate leaves, and pale yellowish, reddish, or white flowers in dense leafy-bracted spikes, the bracts often brightly colored.

1. *C. coccinea*, (L.) Spræng. SCARLET PAINTED CUP.

Annual or biennial, hairy; stem simple, 1-2 ft. high; root leaves mostly entire, stem leaves deeply cut; bracts bright scarlet or more rarely yellow. Moist prairie, Man. and S. E. Sask.

2. *C. pallida*, (L.) Spreng.; var. *septentrionalis*, (Lindl.) Gray.

Perennial, smooth except at the top; leaves entire or nearly so; bracts yellowish or reddish-purple, but not bright. Moist soil, Man.-Alta.

3. *C. sessiliflora*, Pursh.

Perennial, hairy; stems leafy, often branched at the base, 6-10 in. high; leaves sessile, the lower linear and entire, the others, deeply cut; flowers yellowish-green, not showy. Dry sandy prairies, Man. and Sask.

4. *C. miniata*, Dougl.

Stems several from a short rootstock, 8 in. to 2 ft. high, mostly simple; leaves lanceolate to linear, rarely 3-cleft; bracts bright red; spikes short and dense; the whole plant glabrous up to the flowers. Moist ground, Man.-Alta.

8. VERÓNICA. SPEEDWELL.

Calyx 4-parted; corolla unequally 4-parted, the lower lobe the smallest, rotate; stamens 2, on the base of the upper lobe of the corolla, the anthers united; style slender; ovary 2-celled; capsule flattened, sometimes heart-shaped. Mostly herbs with small blue, purple, pink, or white flowers.

1. *V. Anagallis-aquatica*, L. WATER SPEEDWELL.

Smooth, the lower part of the stem prostrate and rooting at the joints, the upper part erect; leaves entire or nearly so, those of the flowering stem lanceolate, sessile, clasping at the base, those produced later orbicular, or ovate, and petioled; flowers bluish or purplish; capsule flattened, nearly orbicular. Drying streams and ditches, Man.-Alta.

2. *V. americana*, Schwein.

Similar to the preceding, but all the leaves oblong to lanceolate, distinctly petioled, and sharply serrate. Streams and ditches, Man.-Alta.

3. *V. scutellata*, L. MARSH SPEEDWELL.

Slender, decumbent, 6 in. to 2 ft. high, glabrous, rooting by leafy shoots from the base; leaves linear, sessile and slightly clasping, denticulate with few teeth; flowers blue on slender pedicels in axillary racemes exceeding the leaves; capsule longer across the transverse axis, deeply notched at the summit. Wet places, Man.-Alta.

LXXVIII. LENTIBULARIACEÆ (BLADDERWORT FAMILY).

Aquatic herbs, free-floating or rooting in the mud, with leaves clustered at the base, or borne on immersed floating stems, and irregular flowers carried above the water on erect scapes. Corolla

2-lipped, the upper erect, the lower larger, spreading, spurred at the base, with a projection almost closing the throat; stamens 2, the anthers united; ovary 1-celled; fruit a many-seeded capsule.

1. UTRICULÀRIA. BLADDERWORT.

Calyx 2-lobed, the lobes nearly equal; corolla bearded in the throat; flowers in racemes. Herbs, free-floating or rooting, with finely dissected leaves, and bearing small bladders which serve to float the plant or to secure food.

1. *U. vulgàris*, L.

Free-floating, scape stout, almost naked, 3-12 in. high; leaves 2 or 3-pinnately divided, crowded, borne on branches 6-12 in. long, and bearing many bladders among the leaves; flowers showy. Stagnant water, Man.-Alta., common.

2. *U. intermèdia*, Hayne.

Scape slender, 2-8-in. high; branches floating, short, 3-6 in. long; leaves somewhat scattered; bladders usually borne on leafless branches; flowers yellow, with a spur nearly as long as the lip. Shallow water, or creeping on the mud, Man.-Alta., not common.

2. PINGUÍCULA. BUTTERWORT.

Calyx 2-lipped, the upper 3-cleft, the lower 2-cleft; corolla 2-lipped, the upper 2-cleft, the lower 3-cleft, the lobes all spreading, spurred, throat open. Small stemless perennials with 1-flowered scape and 3 or 4 fleshy, somewhat greasy leaves at the base.

1. *P. vulgàris*, L.

Leaves spatulate to elliptical; corolla pale violet, striped with yellow on the throat. Bogs and wet rocks, Rocky Mts. and foothills.

LXXIX. OROBANCHÀCÆ (BROOM-RAPE FAMILY).

Low fleshy herbs without green foliage. Calyx 4 or 5-toothed; corolla 2-lipped, persistent; stamens 4, didynamous, on the corolla tube; capsule 1-celled, many-seeded.

1. OROBÀNCHE. BROOM-RAPE; CANCER-ROOT.

Calyx almost equally 5-cleft; corolla 2-lipped, the upper 2-lobed, the lower spreading, 3-lobed; stigma 2-lipped; flowers solitary or in spikes on a naked or bracted stem. Viscid, pubescent, root-parasitic herbs with more or less scaly brownish stems.

1. *O. fasciculâta*, Nutt.

Stem 2-4 in. high, scaly; flowers solitary on long naked peduncles, purplish-yellow, large, nearly 1 in. long. Parasitic on roots of *Artemisia* and similar plants on sandy hills and plains (*Aphyllon fasciculatum*, Gray). Sask. and Alta.

2. *O. ludoviciâna*, Nutt.

Stems stout, 4-12 in. high, scaly, somewhat viscid; flowers purplish, in dense terminal bracted spikes. (*Aphyllon ludoviciâna*, Gray.) Dry clay banks, particularly along rivers, W. Sask. and Alta.

LXXX. PLANTAGINACEÆ (PLANTAIN FAMILY).

Stemless herbs with basal leaves, and regular flowers in spikes on a long scape. Calyx 4-parted, persistent; corolla 4-parted, hypogynous, gamopetalous, dry and membrane-like; stamens 4, inserted on the corolla alternate with its lobes.

1. PLANTAGO. PLANTAIN.

Calyx segments mostly equal; corolla salver-shaped; stamens 4, usually with long weak filaments; style long; stigma hairy; capsule 2-celled, opening with a lid; flowers small, whitish, on a naked scape; leaves prominently ribbed.

1. *P. mâjor*, L. COMMON PLANTAIN.

Leaves broadly elliptical, undulate, or somewhat toothed; petiole broad; scape 4-15 in. high, often curved; spike dense. A common weed around dwellings.

2. *P. Rugèlii*, Dcne.

Closely resembling the preceding, but smaller, with thinner leaves on slender petioles red at the base. Common about dwellings.

3. *P. lanceolâta*, L. RIB GRASS.

Generally hairy; leaves lanceolate; scape slender; spike dense with brownish scarios bracts and sepals. Very commonly introduced with grass seed.

4. *P. eriópoda*, Torr.

Yellowish woolly at the base; leaves oblanceolate or oblong, thickish, on short petioles. Alkaline soil, very common, Man.-Alta.

5. *P. elongâta*, Pursh.

Finely pubescent; leaves linear to almost thread-like; capsule 4-seeded. Light soil, S. Man. and westward.

6. *P. Púrshii*, R. and S.

White silky-woolly; leaves oblong to linear; spike slender, dense. Dry prairies, N. Sask. and Alta.

LXXXI. RUBIACEÆ (MADDER FAMILY).

Herbs — in our climate — with entire leaves, either opposite and connected by stipules or in whorls without stipules, and regular perfect flowers. Calyx gamosepalous, variously toothed; corolla 4 or 5-lobed; stamens as many as the lobes of the corolla and alternate with them, inserted on the throat; style either short or long; ovary 1-10-celled, many-ovuled; fruit a capsule, berry, or drupe. A very large family but mostly tropical.

1. *GÀLIUM*. BEDSTRAW.

Calyx teeth obsolete; corolla rotate, 4-lobed; stamens 4, or rarely 3, with short filaments; styles 2; fruit double, of two either dry or fleshy parts separating into indehiscent 1-seeded carpels. Slender, often trailing herbs with small flowers, square stems, and whorled leaves.

1. *G. boreàle*, L. NORTHERN BEDSTRAW.

Smooth, erect, 6-18 in. high; leaves in 4's, linear to lanceolate; flowers white, in close panicles; fruit often bristly. Dry prairies, common, Man.-Alta.

2. *G. triflòrum*, Michx.

Stem diffuse, ascending or procumbent, glabrous but a little roughened on the angles; leaves elliptical to lanceolate, slightly roughened on the margins and often bristle-pointed; peduncles 3-flowered; flowers greenish-white; fruit covered with hooked bristles. Moist shady places, Man.-Alta.

3. *G. trifidum*, L.

Stem very weak, slender, diffusely branched, forming a mat on the ground; leaves linear to spatulate, usually in 4's; flowers whitish, solitary except the terminal, which may be in 3's. Wet shady places, Man.-Alta.

2. *HOUSTÒNIA*.

Calyx 4-lobed, persistent; corolla 4-lobed, usually longer than the calyx; stamens 4, inserted on the throat of the corolla; style 1; stigmas 2; ovary 2-celled. Erect, low, tufted herbs with opposite entire leaves and small bluish, purplish, or white flowers.

1. *H. longifolia*, Gaertn.

Glabrous, 4-8 in. high; root leaves oblanceolate to spatulate, short-petioled; stem leaves linear, usually acute; flowers pale purple. (*H. purpurea*, var. *longifolia*, Gray.) Dry open prairie, Man. and Sask.

LXXXII. CAPRIFOLIACEÆ (HONEYSUCKLE FAMILY).

Shrubs, often twining, with opposite exstipulate leaves and perfect flowers. Calyx 3-5-toothed, joined to the ovary; corolla gamopetalous, 5-lobed, sometimes 2-lipped, and often slightly spurred at the base; stamens 5, inserted on the tube of the corolla, alternate with the lobes; style slender; stigma simple or lobed; ovary 1-6-celled; fruit a berry, drupe, or capsule.

1. LONICERA. HONEYSUCKLE.

Calyx 5-toothed; corolla 5-lobed, more or less 2-lipped, tube funnel-form and often slightly spurred at the base; stamens 5, on the corolla tube; style slender; stigma capitate; fruit a berry. Usually more or less twining shrubs with opposite entire leaves and somewhat irregular flowers.

1. *L. diœica*, L. (*L. glauca*, Hill.)

Glabrous throughout; upper leaves united at the base into a disk pointed at both ends; flowers greenish-yellow, or purplish inside of the corolla; filaments and style hairy; berries red. Woods, Man.-Alta.

2. *L. glaucœscens*, Rydb.

Leaves glabrous and somewhat glaucous above, pubescent beneath, the uppermost united at the base into an oblong disk; corolla pale yellow; filaments, style, and inside of corolla hairy; ovary glabrous. Man. and westward.

3. *L. Sullivœntii*, Gray.

Whitened above with a glaucous bloom, leaves glabrous; the upper leaves united into a circular disk; corolla pale yellow, hairy inside; filaments very slightly hairy; berries yellow. Rich woods, Man. and E. Sask.

4. *L. hirsœta*, Eat.

Higher and more twining than preceding; leaves large, hairy on both sides; branches pubescent; corolla orange-yellow, clammy-pubescent. Moist woods, Man.

5. *L. involucrœta*, (Richards) Banks.

Upright, pubescent or nearly glabrous, branches 4-cornered; leaves oblong, petioled, with prominent midrib; flowers yellow, without a spur, and

surrounded by 4 leaf-like bracts; berries dark purple, not united in pairs. Rocky Mt. valleys.

6. *L. tatárica*, L. TARTARIAN HONEYSUCKLE.

A large upright glabrous shrub with pink or white flowers and red or yellow double berries. Much used in cultivation, but not escaped so far.

7. *L. oblongifolia*, (Goldie) Hook. SWAMP FLY HONEYSUCKLE.

Leaves 1-2 in. long, pubescent when young, glabrous or nearly so when mature; corolla yellow, or purplish within, deeply 2-lipped, the tube swollen on one side; flowers in pairs on slender peduncles; fruit red, generally united. Swamps, E. Man.

2. SYMPHORICÁRPUS. SNOWBERRY.

Calyx 4 or 5-toothed, persistent; corolla 4 or 5-lobed, bell-shaped; stamens 4 or 5, inserted in the throat of the corolla; berry 4-celled, 2-seeded. Low shrubs with simple opposite leaves on short petioles, and pinkish flowers in short spikes or clusters.

1. *S. occidentális*, Hook. WOLFBERRY

A shrub 1-4 ft. high; flowers in dense terminal or axillary spikes; corolla bearded within; stamens and style exerted; fruit white. Dry prairie, Man.-Alta.

2. *S. racemósus*, Michx. SNOWBERRY.

Similar to preceding, but flowers in short interrupted terminal spikes; corolla hairy within; style and stamens included. Not a common western form, Man.-Alta.

3. Var. *pauciflorus*, Robbins.

A low-spreading shrub about 10 in. high or less; flowers in small terminal spikes or solitary in the upper axils. Local from Lake Winnipeg to Rocky Mts.

3. LINNÆA. TWIN FLOWER.

Calyx 5-toothed, the teeth sharp and deciduous; corolla equally 5-lobed, bell-shaped; stamens 4, two of them shorter; fruit a small, dry, 3-celled, but 1-seeded pod. A slender creeping evergreen vine with rounded leaves on short petioles, and delicate, nodding, pink flowers borne in pairs on a slender forked peduncle. The only plant bearing the name of the great Linnæus.

1. *L. boreális*, L., var. *americana*, (Forbes) Rehder.

The only species, and found in cold moist woods across the continent.

4. VIBURNUM.

Calyx 5-toothed; corolla 5-lobed, regular; stamens 5, inserted on the tube of the corolla; ovary 1-3-celled; style short, 3-lobed; fruit a somewhat flattened 1-seeded drupe. Erect shrubs with simple leaves and usually white or greenish-white flowers in flat compound cymes.

1. *V. Opulus*, L., var. *americana*, (Mill.) Ait. HIGH BUSH CRANBERRY.

Erect, 3-12 ft. high, smooth or nearly so; leaves 3-lobed, the lobes often toothed on the sides; cymes broad, the outside flowers neutral, with much enlarged corollas, pure white, the inner flowers perfect, greenish-white, with exserted stamens; fruit red, edible. Woods and thickets, Man. and Sask.



FIG. 74. — *Viburnum opulus*.

2. *V. Lentago*, L.
NANNY BERRY.

A tall shrub, or sometimes a small tree 25 ft. high; leaves ovate, very closely and sharply serrate, on winged petioles; flowers greenish-white in a broad sessile cyme; fruit black. Woods, particularly river banks, Man. and westward.

3. *V. pauciflorum*, Raf. SQUASHBERRY.

A straggling shrub 2-5 ft. high; leaves 3-lobed towards the apex, serrate, glabrous above, somewhat pubescent beneath; flowers white, all alike, in a few-flowered cyme; stamens included. Cold woods and mountain valleys, N. Sask., Alta., and northward.

5. SAMBUCUS. ELDER.

Calyx 3-5-toothed, the teeth very small or obsolete; corolla 5-cleft, broadly spreading; stamens 5, alternate with the lobes of the corolla and inserted on its tube; stigmas 3; fruit a berry-like drupe. Shrubs with pinnately compound leaves and numerous small flowers in a compound cyme.

1. *S. racemosa*, L. RED ELDER.

Stems woody, with a warty bark and very large brown pith; leaflets 5-7, ovate-lanceolate, pubescent beneath; flowers yellowish-white, in a cone-shaped cyme; fruit bright red ripening early in summer. Delta, Man. Locally, Man.-Alta.

2. *S. canadensis*, L. COMMON ELDER.

Pith white; leaflets 5-11, rather smooth, some of the lower often 3-parted, cyme flat; fruit purplish-black. Open places, Man. and Sask.

LXXXIII. CUCURBITACEÆ (GOURD FAMILY).

Succulent vines, either trailing or climbing by tendrils, with alternate petioled leaves and diœcious or monœcious flowers. Calyx 5-lobed, the tube adhering to the ovary; corolla 5 or 6-cleft or parted, inserted on the calyx; stamens usually 3, two with 2-celled anthers, and one with a 1-celled anther; ovary 1-3-celled; fruit a pepo, usually fleshy but sometimes membranous.

1. ECHINOCÝSTIS.

Calyx 5-cleft; corolla 6-parted, the petals narrow, united at the base; ovary 2-celled with 2 ovules in each cell; fruit fleshy at first, but becoming dry, armed with weak prickles; seeds large, flattened, with rough covering. Climbing annuals with greenish-white flowers in axillary clusters.

1. *E. lobata*, (Michx.) T. and G. WILD CUCUMBER.

Leaves deeply 5-lobed. Moist places, Red River Valley to Saskatchewan River.

LXXXIV. CAMPANULACEÆ (BLUEBELL FAMILY).

Herbs with alternate exstipulate leaves, bitter and often milky juice, and perfect flowers. Calyx 5-toothed, the tube adherent to the ovary; corolla gamopetalous, usually regular, 5-cleft; stamens 5, alternate with the lobes of the corolla, inserted with it; style 1, usually hairy above; stigma 2-5-lobed; fruit a 2-several-celled capsule; seeds many.

1. CAMPÁNULA. BELLFLOWER.

Calyx 5-cleft; corolla 5-lobed, bell-shaped; stamens 5, separate, the filaments broad at the base; stigma 3-lobed; capsule 3-celled. Herbs with usually terminal, nodding, bell-shaped flowers.

1. *C. rotundifolia*, L. BLUEBELL, HAREBELL.

Slender perennial, with rounded petioled basal leaves, withering before the plant reaches maturity, and stem leaves linear or nearly so; flowers large, blue; capsule opening by pores at the base. Dry soil, common and variable.

2. *C. aparinoides*, Pursh. MARSH BELLEFLOWER.

Stem weak, more or less 3-angled, roughened on the angles; leaves linear-lanceolate; flowers small, nearly white, terminating the branches. Marshy ground, leaning on grass for support. Man. and westward.

LXXXV. LOBELIACEÆ (LOBELIA FAMILY).

Herbs with alternate leaves, bitter milky juice and irregular flowers. Calyx tube adhering to the ovary; corolla 2-lipped, with a split to the base down one side, 5-lobed; stamens 5, free from the corolla, united by their anthers and usually by their filaments; style 1; stigma 2-lobed, often fringed; ovary 2-celled, many-ovuled.

1. LOBELIA.

Calyx 5-cleft; corolla 2-lipped and split down the upper side; pod 2-celled, many-seeded; flowers mostly in leafy or bracted racemes.

1. *L. spicata*, Lam.

Stem slender, leafy, usually simple; lower leaves obovate to spatulate, upper linear and bract-like; flowers light blue in terminal racemes. Moist sandy soil, Man. and westward.



FIG. 75.



FIG. 76.



FIG. 77.



FIG. 78.



FIG. 79.

Achenes surmounted by different forms of pappus.

A, pappus of soft bristles, senecio; *B*, pappus on the long beak of the achene, Taraxicum; *C*, pappus of two awns, bidens; *D*, pappus of a number of scales, helenium; *E*, pappus of a few small chaffy scales, chicorium.

2. *L. Kalmii*, L.

Stem low, leafy, often branched, obscurely angled; leaves linear; flowers light blue on slender pedicels, each with two minute bracts or glands about the middle. Wet grassy ground, Man.-Alta.

LXXXVI. COMPOSITÆ.

Flowers small, in a head on a common receptacle surrounded by an involucre of one or more rows of bracts; stamens 5, inserted on the corolla tube, the anthers united (*syngenesious*); ovary 1-celled forming an achene in fruit; style cleft at the apex with 2 usually recurved stigmas, or frequently undivided in sterile flowers; calyx represented by a number of bristles or scales (*pappus*), or absent; corolla tubular or strap-shaped (*ligulate*), when the former usually 5-toothed. When both tubular and ligulate corollas are present in the same head the former are in the centre (*disk*), and the latter (*ray-flowers*) are around the margin. Such a head is called *radiate*, while if only tubular corolla are present, the head is said to be *discoid*. A very large family divided by the kinds of corollas present in the heads into two series, the *tubulifloræ* and the *ligulifloræ*.

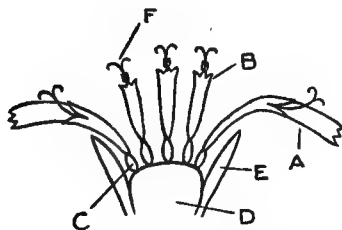


FIG. 80. — Section through a typical radiate head.

A, ray-flower; B, disk-flower; C, achene; D, receptacle; E, involucre; F, stigma.

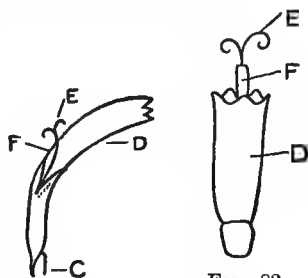


FIG. 81. — Ligulate flower.

FIG. 82. — Tubular flower.

C, achene; D, corolla; E, stigma; F, anthers forming a tube about the style.

SERIES A. TUBULIFLORÆ.

Corolla tubular in perfect flowers, the ligulate flowers, when present, being arranged about the margin (ray-flowers) and having pistils only, or neither stamens nor pistils (neutral).

* FLOWERS ALL ALIKE AND TUBULAR.

1. **Eupatorium**, flowers few in a head; marsh herbs.
2. **Liatris**, flowers bright reddish-purple; scales of the involucre much overlapped.
3. **Antennaria**, heads diœcious, drying without wilting.
4. **Cirsium**, heads many-flowered, leaves armed with prickles.
5. **Arctium**, bracts of the involucre armed with hooks.
6. **Bigelowia**, heads small, 4-7-flowered; a shrub.

** FLOWERS BOTH TUBULAR AND RADIATE; RECEPTACLE NAKED.

† RAY-FLOWERS YELLOW.

7. **Gutierrezia**, heads small, numerous; low, often matted herbs, rather woody at the base.
8. **Grindella**, heads large, flowers all perfect; coarse herbs with toothed leaves.
9. **Solidago**, heads small, 8-10-flowered, numerous in showy clusters.
10. **Aplopappus**, heads many-flowered; pappus of numerous bristles of unequal length.
11. **Chrysopsis**, heads many-flowered; pappus in two rows, the outer much shorter than the inner.
12. **Arnica**, heads large, showy; pappus stiff, leaves opposite.
13. **Senecio**, heads showy, pappus soft and copious, leaves alternate.
14. **Tanacetum**, marginal flowers short-rayed, pistillate; strong-smelling herbs.

†† RAY-FLOWERS NOT YELLOW.

15. **Townsendia**, heads large, many-flowered, rays in a single row; tufted stemless herbs.
16. **Aster**, heads usually large, rays showy, pappus long and plentiful.
17. **Erigeron**, heads many-flowered usually on naked peduncles; involucre of two rows of bracts.
18. **Petasites**, heads on stems appearing before the leaves, pappus very plentiful.
19. **Artemisia**, heads small, drooping, crowded; pappus wanting; scented herbs.
20. **Matricaria**, heads large, rays white; strong-smelling herbs.

*** FLOWERS USUALLY BOTH TUBULAR AND RADIATE; RECEPTACLE CHAFFY.

† INVOLUCRE HARD AND MORE OR LESS SPINY, NUT-LIKE IN FRUIT.

21. *Ambrosia*, heads of two kinds; involucre of the fertile head 1-seeded with a single row of projections about the top.

22. *Xanthium*, heads of two kinds, involucre of the fertile head covered with spines, becoming bur-like in fruit.

‡ INVOLUCRE NOT HARDENED IN FRUIT.

23. *Iva*, heads small, drooping; flowers all tubular, the marginal pistillate, the inner perfect.

24. *Heliopsis*, heads large; ray-flowers yellow, fertile, persistent; achenes 4-sided.

25. *Brauneria*, heads large, ray-flowers pink or purplish, chaff of the receptacle spiny and projecting beyond the achenes.

26. *Rudbeckia*, heads large; ray-flowers yellow, neutral, deciduous; receptacle conical.

27. *Lepachys*, heads large; ray-flowers yellow or purple, neutral, deciduous; receptacle cylindrical.

28. *Helianthus*, heads large; ray-flowers yellow, neutral, deciduous; receptacle flat.

29. *Coreopsis*, heads large; ray flowers yellow, neutral; bracts of the involucre in 2 rows.

30. *Bidens*, heads large, ray-flowers yellow, bracts of the involucre distinct.

31. *Achillea*, heads small, ray-flowers white or pink, bracts of the involucre dry and thin.

32. *Gaillardia*, heads large; ray-flowers yellow, 3-toothed.

33. *Helenium*, heads large, ray-flowers yellow, bracts of the involucre spreading, leaves entire.

SERIES B. LIGULIFLORÆ.

Herbs with milky juice and all the flowers in the head perfect, with ligulate corollas.

* FLOWERS YELLOW.

† LEAVES ALL BASAL.

34. *Taraxicum*, pappus borne on a long beak.

35. *Agoseris*, pappus borne on a short beak.

‡ LEAVES NOT ALL BASAL.

36. *Crepis*, achenes not flattened, tapering towards the top; pappus white.

37. *Hiracium*, achenes neither flattened nor tapering; pappus dark.

38. *Sonchus*, achenes flattened.

** FLOWERS NOT YELLOW.

39. *Chicorium*, flowers deep blue, pappus almost wanting.
 40. *Lactuca*, flowers blue or whitish, pappus plentiful.
 41. *Lygodesmia*, flowers rose-pink, stem almost leafless.
 42. *Prenanthes*, flowers whitish or purplish; leaves large, the upper clasping.

1. EUPATÒRIUM. THOROUGHWORT.

Flowers perfect; pappus a single row of bristles; corolla 5-toothed; achene 5-angled; heads 3-many-flowered. Perennial herbs of somewhat rank growth, with glandular foliage and heads of white or purple flowers in large corymb-like clusters.

1. *E. purpùreum*, L. JOE-PYEWEED.

Stem tall and stout, erect, simple; leaves oblong to lanceolate, 3-6 in a whorl; flowers purple, in large round-topped clusters raised above the leaves. Marshes, Man.-Alta.

2. LIÀTRIS. BLAZING STAR.

Heads few to many-flowered; pappus of numerous, rather long, often barbed bristles; corolla 5-lobed, the lobes slender; receptacle naked. Perennial herbs with simple or but slightly branched stems, usually from a globular corm or tuber, narrow entire leaves, and heads of purple flowers in spikes or racemes.

1. *L. scariösa*, Willd.

Pappus not very long and not barbed; stem rather stout, 6-18 in. high; heads few, somewhat globular, involucre of several rows of purplish-margined bracts. Dry soil about thickets, Man.-Alta.

2. *L. punctàta*, Hook.

Stem rather stout, usually tufted, from a thick, often branching rootstock; pappus long and much barbed; heads 4-6-flowered, in a dense showy spike. Dry prairie, Man.-Alta.

3. ANTENNÀRIA. ÈVERLASTING.

Heads many-flowered, all flowers tubular; involucre dry and chaffy; pappus a single row of bristles. Woolly, dicecious, perennial herbs with alternate stem leaves, and root leaves often forming a mat.

1. *A. campéstris*, Rydb.

Flowering stems 2-6 in. high; stem leaves bract-like; root leaves obovate, without distinct petioles, white-woolly beneath, glabrous or nearly so above; bracts of the fertile heads small, with a brownish spot at the centre, and white at the apex; bracts of the sterile heads, much larger and herbaceous throughout. Man. and westward.

2. *A. pulchérima*, (Hook.) Greene.

Stout, 12-16 in. high; basal leaves oblanceolate, acute, 3-veined; stem leaves lanceolate or linear, acute, getting smaller up the stem; loosely tomentose throughout; bracts brown with dry tips, more acute in the fertile than in the sterile heads. Swampy places, W. Sask. and Alta.

3. *A. mēdia*, Greene.

Low, not 2 in. high, spreading by stolons; leaves spatulate to oblanceolate, rather acute, gray-woolly on both sides; bracts of the involucre in fertile heads with sharp tips, those in sterile heads rounded. Rocky Mts.

4. *A. rôsea*, (Eat.) Greene.

Slender, 8 in. to 2 ft. high, sterile branches often ascending or sometimes prostrate; leaves narrowly oblanceolate or spatulate, acute; the whole plant whitish viscid-pubescent; heads in either close or loose clusters; bracts of the involucre in fertile heads rounded, rose color to whitish; staminate plant not known. Alta.

5. *A. parvifolia*, Nutt.

Slender, 8-12 in. high; stolons about 2½ in. long; whitish-woolly throughout, basal leaves spatulate; stem leaves linear to oblong; heads numerous in an open corymb; bracts in fertile heads acute, those in sterile heads obtuse. (*A. microphylla*, Rydb.) Dry plains, Sask. and Alta.

6. *A. áprica*, Greene.

Usually densely matted, flowering stems seldom more than 6 in. high; whitish-woolly throughout; basal leaves spatulate, narrowed into petioles and rounded at the apex; stem leaves linear, sessile; bracts in the fertile heads obtuse, white or pink often with a brown spot; those in the sterile heads oval and white. (Formerly referred to *A. dioica*, Gaertn.) S. Man., Sask., and Alta.

4. CÍRSIUM. COMMON THISTLE.

Heads many-flowered, the flowers all tubular and similar, perfect; bracts of the involucre in many rows, spiny-tipped; receptacle hairy; pappus of numerous long bristles united at the base. Peren-

nial or biennial herbs with alternate prickly leaves and large heads of reddish-purple or rarely white flowers.

1. *C. undulatum*, (Nutt.) Spreng. PRAIRIE THISTLE.

Biennial, whitish-woolly throughout; stem leafy, 1-3 ft. high; leaves partly clasping, pinnatifid, but rarely pinnately divided, sometimes quite prickly; outer bracts of the involucre glandular and glutinous on the back and tipped with spreading prickles; flowers purple or reddish. Prairies, Man.-Alta.

2. *C. muticum*, Michx. SWAMP THISTLE.

Biennial, tall, 2-7 ft. high, smoothish, sparingly leafy; leaves deeply pinnatifid, armed with weak prickles; heads large, few; flowers purple. Swamps and wet prairie, Man. and westward.

3. *C. arvensis*, (L.) Scop. CANADA THISTLE.

Perennial, from a deep, extensively branching rootstock; stem rather slender, 1-3 ft. high, leafy; leaves sinuately pinnatifid and very prickly; heads numerous; flowers rose-purple, or more rarely whitish. A troublesome introduced weed becoming quite common in cultivated ground.



FIG. 83. — *Cirsium arvensis*.

5. *ÁRCTIUM*. BURDOCK.

Heads fairly large, of perfect tubular flowers; corolla purple or white, the tube 5-cleft; receptacle flat and bristly; involucre almost globular, the bracts stiff and tipped with hooks; pappus of numerous scales. Coarse biennial herbs with large alternate leaves, and heads developing into burs clustered at the ends of the branches.

1. *A. minus*, Bernh. COMMON BURDOCK.

Stem branched, 2-5 ft. high; leaves large, cordate, on hollow petioles; spines of the outer bracts spreading, those on the inner erect, not so long as the flower. An unsightly weed, common locally about towns.

2. *A. Láppa*, L. GREAT BURDOCK.

Larger, 4-9 ft. high, with broader, often cordate leaves, and all the spines on the bracts of the involucre spreading. Waste places about towns.

6. *BIGELÓWIA*. RAYLESS GOLDENROD.

Heads discoid, small, few-flowered, rayless; involucre rather long, the bracts more or less keeled and arranged in several rows; corolla-

tube 5-toothed; style exerted, the branches long and thread-like; achenes generally more or less hairy; pappus of numerous bristles. Low leafy shrubs with alternate linear leaves and small heads of yellow flowers in a corymb-like cluster.

1. *B. gravèolens*, Gray.

Stem 1-3 ft. high, diffusely branched and very leafy; leaves narrowly linear; heads numerous, the bracts of the involucre usually in 4 rows; pappus of numerous soft bristles. Dry alkaline soil, S. W. Sask. and S. Alta.

7. GUTTIERRÈZIA.

Heads radiate, few-flowered; rays 1-6, pistillate; disk flowers mostly perfect; bracts of the involucre leathery with green tips; pappus of a few chaffy scales. Erect, branching, glabrous herbs with linear entire leaves and small heads of yellow flowers.

1. *G. Saròthræ*, (Pursh.) Britton and Rusby.

Low, 4-10 in. high, slender, diffuse, and very leafy, sometimes growing in dense patches; the heads crowded at the ends of the ascending branches. (*G. Euthamix*, T. and G.). Dry prairies, Man.-Alta.

8. GRINDELIA. GUM-WEED.

Heads many-flowered; rays, when present, fertile; pappus 2-8 deciduous awns or bristles; involucre of several rows of overlapping green bracts, usually with pointed, more or less spreading tips. Coarse perennial herbs with sessile or clasping leaves, and large heads of yellow flowers.

1. *G. squarròsa*, (Pursh.) Dunal.

Leaves oblong to spatulate; involucre sticky, the bracts hooked at the tips. Gravelly banks, Man.-Alta., July to Oct.

9. SOLIDÀGO. GOLDENROD.

Ray and disk flowers both present; rays in one row, fertile; disk flowers usually perfect, 5-toothed; pappus of numerous rough hair-like bristles in 1 or 2 rows; heads small, few-flowered, arranged in terminal or axillary clusters. Erect perennial herbs with usually simple stems, alternate simple leaves, and showy, often conical clusters of yellow flowers.

1. *S. canadensis*, L.

Stem stout, 1-3 ft. high; leaves lanceolate, 3-nerved, pointed at each end, serrate for half their length, or the uppermost entire, minutely pubescent; heads in dense, somewhat one-sided recurving axillary racemes crowded in a close pyramidal spike; pedicels hairy. Moist or rich soil, Man.-Alta., variable.

2. *S. graminifolia*, Salisb.

Stem rather slender, leafy, 1-3 ft. high, glabrous; leaves lance-linear, glabrous, minutely pubescent and roughened on the edges; heads small, 8-12-flowered, gathered in short close clusters, each cluster on the end of a flowering branch, the branches all rising to about the same height, and the whole forming a flat-topped corymb-like cyme; bracts of the involucre yellowish. (*S. lanceolata*, L.) Moist soil, Man.-Alta.

3. *S. rígida*, L.

Stem stout, 1-2 ft. high, rough and somewhat hoary-pubescent throughout; leaves oblong, pinnately veined, thick and rigid, the lower petioled, the upper sessile on a broad base; heads many-flowered, collected in a dense round-topped cyme. Dry prairie, Man.-Alta.

4. *S. serótina*, Ait.

Stem stout, 2-6 ft. high, glabrous; leaves lanceolate to oblong, thin, glabrous, sharply serrate except at the base, or the uppermost nearly entire; heads crowded on recurving or spreading branches which unite to form a large, often leafy, pubescent panicle. Moist soil, Alta.

5. *S. decumbens*, Greene.

Stems decumbent, 4-16 in. high, clustered, from a strong perennial root, usually dark reddish; lower leaves spatulate to oblanceolate, serrate towards the apex; stem leaves much reduced; heads large, in a somewhat interrupted panicle. Rocky Mts. and eastward.

6. *S. oreóphila*, Rydb.

Resembling the preceding but a larger form and usually found at lower levels. Alta.

7. *S. júncea*, Ait.

Smooth, erect, 1-3 ft. high; lower leaves elliptical to oval, serrate, tapering into petioles; stem leaves narrower, 3-nerved, the upper entire; racemes crowded in a conical, usually curved panicle. About thickets, Man.-Alta.

10. APLOPÁPPUS.

Heads radiate, many-flowered, rays pistillate, disk flowers perfect; involucre hemispherical, of several layers of linear bracts; leaves alternate, rigid, dentate or lobed; pappus of 1-3 rows of more or less unequal bristles. Rather low branching perennial herbs with heads in which both ray and disk flowers are yellow.

1. *A. spinulösus*, Pursh.

Slightly pubescent; leaves pinnately, or sometimes bi-pinnately parted, the lobes bristle-pointed; bracts of the involucre bristle-pointed; achene pubescent. Dry prairie, Man.-Alta.

2. *A. lanceolätus*, T. and G.

Stem, 4-8 in. high, erect or ascending, usually somewhat leafy, the upper leaves bract-like; leaves lanceolate to oblong, the basal petioled; heads 3-15 in a raceme or panicle; bracts of the involucre of 3 or 4 rows, sharp, dry, and white at the base with green tips. (*Pyrrocomma lanceolata*, (Hook.) Greene.) Moist alkaline prairie, Man.-Alta.

3. *A. Nuttällii*, T. and G.

Stem, simple, erect, 4-12 in. high, usually in clumps from a strong perennial root; leaves lanceolate to spatulate, the lower usually petioled, the upper sessile, rather stiff, sharply dentate, the teeth sometimes ending in soft spines; heads solitary on the ends of stems or branches; bracts narrow and spreading, the outer shorter; achene soft-hairy. (*Sideranthus grindelioides*, (Nutt.) Brit.) Dry soil, S. Sask.

4. *A. acäulis*, Gray.

Dwarf, tufted, from a much divided woody erect rootstock; leaves spatulate to linear, stiff and persistent, mostly tufted at the base, but a few along the scape-like flowering stems, which are not more than 5 in. high; heads usually solitary, many-flowered; bracts sharp, not green on the tips. Dry clay or gravel ridges, S. Sask.

11. CHRYSÓPSIS. GOLDEN ASTER.

Heads many-flowered, radiate; rays numerous; all flowers perfect; involucre of several rows of linear overlapping bracts; pappus a double row of bristles, the outer somewhat chaffy, the inner longer and hair-like; flowers yellow. Low, branching, perennial herbs with alternate, entire, sessile flowers.

1. *C. villôsa*, Nutt.

Whitish-pubescent throughout; stems much branched and somewhat spreading; leaves narrowly oblong; heads terminating the short branches; achene villous. Dry prairies, Man.-Alta., July-Sept.

2. *C. hfsþida*, (Hook.) Nutt.

More sparsely and coarsely hairy than the preceding, sometimes sticky; stem erect and simple, or tufted and decumbent, seldom more than 1 ft. high; leaves oblanceolate to spatulate, the basal tapering into petioles; heads smaller than in the preceding, rather numerous, arranged in a spreading corymb; achenes hairy. Dry gravelly soil, Sask.

12. *ARNICA*

Heads many-flowered, radiate; rays pistillate, spreading; involucre of 1 or 2 rows of equal bracts; receptacle flat, not chaffy; pappus a single row of rigid rough bristles. Perennial herbs with simple stems, opposite leaves, and solitary or clustered heads of showy yellow flowers.

1. *A. cordifôlia*, Hook.

Stem 1-2 ft. high, somewhat hairy; root leaves orbicular or nearly so, cordate at the base, petioled; stem leaves 1-3 pairs, oblong, sessile or nearly so; heads 1-8 on slender peduncles; rays 12-16. Eastern slope of Rocky Mts.

2. *A. latifôlia*, Bongard.

Slender, 8-16 in. high, villous or nearly glabrous; lower leaves ovate, more or less dentate, on short petioles; heads large and showy; bracts and achenes usually pubescent. Rocky Mts.

3. *A. foliôsa*, Nutt.

Stem slender, 1-3 ft. high, erect, leafy, somewhat glandular-pubescent, from a creeping rootstock; leaves 6-10 pairs, ascending, lanceolate, entire or nearly so, the lower petioled; petioles slender, uniting and sheathing the stem at the base; heads 1-several, if the latter, arranged in a sort of raceme, the lateral heads smaller. Thickets and damp prairies, Sask. and Alta.

4. *A. fûlgens*, Pursh.

Stem simple, erect, 8-16 in. high, slightly hairy towards the top; leaves rather thick, the basal spatulate, the upper linear, mostly entire, 3-nerved, the bases of the stem leaves sometimes uniting around the stem; heads conspicuous, solitary or few, mostly on long peduncles; achenes mostly pubescent. (*A. pedunculata*, Rydb.) (*A. alpina*, Murr.) Prairies, Man.-Alta., and far northward.

13. SENÈCIO. GROUNDSEL, RAGWORT.

Heads many-flowered, usually radiate; ray-flowers, when present, pistillate; involucre with the main bracts in one row, usually with some shorter outer ones at the base; receptacle mostly flat and naked, often honeycombed; pappus of numerous slender soft white bristles. Annual or perennial, sometimes woolly herbs with alternate leaves, often much reduced, and yellow flowers.

1. *S. palústris*, Hook.

Annual, woolly with loose hairs, stem erect, stout, 6-24 in. high; leaves lanceolate, irregularly toothed or cut, the upper clasping; rays 15-20, pale yellow; heads in a corymb; pappus long, white. Wet places, mostly about the edges of ponds, Man.-Alta.

2. *S. aureus*, L.

Perennial; stem erect, rather slender, 1-2 ft. high; slightly hairy at first, becoming glabrous; lower leaves petioled, broadly ovate or orbicular, dentate; stem leaves pinnately cut, the upper sessile and much reduced; heads radiate, in a cyme or corymb. Moist grassy places, Man.-Alta.

3. *S. balsámítæ*, Muhl.

Resembling the preceding, but the lower leaves oblong to lanceolate, sharply dentate or serrate. (*S. aureus*, var. *balsamitæ* T. and G.) Moist prairies, Alta.

4. *S. cãnus*, Hook.

Rather low, 6-12 in. high, slender, usually tufted, white-tomentose up to the flowers; lower leaves oblong or spatulate, sparingly, if at all, toothed, white; stem leaves often pinnatifid, the upper much reduced and often clasping; rays about 8. N. Sask. and Alta.

14. TANACÈTUM. TANSY.

Heads discoid; marginal flowers fertile, their corollas 2-5-toothed; disk-flowers fertile, 5-toothed; achenes 5-cornered; pappus wanting or a very slight crown. Erect, strong-smelling perennial herbs with 1-3 pinnately divided leaves, and numerous small heads of yellow flowers arranged in corymbs.

1. *T. vulgãre*, L.

Stout, 1-3 ft. high, branching above; leaves 2-pinnate the lobes deeply pinnatifid; marginal flowers with very short 3-toothed rays. A coarse, strong-smelling, introduced herb sometimes growing in bunches about towns.

15. TOWNSËNDIA.

Flowers radiate; rays long, in a single series, usually fertile; disk-flowers perfect, the tubes 5-toothed; branches of the style hairy towards the end; scales of the involucre rather large, dry, and somewhat fringed on the margins, often tinted; pappus of many stout bristles; achenes flattened. Stemless tufted herbs with large heads and pink, purplish, or white rays.

1. *T. exscâpa*, (Richards) Porter.

Stemless or almost so, 1-3 in. high from a strong perennial root; leaves all clustered at the base, linear or narrowly spatulate; heads solitary, sessile, large, exceeded by the leaves; rays white or purplish; pappus a single row of rigid bristles, that of the ray-flowers shorter. (*T. sericea*, Hobk.) Dry soil, W. Sask. to Rocky Mts.

16. ÁSTER. ASTER.

Heads radiate, many-flowered; ray-flowers pistillate, variously colored; disk-flowers tubular, perfect, usually yellow, turning dark; pappus usually of a single row of slender bristles. Mostly perennial branching herbs with alternate leaves and showy heads of flowers (generally white or some shade of purple); usually flowering late in the season. A very large and difficult genus.

1. *A. Lindleyanus*, T. and G.

Glabrous or nearly so, 1-2 ft. high; lower leaves broadly ovate, more or less cordate at the base; the upper sessile, pointed at both ends; ray-flowers blue. Thickets, Man.-Alta.

2. *A. umbellâtus*, Mill.

Stout, 2-5 ft. high, smooth or nearly so, leafy up to the flowers; leaves lanceolate to oblong, tapering at both ends; ray-flowers white; pappus of two rows of bristles, the inner long and hair-like, the outer short and rigid; heads numerous, arranged in a flat corymb. Moist thickets or poorly cultivated ground, Man. and Sask.

3. *A. commutâtus*, (T. and G.) Gray.

Somewhat hoary-pubescent, low and bushy; leaves small, linear, entire, crowded, the upper passing gradually into bracts; rays 20-30; heads small, crowded on the branches; flowers white. Dry sandy soil, Man.-Alta.

4. *A. multiflorus*, Ait.

Rays 10-20; same as the preceding except that the heads are smaller. Dry soil, local, Man.-Alta.

5. *A. puniceus*, L. PURPLE STEM ASTER.

Stems stout, 2-7 ft. high, rough, purplish below; leaves oblong to lanceolate, clasping the stem at the base; heads large, 1-1½ in. across, showy, with 20-40 pink or purple rays. Moist soil, Man.-Alta.

6. *A. paniculatus*, Lam.

Stem smooth, 1-2½ ft. high, erect, much branched; leaves narrowly lanceolate, tapering to a point, usually entire; rays white or purplish; heads rather scattered on the ends of the branches, the whole forming a sort of large loose panicle. An extremely variable species represented with us mostly by var. *bellidiflorus*, Willd. Moist soil, Man.-Alta.

7. *A. laevis*, L.

Fairly stout, 1-3 ft. high, smooth; leaves lanceolate to ovate, entire, the upper clasping, the root leaves petioled, those on the branches reduced to rigid bracts; heads showy; rays 15-20, violet blue. A common and beautiful species. Dry soil, Man.-Alta.

17. ERIGERON. FLEABANE.

Heads many-flowered, radiate; rays linear, white, purplish or pink, pistillate; disk-flowers perfect, tubular, yellow; bracts of the involucre narrow, over-lapping, in 1 or 2 rows; pappus a single row of mixed long and short bristles, or with a distinct outer row of short bristles or scales; achenes usually pubescent.

* RAYS SHORT AND OBSCURE.

1. *E. canadensis*, L. FIREWEED.

Stem erect, stout, 2-6 ft. high, densely hairy throughout; stem leaves linear, entire, sessile; root leaves spatulate, more or less toothed or cut and tapering to a petiole; heads numerous, cylindrical. Waste or poorly cultivated places, a common annual weed.

** RAYS CONSPICUOUS.

† PAPPUS DOUBLE.

2. *E. glabellus*, Nutt.

Stem rather stout, 4-15 in. high, hairy above, rather naked, branched towards the top; stem leaves small, lanceolate, closely sessile; root leaves petioled, spatulate; heads 1-8, terminating the branches of the scape-like stem; rays numerous, white or purplish; involucre hairy; outer row of bristles of the pappus minute. Open prairie, Man.-Alta.



FIG. 84. —
Erigeron
canadensis.

3. *E. cæspitôsus*, Nutt.

Perennial; stems tufted, somewhat reclining at the base, 4-12 in. high, usually simple and rather whitish, hairy; stem leaves linear or oblong, sessile; root leaves spatulate, petioled, entire; heads large, solitary, or several on peduncles springing from the axils of the upper leaves; rays numerous, white, purplish, or pink; outer row of bristles of the pappus short; involucre hairy. Dry prairie, Man.-Alta.

4. *E. ramôsus*, (Walt.) B. S. P.

Annual; stem erect, pubescent, branching from about the centre, and all the branches rising to about the same height; leaves entire, the upper lanceolate and sessile, the lower spatulate and petioled; rays numerous, white; pappus an outer row of short persistent scales and an inner row of slender deciduous bristles; involucre minutely hairy. (*E. strigosus*, Muhl.) Moist grassy places, Man. and Sâsk.

†† PAPPUS SINGLE.

5. *E. philadêlphicus*, L.

Perennial; stem erect, leafy, rather stout, 1-2 ft. high, branched, softly pubescent throughout; upper leaves oblong, sessile, or clasping, entire lower leaves spatulate, toothed, and short-petioled; heads numerous, several at the end of each branch; rays very numerous, narrow, pink. Low grassy places, Man.-Alta.

18. PETASITES. SWEET COLTSFOOT.

Heads many-flowered, usually dioecious, of tubular or both tubular and radiate flowers; involucre of a single row of equal bracts; receptacle flat, naked; pappus of numerous bristles. Woolly perennial herbs from a thick rootstock, producing a scape with scaly bracts and whitish fragrant flowers early in the season, and large leaves later.

1. *P. palmâtus*, (Ait.) Gray.

Leaves round and deeply 5-7-palmately lobed. Bogs, Man.-Alta.

2. *P. sagittâtus*, Gray.

Leaves reniform to hastate, very white-woolly beneath, irregularly dentate. Wet places, Man.-Alta.

19. ARTEMÏSIA. WORMWOOD.

Heads small, mostly few-flowered, discoid; flowers all tubular, perfect, or the outer pistillate; involucre dry; receptacle naked. Mostly somewhat shrubby herbs, with bitter juice, often strong aromatic odor, and small nodding heads of yellowish flowers.

1. *A. ludoviciana*, Nutt. WESTERN WORMWOOD.

Perennial, white-woolly throughout; leaves entire or the lower variously cut, lanceolate; heads sessile in slender panicles. Dry soil, Man.—Alta.

2. *A. biennis*, Willd.

Herbaceous, biennial, tall, 1-4 ft. high, erect, strict; leaves dark green, once or twice pinnatifid into linear, sometimes toothed lobes; heads small, crowded on axillary spikes collected in a long compound spike-like cluster; only slightly odorous when bruised. A common weed in cultivated ground.

3. *A. frigida*, Willd.

Low, tufted, perennial, woody at the base, densely silky-canescens throughout; leaves much cut into narrow lobes; heads small, racemed. Arid soil, often covering the ground, Man.—Alta.

4. *A. glauca*, Pall.

Erect, 1-2 ft. high, woody at the base, silky-pubescent or glaucous; leaves mostly entire, linear; heads numerous in a narrow panicle. Dry prairie, Man.—Alta.

5. *A. absinthium*, L. COMMON WORMWOOD.

Stem 1-2 ft. high; leaves 2-3-pinnately divided; canescens throughout. A strong-smelling herb common about towns, introduced.

20. *MATRICARIA*. WILD CHAMOMILE.

Heads many-flowered, radiate; ray-flowers pistillate or wanting; bracts of the involucre in a few rows, the outer row shorter; receptacle conical, naked. Annual or biennial herbs with smooth, finely divided leaves, and rather large heads with white rays or none, and yellow disks.

1. *M. matricarioides*, Porter. PINEAPPLE-WEED.

Leaves 2 or 3-pinnately divided; rays wanting; bracts of the involucre oblong, green, with white dry margins; disk conical, extending beyond the involucre. (*M. suaveolens*, Buchanan.) A Pacific slope species introduced east as far as Calgary. The bruised leaves have a pineapple odor.

21. *AMBROSIA*. RAGWEED.

Usually monœcious, the fertile heads solitary or in small clusters in the axils of the upper leaves, the sterile heads in spikes or racemes terminating the stems; involucre of the sterile heads open, saucer-shaped, containing 5-20 flowers; involucre of the fertile heads closed, seed-like, one-flowered; pappus wanting. Coarse branching herbs with lobed or cut leaves and small heads of greenish flowers.

1. *A. trifida*, L. GREAT RAG-WEED.

Annual, stout, 2-10 ft. high, hairy; leaves opposite, all except the upper deeply 3-lobed; petioles margined. Rich soil, — a not uncommon weed, especially about dwellings, Man. and westward.

2. *A. pulostachya*, DC. PERENNIAL RAGWEED.

Much branched, reclining, and spreading from a creeping rootstock; leaves opposite, once pinnatifid, the lobes of the upper entire, those of the lower often incised. Dry soil, sometimes a troublesome weed, Man. & Alta.



FIG. 85. — *Ambrosia trifida*.

22. *XANTHIUM*. COCKLEBUR.

Monœcious, the sterile and fertile flowers in different heads, the fertile below the sterile in short spikes; involucre of the sterile flowers open and saucer-shaped; involucre of the fertile flowers closed, 2-flowered, leathery, and covered with hooked prickles, often 2-beaked. Coarse, weedy annuals with large alternate toothed leaves, and producing large bur-like fruit.



FIG. 86. — *Xanthium echinatum*.

1. *X. echinatum*, Murr.

Stem rough, 1-2 ft. high, tinged or spotted with purple; leaves rough, rather hard, obscurely 3 or 5-lobed, bluntly dentate and covered with scattered hairs, often glandular beneath; burs two-beaked, usually clustered in the axils, densely covered with prickles; prickles hooked, hairy about half their length; beaks stout, hairy, incurved. Sandy beaches, Man. and Sask.

2. *X. glanduliferum*, Greene.

Closely resembling the preceding but the leaves covered with minute projections; bur yellow, not so densely covered with prickles, the prickles hairy almost to the hook. Dry soil, Man. and Sask.

3. *X. Macounii*, Britton.

Like the preceding but with burs almost 1 in. long and about $\frac{1}{2}$ in. thick. Lake Winnipeg.

4. *X. commune*, Britton.

Differs from the preceding by being more slender and the burs solitary in the axils. Moist ground, Man.-Alta.

23. IVA. MARSH ELDER.

Heads small, few-several-flowered, flowers all tubular, staminate and pistillate in the same heads; receptacle chaffy. Coarse, sometimes woody, herbs with thick leaves, mostly alternate above and opposite below, and small nodding heads of greenish flowers.

1. *I. xanthifolia*, Nutt.

Annual; stem branched, pubescent, 2-8 ft. high; leaves almost all opposite, ovate, irregularly dentate, long-petioled, large, often 6 in. across; heads numerous, in a dense terminal spike supported by spikes rising from the axils of the upper leaves; bracts of the involucre 10, in 2 rows. A large, coarse, and unsightly weed becoming very common about towns and all waste places, Man. and westward.

2. *I. axillaris*, Pursh.

Perennial; woody at the base, herbaceous above, simple or branched, 1-2 ft. high; leaves sessile, entire, fleshy, and often glabrous; heads solitary in the axils of the leaves; bracts of the involucre usually 5. Alkaline flats, Man.-Alta.

24. HELIOPSIS. FALSE SUNFLOWER.

Heads many-flowered, radiate; ray-flowers fertile; disk-flowers perfect; bracts of the involucre overlapping in 2 or 3 rows; receptacle slightly convex, chaffy, the chaff extending up around the disk-flowers; pappus none, or a few small teeth. Perennial herbs with opposite, petioled, 3-ribbed, serrate leaves and large heads of yellow flowers.

1. *H. scabra*, Dunal.

Rough, 2-3 ft. high, usually growing in clumps; leaves ovate to lanceolate, short-petioled; pappus a sort of crown, or 2 or 3 small teeth. About thickets, Man. and westward.

25. BRAUNERIA. PURPLE CONE-FLOWER.

Heads many-flowered, radiate; rays numerous, sterile, drooping; bracts of the involucre spreading; receptacle slightly conical,

covered with stiff prickly chaff which projects above the achenes and makes the head rigid and spiny to the touch. Perennial herbs with rather naked stems and large solitary heads with purplish spiny disks and somewhat persistent rays.

1. *B. angustifolia*, Heller.

Low and rough-hairy throughout; leaves lanceolate and strongly 3-nerved; rays purplish, pink, or whitish. Dry prairie, S.W. Man. and S.E. Sask.

26. *RUDBECKIA*. CONE-FLOWER.

Heads many-flowered, radiate; ray-flowers neutral; disk-flowers perfect; bracts of the involucre in 2-4 rows; receptacle conical, covered with concave chaffy scales which mix with the tube-flowers; pappus a crown, or a few teeth, or none. Rough perennial herbs with alternate leaves and large showy heads with yellow rays and dark, mostly purple, disks.

1. *R. hirta*, L. BLACK-EYED SUSAN.

Biennial, 1-2 ft. high, usually branching from near the base, very rough throughout; leaves entire or nearly so, the upper oblong, sessile, the lower spatulate, petioled; heads with yellow rays and conical purplish-brown disks. Dry soil, Man. and Sask.

2. *R. lacinata*, L.

Stem smooth, 2-6 ft. high; lower leaves large, long-petioled, pinnately 5-7-parted, the lobes variously toothed; upper leaves 3-5-parted or the uppermost not divided; heads on long peduncles, the disk rather hemispherical at first, but becoming conical or columnar in fruit. Low thickets, Man.



FIG. 87. —
Rudbeckia
hirta.

27. *LÉPACHYS*.

Heads many-flowered, radiate; rays rather few, reflexed, neutral; bracts of the involucre few, spreading; receptacle long, columnar; pappus none, or a couple of teeth. Perennial herbs with alternate pinnately divided leaves, and showy heads, easily recognized by the long columnar disk.

1. *L. columnaris*, T. and G.

Low, branching; disk often more than an inch long; rays yellow. (Var. *pulcherrima*, T. and G., rays brownish-purple.) Both the type and the variety occur. Dry prairies, Man.-Alta.

28. HELIANTHUS. SUNFLOWER.

Heads many-flowered, radiate; rays spreading, neutral; disk flowers perfect; receptacle flat, covered with persistent chaff which encloses the achenes; pappus 2 or more thin deciduous scales. Erect, mostly branched, annual or perennial herbs with simple leaves and large showy heads with yellow rays, and yellow, brown, or purplish disks.

* ANNUALS.

1. *H. petiolâris*, Nutt.

Somewhat slender; leaves oblong to lanceolate. Light soil, S. W. Man. and westward.

** PERENNIALS.

† DISK BROWNISH-PURPLE.

2. *H. scaberrimus*, Ell.

Stout, erect, 1-6 ft. high, sparingly branched; leaves ovate to oblong, short-petioled, serrate, 3-nerved, thick, rigid, and rough on both sides, all opposite except the uppermost, which are bract-like; heads large, usually solitary. (*H. rigidus*, Desf.) Moist prairies, Man.-Alta.

3. *H. subrhomboides*, Rydb.

Very closely resembling the preceding. The leaves are less sharply serrate and the stem usually tinged with red. Often included in *H. scaberrimus*, and the more common northern form. Prairies, Man.-Alta.

†† DISK YELLOWISH.

4. *H. gigantëus*, L.

Stem erect from a creeping, often tuberous rootstock; 2-10 ft. high, branched above, rough hairy towards the top; leaves mostly alternate above, nearly all sessile, lanceolate, very rough above and pubescent beneath; heads large, on long peduncles; disk yellowish. Edges of marshes and thickets, Man.-Alta.

5. *H. Maximiliânus*, Schrad.

Resembling the preceding but smaller, seldom more than 5 ft. high; heads large; rays 15-30, sometimes more than an inch long; bracts of the involucre long, rigid, spreading; peduncles stout and rough. Dry prairies, Sask. and Alta.

6. *H. Nuttâllii*, T. and G.

Stem 1-3 ft. high, usually solitary from fascicled fleshy roots, simple below and branched above; leaves opposite below, alternate above, lanceolate to oblong, hispid but not scabrous; bracts linear, hairy on the margins and the tips often turned outward; peduncles all rising to nearly the same level. Prairies, Man.-Alta.

7. *H. pumilus*, Nutt.

Stem simple, 1-2 ft. high; leaves lanceolate to ovate, in 5-7 pairs on short, margined petioles; the whole plant rough and hairy; heads few, on peduncles; bracts of the involucre in about 3 rows, sharp, whitish. Rocky Mts. and adjacent plains and river valleys.

29. COREÓPSIS.

Heads many-flowered, radiate; rays 5-8, neutral, 3-toothed; involucre double, the bracts of the outer row mostly shorter than those of the inner; receptacle flat and chaffy. Annual or perennial herbs with mostly opposite leaves and large showy heads on long peduncles.

1. *C. tinctória*, Nutt.

Annual, glabrous, 1-2½ ft. high; leaves once or twice pinnately divided; rays yellow, brown at the base, or more rarely all brown. Damp places, W. Sask. and Alta.

30. BÍDENS. BUR-MARIGOLD.

Heads many-flowered, usually radiate; rays few or absent, neutral; involucre double, the outer row of bracts large and often leaf-like; receptacle chaffy, the chaff falling with the achenes; pappus of 2-6 persistent barbed awns. Annual or perennial herbs with opposite leaves and yellow flowers.

1. *B. frondosa*, L.

Annual; stem erect, 1-3 ft. high, almost glabrous, frequently tinged with purple; leaves thin, at least the lower pinnately 3-5-parted; leaflets lanceolate to oblong, sharply serrate, usually pubescent beneath; heads numerous, with very inconspicuous rays or none; corollas of the disk-



FIG. 88. — *Bidens frondosa*.

flowers orange-yellow; outer bracts of the involucre leaf-like and much larger than the narrow inner bracts; awns of the achene slender and barbed downwardly. Moist places, Man.-Alta.

2. *B. vulgata*, Greene.

Resembling the preceding but usually much taller; rays generally present, yellow; outer bracts of the involucre linear or spatulate, ciliate, the inner shorter and rather broad. Moist places, Man.-Alta.

3. *B. cernua*, L.

Annual, glabrous, mostly erect; leaves oblong to lanceolate, sessile, coarsely serrate; heads numerous, globular, nodding; rays 6-10 or none, short; outer bracts ciliate, often large and leaf-like; pappus usually 4 barbed awns. Marshy places, N. Man.-Alta.

31. ACHILLÈA. YARROW.

Heads small, many-flowered, radiate; ray-flowers few, pistillate; involucre of 2 or 3 series of narrow appressed bracts with thin dry margins, the outer row shorter; receptacle chaffy; pappus none. Perennial herbs with finely divided leaves and numerous heads of white or pink flowers in flat-topped clusters ending the stems.

1. *A. Millefolium*, L. COMMON YARROW.

Stem usually simple, very leafy; leaves finely dissected; flower clusters large; flowers white or rarely pink. Dry prairies, common.

32. GAILLÁRDIA.

Heads many-flowered, radiate; rays toothed, neutral, or rarely pistillate; receptacle convex, usually bristly; involucre in 2 or 3 rows, the tips of the bracts spreading; achenes top-shaped, hairy at the base; pappus 5-10 scales tipped with awns. Coarse perennial herbs with showy heads of yellow flowers on long peduncles.

1. *G. aristata*, Pursh.

Perennial, hairy, sometimes woolly near the flowers; leaves firm, pubescent, varying in shape, and either entire or pinnatifid; rays yellow, often with a darker tinge at the base; disk purple or brown. A variable species, dry prairies, Man.-Alta.

33. HELÈNIUM. SNEEZE WEED.

Heads radiate; the ray-flowers fertile or neutral, 3-5-lobed; disk-flowers perfect, their tubes 4 or 5-toothed; achenes top-shaped, ribbed; pappus of 5-8 scales. Erect branching herbs with alter-

nate leaves, often decurrent, and large heads on long peduncles, the rays sometimes wanting.

1. *H. autumnâle*, L. SWAMP SUNFLOWER.

Perennial; stem stout, 1-4 ft. high, glabrous or nearly so; usually winged by the bases of the leaves running down the stem; branched; leaves oblong to lanceolate, sessile, sharp at the apex and narrowed to the base; heads numerous on long peduncles in a sort of loose corymb. River valleys, Man.-Alta.

34. *TARÁXACUM*. DANDELION.

Heads large, many-flowered, solitary on a naked hollow scape; involucre an inner row of nearly equal, slightly united bracts and several outer rows of shorter separate bracts reflexed at maturity; receptacle naked; pappus of numerous persistent bristles borne on the elongated beak of the achene. Perennial stemless herbs with



FIG. 89. — *Taraxacum officinale*.

a rosette of pinnatifid leaves, springing from a strong tap-root.

1. *T. officinâle*, Weber. COMMON DANDELION.

Leaves coarsely pinnatifid; pappus white; flowers yellow. A common introduced weed, troublesome in lawns.

35. *AGÓSERIS*. FALSE DANDELION.

Heads large, many-flowered; bracts of the involucre in 2 or 3 rows; pappus white, of unequal bristles. Stemless perennials with tufted linear root leaves and large heads of yellow flowers solitary on a naked scape.

1. *A. cuspidâta*, (Pursh.) Steud.

Leaves elongated, linear to lanceolate, entire; scape 6-12 in. high; achene without a beak. (*Troximon cuspidatum*, Pursh.) Prairies, Sask. and Alta.

2. *A. glâuca*, (Pursh.) Steud.

Leaves entire to lancinate, wider than in the preceding; scape 6-18 in. high; achene beaked. (*Troximon glaucum*, Pursh.) Prairies, Man.-Alta.

36. CRÉPIS. HAWK'S BEARD.

Heads few to many-flowered; involucre of a single row of principal bracts and a few short outer ones; pappus of many soft bristles. Annuals or perennials with toothed or pinnatifid leaves and heads of yellow flowers terminating the branches of the somewhat naked stem.

1. *C. runcinàta*, T. and G.

Stem glabrous or nearly so, 1-2 ft. high, naked or with 1 or 2 small leaves; root leaves oblong to spatulate, entire or variously toothed; heads in a loose corymb. Moist prairies, Man.-Alta.

2. *C. élegans*, Hook.

Stems several or many from a single tap-root, diffusely branched; leaves entire or nearly so, those from the root spatulate, those on the stems linear; heads rather small; achenes prolonged into a slender beak. Gravel beds along rivers, Alta.

3. *C. occidentàlis*, Nutt.

Stem stout, 4-8 in. high, usually several from a stout perennial root, branching above; leaves thickish, pinnately divided, tomentose when young; head 10-30-flowered. Rocky Mts.

4. *C. glàuca*, T. and G.

Perennial; stems scapelike, or seldom with 1 or 2 leaves, 8 in.-2 ft. high; glabrous throughout; base leaves spatulate, entire or toothed; heads few, on long peduncles. Alkaline soil, W. Man. and Sask.

37. HIERÀCIUM. HAWKWEED.

Heads usually large; corolla rays truncated, 5-toothed; receptacle flat, almost naked; bracts in 1-3 rows, the outer smaller; achenes variously shaped, and ribbed but never beaked; pappus 1 or 2 rows of firm, persistent, brownish bristles. Coarse perennial herbs, usually branched, bearing rather showy heads of yellow or orange flowers.

1. *H. canadéne*, Michx. CANADIAN HAWKWEED.

Stem stiff, erect, 1-4 ft. high, leafy, particularly towards the bottom, slightly pubescent; leaves ovate to lanceolate, the upper reduced and clasping, the lowest sometimes petioled, serrate or toothed; heads numerous in a sort of loose corymb; bracts in about 3 rows, the outer spreading; flowers yellow; pappus plentiful, brown. Moist prairies and about thickets, Man.-Alta.

2. *H. scabriusculum*, Schwein.

Resembling the preceding, but slender, 1-2 ft. high, rather strict, often hairy; leaves linear or lanceolate; heads usually few. (Sometimes included in *H. umbellatum*, L., which is the European form.) About thickets, Man.-Alta.

38. *SÓNCHUS*. SOW THISTLE.

Heads resembling the preceding, but the bracts of the involucre getting gradually smaller outward; pappus not borne on an elongated beak. Coarse, leafy, more or less prickly herbs with rather large heads of yellow flowers.

1. *S. arvensis*, L. PERENNIAL SOW THISTLE.

Perennial, from a deep-branching rootstock; stem 2-4 ft. high, rather naked above; leaves runcinate to pinnatifid, spiny-toothed, clasping; heads large, showy, several, on bristly peduncles; flowers bright yellow. An exceedingly troublesome weed in cultivated ground.

2. *S. oleraceus*, L. COMMON SOW THISTLE.

Annual; stem tall, 2-8 ft. high, sparingly branched and rather naked above; leaves pinnatifid, with soft prickles, the lower petioled, the upper clasping; heads several or many, not showy; flowers pale yellow. An unsightly introduced weed, rather common about dwellings.

3. *S. ásper*, L. SPINY SOW THISTLE.

Resembling the preceding, but the leaves not so much divided and sharply spiny. Waste places, introduced.

39. *CHICÓRIUM*. CHICORY.

Heads 10-20-flowered; involucre consisting of an inner row of 8-10, and an outer row of 5 herbaceous bracts, the outer shorter and spreading; pappus 2 or 3 rows of small scales. Erect, branching, perennial herbs with sessile, more or less clustered axillary heads of bright blue flowers.

1. *C. Íntybus*, L. COMMON CHICORY.

Flowering branches stiff; leaves partly clasping, getting smaller and bract-like above. An introduced plant sometimes growing in clumps about towns.

40. *LACTÛCA*. LETTUCE.

Heads several to many-flowered; involucre of one or two rows of principal bracts and several rows of shorter outer ones; pappus of numerous hairs which fall separately, and borne on a prolonged beak of the achene. Leafy herbs with heads of different colored flowers.

1. *L. pulchella*, (Pursh.) DC. BLUE LETTUCE.

Stem simple, glaucous, 1-2 ft. high; leaves sessile, entire, or the lower slightly pinnatifid; flowers blue. Common.

2. *L. spicata*, (Lam.) Hitchc.

Biennial, smooth, tall, 3-7 ft. high, stout, leafy; leaves irregularly pinnatifid or coarsely toothed; heads numerous in a dense compound panicle; flowers purplish; pappus brown. Damp thickets, Man.-Alta.

41. LYGODÉSMIA.

Heads 3-12-flowered, solitary at the ends of the branches. Smooth rush-like herbs with leaves linear or often reduced to scales, and pinkish-purple flowers.

1. *L. júncea*, Don.

Perennial from a stout root; stem rigid, much branched; leaves linear, rigid, gradually reduced upwards to scales; heads mostly 5-flowered. Dry sandy prairies, Man.-Alta.

42. PRENÁNTHES. RATTLESNAKE ROOT.

Heads small, 5-30-flowered, flowers all ligulate; involucre of 1 row of 5-14 main bracts and a few smaller outer ones; pappus of numerous white to brown coarse bristles. Upright, leafy, perennial herbs from a tuberous rootstock with more or less nodding heads of rather dull-colored flowers.

1. *P. racemosa*, Michx.

Stem 2-6 ft. high; leaves oval to lanceolate, sometimes pinnatifid, the lower petioled, the upper clasping; glaucous throughout; heads 12-15-flowered, almost erect; flowers purplish; pappus straw-colored. Moist prairies and thickets, Man.-Alta.

2. *P. álba*, L.

Smooth, stout, 2-5 ft. high, purplish; leaves hastate, ovate, or cordate, and variously toothed or lobed, or the upper lanceolate and entire, the lower petioled, the upper sessile; heads nodding, 8-12-flowered; involucre of 6-8 principal bracts, whitish green or purple; flowers whitish; pappus reddish-brown. Borders of woods and thickets, Man.-Alta.

3. *P. altissima*, L.

Slender, smooth, 3-6 ft. high; heads in small clusters forming a long conical panicle; leaves petioled, ovate to heart-shaped, toothed or lobed, or 3-5-parted, the divisions sometimes still further divided; flowers greenish white. Man. and westward.

ABBREVIATIONS OF AUTHORS' NAMES

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Ait.	. . .	Aiton, William.
Anders.	. . .	Anderson, Nils Johan.
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B. S. P.	. . .	Britton, Sterns & Poggenberg.
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Desv.	. . .	Desvaux, Augustin.
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GLOSSARY

- Achene.** A dry, one-seeded indehiscent fruit.
- Acicular.** Needle-shaped.
- Acuminate.** Tapering gradually to the apex.
- Acute.** Sharp-pointed.
- Adnate.** Joined to another organ.
- Alternate.** One leaf at a node.
- Anther.** The part of the stamen containing the pollen.
- Apetalous.** Without petals.
- Aril.** A fleshy organ covering the seed.
- Ascending.** Rising obliquely.
- Asexual.** Without stamens or pistil.
- Auricle.** An ear-like appendage.
- Awn.** A slender spine.
- Axil.** The point on the stem just above the point of attachment of a leaf.
- Berry.** A fruit with the seeds embedded in a fleshy pulp.
- Bilabiate.** Two-lipped.
- Bipinnate.** Twice pinnate.
- Blade.** The broad, flat part of the leaf.
- Bract.** A leaf just beneath the flower, usually smaller than a foliage leaf.
- Bulb.** An organ, usually subterranean, made of the thickened bases of leaves arranged as in a bud.
- Bulblet.** A small bulb sometimes borne in the axil of a leaf.
- Bulbous.** Bulb-bearing or resembling a bulb.
- Cæspitose.** Growing in clumps.
- Calyx.** Outer set of floral envelopes.
- Campanulate.** Bell-shaped.
- Canescent.** Whitish owing to fine hairs.
- Capitate.** Knob-like.
- Capsule.** A dry, dehiscent fruit of two carpels.
- Carpel.** The simple ovary or one part of a compound ovary.
- Caryopsis.** A hard thin-coated fruit like a grain of wheat.
- Caudate.** With a tail.

- Cauline.** Belonging to the stem.
- Chlorophyll.** The green coloring matter in leaves.
- Ciliate.** Hairy on the margin.
- Clavate.** Club-shaped.
- Cleft.** Cut part way to the midrib.
- Coma.** A tuft of hairs on a seed.
- Connate.** United.
- Cordate.** Heart-shaped.
- Coriaceous.** Leathery.
- Corm.** The swollen, underground base of the stem.
- Corymb.** A flat-topped flower cluster of the indeterminate type.
- Cotyledon.** A leaf in the embryo.
- Crenate.** Toothed with rounded teeth.
- Crenulate.** The same as crenate but the teeth very small.
- Culm.** The stem of a grass or sedge.
- Cuneate.** Wedge-shaped.
- Cuspidate.** Sharp-pointed.
- Cyme.** A flat or rounded flower cluster of the determinate type.
- Deciduous.** Falling at the end of the season.
- Decomound.** More than once compound.
- Decumbent.** Reclining, with the ends pointing upwards.
- Decurrent.** A part of one organ running down another.
- Deflexed.** Turned downwards.
- Dehiscent.** Opening to discharge the contents.
- Deltoid.** Triangular.
- Dentate.** Toothed.
- Depressed.** Flattened vertically.
- Diadelphous.** Stamens in two groups.
- Diandrous.** With two stamens.
- Dicotyledonous.** With two cotyledons.
- Diffuse.** Spreading.
- Dicecious.** Having staminate flowers on one plant and pistillate flowers on another.
- Discoid.** Heads of tubular flowers only.
- Dissected.** Much divided.
- Distinct.** Separate.
- Divided.** Cut to the base or midrib.
- Dorsal.** On the back.
- Drupe.** A stone fruit.
- Embryo.** The rudimentary plant in the seed.
- Entire.** Undivided.
- Epigynous.** On the ovary.

- Evergreen.** Green all the year.
- Exserted.** Prolonged beyond other organs.
- Fascicle.** A thick cluster.
- Fertile.** Seed or spore-bearing.
- Filament.** The stalk supporting the anther.
- Flaccid.** Weak.
- Foliaceous.** Like leaves.
- Follicle.** A one-celled fruit splitting down one side.
- Free.** Not joined to other organs.
- Fronde.** The leaf-like part of a fern.
- Fusiform.** Spindle-shaped.
- Gamopetalous.** Petals united.
- Gibbous.** Swollen on one side.
- Glabrate.** Almost hairless.
- Glabrous.** Without hairs.
- Gland.** An organ for secreting oil or nectar.
- Glaucous.** Covered with a white bloom.
- Globose.** Globular.
- Glume.** Bracts on the spikelets of grasses or sedges.
- Habitat.** Place of growth of a plant.
- Hastate.** Spear-shaped.
- Head.** A cluster of flowers sessile on a common receptacle.
- Herbaceous.** Herb-like; living only through the growing season.
- Hirsute.** With coarse hairs.
- Hispid.** Bristly.
- Hypogenous.** Inserted below the ovary.
- Imbricated.** Overlapping.
- Imperfect.** With stamens or pistil lacking.
- Incised.** Cut deeply into sharp lobes.
- Included.** Not projecting beyond surrounding organs.
- Indehiscent.** Not opening to discharge contents.
- Inferior.** Inserted below another organ.
- Inflexed.** Bent inwards.
- Inflorescence.** The flowering part of a plant, or the method of arrangement of the flowers.
- Integument.** The outer coat.
- Internode.** The part of the stem between the points of insertion of the leaves.
- Involucel.** A secondary involucre.
- Involucre.** A whorl or whorls of bracts around a flower or flower cluster.
- Involute.** Rolled inwardly.

- Irregular.** Having the parts unlike.
- Labiate.** Provided with lips.
- Lacinate.** Cut into narrow segments.
- Lanceolate.** Long and narrow with the broader part towards the stem.
- Leaflet.** A division of a compound leaf.
- Legume.** A dry, one-celled fruit splitting down both sides.
- Ligulate.** Strap-shaped.
- Limb.** The expanding part of a petal, sepal, or corolla.
- Linear.** Long and narrow.
- Lobed.** Somewhat deeply cut into lobes.
- Lyrate.** Pinnatifid, the terminal lobe larger than the others.
- Midrib.** The central rib or vein of a leaf.
- Monadelphous.** Stamens united by their filaments into one group.
- Monœcious.** Having staminate and pistillate flowers on the same plant.
- Mucronate.** Sharp pointed.
- Naturalized.** Well established in a region but not native to it.
- Nectary.** An organ for secreting sugar.
- Node.** The point on a stem from which a leaf or leaves are given off.
- Nut.** An indehiscent one-seeded fruit with a hard shell or pericarp.
- Obcordate.** Heart-shaped with the apex towards the stem.
- Oblanceolate.** Lance-shaped with the broad part towards the apex.
- Oblong.** Longer than broad, with nearly parallel edges.
- Obovate.** Ovate with the broader part towards the apex.
- Obsolete.** Rudimentary or entirely wanting.
- Operculum.** A lid.
- Orbicular.** Circular or nearly so.
- Ovary.** The organ bearing the ovule.
- Ovate.** Egg-shaped.
- Ovule.** The part of the plant which matures into a seed.
- Palate.** A projection from the lower lip of some corollas.
- Palet.** A bract inclosing the flower of a grass.
- Palmate.** With parts radiating like the fingers.
- Panicle.** A compound flower cluster of the indeterminate type.
- Papilionaceous.** Butterfly-shaped. A term applied to the corolla of flowers of the pea family.
- Pappus.** Bristles, awns or bracts on the achenes of members of the compositæ.
- Parasite.** Growing on another plant.
- Parietal.** Along one wall of the ovary.
- Parted.** Deeply cut.

- Pedicel.** The stalk of a flower in a cluster.
- Peduncle.** The stalk of a single flower or of a flower cluster.
- Peltate.** Shield-shaped.
- Perfect.** Having both stamens and pistils.
- Perfoliate.** Leaves with the base so clasping around the stem that the stem appears to go through the leaf.
- Perianth.** The floral envelopes when so modified that there is no distinction between sepals and petals.
- Pericarp.** That which encloses the seed.
- Persistent.** Remaining after the growing season.
- Petal.** A division of the corolla.
- Petaloid.** Petal-like.
- Petiolate.** Having a petiole.
- Petiole.** The leaf-stalk.
- Pinnate.** Leaves divided along a main central axis.
- Pinnatifid.** Pinnately cut.
- Pistil.** The central, ovule-bearing organ of a flower.
- Pistillate.** Having pistils.
- Placenta.** The point of attachment of ovules.
- Plumose.** Feathery.
- Plumule.** The terminal growing point in the embryo.
- Pollen.** Contents of the anthers.
- Pome.** A fleshy fruit like the apple.
- Procumbent.** Lying flat.
- Pubescent.** Hairy.
- Raceme.** A flower cluster in which the flowers are borne on pedicels and arranged along a common axis.
- Racemose.** Resembling a raceme.
- Rachis.** The axis of a compound leaf or flower cluster.
- Radiate.** Having ray-flowers.
- Radicle.** The stem in the embryo.
- Ray.** One of the radiating pedicels in an umbel, or a strap-shaped, marginal flower in the head of a compositæ.
- Receptacle.** The end of the flower-stalk bearing the flower or head.
- Reflexed.** Bent backwards.
- Regular.** Having all parts of similar shape and size.
- Reniform.** Kidney-shaped.
- Repand.** With a wavy margin.
- Reticulate.** In a network.
- Rhizome.** An underground stem.
- Ringent.** Gaping.
- Rootstock.** The same as rhizome.

- Rostrate.** Beaked.
- Rotate.** A term applied to a flat spreading corolla.
- Runcinate.** Cut into sharp, backward-pointing divisions.
- Sac.** A pouch or sack.
- Sagittate.** Shaped like an arrowhead.
- Samara.** A simple, indehiscent, winged fruit.
- Saprophyte.** A plant that lives on decayed organic material.
- Scabrous.** Rough.
- Scale.** A small or rudimentary leaf.
- Scape.** A naked flower-stalk rising from the ground.
- Scarious.** Thin and dry.
- Segment.** A division of a leaf or other organ.
- Sepal.** A leaf of the calyx.
- Serrate.** Toothed, the teeth pointing towards the apex.
- Serrulate.** Serrate, but the teeth very small.
- Sessile.** Having no stalk.
- Silicle.** A long, narrow silique.
- Silique.** A two-valved fruit with two parietal placentæ.
- Sinuate.** With deeply wavy margin.
- Sinus.** The depression between the lobes of a leaf.
- Sorus, pl. sori.** A group of sporanges.
- Spadix.** A spike with a fleshy axis.
- Spatha.** A bract more or less surrounding a spadix.
- Spike.** A long flower cluster, the flowers sessile on a common axis.
- Sporange.** A spore-sac.
- Spore.** The asexual reproductive cell of a cryptogam.
- Spur.** A hollow projection of some part of a flower.
- Squarrose.** With the parts spreading.
- Standard.** The upper petal of a papilionaceous corolla.
- Sterile.** Without seeds or spores.
- Stigma.** The part of the pistil to which the pollen grains adhere.
- Stipe.** The stalk of a part of a flower.
- Stipule.** A small, usually leaf-like appendage at the base of the petiole.
- Stolon.** A creeping branch rooting at the nodes.
- Strict.** Erect and not spreading.
- Style.** The stalk-like part of the pistil, supporting the stigma.
- Succulent.** Juicy.
- Superior.** Free from the calyx, when applied to the ovary; attached to and rising from the ovary, when applied to the calyx.
- Suture.** The line through which a pod splits.

- Tendril.** A slender, usually coiling organ by which a plant attaches itself to a support.
- Terete.** Circular.
- Ternate.** In threes.
- Tetradynamous.** With four long and two short stamens.
- Thyrse.** A rounded, compact panicle.
- Tomentose.** Woolly with densely matted hairs.
- Triandrous.** With three stamens.
- Trifoliolate.** With three leaflets.
- Truncate.** Ending as if the point were cut off straight across the midrib.
- Tuber.** A swollen underground stem.
- Turgid.** Swollen.
- Umbel.** A flower cluster in which the pedicels all spring from the same point.
- Unisexual.** Staminate or pistillate.
- Utricle.** A small inflated fruit with one seed.
- Valvate.** Opening by valves.
- Valve.** One of the parts of a capsule.
- Ventral.** The lower or inner face of an organ.
- Vermiform.** Worm-shaped.
- Verticillate.** Whorled.
- Villous.** Having long soft hairs.
- Viscid.** Sticky.
- Whorl.** Leaves in a circle around the stem.
- Wing.** A thin expansion of an organ.
- Woolly.** Covered with rather long crooked or matted hairs.

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