A COMPENDIUM

OF

BOTANIC MATERIA MEDICA

FOR

USE OF STUDENTS IN MEDICINE AND PHARMACY.

WITH A GLOSSARY.

BY

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TO THE MEMORY OF THE LATE

EDWARD T. FRISTOE,

Whose high attainments were recognized by the many Scientific Institutions that conferred upon him honorary degrees:—

Professor of Mathematics and Chemistry in the Columbian University, and teacher in the National College of Pharmacy, Washington, D. C.:—

A true gentleman, kind friend, and distinguished scholar this work is dedicated by

THE AUTHOR.

PREFACE.

DURING the time the author has had the honor of occupying the Chair of Materia Medica and Botany in the National College of Pharmacy, he has given much thought and attention to the most feasible methods of imparting the knowledge he has formulated to the students before whom he lectured.

He now believes that he has collected from the larger works of the most reliable authority all the material necessary for practical use, and presents this work with the hope that it will convey to the student and reader a clear and comprehensive idea of each subject treated from a botanical, medical and physiological standpoint.

The author is indebted to Prof. H. E. Kalusowski for suggestions which will add much to the value and accuracy of the book.

INTRODUCTION.

THE subjects treated of in this work are arranged with the view of attracting rather than fatiguing the mind of the student or reader. Hence I have dispensed, as far as possible, with the more concise methods and quotations from authority consulted which is to be found in the average text-book.

I make no claim to originality. I have merely gleaned from the standard authors the material which I have thus arranged in what I hope will prove an attractive form, giving the simplest terms compatible with the botanical, medical, and physiological description of plants and animals, with the origin, name, order, class, habit, adulterant, constituents, preparation, medical effects and dose. I have also inserted, for the better comprehension of the student and reader, tables showing the two systems of botany, as also a list of natural orders used in this work.

This book is not expected to supply the place of the larger works on the same subject. It is merely intended to simplify the labors of the student, or prove an easy reference for those to whom the subject matter is already familiar.

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CONTENTS.

METRIC SYSTEM OF WEIGHTS AND MEASURES.

To assist pharamacists who are not conversant or familiar with this system the following rules, with some slight modifications, have been taken from Prof. Oldberg's manual of weights and measures:

TO CONVERT GRAMS INTO APOTHECARIES' OUNCES.

Divide the number of grams by 32, the number of grams that is assumed to equal 1 ounce.

Example: 100 grams divided by 32 equals 3 ounces and 1 drachm, or 1500 grains.

To insure greater accuracy, add 3 per cent, which for 1500 grains will be 45, which will make the result 1545 grains or 3 ounces, 1 drachm and 45 grains. The true equivalent is 1543.23 grains.

TO CONVERT APOTHECARIES' OUNCES INTO GRAMS.

Multiply the number of ounces by 32, the number that is assumed to equal 1 ounce.

Example: 1 ounce multiplied by 32, equals 32 grams.

To insure greater accuracy, deduct 3 per cent, which taken from 32 will leave 31.04 grams. The true equivalent is 31.10.

TO CONVERT CENTIGRAMS INTO GRAINS.

Divide the number of centigrams by 6, the number of centigrams that is assumed to equal 1 grain.

Example: 15 centigrams divided by 6, equals 2.5 grains.

To insure greater accuracy, deduct 3 per cent, which taken from 2.5 will leave 2.42 grains. The true equivalent is 2.31 grains.

TO CONVERT GRAINS INTO CENTIGRAMS.

Multiply the number of grains by 10, and from the result subtract one-third.

Example: 5 grains multiplied by 10 equals 50; after deducting one-third will leave 33.34 as the number of centigrams equal 5 grains.

If greater accuracy is desired, deduct 3 per cent; 33.34 less 3 per cent will equal 32.33. The true equivalent is 32.39.

TO CONVERT FLUID OUNCES INTO MILLILITERS OR CUBIC CENTIMETERS.

Multiply the number of ounces by 32, the assumed number of milliliters or cubic centimeters in 1 fluid ounce.

Example: 2 fluid ounces multiplied by 32, equals 64 milliliters or cubic centimeters.

If greater accuracy is desired, from this result deduct 8 per cent; 64 less 8 per cent equals 58.88. The true equivalent is 59.10 milliliters or cubic centimeters.

TO CONVERT MILLILITERS OR CUBIC CENTIMETERS INTO FLUID OUNCES.

Divide the number of milliliters or cubic centimeters by 32.

Example: 100 milliliters divided by 32, equals 3 fluid ounces and 1 fluid drachm that in this rule, as in the rule for the conversion of grams into ounces, it is assumed that 4 grams or 4 milliliters are the equivalents respectively of 1 drachm and 1 fluid drachm.

If greater accuracy is desired, add 8 per cent; 3 fluid ounces and 1 drachm plus 8 per cent equals 3 fluid ounces and 3 drachms. The true equivalent is 3.38 fluid ounces.

TO CONVERT FEET INTO METERS.

Multiply the number of feet by 3, and divide the result by 10.

Example: 15 feet multiplied by 3, equals 45 divided by 10 equals 4.5, the number of meters equal to 15 feet.

If greater accuracy is desired, add 1.5 per cent; the result will then be 4.567 meters. The true equivalent is 4.571 meters.

TO CONVERT METERS INTO FEET.

Multiply by 40 and divide by 12.

Example: 5 meters multiplied by 40, equals 200; divided by 12, the result is 16.6 feet as the equivalent of 5 meters.

If greater accuracy is desired, deduct 1.5 per cent: the result will be 16.36 feet. The true equivalent is 16.40 feet.

TO CONVERT METERS INTO INCHES.

Multiply by 40.

Example: 2 meters multiplied by 40, equals 80 inches.

For greater accuracy, deduct 1.5 per cent; the result will be 78.80 inches. The true equivalent is 78.74 inches.

TO CONVERT INCHES INTO CENTIMETERS.

Multiply by 2.5.

Example: 6 inches multiplied by 2.5, equals 15 centimeters.

If greater accuracy is desired, add 1.5 per cent, when the result will be 15.225. The true equivalent is 15.239 inches.

HOW PLANTS ARE DIVIDED

AND WHAT SYSTEMS ARE USED IN THEIR CLASSIFICATION.

Botany is divided into two systems of classification, the artificial and natural. For the first system we are indebted to the French botanist, Tournefort, who made an artificial classification of the vegetable world by the character of their flowers, which was mainly based upon the arrangement of the corolla. Following him, the celebrated Swede, Carolus Linnæus, introduced an improvement in the classification of the Tournefort method, by founding the classes and orders on the position and number of the stamens and pistils. This system was perfect until by cultivation and climate the flower was so changed as to be no longer recognizable; stamens had become petals and petals had become stamens. Therefore, the artificial classification is only used for reference, as a kind of key to the natural system of botany.

The natural system classifies plants according to their resemblance in every particular; those plants which bear the strongest likeness to each other form classes; those next in order go

to form families or orders; those bearing the least resemblance make up the genus (plural, *genera*), whilst proportion, color and shape go to form the species. Thus, the four likenesses together make up the whole system of natural botany. Let us therefore compare the classes to cities, the orders to towns, the genera to villages, and the species to the inhabitants.

All the vegetable world is divided into two grades or series: flowering and flowerless. The first are known as Phænerogamous, and produce their species by means of real flowers, having manifest organs of reproduction, which form seeds, these seeds containing an embryo for a new plant of the same kind. The flowering plants are divided into two classes and two sub-classes, the first being termed and known technically as Exogenous or Dicotyledonous, whilst cl ss two are called Endogenous or Monocotyledonous The Exogens, or Dicotyledons, as the names indicate, are outward growers and have two cotyledons, the stems of which are made up of pith, wood and bark; the leaves have a network of veins and veinlets, whilst the flowers occur in an arrangement of four and five together as a cluster. The seed is a pair of cotyledons or more, as is the case with the pines. While this class includes the giants of the forest, it also contains some of the most insignificant vines. Let us again refer to the class first, because it is divided into sub-classes one and two, the first constitutes the Angiosperms and the second Gymnosperms, the former having a seed vessel and a regular pistil, and the latter being naked, as the word

implies (which is of Greek orgin), and is made up of two words, *angios* and *sperma*.

Now, the sub-classes are divided into three divisions, the Polypetalous (many petals), Monopetalous (one petal) and the Apetalous (without petals).

Let us now return to class two of the first series, which is divided into the Endogenous or Monocotyledonous, and commonly known as the inward growers; and the plants with one cotyledon, or one seed leaf, whose stems are made up of fibres, running lengthwise and intermingling with the soft internal tissues, the hardest part of the plant or tree being on the outside, as we find it in the cornstalk, palm and bamboo. The leaves are all paralleled-veined, and rarely branching until near the summit. These inward growers are divided into three divisions: the first or spadeaceous, includes the *palms*, *arums*, etc., while the petaloidous division includes the water *plantain*, *trillium*, *spiderwort*, *lillies*, etc., and their orders, and the third and last *glumaceous* division includes the *rush*, *sedge* and *grass* families or orders.

Let us now call your attention to the second series in the great divisions or classes, and that is the flowerless or cryptogamous plants These are also divided into classes, beginning at class 3, *Acrogens*, which includes the ferns, horsetails and club *mosses*; class 4, which includes the *mosses* and *liverworts*; and class 5, which includes the sea weeds or *algæ*, and the mushrooms or *fungi*.

We have tried to explain in a simple manner

the arrangements of the vegetable world, and why botanists have placed them in classes, orders, genus and species, with a kind of chart appended to enable you to memorize what we have already said. The object is to introduce to your notice the plants which are used for the amelioration of pain and the cure of disease, and with which you may come in contact from day to day as a part and parcel of your labor, either in an orginal form or in some compound which is the result of your skill.

THE ARTIFICIAL OR LINNÆAN CLASSIFICATION OF PLANTS.

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1. **Monandria,** one stamen to each flower.
2. **Diandria,** two stamens to each flower.
3. **Triandria,** three stamens to each flower
4. **Tetrandria,** four stamens to each flower
5. **Pentandria,** five stamens to each flower.
6. **Hexandria,** six stamens to each flower.
7. **Heptandria,** seven stamens to each flower
8. **Octandria,** eight stamens to each flower.
9. **Enneandria,** nine stamens to each flower.
10. **Decandria,** ten stamens to each flower.
11. **Dodecandria,** twelve to nineteen stamens.
12. **Icosandria,** having more than ten stamens inserted upon the calyx.
13. **Polyandria,** having more than ten stamens, and often more than twenty.

The above words refer to the number and position of the stamens.

14. **Didynamia,** twined, two long and two short, stamens.
15. **Tetradynamia,** four long and two short, making six stamens.

The above names refer to the number and rela-

tive length of the stamens in the cruciform flowers.

16. **Modelphia,** filaments united, one set tube or column.

17. **Diadelphia,** filaments united, two sets, flowers papillionaceous.

18. **Polydelphia,** filaments united in more than three sets.

19. **Syngenesia**, anthers united into a tube or ring, flowers compound.

The above names or terms refer to the connection of stamens by the filaments and anthers.

20. **Gynandria,** stamens situated on the pistil or style.

21. **Monæcia,** stamens and pistils on the same plant, but in separate flowers, distinct from each other.

22. **Diœcia,** stamens and pistils on different plants.

23. **Polygamia,** stamens and pistils in the same, or in separate flowers, either on the same or on different plants.

24. **Cryptogamia,** stamens wanting or invisible.

The above refer to the position of the stamens in regard to the pistils.

Since the time of Carolus Linnæus, the 11th, 18th and 23d classes have been omitted, or rather, distributed among the other classes of the system.

The orders in the first thirteen of the classes are founded on the number of styles, or it wanting, of the stigmas, and are arranged in the following order:

1. **Monogynia**, one style or pistil.

2. **Digynia**, two styles or pistils.
3. **Trigynia**, three styles or pistils.
4. **Tetragynia**, four styles or pistils.
5. **Pentagynia**, five styles or pistils.
9. **Hexagynia**, six styles or pistils.
7. **Heptagynia**, seven styles or pistils.
8. **Octogynia**, eight styles or pistils.
9. **Ennegynia**, nine styles or pistils.
10. **Decagynia**, ten styles or pistils.
11. **Dodecagynia**, eleven styles or pistils.
12. **Polygynia**, twelve styles or pistils.

The above Greek numerals refer to the number of the styles or stigmas which compose the first and second parts of the pistil. The style is often wanting, but the stigma and ovary never.

14. **Gymnospermia**, having naked seeds.
    Angiospermia, having the seeds covered.
15. **Siliculosa**, a form of fruit, a silicle or short pod.
    Siliquosa, a form of fruit, a silique or long pod.

The orders of the 16th, 17th, 18th, 20th and 22d classes are founded on the number of the stamens, and bear the names of the first thirteen classes, as Monandria.

19. **Polygamia æqualis**, flowers all perfect and in heads.
    Polygamia superflua, marginal flowers or rays, only parts bearing pi-tils.
    Polygamia frustrania, marginal flowers, neutral, the others perfect.
    Polygamia necessria, marginal flowers, fertile and pistillate; disk flowers, staminate and sterile.

Polygamia segregrata, each flower having its own involucre.

Monogamia, flowers with united anthers, and a solitary inflorescence.

The above names indicate the character of the flowers.

The orders of the 23d class are based on the likeness or characters in the 21st and 22d classes.

Tricœcia, perfect flowers on one plant, flowers with stamens on another, and pistillate flowers on a third plant.

The 24th class includes the Felices or ferns, and the Musci or mosses belong to the natural order, and are, therefore, not defined artificially.

A KEY TO THE NATURAL ORDERS OR FAMILIES OF PLANTS DESCRIBED IN THIS WORK.

SERIES 1.—Flowering plants. Plants with flowers, having stamens and pistils, and producing seeds, which contain an embryo.

CLASS 1. — Exogenous or Dicotyledonous plants. Stems distinctly formed of bark, wood and pith; the wood in stems lasting from year to year, increasing by annual layers on the outside next to the bark. Leaves netted-veined. Embryo with two opposite cotyledons, or (in the Pine family) several in a whorl. Parts of the flowers usually in fives or fours.

Sub-class 1. — Angiosperms. Pistils, a closed ovary, containing ovuls and becoming the fruit. Cotyledons, 2.

Division 1.—Polypetalous. Calyx and corolla both present (except in some genera of order I); petals entirely

separate (except in Order XXX, where they are sometimes united).

A, stamens numerous, more than 10

1.—Stamen borne on the receptacle, entirely free from the calyx, corolla or ovary. Pistils more than one, entirely separate from each other. Herbs with perfect flowers and divided leaves.

Ranunculaceæ.

Pistils numerous, grown together one above another, covering the long receptacle. **Magnoliaceæ.**

Pistils, only 1; or, 2—several, more or less, completely united into one. Ovary simple and one-celled, with only one placenta. Petals large. Filaments shorter than the anthers.

Podophyllum in Berberidaceæ.

Petals 4 and irregular, or else very small. **Ranunculaceæ.**

Ovary compound, 1–5-celled; if 1-celled, with two several placentæ on the walls. Sepals falling when the flower opens, fewer than the petals. Herbs with milky or colored juice. **Papaveraceæ.**

2.—Stamens connected with the base of the petals, and these borne on the receptacle. Filaments united in a tube or column; anthers kidney-shaped, 1-celled.

Malvaceæ.

3.—Stamens and petals united with and apparently borne on the calyx (per-

igynous). Leaves with stipules, alternate. **Rosaceæ.**

Leaves without stipules. Pod many-seeded. Shrubs, leaves, opposite. Pod with several cells.
Philadelphus in Saxifragaceæ.

Pod 2-seeded. 2-beaked. Shrubs or trees; petals sometimes wanting.
Hamamelaceæ.

B, Stamens 10 or fewer.

1.—Corolla irregular. (Pistils one). Leaves opposite, palmately compound. Calyx 5-toothed. Shrubs or trees.
Sapindaceæ.

Leaves alternate, with stipules. Filaments often united. Two lower petals approaching or joined. Pod simple with only one row of seeds. **Leguminosæ.**

2.—Corolla nearly or quite regular. Stamens as many as the petals and opposite them. Pistils and style 1 (the latter sometimes cleft at the summit). Anthers opening by uplifted valves. **Berberidaceæ.**

Anthers opening lengthwise. Woody vines. Calyx minute; petals falling very early. **Vitaceæ.**

Shrubs. Calyx larger, its divisions 4-5.
Rhamnaceæ.

Calyx tube adhering to the surface of the ovary. Stamens more or less united with each other. Flowers monoecious.
Cucurbitaceæ.

Seeds many in a 2-celled or 1-celled pod. Styles 2. **Saxifragaceæ.**

Seeds many in a 4-celled pod. Style 1: stigmas 4. **Onagraceæ.**

Seeds only one in each cell. Border of calyx obscure. Flowers in small axillary clusters. Pod 2-beaked. Shrubs or trees. **Hamamelaceæ.**

Styles 2; fruit dry. Herbs with flowers in compound umbels. **Umbelliferæ.**

Styles 3-5 (rarely 2); fruit, a berry. Shrubs or herbs, with flowers in simple or panicled umbels. **Araliaceæ.**

Style 1. Flowers in cymes or clustered in heads, sometimes surrounded by an involucre. **Cornaceæ.**

Calyx free from the ovary, at least from the stem. Leaves with transparent or blackish dots. Leaves simple, entire and opposite. **Hypericaceæ.**

Leaves compound or divided. **Rutaceæ.**

Leaves without transparent dots. Pistils more than one. Leaves with stipules. **Rosaceæ.**

Pistils, 2, nearly distinct. Stipules none. **Saxifragaceæ**

Pistil 1, simple, 1-celled: style and stigma 1. **Leguminosæ.**

Pistil, 1 compound; either its styles, stigmas or ovary cells more than 1. Style 1, entire, or barely cleft at top. Stamens united into a tube with anthers in its orifice. Trees with odd-pinnate or bi-pinnate leaves. **Meliaceæ.**

Anthers opening by holes or chinks at top. Anthers opening across the top. **Ericaceæ.**

Anthers opening lengthwise. Herbs. Stamens 6, 2 of them shorter. **Cruciferæ.**

Woody plants. Fruit few-seeded. Stamens fewer than the 4 long petals. **Oleaceæ.**

Stamens as many as the broad petals. **Celastraceæ.**

Styles or sessile stigmas 2-6, or style 2-5 cleft. Ovary and fruit 1-celled. One-seeded. Shrubs. **Anacardiaceæ.**

Several or many seeded. Seeds in the centre of the pod. **Caryophyllaceæ.**

Seeds on the walls or bottom of the pod. **Saxifragaceæ.**

Ovary with 2-5 or more cells. Sessile stigmas and stamens 4-6. **Aquifoliaceæ.**

Styles or long stigmas 2: fruit 2-winged. **Aceraceæ.**

Styles or divisions of the style 5. Stamens 5; pod partly or completely 10-celled. **Linaceæ.**

Stamens 10 (or fewer): styles united with a long beak, splitting from it when ripe. **Geraniaceæ.**

Division II.—Monopetalous: Calyx and corolla both present; the petals more or less united.

A, Tube of the calyx coherent with the ovary; the corolla apparently inserted on the ovary. Stamens united by their anthers and not by their filaments. Flowers in heads which are furnished with an involucre.

Compositæ.

Also more or less by their filaments. Flowers not in heads. Corolla irregular, cleft down one side. Flowers perfect. **Lobeliaceæ.**

Corolla regular. Flowers monoecious. Tendril-bearing vines. **Cucurbitaceæ.**

Flowers not involucrate. Stamens 2-3. Corolla 5-lobed. **Valerianaceæ.**

Stamens 4-5. Corolla 4-5 lobed. **Caprifoliaceæ.**

Leave opposite with stipules between them or whorled without stipules. **Rubiaceæ.**

Inserted with, but not on the Corolla. Stamens twice as many as the lobes of the corolla. Woody plants. Huckleberry sub-family. [In **Ericaceæ**..]

B, Calyx free from the ovary; the corolla on the receptacle.

1. Stamens more in number than the lobes of the corolla. Leaves compound. Flowers commonly irregular. Pod 1-celled. **Leguminosæ.**

Leaves simple or palmately divided. Stamens united into a tube. **Malvaceæ.**

Leaf simple or undivided. Stamens united only at the base, or separate. Stamens on the corolla twice or four times as many as its lobes. **Ebenaceæ.**

Stamens free from the corolla, twice as many as its lobes. **Ericaceæ.**

2. Stamens as many as the 5, 4 or rarely 6, 7. Inserted on the corolla, but connected more or less with the stigma. Juice milky. Filaments monadelphous. **Asclepiadaceæ.**

Inserted on the corolla free from the stigma. Style none; stigmas 4-6; corolla very short, deeply cleft. **Aquifoliaceæ.**

Style 1, rarely 2, sometimes 2 cleft or 3 cleft. Ovary deeply 4-lobed making 4 akenes. Stamens 4. Leaves opposite; aromatic. **Labiatæ.**

Stamens 5. Leaves not aromatic. **Borraginaceæ.**

Ovary and pod 1 celled: the seeds on the walls. Leaves entire and opposite. **Gentianaceæ.**

Stamens 5. Pod or berry, many seeded. Flowers not quite regular. Style, entire. **Scrophulariaceæ.**

Flowers quite regular. Stamens all alike. **Solanaceæ.**

Stamens 5. Pods with few large seeds. Twining herbs. **Convolvulaceæ.**

3.—Stamens always fewer than the lobes of the calyx, or corolla, 2-4. Corolla more or less irregular, mostly 2-lipped. Ovary 4-lobed, making 4 akenes. Stems square; leaves opposite, aromatic. **Labiatæ.**

Ovary and pod 2-celled, with many large and winged seeds. Ovary and fruit irregularly 4-5 celled, with many large seeds. **Bignoniaceæ.**

Ovary and pod 2-celled, with many or few small seeds. **Scrophulariaceæ.**

Corolla, regular. Stamens only 2. Corolla 4-lobed, or 4-parted. Shrubs or trees. **Oleaceæ.**

Division III.—Apetalous: Corolla, none; the floral envelopes being in a single series (calyx), or sometimes wanting altogether.

A, Flowers not in aments, or catkin-like, heads.

1. Seeds many in each cell of the ovary or fruit. Calyx with its tube coherent with the 6-celled ovary. **Aristolochiaceæ.**

Calyx, free from the ovary. Pod 3-celled or 1-celled, with 3 or more styles.

Mollugo, etc., in Caryophyllaceæ.

Pod or berry 1-celled, and simple.

Ranunculaceæ.

2. Seeds only 1-2 in each cell of the ovary or fruit. Pistils more than one to the flower and separate from each other. Calyx, present and petal like. Stamens on the receptacle. **Ranunculaceæ.**

Calyx present; the stamens inserted on it. Leaves with stipules. **Rosaceæ.**

Pistil only 1, simple or formed of two or more with ovaries united. Styles, 10. Fruit a 10-seeded berry.

Phytolaccaceæ.

Styles or stigmas, 2-3. Herbs with sheathing stipules and entire leaves.

Polygonaceæ.

Herbs with separate stipules and compound cleft leaves. **Urticaceæ.**

Herbs with milky juice; stipules deciduous or none, and stigmas often forked. Fruit splitting into 2-3 2-valved pods.

Euphorbiaceæ.

Herbs without stipules, and without scaly bracts. Flowers small and greenish. **Chenopodiaceæ.**

With scaly bracts around and among the flowers. **Amarantaceæ.**

Shrubs or trees with opposite leaves. Fruit a pair of keys. **Aceraceæ.**

Shrubs or trees with alternate leaves and deciduous stipules. Stamens on the throat of the calyx alternate on the lobes. **Rhamnaceæ.**

Stamens on the bottom of the calyx. **Urticaceæ.**

Style 1; stigma 2-lobed. Fruit a key. Leaves pinnate. **Fraxinus in Oleaceæ.**

Style or sessile stigma 1, and simple. Calyx of 6-petal-like colored sepals: stamens 9-12; anthers opening by valves. Aromatic shrubs or trees. **Lauraceæ.**

Calyx in the sterile flowers of 3-5, greenish sepals; stamens the same number. Flowers monoecious or dioecious. **Urticaceæ.**

B, Flowers, one or both sorts, in aments or catkin-like heads; twining or dioecious herbs; fertile flowers only in short aments. **Humulus in Urticaceæ.**

Shrubby plants, parasitic on trees. Fruit a berry. **Loranthaceæ.**

Trees or shrubs. Sterile flowers only in aments. Flowers monoecious. Leaves pinnate. Ovary and fruit without an involucre. **Juglandaceæ.**

Leaves simple. Nuts one or more in a cup, or involucre. **Cupuliferæ.**

Flowers of both kinds in aments or close heads. Leaves palmately-veined or lobed. Calyx 4 cleft, in the fertile flowers becoming berry-like.

Morus in Urticaceæ.

Calyx none: flowers in round heads.

Platanaceæ.

Leaves pinnately veined. Flowers dioecious, one on each scale. Pod many-seeded. **Salicaceæ.**

Flowers monoecious, the fertile ones 2 or more under each scale. **Betulaceæ.**

Flowers, only one under each fertile scale. Fruit, one seeded. **Myricaceæ.**

Sub Class 2.—Gymnosperms. Pistil represented by an open scale or leaf, or sometimes entirely wanting; the ovules and seeds naked. Flowers monoecious or dioecious; stems branched; leaves simple.

Coniferæ.

CLASS II.—Endogenous or Monocotyledonous Plants. Stem not distinguishable into bark, wood and pith; leaves mostly parallel-veined and sheathing at base. Parts of the *flower* usually in threes. Embryo with a single cotyledon.

1. Flowers densely crowded on a spadix, with or without a spathe.

Herbs. The small and crowded flowers, either naked or with a small perianth, spadix-with a large spathe surrounding it. Flower generally naked; fruit a berry. Spadix without a spathe. Perianth of 6 pieces.

Araceæ

Spadix without any proper spathe; perianth none; fruit an akene. **Typhaceæ.**

2. Flowers not on a spadix, but variously disposed, having a calyx and corolla, or a 6-leaved or 6-lobed (rarely 4-lobed) perianth, colored and corolla-like. Perianth not adherent to the ovary, and of 3 greenish sepals and three distinct and colored petals. Pistils many, in a ring or head, forming akenes.

Alismaceæ.

Pistil 1, 3-celled, many several-seeded; style one. Slender, scurfy-leaved plants, growing on trees. **Bromeliaceæ.**

Of mostly 6 petal-like leaves in 2 ranks, 3 outside and 3 inside, or else 6 (rarely 4) lobed, all colored alike. Stamens 6, or as many as the divisions of the perianth, all alike. Anthers turned outward—*i.e.*, on the outer side of the filament. Leaves alternate with side tendrils, netted-veined between the ribs. Flowers dioecious; styles or sessile stigmas, 3. **Smilaceæ.**

Anthers turned inwards—*i.e.*, on the inner side of the filament: style 1; stigmas 1-3.

Liliaceæ.

3. Flowers not on a spadix, and without a colored or corolla-like perianth, but having glumes—*i.e.*, husk-like or scale-like bracts. Stems rush-like or straw-like. Glumes 6 in a whorl to each flower, like a calyx.

Juncaceæ.

Glume, one to each flower in its axil. Flowers collected into heads or spikes.

Cyperaceæ.

Glumes, 2 to 4 to each flower of 2 sorts.

Gramineæ.

NATURAL ORDERS OR FAMILIES USED IN THE WORK.

Algæ	Seaweed	Family.
Anacardiaceæ	Cashew	"
Apocynaceæ	Dog-bane	"
Aquifoliaceæ	Holly	"
Araceæ	Arum	"
Araliaceæ	Ginseng	"
Aristolochiaceæ	Birthwort	"
Asclepiadaceæ	Milkweed	"
Aurantiaceæ	Orange	"
Berberridaceæ	Barberry	"
Burseraceæ	Myrrh	"
Canellaceæ	Canella	"
Cannabinaceæ	Hemp	"
Caprifoliaceæ	Honeysuckle	"
Caryophyllaceæ	Pink	"
Celastraceæ	Staff Tree	"
Chenopodiaceæ	Goose-foot	"
Cinchonaceæ, a sub order of Rubiaceæ	Cinchonæ Madder	" "
Cistaceæ	Frostwort	"
Compositæ	Composite	"
Coniferæ	Pine	"
Convolvulaceæ	Convolvulus	"

Cornaceæ	Cornel	Family.
Cruciferæ	Mustard	"
Cucurbitaceæ	Gourd	"
Cupuliferæ	Oak	"
Ebenaceæ	Ebony	"
Ericaceæ	Heath	"
Euphorbiaceæ	Spurge	"
Fillices	Ferns	"
Fungi	Mushrooms, Fungus	"
Gentianaceæ	Gentian	"
Geraneaceæ	Geranium	"
Graminaceæ	Grains, Grass	"
Guttiferæ	Gamboge	"
Hamamelaceæ	Witch hazel	"
Iridaceæ	Iris	"
Juglandaceæ	Walnut	"
Labiatæ	Mint	"
Lauraceæ	Laurel	"
Leguminosæ	Pulse	"
Lichenes	Moss	"
Liliaceæ	Lily	"
Linaceæ	Flax	"
Lobeliaceæ	Lobelia	"
Loganaceæ	Jasmine	"
Lycopodiaceæ,	Club Moss, Lycopodium	"
Magnoliaceæ	Magnolia	"
Malvaceæ	Mallow	"
Marantaceæ	Arrowroot	"
Melanthaceæ,	Melanths, Colchicum	"
Meliaceæ	Bread Tree	"
Menispermaceæ	Moonseed	"
Myristaceæ	Nutmeg	"
Myrtaceæ	Sweet Gale	"
Oleaceæ	Olive	"
Onagraceæ	Primrose	"

Orchidaceæ	Orchid	Family
Palmaceæ	Palms	"
Papaveraceæ	Poppy	"
Phytolaccaceæ	Pokeweed	"
Piperaceæ	Pepper	"
Plumbaginaceæ	Leadwort	"
Polygalaceæ	Senega	"
Polygoniceæ	Buckwheat	"
Ranunculaceæ	Crowfoot	"
Rosaceæ	Rose	"
Rubiaceæ	Madder	"
Rutaceæ	Rue	"
Salicaceæ	Willow	"
Saxifragaceæ	Saxifrage	"
Scrophulariaceæ	Figwort	"
Sesameæ	Benne	"
Simarubiaceæ	Quassia	"
Smillaceæ	Smilax	"
Solanaceæ	Nightshade	"
Terebinthiceæ	Turpentine	"
Ulmaceæ	Elm	"
Umbelliferæ	Parsley	"
Urticaceæ	Nettle	"
Valerianaceæ	Valerian	"
Vitaceæ	Vine	"
Zingiberaceæ	Ginger	"
Zygophyllaceæ	Guaiac	"

RADICES—ROOTS.

The root is that portion of the plant that is inserted in the soil; it may either directly descend or run horizontally above or beneath the earth. In either case it holds the ascending tree or plant erect, and furnishes nutriment by absorption to the parent stem. The root develops no leaves, and is, as a rule, devoid of the green coloring matter (*chlorophyll*) that is found so abundantly in the erect portions of the plant.

The roots selected for medicinal purposes are obtained from the biennial and perennial plants; they originate from the base of the stem, and show many leaf-like scars, which are bud-producing. In the perennial roots of the herbs the base or crown has two or more heads, differing in this wise from the roots of the shrubs and trees. The tap root in the Monocotyledons is not often fully developed, but is well supplied with rootlets, technically known as adventitious roots. Usually they are of about the same di-

ameter, not often branched, but as a rule have many fibers, as seen in the blood-root. The adventitious roots are also found in the Dicotyledons, but in this case the main root and its branches are only employed as remedies. The pith of the stem rarely extends more than a few inches within the root of the Dicotyledons, whilst the young roots are covered with an uneven, corky epidermis, devoid of the green coloring matter (*chlorophyll*), and in this respect only differing from the erect portions of the plant.

Alkanna, Alkanet; also known as *anchusa tinctoria*.—Natural order Boraginaceæ. The common names are hoary puccoon (an Indian name) and Spanish bug-gloss. Alkanet is a perennial plant native of Western Asia and Southern Europe where it is cultivated to a slight extent. It grows to about 12 inches (30 centimeters) in height, bearing upon its stem a white flower, with a purple edge bordering its corolla and penetrating the throat, and tinging it with the same color. The root is fusiform, 6 inches (15 centimeters) long, and as a rule three-fifths of an inch (1 centimeter) thick. When fresh it has a slight odor and a bitter taste. The root as found in the stores is very irregular and wrinkled, and separable from a thin bark of a purple color that is easily broken. The wood is yellowish, with many medullary rays. Pelletier, the French chemist, isolated the coloring principle and found it possessed of acid proper-

ties, which formed neutral compounds with alkalies insoluble in water; this principle he termed *anchusic acid.* Alkanet is not used in medicine, but is valuable to the pharmacist, as it imparts a fine shade of red to alcohol and oils.

Althæa Officinalis, Marshmallow.—Natural order Malvaceæ. Native of England and other portions of Europe, but domesticated in the United States. According to some botanists, it was first brought from Asia. The *althæa* is a perennial herb, attaining a height of from two to six feet, found growing in the salt marshes of Europe and the United States. The stems are erect and hairy, the leaves soft and pubescent on both sides, unequally wedge-shaped (cunate), somewhat cordate or ovate in shape, the lower five and the upper three leaves being lobed; the peduncles are axillary; many-flowered; calyx, 6 to 9 cleft; petals, 5, with two or more pistils united forming a pod of several cells; flowers of a pale blue color.

The foot of the ALTHÆA is usually deprived of its outer covering (epidermis), and then appears of a dirty white color on the external surface, but internally of a creamy white, and granular. In commerce it occurs in pieces of 3 to 6 inches (7 to 15 centimeters) long, and one-half inch (2 centimeters) in diameter or in irregular cube-shaped pieces. The main root is usually rejected as unfit for use, the fleshy branches being the ones selected, and these should be two or three years old before they become of value as a remedial agent. Marshmallow contains *mucilage, starch, sugar, asparagin, traces of lime* and a fixed oil. Its princi-

pal medicinal value lies in its demulcent properties, and the only officinal preparation is the syrup. It forms an ingredient of the much esteemed confection, and is also used as an excipient for pills, etc. The dose of the root in form of powder or infusion is 30 to 60 grains (2 to 8 grams), but it is not often prescribed in this form.

Anacyclus Pyrethrum, Pellitory.—Natural order Compositæ. This plant is a native of North Africa, and introduced in Southern Europe along the Mediterranean coast. The plant is an annual while the root is perennial; it attains a height of two or three feet, more or less, and in general appearance it not only resembles the anthemis and blue boneset, but many other plants of the Compositæ order. The leaves are spreading, doubly pinnate; branches, one headed with many flowers; flowerets of the ray white and purple; disk yellow tubular; 5 toothed, with an aromatic odor. The root is 2 to 4 inches (5 to 10 centimeters) long, fusiform in shape, of a brown color externally and brown and white internally, with many medullary rays coming from the centre. Most of its parenchymatous cells are laden with inulin. The root is the part used in medicine, and contains an acid, resin like body, tannin and two oils. Both are soluble in potassa. Its medical properties are rubefacient and sialagogue.

The tincture is the only officinal preparation, and this only by the British Pharmacopœia.

The **Anacyclus Germanicum**—origin, the ANACYCLUS OFFICINARUM—is cultivated in Ger-

many. Its uses and appearance are similar to the above.

Angelica, Angelica.—Natural order Umbelliferæ. Native of Europe, but several species are found in the United States. The ANGELICA OFFICINALIS is rather a misnomer from the fact that it is little used except in domestic practice. The plant attains a height of 6 feet (2 metres) more or less, with umbelliferous flowers of a yellow-green color; stem hollow and striated, leaves 2 or 3 ternately cut compound, leaflets ovate, lanceolate and serrated. The root of this variety of angelica is 2 to 4 inches (5 to 10 centimeters) long, and 1 to 2 inches (2½ to 5 centimeters) thick, bearing upon it some remnants of the leaf bases. The root is somewhat annulated, with numerous cylindrical branches. When dried it is of a gray-brown color and much wrinkled. Internally it is white and spongy, breaking with a starchy fracture and showing many resinous dots or points. It is said to contain a *volatile oil, resin, sugar, starch, tannin,* and *angelic* and *valerianic acids.* Has been used as a carminative, tonic stimulant and diaphoretic. In large doses angelica is an emetic; the infusion is made by adding one pint of boiling water to one ounce of the root. It is rarely, if ever, prescribed, and is not officinal.

Angelica Atropurpurea, the Great Angelica, and according to some botanists the *Angelica Triqurita.*—This species is a native of North America, and is usually found on the river banks from Pennsylvania westward to the Pacific Ocean. It belongs to the same natural order

as the before mentioned variety. When fresh both species are poisonous; inflorescence in globular compound umbels. In general characteristics and medical properties it differs very little from the European variety already described; they both belong to the sexual system of Pentandria Digynia, or in other words, plants bearing 5 stamens and 2 pistils. The derivation of the name is obscure.

Apocynum Androsœmifolium. Dog's Bane. —Natural order Apocynaceæ. This perennial herb is found growing in the United States and Canada, near the shaded woods, attaining a height of from 12 to 36 inches (30 to 90 centimeters), having a purplish stem, spreading branches, with entire leaves; regular flowers, with a 5-lobed corolla which is white with a pink tinge of color and bell shape in form; stigmas united, without styles. The root as it is found in the stores (it is rarely to be had, however,) is in long cylindrical branches 4 to 12 inches (10 to 30 centimeters) in length, and ¼ inch in diameter (6 millimeters); externally it is of a pale brown color, much wrinkled and transversely fissured; odor unpleasant, with a persistent, bitter taste. It is said to contain *resin*, *caoutchouc*, *starch*, and a *bitter extractive matter*, a glucoside called *apocynein* and a peculiar body called *apocynin*. The dog's bane should not be confounded with or mistaken for Canadian or so-called Indian hemp, which has a much thicker bark and a more fragile and porous wood. It is, however a frequent adulterant. The latter plant is still officinal, whilst the *apocynum androsæmifolium*, the one under discussion, is no

longer recognized, although having the same medical properties — diuretic, emetic, sodorific and cathartic given in doses of from 5 to 25 grains (0.3 to 1.6 grams).

Apocynum Cannabinum, Indian Hemp.—Natural order Apocynaceæ. Like the *apocynum androsæmifolium* in general character; the two plants are, in fact, so similar in many respects that they are gathered and used as one and the same plant. Upon close examination we find that in the *apocynum cannabinum* the stem and branches are rather more upright, terminating in erect and close, many-flowered cymes that, as a rule, are shorter than the leaves, while the corolla has nearly erect lobes. Otherwise it differs in no respect from the other species, with its bell-shaped corolla, five stamens, and its large ovoidal stigma. The root is the part used, and when found in commerce is in long cylindrical pieces, varying in length from 4 inches to several feet; in diameter it is ¼ to ⅓ of an inch (6 to 8 millimeters), of a pale-brown color, wrinkled longitudinally and fissured transversely; wood porous, with delicate medullary rays and a thin pith; taste, bitter and nauseous. When fresh the root emits a milky juice that concretes like caoutchouc. *Apocynum* contains *tannin, resin, starch, and extractive matter.* It is emetic, cathartic, expectorant, antiperiodic, and diuretic, and given in doses of 15 to 30 grains (1 to 2 grams). The decoction is made ½ oz. (4 grams) to a pint of water.

Asclepias Tuberosa, Pleurisy Root, Silkweed, Butterfly Weed, etc.—Natural order Asclepiadaceæ. There are many species belong-

ing to this family of perennial plants. It attains a height of from 1 to 2 feet (30 to 60 centimeters), with an erect stem, hairy and rough, with many leaves; flowers in umbels, which are of an orange-red color, hooded; leaves oblong, and lanceolate and sessile, or with very short petiobs; calyx, 5 parted; 5 stamens on the base of the corolla; filaments united in a tube, which incloses the pistil; anthers adherent to the stigma. Pleurisy root is found growing from Georgia to Texas, and, as found in commerce, the root is large and fusiform in character, from ¾ to 6 inches (2 to 15 centimeters) long and ¾ of an inch (20 millimeters) in diameter. Externally it is of a brownish-yellow, while internally it is of a dirty-white, and much wrinkled. The bark is thin and in two distinct layers. It is said to contain mucilage, starch, and tannin, with two distinct resins, a glucoside. Its medicinal properties are expectorant, sodorific, carminative, and anodyne. Dose, 15 to 60 grains (1 to 4 grams). Not officinal, but much used in domestic practice in the form of a decoction. ℥ i of the root to the pint of boiling water.

Asclepias Cornuti, Common Milkweed.—Natural order Asclepiadaceæ. Common names; silkweed, wild cotton, etc. Found growing in all parts of the United States. It contains a peculiar crystalline principle of a resinous character, known as *asclepione;* otherwise it differs little from the known varieties. The family of Asclepiadaceæ are known by their milky juice, whorled and entire leaves, follicular pods, seed, and anthers, connected with the stigmas, the cohesive properties of the pollen and its wax-

like and granular masses, thus differing from the dog-bane family. In this species of the Asclepiadaceæ the flowers are in umbels, with drooping, downy peduncles. This plant is rather taller and the stalk larger than the *asclepias tuberosa*. These plants belong to the sexual system of Pentandria Digynia.

Not officinal, but used for the same purposes as the variety before mentioned; the root runs horizontally, and hence may be considered a rhizome. The *asclepias* was dedicated to the father of medicine, Æsculapius.

Atropia Belladonna, Belladonna, Nightshade.—Natural order Solanaceæ. This is the plant supposed to be the Mandragora of Theophrastus. The word is derived from the Italian, meaning a beautiful lady (see Glossary). The Italians use it for the purpose of dilating the pupil of the eye to beautify that organ. Belladonna is a native of Central and Southern Europe, but cultivated at Hitchen for the drug market. The plant is a perennial, and grows from 3 to 6 feet in height, somewhat branched; the stem is round, velvety, and of a red tinge; leaves dark green, broadly ovate, acute, smooth and soft; about 4 inches (10 centimeters) in length; sometimes pubescent on the under surface; calyx campanulate and 5-cleft; corolla campanulate and five-lobed; border equal to stamens five (pentandria), and the berry (fruit) as large as a medium cherry, with 2 cells and containing many kidney-shaped seeds; flowers in June and July. The belladonna radix, or root, as found in commerce is in cylindrical pieces, tapering towards the end; of a light

brown color inclined to gray, and much wrinkled externally. The color internally is decidedly lighter. It has little or no odor, but a sweet-bitter taste, and persistently acrid. The root as found in the stores is from ½ to 1 inch (12 to 25 millimeters) in diameter, and in various lengths; irregular in shape, and when cut or broken shows many woody, yellow fibres and a number of medullary rays, diverging from a central pith. Very woody specimens of the root should be thrown aside as unfit for medicinal use. The constituents of belladonna are *resin, gum, and atropine* its active principle and a small per cent of 2 alkaloids, atropamine and belladonine. The latter occurs as a white crystalline powder, soluble in water, ether, chloroform, and alcohol. Atropine yields *tropic acid* and *tropina*. Both the root and the leaves contain the active principle; both are officinal, and are made into extracts, plasters and tinctures. The medical properties of belladonna are diuretic, narcotic, and antispasmodic. The dose of the solid extract is from ½ to 1 grain (0.03 to 0.06 grams); of the fluid extract, 2 to 8 drops (0.12 centigrams to ½ gram); of the tinctures, 5 to 15 drops (0.20 to 1 gram); of the *atropia* pure, from $\frac{1}{100}$ to $\frac{1}{200}$ of a grain. Owing to the peculiarities of some persons belladonna and its preparations should be given cautiously, and then only under the eye of the physician, as I have known cases where one milligram was employed with unfavorable results.

Berberis Vulgaris, Common Barberry.—Natural order Berberidaceæ. This perennial shrub is native to Europe and the western por-

tion of Asia, and grows to the height of 3 to 6½ feet (1 to 2 meters), with spines 3-parted, bearing yellow flowers in racemes; having 6 stamens, 6 petals, and one pistil; the leaves are 3-parted, obovate or spatulate; fruit red in color, and very acid. The root is the part used, and as found in commerce is very irregular and much branched, about 2 inches (5 centimeters) thick; externally it is brown, hard, and tough, with a thin bark; internally the wood is of a light-yellow color, and of bitter taste. Barberry contains *starch*, *tannin*, and the alkaloid *berberina* or *berberine*, its active principle. This principle exists, however, in a great many plants. The medical properties of barberry are tonic and stomachic, in doses of ℥ ss ℥ i (2 to 4 grams). It is no longer officinal, but is still kept in the stores for the use of the veterinary surgeons, in the form of a brownish-yellow powder, and is highly extolled by them as an aromatic tonic in horse powders. The origin of the name is uncertain.

Chondodendron Tomentosum, Pareira Brava, Wildvine.—Natural order Menispermaceæ. This is a climbing shrub, a native of Brazil and some of the West India Islands; known in Europe and America as the velvet-leaf vine, *Cessampelos pareira*. The stem of the pareira is smooth, round, and covered with a fine pubescence; it has round, smooth, subcordate leaves, covered with a fine pubescence. Flowers in racemes (clusters), hairy, with 4 sepals and 4 petals, the latter being very small and cup-shaped, particularly in the male flowers; anthers 2 celled, stamens monodelphos (united); female flowers have a solitary ovary, with a

single lateral sepal and petal; drupe scarlet and kidney-shaped. The root, as it occurs in commerce, is in tortuous sub-cylindrical pieces of about 4 to 6 inches (10 to 15 centimeters) long, and from ¾ to 4 inches (2 to 10 centimeters) in diameter; externally of a gray-brown color, with many transverse fissures and ridges; internally of a pale-brown color. The bark is extremely thin for the size of the root. The best variety of pareira has scarcely any central pith; in this, it differs from the spurious variety, which has a hard, tenacious wood dotted with black spots. Pareira contains *starch*, a *soft resin*, *malate of lime*, *potash*, and some other salts, and also an alkaloid isolated by Mr. Wiggers, variously termed pelosina, pelosine and cessampeline, identical, it is said, to berberina or the berberine of the nectandria. Pareira brava is aperient, tonic and diuretic, and administered in form of decoction extracts. In South America a vinous infusion is recommended. Dose of the fluid extract is ½ to 1 fluid drachm (2 to 4 grams). The root is rarely found in the stores

Cichorium Intybus, Chicory, or Succory, Wild Endive.—Natural order Compositæ. A perennial plant attaining a height of from two to four feet, native of Europe but now found growing in all the sub-tropical countries of the world. It has showy compound blue flowers, with axillary terminal heads. Flowerets, linguiate and perfect stamens and filaments slender, white and unconnected; anthers deep blue, stigmas circinate and of a dark-blue color; akenes striate, turbinate, somewhat angular and glab-

rous; pappus made up of short chaffy scales, forming a sort of crown. The root is fusiform, not unlike the dandelion in form and size, and is used as an adulterant for that root. The principal use of the root of the chicory is to adulterate, or as a substitute for, coffee. Its use, it is said, first began with the Egyptians and Arabians; they also use the leaves as a salad. In France, the consumption is said to reach sixteen million pounds per annum. Chicory is tonic, aperient and deobstruent, and may be given like taraxacum, and for the same diseases. There is no officinal preparation of it. For further information see United States Dispensatory.

Euphorbia Corollata,—Natural order Euphorbiaceæ. Common names, Flowering Spurge, Blooming Spurge, Wandering Milkweed, Indian Physic, Large Flowering Spurge, etc. The name *Euphorbia* is said to be derived from Euphorbus, the physician to King Juba. This plant is a smooth herbaceous perennial, found growing in sandy soils near the Atlantic coast; it is dark green, almost purple in appearance, having many stems arising from a long perpendicular root; flowers not very conspicuous, blooming in the spring of the year; leaves obovate or oblong sessile. Ipecacuanha Spurge as found in commerce is knotty, with many branches and marked with scars on the stems. When dry of a light-brown color externally, and of a dirty white internally; very light and brittle, about 12 inches (30 centimeters) long, and $\frac{2}{5}$ of an inch (1 centimeter) in diameter; taste, bitter and acrid. According to.

the analysis of Pelzett, it contains euphorbia, acid resin and starch. It is a diaphoretic, cathartic and emetic; but is rarely used except in domestic practice. When given it is usually in doses of from 10 to 20 grains (0.06 to 1.3 grams). All this genus of plants yield a milky juice, and many of the species are leafless.

Euphorbia Ipecacuanha. Natural order Euphorbiaceæ. Common names, Carolina Ipecac, American Ipecac, Ipecacuanha Spurge, etc. A tufted, shrub-like perennial plant attaining a height of 2 to 3 feet (60 to 90 centimeters) and, as the name implies, conspicuous for its showy false catkins of leaves, which appear like white petals. Its flowers are on long peduncles and in umbels. The leaves are obovate, oblong, lanceolate or linear, with very short petioles.

According to analysis it contains *euphorbia* or *euphorbin*, *caoutchouc*, *resin*, *starch* and a coloring matter, besides *euphorbic acid*. This genus of Euphorbia differs very much in the shape and color of its leaves and may, unless care be exercised, be taken for some other variety of the family. The root is irregular, yellowish, large, and frequently extends as much as six feet under the ground. This native plant is found in the barren pine regions of the Southern and Middle States, also along the sandy seaboard of Delaware and New Jersey.

The ipecacuanha spurge is comparatively a certain emetic; unfit, however, to supersede ipecacuanha, though milder in its effects, it is apt to act violently on the bowels.

Euryangium Sumbul, Ferula Sumbul, Musk Root.—Natural order Umbelliferæ Orth-

ospermæ. This perennial plant is a native of Central Asia; it attains a height of 6 to 10 feet (2 to 2½ meters), with large triangular leaves, and a number of cauline leaves somewhat like bracts or sheaths; flowers in umbels, on short stalks and polygamous; fruit monocarpus, according to the description given by Kauffmann. The root comes to this country from India and Russia, and when fresh occurs as a fusiform root, but as found in commerce and in the stores it occurs in irregular pieces, varying much in length, but on an average ½ to 1 inch (12 to 25 millimeters) in diameter. The external surface is wrinkled and annulated, and covered by a dark-brown bark; internally it is spongy and of a dirty-white appearance, with many brown, resinous cells, the whole internal part of the root being made up of the tissue called parenchymatous and a few fibro-vascular bundles. Sumbul root breaks with a starchy fracture; has the odor of musk, and in the East is used as a perfume. The sumbul root contains, according to the best authority, *starch*, *sugar*, *balsamic resins*, *extractive matter*, *angelic* and *valerianic acids*. The soft bluish resin seems to contain the oder of the sumbul, and is much increased by adding water and solution of potassium, and mixing thoroughly; this converts the resin into an acid termed sumbulanic, which occurs in crystalline salts and has a strong smell of musk.

Sumbul is a stimulant, tonic, carminative, diaphoretic and antispasmodic, and is highly extolled by Russian and English practitioners. Although found in the stores in the form of fluid and solid extracts and tinctures, the only

preparation recognized is the tincture, and this only by the English and United States Pharmacopœias. The only adulterant is the ammoniacum root, which is easily distinguished by its density and deeper yellow color. There are several very elegant preparations of sumbul, in the form of elixirs, etc., compounded by the various pharmacists that no doubt possess the virtues of the crude root in a high degree.

As seemingly non poisonous, it is given in doses of one or two fluid drachms (4 to 8 grams), repeated at intervals.

Frazera Walteri, North American Columbo. —Natural order Gentianaceæ. Found growing in and about the Alleghanies from East to West. The plant has a 3-parted cályx, corolla 4-parted, somewhat wheel-shaped; filaments awl-shaped, uniting in a single tube (*monodelphus*) at the base; style persistent, the stigma 2-celled; flowers numerous, of a yellow tinge. This biennial or triennial plant attains a height of 5 to 10 feet (2 to 4 meters) with oblong leaves with parallel veins running through them.

The root should be collected in the second year of its growth. The Frazera differs very little from the general characteristics of the species, save in the size of the plant and the persistent yellow of its internal tissues. It is very seldom found in the stores, and when it does occur is in longitudinal slices 1 inch (25 millimeters) in thickness and much wrinkled. The odor resembles that of gentian to a marked degree, as does also the taste. Its component parts are identical with gentian, but containing less bitter principle than *gentiopicrin*. Its medi-

cal properties are tonic and purgative, acting somewhat like the rhubarb. Not officinal, but when given it is used in form of an infusion, 1 oz. to the pint of boiling water; the dose of which is ʒi (30 grams).

Gentiana, Gentian.—Natural order Gentianaceæ. Sexual system of Pentandria Monogynia There are many varieties or species of gentian, such as the *gentian quinqueflora*, or five flowered, with its slender stem and ovate lanceolate leaves, with a pale blue corolla; *gentian detonsa* or fringed gentian; *gentian ochroleuca*, with its green and white corolla terminating in clusters; *gentian alba*, or white gentian; GENTIAN ANDREWSII, named for Andrew, the botanist; the soapwort gentian, GENTIAN SAPONARIA, and many others found growing in the Southern and Western States of America. This is a large order of herbs, having a colorless, bitter juice, and found in abundance in all the sub-tropical countries of the world. The leaves are generally opposite and sessile; inflorescence is either solitary, cymose or in racemes; flowers usually showy. So far as the root and the medicinal properties of the same are concerned they differ from the order in but few minor particulars.

Gentian Lutea, Yellow Gentian.—Natural order Gentianaceæ. This is a native of central and southern Europe, said to derive its name from King Gentius, the sovereign of the Illyrians *Gentian lutea* is a perennial plant, attaining a height of 2 or 3 feet (60 to 90 centimeters), with ovate, oblong leaves, 5-nerved; the stem leaves are ovate, sessile, and acute

having a pale-green color. Flowers are of a rich yellow, interrupted by a spike of whorls, with 5 stamens and 2 pistils, ovary and capsule fusiform. The root as found in commerce is brownish-white externally, very much twisted and contorted; 4 to 6 inches (10 to 15 centimeters) in length, and about 1 inch (25 millimeters) in diameter. Internally it is of a dirty-white appearance, damp and tough; when thoroughly dry, brittle, and breaking with an uneven fracture; odor faint and peculiar; taste sweetish and persistently bitter. Gentian root contains, according to analysis. a fixed *oil*, *pectin*, *gentiopicrin*, *and gentistic acid*, called *gentisin*. Gentiopicrin occurs as an amorphous, crystalline glucoside, very soluble in water and alcohol; whilst gentistic acid crystallizes in golden spicula, almost tasteless; soluble in alcohol and ether, and giving a dark-brown color to the iron salts. Gentian as a therapeutic agent is classed as a simple tonic, and is found in the form of powder, extract, tincture, and infusion, all of which are recognized as officinal. The dose of the powder (which is rarely given) is 5 to 30 grains (0.3 to 2.0 grams); of the extracts, 5 to 30 drops; of the tinctures, ʒi (4 grams); of the infusion, 2 to 4 drachms fluid (8 to 16 grams). The infusions should be made fresh, as they are liable to ferment if kept for a day or two, especially if the weather be warm.

Glycyrrhiza Glabra, or as some have it, **Liquiritæ Glabra,** Licorice.—Natural order Leguminosæ Papillionaceæ. A herbaceous perennial plant, native of the northern parts of Syria, and cultivated in the southern parts of

Europe; also at Mitcham, England, and some parts of Texas, United States. The licorice herb grows to the height of 4 or 5 feet (1⅓ to 1½ meters), with leaves ending in an odd leaflet (imparipinate), and as a rule the leaflets number 13, being oval and emarginate, and viscid on their under surfaces. Flowers distant, of a pale-blue color, and terminate in axillary racemes, with 10 stamens; organs diadelphous, with an ovate compressed legume, hence the order Leguminosæ Papillionaceæ. The part of the plant used in medicine is the root, the *glycyrrhiza radix*, which occurs in the stores in pieces of about 12 inches (30 centimeters) long, cylindrical in shape, and from ⅛ to 1 inch (5 to 25 millimeters) thick; externally of a gray-brown color, and wrinkled, and internally of a tawny yellow; elastic and tough, and when broken the fracture is coarse and fibrous. The wood is dense but occasionally porous, showing a small central pith; taste is sweet and sharp. The different varieties are the Italian, Spanish, and Turkish, all of which find their way into the drug market, and much of the *Glycyrrhiza lepidata* that is found growing in the South-western States is, no doubt, manufactured into the solid and fluid extracts, having the general characteristics of the European variety.

Licorice root contains *sugar*, *starch*, *resin*, *asparagin*, and about 6 per cent. of *glycyrrhizin*, which is a glucoside and is the sweet principle of the root. Its medical virtues are principally due to its expectorant and demulcent properties. Its officinal preparations are solid, powdered, and fluid extracts, besides which it enters into

the following compounds: co. decoct., sarsaparilla, pulvis glycyrrhiza comp., and syrup sarsaparilla co., whilst the powder is used *ad libitum* for the preparing of pills and troches, to give them consistency. The dose of powdered extract is from 15 to 30 grains (1 to 2 grams); of the fluid extract, ½ to 1 fluid drachm (2 to 4 grams). The extract forms one of the ingredients of the much-esteemed Brown Mixture. There is also an ammoniated licorice recommended in the revised edition of the Dispensatory, the dose of which is 5 to 15 grains. For further account see United States Dispensatory.

Heuchera Americana, American Heuchera, Alum Root, or American Sanicle. Natural order Saxifragaceæ. A native of North America, and usually found growing in rich, woody localities. This perennial shrub attains a height of 20 to 40 inches (50 to 100 centimeters), the calyx cohering to the ovary. Petals are small, five in number; five stamens, and a two-celled pod with many seeds. The flowers grow in small clusters with a purple tinge of color, blooming in the month of June. The root is the part used in medicine, and when fresh it is fleshy and about 6 inches long (15 centimeters); but when found in the stores (which is not often) dried it is irregular in shape, shriveled and tubular, with many thin branches or radicles. Externally somewhat of a purple-brown color, while internally it is of a red-brown color, and is made up of a granular structure with many internal cavities. It has little or no odor, but a strong styptic and astringent taste; hence the

name alum root. Leaves are radicle, petiolate, and inclined to cordate shape. Alum root is a powerful vegetable astringent, not now official. According to analysis, it is said to contain from 18 to 20 per cent. of tannin. There are two more species having the same properties and differing very little in general characteristics from the above.

Ipomœa Pandurata, Wild Potato Vine, "Man of the Earth" Wild Jalap.—Natural order Convolvulaceæ. This is a perennial herb found growing generally in sandy places in many parts of the United States, reaching 12 to 24 inches (30 to 60 centimeters) in height, yet found trailing or twining. Leaves cordate and somewhat narrowed in the middle; flowers one to five on peduncles, with a creamy-white and purple tinted tube.

The root is large and conical in form and 6 to 12 inches (15 to 30 centimeters) in length, and ½-inch (12 millimeters) thick, of a pale-brown externally and of a dirty-white internally; when fresh, exudes a milky juice when cut or broken. It contains, according to analysis, sugar, gum, starch, resin and coloring matter. As a remedial agent it has been little used, but has diuretic and cathartic properties, in doses of 15 to 30 grains (1 to 2 grams) The properties and action of the wild potato vine are not unlike that of the *exogonium purga* of Mexico. There are several varieties of *ipomœa* besides the one described, two or more species found in the Southern States, and one in the East Indies; not officinal, and only used as a domestic remedy.

Inula Helenium, Elecampane. Natural order Compositæ. Elecampane is a showy perennial plant, attaining the height of three to six feet, with an erect stem, quite large, rounded, and covered with a slight pubescence. The leaves are large and alternate, sometimes measuring as much as eighteen inches in length, with a breadth of four or more inches; somewhat cordate in shape, with acute points and with a downy surface beneath. The flowers generally grow in clusters at the summit, but they are often found solitary, and are of a golden yellow color, quite large and showy; involucrum (a kind of calyx in umbels), imbricated in many rows; outer scales ovate. The flowers of the female ray are lingulate in shape; those of the disk are hermaphrodite. The root is large and fleshy, and is said to contain no starch. As found in the stores, it is in various-sized pieces, curled or twisted up. When dry the pieces are of a light-brown externally, and of a light-gray color internally, with little pith to be seen. Under a glass of two or three diameters a number of resin cells are visible. Elecampane is a native of Europe, but is found growing thrivingly in all parts of the United States. As a remedy it has been known since the days of Hippocrates. It is diuretic, expectorant, emmenagogue and diaphoretic. Given in form of decoction, one half ounce to a pint of water.

Inula was highly thought of in days gone by, but is now seldom prescribed by the allopathic school of medicine. As a domestic remedy it is still kept on sale in the stores. It forms an ingredient in cough drops and many nostrums

put up in form of syrups for the cure of consumption and its kindred diseases. The root is said to have its best virtues at the end of the second or third fall or spring of its growth. It contains, according to analysis, an *acid resin*, *inulin* and *helenin*, and bitter extractive matter; its camphor-like taste is due, it is said, to a volatile oil termed alantol, or inulol. Inulin has much the same composition as starch, which differs from starch by Iodine giving to its solutions a yellow color which it is said to replace the order of Compositæ. Inulin is a white, tasteless, inodorous crystalline powder, soluble in hot water. The dose of the decoction is 1 to 2 fl. 3 (4 to 8 grams), two or three times daily.

Ipecacuanha, Ipecac, Cephælis Ipecacuanha. —Natural order Rubiaceæ. Ipecac is a perennial shrub found growing in Brazil and other parts of South America, and attains the height of 12 to 18 inches (30 to 45 centimeters); the stem is ascending and often rooting near the ground. At the top the stem is pubescent; leaves opposite and numbering six to eight, they are obovate, oblong, rough, with a delicate pubescence on their under surface. Peduncles axillary, solitary, erect, and covered with down. The inflorescence is in clusters, white and funnel form, which are followed by a number of berry-like fruits containing two hard plano-convex nuts; the calyx is very small with five blunt sepals; five stamens project beyond the corolla. There are many varieties of ipecac which find their way to European markets, though seldom found in this section, but they are said to be derived from the same

species. One variety is known as the Richardsonia, natural order Rubiaceæ, also known as the striated ipecac; it is slightly wrinkled, transversely fissured and annulated, with the wood almost as thick as the bark. The white ipecac, or what is termed the ionidum ipecacuanha, belongs to the natural order of Violaceæ; this variety is wrinkled longitudinally, of a rusty white, with a non-annulated surface, whilst the wood is porous, yellow, and thick. The striated variety of ipecac (Von Linnæus gave as the origin) the psychotria emetica, natural order Rubiaceæ, and from all accounts this is the ipecac of the stores. The root is 4 inches (10 centimeters) long and 1-6 (4 millimeters) of an inch thick, having a dull-brown or grayish appearance on the surface, with many wrinkles and irregularly annulated. The bark is brown, thick, brittle, and waxy, and easily separated from the tough, white woody portion of the root. Ipecac has a faint nauseating odor and a nauseous, acrid, bitter taste. The active principle lies in the bark; this when powdered, should be of a fine pale-brown color and moderately heavy. The bark, according to authority, forms about seventy-five per cent. of the root, and contains *starch*, *resin*, *fat*, *albumen*, *sugar*, *pectin*, and the active principle termed *emetia*, a white powder, soluble in alcohol and chloroform and but slightly in water. Emetine is said to exist in combination with a volatile oil, glucoside and ipecacuanhic acid. Emetine gives to a solution of lime chloride an orange-yellow color, also called emetine. Ipecac is an expectorant, alterative, astringent, and emetic; dose of the powder, 1 to 30 grains (0.06 to 2

grams); dose of pure *emetine*, 1.8 of a grain (0.008 gram) repeated at proper intervals. The officinal preparations of ipecac, or those in which it enters, are fluid extract, wine, syrup, troches, pills, ipecac cum scilla, pulvis ipecac et opii, and troches morphia et ipecac. The powder when inhaled is apt to cause unpleasant symptoms of the breathing apparatus, and has been even known to produce vomiting in those particularly susceptible to its influence. I know of one case in which a physician had alarming symptoms of asthma when within fifty feet of where the jar of ipecac was being opened. For further account see page 813, United States Dispensatory.

Jateorrhiza Calumbæ. Calumbo or Calumbæ.—Natural order Menispermaceæ. Native of Eastern Africa, between the Ibo and Oibo rivers and the banks of the Zambesi. Calumbo is a lofty perennial plant, covered by a pubescence from stem to leaf; leaves orbicular and somewhat cordate in shape, particularly at the base, with five to seven lobes, and somewhat wavy, with long petioles; calyx six parted; flowers small, with six petals; six stamens, with three ovaries united at the base; fruit, a small berry about the size of a hazel nut, and very hairy; flowers have a greenish tinge. It is said that the stems are annual, whilst the root is the perennial part of the plant. The root is the only part of the plant used in medicine. Calumbo root is composed of several fleshy, spindle-shaped offsets. Occurring in the stores in nearly circular disks, having a diameter of one to two inches (25 to 50 millimeters), of a yellowish-

gray color, often depressed in the centre, with several circles of woody rings, very irregular towards the external part. On breaking, the fracture is abrupt and mealy; taste aromatic, bitter and mucilaginous. Its active principle is termed *calumbin*, which occurs in a white, crystalline body. It contains, also, *berberine acid*, *starch* and *mucilage;* officinal PREPARATIONS, EXTRACTS, TINCTURE and INFUSION. Dose of the extracts, 1 to 10 grains; of the fluid extract, 15 to 30 drops; of the tincture, 1 to 2 fluid drachms; of the infusion, 2 to 4 drachms (4 to 16 grams). Calumbo and its preparations are valued as a simple tonic, having no other effect on the economy than to improve the appetite. It is also used as an adjunct to other special tonics, as a diluent.

Krameria, Rhatany, Krameria Triandra.—Natural order Polygalaceæ. This is a low, perennial plant, a native of Peru and Bolivia, found growing on the slopes of the Cordilleras. The stem is much branched, and the younger portions are covered by a delicate pubescence; leaves oblong, ovate and pointed; flowers scarlet; four petals and four sepals, which are also colored. The flowers have three stamens; fruit indehiscent, about the size of a cherry stone, which is covered by prickles; of a brown color; one-celled, with two seed, one seed being abortive. This is the description given by Stephen and Church in their history of the flowers of Peru. Krameria root, as it occurs in commerce, is tough, dense and woody, two to four inches (5 to 10 centimeters) long, and one inch (25 millimeters), more or less, in diameter. The root has many rootlets or radicle branches, twelve

inches (30 centimeters) or more in length. The portions are knotty, with several heads; externally of a rusty brown, and usually scaly; when chewed it tinges the saliva red, and has a very astringent taste; it has little or no odor. The wood is hard and of a pale brown color, having many fine medullary rays passing through it. The Krameria tomentosa, or Savanilla rhatany, is less knotty than the Triandra, and rather more slender as a rule. The Brazilian or Para rhatany is not materially unlike the preceding, save in its being transversely fissured and of a darker color. The Krameria secundi-flora is found abundantly in the United States, and is known as the Texas Krameria. This variety is considered inferior to those already described, though the difference is but slight. Rhatany is said to contain starch, resin, *kramero-tannic* acid and its coloring principle, termed *rhatanic red*, a modified form of Kramero-tannic acid. Rhatany is highly valued as an astringent, in doses of 8 to 30 grains (0.5 to 2 grams), but rarely given in form of powder. The tincture, syrup, extract and infusion are officinal. Given in doses of 30 to 60 drops (2 to 4 grams), also in form of troches, etc. Tannic acid is said to exist in three states—that of purity, without color, with no astringency, and as an extractive matter associated with other material. See Dispensatory. Rhatany is rarely adulterated except with other varieties of its species. That known as the Texas Krameria is seldom found in commerce.

Lappa Officinalis, Arctium Lappa.—Natural order Compositæ. This rank biennial weed

is a native of Europe, but now found in all the sub-tropical countries of the world. It attains a height of from 12 to 24 inches (30 to 60 centimeters) with a stalk of a brown-red color, somewhat wrinkled, surrounded by a tuft of fleshy leaf stalks, the inflorescence clustered; heads many, corolla pink, many seeded. The root is from 6 to 12 inches (15 to 30 centimeters) long, and 1 inch (25 millimeters) in diameter, with many thread-like rootlets, having a number of withered scales near the summit. The root contains, according to analysis, *mucilage*, *sugar*, *tannin*, *inulin* and an extractive matter, a glucoside and oil. Its medicinal properties are feebly aperient; there is no recognized preparation of it, though a fluid extract is always to be found in the stores, the dose of which is 15 to 60 drops; but is not often prescribed. The common names are burdock, clotbur and bat-weed. The name is supposed to be derived from the Greek words *arctos*, a bear, and *labein*, to lay hold of, from the shaggy and tenacious character of its fruit.

Ligusticum Levisticum, Lovage Levisticum, officinale.—Natural order Umbelliferæ. This perennial plant is a native of Southern Europe, and is cultivated in Liguria, hence the name Ligusticum. This plant attains the height of from 3 to 5 feet (1 to 1⅓ meters), and bears yellow terminal flowers in umbels; leaves ternate and compound; the root is 6 inches (15 centimeters) long and from 1 to ⅜ of an inch (4 centimeters) in diameter, having two or more heads, annulated and having a number of branches from the main root, 6 or 8 inches (15 to 20 cen

timeters) long; they are very much wrinkled and of a red-brown color. The main root has rather a thick bark, with a light-yellow, porous wood, near the centre of which are many irregular meshes of resin cells, with numerous rays diverging from the centre and central pith. Lovage has a pungent aromatic, sweetish and somewhat bitter taste with little odor. Lovage contains, according to authority, *sugar*, *starch*, *resin*, *mucilage*, *bitter extract*, a volatile *oil*, and a peculiar coloring matter called *ligulin*. It has been used as a remedy, and its virtues are said to be stimulant, diuretic, carminative, and emmenagogue. As found in the stores it is in small pieces, usually in packages. Not officinal; an alcoholic solution of the root gives a handsome red color to water free from lime.

Penthorum Sedoides, Sedum Acre, Biting Stone, Crop, Ditch Stone Crop, House Leek and Garden Opine.—Natural order Crassulaceæ. If not identical in all particulars they have the same characteristics so far as their medicinal effects are concerned. The stone crop is a species of moss growing in and about old fields and old walls. This homely perennial plant attains the height of from 8 to 12 inches (20 to 30 centimeters), and is cultivated in the gardens of Europe; the stem is erect, angled, or somewhat branched, leaves scattered, nearly sessile, lanceolate (lance), and acute at both ends, and sharply serrate (saw-like). Flowers of a yellow-green, arranged in (cyme) rows from the centre, calyx hairy (pubescent), sepals (cunate) in wedge-like form, filaments smooth, anthers two-celled, pistils numbering five and united

below, stigmas small and capitate, carpels many-seeded. The stone crop has an acrid mucilaginous taste. Although not now officinal, has in years gone by been highly thought of as a remedy in dysentery, scrofula and catarrhal troubles. It has been lately introduced to the medical profession as a new remedy in form of a fluid extract.

Petroselinum Sativum or **Apium Petroselinum.**—Natural order Umbelliferæ Orthospermæ. Commonly known as Parsley. The plant is a native of Southern Europe, but is now naturalized in all parts of the world, and used as a condiment to flavor soups, etc. The herb grows 4 to 8 inches (10 to 20 centimeters) in height, and when in bloom has a number of small, yellow flowers growing in umbels, with five stamens (pentandria) and five petals adhering to the ovary, or rather, incorporated with the calyx. The fruit splits open showing two separate pericarps with a single seed in each. The leaves of this herb are small and intensely green, smooth and with many compound cuts or divisions. The seed yield an aromatic volatile oil, resembling in color other light oils of the same nature; also a non-nitrogenous substance called *apiol* by the discoverers, Messrs. Joret & Homolle, of Paris. The root of the parsley as it occurs in commerce is somewhat cone-shaped, about 6 inches (15 centimeters) long and ½ inch (12 millimeters) thick; annulated, wrinkled and with many transverse ridges. Externally of a light-brown color, and when neatly cut, the internal arrangements show many medullary rays diverging from the centre. The root has an aromatic,

sweetish taste and a faint odor. The parsley root is said to contain mucilage, starch, sugar, and a volatile oil. At one time the root was used as a carminative, diuretic, and nephretic, but now rarely if ever prescribed, except in the form of the pearls of apiol made by, or rather, bearing the name of Joret & Homolle, and Fougera & Co., which brands of apiol are well thought of by the profession as emmenagogues. There is an apiol found in the stores which resembles at first glance an oleoresin; when fresh has a dark brown color, but on standing becomes dark, viscid, and has a tenacious odor resembling in no wise the plant or root. The dose is from 10 to 15 drops. The name is derived from the Greek words *petra*, a rock, and *selinum*, rock selinum, from its native habitat.

Phytolaccæ Decandra, Poke Weed or root, Crow-berry, Pigeon-berry, Cancer-root, etc — Natural order Phytolaccaceæ. The Poke plant is a perennial and native of the North American Continent, but it flourishes in Africa and Southern Europe to a great extent, and is supposed to have been introduced from our country in the same manner as the European plants have been brought here, and by us naturalized. The Poke reaches 6 to 9 feet (2·to 3 meters) high with a cylindrical hollow stem, bearing oblong ovate lanceolate leaves, acute at both ends and of a green inclining to purple color as the plant ages. Flowers occur in racemes forming a berry-like fruit with ten cells containing ten seeds. The root of the Poke is fleshy, large and conical (or as some have it, fusiform) wrinkled and dingy looking, and when cut transversely exhibits a

fibrous nature with many concentric rings. The analysis by Mr. E. Donnelly shows mucilage, starch, tannin, resin, a glucoside and a crystallizable principle called phytolaccin. Poke has little or no odor and a sweetish, acrid taste. Death has occurred from an overdose of the root, although the young shoots are delicate and edible in the early spring. It is alterative, anodyne and resolvent, and enjoys some reputation as a remedy in form of decoction and fluid extract. The dose is 10 to 20 grains in form of an infusion; that of the fluid extract 5 to 15 drops (⅓ to 1 gram). The Poke root has been proved by the American Indians a safe and reliable emetic, and even well thought of as such by some of the early writers on the medicinal plants of this country. However, there are many cases of poisoning by both the berries and the root, hence some degree of caution should be exercised. The name is said to be derived from the Indian, Pocan or Cocan. More likely the botanical name is from the Greek words Phyton or Phuton, a plant, and Lachanon, a pot-herb.

Polygala Senega, Senega.—Natural order Polygalaceæ. This plant is known by the common names of seneca, seneka, senega, snakeroot, milk wort and mountain flax. It seems to have received its name from the Seneca Indians, the root being used by them as a remedy for the bite of venomous snakes. This plant is native of North America, growing from the Canadas to California. It sends up a number of shoots or stems from the root which is a perennial attaining a height of 12 inches (30 centimeters) bear-

ing upon its stems many rough leaves, lanceolate (lance) or oblong lanceolate (pointed at both ends), with sessile flowers of a rose color, having five sepals, five petals and a two-seed capsule, which ripens in July and August. The root which is the medicinal part of the plant should be gathered in the fall of the year. Senega is the only acrid root which is devoid of starch. As it occurs in the stores Senega is from 2 to 4 inches (5 to 10 centimeters) in length, with a knotty head or crown and thence branching into numerous small rootlets of a gray or brownish yellow color; internally the root and rootlets are of a dirty white. The taste at first is sweet and then acrid. The bark encloses a white inert woody column, about the same dimensions as itself. Senega root when broken has a short brittle fracture and a peculiar rancid odor. In appearance it somewhat resembles the Ginseng and the Cypripedium (lady's slipper), although the roots and rootlets of the latter are much larger. Seneka contains *senegin* or *polygalic acid*, a fixed *oil*, *pectin*, *resin*, sugar coloring matter and *malates*. Senegin is closely allied to Saponin, and like it a sternutatory. Besides the species already described, there are two varieties found in Europe, the P. Amara and the P. Vulgaris, which are much lauded as remedies in chronic pectoral affections. The medicinal properties of the Seneka are expectorant, emetic and diuretic. The officinal preparations are the abstract, fluid extract, infusion, syrup and an ingredient in the compound syrup of Squills, also a tincture recommended by the British Pharmacopœia. The dose of the abstract is 1 to 3

grains (0.06 to 0.2 grams); of the fluid extract, 5 to 15 drops; of the syrup, from ½ to 1 fluid drachm (2 to 4 grams) repeated every three or four hours.

Rheum Officinale, Rheum Palmatum.—Natural order Polygonaceæ. It is supposed that the various kinds of rhubarb are from the same species, varied only by locality and climate influences; however, it is generally accepted by the majority that the best is that imported from China. Rhubarb is a perennial herby plant resembling very closely our common edible rhubarb of the United States, except that the foreign plant is of larger dimensions, attaining a height of five feet (nearly two meters) or more with large round cordate leaves; with five or six lobes, irregular and coarsely cut. The flowers occur in panicles with six petals and nine stamens inserted into the base of the three outer segments; the filaments awl-form (subulate) with an ovary and seed of a triangular shape. The substitute for the genuine China rhubarb is the Rheum Rhaponticum, a native of Siberia and cultivated in England at Badicott; this variety very closely resembles the true China rhubarb, but it is less bitter, more astringent, while its pith rays have a red tinge. The Rheum Palmatum, Rheum Emodi and Rheum Compactum are all cultivated on the continent and furnish the different varieties of French and German rhubarb, but they are considered inferior to the English species of Rheum Rhaponticum. The so-called East India rhubarb is said to be an inferior variety of the China, as it is knotty with green or blue black spots on its external surface.

The Turkish rhubarb is now no longer found in the stores of the pharmacist, the Russian having supplied its place in name and use. In selecting rhubarb we should make choice of those pieces which are moderately heavy and of a handsome brown color; when broken or cut they should exhibit a line of colored veins approximating a hue of yellow, red and white. The odor is aromatic and agreeable to many, but bitter and astringent and somewhat gritty to the taste, staining the saliva yellow. When porous, light in weight and apparently worm-eaten, it should be thrown aside as comparatively worthless.

Rhubarb root occurs in various-sized pieces and usually irregular in shape, frequently in disks sawed for the pharmacist, and also to be had in square or oblong blocks. These are both convenient shapes for selling and for the use of customers. Care should be exercised in buying the powder as it is liable to adulteration. It should have all the characteristics of the solid root. Rhubarb, according to the most recent analysis, contains *starch*, *tannin*, crystals of *oxalate* of *lime*, *emodin*, *phæoretin* and *aporetin*, which is said to be uncrystallizable, chrysophan and chrysophanic acids. The latter named principles yield with alkalies a red or brown red color. Chrysophan is of a deep yellow color, soluble in water and alcohol, yielding with dilute acids and sugar chrysophanic acid. Although many of the alkaloids are attainable, none as yet have been considered of sufficient importance to be kept as remedial agents, with the exception of the chrysophanic acid, which is variously

termed Rhein, Rhabarbin, etc., etc. See U. S. Dispensatory. The tannic acid exists as a *rheo-tannic acid.* The officinal preparations are solid and fluid extracts, infusion, pills simple and compound, simple and aromatic syrups, simple and aromatic tinctures, also a sweet tincture and a wine of rhubarb. Rhubarb and its various preparations are tonic, aperient, astringent and laxative according to the dose in which it is given. Dose of the powder, 5 to 25 grains (.06 centigram to 1-6 gram). Dose of the tinctures and syrup, 1 to 2 drachms; of the solid extract, 1 to 5 grains; of the fluid extract, 15 to 30 drops. The name is derived from the word Rha, the former name of the river Volga, and Barbarus, the Barbarians, (the name given to the Chinese).

Sarsaparilla Radix, Sarsaparilla Root, Smilax Officinalis. Natural order of Smilaceæ. It is indigenous (native) to tropical America from Mexico to Brazil; it is found in commerce in long cylindrical pieces, wrinkled and of a brownish gray color externally, and white and mealy internally; with a nucleus forming a circular zone around the pith or parenchyma, with scarcely any odor. Taste, bitter and mucilaginous; usually measuring 1-5 of an inch (5 millimeters) in diameter. Sarsaparilla is an evergreen climbing plant, stems often prickly, leaves alternate, cordate and reticulate in shape. Flowers sessile on a globe-like receptacle, subcapitate or umbellate stamens and pistils on, or in separate flowers (dioecious) but on the same plant. Perianth, six parted, six stamens (hexandria) inserted into the base, stigmas numbering three and somewhat spreading; it bears a

berry like fruit, one to three seeded, embryo very small. There are four varieties of Sarsaparilla used in medicine, viz: the Honduras (mealy), with a pale brown coat, or epidermis; the Guatemala (mealy), with an orange-colored epidermis, both varieties containing starch; the Jamaica (non-mealy), has a red brown epidermis, and the Mexican variety with its dull brown coat without the mealy appearance of the first two species, and entirely free from starch; hence the two last named are considered by the majority of medical men as the best for medicinal purposes. Although not strictly speaking a rhizome, still, it belongs to that class of roots more properly, from the fact that the rootlets come from one common centre. According to analysis, Sarsaparilla contains a volatile *oil*, *starch*, *resin*, and a coloring matter besides its active principle, which is variously termed *smilacin*, *salseparin* and *parillonic acid;* this active principle when pure is said to crystallize in scales or colorless acicular crystals, which have a persistent acid taste. It is said to be identical in character to *saponin*, the active principle of Seneka; it is a true glucoside. The preparations of Sarsaparilla are the solid and fluid extracts, infusion, decoction, simple and compound syrups. The dose of the decoction and infusion is from ½ to 1 ounce (8 to 16 grams); of the fluid extract, 2 to 4 grams; of the syrups, 4 to 8 grams. Sarsaparilla was first introduced by the Spaniards in the sixteenth century, and believed by them a specific for syphilitic disorders. Its action is alterative and purifying. A remedy much used by nostrum venders as a cure-all.

Saponaria Officinalis.—Natural order Caryophyllaceæ. Also called by the common names of Soapwort, Bruisewort and Bouncing Bet. Native of the southern and central parts of Europe, and now found naturalized in many of the Southern and Middle States of the North American continent. It receives its common names from the facts that it makes a lather with water, that it is held in high estimation as an application to bruises, and the last and vulgar name from the luxuriant and vigorous growth of the flowers The stem (caulis) grows from 1 to 2 feet (30 to 60 centimeters) high, bearing a vigorous cluster of flowers at the summit, of a rose color, with a five-toothed calyx, ten stamens (decandria), two pistils (digynia). Leaves ovate, or ovate-oblong, and many times lanceolate (lance) in shape. Saponaria Officinalis bears a one-celled pod. The root is the part used in medicine, and is recognized in Europe, but not in this country, as an officinal remedy. The root is cylindrical in shape, 10 inches (25 centimeters) long, and 1-12 to 1-6 of an inch (2 to 4 millimeters) in diameter. It contains *saponin*, *resin*, *mucilage* and other matter, but free from starch. The Saponin acted upon by acids breaks up into sugar and a crystalizable substance called *sapogein*. It is alterative, diuretic and diaphoretic. Used in the form of a decoction, one ounce to a pint of water.

Saponaria Levantica, Levant Soaproot.—The root of the Gypsophila Struthium. Natural order Caryophyllaceæ. It is found along the borders of the Mediterranean Sea, and differs little from the other varieties in general char-

acteristics, save that the leaves are larger and more fleshy, and the root larger with numerous medullary rays; tastes like the previous variety, somewhat sweet and persistently acrid. The dose and use of all the family of Caryophyllaceæ seems to depend on the principle called Saponin, which principle exists in more or less quantity in the corn cockle (Lychnis Githago) and many plants of the same genus. Plants in this order. Caryophyllaceæ, are said to be in the tribe Sileneæ, the genus Lychnis and the sexual system of Decandria Pentagynia. These soapworts, or soaproots, must not be confounded with the soapbark of the stores, Quillaia Soponaria, which is used, like the former, for a detergent, but is rarely given internally, and is highly poisonous.

Sassafras Cortex, the bark of the Sassafras Officinale.—Natural order Lauraceæ. The sassafras is found growing in all the North American woods, and according to the situation and soil, etc., depends the size the tree attains. The bark is obtained from the root of the tree. As found in the stores, the bark is rough externally and smooth internally, in various sized pieces, irregular in shape and of a rusty brown color, very pungent, having a sweetish, bitter, aromatic taste, somewhat astringent. The bark contains oil, tannin, starch, gum, resin and wax; the oil has a specific gravity of 0.90, dissolves freely in alcohol and yields with acid nitric a dark resin which is variously termed sassafred, or sassafrene. The leaves of the sassafras are somewhat ovoidal when young, becoming deeply cut as they attain age, smooth on the upper surface and downy beneath, inclining to pubes-

cence. Flowers of a pale yellowish-green color, perianth six-parted with nine stamens, hence belonging to the *class enneandria*, seed oval, and the size of a small pea. The pith (medulla) is light and spongy and is termed the parenchymmatous tissue, forming a limpid mucilage with water; the officinal preparation of Mucilago Sassafras is much used as a soothing application to inflamed eyes. The officinal preparations are the mucilage of the pith, and the bark enters into the decoction of sarsaparilla comp. and fluid extract sarsaparilla comp. The oil is used almost exclusively as an embrocation with other remedies, but may be given in doses of five or ten drops. The *infusion* and simple decoction has long been known and used as a domestic remedy, as a blood purifier. One ounce of the bark put in a pint of hot or cold water and taken in doses of a wineglass full two or three times a day is a simple and safe remedy, and was at one time an officinal preparation. It is stimulant, aromatic, astringent and alterative in its effects. As a rule, it is used only as an adjunct to other and more efficient medicines. For further account, see the U. S. Dispensatory.

Scammonium, Scammony.—Obtained from the root of the Convolvulus Scammonia. Natural order of Convolvulacæ. The Scammony is a twining perennial plant, native of Asia and found growing in Syria and Greece; flowers not unlike the common Morning Glory, funnel-shaped and of a pale yellow color, leaves cordate; capsules contain four seeds. Scammony has no cellular structure, so to speak. The root is hard, and when broken or cut exhibits many

medullary rays coming towards the centre. The root is rarely if ever used in medicine. The medicinal qualities lie in the milk-like juice which exudes from the root when sliced off. The juice is collected in shells and dried, and found in commerce and the stores in blocks or in circular cakes of a gray-green appearance, of a resinous consistence and lustre and somewhat porous; when mixed with water it gives a green-looking emulsion, not colored blue by iodine, hence contains no starch. Converted into scammonic acid by the alkalies. It is frequently found adulterated with lime carbonate and starch. Scammony is a hydragogue, cathartic, and not often given alone; the dose is 1 to 8 grains (0.06 to 0.5 grams). It enters into the combination of Pill Colocynth Co. Pill. Colocynth et Hyoscyamii and Pulv. Scammony compound.

Scutellaria Lateriflora, Skullcap, Mad-weed, Hoodwort and other like names.—Natural order Labiatæ Stachydeæ. Skullcap is an American perennial herb, growing in wet and swampy places, the stem averaging 20 inches (50 centimeters) high, smooth and somewhat branching; leaves opposite, 2 inches (5 centimeters) long, ovate or ovate-oblong with saw-like (serrate) edges. Flowers small and of a pale blue color; the calyx is divided into two lips, somewhat helmet-shaped. There are several varieties of skullcap; the SKULLCAP INTEGRIFOLIA, SCUT. PILOSA and the SCUT. GALERICULATA, all of which have simple stems and blue flowers. All the varieties have a bitter taste and contain a bitter active principle. As found in the stores skull-

cap is in too comminuted a form for identification; usually it is found in small or large packages, put up by herb dealers. The dried tops are the officinal part of the plant. There is but a meagre account of its proximate principles, and nothing decided save that it contains a bitter principle wherein lie its virtues. There is no officinal preparation except the fluid extract, which is given in doses of one to two fluid drachms (4 to 8 grams). It is said to be tonic, nervine and antispasmodic.

Selinum Palustra, Marsh Parsley.—Natural order Umbelliferæ Orthospermæ. This is a perennial plant, native of Europe, found growing in swampy localities; the leaves erect, cleft, linear and lanceolate, attaining the height of 30 inches (75 centimeters), with compound umbels of white flowers. The root is 4 to 8 inches (10 to 20 centimeters) long, with deep longitudinal wrinkles of a gray brown color, the interior of which is spongy, having many lactiferous vessels and an extensive medulla (pith). The juice is said to be caustic; it contains, according to Peschier, a volatile and a fixed oil, also a gum and a yellow coloring matter, with some saccharine matter. The Russian physicians believe it to be a valuable remedy in epilepsy and other nervous disorders; the dose is said to be 15 to 30 grains (1 to 2 grams). Not officinal, and little prescribed in this country.

Senecio Vulgaris, Common Grounsel.—Natural order Compositæ, genus Senecio; also known as the Squaw-weed and Golden Ragwort Fireweed, etc. This early spring perennial is a native of Europe but naturalized in all parts

of the American continent; attains the height of two to three feet, more or less, according to the quality of the soil; root small, and a horizontal rhizome with many rootlets; leaves alternate as a rule, cordate in form, with crenate edges, the older leaves clasping and auriculate; flowers numerous, tubular rays, corolla five-lobed; the inflorescence is said to be corymbose, with long peduncles. Disk (centre) red and the rays yellow. The different varieties of groundsel differ only in some minor particulars. The plant is not officinal, but is highly thought of as a remedy by the "eclectics." It has been used in years gone by as a remedy in liver and urinary complaints, and as a poultice in indolent ulcers is still used by a certain class of physicians. The dose is from 10 to 30 grains, usually given in form of infusion. From the Latin *senex*, an old man, the pappus resembling a white beard.

Statice Limonium, Marsh Rosemary, Sea Lavender and ink root.—Natural order Plumbaginaceæ. Found on the inland salt marshes of Southern Europe, also upon the Carolina coast of our own country. The plant grows from 12 to 36 inches (30 to 90 centimeters) in height with a plaited calyx, five stamens (pentandria) opposite the petals or lobes of the corolla. Ovary free, one celled, with a solitary ovule. The stem bears numerous lavender colored flowers. Leaves tufted, oblong and bristly, and one-ribbed. The statice has a perennial root, with several heads, from 12 to 24 inches (30 to 60 centimeters) in length, one inch (25 millimeters) thick, spindle shaped, fleshy, compact and

very rough, of a purple brown color, with little or no odor; taste very astringent and bitter; contains, according to analysis, about 17 per cent. of tannin; it contains also mucilage, sugar, volatile oil, resin and the salts of potassium and sodium. Has been used with some success as an astringent in pulmonary and uterine hemorrhage in doses of from 8 to 30 grains (5 centigrams to 2 grams). No longer an officinal remedy, but still used as a domestic remedy in many parts of the country, where it may be found in abundance. Rarely found in the stores.

Stillingia, Stillingia Sylvatica, Queen's Root, Queen's Delight, Yaw Root, Silver Leaf, etc. —Natural order Euphorbiaceæ. This is a perennial, milky plant growing in the dry sandy soil of the Southern States of America. The stems are straight, and are 2 or 3 feet (60 to 90 centimeters) in height, bearing lanceolate and finely serrated leaves, somewhat spreading and smooth; the flowers are in spikes or catkins, very small; the leaves are almost sessile. The upper flowers are staminate and the lower ones pistilate. The root as it occurs in commerce is 12 inches (30 centimeters) long and 2 inches (50 millimeters) in diameter, tapering downward and not much branched, compact, tough, and much wrinkled, of a light brown externally and of a pale pink internally. The odor is not pleasant, and the taste pungent, bitter, and acrid; it contains *starch*, *resin*, and a *bitter* principle. The so-called oil of stillingia (according to Mr. Saunders) is really an ethereal extract, and has little of the persistent acrimony

of the root. Stillingia has been, and is, employed as an alterative in scrofula, syphillis, and some skin diseases, but with uncertain results. It is used in the form of simple and compound sirups, and extract, the latter only being official. Dose 15 to 30 grains or drops (1 to 2 fluid grams).

Symphytum Officinale, Comfrey.—Natural order Boraginaceæ. This perennial plant is a native of Europe, but said to grow spontaneously in many parts of the United States; usually found growing on the banks of the many streams, or in damp places. The plant is coarse, and is found growing to a height of 1 to 2 feet (30 to 60 centimeters), with bristly stem, narrow ovate or lance-shaped leaves. The flowers are tubular or bell-shaped in character, with a five-toothed calyx, usually occurring in racemes (grape-like), with a pale purple corolla, five sepals, and very short stamens included, anthers elongated, style thread-like. The root, which is the part used in medicine, is gathered in June or early autumn. The root as it occurs in commerce is spindle-shaped, with many branches, 4 to 6 inches (10 to 15 centimeters) long and from 2-5 to 4-5 (1 to 2 centimeters) of an inch in diameter. As it occurs in the stores it is much broken, and found in half and pound packages. It is inodorous, mucilaginous, with a feeble astringent taste, contains *mucilage*, *sugar*, and a trace of *tannin* and *starch.* Plisson isolated from the root asparagin in small quantities. Used as a demulcent in domestic practice only. Not officinal.

Taraxacum, Dandelion.—The root of the taraxacum dens-leonis. Natural order Compositæ. This early visitor of spring is native of Europe, but now found in most of the sub-tropical countries of the world. The dandelion is a perennial plant, with spreading, radicle leaves deeply cut, the winglets of the leaves having some resemblance to a lion's tooth, hence the suggestion of the name. The leaves are usually 8 inches (or about 20 centimeters) long. The stem bearing the flower is usually 6 inches (more or less) in height, erect and hollow, bearing at its apex a large golden-colored flower, which closes at night and opens with the returning day. The flowerets are numerous, lingulate and somewhat tooth-shaped at their extremities; calyx is smooth and double, with the outer sepals turned downward toward the earth. The stem bearing the flower in this case is not called a peduncle, but a scape, because it comes directly from the root. The receptacle is naked, achenium, oblong, and striated, seed numerous, papus hairy, and to this light arachnoidean is attached the seed which can be seen floating in every direction after the flower has matured. The taraxacum root is fusiform or tap-shaped, of a dark brown externally and of a dirty white on the inside; it is easily broken, and exudes when fresh a milky juice, which becomes thick and of a pale brown color on exposure. The root should be gathered in the month of September for medicinal purposes; it then contains about twenty-four per cent *inulin*, also *taraxacin*, *resin* and a *glutinous* body.

Taraxacin is soluble in (active principle) water

and alcohol. As a rule, taraxacum root is not found in the stores, except in such a comminuted form as to be totally unrecognizable. Taraxacum root and its preparations are tonic, deobstruent, and chologogue; it has a sweetish-bitter, mucilaginous taste, and when full grown the root is several inches in length and about the size of the little finger. The officinal preparations are the solid and fluid extracts and the decoction; the latter preparation is made by adding one ounce to the pint of distilled water, the dose of which is 1 or 2 ounces three times a day. Dose of the solid extract, 10 to 30 grains; of the fluid extract, ½ to 1 fluid drachm, both of which are officinal.

RHIZOMATA—RHIZOMES.

THESE differ from other roots by growing partly above ground and in a horizontal direction, having a succession of joints, forming scales and producing axillary buds, which send up one to twelve shoots; the under side of the rhizome sends numberless rootlets into the ground. There are one or two exceptions to the rule in the plants having such roots—for example, the American hellebores.

Rhizomes are known technically as subterranean stems, because they send up shoots capable of bearing fruit and seed.

Aralia Racemosa, American Spikenard.—Natural order Araliaceæ. Found growing generally throughout the North American woods; the name is of unknown derivation. This perennial, herbaceous in character, has widely spread branches to the main stem, bearing its white flowers in racemes, with cordate leaves compound as to the shape and very pubescent. The root when dry is from 4 to 6 inches (1 to 15 centimeters) long, with many rootlets. The upper surface of the rhizome presents many scars or facets where the stems were inserted.

Externally the root is of a pale brown and of rather a rusty white within; when broken the fracture is short; taste and odor exceedingly pleasant and aromatic; rarely, if ever, found in the stores, except in packages, the contents of which are so broken as to be totally unrecognizable as the spikenard. The rhizome is said to contain resin, starch, sugar and a volatile oil; it is alterative, diaphoretic, stimulant and expectorant in its action, and may be given in doses from ½ to 1 fluid ounce of the infusion; not officinal.

Aralia Nudicaulis, Small Sarsaparilla, False Sarsaparilla and Small Spikenard.—Natural order Araliaceæ. This perennial plant is found growing in Canada and the United States; its flowers are in umbels of a green color, five stamens, five petals and five styles; leaves ovate with serrated edges on a single stalk and attaining a height of 12 inches (30 centimeters). The rhizome is 12 to 36 inches (30 to 90 centimeters) long, with many slender branches, which are again divided by a number of radicles when dry, and as it occurs in commerce it is 12 inches (30 centimeters) in length and ¼ inch (6 millimeters) thick, annulated and much wrinkled; stem insertions somewhat cup-shaped. Externally it is of a light grayish-brown; internally white, with a pale-yellow wood and a porous pith; odor aromatic; taste bitter, disagreeable and nauseating. The Aralia Racemosa, American Spikenard, is distinguished from the above by its spreading branches and heart-shaped leaves, or rather leaflets, differing otherwise only in a few minor particulars. The Aralia Spinosa belongs

to the same order, but differs from the aforementioned by being quite a small tree from 8 to 12 feet high, armed with numerous prickles as the name implies. Its common names are toothache tree, angelica tree and the Hercules' club; it is clothed with large oval, bipinnate or tripinnate leaves, which are also full of prickles; the flowers are white and in hemispherical umbels, and it is frequently cultivated for ornamental purposes. Grown luxuriantly in the Southern States. The medicinal virtues lie in the bark and berries of this variety or species. The varieties of Aralia contain *starch*, *glucose*, *pectin*, *gum*, *resin* and a volatile oil; they have all been used in medicine, but are now excluded as non-officinal, though still retained in domestic practice as stimulant, diaphoretic and alterative in rheumatic and cutaneous diseases, and usually given in about the same doses as the officinal sarsaparilla in form of an infusion or syrup. It is a rare thing to find any of the three in the drug stores of to-day.

Arnica, Arnica, Arnica Montana.—Natural order Compositæ. Common names: LEOPARDS BANE, MOUNTAIN TOBACCO. This perennial plant is a native of the mountains of Europe and northern Asia, and found growing in some portions of North America. Arnica attains a height of 1 foot (30 centimeters) or more; stem pubescent, and the radicle leaves lance-shaped, with serrated edges; the leaves are somewhat pinnatified and five-nerved; leaves in one or two pairs. The flowers are white and in terminal clusters, with united stamens; fruit cylindrical and hairy. The rhizomous root and rootlets, as

found in commerce, are of a light-brown color externally, wrinkled, and showing on the main root many scars for the insertion of the stems. The horizontal rhizome is from 1 to 3 inches (7 to 21 millimeters) long, and about 3-5 of an inch (15 millimeters) in thickness. Internally the arnica is somewhat spongy and of a creamy white color, showing many circular, woody zones. The odor of the root is somewhat aromatic, and the taste bitter and pungent. Arnica contains, according to analysis, *tannin*, *mucilage*, *inulin*, *arnicin*, *capronic* and *caprylic* acids, also a volatile *oil*. The arnica root is stimulant, diuretic, and vulnerary. It has been given in doses of 5 to 15 (0.3 to 1.0 grams) grains, but rarely used in this form. In fact, the root is not often found in the stores of to-day. The officinal preparations are the EXTRACT, FLUID EXTRACT AND TINCTURE ARNICÆ RADICIS; but the tincture most generally used is that made from the flowers, and this is used principally as an external application. Arnica and its preparations are poisonous when given in large doses. The dose of the extract is uncertain, but may be given in doses of from 5 grains to 15 drops (0.33–1 gram), and repeated at the option of the physician. The name arnica is derived from the Greek word *ars*, a lamb, or *arnion*, a little lamb, because the leaves are possessed of a pubescence resembling the wool of a young lamb.

Asarum, Asarum Canadense, American Asarabacca, Canada Snake-root, Wild Ginger, etc.—Natural order Aristolochia. The European variety is said to differ from the American Asarabacca by not only being cathartic, but

emetic in its action. The asarum is found in all parts of the North American Continent. This little perennial sends up from its rhizomous root stock a stem bifurcated, which bears upon the summit of each bifurcation a kidney-shaped, pubescent leaf, of a pale-green color. The flower is white, with a slight purple tinge, campanulate in shape, with twelve stamens and one pistil. The rhizome, as it occurs in the stores, is about 4 inches (10 centimeters) long, more or less, and about ⅛ of an inch (3 millimeters) in diameter, usually much contorted and of a dark-brown color externally; breaks with an abrupt fracture, and presents, under a glass of fine magnifying power, an internal arrangement made up of woody bundles, and quite a large medulla. The taste is bitter, aromatic and peculiar; odor aromatic and agreeable; contains *starch*, *sugar*, *mucilage*, *resin*, and a *volatile oil* which is said to be a combination of asarene, asarol, and an ether. Asarum is carminative, stimulant, and diaphoretic, but at this time it is not recognized as officinal, and yet the rhizome is very generally kept in the stores. The name is derived from the Latin *asarum*, wild spikenard, and *bacca*, a berry. There is a very elegant compound syrup adopted by the District of Columbia pharmacists, and dispensed by them as a vehicle for more nauseous remedies, or as a remedy in whooping cough, etc. The asarum is a simple, innocuous drug, and can be given in doses of 15 to 30 grains (*1 to 2 grams*) and repeated. I was told by a very intimate friend and an eminent practitioner of medicine, that used as an enema it was the best thing he had tried for rectal worms (Ascarides).

Calamus, Calamus, Acorus Calamus, Sweet Flag.—Natural order Araceæ. A perennial herbaceous plant found growing in the marshes throughout Europe and North America, cultivated in some parts of India. Calamus has an erect sword-shaped leaf, 2 to 3 feet (60 to 90 centimeters) high, and 1 inch (25 millimeters) wide, green and smooth; its triangular flower spadix, which is prominently crowned with pale-green flowers, having a yellowish cast. The rhizome sends up leaves from the upper extremity and rootlets from its lower surface. When found in the stores it is carefully prepared and white, but as found in the market it presents a flattened, sub-cylindrical surface, with many semi-circular impressions where the leaves have been inserted. The rhizome when first gathered is 12 to 18 inches (30 to 45 centimeters) long, and $\frac{4}{5}$ of an inch in diameter; when cut transversely it shows a spongy texture, with many oil cells and air tubes, also with some scattered woody bundles. The odor of calamus to many is very agreeably aromatic, and the taste sharp, bitter and pungent. Calamus contains one per cent. of volatile oil, also *resin*, *mucilage*, *starch*, and *acorin*, its active principle, which was isolated by Faust. Calamus is a stimulant, tonic and carminative Dose 15 to 30 grains (1 to 2 grams). The fluid extract is the only officinal preparation.

Cypripedium, Cypripedium, Cypripedium Pubescens, Lady's Slipper; also known as the Moccasin Flower, and the American Valerian.—Natural order Ochidaceæ. The fancied resemblance to a lady's slipper and the moccasin of

the Indian has given the right to the common names which it bears. The flowers are showy and usually solitary. Stamens and pistils united, sepals spreading and resemble the petals, the latter rather more narrow; leaves ovate, lanceolate, and pubescent. The rhizome as found in commerce is horizontal and somewhat bent, with many cup-shaped scars on the upper surface and many rootlets on the under surface. As a rule, the main root is not above 4 inches (10 centimeters) long and only about ⅛ of an inch (3 millimeters) thick. Externally it presents an orange-brown surface; when broken the fracture is short; taste bitter, then sweet, becoming pungent by continued chewing. Cypripedium pubescens contains *tannin*, *sugar*, *starch*, *resin*, and *volatile oil*. Its medicinal qualities are much lauded by the homeopathic school of medicine. Its virtues lie in its diaphoretic, stimulant, and anti-spasmodic properties. The dose is 8 to 15 grains. There is an officinal fluid extract recognized.

Dracontium, Fœtidum, Skunk Cabbage, Polecat Weed, etc.—Natural order Araceæ. This is a perennial native plant found growing in moist grounds throughout the North American continent. The spathe precedes the leaves, and is somewhat hood-shaped, pointed, and fleshy, presenting a variegated color, either of a yellow or purple-brown, and inclosing a spadix which is covered with perfect flowers, having four stamens opposite the sepals. The leaves are ovate, or heart-shaped, and measure from 1 to 3 inches (3 to 5 centimeters) long, with short petioles. The rhizome is tuberous, and truncated above

and below. As found in commerce it is about 4 inches (10 centimeters) long and 2 inches (5 centimeters) in diameter, the upper portions of which has numerous rootlets. Externally the rhizome of the Dracontium is of a dull gray color, inclining to a faded white internally, with many woody bundles crowded together, which are to be seen under a glass of 8 or 10 diameters. The skunk cabbage (as the name implies) has a disagreeable odor, and an acrid, strong taste, and contains *resin*, *fat*, *sugar*, *gum*, *starch*, and an acid principle which has not been isolated. Dracontium is no longer officinal, but is still used in domestic practice as a diuretic, emetic, and stimulant, and given in form of tincture and infusion, in doses of 1 to 4 drachms (15 to 60 grams) three or four times daily. At one time it was considered a remedy for asthma. The assafœtida has entirely superseded the skunk cabbage as an anti-spasmodic, and is decidedly more reliable in its action.

Felix Mas, Aspidium Felix Mas, Male Fern. —Natural order Filices. This annual plant is found growing in Canada and the Rocky Mountains westward to Mexico; also in Europe and South America. The fronds attain the height of 2 to 4 feet, (30 to 60 centimeters) or rather length; they are bi-pinnate, with oblong, obtusely serrated primules. The sori are circular, whilst on the under surface of the leaf the sporangium are surrounded by a vertical ring opening transversely, with an elastic motion which scatters the spores. The rhizome as found in commerce is from 3 to 6 inches (10 to 15 centimeters) long and from 3-5 to 1 inch (15 to 25

millimeters) thick, with several indentations where the stipe was inserted during its growing. Externally the root is of a dark brown color, with many glassy, transparent scales; internally it is spongy and of a pale green color. The taste is bitter and nauseous. It is said to contain six per cent. of a fixed *oil* and a small per cent. of volatile *oil;* also *resin*, *tannin*, *starch*, *gum*, and *filicic* acid, whose formulæ is C_{14}, H_{18}, O_5. The constituents are all said to be held in suspension by the oleoresin, which will be spoken of hereafter. As a remedy in tapeworm it is highly valued, and given in doses of 30 to 60 grains (2 to 4 grams) in form of powder; very rarely used in this way, the officinal preparations being Extractum Felicis, Liquidum Br. Phar., and the Oleoresina Aspidii, the dose of which is 5 to 15 M (0.3 to 1 gram). The adulteration by other species of ferns is not often practiced; the native species are smaller and with fewer scales, or with none at all, and possessing less of the coloring matter.

Gelsemium, Gelsemium, Gelsemium sempervirens.—Natural order Loganaceæ. According to Professor Asa Gray, this is the false jasmine, the true variety belonging to the Olive family or order. (White jasmine). Yellow jasmine is a climbing perennial plant, native of the Southern United States, having shining opposite, ovate, lanceolate leaves, with minute stipules; flowers yellow and funnel-shaped, with five stamens, bearing at their summits five arrow-shaped anthers; style long and slender with two stigmas. The rhizome, as it occurs in commerce, is found either in long cylindrical pieces

or in cut transverse sections. Externally of a light-brown color, and showing under a fine magnifying glass a number of fine medullary rays and a very thin bark; the odor is somewhat aromatic, and the taste bitter and acrid. Yellow jasmine root contains *resin*, *starch*, *volatile oil*, *gelsemic acid*, and its active principle, gelsemine, a colorless solid with no well-defined crystallization. This must not be confounded with the eclectic preparation by Keith, which is an amorphous yellow powder, put up in ounce bottles. Gelsemium and its preparations are nervine, anti-spasmodic, and sedative in action on the animal economy, but they are highly poisonous, and should, therefore, be used with extreme caution. In fact, little or nothing is known of its true medicinal effects, nor is there any antidote of a specific character known to the medical fraternity. Gelsemin or gelsemia its active principle has been given in doses of from one 100-200" to one 300" parts of a grain; the dose of the tincture 10 drops (0.06 c. c.); of the fluid extract 2 drops (0.12 c.c.), and repeated at long intervals, and then only by the advice of the physician. The name is derived from the Arabic *ysmym*, and the Latin *semper*, a perpetual vine, ever blooming.

Geranium, Geranium, Cranes Bill, from the Geranium Maculata.—Natural order Geraniaceæ. The name is derived from the Greek word *geranos*, a crane, from the fact that the fruit resembles a crane's bill. This perennial plant is found growing in great profusion throughout California, Oregon, and the Dismal Swamp of Virginia. It is usually found in moist and shady

places. The plant attains a height of from 1 to 2 feet (30 to 60 centimeters), with an erect stem; the flowers are large and usually of a purple color, with five petals, calyx five-sepalled, and 10 stamens (Decandria), and monodelphos, with one seed; leaves deeply cut into five divisions and covered with a delicate pubescence, with long petioles. Flowers from April to July. The rhizome is best gathered in the fall months. The root, as found in commerce, is horizontal and somewhat cylindrical in shape, from 2 to 3 inches (5 to 7 centimeters) long, and about ½ inch (12 millimeters) thick, and when thoroughly dry tuberculated and very much wrinkled. Externally of a dark-brown color, internally of a pale-brown; when broken the fracture is short, and presents to view a number of circular zones and a prominent pith. The rhizome of the Geranium Maculatum has little or no odor, but a bitter and persistent astringent taste; it contains about 16 per cent. of tannin, also sugar, pectin, starch, and a coloring matter. The rhizome of the geranium has some tonic properties, but its main virtues lie in its powerful astringent properties, and it is highly recommended in diarrhœa and dysentery. The dose of the powder (rarely given) is from 15 to 30 grains (1 to 2 grams); of the fluid extract (the only officinal preparation) 15 to 30 drops (1 to 2 grams), repeated several hours apart. The decoction is made by adding to one pint and a-half of boiling water one ounce of the coarsely powdered root and boiling down to one pint, the dose of which is a wineglassful.

Geum, Rivale, Water Avens, Purple Avens.

Natural order Rosaceæ. Native of Asia, but naturalized in the United States. The plant is perennial, and the stems arise to the height of from 1 to 2 feet (30 to 60 centimeters); are pubescent and of a purple color. The radicle leaves are lyrate and interruptedly pinnate, while those of the stem are three-lobed and lyrate. The flowers solitary and nodding, and of a yellow and purple color, mixed; calyx is also colored, usually brown and purple, blending in harmonious tints; the flower has five petals, sepals number from 8 to 10, stamens number 11, sometimes more (icosandria), having 5 pistils (pentagynia). The rhizomous root of the water avens is horizontal oblong, scaly, and much wrinkled; when thoroughly dry about 2 to 3 inches (5 to 7 centimeters) long, and ¼ an inch (6 millimeters) in diameter. Externally the root presents a rusty-brown appearance; internally red in color, and when broken the fracture is waxy, and shows quite a large pith; the rootlets are much contorted, and have a very thick bark for their size. Odor, when fresh, somewhat spicy, but not peculiar; taste bitter and astringent. Water avens contains *tannin*, *mucilage*, *gallic acid*, a bitter principle, and a volatile oil. Its medicinal virtues are tonic and astringent, and it is given in form of decoction and powder; the dose of the decoction is a wineglassful; of the powder 15 to 45 grains (1 to 2 grams), and repeated. There is no officinal preparation, and its use is now confined to certain localities and the eclectic school of medicine. The name is derived from the Greek *geno*, flavor, and *rivale*, from being found near

the river bogs and water courses, etc. The genus is Geum, and its sexual system Icosandria Polygynia.

Gillenia, American Ipecac.—Natural order Rosaceæ. Common names Indian Physic, etc., etc. This is obtained from Gillena trifoliata. The Gillenia stipulaceæ only differs in having stipules and smaller roots, and is known as Bowman's root. Gillenia received its name from Gillanius, a European botanist. The plant is perennial and native of the United States, and sends up quite a number of stems from the same root, attaining a height of 3 feet (1 meter) or more, having ternate leaves with short leaflets, ovate, lanceolate, with serrated edges. The flowers grow in panicles and are of a pale-rose color, with five petals, many stamens, five pistils, and usually four seeds; the shape of the flower is campanulate. The root is rarely found in any of the stores, but when found and thoroughly dry it is very knotty, much branched, and about ½ inch (12 millimeters) thick. Externally of a dark-brown color; when broken the fracture is abrupt and presents a red or pinkish hue, and by the aid of a magnifying glass shows many resin dots. Gillenia contains starch, tannin and resin, besides its active principle, Gillenin, which is a light-gray, amorphous powder colored red by nitric acid. The gillenia is mildly emetic in its action, occasionally acting as a cathartic. As regards odor and taste it differs only in a slight degree from the imported ipecac. The dose as an emetic is 15 to 30 grains (1.0 to 2.0 grams), repeated every twenty minutes until vomiting occurs. It is no longer recognized as

officinal, and only figures in domestic practice. Gillenia, like most of the rhizomous plants herein enumerated, is perennial as to its roots, and annual as to its stems and foliage.

Cimicifuga, Black Snake-Root, Cimicifuga Racemosa. — Natural order Ranunculaceæ. Commonly known as "BLACK SNAKE-ROOT," ACTEÆ COHOSH, etc., etc., but Prof. Asa Gray denies the right of it being called acteæ, which he asserts belongs to the baneberry order. The plant under discussion is the Cimicifuga Racemosa, and obtains its name from the Latin *cimex*—a bug, and *fuga*—to drive away; having the power. especially a Siberian variety, to kill or drive away vermin. The Cimicifuga is quite a tall, perennial plant, native of the American woods, and attains the height of 6 feet (2 meters), or more; the leaves are large with ternately divided leaflets and serrated as to their margins. The flowers are white and in racemes with many stamens, and from 1 to 8 pistils, very small with sessile stigmas, fruit ovoidal within a capsule and many seeded. The rhizome as it occurs in commerce or drug market is thick, dark and irregular in character, from 2 to 6 inches (5 to 15 centimeters) long and about 4-5 of an inch (2 centimeters) in diameter. When broken the fracture presents a smooth surface with a large pith, and by the aid of a magnifying glass of several diameters you can see the pith surrounded by many wedges of wood. The Cimicifuga contains tannic and gallic acids, also starch, gum, resin, and an active principle termed Cimicifugin, which is crystalline and volatile, must not be confounded

with the Cimicifugin of the stores, which is a brown amorphous powder much used by the school of eclectic physicians. Black snake-root is sedative, alterative, emmenagogue, and may be given in doses from 1 to 5 grains (0.11 to 3 grams). The tincture and fluid extract are officinal; the dose is from 30 to 60 drops (2.0 to 4.0 grams). There is a local formula for the District of Columbia for a compound syrup.

Helleborus, Helleborus Niger, Black Hellebore.—Natural order Ranunculaceæ. Also known by the name of Christmas Rose, so-called because it is in bloom about that time in England. It is a native of Europe, and cultivated in the gardens for its flower. The stem of the Hellebore rises to a height of 12 inches (30 centimeters) with pedate evergreen leaves having five ovate lanceolate divisions and leathery in texture. The flowers are handsome pinkish-white tinged with green, about the size of a single rose, stamens 30 to 60 in number, with many pistils, seeds black and shining, and umbilicated. The root is the only part used in medicine. The rhizome as it occurs in commerce is knotty, black in color and very irregular in shape, about 2 inches (5 centimeters) long, more or less, and about 2-5 of an inch (1 centimeter) thick, and having many curved branches or radicles. The Hellebore rhizome does not break easily, but when broken presents internally under a glass of some power many wood wedges within a circular zone and many broad pithy rays. Odor, none; taste, at first bitter, then sweet, afterward acrid. The close resemblance of the root to that of the Cimicifuga Racemosa, requires

caution in buying; the two are almost identical in size, color and taste, the cohosh having larger pith rays and somewhat oval in shape. The black Hellebore root contains resin, fat, starch and two active principles called Helleborin and Helleborein, both of which are considered glucosides, the former of which is said to predominate. Hellebore root and its preparations have been given as a diuretic, cathartic and emmenagogue in doses of 5 to 30 grains (0.3 to 1 gram), and is still kept in some of the stores in form of tincture and extract, but rarely prescribed, and not recognized as officinal. Hellebore was a medicine known in the early history of the world's great cities; it was called Melampodium in honor of Melampus, an ancient physician, who performed some wonderful cures, and, it is told by some historians that Cyrus captured the City of Babylon by poisoning the river Euphrates with the plant. The name comes from two Greek words, *helion*, to kill or overcome, and *bora*, food. The other species are the Helleborus Fœtidus and Helleborus Viridis. As none of the three varieties contain tannin or gallic acid its preparations can be distinguished from those of the Cimicifugæ by the simple chemical test of adding some iron salt.

Hydrastis, Hydrastis, Hydrastis Canadensis.—Natural order Ranunculaceæ. Common names Golden Seal, Yellow Root, Orange Root and Yellow Puccoon Root. The latter name is derived from the American Indians, who use it as a yellow paint or stain. This plant is a perennial, and has erect hairy stems, sometimes numbering five or six, which arise to the height of 6 to 12

inches (15 to 30 centimeters), having on each stem two or more leaves at the top, one of which is completely at the summit and the other below, which gives the plant the appearance of being bifurcated. The leaves are cordate in shape, and have from 5 to 7 lobes, and when in full growth they measure from 4 to 8 (10 to 20 centimeters) inches in width. The flowers are solitary, white inclining to rose color; the calyx is also colored; the stamens are many, and the pistils numerous. The fruit bears a close resemblance to the raspberry. The rhizome, as it occurs in commerce, is about 1 to ½ inches (4 centimeters) long and about ¼ inch (6 millimeters) thick, annulated and wrinkled, having many short branches attached to it. Externally of a yellow-gray color; internally, decidedly yellow, inclining to red. Odor not peculiar; taste bitter and original. The Hydrastis contains Berberine, starch, sugar, Xanthopuccine and Hydrastin or Hydrastine, which yields white bitter alkaloids. Xanthopuccine much resembles Berberina or Berberine in general character and yields with Iodine brown scales. The Hydrastine of the store is an amorphous powder much used by a class of physicians termed Eclectic, and contains Hydrastine, Berberine and resin, and must not be confounded with the true alkaloid which crystallizes in four-sided prisms and gives an alkaline reaction. It is white in color and dissolves readily in alcohol and ether. The Golden Seal is tonic, alterative and deobstruent in its action. Dose of the Hydrastine of the stores (Eclectical) is 3 to 5 grains (0.20–0.33 grams). The fluid extract and tincture are officinal.

Iris Florentina, Florentine Orris.—Natural order Iridaceæ. This is known as the white flag in Europe; it is a native of Southern Europe, in and about the city of Florence, Italy. The Iris family derives its name from the word *Iris*, meaning the rainbow (a fabulous goddess of the ancients)—in other words, from the various tints of the flowers. Orris is a perennial plant 2 to 4 feet (30 to 120 centimeters) high, with showy white flowers, having delicate streaks of tint; odor fragrant; the perianth six-parted, the three outer divisions spreading or curled; the three inner ones small and erect, with sword-shaped leaves. The rhizome of the Orris has many joints from 2 to 4 inches (5 to 10 centimeters) long, broadest near the upper portion, terminating in the scar, the insertion of the leaf. Orris, as it occurs in commerce, is of an irregular shape, of a creamy-white color, fragrant, with an odor closely resembling the violet; when broken the fracture is short and mealy; taste to many agreeable and somewhat bitter. It is still employed in Europe as a remedy, and said to have the same medicinal virtues as the Iris Versicolor. It is only used in this country as an ingredient in face and tooth powders. There is said to be an African and German Orris so closely resembling the Florentine Orris in appearance that in all probability there is much more of the spurious article in the market than of the genuine, especially as the root only differs in a few minor points. The flower in the spurious varieties is blue and variegated, more like the blue flag of our own continent. There is one point to which it is well enough to call at-

tention, which is, that we cannot call a plant spurious or false if it resembles the true in every particular save in the size and color of its flower, for this may be due only to climatic influences; but when the medicinal virtues are to be considered, we must undoubtedly note what soil and climate may do to rob the plant of those particular virtues.

Veratrum Viride, Green Veratrum, American Hellebore, White Hellebore, Indian Polk, Swamp Hellebore, Earthgall, etc., etc.—Natural order Melanthaceæ or Liliaceæ. The stem of the Veratrum Viride attains the height of 2 to 3 feet (60 to 90 centimeters), bearing upon its surface elliptic lanceolate leaves, which are pubescent on the under surface and pass obliquely into a sheath. The flowers are in clustered racemes, with a terminal pubescence. The flowers, polygamous, and of a green, inclining to yellow and white, in color; stamens, six in number; anthers kidney-shaped; the ovary has three stigmas, three capsules and three seeds. The seeds are compressed in shape and winged. This indigenous species of Veratrum is abundant in the Northern States, but it is to be found as far South as the Carolinas. Some botanists think it identical to the Veratrum Album of the mountainous districts of Europe. The rhizome, as found in commerce, is oblong and very irregular in shape, having the appearance of being bitten off (præmorse). It is about 2 inches (5 centimeters) long and about ½ inch (12 millimeters) in diameter, of a dark-gray color externally, internally of a creamy-white. Veratrum has little or no odor, but has a bitter and in-

tensely acrid taste. When inhaled it causes prolonged sneezing. Veratrum Viride contains, according to Pelletier, *gum*, *resin*, *starch* and the active principle *Veratria*. Mr. Simon is said to have found a second alkaloid, which he named *Jervia* (from the Spanish, meaning poison), which is insoluble in ether and water. The alkaloids are now variously termed *Veratria*, *Veridine Veratrine*, *Jervine* and *pseudo Jervine* and *Rubijervine*. *Veratrum Viride* is an errhine, emetic and cathartic, with a decided tendency to reduce the heart's impulse. It is no longer given in bulk, but is administered in form of the fluid extract (or as Norwood's tincture), the dose being 1 to 3 drops (15–30 centigrams). It should never be administered except under the immediate supervision of the physician, and then every caution is necessary. Nausea is the signal for the suspension of the remedy. The Veratrum of the stores is a mixture of the alkaloids prepared from the Cevadilla, the Asagræa officinals and commonly known as Veratria, from which the officinal preparations are made —Oleatum Veratrinæ and the Unguentrum Veratinæ.

Iris Versicolor, Blue Flag, Flag Lily and Flower de Luce.—Natural order Iridaceæ. The blue flag is a beautiful perennial bog plant, having a stout angular stem and sword-shaped leaves $\frac{6}{8}$ of an inch (18 centimeters) wide; flowers from two to four on each plant, funnel-form, large, showy and blue in color and variegated with yellow and purple veins. The stamens three in number, with one pistil (Triandria and Monogynia). The plant attains a height of 2 to

3 feet. The rhizomous root is fleshy and thick, especially about the annual joints, and bears upon its under surface numberless rootlets; the joints are from ½ to ¼ inch apart; the lower half of the root is much annulated and has a circular scar at the upper portion; in fact, the root is annulated by the scars of the previous leaves—from the years of growth gone by. The recent root is almost *devoid of odor*, but has an acrid, nauseous taste. There are said to be five varieties, besides the one mentioned: Iris Virginica, or slender blue flag; Iris Cuprea, found in the South and far West; the Iris Verna, or dwarf Iris, and the Iris Lacustris, Lake dwarf Iris, found on the shores of Lake Michigan. The blue flag contains *resin*, *fat*, *sugar*, *gum* and *tannin*, and an active principle called Irisin. Blue flag is alterative, diuretic, emetic and purgative, and given in doses of 5 to 15 grains (0.3 to 1.0 gram) in powder. The officinal preparations are the extract and fluid extract, the dose of which is 3 to 4 grains of the former and 10 to 30 drops of the latter several times a day, according to the will of the prescriber. Blue flag is by no means a *popular remedy;* whilst it has many virtues, it has obtained a doubtful renown from the fact that it has been used by unprincipled schools of medicine. It is rarely found in the stores except in form of the officinal preparations, and occasionally in form of so-called resinoid, which is an oleoresin obtained by precipitating a strong alcoholic tincture, much used by the school termed "Eclectics."

Leptandra, Leptandra, Leptandra Virginica. —Natural order Scrophulariaceæ. Commonly

known as Culvers root or Culvers physic. This perennial plant is to be found growing in many parts of the United States, and this species is no doubt indigenous. The leptandra attains a height of from 3 to 6 feet (1 to 2 meters) more or less; the stems are erect and bear large lanciniate and serrated leaves, somewhat whorled in their arrangement. The flowers are white and funnel-shape in form and terminate in a spike; each flower has two stamens and one pistil, terminating at maturity in an ovate capsule containing many seeds. The rhizome, as it occurs in commerce, is thin, flattened and contorted; externally, brown in color, with many cup-shaped scars on the upper surface showing the insertion of the stems; the roots are 4 to 6 inches (10 to 15 centimeters) long, and about $\frac{2}{5}$ of an inch (10 millimeters) thick; it has little odor, but a bitter, acrid taste, and it is said to contain *tannin*, *gum*, *saponin*, *mannit*, and also 6 per cent. of *resin*, besides its active principle, *leptandrin*, which must not be confounded with the leptandrin of the stores; the former is crystalline in structure, and the latter an amorphous, dark-brown powder, which is really a powdered alcoholic extract. Leptandra is alterative cholagogue and cathartic in its action. Dose of the powdered root 15 to 60 grains (1 to 4 grams), whilst that of leptandria of the stores from ½ to 2 grains. The solid and fluid extracts of leptandria are officinal, and may be given in doses of 1 to 2 grains of the former, and from 5 to 10 drops of the latter (0.3 to 0.6 grams) every 3 or 4 hours until the effect is produced.

Podophyllum, May Apple, Mandrake, Hog Apple. Podophyllum peltatum.—Natural order Berberidaceæ, said to be the connecting link between the former natural order and the Ranunculaceæ. This perennial plant is a native of the North American Continent, and is found from Hudson Bay to Florida. It derives its name from two Greek words, *pous*, a foot, and *phullon*, a leaf, from the fact that the leaf resembles the web foot of a duck. The plant attains a height of from 12 to 18 inches (30 to 45 centimeters), with a very erect stem and creeping root or horizontal rhizome. Podophyllum is both annual and perennial; annual as regards the flower, leaves and stalk, and perennial as to its root. Flowers white and nodding, having from six to nine petals, stamens sixteen (polyandrous), and one stigma which is sessile. Leaves peltate and subdivided into five to seven wedge-shaped lobes. The rhizome, as it occurs in commerce, is about 2 inches (5 centimeters) long, and about $\frac{1}{6}$ of an inch (5 millimeters) thick, with many joints and much wrinkled. Externally, of a yellowish-brown color, but of a creamy-white internally; the pith is quite extensive; when thoroughly dry the root has little odor, but a persistent, bitter, acrid taste. Podophyllum contains about 4 per cent. of resin, also starch, sugar and coloring matter. The resin is said to be partly picropodophyllic acid and podophyllotoxin. Podophyllum is a cholagogue, alterative and cathartic, with poisonous properties. The dose of the powder is 15 grains (1 gram); of the extract and resin podophyllin of the stores is from $\frac{1}{8}$ to $\frac{1}{4}$ grains (0.008 to

0.017 milligrams). The officinal preparations are the abstract, extract, fluid extract and the Resina Podophylli. Podophyllum, or commonly known as mandrake, is said to be the Mandragora of the ancients, and tradition asserts that it best flourished under the gallows, and that the root resembled a man in shape, and when dug from the ground it had the power of uttering the most terrible shrieks, and of transforming men into beasts, etc.

Rubia Tinctoria, Madder, Dyers' Madder.—Natural order Rubiaceæ. This is a herbaceous perennial plant about 3 feet (90 centimeters) in height, native of Europe, with stellate leaves in whorls, corolla wheel-shaped, with a four-parted calyx tooth-shaped; flowers of a greenish-yellow, fruit two-seeded, in separate one-seeded capsules, indehiscent, seed black and berry-like. The root is a rhizome, creeping and with many long cylindrical branches, varying from the size of a goose quill to that of the little finger, of a red-brown color on drying. When found (not often) in the stores it is usually in a coarse powder, of a deep-red color; little or no odor, with an aromatic astringent taste. Usually collected in the third summer of its growth. Madder contains five distinct coloring principles, of which alizarine is the most important; this is a fine coloring matter, producing a yellow. Madder was at one time in high repute as an emmenagogue, but at present is only used as a dye and coloring. An artificial alizarine is now obtained from Anthracene, a hydrocarbon, the value of which is now estimated at many millions of dollars annually.

Sanguinaria Canadensis, Blood Root.—Natural order Papaveraceæ, commonly known as Tetter-wort, Puccoon root and Indian paint. Blood root is indigenous to the United States and Canada. This small perennial plant has handsome, waxy white flowers, which have from six to twelve petals and as many as twenty-four stamens, and blooms in the early part of May. The leaves do not appear until after the flower has fallen; the leaf is palmately cut, and usually with seven to nine lobes. The rhizome, as found in the stores, is in short pieces, cylindrical in shape and somewhat wrinkled; when fresh it is found surcharged with an acrid red liquid resembling arterial blood (hence the name). Good specimens of blood root are about ½ inch (12 millimeters) thick, more or less. Externally it is of a brownish-red, and a little deeper in color internally; cut transversely it shows many resin cells even to the naked eye, but upon examination under a good lens we see a structure to awaken our interest; when broken the fracture is abrupt and shows a waxy consistence. Blood root has little or no odor, while the taste is bitter and acrid. The time for collecting the rhizome is October and November. Sanguinaria Canadense is said to contain, besides the alkaloid *sanguinarina*, or *sanguinarine*, *chelerythrine*, *protopine homocheledonine*, *resin*, *starch*, *malic* and *citric acids*. Blood root is tonic, alterative, stimulant, emetic and sternutatory in its effects; the dose of the powder (rarely given) is 3 to 15 grains (0.2 to 1.0 grams); of the tincture and fluid extract the dose is from 5 to 30 drops (0.3 to 2.0 grams), repeated at the dis-

cretion of the prescriber. A vinegar of sanguinaria is also officinal. The dose of the alkaloid has been given in minute proportions, varying from $\frac{1}{12}$ to $\frac{1}{4}$ of a grain (0.005 to 0.016) in large and repeated doses; the blood root and its preparations are undoubtedly poisonous; therefore, caution should be used in the administration of this remedy.

Scrophulariæ Nodosa, Figwort.—Natural order Scrophulariaceæ. Scrophulariæ has many names, such as scrofula-plant, heal-all, etc. Figwort is a rank perennial grower, found in damp places, reaching the height of four or five feet; a native of Europe, according to some botanists, but found in North America. The root is a horizontal fleshy rhizome to which many tubers are attached, about the size of one's thumb. The leaves are ovate, oblong and opposite, or else heart-shaped (cordate); margins of the leaves are serrate (saw-like). The flowers tubular and of a brown color inclining to green, or a greenish-purple color; five-lobed, with four stamens (Tetandria) with two cells, and a many-seeded capsule; odor, nauseous and bitter. The dried plant has little odor, but a bitter, acrid taste. Walz obtained from the decoction, *tannic* and *citric*, *tartaric* and *malic acids*; besides *pectin* and coloring matter; also an active principle termed scrophularin. At one time considerably used as a tonic, diuretic and anthelmintic. No longer officinal, but occasionally used in England as a fomentation or an ointment. These are made from the leaves, and applied to any glandular swelling with seeming good effect.

Serpentaria, Serpentaria Aristolochia, Serpentaria.—Natural order Aristolochiaceæ. Common name, Virginia snake-root. This little perennial plant is a native of the United States, and found growing along the river courses, arising to the height of from 8 to 12 inches (20 to 30 centimeters), and having more than one stem occasionally above the ground and from the same root. The leaves are of a pale-green color, oblong and cordate with sharp points; petioles very short, stamens numbering six, and growing out of the pistils (gynandrous), no calyx, flower tubular, monopetalous on a single stem, and purple in color, and quite often found buried in the dead leaves, and situated in the joints of the plant, and near the rhizome; flowers in May and June. There are many varieties of the aristolochia, many of which are used in medicine and for the same diseases. See United States Dispensatory, page 1222, 17th Ed. The rhizome of the Virginia Snake-root, as found in commerce, is in long slender tufts with many slender branches or rootlets attached to the root. The main rhizome is 1 inch (25 millimeters) long, and very rugged; the color externally is of a deep brown, but white internally, with many woody rays on the lower surface, that can be seen with a lens of some power. This rhizome has a peculiar aromatic and camphoraceous-like smell, and a taste similar to the odor and somewhat pungent, and is due to the active principle termed aristolchine. The roots of the American senna (Spigelia Marilandica) have been found mixed with the snake-root, and can only be detected by the want of the bitter

taste in the former root. Snake-root is obtained from Virginia, Pennsylvania and the Western States; it is used as a tonic, stimulant and diaphoretic, and recognized as officinal in form of extract, fluid extract and tincture. The dose is 5 to 15 grains (0.3 to 1.0 gram), and 5 to 30 drops (0. ¼ to 2.0 grams). Sepentaria is one of the prominent ingredients of the Tincture Cinchonæ Co. (Huxham's Tincture.) Snake-root is liable to adulteration (not by evil design) by leaves, sticks, etc., from want of care in the gatherer, and hence we should closely inspect all we purchase, to see that it is free from these inert substances. Serpentaria contains, according to recent analysis, *tannin*, *sugar*, *starch*, *albumen*, and a volatile oil, also a bitter principle; on distillation of the root the oil passes over, rendering the water turbid, which, on cooling, deposits camphor crystals. In selecting snake-root we should be careful to take that which is handsome in color and elastic.

Spigelia, Spigelia, Spigelia Marilandica.—Natural order Loganiaceæ. Common names, pink-root, worm grass and Carolina pink. This plant is found in all parts of the United States; it is annual as to the stem, and perennial as to the root. The stems are simple and erect, and attain the height of 6 to 18 inches (15 to 45 centimeters) with sessile, ovate, lanceolate leaves; many stems grow from the same root, terminating in a spike which support a number of tubular red flowers with short petioles. The inside of the flower is yellow; the tube of the corolla is four times the length of the calyx. The stamens number six, with one pistil, which is quite

as long as the flower. The rhizome, as it occurs in commerce, is about 2 inches (50 millimeters) long, somewhat bent and thin, having many short remnants of stems on the lower side, 4 inches (10 centimeters) long. Externally, pink-root is of a yellow-purple color; internally, of a dull white with many woody rays, exhibiting under a glass of fair magnitude a small pith. It has little or no odor, but a sweet and aromatic taste. Spigelia contains *tannin*, *wax*, *resin* and a *volatile oil*, and Spigelin, a volatile alkaloid. Its principal use is for worms, and it is highly valued as an anthelmintic by some physicians. It has been given in form of powder, infusion, syrup, extract, and in combination with senna. The infusion is made by adding ½ Troy ounce to a pint of boiling water, the dose of which is a tablespoonful, frequently repeated. The dose of the fluid extract is from ½ to 1 fl drachm, (2.0 to 4.0 grams), repeated at long intervals and followed by calomel, or some brisk cathartic medicine. The fluid extract of Spigelia is the only officinal preparation. Spigelia obtains its name from the botanist of that name, who wrote upon the subject in the seventeenth century.

Triticum Repens, Couch-grass, Quitch-grass, Dog-grass.—Natural order Gramiaceæ. The genus Triticum is divided into two groups, one annual, of which wheat is an example, and the other perennial, composed of the officinal species. Couch-grass is perennial, found growing in all parts of the northern hemisphere, and appears to be a perfect pest in many cultivated grounds. The clum arises 3 feet (1 meter) or

more, having 4 spikelets, 8-flowered, not glabrous, 7-nerved, with 5 glumes; rhachis glabrous, awns straight when present; often absent; leaves flat and pubescent on the upper surface; rhizome long, slender, and creeping, with many rootlets; the main root is hollow, of a light straw color; the woody part of the root is narrow and yellowish, displaying under the microscope many woody bundles. When found in the stores (which is not often) it is in short pieces of 1 inch (25 millimeters) long and $\frac{1}{12}$ of an inch (2 millimeters) thick, smooth, hollow, and rather inclined to brown in color. The taste is faintly bitter, but decidedly sweet to the palate; it has little or no odor. Triticum repens, according to recent analysis, contains several *sugars* and an active principle called *triticin*, which was first isolated by Ludwig. Of late years couch-grass has been used with some success as a diuretic in the inflammatory condition of the genito-urinary organs. The fluid extract is the only officinal preparation, which is given in doses of 30 to 60 drops (2 to 4 grams) several times a day. Couch-grass was known to the ancients, and used by them for stone in the bladder and for the same diseases and complaints as the modern practitioners of medicine employ it now.

Tormentilla, Tormentilla, Tormentilla Erecta, or, as some have it, Potentilla Tormentilla. —Natural order Rosaceæ. Commonly known as cinquefoil (five-fingered.) This small perennial herb attains the height of several inches, and is found growing in open woodlands in many parts of Europe; the upper leaves are sessile and the lower ones five cleft pinnate, with long

petioles; they are deeply serrated and pubescent. The calyx is five-parted, with several bracklets which appear like sepals; stamens polygymous, carpels many, with a lateral style; flowers small, and upon solitary axillary pedunCles. The rhizome of the tormentilla is cylindrical, inclining to oblong in shape, tapering from above downward; in length about 2 inches (5 centimeters), and $\frac{1}{3}\frac{1}{5}$ of an inch (15 millimeters) in diameter. Externally tormentilla is of a dark-brown color, inclining to red internally, and showing a very small pith; it has little or no odor, but a bitter taste, and is very astringent when chewed. Tormentilla is said to contain a large percentage of *tannin*, also *mucilage*, *starch*, and a coloring matter. It is rarely found in the stores of to-day, but has been used with good effect in chronic diarrhœa and dysentery. It is used in Europe for tanning leather. The dose when given is 20 to 30 grains.

Valeriana, Valerian, Valeriana Officinalis.—Natural order Valerianaceæ. This is a perennial herb attaining the height of 2 to 4 feet (60 to 120 centimeters), indigenous to Europe and Northern Asia, but naturalized in the United States. The leaves are all pinnate or pinnately cut, whilst the leaflets are lanceolate in shape, their edges dentate, and in seven to ten pairs; flowers white, having a purple tinge, with three stamens which adhere to the ovary; fruit one-seeded and dry. Valerian root is a short, dirty, white rhizome, with many dark, fibrous rootlets from 2 to 4 inches (5 to 10 centimeters) long. Valerian has a penetrating odor, bitter taste, and is not easily forgotten when once used. It con-

tains a volatile oil (which is said to contain about five per cent. of valerianic acid), *tannin*, *resin*, *starch*, *mucilage*, *acetic and formic acids*. Valerian has been used as a medicine since the time of Dioscorides, and is still well thought of as an agent by modern schools. Valerian and its many preparations are stimulating, anodyne, nervine, and antispasmodic in action. The dose of the powder (not often prescribed) is 15 to 90 grains (1 to 6 grams), generally given in the form of an infusion. The dose of the tinctures and extract is from ½ to 1 fluid drachm (2 to 4 grams). It is not recommended in form of decoction or extract when any heat is employed, as this is said to drive off the volatile oil, wherein lies the virtue of the drug. The officinal preparations are the abstract, extract, fluid extract of valerian, and the simple and ammoniated tinctures.

Zingiber, Zingiber Officinale, Ginger.—Natural order Zingiberaceæ. A rhizomous plant, whose root is biennial and creeping, whilst the stem is annual, erect, and attains the height of 3 feet (1 meter) or more, inclosed in a sheath of two leaves on opposite sides of the stem; leaves radicle but elevated, oblong or obvate in shape; flowers in spikes, yellow and variegated in color; anthers crowned with a single incurved beak; capsules three-celled and three-valved, with many seed; three stamens, two of which are not fertile. Ginger is cultivated from the root stock by cuttings. The rhizome of the ginger is of two kinds, the scraped or uncoated and the coated or unscraped; these are again divided in the African, East India, Chinese, Jamaica and green gingers. The African, as the name implies, is

from that country; it has a light-brown epidermis, with short lobes. The East India is rather more flat, with no epidermic layer; the Chinese is coated, and has very short, stumpy lobes; whilst the Jamaica is distinguished by its handsome appearance and its greater length of lobe. It is more delicately branched, about $\frac{3}{5}$ of an inch (15 millimeters) in breadth, of a buff color, and has a fibrous fracture when broken. The bleaching is done by means of a solution of lime, some of which we find adherent when the root is dry. Ginger contains *starch*, *mucilage*, *resin*, and a *volatile oil*. Ginger is a universal remedy in the household, and its properties are carminative, stimulant, rubefacient and anodyne. The tincture, extract, and powder are officinal, and it enters into combination with many officinal preparations. The syrup, although recognized as officinal, is very feeble as a remedy, and only used as an adjunct to the more nauseous drugs. The dose is from ½ to 1 fluid drachm (4 grams) of the fluid extract or tincture. Dose of the powder, 10 to 30 grains. Ginger forms one of the prominent ingredients of the aromatic powder and plaster.

TUBERA ET BULBI., TUBERS AND BULBS.

Tubers and bulbs.—The first is a fleshy underground root, with many branches, bearing upon its surface rudimentary stems or leaf buds, as the potato. These buds are commonly known as eyes. The jalap and aconite are also tubers, but are totally unlike the much-esteemed potato. The bulbs are another class of roots, termed subterranean stems, which are covered by segments, scientifically known as leaves, or bases of leaves, which are arranged in concentric layers, as in the onion, and send downward into the earth a number of small rootlets. These, however, would be inadequate to hold erect the plant if not aided by the bulb, which is either partly or wholly beneath the earth. In the bulbs the leaves are usually broad, and the seed has but one cotyledon. The corm differs from the tuber and bulb by the absence of all leafy structure, as in the colchicum. The characteristics of the above mentioned will be spoken of under their own proper heads.

Aconitum Napellus, Aconite.—Natural order Ranunculaceæ. Commonly known as Monkshood, Wolfsbane, etc. This perennial plant is found throughout the mountainous districts of Europe and western North America; it usually attains a height of 3 to 6 feet (1 to 2 meters), sending up new shoots or stems annually, which terminate in a spicate raceme of handsome blue flowers, resembling the cowl of a monk, or helmet. The leaves have five wedge-shaped lobes. The petals are five in number, two superior and three inferior; the latter are often abortive or immature. The calyx has five sepals; seeds numerous, black and wrinkled. The aconite has a tuberous and somewhat conical root, much bent, with many scars of rootlets. Externally, the root is dark brown; internally, of a creamy white, having as many as seven pith rays. Aconite has little or no odor, but a very acrid taste, producing a numbness of the tissues of the tongue. Aconite root contains *sugar*, *fat*, *resin*, and the *alkaloids* of aconitine *pseudoconitine aconina pseudoconine picroconitine* and *aconitic acid;* the latter alkaloids are said to be incorporated in the *aconitia* or *aconitine.* Another author of equal weight holds that *aconite* contains 4 alkaloids, 3 of which are amorphous and one crystallizable aconitine. Aconite and its constituents are sedative, diaphoretic, and anodyne in their action. Used in form of abstract, extract, fluid extract, and tincture; also, in combination with other remedies, forming liniments and plasters. Dose of the extract, from ½ to 1 grain (0.03 to 0.06 grams); dose of the tincture, 3 to 5 drops (0.18 to 0.3 grams). Aconite is very

poisonous, and was well known to the ancient practitioners of medicine. Its common names are derived from the shape of the flower; its Latin name from Aconi, the place where it was first found. There are many varieties of the plant which closely resemble the officinal; it is said the aconitum paniculatum furnishes much of the aconite of commerce. See U. S. Dispensatory, page 108, 17th Ed. The leaves of the aconite are sometimes used, and will be mentioned under their own proper head.

Allium, Garlic Allium Sativum.—Natural order Liliaceæ. This plant or herb is a native of Asia and cultivated in Southern Europe; but found very profusely growing in all the old pasture lands of the United States. The leaves of the garlic are grassy or rush like in appearance, 4 to 6 inches high, forming a sheath for the stem, which has at its summit a cluster of small, white flowers. The European garlic is considered by some an entirely distinct species from that growing in this country. It is certainly of finer flavor, but this may be due to the soil and climatic influence. The garlic as found in commerce is a small bulb, sub-globular in form, with many compressed bulblets arranged around the base. The odor is pungent, and not agreeable to many; taste, warm and acrid ; contains, according to recent analysis, 30 or 40 per cent of *mucilage;* the two remaining constituents are *albumen* and *oil*; to the latter it owes its pungency. The radicle of this oil is an ether termed allyl. There are many varieties of garlic, differing from the true Allium Sativum, and it requires something of

an expert to distinguish the genuine. Garlic has been used as a diuretic, stimulant, expectorant, and anthelmintic. No longer officinal; merely used as a condiment.

Arum, Indian Turnip, Arum Triphyllum, or the Arisæma Triphyllum.—Natural order Araceæ or Aroideæ. Commonly known as Dragon Root, Wake Robin, etc. This little perennial plant is found growing in shady woods in most of the states of the Union. It sends up a single leaf or spathe, which forms a kind of hood over the organs of reproduction; after full growth, two leaves appear; these are again divided into three elliptical, ovate, pointed leaflets. The spathe is often variegated in color and striped, but has no flower envelope. The stamens are many (polyandrous) with one pistil. There is quite a number and variety of the Arum, differing only in the character and color of the spathe. See Gray's Botany, page 475. The root or corm of the Indian turnip is depressed and globular, about 4-5 to 2 inches broad at the top, with many simple rootlets at the bottom; when dry it has a grayish-brown color externally. Its internal arrangement is granular, showing many wood bundles. The Arum contains *starch*, *mucilage*, *sugar*, *fat*, and an acrid principle which is extremely volatile. Indian turnip is highly irritant, also stimulant, expectorant and diaphoretic in its action. The dose when given is 8 to 15 grains (½ to 1.0 gram). No longer officinal; used only as a domestic remedy. The name is derived from the Greek words *Aron* and *Triphulen*, meaning three leaves.

Colchici, Colchicum, Colchicum Autumnale.—Natural order Melanthaceæ. Common name Meadow Saffron. This perennial tuberous or bulbous plant is indigenous to central and southern Europe, and usually found growing wild in moist meadows. The plant attains the height of several feet, and is not unlike the tulips of our gardens in general character; the leaves are narrow, lance-shaped, and generally about 12 inches (25 millimeters) long, very green and shining. The flowers are purple in color, and appear after the leaves; they have 6 stamens, inserted into the throat of each tubular flower; the anthers are extrorse, throwing the pollen outside, and thus differ from the common crocus; the pistils number 3, and the capsules are many-seeded. Of the fruit or seed we will speak further on, and under the proper head. The corm or bulb is somewhat flat, inclining to the ovoidal in its outlines, and grooved on one side; in length about 1 inch (25 millimeters), more or less; in breadth at the base, 1 or more inches. Externally the color is of a light-brown; internally it is very compact and white; when cut transversely the slice is kidney-shaped, and it shows many scattered and woody bundles and some resin cells. It is very hard to break, but when broken the fracture is granular and abrupt. The colchicum root is usually gathered about the last of June, and is dried at a temperature of about 150 degrees. After the curing it is cut transversely, and in this shape finds its way into the commercial world. Colchicum contains sugar, starch, gum, fat, and resin, and also an active principle called Col-

chici. Colchicum has little or no odor, but a sweetish-bitter and decidedly acrid taste. Colchicum is cathartic, emetic, and sedative in its action. The dose of the powder (rarely given) is from 2 to 8 grains (0.13 to 0.52 grams); of the extract, from 1 to 4 grains (0.6 to 0.25 grams); of the fluid extract, 5 to 15 drops; of the wine, 15 drops (1 gram). The officinal preparations are the extract, fluid extract, and wine (vinum colchici radicis). Colchicum is poisonous in overdoses, and care should always be exercised in dispensing it.

Corydalis, Corydalis Canadensis.—Natural order Fumariaceæ. Commonly known as Turkey Pea or Corn, Squirrel Corn, etc. Native of Canada and many parts of the United States. This perennial plant attains a height of from 6 inches to 2 feet, and bears greenish-yellow flowers in racemes, often streaked with purple; the leaves simple and of a pale-green color; the root grows in tubers somewhat round and depressed, about ¼ of an inch (6 millimeters) thick, and of a tawny-yellow color. Internally of a creamy white, and showing a granular fracture when broken. Corydalis canadensis, or formosa, as some have it, contains starch, mucilage, fumeric acid, and an active principle called corydalia, or corydaline. The corydalis is tonic, diuretic, and alterative in its effects, and highly thought of by some practitioners of medicine as an alterative; given in the form of powder, extract, and elixir. The dose of the powder is 15 to 30 grains (1 to 2 grams); of the extract, ⅓ of that quantity; of the elixir, 1 fluid drachm (4 grams). There are several va-

rieties of this genus found under the head of Dicentra. The DICENTRA SPECTABILES, dicentra eximea, dicentra cucullaria, and the dicentra canadensis. The DICENTRA SPECTABILES is the showy "bleeding heart" of the hot-house; the second is the handsome, indigenous perennial, the red-flowered dicentra; the DICENTRA CUCULLACIA is the "Dutchman's breeches" of the green-house. The origin of the word dicentra is Greek, meaning twice and spurred, the flowers being spurred at the base. The alkaloid is by no means the corydalia or corydaline of the eclectics; the former is crystalline and the latter an amorphous brown powder, holding and incorporating within its substance the resin and other parts of the tuber or root. None of the preparations are officinal.

Jalapa, Jalap, Exogonium Purga.—Natural order Convolvulaceæ. The stem of the jalap is round and smooth, and attains a considerable height when there is a support near at hand about which its tendrils can twine. The stem bears cordate leaves with prominent veins; the flowers are purple and funnel-shaped, and not unlike the purple morning-glory, but the corolla is a little larger in the jalap. It has 5 stamens and 1 pistil, with a simple stigma. The root belongs to the class known as tuberous or bulbous, and is somewhat pear-shaped. Externally the tuber is dark-brown in color and wrinkled; internally it is of a very light-brown color, inclining to a leaden gray, and presenting under the magnifying glass a number of resin cells, but no fibres. The taste is sweetish and acrid,

whilst the odor reminds one of smoke. The jalap contains *sugar*, *starch*, *gum*, *resin*, and its active principle is a *resin*, which contains two bodies, termed Jalapin and Convolvulin. Tampico jalap, IMPOMOEA simulans, and IMPOMOEA orizabensis are the false varieties, which may be distinguished from the true jalap by being more irregular in form and quite wrinkled; also by analysis they are found to contain more resin, or very much less, than the true variety. Jalap is a hydragogue, cathartic and diuretic, and enters into the following compounds: Pulvis jalap comp. and pulvis scammona comp. The abstract, extract, and resina jalapæ are also recognized as officinal. The dose of jalap is from 15 to 30 grains (1 to 2 grams) of the powder; of the resin or alcoholic extract, 4 to 8 grains (0.26 to 0.52 grams); of the abstract, 10 to 15 grains; the dose of the compound jalap powder is from 15 to 60 grains (1 to 4 grams). Jalap gets its name from the town of Xalapa, Mexico, in the State of Vera Cruz, where it is found in abundance. Jalap root is usually gathered by the Indians and dried in their huts; then packed in bundles of from 100 to 200 pounds' weight and shipped to all parts of the world. For further account see the Dispensatory, page 821.

Scilla, Squills, Urginea Scilla, or Scilla Maritima, according to Linneas.—Natural order Liliaceæ. This perennial is a native of the southern parts of Europe bordering on the Mediterranean sea. The scape grows from two to four feet high, arising from the centre of the leaves, terminating in an ovate raceme of pale yellow flowers of a greenish hue; the perianth

is six-parted (a term used only when the flower has but one envelope); each flower has six stamens and a three-parted ovary, three capsules; is three celled and many seeded The bulb is the medicinal part of the plant, which is ovoided or pear-shaped, partially growing above ground. The bulb is four or five inches in diameter and about two inches (5 centimeters) in length. Squills occurs in the stores in dried, irregular shaped pieces bent upon themselves, having a yellowish-white appearance. The taste is bitter; odor little or none; very tough and not easily broken; when powdered, squills become one solid mass if long exposed to the air. Squills contains *lime*, *oxalate*, an uncrystallizable sugar and a series of active principles termed scillipicrin, scillitoxin, scillin, and a glucoside called scillain, poisonous, which is soluble in acetic acid and alcohol. Squills is expectorant, diuretic, cathartic and emetic in its effects, and is given in form of vinegar fluid, extract, powder, syrup, compounds syrup, tincture, and in combination with other remedies, the dose being 1 to 10 grains of the powder (0.03 to .06 grams); of the syrup, from ½ to 1 fluid drachm (2 to 4 grams), and proportionately of the wine and fluid extract. The officinal preparations are the vinegar, fluid extract, syrups, pills of ipecac and squills, and compound pills of squills. The name is derived from the Greek word *skilla*, a sea onion.

Salep, Salep, Salop, Orchis Mascula. Natural order Orchidaceæ. This plant is a native of Asia Minor, Turkey and Central Europe. The finest is said to come from India, and is derived

from the species known as the Eulophia Campestris; many species of the same plant are found growing in this country, from New England to Kentucky. Salep and its species are small plants or herbs with a stem 6 to 18 inches (15 to 45 centimeters) high, with pink, purple or red ringent (gaping mouth or lip); flowers with the lip turned downward and bearing a honey gland underneath. Salep has an oblong or ovate tuber, about an inch long (25 centimeters). Externally of a brown-yellow color; white internally, displaying under the magnifying glass many woody bundles, and the matrix loaded with starch and mucilage; when ground the powder is of a grayish-yellow color. Salep contains 48 per cent. of *mucilage*, 27 per cent. of *starch*, and the balance made up of *sugar* and *albumen*. Salep is rarely, if ever, found in the drug store of the present, but is confined to the fancy grocer; in fact, it is more an article of diet than a medicine, but it was for centuries highly extolled as an aphrodisiac. Salep is protective and nutritious, like arrow root, and may be given in the same way, prepared by macerating the powder in cold water and then adding boiling water.

STIPITES ET LIGNA, TWIGS AND WOODS.

The first are the stalks and branches of those herbs which have been denuded of their leaves, flowers and fruits, as the bittersweet. Woods are made up mostly of fibrous tissue, a small pith, with many medullary rays coming from the centre. The tissues are more compact in the central portions, the softer part on the outside, and is called the alburnum or sapwood. The wood in the pine family is destitute of ducts, which is an exception to the oxogenous growers. Woods, with few exceptions, exhibit many annulated tracings; these are produced by the annual layers or deposits.

Dulcamara, Solanum Dulcamara, Bittersweet, commonly known as the Woody Nightshade.—Natural order Solanaceæ. This perennial is a native of Europe and Asia, and naturalized in the United States. The twining shrubby plant attains a height of 10 to 15 feet (3 to 4 meters), more or less, having cordate and auriculate-shaped leaves, smooth and entire in form, calyx permanent and five-parted; corolla

purple in color and drooping; the flowers occur in racemes; anthers five in number, with one pistil; fruit a scarlet berry, ovoidal in shape, juicy and about the size of a large pea. The young and dried branches of the shrub are the parts used in medicine; these are usually hollow, light and cylindrical in shape, ¼ of an inch (6 millimeters) thick, and cut in sections of various lengths. When examined under a glass of sufficient power the twigs present a number of woody fibres of a green or yellowish hue, with one or more concentric rings, having a central pith. The odor is aromatic, taste bitter at first and then sweet, hence the name. The dulcamara contains *wax*, *resin*, *gum*, an amorphous alkaloid, and its active principle *dulcamarin*, which is said to be a *glucoside*. Bittersweet has been used and is prescribed as an alterative, deobstruent and anodyne, and given in form of fluid extract and infusion, which are both officinal. The dose of the former is ½ to 1 fluid drachm (2 to 4 grams), whilst the infusion is given in doses of ½ to 1 fluid ounce (16 to 32 grams). Bittersweet as found in the stores is in too comminuted a form to identify, being usually in compressed packages of one ounce.

Juniperus, Juniper, Juniperus Virginiana, Savin Juniper or Red Cedar.—Natural order Coniferae. This evergreen tree is a native of the United States, and adorned with small flattened leaves which are opposite, somewhat awl-shaped and scaly; flowers dioecious and occasionally monoecious, very small and inflouresce in catkins; odor aromatic and balsamic, taste bitter, aromatic and balsamic. The leaves and

tops (cacuminao of the red cedar contain tannin, resin, gum and volatile oil, which is not very soluble in alcohol. The red cedar has the same medical effects as the sabina, but is not so highly valued as a remedy; rarely if ever found in the stores, but is used to adulterate the thuja occidentalis. The name is said to be derived from the Celtic word *juneprus*, but it is more likely from the Latin words *juvenis* (young) and *parere* (to produce), which convey the evergreen nature of the tree.

Sabinae, Savine, Juniperus Sabinae.—Natural order Coniferae. This evergreen shrub is a native of Europe, but found in the northern portions of the United States; attains a height of from three to fifteen feet, and is adorned with very green, awl-shaped leaves in four rows, which resemble the leaves of the red cedar to a high degree, and with which it is often adulterated; odor strong and disagreeable; taste resinous, bitter and nauseous. The tops and leaves are the parts used in medicine, and they contain *resin*, *tannin* and a light *volatile oil*. Savin is diuretic, anthelmintic and emmenagogue in its effects; is given in form of infusion, fluid extract and tincture, and used externally as a cerate. Dose of the infusion 1 to 2 ounces, of the fluid extract 15 to 20 drops (0.85 to 1.0 grams). The cerate, fluid extract and oil are officinal. The name is said to be derived from the Celtic word *jeneprus*, rough, from the character of the foliage.

Scoparius Broom, Sarothamnus Scoparius.—Natural order Leguminosæ Papilionaceæ. Found growing in this country, but a native of

western Siberia and southern Europe. Broom is a shrub arising to the height of 3 to 6 feet, with straight, twiggy and angular branches; leaves ternate (three leaflets) and minute; flowers solitary or in pairs, rather large and of a bright yellow color, calyx with the upper lip entire, keel very blunt (boat-shaped), stamens enclosed within the keel. This is what is termed as monadelphous (filaments united into one set or tube). The pod is black, compressed, hairy and contains many seeds. The part found in the stores (which is the only part of the plant used in medicine) are the tops, which are thin and flexible, and, as a rule, free from leaves, which have a disagreeable odor and taste. Broom contains a volatile oil termed *scoparin*, almost tasteless; also a colorless oil, a crystallizable alkaloid, termed *sparteina*. Broom also contains *tannin*, *wax*, *fat* and *sugar*, as well as 5 per cent. of *ash*. Broom tops are diuretic and narcotic, and in large doses emetic and poisonous. First recommended by some eminent Russian as a remedy in Bright's disease. The decoction is the only officinal preparation, four grams in a pint of water. Dose, a wineglassful. The seeds are sometimes used instead of the twigs.

Thuja, Arbor Vitæ, Thuja Occidentalis, White Cedar.—Natural order Coniferæ. This evergreen tree or shrub is a native of the northern parts of the United States and Canada, and is cultivated for hedges and as an ornamental garden tree. The Thuja is adorned with evergreen leaves, scale-like in character and obtusely pointed, resembling the cedar in its general

characteristics, with diœcious or monœcious flowers in catkins with neither calyx nor corolla. This distinguishes all the pine family coniferæ except the yew, which is a sub-family. Odor aromatic and balsamic and somewhat camphor-like; taste bitter and terebinthinous. Arbor Vitæ is diuretic, stimulant and emmenagogue in its effects, and given in form of infusion and extract. Dose of the former ½ to 1 fluid ounce, of the extract 15 to 60 drops. The leaves and tops contain *resin. tannin, gum, pinipicrin thujin* and about 1 per cent. of *volatile oil. Pinipicrin* is a yellow, bitter, amorphous substance, whilst thujin is a crystalline substance. Dose about the same as the savin and cedar. The three aforementioned shrubs or trees constitute a connecting link between a class of plants whose remedial virtues lie in the leaf and tops and that class of plants whose remedial agency exists in the flower and fruit which constitutes technically cacumina, flores fructi and petalæ. Origin of the name somewhat obscure, supposed to be from the Greek name of Aristotle of Theophrastus Lesbius, a pupil of Aristotle, but according to authority the shrub described by him was the *thuja articulata.*

Guaiaci Lignum, Guaiacum Wood, Guaiacum Officinale.—Natural order Zygophyllaceæ. This large evergreen forest tree is said to be a native of South America, but we find it growing in Hayti and other West India islands. The tree attains a height of 30 to 60 feet (10 to 20 meters), with opposite and abruptly pinnate leaves made up of several pairs of oval or obovate leaflets. The flowers are light-blue in color, with five

petals, ten stamens, calyx five-parted; the style and stigma simple, fruit a fleshy capsule, of a red color and with five sides, each partition containing a seed. Guaiacum Wood, or Lignum Vitæ, as it is sometimes called, from its extreme hardness or from the virtues said to be hidden within its wood for the cure of disease. It occurs in commerce in chunks or logs; in the stores in chips or raspings left by the turners of the wood. When fortunate enough to find a billet or log, you can see with the naked eye the yellowish sap wood, many concentric rings or circles of resin cells, also many narrow pith rays. There are several species of the Guaiacum tree, which are no doubt substituted for the officinal variety. The chips, as they occur in the stores, are of moderate weight, of green and bronze color, occasionally intermingled with some gray pieces of bark. The Guaiacum strikes a green color with the spirits of nitre or with nitric acid. The wood contains a large proportion of *resin* (which will be spoken of under the head of resins), *gum* and a bitter pungent substance which has not been isolated as yet. Its medicinal effects are alterative and diaphoretic, rarely given alone, but enters into composition with sarsaparilla; decoction sarsaparilla co. and syrupus sarsæ comp., which are recognized officinal preparations.

Hæmatoxylon, Logwood, Hæmatoxylon Campechianum.—Natural order Leguminosæ Papilionaceæ. This forest tree is a native of Central America and naturalized in the West India Islands; found first on the shores of Campeachy and Honduras Bays in tropical America.

The tree is of moderate size, bearing upon its branches pinnate leaves; the leaflets are obovate or obcordate in shape; the flowers occur in axillary racemes, yellow in color, with 5 sepals, united at the base in a permanent calyx; stamens 10 in number, with 1 pistil; pod bearing and two-seeded; the valves of the pod are somewhat boat-shaped. Logwood is hard and compact, but rarely exceeds 20 inches in diameter; when sawed or cut transversely the dark-red wood shows many rings of wood parenchyma, as also some delicate medullary rays. As found in the stores it is either in chips or a coarse powder, which is of a dark-brown color, inclining to bronze; smell faint and agreeable; taste somewhat sweet and feebly astringent, coloring the saliva on being chewed. Logwood contains *tannin*, *fat*, *resin* and *hæmatoxylon*, which, when isolated, occurs in colorless crystals. Hæmatoxylon is feebly astringent in its action, and the extract is recommended in doses of 5 to 10 grains; also given in form of decoction. It is highly recommended in the chronic stages of diarrhœa. It is particularly well adapted for children, owing to its mild astringent properties. Hæmatoxylon turns red on being exposed to the sunlight; to alkaline solutions it gives a violet color. The coloring matter is termed hematein, and is capable of crystallization. Logwood is largely used as a dye by adding alum or the potassium bi-chromate.

Quassia, Quassia, Quassia Excelsa.—Natural order Simarubaceæ. Commonly known as the Bitter-wood Tree. Native of Jamaica; attains a height of 60 to 100 feet (20 to 30 meters), and

resembles in general appearance the common ash of our forests. The leaves are pinnate, with an odd one at the extremity; leaflets opposite and in pairs. The flowers are of a greenish-yellow color, 5-sepalled and have 5 petals, which are exceedingly small; stamens 5; styles triangular in shape, with simple stigmas. Quassia, as found in commerce, is in various sized pieces, from the small chips to logs. That found in the stores is in small chips, white in color, inclining to yellow; tough, dense, and intensely bitter to the taste. Quassia contains *pectin*, *mucilage*, *resin*, and an active principle called *quassin*. Quassia is a tonic and febrifuge, and used in form of infusion, extract, fluid extract, and tincture, the three latter preparations being recognized as officinal. The dose of the extract, ½ to 1 grain (0.03 to 0.06 centigrams); of the fluid extract, ½ to 1 drachm (2 to 4 grams); of the tincture, 1 drachm (4 grams). The infusion is made by macerating 1 or 2 drachms of the chips in a pint of cold water, the dose of which is a tablespoonful.

Santalum Album, Sandal-wood.—Natural order Santalaceæ. Said to be a native of India, but also found growing in the Fiji Islands and Australia, according to the best authority on the subject. The leaves of the tree are entire; calyx 4 or 5-cleft; the tube coherent, with 1-celled ovary, which has from 2 to 4 ovules; flowers usually in cymes or clusters, and vary in color. Like red saunders, it is imported in small logs or billets; as it occurs in the stores, it is in the state of a coarse powder, quite heavy and of a yellowish color; odor pleasantly aromatic, and

taste spicy and astringent. It contains *tannin*, *resin* and a fine *volatile oil*, of which we will speak further on. The wood is used only as an adjunct to sachets and perfumery, the oil being the medicinal part. The wood is used also in making fans. boxes, etc., which are very often found elaborately carved and very delightfully fragrant. There are three varieties of santalum, all of which are used in the distillation of the oil.

Santalum Rubrum, Pterocarpus Santalinus, Red Saunders. —Natural order Leguminosæ Papillonaceæ. This small evergreen tree is a native of Ceylon and the southern parts of India; it is also cultivated in Madras. The leaves are irregularly pinnate, and are distinguished from the pterocarpas marsupium (kino) by its broader leaflets and its racemes of axillary flowers. The corollas are yellow, lined with red; filaments united. Like the guaiacum, the santalum occurs in block logs, etc., very dense in texture; it is of a brick-red brown color. When found in the stores, it is in coarse powder of a deep red-brown co'or, having a slight odor, aromatic in character ; taste bitter and astringent. Red saunders contains *tannin*, *gum*, *pterocarpin*, and a ruby-red resinous substance capable of crystallizing, which has been variously termed *santalin*, *santalic acid*, etc., which crystallizes in red acicular fragments, which upon purification are obtained white. The red saunders is rarely used in medicine, being but feebly tonic and astringent in its effects, its only use being to color tincture and as a dye for cottons, etc.

CORTICES—BARKS.

These consist of the outer covering of the trunks, stems and roots of all exogenous growers. When the bark is first removed from the tree or shrub, it is light in color and quite smooth, but in the process of drying, it becomes much darker in color, wrinkled and rough by the unequal shrinkage of its tissues.

The outer part of the bark is technically known as the epidermis, (*epi*, upon, *derma*, the skin); the cellular tissue or soft tissue (parenchymatous) constitutes the least portion of the bark.

The barks contain all the medicinal virtues of the tree or plant. They are found in commerce in large, small and irregular pieces or bands, also in quills. Barks break or fracture either with an abrupt or fibrous fracture.

Angostura, or **Angustura,** Galipea Cusparia.—Natural order Rutaceæ. This lofty forest tree is a native of the northern parts of South America, and bears trifoliate dark-green leaves having large leaflets which are acutely pointed, ovate lanceolate in shape, sessile and very fragrantly aromatic; flower white, quite small and

arranged in racemes; calyx cup-shaped and five-toothed, the stamens (monodelphos) usually five to eight in number, only a portion of which are fertile, five stigmas; fruit a capsule, with one seed. The bark of the Angostura occurs in commerce in straight, curved or quilled pieces, resembling in some respects cascarilla bark; length variable, but will average about one twenty-fifth of an inch in thickness (1 millimeter); the inner surface of the bark resembles the lighter shades of the cinnamon bark in color; when broken the fracture is abrupt and smooth; odor aromatic; taste bitter and pleasant. Angostura bark contains *resin*, *gum*, *volatile oil* and a group of 4 alkaloids, galipine, galipidine cusparine and cusparidine; its active principle is called angosturine. Angostura bark is a very old remedy and is still used as a tonic, stimulant and febrifuge, and now called cuspariæ bark. The infusion of cuspariæ is officinal, and the dose is one or two fluid ounces. The infusion is made by adding one pint of boiling distilled water to one-half ounce of the bark.

Azedarach, Azedarach, Melia Azedarach.—Natural order Meliaceæ. This tree is a native of India and China, and cultivated in the subtropical countries as a shade tree. It is commonly known as the Pride of India, Pride of China, or Bread Tree. This is not to be confounded with the bread tree of South America, the Artocarpus incisa—Order, Moraceæ. Azedarach is a handsome tree, 30 or 40 feet high, with a wide-spreading summit; the leaves are large and doubly pinnate, with smooth dark-green leaflets, somewhat denticulated, and ar-

ranged in pairs, an odd one at the end. Flowers purple or of a lilac color, arranged in clusters and very fragrant; calyx five-toothed; corolla five-petalled, with many stamens, the anthers of which are within the throat of the corolla; fruit a drupe about the size of a cherry, and, when ripe, yellow in color. The bark of the root is found in commerce and occurs in quills or curved pieces having a red-brown color externally, showing many black ridges; the inner surface is smooth, of a lighter brown color and striated; when broken the fracture is fibrous; contains an *oil*, and a yellowish-white *resin*, which is the active principle. It is cathartic and anthelmintic in its effects, and is given in form of *decoction* or *syrup*, the dose of which is one fluid ounce. Used only as a domestic remedy in some of the northern and southern States of America.

Canella Alba, Canella.—Natural order, Canellaceæ. This large forest tree is a native of the West Indies. The branches spread only at the summit of the tree, the leaves are of a deep green color, alternating, oblong, obtuse and entire. The flowers of a violet color and grow in clusters, stamens twelve to nineteen in number, with one pistil; fruit an oblong berry, with two or more seeds. Canella bark occurs in commerce in quills or broken pieces of variable length and about ⅛ of an inch (3 millimeters) thick; externally the bark is of a light brown color inclining to gray; the inner surface is finely striated, and a shade or two lighter in color; when broken the fracture is short and granular; when seen under a lens of some power it presents

to view many resin cells of an orange yellow. Odor aromatic, and reminds one of cinnamon; taste aromatic, biting and slightly bitter. Canella contains *starch*, *resin*, *albumen*, *mucilage*, *volatile oil* and *eugenic acid*. The medical properties are tonic, and carminative; and in combination with aloes, emmenangogue. Pulvis aloes et canella (hiera picra) was once a very popular mixture and enters into combination with rhubarb to make the officinal vinum rhei, (wine of rhubarb).

Cascarilla, Cascarilla, Croton Eleteria.—Natural order, Euphorbiaceæ. This particular species is a small shrub or tree found growing in Jamaica and other West India Islands. The height is rarely over six feet and it has many angular branches and twigs which are covered with leaflets ovate in shape with obtuse points; their external surface is of a handsome green color, whilst the under surface is of a silvery gray and pubescent; flowers streaked with yellow, and infloresce in terminal spikes. The organs of reproduction are in separate flowers and often on different trees (monœcious); the corolla has five petals; calyx cylindrical in shape and five cleft or toothed, filaments united, stamens from 10 to 15 in number. The cascarilla as it occurs in commerce is in quills or curved pieces of various lengths, fissured and of a gray color externally, and about $\frac{1}{12}$ of an inch (2 millimeters) thick, having some corky layers remaining on the bark, the inner surface is smooth and somewhat lighter in color; when broken the fracture is short; under a lens of some power, the bark shows a finely striated structure, with

many resin cells interspersed throughout its meshes; it contains *tannin*, a *volatile oil* having the odor of the bark, *fat*, coloring matter and an *alkaloid*, *cascarilline*. Cascarilla is an aromatic tonic, and was at one time used as a substitute for the cinchonæ bark. The dose of the powder is from 10 to 20 grains (rarely given); the infusion is the only officinal preparation, the dose of which is one fluid ounce. Cascarilla is much esteemed by smokers, as it adds a very fine flavor to tobacco.

Cinchona, Cinchona, Peruvian Bark.—Natural order Cinchoneæ, or Rubiaceæ. A native of South America and found growing upon the eastern slopes of the Andes Mountains. The most valuable species growing at the height of five to eight thousand feet above the level of the sea. The non-officinal and inferior varieties are found at a much less elevation. The cinchona tree is quite extensively cultivated in the mountains of Java, also in India and some of the West India Islands. The tree was introduced into the state of California, but its cultivation is doubtful. The virtues of the cinchona were first discovered about the year 1630. It is recorded that the wife of the Viceroy of Peru was cured of a prolonged fever by the use of the cinchona administered by a Jesuit of her acquaintance. In compliment to the Viceroy's wife, the Countess Cinchon, the tree was called cinchona; prior and even after this, the bark was known as Jesuits' bark and was a secret remedy. As the story runs, the Countess was the first individual to introduce the bark into Europe as a non-secret remedy. In the year 1737, La Condamine, a

scientist, visited Loxa and sent to the Academy Royale des Sciences a paper or memoir describing a number of the species of the cinchonas. Linnæus included all the species, without distinction under one head, believing few, or only one variety existed, and this one, he called cinchona condaminea after La Condamine. The history of the cinchona is not as clear as it might be; the native names are cascarilla quinquine and quina-quina. The bark was largely used as a remedy as early as 1690. There are three varieties which are officinal, cinchona Pallida, pale cinchona, cinchona condamine, crown, or Loxa bark. This last variety of the cinchona is found growing in the state of Ecuador in the vicinity of Loxa, and upon the highest ranges of the Andes. The tree attains a height of 40 to 50 feet, having lance or ovate entire leaves, smooth and shining with very acute points. The flowers are small, tubular and infloresce in corymbose panicles, of a pale rose color; calyx persistent and five-toothed, stamens five; pistil one, and double-headed (bifid). The bark of the cinchona pallida occurs in commerce, in single or double quills, about ⅛ to ¾ of an inch (3 to 20 millimeters) in diameter, whilst the bark proper or epidermis is only about $\frac{1}{12}$ of an inch (2 millimeters) in thickness. Externally it is of a brownish gray color, somewhat fissured transversely and wrinkled longitudinally. Internally the bark presents a pale brown appearance inclining to yellow; when broken the fracture is somewhat fibrous and finely striated. Odor, not peculiar; taste bitter and astringent. Cinchona Flava, Yellow Cinchona, Cinchona Cali-

saya. Like the preceding species is found growing upon the highest altitudes, and is much the noblest tree of all the cinchonas, often two feet in diameter at the trunk. The leaves are large and somewhat more obovate in shape than those of the other species, otherwise identical. Flowers perhaps a shade deeper in color, but no very marked difference. The bark of the yellow cinchona occurs in flat pieces from 1-6 to 2-5 of an inch (4 to 10 millimeters) thick, varying in breadth and length. The epidermis or corky layer of the bark is usually removed before it finds its way into the stores; hence the pieces are very compact; of a rich brown color externally, with many irregular depressions; internally it is of a lighter shade; when broken the fracture is short and finely fibrous. Odor, somewhat aromatic; taste bitter, but by no means peculiar; contains more quinine than the other varieties of the cinchonas, but the quantity is variable.

Cinchona Rubra, Cinchona Succirubra, Red Cinchona. This lofty tree is found on the western slopes of Chimborazo in the state of Ecuador, two to five thousand feet above the sea level. The trunk is erect with very leafy branches; leaves opposite and ovate or oval in shape and abruptly pointed, not as smooth and shining as the aforementioned, but very strongly veined. Flowers in paniculated racemes and of a handsome pink color, otherwise differing but little from the other species of cinchona. The bark of the red cinchona occurs in form of flat pieces of variable length and width, but from ⅛ to ¼ of an inch (3 to 12 millimeters) thick,

and usually coated with a corky layer or epidermis, rugged, wrinkled and frequently warty. Externally it presents a brick-red brown color, which assumes a shade deeper color internally; when broken shows a short fracture, with many fine fibres. The powder is of a red-brick color, peculiar odor, taste astringent and permanently bitter. The three varieties of the cinchonas mentioned are considered the best species, and are called officinal; from these the alkaloids of *quinia*, *quinidia*, *cinchonia*, *cinchonidia* and *quinamia* are obtained, besides quite a number of allied radicals or alkaloids. For further account see United States Dispensatory. The cinchonas number thirty-six species, and about one-third of the number furnish the cinchona barks of commerce, all of which contain the alkaloids in a greater or lesser degree. Besides the aforementioned alkaloids the cinchonas contain *kinic*, *kinovic* and *cincho-tannic* acids, *gum*, *sugar*, *wax*, *salts of lime* and a *volatile oil*. In preparing the alkaloids, or rather extracting them from the barks, the mother liquor contains a brown amorphous substance known as chinoidine, which becomes soft under the heat of the hand, and is soluble in alcohol and ether. The cinchona pallida contains more *cinchona* and *cinchonidia* than *quinine*, and its infusions yield no precipitate with sodium sulphate. The yield of quinine depends upon the age of the tree and on the locality in which it grows. The spurious varieties of the cinchonas are not often found in commerce as a specific adulterant of the genuine. They do, however, come to this country from the north Atlantic parts of South America,

and are called Carthagena barks. In appearance they present a creamy-white or a yellow-white corky layer, which is not so prominent or persistent in the genuine varieties; when examined under the microscope the fibre is coarse and in bundles, whilst in the genuine the texture is finely fibrous. There is scarcely a man, woman or child in any southern climate who has not some knowledge of the efficacy of cinchona and its alkaloids. In the cure of fever cinchona is rarely given in bulk, but in form of infusion, wine, tincture, extract, etc. It is febrifuge, tonic, astringent and emmenagogue in its effects. Extract, fluid extract, tincture and compound tincture are officinal; also the alkaloids and their compounds. The dose of the powder is from 5 to 60 grains; of the extract, 1 to 5 grains; of the tincture and fluid extract, ½ to 1 fluid drachm (2 to 4 grams); either alone or in combination with some other remedy. Most of the alkaloids are white, or nearly so, and occur in acicular crystals.

Cinnamomum, Cinnamon, Zeylanicum Cinnamomum, or Cinnamomum Zeylancum, or, as some have it, the Cassia Cinnamomum.—Natural order Lauraceæ. This evergreen tree is a native of China, and attains a height of 20 to 30 feet; it is found growing many hundred feet above the sea level; the leaves are of a shining green color, leathery in texture, ovate or ovate-oblong in shape (said to vary) with obtuse points. Flowers infloresce in panicles; they are green in color, with nine fertile stamens, usually in rows of three; ovary one-celled, the stigma in form of a disk, seed large and filled with oil. There

seems to be some doubt existing as to the origin of the varieties of cinnamon. Some authors contend that all tne cinnamon of commerce is from the same tree, the Cassia being the bark from the large and older portions of the tree, while the finer grades are the smaller and younger portions of the branches. Suffice it to say, that the medical uses and effects are the same, though the Ceylon cinnamon is superior in odor. Cinnamon barks, as found in commerce, are in pieces of variable length, but about one twenty-fifth of an inch (1 millimeter) thick, varying in color from a light to a dark brown, the finer varieties being thinner, more tightly and evenly curled or rolled. The taste of cinnamon is astringent, sweet, aromatic and biting, less pleasant and more astringent in the poorer varieties, and the fracture more abrupt. Cinnamon contains *sugar*, *tannin*, *mannit*, *mucilage* and a *volatile oil;* the latter constituent will be treated of under its own proper head. The bark and its preparations are carminative, stimulant and astringent, and given in form of powder infusion and tincture; dose of the powder, 8 to 30 grains (0.5 to 2 grams); of the tincture, 1 to 2 fluid drachms (4 to 8 grams). The officinal preparations are the *aqua cinnamomi, pulvis aromaticus, pulvis cinnamomi, comp. syr. rhei aromaticus, tinctura cardamomi comp., tinctura cinnamomi, tinctura catechu, vinum opii and tinctura lavendulæ comp.*

Cornus, Dogwood.—Natural order Cornaceæ. Found in all the North American woods. The species under discussion is the Cornus Florida, which flowers in terminal cymes; it has a perfect

calyx, four-toothed, sepals white, notched and petal-like; the flowers have four stamens and one pistil; the drupe, berry-like, with two cells; leaves opposite, entire and oval in shape, with parallel veins. The cornus circinate or round-leaved dogwood differs from the aforementioned by having the fruit blue, and flowering in July, also in some minor particulars. The cornus sericaceæ differs little in general characteristics from the cornus circinata, except by growing in swampy lands, usually being larger in size and somewhat dissimilar in the coloring of its branches and the pubescence of its leaves. This variety is known in common terms as the silky cornel. The three varieties already mentioned, out of the seven described in the botanical works, are recognized as officinal or medicinal. The bark is collected from the root of the tree, and occurs in commerce in pieces of ⅛ of an inch (3 millimeters) thick and very irregular in size; when deprived of its corky layer it presents a brownish-red color externally, fracture fibrous and very delicate in structure. The bark of the other two dogwoods occurs in quills; they have identically the same medical use and contain the same constituents, *tannin*, *resin*, *gum*, *cornin* and *cornic* acid. The dogwood barks are astringent, tonic and febrifuge; the dose of the powder is 15 to 60 grains (1 to 4 grams). The fluid extract is officinal and the dose is 30 to 60 drops. It is recommended in fevers and as a substitute for the cinchona; name obtained from the Latin *cornu*, a horn, and so-called on account of the hardness of its wood.

Euonymus, Wahoo, Enonymus Atropurpureus.—Natural order Celastraceæ. This perennial shrub or tree is found in the northern and middle portions of the United States; it is from 6 to 12 feet high, with opposite elliptical ovate and serrated leaflets on long petioles; flowers perfect, dark purple in color and arranged in cymes; the flowers have four petals, five stamens and one pistil; calyx five-parted; capsule three to five-valved and colored, and contains one to four seeds. The Wahoo is commonly known as the spindle tree or burning bush. The bark of the root is the part used in medicine and occurs in commerce in the form of curved or quilled pieces, presenting an ash color with black spots externally; the inner surface is of a tawny yellow color; in thickness the bark varies, average about $\frac{1}{12}$ inch (2 millimeters); when broken the fracture is even, but exhibits many striated fibres on the inner layer. Taste sweet, bitter and then acrid; said to contain *starch*, *pectin*, *resin*, *asparagin*, *euonic* acid, and an active principle called *euonymin*, which is not to be confounded with a brown powder used by the Eclectics; that is made by precipitating a strong alcohol tincture with water. Wahoo is cathartic and chologogue in its action; the dose of the fluid extract is 30 to 60 drops. The extract is officinal.

Frangula, Frangula, Rhamnus Frangula.—Natural order Rhamnaceæ, common name Alder Buckthorn. Native of Europe and Northern Asia. This small tree or shrub is usually found in thickets or on the borders of woodlands; the leaves are entire and in seven pairs; the

leaflets are opposite and have very prominent veins; flowers perfect and of a greenish-yellow color, and in clusters; the fruit is a berry, fleshy, and at first red, but when ripe of a rich black, and containing several seeds umbilicated in character. The bark, as it occurs in commerce, is in quills and quite thin, having a dark-brown color externally, and usually warty. The inner surface is smooth and of a rich brown color; when broken the fracture is short, hence the name Frangula (Latin *frango*, to break), easily broken. Buckthorn has little or no odor but a decidedly bitter and sourish taste; it contains *resin*, *tannin*, *emodin*, *rhamnoxanthin* and *frangulin*, which is a yellow glucoside, giving a purple color to alkaline solutions. Its medical properties are tonic and purgative, as is also the R. Catharticus and the R. Purshiana, the dose of which is about 15 to 60 drops (1 to 4 grams). The fluid extract of the above (R. Frangula) is officinal; the others are not so recognized.

Gossypium, Cotton, Gossypium Herbaceum. —Natural order Malvaceæ. This plant or small tree is a native of India, naturalized and now cultivated in the United States, Africa, and tropical America. Some authorities claim that the cotton plant was unknown to the Greeks until the invasion of Alexander the Great into Asia, for some of his scientific followers described two kinds of cotton tree, the Gossypium Indicum and the G. Arboreum, the latter being quite a large tree and said to yield very little cotton. The leaves of the plant or tree are alternate, and have palm-shaped lobes covered

with small dots. The flowers are large and showy, with five petals, which are either red or yellow in color, having a double calyx, stamens polyandrous (many) with filaments united (monodelphous) and style divided with three to five stigmas; capsule oval or pointed with from three to five cells, each cell containing from three to seven seeds of a dark-brown color and ovate in shape. For further account see United States Dispensatory. The bark of the root, as it occurs in commerce, is in thin bands or quilled pieces of a yellow-brown color externally; presenting to the eye a number of circular dots and a perfect network of ridges; the inner surface is of a lighter color and of a silky lustre, very finely striated; taste, bitter, astringent and acrid. The cotton bark contains *tannin*, *sugar*, *starch*, *resin*, and a *fixed oil*. The resin turns red on exposure and passes from a soluble to an insoluble condition. Its medical properties are emmenagogue and oxytocic, and it is used in form of decoction and fluid extract. Dose of the decoction, one fluid ounce; of the extract, 30 to 60 drops (2 to 4 grams). The material taken from the capsule or boll, when ripe, consists of fine filaments or tubular hairs flattened, which, on becoming dry, are distinguished from the linen fibres by not being tapering at the ends. The many uses of cotton fibre are too well known to need a very accurate description; suffice it to say, that by the action of sulphuric acid the fibre is converted into gun cotton (pyroxylin), a very explosive substance, which dissolves in ether and forms the officinal collodion of the stores. The cotton is also used as an absorbent in hu-

mors of the body, and is one of our most valuable agents in arresting the flow of blood from any part or organ of the human frame. The oil of the seed is bland and useful in many ways, and will be spoken of under its own proper head. The preparations of the cotton root should not be dispensed indiscriminately, as they are dangerous. The fluid extract is officinal, and is given in doses of 30 to 60 drops (2 to 4 grams).

Juglans, Butter Nut, Juglans Cinerea.—Natural order Juglandaceæ. Native of the North American Continent, and commonly known as the oil nut tree. This handsome tree attains a height of from 40 to 50 feet, adorned with sessile leaves arranged in pairs, there being as many as seven leaflets, with an odd leaflet at the top. The leaflets are oblong lanceolate in shape, and pubescent upon their under surface; the fertile flowers are solitary or in spikes, whilst the sterile flowers are in catkins, the calyx a mere scale (adnate). Fruit, an oblong nut about the size of a small egg; pubescent and clammy to the touch, and very rich in oil. The bark of the tree is the part used in medicine, and occurs in commerce in curved or flat pieces from one-eighth to one-fourth of an inch (3 to 6 millimeters) thick; in color an orange-brown, rather lighter on the inner surface, and finely striated. When broken the fracture presents a very delicate network of fibres; taste bitter and acrid; odor little or none. It contains *tannin, volatile oil, resin, nucine* or *juglone;* the latter constituent has been obtained in form of orange-yellow crystals, which are said to be volatile, and give a purple color to alkaloidal solutions. There is said to be about

14 per cent. of fixed oil incorporated within the bark, together with other constituents. The bark of the oil nut or butter nut tree is tonic and cathartic in its effects, and administered in form of extract, fluid extract and infusion. The dose of the former is from 5 to 30 grains (0.3 to 1 gram); of the fluid extract, ½ to 1 fluid drachm (2 to 4 grams); not often prescribed. The solid extract is recognized as officinal. The well-known black walnut (*juglans nigra*), the English walnut, or Madeira nut (*juglans regia*), the hickory nut (*carya tomentosa*), the shell bark or shag bark hickory (*carya alba*), and the pecan nut (*caryæ oliviæ formis*), belong to the order of Juglandceæ.

Liriodendron, Tulip Tree, Liriodendron Tulipfera.—Natural order Magnoliaceæ. This tree ranks as a giant among the forests of the United States, its trunk being straight and erect and free from limbs to a distance of 30 feet. The leaves are large, of a shining-green color, and usually divided into three lobes, the upper one truncated (having the appearance of being cut off), and standing on very long petioles. The flowers stand on distinct peduncles with a double calyx, the outer one consisting of two sepals, and the inner of three sepals; stamens numerous (polyandrous), with short filaments; corolla with six petals or more, which are showy and streaked with red and yellow, and in form of a cone, which encloses many minute stigmas. The fruit is cone-shaped, made up of scales, and containing two seeds, both of which are sometimes abortive. The bark, as it occurs in commerce, is usually found in curved pieces or quills, one

twelfth of an inch (2 millimeters) in thickness, of a purple-brown color, inclining to gray if long gathered; length of pieces variable. Internally smooth and shining, and of a rusty white. When broken the fracture is fibrous, odor pleasantly aromatic; taste, bitter, astringent and pungent. Contains *gum*, *tannin*, *resin*, and its active principle, called *liriodendrin*, which occurs in yellow globules or white acicular crystals; these are soluble in alcohol and ether. The bark of the tulip tree is tonic, febrifuge and anthilmintic in its action, and has been given in form of infusion and powder, the dose of the latter being 1 to 2 drachms (4 to 8 grams). The wood of the American poplar or tulip tree has a commercial value, and its bark has been used for the cure of fever in years gone by, but is no longer among the officinal remedies.

Magnolia, Magnolia, Magnolia Glanca. The small Laurel Magnolia, also known as the Sweet Bay Tree, Magnolia Acuminata, and the Cucumber Tree, Magnolia Tripetala, or Umbrella Tree. —Natural order Magnoliaceæ. These three varieties of magnolia are not to be mistaken for the magnolia grandiflora of the gardens of the southern states, which outrivals the species in the size and the grandeur of its flowers and the delicacy of its perfume. The size of the three varieties first mentioned depends much upon the latitude in which they are found. The Magnolia Glanca is a beautiful swamp shrub, found generally throughout the middle and southern states of North America; leaves leathery, entire, oval, ovate lanceolate in shape; evergreen in the South and deciduous in the North; flow-

ers globular, white and very fragrant; petals usually six, but sometimes as many as nine; stamens numerous, the filaments short, anthers adnate and introrse; pistils adhere in an aggregated mass upon a long torus. Fruit oblong, conical and small, with many carpels, and one or more seeds in each carpel; flowers in all the genus are solitary; leaves leathery and entire. The bark of the Magnolia usually occurs in quills or curved pieces, of an orange-brown color externally, somewhat warty and fissured; internally, the color is of a lighter shade. When broken, the fracture is fibrous; taste bitter and pungent. The Magnolia barks contain *tannin*, *resin*, and an active principle which has been isolated and called *magnolin*, analogous to *liriodendrin*, but its presence in the various species of the magnolias has not been thoroughly demonstrated. The bark and fruit have tonic, febrifuge and diaphoretic properties, and have been used in form of powder and decoction, the dose of the former being ½ to 1 drachm (2 to 4 grains); of the latter, ½ to 1 fluid ounce. Magnolia at one time had quite a reputation in rheumatism, and is still retained as a remedial agent, but no officinal preparation is recognized. The Magnolia was named after the botanist Magnol, who lived in the seventeenth century.

Mezereum, Mezereon, Daphne Mezereum.—Natural order Thymelaceæ. Common name, Spurge Laurel. This order is a small one, the Mezereon heading the list; only one of the species is found in the United States; the others are natives of the mountain regions of Europe. This small perennial shrub is an evergreen, with

lance-shape leaves, tapering and smooth; the flowers appear before the leaves. The flowers infloresce in spikes, and are of a light-pink color; the stamens, eight in number, lie within the tube of the corolla; stigma of the pistil shield-shaped; fruit red, fleshy and one-seeded; whereas, in the Daphne Laureola the leaves are spatulated, flowers drooping and yellow in color, with black fruit. The bark of the Mezereon, as found in commerce, occurs in long, thin bands, rolled or folded into irregular discs. It is of a brownish-yellow color externally, exhibiting a number of dots or scars on the surface, whilst the inner surface is smooth and silky. Taste very acrid; odor none. It contains an unfermentable *sugar* (*glucoside*). *resin*, *wax*, *oil*, and an active principle, *Daphnin*, which occurs in colorless prismatic crystals and has an acid reaction. Its medical properties are stimulant, alterative, diuretic, sialagogue and local irritant, with a tendency to blister. Enters into combination with the following officinal preparations: *Extract Mezereon*, *Extract Mezerii Æthereum* and *Extractum Sarsaparilla* Compound, rarely found in the stores of the present day. The name is partly derived from the Greek and Latin word "Daphne," the daughter of the river god Peneus, who was changed into a laurel tree.

Nectandra Berbeeru, Nectandra Rodiæi, Greenheart Tree.—Natural order Lauraceæ. This is a very lofty evergreen forest tree; native of British Guiana. It has acute, oblong, shining leaves; flowers hermaphrodite, yellow in color, with an odor not unlike the Jasmine; calyx five-parted. The flowers have twelve sta-

mens, the inner ones being sterile; four cells to each anther; seed solitary and about the size of a walnut. The bark from the Greenheart tree occurs in commerce in large, heavy, flat pieces, ranging from 6 to 12 inches (15 to 30 centimeters); variable in breadth, but about ¼ inch (6 millimeters) thick; of a gray-brown color externally, and a shade or two darker internally; when broken the fracture is of a granular character. The taste is astringent and persistently bitter. According to recent analysis, the bark contains *starch*, *resin*, *tannin*, *nectandrin* and *bebeerine* or *berbeerina*, the latter being, according to authority, the essential constituent and identical with *Pelosine*, which is found in the *Pereira Brava*, and the *Boxina*, found in the box shrub. *Berbeeria*, or *Berbeerine*, occurs in a white, amorphous body, soluble in alcohol, ether, and partially so in boiling water, having an alkaline reaction, and from which the sulphate of berbeerine is obtained. Nectandra and its constituents are used for the same purposes as the cinchona; it is tonic, febrifuge and antiperiodic in its effects. The dose of the bark is from 30 to 60 grains (2 to 4 grams), but generally given in form of one of its alkaloids, one of which is a brown, amorphous powder mixed with resin (the eclectic), and the other in white crystals, containing some sodium carbonate, which is left in its manufacturing process, hence it is rarely free from some foreign material. The dose of the sulphate is from 2 to 5 grains (0.13 to 0.33 grams). The name of the tree is after Dr. Rodie, who was an earnest worker in the cause of botanical science.

Prinos, Niger, Black Alder, Prinos Verticillata.—Natural order Aquifoliaceæ. Common name Winterberry Tree. This small shrub is a native of the North American Continent, found in swampy thickets, or along the various water courses, and attains a height of 6 to 12 feet (2 to 4 meters), with alternate spreading branches covered with a bluish-gray bark The leaves are of a deep-green color, serrate and oval in form, with accuminated points, prominently veined; flowers small, white, with short pedunCles, stamens usually number six, pistil one, calyx persistent; fruit the size of a pea; when ripe, scarlet in color and containing six seeds in separate cells. The bark, as found in commerce, is in slender pieces, sometimes rolled, or in quills about $\frac{1}{25}$ of an inch (1 millimeter) thick; externally of a brownish-ash color; internally a yellowish-green; when broken the fracture is short; odor little or none; taste bitter and astringent; contains *tannin*, *wax*, *fat*, *resin*, *albumen*, *sugar*, *starch*, *chlorophyl*, and an amorphous bitter principle. The bark of the Alder was once highly valued as an alterative, tonic, and astringent. Usually given in form of decoction, fluid extract, and powder; the dose of the decoction ½ to 1 ounce; of the extract ½ to 1 fluid drachm; of the powder 10 to 30 grains. No officinal preparation.

Prunus Virginiana, Wild Cherry. Natural order Rosaceæ or Amygdaleæ. This medium-sized tree is usually found growing near watercourses. The body or trunk of the tree is rough and the fruit small; otherwise it resembles our garden cherry wood. It is fine, very solid and

much esteemed by cabinet makers for the lustre of its polish. Leaves ovate oblong or lanceolate oblong, with serrated edges and of a rich green color; flowers white and small, with five petals and in racemes; stamens numerous; calyx adherent to the ovary; fruit about the size of the garden pea, black and shining. The Prunus Virginiana is called by the late Prof. Gray chokeberry, and described by him as a small tree, whilst some botanists contend that the Prunus written of is a giant tree in size and bears red fruit, whilst that under discussion is the Cerassus Serotina, and it is from this species that we obtain the bark of the stores, which usually occurs in irregular fragments about one-twelfth of an inch (2 millimeters) thick, presenting to the naked eye a greenish-brown color externally; rather lighter and smoother internally; easily broken and the fracture granular. The bark is obtained from all parts of the tree, but that taken from the root is the best. The bark contains *tannin*, *resin*, *starch*, *gallic acid*, *amygdalin*, *emulsin*, and an active bitter principle. Odor feeble, but the taste bitter and peculiar, resembling the flavor of bitter almonds or peach kernels. The cherry bark and its preparations are tonic and sedative in their action, and are highly valued; rarely given in powder. The syrup, extract and infusion are recognized as officinal, the dose of which is ½ to 1 drachm of the syrup; of the extract 15 to 30 drops (1 to 2 grams); of the infusion ½ to 1 fluid ounce repeated several times a day. The bark and its preparations deteriorate and even spoil in a short time, hence care should be taken in dispensing them; they

should be fresh as often as possible to insure a perfect result as a remedy.

Punica Granatum, Pomegranate.—Natural order Granataceæ. Found growing wild in Arabia, Persia, Bengal, China and Japan, also as an ornamental tree in the gardens of the Southern States and places of the same latitude in other countries. The tree or shrub attains a height of 15 to 20 feet, having shining opposite, leathery green leaves, oblong or lanceolate in shape and on short foot stalks; flowers large and of a very rich scarlet color, and at the extremity of the young branches; the flowers are five-petaled, round and wrinkled and inserted into the tube of the calyx, which is fleshy and thick; stamens number as many as eleven, with one pistil. When cultivated in hot-houses or in warm situations, the flowers become double. The bark of the Punica Granatum root is used in medicine, and occurs in commerce in thin fragments or quills, 2 to 4 inches (5 to 10 centimeters) long and about $\frac{1}{25}$ of an inch (1 millimeter) thick, of a brownish-gray color externally and somewhat warty; finely lined and of a greenish-yellow color on the inner surface; when broken the fracture is short and granular; has little or no odor; taste bitter and astringent. It contains *mannit*, *sugar*, *pectin*, *tannin*, existing as a *punico-tannic* acid, and a colorless *oily alkaloid*, termed *pelletiering*, which is said to be soluble in water. The peel or rind of the fruit was formerly considered officinal, and this occurs in hard, dry, brittle pieces, resembling, in a measure, the rind of the orange, but differing in size and thickness and having no odor. The pome-

granate fruit is larger than the orange and has a permanent calyx. It is asserted that the rind is used for the purpose of tanning leather in countries where the trees are plentiful. Both the rind of the fruit and the bark of the root have been and still are used as an astringent and anthelmintic, but the decoction of the bark of the root is the only officinal preparation recognized. This is prepared by adding one ounce of the bark to the pint of water, the dose of which is one fluid ounce.

Quillaia, Quillaia, Soap Bark, Quillaia Saponaria.—Natural order Rosaceæ. This must not be confounded with the soap wort or Bouncing Bet. The soap bark tree is commonly known as South American bark, which is a native of Peru and Chili. This large evergreen forest tree has large, glossy, leathery leaves, serrated, and having stipules; stamens numerous, petals and sepals equal, flowers rose colored. The bark as it occurs in commerce is in flat pieces, varying in length, and about $\frac{1}{5}$ of an inch (5 millimeters) in thickness. It is light-brown, and quite smooth on both sides, with occasionally a patch of corky epidermis. When broken, the fracture is irregular and splintery. Soap bark has little or no odor, but an acrid taste, and when inhaled causes violent sneezing. The constituents are *mucilage*, *resin*, *starch*, *calcium sulphate*, and *saponin*—a glucoside nearly identical with that obtained from the soap wort. The bark has been used as a tonic, diuretic, and anti-periodic, but, no longer considered a remedy; it is now utilized as a detergent in cleaning fabrics, silks, cloths, etc. The dose is 15 to 30

grains, given in form of an infusion. The saponin is said to be an active poison. There is one officinal preparation of the bark; a tinctura.

Quercus Tinctoria, Black Oak.—Natural order Cupuliferæ. Commonly known as the red oak. The varieties of this species make up a large proportion of our forest trees. Whilst the white and black oaks are the only two which are recognized in *materia medica*, these differ in many respects from the European variety. It is said the *quercus nigra* or black jack and the *quercus falcata* or Spanish oak are often used as adulterents of the officinal black oak bark. Like the white, the red oak bark contains a large amount of *tannin*, *pectin*, and *quercitrin;* the latter constituent is a yellow crystalline substance, nearly tasteless, and when added to a solution of iron, coloring it green, yielding, with dilute acids, two radicles, called respectively isodulcit and quercitrin. The black oak bark, when deprived of its corky layer, is of a brick-red brown color, $\frac{1}{8}$ of an inch (5 millimeters) in thickness, with many fissures. When broken, the fracture is coarsely fibrous, the taste bitter and astringent, with an odor of tan bark. The dose of the bark is 15 to 60 grains (1 to 4 grams) in form of an infusion. Rarely prescribed; used as a poultice in indolent ulcers. It is not often used in the tanning of leather, as it is said to give an undesirable color.

Quercus Alba, White oak.—Natural order Cupuliferæ. This well-known variety of the oak is a native of the North American woods. The flowers are divided into the fertile and unfertile; the former are clustered or somewhat

scattered, whilst the latter are in slender catkins; pistils and stamens are on separate flowers; stigmas usually three-lobed; the stamens number from 3 to 12; fruit an acorn, inserted within a capsule or indurated cup. All the species of oak flower in the spring and perfect their fruit in the autumn months. When full grown, the leaves are of a dull yellow-green color beneath, and of a rich green on the upper surface; the edges are cut obliquely into 6 or 9 lobes. The bark, when deprived of its outer or corky layer, is of a pale brown color, about ¼ of an inch (6 millimeters) thick, but of various lengths; when broken, the fracture is fibrous, odor slight, not peculiar, but possessing a very astringent, bitter taste; when found in the stores it is usually so ground or contused as to render its identity doubtful. White oak bark contains *pectin*, *resin*, and a red coloring matter, also about 8 or 10 per cent. of *tannin*. Decoctum quercus is the only officinal preparation recognized, and this may be made from any of the oak barks.

Rhamnus Purshiana, Cascara Sagrada, or Chittem Bark.—Natural order Rhamnacæ. Commonly known as the American buckthorn. This order of the Rhamnaceæ is found growing in the Rocky Mountains and on the Pacific coast. It differs little in general characteristics from the afore-mentioned variety, but by many physicians it is considered the most efficacious of the species, and used for the same purposes as the buckthorn, but up to this time little has been done to arrive at a correct analysis of its constituents. It is said to contain three resins, *malico-tannic* and *oxalic acids*, and a *volatile oil*,

a neutral crystallizable substance resembling crysophanic acid, and a peculiar ferment. The dose of the fluid extract is from ½ to 1 fluid drachm; it is an efficacious and safe laxative in habitual constipation.

Rubus, Blackberry, Rubus Villosus, Rubus Trivialis, and Rubus Canadensis.—Natural order Rosaceæ, or Amygdalaceæ. The first being the high blackberry, and the second the low or trailing blackberry, but this latter genus was considered by the late Professor Gray more properly the Rubus Canadensis and the true dewberry, which is a small trailing shrub, bearing its fruit rather earlier than the other species. The stems of the Rubus are recovered with prickles, with ovoidal leaves, usually having three to five in a group, with very distinctly marked edges, sharply serrated; flowers white, with five petals; stamens numerous, with many pistils. The fruit is rather an aggregation of small fruits, conical in shape, very succulent, and each little globe containing a hard seed. The berry is familiar to every one in the United States as a table fruit. The bark of the root is the part used in medicine, and occurs in tough, flexible pieces of a dark gray color, somewhat inclined to brown; odor little or none; taste strong and astringent. The constituents are tannin, gum, and resin, but no very thorough analysis has been made of the bark up to this time. Its medicinal properties are tonic and astringent; it has been, and is still, considered by the profession a useful astringent, and the fluid extract is officinally recognized as a remedy, the dose of which is from 30 to 60 drops (2 to 4 c. c.) The

Rubus Idæus (raspberry) is also recognized as officinal in form of a syrup, probably more as an adjuvant and vehicle than from any medicinal virtue the plant may possess.

Salix, Willow, Salix Alba, White Willow.—Natural order Salicacæ. In this genus there are many species, all of which differ somewhat in their characteristics. They all flower in catkins with entire scales; stamens from one to five; fruit one-celled; flower has no corolla. The willow tree, with its graceful, overhanging foliage, seems to accommodate itself to all parts of the world; from the Babylonian willow to a comparatively small twig we find this extensive genus of plant life. The leaves in all the varieties are without stipules, alternate lanceolate in shape, and with serrated edges. The white willow is a native of Europe, but grows abundantly in all parts of America. The bark of the willow as found in commerce is collected from the branches which are several years old, and occurs in irregular fragments or quills from $\frac{1}{12}$ to $\frac{1}{25}$ of an inch (1 to 2 millimeters) thick. Externally smooth and glossy and of a brownish-yellow color; internally much lighter in color, the fibre separating into many thin layers. The bark has a bitter, astringent taste; little or no odor; and contains *tannin*, *resin* and *salicin*, that is a glucoside which occurs in white acicular crystals, or in scales. The bark is not used as a remedy, but its active principle salicin, which is a tonic and febrifuge, the dose of which is from 3 to 15 grains (0.2 to 1 gram).

Sassafras Officinale, Sassafras.—Natural order Lauraceæ. This tree is a native of the North American continent, and varies in size according to soil and latitude, from a small bush, or shrub to a tree measuring 12 to 15 inches in diameter at the trunk and reaching a height of 20 or 30 feet. The leaves on the same tree or bush differ as to shape, some being ovoidal, some lobed on one side and others again lobed on both sides; flowers yellow and the corolla has six oblong petals or segments (diœcious); the male flowers have nine stamens, whilst the hermaphrodite ones are on different trees and have only six stamens, with a simple style. Fruit an oval drupe about the size of a buckshot and of a deep blue color. The bark, as found in the stores, is in very irregular shaped pieces, often having a corky layer or epidermis, but when properly prepared for the drug market presents a rusty-brown color externally; when broken, the fracture is corky; odor fragrant and of its own kind; taste pungent and astringent. The pith or medulla of the sassafras officinale occurs in slender, cylindrical pieces, very light and easily broken, possessing the odor and taste of the bark to a high degree. Sassafras bark is obtained from the root, and is said to contain, according to authority, *starch*, *gum*, *resin*, *wax*, *sassafrid* and a volatile oil, which dissolves freely in alcohol, yielding with acid nitric a dark resin which consists of *safrol* and *sassafrene*. The sassafras bark has long been considered a valuable stimulant, alterative and diaphoretic, and is given in doses of 30 to 60 grains (3 to 4 grams) The pith, oil and comp. decoctum are

all officinal; it also enters into combination with compound extract of sarsparilla. Sassafras is more used as an adjunct to other remedies than alone. The dose is from ½ to 1 fluid drachm of the extract. The name is a corruption of the Spanish word "salsafras." For further account, see the Dispensatory, 17 ed page 1205. The oil will be mentioned under the head of "Volatile Oils."

Simaruba, Simaruba, Officinalis Simaruba Amara,—Natural order Simarubaceæ, commonly known as the Mountain Damson. The Simaruba is a large tree found in Guiana, also in some of the West India islands; the leaves are alternate and pinnate, and the leaflets ovate in shape, but entire as to their edges, of a deep-green color, with long petioles; flowers of a pale-yellow color; pistils and stamens on separate flowers; calyx cup-shaped. The fruit in not unlike the damson (our native fruit) in appearance, hence the name. The bark of the root is the part used in medicine; this occurs in commerce in pieces of several feet in length and folded upon themselves; externally it is of a light-brown color, but a shade or two lighter internally; when broken the fracture is coarsely fibrous and tenacious. The Simaruba contains *resin*, *mucilage*, *quassin* and a *volatile oil;* has been given as a tonic and febrifuge and given in form of decoction as a substitute for the Quassia Excelsa, but inferior to the latter wood as a remedy; rarely, if ever, found in the stores of the present day.

Ulmus, or **Ulmi,** Elm.—Natural order Ulmaceæ from the Ulmus Fulva. European variety,

commonly known as the broad-leaved elm. This is one of our finest forest trees, having oblong, ovate leaves, equally serrated and pubescent, with very short petioles. The flowers have a calyx, but no corolla; the stamens are five in number, and of a pale pink color, with two pistils; fruit, a capsule and one seeded. The inner bark of the Ulmus Fulva (slippery elm) occurs in commerce in flat pieces or strips of variable length and width, but about ⅛ of an inch (3 millimeters) thick, of a light brown color. When broken, the fracture is fibrous and tough; a transverse section of the bark presents under a good magnifying glass a delicately-checkered appearance; odor agreeable, taste bland and mucilaginous; medical properties demulcent, and applicable in all cases of inflammation of the bowels and urinary organs; also used as a poultice when in a powdered or ground state, mixed with water. It is given in form of an infusion. The mucilage is the only recognized officinal preparation. The late Prof. Gray believed the elm properly belonged to the natural order of Urticaceæ.

Viburnum, Black Haw, Viburnum Prunifolium.–Natural order Caprifoliaceæ, commonly known as the arrowwood tree. Native of the United States, and found growing in and about the margin of woodlands. This shrub or small tree attains a height of 10 to 20 feet, having rich, glossy, green leaves, ovate or obvate in shape, with serrated edges; flowers rose color, and very rich in perfume; corolla wide-spreading, with five petals, which are deeply lobed; stamens, five; stigmas, from one to three; calyx,

five-sepalled; fruit, a blue-black drupe, flattened and oblong. The bark of the stem is used in medicine, and occurs in commerce in thin, irregular pieces or quills. Externally it is of a purple-brown color and somewhat warty; internally smooth, and several shades lighter in color. The fracture is abrupt. The bark has little or no odor, but has a bitter, astringent taste. Viburnum contains *tannin*, *sugar*, *resin*, *valerianic acid*, also the *citrates*, *malates* and *oxalates* of *lime* and *potassium*, besides a *yellow*, bitter principle. Black haw, although an old remedy, is recognized as a valuable nervine, astringent, anti-spasmodic and tonic; an oxcytocic in hemorrhage of the uterus. The fluid extract is officinal, the dose of which is two fluid drachms.

Xanthoxylum, Prickly Ash, Xanthoxylum Fraxineum.—Natural order Rutaceæ. This perennial shrub is a native of North America, and attains a height of 6 to 10 feet (2 to 3 meters), with alternate branches armed with prickles; the leaves are pinnatifid and alternate in their arrangement; the leaflets are in four or five pairs, ovate, serrated, sessile and acute in their character; flowers in umbels, very small and inclined to a green color; both the male and female flowers are perfect in construction, with five stamens and two or more pistils. The bark, as found in commerce, is usually in fragments or quills about one twenty-fifth of an inch (1 millimeter) thick, of a dark color externally, presenting many white spots and fissures; internally lighter in color, smooth and finely striated. The bark is light in weight and very brittle; odor scarcely perceptible; taste bitter,

aromatic and sweetish. The bark contains *resin*, *gum*, *volatile* and *fixed oil*, also an active principle termed *xanthoxylin*, which is not identical in all the xanthoxylli. The medical properties are stimulant, alterative and sialagogue. It is also said to be an emmenagogue. The dose is 8 to 15 grains (0.5 to 10 grams), and it is given in form of powder, tincture, decoction and fluid extract. Rarely prescribed. The fluid extract is officinal. The medical effects of prickly ash closely resemble mezereon. The dose of the fluid extract is 15 to 30 drops (1 to 2 grams). The name is derived from the Greek "xanthos," yellow, and "xulon," wood.

FOLIA ET FOLIOLA; LEAVES AND LEAFLETS.

These organs of vegetable life form an important part in the economy of the plant or tree. Leaves are formations produced by the expansion of the bark at the nodes of the stem. Their purpose is fourfold: first, for adornment; secondly, for purifying agents for the growth of the plant; thirdly, for the absorption of gases hurtful to the animal world; and, fourthly, as remedies for the cure of disease. Leaves assume many shapes, such as cordate, obcordate, lanceolate, ovate, obovate, oval, and reniform; with their edges serrated, dentated, repand, crenate, and entire; the surfaces or blades of leaves are found glabrous (without hairs), pubescent, vilous, tomentous, scabrous, smooth etc.

The shapes of leaves and leaflets depend upon the framework. This is composed of midribs, veins, and veinlets. Some leaves are closely netted with veins and veinlets, and present a

beautiful appearance of the handiwork of our divine Creator, whilst others, again, have only parallel veins running through them, as in the plantain, corn, palms, etc. Leaves are said to be compound when made up of leaflets, as in the rose, wistaria, locust, etc; in their arrangement along the petiole they occur as pinnate, bi and tri-pinnate (once, twice, and thrice winged). Compound leaves are also found palmately divided (5 divisions, resembling the hand), and these again are found divided into twos and threes, and are known as bi and tri-palmate. The texture of leaves is either succulent (fleshy), coriaceous (leathery), or rugous (wrinkled); they are either sessile (without petioles) or petioled, and partake of all kinds of geometrical curves. Leaves are said to be deciduous when they last only one season, as is the case with our willows, maples, oaks, and shade trees of like order; permanent, as in the pine, cedar, magnolia, and laurel. Although they shed their leaves every season, still, at no time are they denuded of their foliage, because they are renewed at once.

We will speak of leaves and leaflets, their uses and doses, also their mode of arrangement on the particular plant or tree upon which they grow, under their respective headings.

Aconitum, Aconite, Aconitum Napellus—Natural order Ranunculaceæ. Common names, Monkshood, and Wolfsbane. Aconite has already been described under the head of roots, but as the leaf plays an important part in medicine, I will again give a short description of the plant. This perennial plant is a native of Europe and northern Asia, and is cultivated both for its ornamental flowers and for medicine. The leaves of the plant under consideration, are inclined to be cordate in shape, palmately cut, each segment of which is lanceolate and toothed (dentate), somewhat wedge-shaped in their outlines; when dry, odor slight and not peculiar, but the taste decided, producing a tingling sensation to the tongue and a bitter acridity to the palate. The flowers occur in spikes or racemes of a bright blue color, helmet or cowl shape; each corolla has five petals, two superior and three inferior; they are small and often abortive. The leaves contain the same constituents as the root, but in much less proportion. The alkaloid *aconitia*, *acotine*, *aconitine*, or *aconitina*, as it is variously termed, is obtained, as a rule, from the root, and occurs both as an amorphous and crystalline substance of a creamy color, very poisonous. There are six or seven varieties of aconite. See Dispensatory, 17th Ed., page 108.

Aurantii, Orange, Citrus vulgaris of Risso.—Natural order Aurantiaceæ. This handsome evergreen tree, when full grown, is quite imposing, and adorns many broad acres and gardens of the warmer portions of the world. It is a native of Asia, and largely cultivated for its

fruit in the southern United States. The leaves are glossy, smooth, and oval or ovate-oblong in shape, bearing many transparent vesicles upon their surface which are filled with oil and, when bruised, highly fragrant. The flowers are white, quite large, and usually single, but sometimes clustered; the corolla has five petals, stamens many and united (polydelphous) at the base, one style with a globular stigma; calyx five-toothed. The leaves have some tonic and stimulating properties, for which they have been used, and, though no longer classed as remedies, are principally utilized for the oil they contain. The various species of the aurantii differ as to the size of the tree and the character and quality of the fruit; of the above-named species there are two varieties, the CITRUS BIGARADIA and the CITRUS AURANTIUM, the former being the bitter or Seville and the latter the Portugal or sweet orange. The fruit of the aurantii will be discussed under the head of fruits, also the rind, peel, or pericarp, misnamed cortex (bark).

Belladonnæ, Belladonna, Atropia Belledonna.—Natural order Solanaceæ. Belladonna has been described under the head of roots, and we will, therefore, confine our remarks to the leaf. This little and very poisonous perennial is adorned with broadly ovate or ovate-oblong leaves much narrowed at the apex; they are entirely smooth and 4 to 6 inches (10 to 15 centimeters) long, presenting to the eye a dusky green color. According to analysis, they contain *mucilage*, *wax*, *albumen*, *asparagin*, and *atropine* (the active principle), which is said to be heavy, differing in this respect from that ob-

tained from the root. The flowers, inclining to a red color, bell-shaped (campanulate), quite large, and arise on solitary peduncles. Within the corolla are five stamens and one pistil. The belladonna leaves, like the root, are diuretic and narcotic, and capable of dilating the pupil of the eye, and were used centuries ago by the ladies of Italy to give their eyes brilliancy and beauty. At the same time, it impairs the vision while the effects last. The dose of the leaves and their respective preparations is about the same as the root. The officinal preparations of the leaves are the *alcholic extract* and the *tincture;* the dose of the extract is from ¼ to ½ grain, of the tincture 5 to 10 drops. The smallest quantity will often produce an alarming suffusion of the skin. I have seen $\frac{1}{60}$ part of a drop affect a child of 6 or 8 years of age, producing quite an alarming suffusion of the skin; hence its use as a prophylactic in scarlet fever. Name derived from the Italian *bella* beautiful, *donna* a lady.

Boldus, Boldo, Boldoa .Fragrans.—Natural order Monimiaceæ, as some botanists consider the Peumus Boldus. This tall evergreen tree was first described by Messrs. Bentley and Trimen, in their work upon medicinal plants. The description is as follows: "The boldo tree is a tall evergreen, native of Chili, with broadly oval or oval-oblong green leaves, very obtuse at the apex, glossy above, and hairy beneath; when dry, of a reddish-brown color, having a fragrant odor and an aromatic, pungent taste; flowers of a greenish-yellow color, growing in cymes, the pistilate ones bearing three yellow drupes, about the size of a pea." The bark of the boldo is

used for tanning, and the wood for charcoal. Leaves contain *resin*, *tannin*, a *volatile oil*, an active principle termed *boldine*, and a glucoside named *boldglucin*, 0.3 per cent. Boldo is said to have tonic and stimulating properties, has been administered in form of infusion, tincture and fluid extract, but is considered poisonous in large doses. The dose of the infusion, 1 to 2 fluid drachms; of the tincture, 8 to 10 drops; used in South America as a remedy in catarrh of the bladder and in gonorrhœa. The Boldo may be classed as a new remedy and virtually untried, but considered by a few a valuable agent in the cure of disease, though not recognized as officinal.

Buchu, Buchu, Barosma Crenata.—Natural order Rutaceæ. This small shrub or bush with its angular stem is adorned with pale green leaves, which are either oval, obovate or lanceolate in shape with serrated edges, having many dots or pellucid punctate points on their surfaces; odor aromatic and of its own kind, taste pungent, mucilaginous and somewhat bitter. Buchu leaves contain *resin*, *mucilage*, *volatile oil* and *diosmin*. The three species of Buchu are, the buchu betulina, buchu crenulata, and the buchu serratifolia; the two former species differing as to the leaf and form of the ovary; they are known in commerce as the short and the long Buchu. The long Buchu is lanceolate in shape with serrated edges, about an inch long and acutely pointed. The flowers of the Buchu are white and interlined with red; they stand on solitary peduncles, corolla five petalled, with ten stamens, five of which are sterile; calyx

five-toothed, stigma very small, with five lobes. Buchu leaves are *diuretic*, *alterative*, *tonic* and *stimulating* in their medical effects, and are given in form of an infusion and fluid extract. Dose of the former, ½ to 1 fluid ounce; of the fluid extract, 1 to 2 fluid drachms. The tincture is recommended by the British Pharmacopœia.

Cannabis Hemp, Cannabis Indica, Indian Hemp, Cannabis Sativa.—Natural order Cannibineæ. This annual plant is a native of Asia, and attains a height of 10 feet; adorned with opposite leaves, which are divided into 5 to 7 narrow lanceolate and serrated leaflets. The leaves are of a handsome green color and stand on long petioles. The flowers drooping and in axillary racemes of a yellow-green color; the staminate and pistillate flowers are sessile and mostly in pairs, calyx sub-globular, sharply pointed and pubescent, very green and slit on one side; fruit ovate and compressed, containing a seed ovoidal in shape, smooth and brown with many veins. The European and American varieties of hemp are said to differ only in a few minor particulars from that found in Asia The difference noted by those who have investigated the different plants, is a less secretion of resin in the European and American species; prescribers have noted that they also lack the exhilarating and delusive effects of that grown on Asiatic soil. The inhabitants of India and Arabia make an intoxicating compound out of the leaves and resin which is variously termed bang, hashish, gunjah and churrus; the leaves are chewed and smoked in many parts of Africa.

A description of the various kinds of hemp is highly entertaining and instructive. The active principle of this drug is not well established. See Dispensatory, page 369, 18th Ed. Indian hemp is an *anodyne*, *nervine*, *sodorific* and *narcotic*, and is given in form of extract, fluid extract and tincture, all of which are officinal. Dose of the extract 1 grain; of the fluid extract from 5 to 10 drops; of the tincture 20 drops. The origin of the name is said to be Greek, and the meaning unknown.

Castanea, Chestnut, Castanea Vesca.—Natural order Cupuliferæ. The chestnut is one of our most valuable and at the same time one of our largest forest trees; it is also found in Europe, and one species is said to measure as much as four feet in diameter at the trunk. The leaves of the Chestnut are of a rich green color petioled, with sinuate or serrated edges, from 3 to 6 inches long, oblong and lanceolate in form, with a smooth surface; odor little or none, taste somewhat astringent and mucilaginous. They contain *mucilage*, *resin*, and a large per cent. of *tannin*. Flowers in long slender catkins; stamens many, with anthers two-celled; fertile flowers very few, usually three together. Fruit, a burr or capsule surrounded with prickles; seed rounded on one side and flattened on the other, triangular in shape; a seed or nut familiar to all as a luxury and food. The leaves are tonic and sedative in their action, and are administered in forms of infusion, syrup and fluid extract; the latter being the only officinal preparation, and given in doses of 15 to 30 drops (1 to 2 grams). The infusion is made by adding

½ ounce of the leaves to one pint of boiling water; the dose of which is 1 or 2 fluid ounces; name said to be derived from Kastana, a city of Pontus in Asia Minor.

Chimaphila, Pipsissewa, Chimaphila Umbellata.—Natural order Ericaceæ. Commonly known as the Prince's Pine, Pyrola, etc. This perennial evergreen plant is found in Europe and North America, and is adorned with very green leaves two inches (5 centimeters) long, and lanceolate or crenate in shape, with serrated edges and arranged in whorls. The inflorescence is in corymbs or umbels, corolla white tinged with red, style short, and the ovary round; the capsule contains several seed. The leaves contain *sugar, gum, tannin, arbutin, ericolin, urson, chimaphillin or pipsissena;* they are tonic, diuretic, astringent and nephritic in their effects, and are given in form of infusion and fluid extract; the dose of the former is ½ to 1 fluid ounce; of the latter, ½ to 1 fluid drachm. The decoction and fluid extract are officinal.

Conium, Hemlock, Conium Maculatum.—Natural order Umbelliferæ Campylospermæ. Common names, Wild or Poison Hemlock, Spotted Hemlock, Poison Parsley. Herb Bennet, etc. The Hemlock attains a height of 3 to 6 feet, with a smooth stem, variegated in color and hollow, adorned with shining leaves of a greenish-gray color, the lower leaves being tripinnate and the upper ones bipinnate in their arrangement; all of the leaflets are serrated or dentated; the flowers are white and small, with five petals, and infloresce in terminal umbels, each flower possessing five stamens and two pistils. During

the flowering season the plant has a strong, disagreeable odor, which is said to be very prejudicial to health. The leaves when dry have a strong narcotic odor, and a disagreeable, bitter taste; they contain *resin*, *gum*, *extractive matter*, *albumen*, *volatile oil*, and *coniine*, *paraconiine* and *conic acid*. The oil is usually obtained from the seed, and will be spoken of further on. Coniine is an oily, colorless liquid that appears to contain two alkaloids, conhydrine and methylconiine, the first-named alkaloid being capable of crystallization; the true alkaloid is termed conydrine, which is capable of crystallization. Conium and its preparations have been used from the remotest time as a *soporific*, *anodyne*, *anti-spasmodic*, *narcotic* and *sedative*, and they are given in form of TINCTURE, EXTRACT and FLUID EXTRACT. Dose of the tincture, 5 to 10 drops; of the fluid extract, 2 to 10 drops; of the solid extract, from ½ to 1 grain. The alcoholic fluid extract and abstract are officinal, and are made from the fruit of the conium, as they are considered more uniform in strength, whilst a poultice made from the leaves is recognized by the U. S. P. Name is derived from the Greek word *koneion*, the name of the plant, and, according to Hooker, *konos*, a top, so named, he thinks, because the conium produces vertigo. It is asserted that this was the poison taken by Socrates, the philosopher.

Digatalis, Digitalis, Digatalis Pupurea, Foxglove.—Natural order Scrophulariaceæ. This biennial plant is a native of Europe and naturalized in the United States. It attains a height of 1 to 4 feet, adorned with alternate ovate,

lanceolate and oblong leaves, of a dull green color; odor, when fresh, tea-like; taste nauseous and bitter. They contain *resin*, *tannin*, *mucilage*, *pectin* and extractive matter; also *inosit*, *digitalin*, *digitalein*, *digitoleic acid* and *digitorine*, which is a glucoside. The leaves of the digitalis are *sedative*, *diuretic* and *narcotic* in their effects, and poisonous in overdoses. The flowers occur in racemes, are purple in color, with four stamens and double (twined) calyx, five-toothed; the corolla resembles the finger of a glove; seeds small and of a pale-brown color. The leaves are given in form of powder, infusion and extract; dose, 1 to 2 grains; of the tincture, from 5 to 15 drops. The *abstract extract*, *fluid extract*, *infusion* and *tincture* are all officinal. *Digitalin* occurs as an amorphous yellow powder, but capable of crystallization. Digitalin is said to be a mixture of several compounds See Dispensatory. Dose, from 1 to 5 milligrams ($\frac{1}{650}$ $\frac{1}{1300}$ grain). Very uncertain in its action and very poisonous The term Foxglove is said to be a corruption of Foxe's glew, or Foxe's music in allusion to a musical instrument having bells attached, and the name Digitalis from the resemblance the flower has to the finger of a glove.

Erythroxylon, Coca, Erythroxylon Coca.—Natural order Erythroxylaceæ. This small shrub attains a height of several feet, and is a native of the mountain regions of South America, but is now cultivated as an article of commerce. The shrub is adorned with obovate oblong or oval leaves; entire on very short petioles and obtuse at the apex; the midrib is

prominent; taste bitter; odor somewhat like the inferior qualities of tea. Coca leaves contain *gum*, *resin*, bitter extractive matter, *volatile oil* and the active principle *cocaine*. The leaves are about the size of the common tea leaf; they are said to contain also *tannin*, in form of *coca-tannic* acid. In its effects coca is a stimulant and excitant; wonderful accounts are given of its power to support the human body under great fatigue. The leaves are chewed by the natives of South America for this purpose, and also to allay hunger. Dose of the leaves, 30 grains to 1 drachm, given in form of an infusion. The only officinal preparation is the fluid extract, the dose of which is ½ to 1 fluid drachm. Constituents, according to the most recent analysis, are *cocaine*, *benzoylecgorine*, *cinnamylcocaine hygrine*, *wax* and *cocatannic acid*. The alkaloid cocaine is used as a local anæsthetic for minor surgery with good effect; also given in doses of ⅛ to ¼ grain, which have all the effects of the leaf. It is a dangerous remedy, however, producing delirium and madness in large or continued doses.

Hepatica, Liverwort. Hepatica Triloba.—Natural order Ranunculaceæ. This small plant is a native of the North American Continent, and is adorned with dark leaves of a leathery nature, having three lobes, kidney or heart-shaped in their general outlines. They are usually about two inches long, from base to apex; they have little or no odor when dry, but a bitter, astringent taste. The leaves of the Hepatica contain *sugar*, *mucilage* and some *tannin*. The flowers are bluish-white, or pur-

ple and white, with from six to nine petals, with many stamens and many pistils, although some writers assert that the petals are but the sepals of the calyx. This plant was formerly in the secondary list of the U. S. Pharmacopœia, and was used as a demulcent, tonic and deobstruent, and highly thought of at one time for chronic liver affections, but is no longer used except as a domestic remedy. When given, administered in form of an infusion, the dose of which is one or two ounces. The name is derived from the shape of the leaf, which somewhat resembles the lobe of the animal liver, from the Greek *epatikos*, relating to the liver.

Hyoscyami, Hyoscyamus, Henbane, Hyoscyamus Niger.—Natural order Solanaceæ. Native of Europe and Asia, but now found growing in many parts of the United States. This small plant is both an annual and biennial; the latter being preferred as a remedy. The stem arises to the height of from 1 to 3 feet, and is adorned with dull-green, pubescent leaves, sessile and ovate oblong, and acutely simulate, with a prominent midrib; when fresh the odor is strong and unpleasant. The leaves contain *resin*, *mucilage*, *albumen*, and two alkaloids, *Hyoscyamine* and *Hyocine*. The former occurs in crystals and is soluble in alcohol, ether and water; the latter constituent occurs as an amorphous substance, *Hyoscipicrin*, a glucoside of intensely bitter taste, and is obtained in crystalline form. The flower of the hyoscyamus is of a straw color and funnel-form in shape; it has five stamens, with a capitate stigma, ovary egg-shaped, with two cells with numerous

ovules; fruit a capsule, which opens transversely by a common lid, containing many small black seeds; calyx five-toothed and funnel form, like the corolla. Henbane is anodyne, hypnotic and narcotic in its effects, and poisonous in overdoses. It has the power of dilating the pupil of the eye. Dose of the powdered seed or leaves 5 to 10 grains (0.33 to 0.65 grams); of the extract and abstract 1 to 2 grains (0.06 to 0.13 grams), which may be increased. Dose of the tincture, from a half to one fluid drachm. The officinal preparations are the abstract, alcoholic extract, tincture, and fluid extract. As I have said before the leaves and the seed of the Henbane contain two alkaloids, one the *Hyoscyamia* or *Hyoscyamine*, and the other *Hyoscine* or the *Hyoscypicrin* of some authors; the former capable of forming crystals of a colorless acicular nature and producing other compound alkaloids, such as the sulphate of *hyoscyamine* (obtained by means of sulphuric acid.) The *hyoscine* is an amorphous substance left by the action of the acid on the *Hyoscyamia*. The name is said to be derived from the Greek words *hus* or *hyos*, a hog, and *kuamos*, a bean, from the fact that the plant does not poison hogs; of this I cannot speak positively.

Kalmia, Mountain Laurel, Kalmia Latifolia. Natural order Ericaceæ. This evergreen perennial shrub is found growing and covering the hillsides of the woodlands of the United States, also found in Europe. The shrub is thickly covered with handsome evergreen leaves of a leathery texture, elliptical and lanceolate in shape, about 2 to 3½ inches long (5 to 9 centi-

meters), an inch or more broad at the middle. The taste is bitter astringent, and they contain *resin*, *tannin*, *arbutin*, and a large amount of green coloring matter, supposed to be *chlorophyl;* flowers wheel-shaped, of a pink color and dotted with many red or brown spots on the petals. Each flower has five petals; calyx five-toothed; stamens ten. The fruit a pod, having five cells containing many seeds. No part of the plant is now used in medicine, and when found in the stores it occurs in packages like the compressed herbs. The Laurel is poisonous, and it is said to kill all animals feeding upon its leaves, except the deer, and for this reason it is called in certain localities lamb-kill. The name is derived from Kalm, the botanist, who first described it.

Lycopus Virginicus, Bugle-weed.—Natural order Labiatæ. This plant is a native of North America, and has a perennial root, with a quadrangular stem adorned with purple leaves about two inches long, quite broad and lance-shaped; near the middle of the blade of the leaf the edges are serrated, whilst the surface is covered with spots or dots; the flowers are white and in axillary whorls; both the corolla and calyx are tubular, pistillate with 2 stamens. The Bugle plant's flowers, tops and leaves contain *tannin*, a *bitter principle*, and a *volatile oil.* The odor differs little from the rest of the mint family; taste bitter and aromatic. It is tonic, sedative and astringent, and has been given in form of infusion, which is prepared by adding a pint of boiling water to one ounce of the leaves, the dose of which is 1 to 2 fluid ounces; no longer

officinal. The name is derived from the Greek words *lykos*, a wolf, and *pous*, a foot, from the supposed resemblance of the leaf to a wolf's foot.

Matico, Matico, Artanthe Elongata. Natural order Piperaceæ. This small perennial shrub is a native of South America, and attains a height of about twelve feet; the stem is erect, jointed, and adorned with rough, wrinkled, light-green leaves. with short petioles and very prominent veins; in shape, oblong or lanceolate, and about 4 to 6 inches long; when found in commerce or the stores they are mangled or broken by handling, and difficult to recognize. The leaves contain, when dry, *resin*, *mucilage*, *artanthic acid*, much *tannin*, and a *volatile oil*. Flowers, hermaphrodite and in spikes, the style wanting. The leaves of the Matico are hæmostatic in their effects and powerfully styptic when applied externally to wounds. Matico is given in form of tincture and fluid extract, the dose of which is from 30 to 60 drops. The British Pharmacopœia recommends an infusion of the leaves.

Myrcia, Bay, Myrcia Acris.—Natural order Myrtaceæ. Commonly known as the Clove tree. The Bay tree is an evergreen and native of the West Indies, and is adorned with broadly oval or elliptical shaped leaves, very prominently veined, and when bruised giving off an agreeable aromatic sweet odor, which is due to the volatile oil. The flowers have short peduncles and are small, red in color, with no particular fragrance; fruit ovoidal and resembles the Pimento. The leaves are distilled to furnish the oil of bay, also the spirit known as bay rum.

The spirit of myrcia is made artificially by the means of the oil and the fluid extract, neither of which can compare in delicacy of odor to that distilled from the leaf; although the Dispensatory recognizes a spirit made from the oil in combination with the oils of orange and Pimento. See page 1358. The finer qualities of bay rum are redistilled.

Pilocarpus, Jaborandi, Pilocarpus Pennatifolius.—Natural order Rutaceæ. This perennial shrub is a native of Brazil and is ornamented with leathery, glossy-green leaves, the under sides of which are of a browish-yellow color. They are oval or ovate in shape, terminating at the apex in two rounded corners somewhat cordate in character, the midrib running up to the bifurcation ; the veins are distinctly marked; under the lens the tissue (parenchyma) between the veins is dotted with many minute glands or cells. The leaves are from 2 to 6 inches long, and become brown or brownish-red on drying; they have an agreeable aromatic odor and a pungent taste; flowers in long spikes axillary and terminal with five petals, five stamens; calyx short and five-toothed ; stamens shorter than the petals and inserted beneath an annular disc; style short and simple; seed black, angular and often solitary. Jaborandi contains *resin*, *tannin*, *volatile oil*, *potassium chloride*, the active principle *pilocarpine* and *Jaborine*, the former alkaloid having the physiological effects analagous to those of nicotine, while the latter resembles atropine in its action. Pilocarpine forms compound alkaloidal substances with the acids *nitric*, *hydrochloric*, *phosphoric* and *hydrobromic*, re-

spectively, forming the *nitrates* of *pilocarpine*, hydrochlorate of pilocarpine, phosphate of *pilocarpine* and *hydrobromate* of *pilocarpine*, also forming with acetic acid an acetate. The nitrate has been used more frequently than any other of the compounds; the hydrochlorate is officinal. The active principles occur in soft viscous masses, whilst many of the compounds occur in acicular crystals. The medical properties of Jaborandi are diaphoretic and sialagogue, causing free perspiration and excessive salivation; the effects are evinced a few minutes after the administration of the drug; the compounds are usually given hypodermically; the dose of the hydrochlorate is one-eighth of a grain (0.008 grams). The fluid extract of the leaves is recognized as officinal and given in doses of 30 to 60 drops (2 to 4 grams); said to be of great value in the early stages of Bright's disease of the kidneys. For further account see U. S. Dispensatory.

Prunus Laurocerasus, Cherry Laurel.—Natural order Rosaceæ or Amygdaleæ. This small evergreen perennial tree is a native of southern Europe; attains a height of 15 or 20 feet, and is adorned with handsome shining green leaves, sharply serrated and oblong or oblong-lanceolate in shape, which are mounted on very short petioles; odor almond-like, with an aromatic bitter taste; they contain *tannin*, *sugar*, *gum*, *emulsin*, and *volatile oil.* By macerating the leaves in water they yield acid hydrocyamic. Their medical properties are sedative; the leaves are used in the form of a water distilled for the use of the druggist, which prep-

aration is used more as a flavor to other remedies than as a remedy. The flowers occur in axillary racemes and are white, with ten or more stamens and one pistil; fruit a small drupe, with a one-seeded putatum, and resembles the small black cherry.

Rosmarinus, Rosemary, Rosemarinus Officinalis.—Natural order Labiatæ. This little perennial shrub is found growing along the shores of the Mediterranean Sea, and is cultivated in the central and northern portions of Europe, also in the United States. The shrub has ash-colored branches, with numerous opposite sessile leaves, which are broad and obtuse at their extremities; the upper surface presents a handsome green, whilst the under side is pubescent and a shade or two lighter in color; they are about 1 inch (25 millimeters) long and ½ inch broad through the middle, have an agreeable balsamic odor, and a bitter camphor-like taste. The flowers are a mixture of white and blue, and arise from the axil of the leaves; corolla unequal, the upper lip being bifurcated; stamens two, with one pistil, and each flower having four seeds, which lie naked at the bottom of the calyx. The tops, leaves and flowers are the parts used in medicine and from which the oil is obtained. The Rosemarinus contains *resin*, *tannin*, *extractive matter* and one per cent. of *volatile oil*, which is the oil of Rosemary of the stores, and will be described under the proper head. The plant is stimulant, nervine, carminative, emmenagogue in its effects, and given in form of an infusion, one ounce of the material to one pint of water, the dose of which is from

½ to 1 ounce, not officinal and rarely prescribed, used only as a domestic remedy. Rosemary occurs in the stores in neatly compressed packages, usually containing an ounce, which is made up of the twigs, leaves and flowers. The Rosemary is one of the ingredients in the officinal vinum aromaticum.

Salva, Sage, Salvia Officinalis.—Natural order Labiatæ. This little perennial plant is a native of Europe, but naturalized in many parts of the world and cultivated as a medicine and condiment. In height it ranges from 1 to 2 feet, with many branches adorned with small ovate, lanceolate wrinkled leaves, entire as to their edges, of a grayish-green color, and pubescent as to their surface. Odor aromatic and of its own kind; taste bitter, astringent and agreeable to most persons, and highly thought of as a flavor to soups, meats, etc. The sage contains *resin*, *tannin*, *albumen*, *extractive matter*, *volatile oil;* also two radicals, *Saliol*, or *Salol*, and *Terpene*, both new remedies. The flowers of the Sage infloresce in spikes and the corollas are blue in color, alternately lined or streaked with white and purple and lip-shaped; the calyx is tubular, with two lips; the flower has two stamens and one pistil. Sage is a very old remedy, and has been used as a tonic, stimulant and astringent, and administered in form of an infusion or mixed with honey; now rarely prescribed. Dose of the infusion 1 to 2 fluid ounces; one of the ingredients of the officinal vinum aromaticum.

Stramonii, Stramonium, Datura Stramonium.—Natural order Solanaceæ. Common

names Jamestown Weed, Thorn Apple, etc. Said to be a native of Asia, but authors differ as to its habitat. Suffice it to say it was found at Jamestown, in Virginia, by the earliest settlers, many of whom were poisoned by using its leaves as a salad. This annual is of vigorous growth, and attains the height of 3 to 6 feet, and is found along roads or waste lands. The leaves stand on short petioles, and are 4 or 5 inches long, ovate and triangular in shape, their margins irregularly dentated, usually dark green in color upon the upper surface, and a shade or two lighter beneath; when found in the stores the leaves are in compressed packages; odor not peculiar, but grassy; taste bitter and nauseous. Stramonicum contains *mucilage*, *albumen*, *ash* and *Daturine*, which is said to closely resemble Atropine. The leaves contain both light and heavy *Daturine**, the former constituent predominating, and by the investigators who claim to know, identical with the alkaloid Hyoscyamine*. Stramonium leaves are emetic, anti-spasmodic, and diuretic, actively poisonous in overdoses. Flowers funnel-form of a pale blue color, having a plaited border with acuminated teeth or points, calyx five-parted or toothed; within the throat of the corolla are five stamens and one pistil; when cultivated the flowers are large and handsome. The alkaloid Daturine has been used for dilating the pupil of the eye, but considered inferior to Atropia for this purpose. The fruit of the Stramonium is

*Recently, that is within 6 years, the names of these alkaloids have been changed, dropping the terminal *a*, and inserting *ne*, and in some cases authors have gone so far as to call them Atropin, Hyoscyamin, etc.

a dehiscing spiked capsule, containing many hard black seeds of irregular shape, which will be spoken of under their proper head. The only preparation of the leaves is an extract, and this is only recommended by the British Pharmacopœia, but occasionally used in the form of poultice and ointment, the latter being made with lard. The Indians call it the white man's plant, because it is found only near his habitation. The name Datura is of Arabic origin, from the Sanskrit word Dhatoora. The derivation of the name obscure, but said to be from the Greek *strychnomanikon*, a plant causing madness when taken in poisonous doses.

Senna Alexandrina, Alexandria Senna, Cassia Acutifolia.—Natural order C. Leguminosæ Cæsalpineæ. Native of Africa. Senna is a small under shrub 2 or 3 feet high, with straight woody branches adorned with alternate and pinnatifid leaves, with narrow stipules at the base. The leaflets are almost sessile, oval lanceolate and acute in shape, about 1 inch (25 millimeters) long, and of a grayish-green color, somewhat lighter when dry and as found in commerce; odor pleasant and peculiar; taste bitter and somewhat mucilaginous. The flowers are yellow and infloresce in axillary spikes. The CASSIA ELONGATA, or INDIAN SENNA, differs from the above-named by being longer in the leaflet, also more acutely pointed at the apex, with a slight pubescence on the surface. There are other varieties of SENNA, viz: CASSIA OBOVATA, CASSIA ÆTHEOPICA, and the CASSIA MARILANDICA or AMERICAN SENNA; the leaf of the last-named closely resembles the Cassia Obo-

vata. The first-mentioned species are used as adulterants of the Alexandria Senna, and they are considered much inferior in many respects to the Senna under consideration. Constituents are *chrysophan*, *phæoretin*, *sennacrol*, *sennapicrin*, *sennit*, *mucilage*, and *cathartic acid*. The properties of Senna are laxative and purgative, and it has been used as such for many hundred years. The dose of the powder is from 30 to 120 grains (2 to 8 grams). It is rarely given in this form, but in combination with the Compound Licorice powder. Dose of the infusion, 1 fluid ounce; of the fluid extract, 30 to 60 drops (2 to 4 grams). The officinal preparations are the CONFECTION, FLUID EXTRACT, INFUSION, COMPOUND INFUSION, PULVIS GLYCERRHIZÆ COMPOUND, SYRUP SARSAPARILLA COMPOUND and the simple SYRUP OF SENNÆ.

Tobacum, Tobacco Nicotiana, Tabacum.—Natural order Solanaceæ. This annual plant is a native of the tropical Americas, and cultivated in many of the middle states of North America. The plant attains the height of 3 to 6 feet, with an erect hairy stem, adorned by numerous alternate leaves, which are entire, ovate and lanceolate in shape; they are of a pale-green color, pubescent and slightly viscid. The lower leaves are frequently six inches broad and several feet long. The virgin leaf was, and is, occasionally used as a remedy. The manufactured leaf contains all sorts of adulterants or compounds—*valerian cascarilla*, *tonca*, *vanilla*, *liquorice*, *molasses*, *copperas*, and even *opium*—and it is this, with its array of injurious compounds, which forms the solace and comfort of the idle hours

of the genus homo. The flowers occur in loose terminal panicles of a red-rose color, tubular in form, and divided into five partitions, terminating in a five-lobed plaited rose-colored border, having within its tube five stamens and one pistil; fruit a capsule, ovate in shape, with two valves and two cells, containing many kidney-shaped seeds. Tobacco is emetic, diuretic, sedative, and at one time highly valued in form of an enema in strangulated hernia; contains *albumen*, *resin*, *gum*, extractive matter, *nicotine*; *nicotina*, a colorless fluid, nearly devoid of smell, but of an acrid burning taste and very poisonous. There is no officinal preparation of tobacco; the enema is only recommended by the British Pharmacopœia. Name of Indian origin, and first described and introduced by Jean Nicot.

Uva Ursi, Arctostaphylos Uva Ursi.—Natural order Ericaceæ, commonly known as Bearberry. This evergreen trailing plant is a native of the northern part of the British Islands, but naturalized in the United States. The leaves have short petioles, surface smooth and shining, are obovate in shape, and resemble in a high degree the leaves of the box. They are about four-fifths of an inch (2 centimeters) in length, and quite prominently veined; as found in commerce, they are of a dull-green color on the upper surface and inclined to be brown and rough upon their under surface; odor resembling hay; taste bitter and astringent. They contain *tannin* and *gallic acids*, *arbutin*, *ursone* and *ericolin*. The flowers of the Uva Ursi are of a pale-rose color, in terminal clusters, with five petals, ten stamens, short style, with an obtuse stigma;

calyx five-toothed. The flower is not unlike the trailing arbutus. The fruit of the Uva Ursi is a small berry with five seeds. The Uva Ursi is said to be frequently adulterated with the leaves of the cowberry plant (Vaccineum Vitis Idœa), which they closely resemble. The leaves of the Uva Ursi are tonic, astringent, diuretic and nephritic, and are administered in form of an infusion and fluid extract (officinal*), the dose of the former being ½ to 1 fluid ounce; of the latter ½ to 1 fluid drachm (2 to 4 grams), either alone or with fluid extract of Buchu.

Thea, Tea.—Natural order Ternstrœmiceæ. Found growing wild and cultivated in all parts of southern Asia. The tea plant is an evergreen shrub from two to four feet high, adorned with small, smooth, shining green leaves, with a prominent midrib; in shape, partaking of the oblong lanceolate character and supported on very short petioles. The leaves, as they occur in commerce, are rolled and contorted and many times adulterated with various other kinds of leaves. Some authors affirm that the different brands of tea are gathered from the same plant, and that the quality depends upon the part of the shrub from which the leaves are plucked, and the care exercised in curing. When pure, tea has a peculiar and agreeable odor and a pleasant, astringent taste. This fact is, perhaps, the only mode of distinguishing its purity. Thea contains *albumen*, *wax*, *resin*, volatile oil and a large per cent. of *tannn*, also Theia, or

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*The word official has been adopted in place of the former word officinal. I am of the opinion that the old term is a better one, and conveys more weight.

Theine, as it is variously termed, which is identical with Caffeine, obtained from the Caffea Arabica. This alkaloid occurs in beautifully white silky crystals. The flowers of the tea plant are white and usually solitary, but occasionally occur in clusters of two or three flowers; stamens numerous, with yellow anthers; one pistil, with the style divided into three parts. Fruit, a three-celled capsule containing three seeds. The oil is intoxicant in its properties and very stimulating, hence it is said the Chinese never use the leaf as a beverage for several years after gathering; it is also asserted that the best tea is never exported. The varieties of tea are the Thea Bohea, Thea Assamica and the Thea Veridis; the latter was supposed to yield the brands of Imperial, Gunpowder, Hyson, Young Hyson and the Twankgy. These are said to be produced in the northern parts of China, to be colored with indigo and lime sulphate, and the green teas are glazed and unglazed. The Thea Bohea is said to yield the various brands of black tea, Pekoe, Lapsang, Souchong, etc., and found growing in the vicinity of Canton. The Pekoe brands are the best black teas. Theine or Caffeine is also found in Guarana, the fruit of the Paullina Sorbilis.

HERBÆ—HERBS.

THESE are important and efficient remedies they include all the mint family or order, besides many other plants quite as interesting which belong to other natural orders.

The herbs consist of stems, leaves, flowering tops and seed. These plants contain an active principle in the shape of an etherial essence, which is the volatile oil of the stores.

In general outlines, the herbs are miniature trees and closely resemble the giants of the forests. The herbs have peculiar characteristics, which will be treated of, separately and under their respective heads.

Absinthium, Wormwood, Artemisia Absinthium.—Natural order Compositæ. This plant is a native of Europe and northern Asia, and its perennial root sends up new stems each year one or two feet in height, which are adorned with hoary and lanceolate-shaped leaves; those leaves arising from the root (radical) are tri-pinnatifid lanceolate in shape, obtuse and dentate in form, and finely pubescent. Flowers small, yellow in color, nodding and in racemes with tubular florets; the odor of wormwood is somewhat aromatic, taste intensely bitter. It contains *tannin*, *resin*, *salts*

of *potassium*, volatile oil, *absinthic* and *succinic acids*, also *absinthin*, which is capable of crystallizing, but soon breaks up into a friable powder. Wormwood is anthelmintic, tonic, stimulant and febrifuge in its effects, and is given in form of an infusion, one ounce of the leaves and tops to one pint of boiling water, the dose of which is one to two fluid ounces. The only officinal place it holds in the Pharmacopœia is an ingredient in the aromatic wine. Absinthe, the much favored drink of the French, is a combination of wormwood (several species), anise, coriander and star anise seeds, besides mint, hyssop, balm, citron peel, etc., all of which are distilled together. The name is thought to be derived from Artemis, one of the names of the goddess Diana.

Achillea Millefolium, Yarrow or Milfoil.—Natural order Compositæ. This small plant is found in the temperate climates of both continents, its perennial root sending up stems 12 to 18 inches high (30 to 45 centimeters), is adorned with doubly pinnatifid leaves, which are pubescent and minutely divided into many dentate mucronate divisions. The flowers are white and infloresce in form of a corymb. The leaves and flowers have both been used as a remedy and even other parts of the plants have been recommended. Odor not unlike camomile, taste bitter and aromatic. Yarrow contains *resin*, *tannin*, volatile oil and a substance termed *achillein*, which is amorphous and intensely bitter; like most plants in this order yarrow is tonic, stimulant and with some emmenagogue properties; usually given in form of an infusion,

the dose of which is 2 to 4 fluid drachms. When found in the stores it is usually in neatly compressed packages, but no longer officinal. The name is supposed to be derived from Achilles, one of the Trojan heroes, and Millifolium, from the number of cuts or indentures in the leaves.

Coptis Trifolia, Three leaf Coptis, Goldthread, etc.—Natural order Ranunculaceæ. Native of Europe and the northern parts of the United States. This little evergreen perennial plant, with its creeping root and delicate rootlets, sends up a number of thread-like stems, at the summit of which is a solitary white flower with numerous stamens and ovaries. The leaves are on long petioles of a bright yellow color; the leaflet is obovate in shape, with an acute base; their surface is smooth, and presents many veins quite small, not more than two-fifths of an inch in length. Goldthread contains *resin*, *sugar*, extractive matter, *berberina*, and an alkaloid called *coptina*. Odor not peculiar; taste bitter and astringent. All parts of the plant are used. When found in stores it is in compressed packages. Its medical properties are tonic and astringent. It was at one time highly thought of as a local remedy for sore mouth, and was given in form of infusion and tincture; the dose of the infusion ½ to 1 fluid ounce; of the tincture 1 fluid drachm. Name derived from the Greek *kopto*, to cut, and the Latin, *tri*, three and *folia* a leaf, on account of its divided leaves, etc.

Cotula, Mayweed, Wild Chamomile, etc.—Natural order Compositæ. This annual plant, with its fibrous root, sends up an erect stem

adorned with doubly pinnatifid leaves, which are somewhat pubescent. The leaflets are small, lanceolate in shape, and acutely pointed; flowers solitary; disk yellow, with white lingulate rays and, like all plants in this order, the flowers turn their rays to the sun. This plant is said to be a native of Europe, but is found abundantly in this country; odor not agreeable, but somewhat aromatic; taste bitter and acrid. The Mayweed contains the salts of lime and potassium oxalic, valerianic and tannic acids, also a volatile oil. As a remedy, it has been used as a tonic, antispasmodic and stimulant. When given it is in form of an infusion, the dose of which is ½ to 1 fluid ounce. Rarely used even as a domestic remedy. The entire plant is active, but the flowers are most generally selected as being less disagreeable in taste. It is also known as the Maruta Cotula by some botanists.

Cetraria Islandica, Iceland Moss.—Natural order Lichenes, and found in the northern parts of Europe. The thallus is 2 to 4 inches high, with many leaf-like segments, which are deeply cut; these are dry and leathery in character; the reproductive organs are situated on the thallus and are very small, and resemble the spores found upon the ferns. When found in the stores Iceland Moss is of a brown color above, inclining to a lighter shade of color beneath; usually very dry and brittle, with little or no odor, but a decided bitter, mucilaginous taste. The moss readily softens in water, yielding with boiling water a decoction, which on cooling deposits a jelly-like substance, which is termed *Lichenin.* The moss also contains cetraric acid

(*crystalline*), *licheno-stearic* and *oxalic acid* also *sugar*. The moss is rather more nutritious than Carrageen, besides being demulcent and tonic in its medical effects; it is also given in form of jelly and decoction.

Chondrus, Irish Moss, Chondrus Crispis.—Natural order Algæ. Common names, Irish Sea Weed, Carrageen, etc. Found principally in the Atlantic Ocean, but mostly gathered from the rocky shores of northern Europe. The thallus (stem or shoot) is many cleft, and forms segments of a cuneate character, ranging from a few inches to almost a foot in length: the sori imbedded in the substance of the thallus, and resembles the spores on the back of the fern. Chondrus, as it occurs in the stores, is of a very light yellow color, almost transparent; cartilaginous, many branched and tough, and assumes its original form when placed in cold water, but in boiling water yields its mucilaginous constituents, which jellies on cooling. The Chondrus also contains chlorides, iodides and bromides, but no starch, although its tissues may be stained blue with iodine. The moss, medically, is demulcent in its character and slightly nutritive, and is given in form of a jelly, or decoction, which may be taken freely.

Epigœa, Ground Laurel, Epigæa Repens.—Natural order Ericaceæ; commonly known as the Trailing Arbutus, or May Vine or Flower. This little plant is abundant in the pine woods of the United States, and is adorned with ovate and cordate leaves, ever green and shining; flowers are salver shaped, pink in color, and very fragrant, with ten stamens; anthers quite

long and open lengthwise; style slender; stigma with five lobes; five cells with many seeds. The Arbutus contains about the same constituents as the Uva Ursi, and possesses the same medical properties, but is considered very much inferior as a remedy. Rarely if ever found in the stores for sale, nor is there any preparation recommended. The plant probably derives its name from the Greek *epi*, upon, *ge*, the earth, and the Latin *repens*, to lie close or creep. In fact, so close does the plant creep or grow to the earth that it seems a part and parcel of the moss and leaves of the woods, and called in some localities the "moss beauty." It flowers from May to July.

Erigeron, Erigeron Canadense, Canada Fleabane.—Natural order Compositæ. Native of North America, and said to be naturalized in Europe. It differs from the Erigeron Philadelphicum by being an annual, attaining a greater height; while the infloresence is in terminal panicles; otherwise only in a few minor particulars. Odor not peculiar, but the taste is bitter, astringent, aud somewhat acrid. It is from this variety we obtain the oil of Erigeron of the stores, which is colorless when first distilled, but becomes dark and thick on exposure. This oil is officinal, and will be spoken of under the head of oils. Erigeron is known in different parts of the country as fleabane, butter-weed, pride-weed, scabious, etc.

Erigeron, Fleabane, Erigeron Philadelphicus.—Natural order Compositæ. This perennial has a branching, yellow root, which sends up several erect stems from two to three feet

high, adorned with ovate lanceolate leaves on long petioles, which distinguish the lower from the upper leaves, which are sessile and wedge shaped; flowers numerous, yellow in color, and in panicle corymbs, the long peduncles bearing from one to three flowers on each. The entire plant is pubescent. Fleabane is a native of North America, found abundantly growing in old fields and waste pasture land; odor not peculiar; taste bitter and herby. Fleabane contains tannin, some sugar extractive matter, and trace of volatile oil. Fleabane is diuretic, tonic and diaphoretic in its action, and at one time highly thought of as a remedy. The infusion is made by adding one ounce of the plant to one pint of boiling water, the dose of which is 1 or 2 fluid ounces. For further account see Dispensatory, page 1638, non-officinal drugs. The name is derived from two Greek words—*er*, spring, and *geron*, an old man, because of the white, hairy or hoary appearance of the plant.

Eupatorium, Thoroughwort, Eupatorium Perfoliatum.—Natural order Compositæ; commonly known as the boneset. This plant sends up from its perennial root a stem from two to five feet high, adorned with opposite leaves with serrated edges; upper surface rough and the under side pubescent; about four or five inches long and of a grayish green color; they have no petioles, but adhere closely to the stem. The stems and the leaves are the parts used in medicine. The flowers are white, numerous, and supported on pubescent peduncles, and assume the corymbus form of inflorescence. The

calyx is cylindrical, and encloses many tubular florets; anthers black and united; in their midst may be seen a double filiform style. Odor aromatic and peculiar; taste bitter and somewhat herby. Thoroughwort contains *sugar*, *tannin*, *gum*, *resin*, *ash*, *volatile* oil and eupatorin, which is a bitter glucoside. Eupatorium is tonic, diaphoretic and febrifuge in its effects, and in large doses a prompt emetic. Given in form of an infusion in doses of 1 or 2 fluid ounces. The fluid extract is officinal, the dose of which is 10 to 60 drops. Name is said to be derived from Eupater Mithridates, King of Pontas. It is claimed that he first used it as a remedy.

Gaultheria, Checkerberry, Gaultheria Procubens.—Natural order Ericaceæ, commonly known as the box-berry or partridge berry, also wintergreen, but according to Prof. Gray, the partridge berry rightly belongs to the Michella, and that of wintergreen to Pyrola, the sub-family. This small evergreen perennial plant has a creeping horizontal root, sending up one or two red looking stems, adorned with rounded oval or obovate leaves, with short petioles, their surface being smooth, glossy and the edges serrated. They have an agreeable odor and an aromatic, astringent taste; they contain *sugar*, *tannin*, *gum*, *arbutin* and *ercolin*, also a volatile oil having a specific gravity of 1.17, yielding, with nitric acid, several compounds which will be discussed under another head. Flowers in clusters of from 3 to 5; corolla white and tinged with pink, calyx five toothed and furnished at the base with two

heart-shaped bracts; the corolla has ten stamens, with orange colored anthers and one pistil; fruit a capsule, berry-like, red in color and containing many seeds. Wintergreen, or checkerberry, has alterative, astringent, diuretic and stimulating properties, and is given in form of an infusion, rarely, if ever, prescribed. See Oil.

Grindelia, Grindelia, Grindelia Robusta.—Natural order Compositæ. Native of North America west of the Rocky Mountains; growing abundantly in California. This perennial plant attains a height of one or two feet, ornamented with sessile leaves, somewhat clasping, oblong and lanceolate in shape, of a pale green color, sharply serrated, having upon their smooth surfaces many dots. The leaves average about two inches in length. The disk of this flower is like the daisy, the rays white and lingulate in shape. The leaves, as they occur in commerce, lose somewhat of their coloring in drying, but have a very balsamic odor and are aromatic and pungent in taste. Another species of the Grindelia is also recommended as a remedy (Grindelia Squarosa), which is found in the same localities but differs from the above in a few minor particulars; both contain *alkaloids, gum, sugar, tannin, fat, resin* and a *volatile oil,* and are used medicinally for the same purpose. The effects are anti-spasmodic and a stimulating expectorant; it is used in bronchitis and asthma, given in form of a fluid extract, the dose of which is 15 to 30 drops (1 to 2 grams). Flowers, tops and leaves are said to be employed as a remedy. Grindelia is also used externally as a poultice.

Hedeoma, Ponnyroyal, Hedeoma Pulegioides.—Natural order Labiatæ. Said to be a native of North America, but found growing in Europe. This little plant, with its creeping perennial root, sends up a stem very much branched, which is adorned with leaves ovate-oblong in shape and about half an inch long; pubescent, and with rather long petioles of a light green color, having upon their surfaces a number of spots or pellucid dots; corolla small, of a light purple color, having two stamens and one pistil; calyx tubular. This common little plant is well known to every country boy, and contains some *tannin*, *extractive matter* and a *volatile oil*, of which we will speak later on. Like the rest of the mints, it is *carminative*, *stimulant* and *emmenagogue* in its medicinal effects, and when found it is usually in one ounce compressed packages. It has been given in form of an infusion, but the only recognized officinal part of the plant is the oil. The name is said to be derived from the Greek *hedeiosme*, a pleasant odor, and the Latin *plulex*, a flea.

Helianthemum, Frostweed or Frostwort, Helianthemum Canadense.—Natural order Cistaceæ. A low perennial, native of Europe, but found growing in many parts of North America. The leaves are entire, quite small and lanceolate in shape, with frosty pubescence; in fact, the whole plant presents to the eye a white or frosty look. The flower, according to Prof. Gray, blooms for a day only; according to some the frostweed has two sets of flowers, the first solitary and terminal and quite large, the suc-

ceeding flowers small, and sometimes clustered and axillary. The first flowers have yellow petals, whilst the latter are gray and hoary; stamens from 3 to 20, with one pistil. There are two other varieties of the plant that differ from each other in a few minor particulars only. Frostweed is said to contain tannin and a bitter extractive matter; no thorough analysis of the plant has been made. At one time it was highly thought of as an alterative in scrofula and glandular diseases, but is now rarely used except by the eclectics in form of a decoction. Name derived probably from the Greek *helios*, the sun, and *anthemum*, or *antheros*, a flower, and the common name frostwort, because the pubescence resembles hoar frost.

Hyssopus, Hyssop, Hyssopus Officinale.—Natural order Labiatæ. This small plant, with its sessile leaves about an inch long, lanceolate in shape and somewhat obtuse, is, like most of the mint family, a native of the southern parts of Europe but now cultivated in many parts of the world as a garden plant; flowers are found in axillary clusters, purple in color and tubular in shape, with four long stamens and pistillate; calyx tubular, five toothed, with many nerves. The Hyssop contains a small quanity of *tannin*, a bitter principle and a *volatile oil*, and is said to be a stimulant, sudorific and carminative in its effects, and the infusion was employed many years ago as a remedy in chronic catarrhs, now no longer officinal. The name is derived from the Hebrew *ezob*, and Latinized into Hyssopus.

Lobelia, Lobelia, Lobelia Inflata, Indian Tobacco.—Natural order Lobeliaceæ, also Emetic

weed or Asthma weed, etc. Native of the North American continent, and is both annual and biennial in its nature, attaining a height of twelve inches or more, adorned with acute, oval-shaped leaves, serrate, pubescent and sessile, about two inches long; flowers in terminal spike-like racemes; corolla pale blue and lip-shaped, the upper lip being divided into two and the lower lip into three segments; calyx prominent and ten-veined; fruit, a capsule, two-celled and oval in form, with numerous seeds. This plant is common from Hudson Bay to south of Georgia, and blooms from July to October; odor of the leaves and stems (the parts used) herby and somewhat irritating; taste hot and acrid. Lobelia contains *wax*, *fat*, *gum*, *resin*, *acid*, *oil*, and two alkaloids called *Lobeline* and *Inflatin*. Lobelia is a nervine, expectorant, narcotic, purgative and emetic, and is administered in form of powder, infusion, fluid extract and tincture. Dose of the powder 2 to 30 grains (0.12 to 2.0 grams); of the infusion 2 to 4 fluid drachms. The vinegar fluid extract and tincture are officinal (see Dispensatory). There are several varieties of Lobelia. Name derived from the French botanist Mathias de Lobel, in whose honor the plant is said to have been named.

Marrubium, Horehound, Marrubium Vulgare.—Natural order Labiatæ. This little plant, with its perennial root sending up its numerous annual stems, is a native of Europe, naturalized in the United States, and cultivated for the drug market. The stem arises to a

height of 6 to 18 inches, adorned with ovate-oblong leaves of a grayish green color, pubescent and opposite, and about an inch long, their margins serrated; the leaves are supported on long petioles. Flowers are white and in axillary whorls. The calyx differs from the other labiatæ mentioned, by having a ten-toothed calyx and the flower lacking the lips usually found in the mint family. The stamens are four in number, The flowers when perfected have four small seeds situated at the bottom of the calyx. Horehound contains *tannin*, *resin*, a small quantity of volatile oil, and a peculiar crystallizable substance termed *marrubin*. Odor of horehound not peculiar, but the taste is aromatic and bitter. Its medical effects are tonic, stimulant, expectorant, and resolvent; also said to be anthelmintic. There is no officinal preparation of horehound, but it is still in the primary list of remedies; principally used as an ingredient to cough candies, etc. The name is derived from the Hebrew *marrob*, bitter juice.

Melissa, Balm, Melissa Officinalis.—Natural order Labiatæ. This plant is a native of Europe and northern Asia, and naturalized and found growing in many parts of the world. The stem is erect and reaches a height of 1 or 2 feet, adorned with very green ovate acute leaves, somewhat cordate at the base and pubescent; the stem is invested with fine hairs also; flowers purple in color and tubular in form; the corolla is two lipped with four stamens. The medicinal qualities of the Balm depend much upon the oil, like the rest of the Labiatæ. The constitu-

ents are extractive matter, *tannin* and volatile oil. The plant has an agreeable lemon-like odor and an aromatic, pleasant taste, less pungent than the other mint family, but like them carminative, stimulant, and with some emmenagogue properties. When given in form of an infusion one ounce of the Balm is used to one pint of boiling water, the dose of which is like the other infusions of the same class. The name is derived from the Greek *melissa*, the honey bee, because the flowers are said to be a favorite of that insect.

Mentha Piperita, Peppermint.—Natural order Labiatæ. This small hardy perennial plant is a native of Europe and Asia, and naturalized in the United States; now cultivated in Europe and America for the value of its oil. The plant grows from 6 to 12 inches (15 to 30 centimeters) high, root creeping, erect and purplish stem, adorned with petioled, ovate and lanceolate leaves rounded at the base; they are serrated as to their margins, and of a handsome green color. Flowers purple in color and infloresce in form of a spike, the corolla is four-lobed with four short stamens, petals lip-shaped, calyx five-toothed and often colored like the corolla. Peppermint has an aromatic odor and a pungent, cooling taste, and contains *gum*, *resin*, a trace *tannin* and a volatile oil, which will be treated further on. Peppermint is a nervine, stimulant, antiseptic and carminative, and given in form of an infusion, water and spirits and oil. The officinal preparations are the oil, spirits and Vinum Aromaticum, in which it enters as an ingredient. Menthol is separated from the oil of all peppermint.

Mentha Viridis, Spearmint, Green Mint.—Natural order Labiatæ. This small plant, perennial as to its root and annual as to its stem, is a native of Europe, but naturalized in North America and many other sub-tropical countries of the world, and cultivated for its oil. The Spearmint flourishes in damp and moist places; it has a creeping root and erect stem from 6 to 12 inches (15 to 30 centimeters) high, adorned with rich green leaves, smooth oblong or ovate-lanceolate in shape, nearly sessile, with margins unequally serrated, infloresces in clusters and form axillary whorls, flowers purple in color and tubular in form, with four stamens, calyx bell-shaped.

The entire plant has an aromatic odor and an aromatic, agreeable taste. The twigs, leaves and flowers contain *gum*, *resin*, extractive matter, and a pale yellow, volatile oil, which will be treated of under the head of oils. Spearmint is carminative, nervine and stimulant in its effects, and officinal in the form of water and spirits; the former in doses of ½ to 1 fluid ounce, of the latter 1 fluid drachm. The former preparation is used chiefly to disguise the taste of nauseous remedies. The name is derived from the Greek *Minthe*, a nymph, daughter of Cocytus, who, according to mythological works, was changed into the plant mentha.

Monarda, Horsemint, Monarda Punctata.—Natural order Labiatæ. This plant is a native of the United States, and throws up a stem 6 to 18 inches high from its perennial root, which is adorned with oblong lanceolate-shaped leaves, with minutely serrated edges; their surfaces

are smooth, but show quite a number of dots or spots (punctuated) in the intercellular space; the leaf is rather larger than most of the mint family properly speaking, and in coloring rather inclining to a brown and green mixed; flowers in whorls, and of a yellow color, often spotted with red or brown, with colored bracts; the corolla has two stamens and one pistil, calyx tubular and five-toothed. Horsemint contains *tannin*, *extractive matter* and a *volatile oil*, from which thymol can be obtained, and has been much used as a carminative, nervine and emmenagogue, given in form of an infusion, in about the same doses as those already mentioned. The odor is less pleasant than many of the other mints, and rather more penetrating and pungent to the taste; rarely found in the stores, except in the form of an oil. Horsemint was once in the primary list of medicines. The name is derived from the Spanish botanist Nicholas Monardez.

Nepeta, Catnep, Nepeta Cataria.—Natural order Labiatæ. Native of Asia and Europe, and naturalized and cultivated in the United States. This small plant, with its creeping perennial root, sends up a stem 1 or 2 feet in height, adorned with grayish-green leaves about 1 inch long, which are opposite in their arrangement, pubescent and cordate in shape, with the margins dentated. Flowers purple in color, and in terminal clusters or spikes; stamens four in number and arising above the upper lip of the corolla, two of which are longer than the others.

Catnip contains *tannin*, *extractive matter* and a small quantity of *volatile oil;* odor not peculiar,

taste aromatic and bitter. The medical properties are stimulant, diaphoretic, carminative and emmenagogue, and when administered it is given in form of an infusion; never prescribed by the modern practitioners of medicine. The botanical name is said to be derived from Nepete, a town in Italy, and the latter name from the fact that cats are particularly fond of the plant.

Origanum Marjoram, Origanum Vulgare, Wild Marjoram.—Natural order Labiatæ. Native of North Africa and Europe, and naturalized in many parts of the world. The plant attains a height of one or two feet; its stem is adorned with ovate and obtuse leaves, smooth on the upper surface and pubescent beneath; flowers purple in color and tubular in shape, and the inflorescence is in spikes, with large, colored bracts; stamens four, one pistil, and calyx five-toothed. This plant is known from the cultivated marjoram (sweet marjoram) by growing wild and being less delicate in flavor. The sweet marjoram is cultivated in the gardens for a condiment, giving to soups and meats a much-esteemed flavor, and usually to be found in ounce packages put up by the dealers in herbs. Its chief constituent is a *volatile oil.* The name is said to be derived from the Greek *oras*, a mountain, and *genos*, delight, probably alluding to the locality in which it was first found.

Ranunculus, Crowfoot, Ranunculus Bulbosus.—Natural order Ranunculaceæ; common name, Buttercup. This very small plant, with its perennial root, tuberous or bulbous in shape, sends up several annual stems, ornamented at

their summit with small, golden-colored flowers enclosing many stamens and ovaries; some of the leaves are radicle (arising from the root), on long foot-stalks, with three to five lobes with deeply-cut leaflets, whilst the leaves on the stem are sessile. The whole plant is covered with a pubescence, or minute prickles, and is known as the early buttercup, to designate it from the creeping buttercup (R. repens) and the tall buttercup (R. acris). All the varieties are said to be natives of Europe, but very thoroughly naturalized in this country. They contain an oily, volatile liquid of a yellow color, from which is obtained Anemonin. Rarely if ever given internally, but used in some localities as a counter-irritant, and highly spoken of as a remedy for local application.

Ruta, Rue, Ruta Graveolens.—Natural order Rutaceæ. This small perennial plant is a native of Southern Europe, but cultivated in many parts of the world as a garden plant. Rue is quite shrubby in its arrangement, and has many branching stems, and usually attains a height of two or three feet, adorned with triangular, ovate-shaped leaves, the upper ones being pinnatifid, whilst all the others are bi or tripinnate, and the divisions are obovate oblong and smooth upon their surfaces, with many pellucid spots. Flowers yellow in color and in clusters; stamens numbering ten, but only one pistil. The odor of Rue is aromatic, the taste bitter and acrid, and its constituents are *chlorophyll*, *albumen*, *extractive matter*, *starch* and a volatile oil, which will be spoken of under the head of oils. Rue has been used as a nervine,

stimulant and emmenagogue from the earliest history of medicine, and only a few years ago was recognized as a remedy by the U. S. Pharmacopœia. The dose of the powder is 5 to 20 grains; of the extract 5 to 10 grains. When found in the stores it is usually in one ounce compressed packages, in which the leaves and twigs mingle to a great extent. In the play of "Hamlet," *Ophelia* calls it "herb of grace on Sundays." Once used in the Catholic churches to perfume the holy water.

Sabatia, Sabatia, Sabbatia Angularis.—Natural order Gentianaceæ; commonly known as the American Centaury. This annual or biennial plant is a native of the United States, and attains the height of from one to two feet; adorned with handsome green leaves, varying in length, opposite in their arrangement on the stem, and either sessile or clasping; in shape ovate, entire and obtuse; stem four-sided. Flowers of a pale rose-color, and quite showy; corolla wheel-shaped. The inflorescence in corymbus-like cymes, with five yellow stamens to each corolla; calyx five-parted, and much shorter than the corolla. Two or three handsome flowered species are to be found growing in the salt marshes. The European variety is not so large a plant, and the leaves are ovate, oblong; otherwise differing little from the American species; odor herby; taste bitter, and permanently so. Contains a peculiar body termed *Erythrocentaurin*, *resin*, *gum*, *albumen*, *extractive matter* and *oil*. Not officinal. Once in the primary list of remedies, and highly thought of as a simple tonic, and administered in form of in-

fusion and tincture, and in about the same doses as columbo and gentian. The name is derived from Sabbati, an Italian botanist, in whose honor the plant was named.

Scutellaria, Skullcap, Scutellaria Lateriflora. —Natural order Labiatæ. This perennial plant has an erect stem, adorned with acutely pointed ovate leaves, with serrate edges, and usually about two inches long. The stem is much branched and ornamented with pale blue flowers in racemes; the tube of the corolla is somewhat elongated, the upper lip being entire and concave in shape, whilst the lower lip has three lobes. The Skullcap rarely attains a greater height than 24 inches (60 centimeters), is usually found growing abundantly in this country, and chooses the borders of ponds or pools, or shaded moist places for its home. There are several varieties of the Skullcap, all of which are said to bear blue flowers, and differ from each other only in a few minor particulars. They are as follows: Scutellaria pilosa, S. integrifolia and S. galericulata. Skullcap is spoken of highly outside of the profession as a remedy in all nervous affections, and highly valued in all nervous disorders by veterinary surgeons. The constituents consist of *bitter principle* a *crystalline glucoside*, *oil*, *tannin* and *sugar*. It has also proved of value as a remedy in a number of cases of convulsions, tetanus and delirium. The fluid extract is officinal, and is given in doses of one or two fluid drachms. In certain localities the plant is known as the mad weed, hood wort, etc.

Solidago, Golden Rod, Solidago Odoro.—Natural order Compositæ. This very common plant is a native of the United States and other sections of North America. It has a creeping, perennial root, which sends up a slender, pubescent stem two or three feet high, adorned with linear lanceolate-shaped leaves of a dull green color, rough on the edges, with very acute apexes; surfaces covered with many pellucid dots; in length 1 or 2 inches (3 to 5 millimeters). The leaves are the part used in medicine and are sessile on the stem; flowers of a golden yellow color, arranged in terminal, panicled racemes. The florets of the ray are strap-shaped, five stamens united (syngenesia) by the anthers, which is a distinguishing mark of this order or family; odor pleasantly aromatic; taste bitter and somewhat sweet. Golden rod contains *tannin, gum, extractive matter* and a *volatile oil;* the virtue of the plant depends upon the latter constituent. The laeves are said to be carminative, stimulant and diaphoretic in their action and given in form of an infusion, the dose of which is ½ to 1 fluid ounce; not officinal. The flowers are said to make an agreeable table tea. The name is derived from the two Latin words *soledo,* to write or make firm, and *odora,* odorous or sweet smelling.

Tanacetum, Tansy, Tanacetum Vulgare.—Natural order Compositæ. This hardy plant, with its perennial root, sends up a hexagonal-shaped stem, one ar two feet high, ornamented with rich green leaves, about six inches (15 centimeters) long, doubly pinnatifid; divisions very numerous and deeply notched or serrated, with

many small lobes along the main petiole; flowers yellow in color and small, with numerous florets; inflorescence capitate, terminal and corymbus; the seed oblong in shape and very small; the plant is a native of Europe. The odor of tansy is agreeably aromatic, whilst the taste is bitter and pungent. Tansy contains *tannin*, *tartaric*, *malic* and *citric acid* also *sugar*, *albumen*, *volatile oil* and *tanacetin*, which is an amorphous principle, most abundantly found in the flowers. The leaves and the tops of the tansy are the parts used; medicinally they are tonic, stimulant, diuretic, anthelmintic and emmenagogue; given in form of an infusion. Many deaths are reported from the self administration of the oil, which will be spoken of hereafter. The infusion has also been known to cause death by using it in large quantities. When found in the stores it is in compressed packages and in the form of oil. The name is said to be corrupted from *Anthanasia*, Greek, *a* not, and *thanatos*, death, because the flowers or plant are so lasting.

Thymus, Thymus Vulgaris, Thyme.—Natural order Labiatæ. This plant is a native of France, and naturalized and cultivated in many parts of the world. Thyme is a low growing perennial herb, with a grayish green leaf, narrow and oblong in shape, with a prominent midrib; in length about ½ an inch (12 millimeters), and ¼ of an inch or less in their widest part; flowers a mixture of white and purple; corolla with a lower and upper lip, the former being three cleft; calyx ovate and pubescent. The plant has an agreeable aromatic odor and a

spicy and peculiar taste; the parts used are the tops, flowers and leaves, which should be gathered during the flowering season. Thyme contains *resin*, *tannin* and *extractive matter*, besides about two and one half per cent. of *volatile oil*, it has been used medicinally as a tonic, nervine, carminative and emmenagogue, and when given it is administered in the form of an infusion, the dose of which is ½ to 1 fluid ounce. It is often used as a condiment to flavor soups, meats, etc. The oil of Origanum of the stores is the oil of thyme, as it is recovered by the first distillation —which is commercially called—red oil. The second distillation gives a colorless oil, which is known as white oil. See oil of Origanum.

FLORES ET PETALA—FLOWERS AND PETALS.

The flowers and petals usually form the showy portion of the tree or plant, but there are many exceptions to the rule, as for example, the dog-wood blossom. Flowers occur in racemes, corymbs, umbels, panicles, spikes, spadices, catkins, etc. They are cruciform, labiate, campanulate and tubular in form.

The portions of the flower used in medicine are the floral envelope and all the organs of reproduction, such as stamens, pistils, ovules and often many well matured seeds.

Aurantii Flores, Orange flowers, from the trees of the Citrus Aurantium and the Citrus Vulgaris.—Natural order Aurantaceæ. Native of northern India and cultivated in many of the sub-tropical countries of the world. The orange has already been described under another head, hence we will only call attention to the flowers; these are white, very fragrant, with united filaments in three sets, with ten or more stamens. The calyx is saucer-shaped and five cleft. The unexpanded flower is the part used in obtaining

the Aquæ Aurantii Flores, also the oil of Neroli. Most of the orange flower water is imported from France. Orange flowers are feebly stimulant in their effects and are never given except in the form of the water, and then only as an adjunct and flavor to other remedies.

Caryophyllus, Cloves, Caryophyllus Aromaticus.—Natural order Myrtaceæ. Native of Mollucca Islands, but cultivated in many tropical countries of the world. The clove tree is a handsome evergreen, and adorned with smooth leaves, obovate oblong in shape, about four inches long and two inches broad, sharply pointed at their apex and base and supported on long petioles. The flowers are rose colored, with more than ten stamens and one pistil. The unexpanded flowers or buds are the cloves of commerce; these are gathered before the tree is six years old. The cloves found in commerce and the stores are about ½ inch (12 millimeters) long, sub-cylindrical in shape, of a dark brown color, with a solid, glandular calyx, the tube of which terminates in four teeth, which go to make up the glandular head; this enlargement is formed by four immature petals, which covering hides from view a number of curved stamens and a style. Cloves have an aromatic odor and a spicy, pungent taste, and contain *resin*, *wax*, *tannin*, *eugenin*, *caryophyllin*, *eugenic acid* and a volatile oil; eugenin and caryophyllin are both capable of crystallization, the former occurring in pearly scales and the latter in yellow acicular crystals; cloves are anti-emetic, stomachic and stimulating in their action; dose from 3 to 8 grains (0.2 to 0.5

grams), rarely given alone and are chiefly used as a condiment, but enter into a number of officinal preparations, such as the Infusion Aurantii comp. Br., Infusion Caryophylii, Mistura Ferri, Br. Pulv. Cretæ Aromaticus, Br. Tincture Lavendulæ Comp., Syrup Rhei Aromaticus and Vinum Opii. The oil will be spoken of under the head of oils. According to Thunberg, the botanical name of cloves should be Eugenia Caryophyllata.

Rosa, Rose, Rosa Centifolia, Pale Rose, Hundred Leaf Rose, Cabbage Rose, etc.—Natural order Roseæ or Rosaceæ. Supposed to be a native of western Asia, and cultivated as an ornamental flower in all the temperate climates of the United States and of the world. This perennial plant is adorned with ovate, smooth leaflets, serrate as to their margins and acutely pointed at the apex, with some pubescence on the under surface of the blade; they are usually in pairs of three, with an odd leaflet at the end of the common stalk; flowers large, with many petals, and of a pale red color; peduncles short and armed with numerous prickles, one or two flowers together and somewhat drooping; calyx urceolate in form and five cleft, seeds attached to the inner side and numerous. The petals are well known for their fragrance and are rounded and obovate in shape, and they contain *tannin*, *sugar*, *mucilage*, the *malates*, and a very minute quantity of *oil.* The Attar is obtained from the Rosa Damacena, Damascus rose. The Rosa Centifolia petals are a mild astringent and are only employed in making the rose water and as an ingredient in the syrup sarsaparillæ compositus.

Rosa Gallica, Red Rose.—Natural order Rosaceæ. This species is a native of southern Europe, but like the Rosa Centifolia, is cultivated in many of the gardens of the world. It resembles the afore mentioned in its foliage, but is not luxuriant in its growth; flowers are very large, of a rich color; petals very numerous, obcordate in shape and velvety in appearance: The petals are not more than half as numerous as the Rosa Centifolia, and in the midst of them are a number of stamens with yellow anthers. The flowers are gathered for medicinal use before the petals have fully expanded. The odor is not as strong as the other variety, but the fragrance is more delicate when carefully dried; taste bitter, acrid and astringent, constituents about the same as the Rosa Centifolia, and like the latter, tonic and astringent. They enter into combination with pills of aloes and Mastiche; also form the officinal preparations of the confection of rosæ, extractum rosæ, fluid, mel. rosæ and syrup of roses. The acid infusion of rose is recommended by the British Pharmacopœia. They also use the ripe fruit of the dog rose (rosæ caninæ) for a confection.

Santonica, Santonica, Santonica Maritima, Levant Worm-seed or Artemisia Maritima.—Natural order Compositæ. Native of Turkestan, and naturalized in Europe. This small plant is adorned with pinnatifid leaves, which are covered with a downy pubescence. There are several varieties of the plant which differ in some minor particulars from that under consideration. The Santonica has hardly the right

to be called seed, because they are the unexpanded flower head of a doubtful species of the Artemisia. As they occur in commerce and the stores, they are obtuse in shape, of a grayish green color and glossy, about $\frac{1}{12}$ of an inch (2 millimeters) long, and under a glass of 5 or 6 diameters present to view an involucre of many imbricated glandular scales enclosing five florets. Odor of Santonica is peculiar; taste aromatic and camphor-like; they contain *resin*, *gum*, *volatile oil* and *santonin*, which glucoside occurs in white acicular crystals, inclining to yellow when long kept or exposed to the sun's rays. Its active principle Santonin is the only officinal preparation. For further account see U. S. Dispensatory.

Anthemis Nobilis, Chamomile, Roman Chamomile.—Natural order Compositæ. This little perennial is native of England and the central and southern parts of Europe. It is quite extensively cu tivated at Mitcham, also in France, Belgium and Saxony. Like this order of plants it has perennial roots with many long fibers. When in a wild state the stem is somewhat procumbent, but in the cultivated, erect, and about 12 nches (30 centimeters) or more in height, much branched, leafy, hollow and furrowed. The leaves are doubly pinnate; leaflets linear, subulate, (awl-shaped) and slightly hollow. The flowers solitary, terminal with a convex disk of yellow tubular flowers. The ray florets numerous, white, pistillate, three toothed and star-shaped. Receptacle conical, with membranous scales; akenes (flint) obtusely foursided, smooth and without pappus. There are

two varieties of the *Chamomile flowers*; the simple or single and the Flore-pleno, or double; they bloom in July and August. Anthemidis Flores, Chamomile Flowers, have an odor aromatically pleasant, and they contain Anthemene, which occurs in needle-like crystals, melting at a low degree of temperature; volatile oil, and the isobutylic and isamylic ethers of isobutyrica and angelic acids, (see oil) also *resin* and *tannin*. The flowers are tonic, carminative and somewhat stimulating in their effects and are given in form of an infusion and fluid extract in doses of 15 to 60 grains (1 to 4 grams).

Humulus, Hops; the flowers of the Humulus Lupulus.—Natural order Urticaceæ, or, as some botanists think, the Cannabineæ. The Hop vine is a native of Asia, but now found growing wild in many parts of Europe. It is now cultivated as an article of commerce in many parts of the world. The hop is a clambering vine, with a perennial root and annual stem, which is adorned with alternate and opposite leaves. The first named are cordate in shape, and have long, twining petioles, occupying the upper portions of the stem, whilst the lower and opposite leaves are larger, and have from 3 to 5 lobes, a prickly pubescence, and their margins serrated.

The flowers of the hop vine are very numerous, of a greenish-yellow color, and inflorescence in axillary panicles. Male and female flower on separate plants. The fruit or hop is made up of sepals or enlarged bracts, the whole being known technically as a strobile or catkin.

The hop is one-seeded, which seed is covered by a granular substance, the lupuline of the stores. The hop as found in the stores is somewhat ovate in form, and made up of a number of scales, which have a greenish-gray appearance. These scales are finely netted in pattern at the upper half, whilst the lower portion are parallel-veined, The hop as found in the stores corresponds to the description given, except so far as the color. This it loses in the process of drying.

Hops and their preparations are sedative, anodyne and tonic in their effects, and are given in form of extract, fluid extract, tincture and infusion, all of which are officinal. The dose is from 5 to 15 grains of the extract; of the tincture, 1 to 2 fluid drachms; of the infusion, 1 to 2 tablespoonfuls.

The hop plant has been known from the earliest history of medicine, and introduced into England in the reign of Henry VIII, The hop farms are known as Humalineæ; and the origin of the name, so far as we are able to discover, is from the word *humus*, moist or humid earth, alluding to the situation in which the vine grows best.

Matricaria, German Chamomile, Matricaria Chamomilla.—Natural order Compositæ. This perennial plant is a native of Europe, and when found in a wild state is procumbent, but when cultivated it stands erect, and reaches a height of 12 to 24 inches. This little plant is adorned with double pinnatfid leaves, the leaflets of which are subulate (awl) in shape. Flowers, terminal and solitary, with a yellow disk, which

is composed of a number of perfect flowers, of tubular shape. The rays of the flower are white and lingulate in character. The Matricaria as found in the stores has a pleasant, aromatic odor, and a mild, bitter taste. They contain *tannin*, extractive matter, some *malates*, and a volatile oil, which will be spoken of under the head of oils. The German Chamomile is a very mild stimulant, tonic and carminative, and is usually administered in form of an infusion, the dose of which is from ½ to 1 fluid ounce. The flower is not so large as the anthemis nobilis, nor is it so powerful in its effects, and for this reason it is preferred in delicate conditions of the stomach.

FRUCTUS—FRUITS.

FRUCTUS, Fruits, may be divided into fleshy fruits as the peach, pear, apple, orange, lemon, etc,; aggregate fruits, as the raspberry, blackberry, star anise, etc.; and seed-like fruits, as the allspice, cocculus, coriander, etc. Technically speaking the fruits are the expanded and ripened ovary of the flower, and consist of an outer covering, termed the pericarp (from the Greek, *peri*, around, and *karpos* the fruit), whilst the external coat of the pericarp is called the epicarp (from the Greek, *epi*, upon, *karpos*, the fruit); and the pulp is called the sarcocarp, or mesocarp (from the Greek, meaning the internal or middle portion of the fruit). Fruits are found globular, ovoidal, reniform, pear shaped, etc. Some fruits when fully ripened still have the calyx adhering to them, as in the apple, persimmon, pomegranate, etc. Others again are plucked before they have fully matured, as the cubebs, black pepper, cloves, etc., all of which we will have occasion to describe under their respective heads.

Anethi or **Anethum,** Dill, Anethum Graveolens.—Natural order Umbelliferæ Orthospermæ. This small annual plant is a native of Southern Europe and the Levant. Dill frequently attains a height of 5 feet, and has erect, jointed stems with many branches, which are ornamented with bipinnate and often with tripinnate leaflets, presenting a greyish appearance (glaucous), and adorned with small yellow flowers in longitudinal umbels. Fruit oval or oblong in shape, of a light-brown color, closely resembling caraway. Fruit composed of two mericarps and six oil tubes and five ribs or ridges. Dill contains resin, gum, and two oils, fixed and volatile, to which we will call attention further on, under the proper heading. Dill is a very old remedy, and now superseded by other fruits of the same class and order, which have been found more effective as therapeutic agents. Still, it is well thought of as a stomachic, carminative and stimulant; and given in form of the infusion and oil in the same doses as fennel, caraway, etc. The name is probably derived either from the Danish or Iceland word *dill*, which means to soothe; a nurse's lullaby, from the fact that the dill fruit has a tendency to soothe and quiet pain, etc.

Anisum, Anise, Pimpinella Anisum.—Natural order Umbelliferæ. This little annual plant is said to be a native of Egypt and the Levant, but is found in Southern Europe and this country, and is cultivated for its fruit. The stem of the Anise is about 12 inches high, and adorned with petiolate leaves, the lower ones being cordate at their base and serrated as to their margins; the

middle leaves are cunate in form, and the others lanceolate and undivided. The flowers are white and arranged in umbels, with 5 stamens and 2 pistils. The fruit (*Fructus Anise*) of the Pimpinella Anisum is from $\frac{1}{5}$ to $\frac{1}{6}$ of an inch (4 or 5 millimeters) long; ovate, and somewhat compressed at the sides, and crowned by two short styles; color brown inclining to gray, and finely pubescent. The fruit is made up of two mericarps, each having a flat surface with ten light-brown filliform ridges. The odor of Anise is aromatic and spicy; taste sweet, and of its own kind closely resembling hemlock fruit in appearance. Anise contains sugar, mucilage, and a fixed and volatile oil, and is carminative, stomachic and stimulating in its action; in doses of 8 to 30 grains. But little used, except as an adjunct to other drugs, and to give flavor to confections, an a refreshing odor to linen. Anise is an old remedy, and is mentioned in the writings of Theophrastus, Dioscorides and Pliny.

Apium, Celery, Apium Graveolens.—Natural order Umbelliferæ. A native of Southern Europe and the Levant, and cultivated in many parts of the world for its fruit and stems, the latter being, when bleached, one of our table luxuries. The stem of the celery arises to a a height of 20 inches or more, and adorned with large leaves, with many divisions, the leaflets of which are cunate in form. Flowers slightly colored, with 5 petals, 5 stamens inserted upon the ovary, incorporated with the calyx; styles 2 in number. Fruit dry and 2 seeded like the rest of the order (exceptions); nearly round in shape, and somewhat compressed laterally, about

1 millimeter long, with 2 mericarps, which are ribbed and contain oil tubes. Celery fruit is carminative and powerfully stimulating in its action, and has been used with good effect in certain forms of nervous headache; usually given in form of powder or extract. Everyone is familiar with the succulent petioles of the radical leaves of the Celery; these to be edible and thoroughly palatable must be blanched, or what is known in botany as etiolated, and this is done by planting in trenches and keeping the plant well covered with earth, to exclude the light. The name is said to be derived from the Celtic word *apon*, water, from the fact, that when wild it grows near the water.

Capiscum, Red Pepper, Guinea Pepper, Cayenne Pepper, etc.—Natural order Solanaceæ. Said to grow wild in India, and cultivated in tropical Africa and America. The Capsicum is an annual plant, 2 or 3 feet high, adorned with entire lanceolate leaves at regular intervals along the foot stalk. Flowers white, solitary and situated on long peduncles, arising from the axil of the leaves. Fruit (Capsicum Fructus) of a red-orange color. pendulous, smooth and shining; $\frac{1}{2}$ to $\frac{3}{4}$ of an inch (12 to 18 millimeters) in length. Fruit 2-celled, within which are two oviform seeds, which are attached to a central placenta. The odor of the Capiscum is peculiar, and the taste hot and biting. The Capsicum Annum differs little from the aforementioned, save in the size of its fruit, which is larger, about two or three inches long. The variety known as the Cerasiforme is about the size and shape of our garden cherry. Capsi-

cum contains *wax resin*, coloring matter, fixed oil, and an active principle called *capsaicin*, which occurs in colorless crystals, volatile when exposed to the air. Capsicum is stimulant, stomachic, and rubefacient in its effects. Dose of the powder 2 to 8 grains, and recognized as officinal in form of infusion, tincture, and oleoresin.

Cardamonum, Cardamm Elettaria Cardamonum.—Natural order Zingiberaceæ. Native of the Malabar coast, and cultivated in India. The Cardamon has a tuberous root running horizontally, which sends up a number of simple, smooth, shining green stems, which attain a height of 5 or 6 feet, adorned with a number of green sheath-like leaves, averaging in length from 9 to 24 inches. The flowers occur in panicles, the petioles of which arise from the base of the stem. The calyx of the flower is tubular in form and toothed. Fruit ovoidæ or oblong in shape, and from $\frac{3}{8}$ to $\frac{4}{8}$ of an inch long consisting of dried carpels, longitudinally wrinkled and of a creamy-white color; internally the fruit is made up of three cells with a central placenta with as many as twenty seeds, which are of a brown-red color, somewhat angular in shape, with a depression at the hilum. The Fructus Cardamom and seeds are the parts used in medicine; they have an agreeable aromatic odor, and an aromatic, pungent taste. They contain starch, volatile and fixed oils. Cardamon fruit, misnamed seed, occur in commerce as the large, medium and small cardamon of late years they are known in commerce as long shorts and long-longs; these being somewhat larger

and more pointed than those previously mentioned. Cardamom is aromatic, tonic, and stimulating in its effects, and forms a part or whole of the following officinal preparations: COMP. EXTRACT COLOCYNTH, AROMATIC POWDER, TINCTURE, COMP. TINCTURE GENTIAN COMP., TINCTURE RHUBARB, and the WINE OF ALOES. Origin of the name is obscure.

Carum, Caraway, Carum Carui.—Natural order Umbelliferæ Orthospermæ. Said to be a native of Asia, but now found and cultivated in most of the sub-tropical countries. This biennial plant rises to a height of 24 inches, much branched, and ornamented with double pinnate leaves, which are deeply cut, linear and acutely pointed. Flowers white, small and arranged in umbels. Each flower has 5 stamens and 2 pistils. Fruit (Fructus Carui) oblong in shape, laterally compressed and about $\frac{1}{6}$ of an inch (4 millimeters) long, of a greenish-brown color and, like the rest of the order, with two mericarps and five ridges or prominences, forming the oil tubes, and two seeds. The Caraway has an agreeable, aromatic odor and taste, and like most fruits in this order, contains two oils, a fixed and volatile, also resin, gum and some tannin. The Caraway is a pleasant, aromatic carminative. The British Pharmacopæia recommends a water and the oil. The oil and fruit are ingredients in the following compounds: PULVIS OPII COMPOUND; TINCTURE CARDAMON COMPOUND. The name is derived from the town of Caria, in Asia Minor, corrupted into the Italian Carri and Anglicised into Caraway.

Carota, Carrot, Daucus, Carota—Natural order Umbelliferæ Orthospermæ. A native of Europe and northern Asia, and now found plentifully growing in this country and other parts of the world. The wild carrot has a biennial root and an annual stem, which reaches a height of 2 or more feet, the branches being ornamented with hairy or feathery-like leaves and tripinnate leaflets and adorned with small white flowers arranged in umbels, with an occasional sterile purple flower intermingling with the fertile. The fruit (Fructus Carota) is oval in shape, somewhat compressed and about $\frac{1}{8}$ of an inch long, and has 2 mericarps, 2 seeds, 6 oil tubes and as many as 9 ribs or ridges, which are armed with a pubescence, which appears quite formidable when seen under a magnifying glass. The constituents of the root are two *sugars*, one of which is uncrystallizable, *starch*, *gluten*, *malic acid* coloring matter and oil. When used as a medicine the wild variety of fruit is selected. The edible carrot is but the modified species; both contain *gum*, *resin* and two *oils*. Only used in form of an infusion, and rarely in modern practice. The root is sometimes used in form of a poultice. The fruit is aromatic and pungent to the taste, and may be given in doses of 30 grains in form of an infusion. Origin of the name in doubt, but believed to be from the Greek word *daukos*, which means a carrot.

Cassia Fistula, Cathartocarpus Fistulæ, Purging Cassia.—Natural order Luguminosæ. Native of India; naturalized and cultivated in tropical Africa. There are several varieties;

the Cassiæ Moschata of New Granada; Cassiæ baccelaris of Surinam, and the Cassia Braziliana of Brazil, all of which differ in some particulars, although the medical effects are about the same. Some botanists believe the purging cassia to be a distinct species. The Cassiæ Fistulæ is a large forest tree arising to a height of 40 to 50 feet, adorned with pale-green lanceolate leaves, which are 3 to 5 inches long; flowers of a golden-yellow color, with short petioles; 10 stamens and 1 pistil. The flowers are usually arranged in axillary racemes. The fruit (Fructus Cassiæ Fistulæ), as it occurs in commerce, is in cylindrical pods 18 to 24 inches long (45 to 60 millimeters) and about one inch in diameter; externally of a very dark-brown color, woody and veined, the sutures forming two longitudinal bands; internally the pod is divided into numerous transverse cells which contain flat ovate seeds embedded in a dark pulp, which is sweet to the taste and has an odor like prunes. The seeds from 25 to 100 and are about $\frac{3}{10}$ of an inch long; the pulp is the part used in medicine, and contains *mucilage*, *sugar*, *pectin*, *salts* of *lime* and some *albuminoid matter*. It is laxative in its action and forms one of the ingredients of the confection of sennæ. Purging Cassiæ has been known as a remedy for many centuries; the name is said to be derived from the Latin.

Citrus Vulgaris, Risso, Bitter Orange.—Natural order Auranticeæ, also known as the Seville, or Bigaradia orange. A native of northern India, naturalized and cultivated in most of the sub-tropical countries of the world.

The tree that bears the bitter orange is rarely over 16 feet in height, and adorned with smooth green leaves entire, with a prominent midrib, ovate lanceolate in shape, with many dots or spots which are reservoirs of oil; flowers white, quite large and very fragrant, with 5 petals; stamens 20; style solitary, with an expanded stigma indistinctly lobed. The fruit is as large as the sweet orange; it has 18 carpels and from 7 to 12 cells, containing many seeds; the pericarp, epicarp, or rind, as it is variously termed, is of a handsome yellow color, corrugated or puckered, which is probably due to the oil cells. The seed of the fruit is ovoidal in form and contains more than one embryo. The sweet orange differs from the bitter by having a smooth rind, lighter in color, a sweet acidulous taste and less fragrant flowers. The orange pulp contains *sugar*, *fat*, *gum*, *mucilage* and *citric acid* and the epicarp contains the *oil*.

The peel, rind or epicarp of the bitter orange occurs in commerce in acutely pointed pieces, much contorted, of fragrant odor and an aromatic, bitter taste. The value of the orange peel seems to lie more in its agreeable flavor than in its therapeutic effect, although it is said to have some tonic, stimulant and stomachic properties. It contains two (2) *glucosides*, *hesperidin* and *aurantinarin* and a bitter principle, a *glucoside*. The peel enters into the following officinal preparations: TINCTURE OF GENTIAN COMPOUND, TINCTURE OF CINCHONA COMPOUND, COMPOUND INFUSIONS, TINCUURE and FLUID EXTRACT. The volatile oil of the stores is obtained from the peel and procured by wiping and other

processes. This first method is considered the best for procuring a fine quality of oil. The attar of neroli is obtained from the flower, whilst the inferior oil or essence of petit grain is obtained from the immature fruit and leaf of the tree. The immature fruits or berries of the orange are to be found in the stores occasionally in form of globular-like masses from the size of a buckshot to that of a pea, and are known as issue peas. The oil of neroli has the power of turning the plane of polarised light to the right (Dextrogyre,) and hence differs from the inferior grades of oil.

Chenopodium Anthelminticum, Worm seed, Goose-foot, or Chenopodium Ambrosiodes. —Natural order Chenopodiaceæ. Said to be a native of Central America and the West Indies, but found growing very abundantly along the roadsides of the United States. This perennial plant reaches a height of 2 or more feet, adorned with oblong, lanceolate, sessile leaves; serrate or dentate as to their margins and very prominently veined; flowers numerous, of a yellowish-green color; 5 stamens and 2 stigmas, with a fruit about $\frac{1}{12}$ of an inch in diameter, of a dull green color, globular and depressed. The integument is friable and contains a lenticular black, glossy seed. This plant is well known as the wormseed and Jerusalem oak, both of which names are misnomers; odor penetrating, peculiar and of its own kind; taste bitter and pungent. Chenopodium contains a large per cent. of volatile oil, which will be discussed under the head of oils. The medical effect of the Chenopodium is purely anthelmintic, and it has

been administered in form of an infusion, electuary and oil. The oil is officinal, the dose of which is 5 to 10 drops in form of an emulsion. The name is derived from the Greek *chen*, a goose, and *pous* or *podos*, a foot, from the resemblance of the leaf to the foot of the goose.

Cocculus Indicus, Fishberries, Anamirata Cocculus, and the Menispermum Cocculus of Linnaeus.—Natural order Menispermaceæ. This climbing plant is a native of Madras and Ceylon. The stem has a corky bark and is adorned with broad, ovate leaves, inclining to cordate at the base; flowers dioecious and inflo-resce in recemes; no corolla; stamens united in a central column; calyx has five sepals; fruit a berry, globular in form. In commerce and the stores they appear much wrinkled, and of a dark brown color and about ¼ of an inch in diameter; when carefully split open they present the outlines of the letter C, or crescent, and are partially filled by a seed or kernel. The Cocculus contains *fat*, *gum*, *resin*, *picrotoxin*, *cocculin*, or *amirtin*, etc. Picrotoxin is poisonous and occurs in colorless, shining crystals. Cocculus Indicus is a sedative and nervine in its effects, but is rarely if ever used internally; used externally for killing vermin. For further account see Dispensatory. The fluid extract is considered the most convenient form. The name is said to be derived from the Italian word *coccula*, a berry. The fruit has been known for centuries, and is still used by the natives of India to stupefy fishes.

Colocynthis, Colocynth, Citrullus Colocynthis.—Natural order Cucurbitaceæ, commonly

known as the bitter apple or cucumber. It is a native of western Asia and northern Africa, also found along the arid sands of Spain and Portugal. Colocynth is an annual trailing plant, not unlike the melon vines of this country. The leaves are arranged alternately on the stolon and have long petioles; the blades triangular in shape and many cleft; serrate as to their outlines, and covered by a dense pubescence; flowers are yellow in color and appear singly. The fruit (Fructus Colocynthidis) is globular in shape, nearly the size of a small orange, and when ripe, smooth and yellow in color. When found in the stores they are globular in shape, light and spongy, deprived of their rind or epicarp; when broken they present to the eye many ovate, flat seeds. The fruit of the Colocynth has little odor but an intensely bitter taste; very dark specimens should be discarded as unfit for use. Colocynth contains *resin*, *fixed oil*, *gum*, and its active principle, *colocynthin*, a glucoside which is capable of crystallization. Colocynth is a drastic purgative and emetic in large doses, given in form of extracts; it is an ingredient in the C. C. pills, also the pills of colocynth et hyoscyami. At one time an infusion of the fruit was highly recommended as a medicine. The Colocynth was known and written upon as early as the eleventh century.

Coriandrum Coriander, Coriandrum Sativum.—Natural order Umbelliferæ Cœlospermæ. Native of the southern parts of Europe and Central Asia, and now cultivated in many other parts of the world. Coriander is an annual plant, with an erect stem, round, smooth

and branching, attaining a height of several feet, adorned with compound leaves, the upper portions of which are thrice ternate with linear leaflets; the lower leaves, however, are pinnate and cut somewhat like the parsley, notched and serrated; flowers white and occasionally pink, delicate pink on umbels, with five stamens and two pistils. The fruit (Fructus Coriandrum) as found in commerce is made up of two concave hemispherical portions, the whole forming a globe about one-fifth of an inch in diameter, with four or more lines forming ridges (oil tubes) ; the pericarp is of a light brown color and chaffy in texture, with one or more seeds somewhat uniform in shape. Coriander is carminative, stomachic and stimulating in its action; dose 8 to 30 grains (seldom prescribed), given in form of an infusion. Coriander forms one of the ingredients in the infusion Gentian Co., Infusion of Sennæ and conf. of Sennæ. The name is derived from the Greek word *koris*, a bug, because the plant has an odor resembling the bed bug.

Cubeba, Cubeb Bacca, from the Cubeba Officinalis.—Natural order Piperaceæ, This perennial climbing plant is a native of Java and other parts of the East Indies; it is also cultivated in other tropical countries. The stem is jointed, flexuous and adorned with oblong leaves, strongly nerved and cordate at their base; flowers have no corolla, but two stamens and three pistils, arranged on peduncles. The fruit (berry) is small and gathered when not fully ripe; as found in commerce and the stores, the cubeb is globular in shape, about $\frac{1}{8}$ of an inch

(4 millimeters) in diameter, black, inclining to gray in color; internally nearly hollow and contains an immature seed; odor spicy and of its own kind; taste pungent and aromatic. The cubeb contains two *resins*, *fat*, *wax*, *oil*, *acid*, and a pearly white crystalline substance termed *cubebin*, which is colored red by the action of sulphuric acid. There are many species of the plant found in the other tropical countries which differ from the afore-mentioned in a few minor particulars. Cubebs are stimulating, diuretic and locally irritating in their action, and given in form of powder, oil, tincture and fluid extract; dose of the powder from 15 to 60 grains (1 to 4 grams); dose of the oil 5 to 10 drops, usually mixed with other remedies; of the tincture 1 to 2 fluid drachms; of the extract ½ to 1 fluid drachm; all of which are officinal and highly valued as a remedy. Cubebs are also called cubeba. They were known as a medicine as early as the thirteenth century, and were employed as a spice and condiment by the Arabians. The name is derived from the Arabic word *Kababan*.

Cuminum, Cumin, Cuminum, Cyminum.—Natural order Umbelliferæ Orthospermæ. This little annual is a native of the Upper Nile, and cultivated in eastern and southern Europe, rarely attaining a greater height than 18 inches. Its round, erect stem has many branches, which are adorned with many narrow, green leaves, acutely pointed and grass-like in general appearance; flowers in terminal umbels, and either purple or white, or a mixture of both. The fruit is somewhat oblong in shape and laterally compressed; composed of two mericarps,

which are pubescent, with six or more oil tubes and as many ridges or ribs; in size Cuminum takes an intermediate place between caraway and anise, and like them, contains two small seeds. Cumin contains *oil* which is composed of *cymene* and *cuminol*, *resin*, *mucilage* and *ash*. The odor is aromatic and not as agreeable as the other fruits of this class, whilst the taste is by no means pleasant, being bitter, warm and aromatic. It was, from all accounts much valued as a medicine years ago. Cumin is a stimulant, carminative and an antispasmodic, and may be given in form of an infusion in doses of 20 to 30 grains, but is rarely found in the stores. Origin of the name doubtful. The Greek philosophers called the plant *kuminon*, and Latinized into *cuminum*.

Diospyros, Persimmon, Diospyros Virginiana.—Natural order Ebenaceæ. Native of the United States. This tree often attains the height of 40 or 50 feet; the trunk is rough and corrugated; the leaves are entire, ovate-oblong in shape and sharply pointed; flowers diœcious, with from 8 to 16 stamens and 4 to 6 stigmas; corolla awn-shaped and of a greenish-yellow color; calyx 4 to 6 toothed; fruit globular in shape, containing many seeds (6 or more); fruit when green is smooth and very astringent; when fully ripe and exposed to the action of several frosts the fruit is succulent and sweet, with a flavor of its own kind. The Persimmon contains *sugar*, *tannin*, *mucilage*, *malic acid* and *pectin*. The unripe fruit was the part used in medicine, and at one time held in high esteem as an astrin-

gent and given in form of an infusion, the dose of which was 1 or 2 fluid ounces. The name is supposed to be derived from the Greek words *dis* or *diss*, Jupiter, and *pyros*, fruit.

Fœniculum, Fennel, Fœniculum Vulgare.—Natural order Umbelliferæ Orthospermæ. This plant is annual as to its stem and biennial and perennial as to its root, and according to the soil grows from a few inches to as many as 48 inches in height. It is a native of southern Europe and the Levant. The plant is adorned with long green striated leaflets, and ornamented with golden-yellow flowers, arranged in umbels; each flower has 5 stamens and 2 pistils. The fruit (Fructus Fœniculi) is oblong, nearly cylindrical in shape, and from one-tenth to one-sixth of an inch long, made up of 2 mericarps, each containing a small seed, somewhat canoe-shaped. The fruit presents under a glass of fair magnifying power, 5 ridges or ribs, and shows 4 minute tubes in which the oil is secreted. Fennel has an aromatic odor and a sweet aromatic taste, and contains *sugar*, *gum*, *resin* and both fixed and volatile oils; the first oil said to predominate, and when combined, has a specific gravity of 0.97, congealing at a temperature of 50 degrees F. (10 C.). The oil contains a substance called *anethol*, which exists both as a liquid and solid, the latter in the form of camphor. Fennel has been used as a remedy from the remotest periods, for its stimulating, stomachic, carminative and galactagogue properties. The dose of the powdered fruit is from 20 to 30 grains, usually given in form of an infusion. The officinal preparation is the Aqua

Fœniculi of the British codex. Fennel is also an ingredient in the much esteemed Pulvis Glycyrrhizæ Compositus. Fennel derives its name from the Latin word *fœnum*, (hay), from the fact that the odor at first resembles hay, but when bruised, the odor is strongly of its own kind.

Ficus, Fig, Ficus Carica.—Natural order Urticaceæ. This small tree or shrub is a native of western Asia, but found growing in all the temperate climates of the world, cultivated in the southern portions of Europe and the southern portions of the United States for its fruit. In the northern parts of Europe and America the fig tree rarely reaches a greater height than 12 feet, but in Asia it often attains the height of 30 feet. The leaves are of a deep green color, palmate in shape, with five lobes; flowers have no corolla and are remarkable from the fact that they are the reverse of the strawberry, the minute pistils being scattered over the body of the fruit. Figs differ in size, shape and flavor according to cultivation and climatic influences.

The fresh figs are top-shaped (turbinate) and about the size of a small egg, but as found in commerce they are compressed and encased in sugar. Figs contain *gum*, *sugar*, *albumen*, *fat* and a number of salts, and are used as a luxury, and in medicine as a laxative; externally applied as a poultice, and form one of the ingredients in the confection of sennæ.

Illicicum Anisatum, Star Anise.—Natural order Magnoliaceæ. This evergreen tree is a native of Siam and western China, and is adorned with entire smooth, glossy leaves, ovate

or lanceolate in shape. Flowers hermaphrodite. Fruit composed of eight carpels arranged in form of a star; each carpel is not unlike a boat in shape, about one-fifth of an inch (5 millimeters) long, woody, wrinkled, brown in color and split along the upper surface; internally, smooth and of a brick-brown color, having an oval flat seed. Odor somewhat like the common anise, pleasantly aromatic, taste sweet, aromatic and anise-like. The Star Anise contains *resin*, *gum* and volatile oil which is identical with that obtained from the Pimpinella-Anisatum and considered by some superior. In fact, most of the oil of anise is from this fruit. The medical effects are anodyne, carminative and stimulating; it is said to increase the lacteal flow. Star anise is principally used as a flavor and as a source of oil. Origin of the name obscure.

Limons, Lemon, Citrus Limonum.—Natural order Auranticeæ. Native of India, but now cultivated in many of the sub-tropical countries of the world. The cultivated lemon tree is somewhat irregular in growth, the foliage uneven and does not present the handsome and pleasing appearance of the orange tree. Flowers purple externally and white internally, many of which are hermaphodite and unisexual, with an odor totally unlike that of the orange flower. The fruit (Fructus Limonis) is well known to every one in this latitude, but a description is not out of place, so we will call your attention to the fruit as it occurs in commerce. Lemons vary in size, but are usually 2 to 4 inches long, ovoidal in form, having at the apex a nipple-

like prominence; their surfaces are of a light yellow, sometimes smooth, but often corrugated; the epidermis is delicate and shining, beneath which lie the cells of fragrant oil. The internal and white part of the pericarp is adherent to the pulp, the latter being subdivided into 10 or 12 partitions or segments, each containing two or more seeds. The average lemon will yield 5 fluid drachms of juice, which contains from 7 to 9 per cent. of citric acid, also holding in suspension mucilage, and a small quantity of malic acid. The peel contains *resin* and volatile oil, and as found in the stores is in thin bands and much contorted; like the orange peel used for a flavor more than a remedy. The juice is often prescribed with the alkaline carbonates for effervescing and cooling remedies in fevers. The juice of the lemon soon decomposes, and should, therefore, be used fresh The lime juice is from the fruit of the citrus Bergamia, the fruit of which is pear-shaped and resembles the lemon in its color and prolongations. Tne attar, known as Cedrat, is from the Citrus Medica, the true citron or cedrat tree. The oil is also obtained by the sponge process—further account, see oils. Origin of the name uncertain, but supposed to be Sanskrit or Arabic. There are said to be some 20 or 30 varieties of lemons and oranges, many of which are never seen in commerce.

Macis, Mace, Myristica Fragrans.—Natural order Myristicaceæ. The outer covering (arillus) of the nutmeg. This covering of the seed occurs in thin bands and often unevenly divided or cut. It is of an orange-brown color; about

an inch long; taste warm, aromatic and slightly resembling the nutmeg; odor aromatic and fragrant. It contains about 8 per cent of volatile oil, fat, resin, sugar, mucilage and proteids. Mace has nervine, tonic and stimulating properties, but is rarely used as a medicine, but much esteemed for its flavor in the culinary art. Its peculiarity lies in the fact that although a part and parcel of the Myristica, it is totally dissimilar in flavor.

Myristica Nutmeg, Myristica Officinalis, M. Moschata or Myristica Fragrans.—Natural order Myristicaceæ. Native of Molucca Islands and cultivated in Brazil, Southern India and the West Indies. The nutmeg is quite a large evergreen tree and adorned with shiny, smooth, green leaves, oblong and lanceolate in shape, with very acute apexes; flowers small, yellow and in axillary racemes; stamens and pistils on different trees or on same tree but in different flowers; fruits pear-shaped and about the same size; pericarp fleshy and usually splitting from the apex to the base in two equal parts, which are fleshy, thick and display the much-branched, orange-colored arillus, which is the mace of commerce. This arillus embraces the nut so closely as to leave furrows of a superficial character on the seed. The seed, or nutmeg, as it is known in the stores, is either globular or ovoidal in form, about ½ to 1 inch long, of a light-brown color, and furrowed; the hilum and micropyle on the base and the chalza near the apex, connected by a groove, which corresponds to the usual raphe of most seeds. When unlimed the nutmeg has an oily surface. All the

varieties have an aromatic flavor, and bitter, aromatic and agreeable taste and are highly esteemed and much used as a flavor. The Penang and Singapore nutmegs are unlimed, whilst the Dutch are all limed. This is done for the purpose of destroying the vitality of the seed. Nutmegs contain a small quantity of volatile oil—not over 8 per cent—and about 25 per cent of fixed oil, which really is a fat or butter, also *starch*, *mucilage* and *proteids*. Nutmegs are used so generally as a flavor that we can hardly look upon them as a remedy, and yet they have strong stimulating and stomachic properties and enter into a number of officinal preparations, such as the Aromatic Spts. of Ammonia, Pulvis Cretæ Co., Pulv. Aromaticus, Spts. Lavendula Comp., etc. Origin somewhat obscure and uncertain. Many authors agree that they were used as a medicine and flavor as early as the 9th century.

Papaver Somniferum, White Poppy.—Natural order Papaveraceæ. This annual plant is a native of Asia and attains a height of 2 to 4 feet, with a round stem of a yellowish-green color, adorned with large sessile leaves, which are deeply cut and toothed; flowers white and inclining to purple, with four petals; fruit (capsule) globular and smooth, crowned by a deeply cut circular disc. Internally they have many partitions (septum) containing numerous white or brownish-white seeds, somewhat kidney-shaped. There are three species mentioned by the older writers, the black, white and wild poppies. The capsule of the black is more globe-like in form than the white, whilst the

white poppy has a capsule depressed and flat. The poppy capsule contains alkaloids in various proportions from a mere trace to as much as 2 per cent, consisting of morphine narcotine, narceine, codeine, meconic, tartaric and citric acids. Poppy capsules or heads are anodyne, narcotic and sedative in their medical effects and are given in form of syrup and decoction; they are externally used as a cataplasm. Dose of the syrup 1 to 2 fluid drachms; of the decoctions from ½ to 1 fluid ounce. Homer mentions the poppy in his works, and Hippocrates speaks of black and white poppies in his writings. For further accounts see Dispensatory.

Petroselinum, Parsley, Petroselinum Sativum. —Natural order Umbelliferæ Orthospermæ. This little plant is a native of southern Europe and cultivated in all the civilized countries of the world. Under the head of roots the parsley was minutely described, therefore it is only necessary to describe the fruit, which is the part of the plant under consideration. The fruit (Fructus Petroselinii) is about 2 millimeters or $\frac{1}{12}$ of an inch in length, ovate in form and laterally compressed; color a mixture of brown and green, and divided like the rest of the family or order in two mericarps, which when dry split open; numerous oil tubes and 2 seeds; odor agreeably aromatic; taste sharp and aromatic and of its own kind. The constituents of the parsley fruit, according to a recent analysis, are *resin*, *mucilage*, *apiin*, *fixed* and *volatile oils*, also an oily substance which is at first colorless, but becomes, on exposure, tinged yellow, and is termed Apiol, having the pungent and

aromatic odor of the plant, and which is considered a mixture of the many constituents of the fruit. When pure, apiol and apiin form in needle like crystals. The fruit of the parsley and its constituents are stimulating, diuretic. carminative and emmenagogue in their effects. Little used as a remedy except in form of Apiol, the dose of which is from 3 to 8 drops. The name is derived from the Greek *petra*, a rock, and *selium*, native place.

Pimenta. Pimento, Pimenta Officinalis, or Eugenia Pimenta. Common names Allspice, Jamaica Pepper, etc.—Natural order Myrtaceæ. Native of the West India Islands. This evergreen and handsome tree attains the height of 20 or 30 feet; adorned with a dense foliage, although the leaves vary much in size and shape. The majority of them are four inches long, elliptical in shape and obtusely pointed at the apex; external surface of a handsome shining green and having many nerves or veins visible to the naked eye; flowers small and arranged in panicles; they are succeeded by a globular fruit or berry ¼ inch in diameter, crowned by a persistent calyx. Allspice, as they occur in commerce, are of a dark-brown color, varying in size from a buckshot to a pea, with a pericarp or woody shell, two-celled, each cell holding a seed somewhat kidney-shape in outline. The fruit or berry of the Pimento contains *gum*, *sugar*, *tannin*, *fat*, *resin*, a *volatile* and a fixed oil. The medical virtues lie in the stimulant and stomachic properties. Rarely prescribed alone, but given in doses of 8 to 20 grains in

form of an infusion. Principally used as a condiment. The name is supposed to be a corruption of the Spanish word *pimento*, pepper.

Piper Nigrum, Black Pepper.—Natural order Piperaceæ. The pepper-plant or vine is a perennial climber, a native of India and cultivated in many tropical countries of the world. The stem of the pepper-plant is jointed and reaches a height of 8 or 12 feet, adorned with very dark-green leaves, broadly ovate in form, acutely pointed, seven-nerved and opposite; flowers white, small and in spikes; these are succeeded by sessile fruits or berries which, when ripe, are red in color. The pepper of commerce is the unripe fruit of the plant, which is globular in form, much wrinkled, of a dark-brown or grayish-black color, a little lighter in color internally, and hollow, with the exception of an undeveloped seed within the cavity. The hot, spicy taste of pepper is well known to everyone, as it is a universal condiment. Piper Nigrum coutains *resin*, *fat*, *ash* and a colorless volatile oil, not the oil of the stores, for this is an oil holding in suspension resin (oleoresin), also an *acid*, *piperine* and *pipiridine*. In its action pepper and its radical are stimulant, tonic and febrifuge, and given in form of its active principle, piperine, which occurs in small crystals the oleoresin is also prescribed. Dose of the alkaloid from 1 to 5 grains. The white pepper is the fruit denuded of its epidermis and is less strong. Some authors assert that it is the ripened fruit of the Piper Nigrum.

Prunum, Prune. The fruit of the Prunus Domestica. Natural order Rosaceæ, or Amyg-

dalaceæ. A native of western Asia, and cultivated in southern Europe, and numbers as many as a hundred varieties. The tree attains the height and size of our cherry and pear trees, adorned with ovate, lanceolate leaves, but not shining and glossy as the leaves of the cherry. The flowers are white and not unlike the blossoms of the cherry, with numerous stamens and pistils. Fruit a drupe ovoidal in form, of a handsome purple color externally the pulp is succulent and luscious when ripe, and does not adhere to the stone (putatum). Seed small and almond-like. Prunes contain *sugar*, *malates*, *pectin* and *acid*. The seeds contain a *fixed oil*, similar to that of the sweet almond. Prunes are nutritive and laxative, and form one of the ingredients of the confection of sennæ. As found in commerce, they are either packed like figs, dried or canned. The fruit that is offered in this market is from the south of France. There are quite a variety of prunes or plums grown in the United States, and many of the finest come from California. The word prunes seems to be of Latin origin, and means plum. Prunes are dried plums preserved with sugar.

Phytolacca Bacca, Pokeberry, fruit of the Phytolacca Decandria.—Natural order Phytolaccaceæ. Native of North America and naturalized in Europe ; annual as to the stem and leaves, but perennial as to the root, which has been fully described under the head of roots. Phytolacca Decandria, with its smooth rose-colored stem and its large leaves, forms quite an imposing plant in the vegetable kingdom. The flowers, with their five white petals, are soon succeeded by a cluster of dark-purple ber-

ries, which are globular in form, depressed and composed of ten carpels, each one containing a black seed. The juice of the berry is of a purple-red color, with a sweet and slightly acrid taste; containing *gum, sugar and phytolaccic acid.* The coloring matter is decomposed by alkalies and sunlight. Pokeberries are laxative and emetic in their action, and given in form of an infusion and expressed juice. The berries yield alcohol on fermentation. Name of Greek origin, *phytin* or *phuton*, a plant, and *lachanon*, a pot herb, the young shoots being edible in the early days of their growth and quite as delicate as the asparagus when served in the same way.

Rhus Glabra, Sumach.—Natural order Anacardiaceæ. Native of North America. This perennial shrub grows to the height of from 4 to 12 feet, with a stem more or less bent, with straggling branches at intervals along the main body of the plant; leaves smooth, pinnatifid, and with opposite leaflets with an odd one at the extremity; leaflets lanceolate in shape, with serrated edges and acute points. The upper surface of the leaflet is green and the under surface of a grayish-white, turning in the fall of the year to crimson. The flowers are of intermingling of green and red, each having five stamens and three pistils, and are arranged on the stalk in form of a compound thyrse. These flowers are succeeded by clusters of crimson berries, which are covered by a fine pubescence, inside of which is a round or oblong seed or putatum. The Sumach berries have little or no odor, but an acid, agreeable taste, and contain *tannin*, coloring matter and the malates of *lime*

and *potassium;* they are diuretic, astringent, and refrigerant in their action, and have been given in form of decoction and fluid extract, the latter being the only officinal preparation, and used principally as a gargle; name supposed to be of Celtic origin, *rhudd,* red, from the color of the fruit. There are several species of Sumach, R. Copallina and Rhus Venenata.

Uva-Passa, Raisins, the dried fruit of the Vitis Vinifera.—Natural order Vitaceæ. Native of western Asia, and cultivated in many parts of southern Europe. The particular species of grape from which the raisins are procured is confined to certain sections of southern Europe. The plant or vine differs little in general characteristics from that of our own species of grape, except in the formation of the leaf, the European plant being more prominently lobed and sinuate. The culture of the grape differs; some vines are staked, some arbored, whilst others again are trellised. The modes of preparing the fruit for commerce are various; some are punctured and dried, some dried and then dessicated with lye. The first method is considered the best. The Sultana raisins are seedless and come from Smyrna; the Valencia raisins are usually employed in pharmacy. The epicarp of the raisins contain *tannin* and coloring matter, whilst the pulp contain *mucilage, sugar, potassium, tartrate,* and *malic acid.* The only officinal preparation in which they enter is the compound tincture of Cardamon. The raisin is considered of little or no value as a medicine, but has been used as a food from the remotest times.

Vanilla, Vanilla, Vanilla Planifolia.—Natural order Orchidaceæ. Native of eastern Mexico and now cultivated in many tropical coun-

tries. The Vanilla is a parasitic, climbing perennial plant, with a green, fleshy stem about the size of the little finger, adorned at regular intervals with dark-green sessile leaves; they are oval in shape, sessile, fleshy, acutely pointed, and veinless. Flowers occur in axilliary racemes, are sessile and of a greenish-yellow color, and as much as two inches in diameter. The fruit as it occurs in commerce is pod-like in character, of a rich brown color inclining to black, oily, and when of fine quality shows many acicular crystals. It varies in length but will average from 4 to 8 inches. Internally it is filled with an oily-like mass of pulp containing hundreds of small black seeds. The roots of the Vanilla obtain their nourishment from the barks of the trees upon which it grows. The fruit is collected before it is ripe, and the process of curing the bean, as it is termed, is somewhat complicated. There are several varieties of Vanilla, and they are called respectively, Mexican, Bourbon, Venezuelan, and Brazilian Vanillas. The Mexican is considered the best. Vanilla contains *oil, resin, sugar, mucilage* and *vanillin*, the last named, which is to be obtained artificially from coal tar, pine tree sap and other sources, which is considered by chemists as the Aldehyd of Methyl of Protocachuic—Aldehyd Vanilla (rarely, if ever, given as a medicine) is considered a stimulant, carminative aphrodisiac in doses of 5 to 30 grains (0.3 to 2 grams). Used as a flavor for creams, chocolate and confections. The plant has been known since the conquest of Mexico by Cortes, and the name is derived from the Spanish. The tincture is officinal.

SEMINA—SEEDS.

TECHNICALLY speaking, the seed is the part of the fruit which contains the embryo of the future plant, tree or shrub. It is made up of an outer coating or hull, termed the spermoderm or testa, and an inner one called the endopleura or tegmen, which is often connected with the testa, and is coherent with the kernel. Where the stem or stalk is united as in the bean it is called the podosperm or funiculus, from the Greek, *podos*, a foot and *sperma*, a seed. In most of the officinal seeds this podosperm is absent, and the point of attachment is called the eye or hilum; the line running from the eye or hilum is termed the raphe, at the junction of which we find the inner hilum, which is also known as the chalaza. Near the hilum, in many of the officinal seeds, we find a small depression in the testa, marking the location of the radicle. Seeds may be further divided in monocotyledons and dicotyledons, as for example, the Colchicum, Sabadilla, etc., which have

only one cotyledon, and the melon order, etc., having two divisions or cotyledons to each seed This is a most interesting study, particularly as it is the beginning and end of plant life, and will be treated of under its own proper head, botanically and medicinally.

Coffea Arabica, the Coffee Tree.—Natural order Coffeæ or Rubiaceæ. Said to be a native of Arabia and Abyssinia, and now cultivated in many tropical countries. The coffee-tree or shrub attains a height of 15 or 20 feet, and its branches are adorned with obovate, oblong shining evergreen leaves, acutely pointed and entire. Flowers white, and in axillary clusters, corolla tubular and five-pointed, calyx 5-toothed and superior, stamens 5, ovary inferior, 2-celled and the style double. Fruit oval, about the size of a cherry, juicy, and of a dark-red color when ripe; contains two plano convex seeds, having a longitudinal groove on the flat side, having embedded within them two heart-shaped cotyledons; embryo very minute. The raw coffee seed is hard, horny and tough with little or no odor; taste slightly bitter and of its own kind. The characteristic taste and odor is developed by the roasting process; it also deprives the seeds of much fat and tannin, destroys the caffeine, and develops the oils which they contain.

According to Payen, the roasted seeds contain 13 per cent. of volatile and fixed oil, albuminous matter, gum, sugar, vegetable acid, caffeine, 8 per cent. of caffeotannic acid, 34 per

cent. of ligenous tissue, and 7 per cent. of saline matter. The seeds of the cultivated coffee vary in size, and the varieties are known by the names of the sections in which they are grown. The most esteemed are the Mocha and Java varieties. Coffees are said to improve by age. losing in the process of time, much of their strength, and improving thereby in flavor. Roasted coffee in form of an infusion or decoction, is so universally used as a beverage, that one can scarcely call it a medicament; yet it is highly valued as a remedy in poisoning by the alkaloids of opium. The ordinary table coffee is tonic, stimulant and nervine, also proving a valuable remedy in some cases of nausea, A strong decoction of coffee is invaluable in poisoning by opium and its preparations, and should be freely given. The Caffeine, although a constituent of coffee, is obtained from the dried leaves of the tea plant, and guarana caffeine occurs in long, silky, flexible crystals. This feeble alkaloid is not often prescribed. The dose is 5 grains or less.

Avena, Oat, Avena Sativa.—Natural order Graminaceæ. Said to be a native of Persia, and now cultivated in many parts of the world as a food for horses and as an article of diet. The clum of the Oat is smooth and arises 2 or 3 feet high adorned with linear-lanceolate shaped leaves, panicle loose and nodding; spikelets, 2 or 3 flowered—flowerets smaller than the glumes and naked at the base, being alternately awned; grain or seed quite long and furrowed.

When the grains are deprived of their thin outer coat, they are called prepared oats, and

when coarsely ground form the oatmeal of commerce. Oats contain a larger proportion of gluten than the other cereals in use.

The constituents are 56 per cent. of starch and 15 per cent. of gluten; also some *gum*, *sugar*, *fat*, *avenin*, *salts*, *water* and *lignin*. The use of the ground oats is too well known as an article of diet to further mention, but a decoction or gruel is recommended in fever, etc. The tincture and fluid extract of Oats has been recently introduced as a remedy in nervous disorders, and highly endorsed by the medical profession. The name is of Latin origin. Some writers are doubtful as to the etymology of the word.

Amygdalæ, Almond, Amygdalus Communis.—Natural order Amygdalaceæ or Rosaceæ. These are divided into two varieties, the Amygdalæ Amara (bitter) and the Amygdalæ Dulcis (sweet). As far as the tree is concerned there is no perceptible difference in the bearers of the two dissimilar fruits, and neither do the seeds vary much in size; as a rule the bitter Almond seed is a little smaller.

The Almond tree is small and rarely attains a greater height than 20 feet, and is said to be a native of Asia, and now cultivated in the countries lying along the borders of the Mediterranean sea. The tree is adorned with lance-shaped leaves having long petioles, their margins serrated; ornamented with white and rose-colored flowers, the corolla is quite large; petals longer than the calyx. The stamens number 10, and surround the pistil. The fruit is a drupe, and consists of a smooth thin and tough outer coat, marked by a fissure, which opens when

ripe, and exposes the stone (putatum), or shell as it is commonly known. The shell, which conceals the seed of the Almond, is ovate or ovate-lanceolate in shape, and somewhat flattened at the sides, and will average an inch or more in length. The testa or shell of the Almond seed is of a light straw color, inclining to brown by age; it has many small indentations on the surface, whilst many lines or veins run longitudinally from base to apex, the former being designated as the Chalza or inner hilum, and the latter the external hilum or point of attachment. The seed is shaped like the shell, and consists of two plano-convex cotyledons, and when deprived of their cuticle, are of a creamy-white appearance.

The taste of the seeds of the sweet Almond is bland, and much esteemed as a luxury, while the bitter Almonds have a bitter taste and a flavor of the peach seed; when emulsified with water they give off an odor of acid hydrocyanic. Sweet Almonds contain *mucilage*, *sugar* and *proteids;* the latter constituent consists of *emulsin*, and a *fixed oil.* The bitter Almond contains besides the above ingredients, *amygdalin*, *hydrocyanic acid* and *benzaldehyd;* the latter substance is the oil of bitter Almond of the stores. The Almond is used in medicine as a protective and emollient, while the bitter Almond seed and oil are used as a flavoring. The word *amygdalus* is the Greek for the Almond.

Amomum, Melegueta, Piper Melegueta, Cardamom Majoris, Granum Paradisi, Melegueta Pepper, Great Cardamon, Grains of paradise, etc. —Natural order Zingiberaceæ. This herbaceous,

seed-like plant is a native of western Africa, attains a height of 3 or 4 feet, and bears a pale purple flower, wax-like in its character, which is succeeded by an ovoidal fruit, varying in size according to soil and climatic influence, often attaining the dimensions of a pear. The pericarp is fleshy and encloses an acid pulp in which are embedded numerous seeds, which are angular and roundish in shape, about $\frac{1}{12}$ to $\frac{1}{8}$ of an inch long, with a deep brown testa, inclining to a red color and warty. The varieties differ in color; they are albuminous, mealy, oily and creamy, and enclose a small embryo; odor spice-like; taste aromatic and pepper-like. They contain *gum*, *starch* and *ash*, also an *acrid resin* and about 3 per cent of *oil*, rarely if ever used; they are, however, stimulating in their effects. The name is derived from the countries in which they are found, or from their pepper-like character. They were used in the fifteenth century to make a spiced wine called hippocras, but now rarely found in the stores.

Citrullus Vulgaris, Water Melon.—Natural order Cucurbitaceæ. This plant is also a native of the southern parts of Asia, and cultivated for its fruit in all of the sub-tropical countries of the world. The stem is procumbent and adorned with ovate leaves, deeply cut, from 3 to 6 inches long, and of a grayish-green color, on long petioles; flowers of a greenish yellow, on pubescent peduncles; fruit from 10 to 20 inches long, oval in shape, with a firm fleshy green rind or epicarp, with a succulent pulp of a reddish orange color; seeds numerous, black, white or variegated; oblong or ovate-

oblong in shape, somewhat compressed; truncate at the base and obtuse at the apex. They contain *resin*, *sugar*, *oil* and some *proteids*, and had been given as an anthelmintic, but more generally for their diuretic properties, and at one time highly extolled as a remedy in diseased kidneys; when administered they are given in form of an infusion and taken freely. All the gourd family are characterized by their diœecious and monœcious flowers, the calyx adherent to the corolla possessing from 2 to 3 stigmas; seeds flat and ovoidal in form, with pubescent and palmately cut leaves. The Citrullus vulgaris derives its name from Citrus, an orange, as its pulp most resembles that fruit in color.

Colchici Semen, Colchicum Seed, Colchicum Autumnale.—Natural order Melanthaceæ. This plant is a native of southern Europe, and has been fully described under the head of roots, therefore, we shall only speak of the fruit and seeds. The fruit is a three-celled capsule, opening through its dissepiments and showing many sub-globular, reddish brown seeds; the testa is firmly pitted, and the albumen of a grayish-white, oily, very tough and hard, enclosing a very small embryo, which is nearly opposite the hilum; odor little or none; taste bitter and acrid. The Colchicum seed contain two *resins*, *Colchicoresin* and *Beta-colchicoresin*, also *Colchicine*, an amorphous substance, and *Colchicein*, a white crystalline body, *gum*, *sugar* and about 6 per cent. of *fixed oil*. The medicinal virtues of the Semen Colchici and their preparations, lie in their cathartic, emetic and

sedative properties, and are given in form of tincture, wine and fluid extract, all of which are officinal; dose of the wine and tincture is from 20 to 30 drops, of the fluid extract, 5 to 10 drops. The plant was well known by the ancients, and used by them for gout and rheumatism and kindred diseases. The name is derived from the Greek word *kuljikoon*, and was also known to the Arabs as *sorinjan*, and the name Autumnale, because it blooms and bears in the Autumn.

Croton Tigulum, Tiglium Officinale, Croton Oil Tree.—Natural order Euphorbiaceæ. Native of India and cultivated in many parts of the East, from Mauritius to the Indian Archipelago. The tree usually attains a height of 15 to 20 feet, adorned with oval, oblong leaves, sharply pointed, with serrated edges, and their surfaces have many star-shaped, scattered hairs thereon; the petioles are short and slightly pubescent; flowers not conspicuous in color, and occur in simple terminal racemes, the male flowers at the top and single female flowers at the base; stamens 15 to 20, distinct and finely pubescent at their base; Fruit about the size of a large marble; oblong, obtusely triangular in shape, and covered by a fine pubescence; stellate in character, and containing one seed, which entirely fills the cavity of the capsule; these are oval-oblong and slightly flattened, from ½ to ⅝ of an inch (12 or 15 millimeters) long, having a leaden gray surface inclining to brown; along the ventral side is a raised raphe; when scraped the black, brittle testa is brought into view. The Semen Tiglii contain about 50 per cent. of *fixed oil, proteids, tiglinic* and *crotonic acids,*

also *phytalbumose* which is poisonous but resembling the *peptones*. The seeds are poisonous and drastic carthartic, and used for preparing the oil, which will be spoken of under the head of fixed oils.

Cucurbita Pepo, Pumpkin.—Natural order Cucurbitaceæ. All of the gourd families are natives of the tropical countries of Asia and America, and now cultivated in all of the temperate climates of the world for their fruits. The plants bearing the fruits are succulent and trailing herbs, throwing out numerous tendrils, with deeply cut leaves, pubescent and coarse, varying in size and color; flowers united in a 5-petalled, yellow corolla, with united stamens, except at the bottom, the anthers also united; fruit large, firm, yellow and fleshy, containing many seeds, broadly ovate, flat and about $\frac{4}{5}$ of an inch (2 centimeters long. The testa is of a creamy white appearance, with a shallow groove and flat ridge running in a parallel line along the margin of the seed, from the base to the hilum at the apex. The seeds are made up of two white, flat cotyledons, which are very rich in oil. The pumpkin seeds have little or no odor, but a bland mucilaginous taste, and contain *starch*, *sugar*, *resin-proteids* and at least 40 per cent. of *fixed oil*. The seeds are recommended as a tæniafuge, and given in doses of an ounce or more on an empty stomach, either in form of an infusion or an electuary. The bottle gourd (Lagenaria) heads the list of all the melon family.

Cucumis Melo, Musk Melon or Cantaloupe.—Natural order Cucurbitaceæ. Native of Cen-

tral Asia, and cultivated for its rich and delightful fruit in most of the temperate climates of the world. By cultivation, the Canteloupe is improved in flavor, whilst soil and climatic influence give us the several varieties. They should never be grown in the same field as their twin relative, the gourd (Lagenaria) and pumpkin, as they are apt to partake of the flavor.

Like all the order (with a few exceptions) the Canteloupe vine is succulent, and well armed with a fine and prickly pubescence. Leaves palmately cut 3 or 4 inches long, and flowers yellow and axillary. Corolla tubular and stamens cohering; fruit ridged and from 4 to 15 inches long, and many seeded. The seed is ovate and somewhat flat in shape, averages about $\frac{7}{8}$ of an inch in length, and made up of two cotyledons, which are white, oily and inodorous, and plano-convex in shape, and like the rest of the order contains a large amount of *fixed oil.*

The Canteloupe seeds are seldom found in the stores. Have been used as an anthelmintic in form of an infusion.

Cucumis Sativus, Cucumber.—Natural order Cucurbitaceæ. Like the rest of the gourd family the Cucumber is a native of tropical Asia, and now cultivated in many countries of the world for its fruit. Like all the order, the stem is procumbent with subcordate and deeply lobed leaves, the terminal lobe of which is the most prominent, pubescent and coarse as to their surfaces, and deeply green as to color. Flowers yellow and axillary. Fruit from 6 to 10 inches long and 2 or 3 inches in diameter.

Surface rough, with many nodosities or tubercles, which are armed with prickles. Usually of a rich green color, except where the fruit touches the ground, becoming yellow by age. Seeds numerous, small, flat and ovoidal in shape; will average ½ an inch in length, acutely edged and without grooves. The Cucumber seeds contain about the same constituents as the pumpkin, and have been used for the same purpose. The Ointment of Cucumber was at one time a popular remedy, and was made from the juice of the fruit, with the addition of suet and lard; or by adding the distilled spirit of the fruit to Benzoated lard. Rarely prescribed and no longer an officinal remedy.

Cydoniœ or Cydonium, Quince, Cydona Vulgaris.—Natural order Pomeæ or Rosaceæ. Said to be a native of western Asia, and found growing wild on the banks of the Danube. The Quince tree is cultivated in most of the temperate climates of the world, and rarely exceeds 20 feet in height. The leaves on the many branches are ovate in shape, with obtuse points, and their surfaces are covered by a fine pubescence. The flowers are white or rose-colored, with 10 or more stamens and 5 pistils, and arranged in a kind of umbel.

The fruit or pome is globular or irregularly pear-shaped, of a bright-golden color when fully ripe, 5-celled with many seeds. The Semen Cydonia are the parts used in medicine; these are ovate or ovate-oblong, and of a triangular shape, about ¼ of an inch (6 millimeters) long, and a dark-brown color, with the hilum near the apex. The embryo is oily and white, and the

taste, when chewed mucilaginous and almond-like. There is also an epithelium of mucilage which causes the seeds of each cell to adhere when immersed in water. The seeds form a thick mucilage with water which is highly esteemed as an eye water. The mucilage is made by adding 1 part of seeds to 40 parts of water. The Quince is thought to be the golden apple of Hesperides. The name Cydonia is thought to allude to the town of Kydon in Crete.

Delphinium, Larkspur, Delphinium Consolida.—Natural order Ranunculaceæ. This plant is a native of Europe but now found growing in grain fields and waste places in the United States. The Larkspur rarely attains a greater height than two feet; the stem is erect and its branches are adorned with leaves which are much divided, and the segments of which are lance shape and acutely pointed; the flowers are arranged in loose racemes. Corolla consists of four (4) united petals of a blue or violet color, the upper petals are longer than the lower ones, spur shaped and enclosed in the spur of the calyx.

The fruit is a boll or follicle and contains many tetrahedral and flat looking seeds, one twenty-fifth of an inch broad (1 millimeter) with a dark brown testa, and roughly pitted, when seen under a glass of one or two diameters. Within the kernel we find a small, straight embryo. The seeds have little or no odor, but the taste is acrid and bitter; they contain *delphinia* and a *fixed oil.* The Delphinium Consolida is rarely used in medicine, but has some carthartic, diuretic and emetic properties, very

poisonous. The name is said to be derived from the Greek *delphim*, a dolphin, from a supposed resemblance of the flower to that fish.

Dipterix Odorata, Tonco or Tonka.—Natural order Luguminosæ, Papillionaceæ. This tree is a large one and said to be a native of Dutch and British Guiana; adorned with pinnatifid leaves and purple flowers in axillary racemes. The fruit is an oblong ovate pod containing one seed, which partakes very much of the shape of the pod or fruit. The Tonka, Tonco or Tonca seed, as it occurs in the stores or commerce, is from 1½ to 2 inches long and about ⅔ of an inch broad, somewhat compressed and corrugated. The testa is of a dark brown color and easily removed when thoroughly dry. The seed is composed of two cotyledons of a creamy white color, enclosing quite a large pinnate plumule. Taste of the Tonka is bitter and somewhat aromatic; odor fragrant and agreeable. The Dutch seeds are rather larger than the English, and with rather more efflorescence, which is composed of acicular crystals Tonco seeds contain *sugar*, *mucilage*, a *fixed oil* and *coumarin;* the latter occurs in crystalline form. Tonco seeds have been used in medicine as a stimulant, in whooping-cough; no longer a remedy. They form a valuable adjunct to sachets and colognes for perfumery.

Fœnum Grœcum, Fenugreek, Trigonella, Fœnum Græcum.—Natural order Papillionaceæ.. Said to be a native of India, but naturalized and cultivated in those countries contiguous to the Mediterranean Sea. The Fenu-

greek is an erect annual plant, reaching a height of one or two feet, and cultivated as a kind of fodder; it bears a sickle-shaped pod having within from 10 to 20 seeds of a brownish yellow color, ⅛ of an inch (3 millimeters) long, rhomboidal as to their outlines, shrivelled and compressed with the hilum on the sharper edge, with a deep furrow running from it which almost divides the seed into two parts. The cotyledons enclose a hooked-like radicle. The seeds contain *tannin*, *mucilage* 28 per cent., *volatile oil*, *fat*, *proteids* 22 per cent., a bitter principle, *ash*, and *trigonelline*, but is entirely free from starch and sugar. Odor peculiar and of its own kind; taste bitter and mucilaginous. The Fenugreek has been used as a tonic and demulcent, but now entirely obsolete as a remedy. Principally used as an ingredient in horse powders and kept in stores as a powder for that purpose. Origin of the name obscure, but probably of Greek derivation.

Horedeum, Barley, Hordeum Distichon.—Natural order Graminaceæ. Said to be a native of Tartary. The culm is smooth and attains a height of 2 or 3 feet, adorned with linear-lanceolate shaped leaves, rough on the upper surface, sheaths nerved and smooth, spike 3 or 4 inches long, compressed and containing on each spikelet 2 flowers, 3 stamens, ovary at the apex pubescent: Grain or seed oblong in shape with a longitudinal furrow. The grains or seeds of barley, deprived of their glumes or husks, contain 40 or 50 per cent. of *starch*, *gluten*, *gum*, *sugar*, *fat* and some salts. Barley is made into malt by a process of sweating, and allowed to

germinate; it is thin-spread over a perforated floor and dried by the means of a current of air passed over or through it, not exceeding a temperature of 90 degrees.

Barley was an ancient article of diet and is mentioned in the Bible as such. Barley has been used in the form of a decoction, as a demulcent and as a nutritious drink for invalids; 2 ounces of barley to 4 pints of boiling water. The extract of malt is composed of the dried or malted barley grains. The so-called malted liquors are made by fermenting the prepared grains with hops and other substances, many of which are injurious. The ferment in the barley is termed diastase, and converts starch into dextrine and maltose.

Hyoscyami Semen, Hyoscyamus seed, from the Hyosoyamus Niger.—Natural order Solanaceæ. The plant bearing these seeds has been fully described under another heading and therefore can be dispensed with. The fruit is a capsule opening transversely by a convex lid, having two cells which contain many small seeds reniform and roundish in character, very finely pitted and of a grayish brown color, testa delicate, with a creamy albuminous kernel, enclosing a small cylindrical embryo, which is curved parallel with the edge of the seed. Taste bitter, acrid and oily. The henbane seed contains *resin, mucilage, proteids, Hyoscyamine, hyoscine, hyoscypicrin* and about 25 per cent. of *fixed oil.* Like the leaves they are anodyne, hypnotic and poisonous, and capable of dilating the pupil of the eye. Rarely if ever given and not officinal. All parts of the plant have been

used as a remedy from the remotest time, and the name is of Greek origin. The henbane is the *bunj* of the Arabs and the *henbell* of the Anglo-Saxon writers. The alkaloid, Hyoscymine, is on sale by the various chemists, and is occasionally found in the stores, as also the Hyoscymine sulphate, both occurring in acicular, colorless crystals; dose $\frac{1}{60}$ of a grain.

Ignatia, *Ignatia*, *Strychnos* Ignatii.—Natural *order Loganaceæ*. *This* small tree or vine, according *to some authors*, is a native of the Philippine Islands, has its branches adorned with entire oval and pointed leaves, which are on very short petioles; their surfaces are smooth and acutely pointed at the apex; the flowers are white, tubular and nodding, and arranged in short axillary racemes. Fruit about the size and shape of the pear and contain about twenty seeds, which are about an inch long, ovate and triangular in shape, of a reddish-gray color, covered by a silvery pubescence; they are very hard and break with a granular fraction; the embryo *is oblong* in shape, and embedded in an irregular *cavity*. *The* seeds have little or no odor, *but a persistent, bitter taste*. The *faba sancti ignatii* contain *more* strychnine than the nux vomica, containing also *brucine*, *fat* and some *proteids*. Their medical effects are the same as the nux vomica and the dose about the same. The officinal preparations are the abstract and tincture. Much of the strychnia of the stores is obtained from this scource. There are five or six other species of the strychnos; S. LIQUSTRINA, S. COLUBRINA, S. TICUTE, S. POLATONUM, ETC.

Linum, Flax, Linum, Usitatissimum.—Natural order Linaceæ. Native of Asia, and cultivated in almost every part of the civilized world. This little and important annual usually grows to a height of 18 inches, with a simple, erect stem, which terminates in a corymbose panicle of blue flowers, and adorned with smooth, alternating leaves linear-lanceolate in shape. The fruit is a small, globublar capsule about the size of a buckshot, containing 10 seeds, which are held in 5 carpels, each containing 2 seeds. The Semen Lini of commerce and of the stores is quite familiar to everyone, and when carefully examined presents the following features: Testa brown and polished, oval or ovate-oblong in shape, and somewhat flattened on the sides, and, when examined under a lens of some power, the testa will be found indented or pitted. The seeds also possess an outer covering of mucilage, which is transparent, but it soon asserts itself when allowed to remain in water for a brief time. Within, the seeds are made up of 2 plano-convex cotyledons of a creamy-yellow color, with the hilum at the apex. Odor, little or none; taste, mucilaginous, oily, and somewhat bitter. The seed contains *mucilage*, *wax*, *sugar*, *proteids*, 30 per cent. of *fixed oil*, besides some *tannin* which exists in the testa; free from *starch*. The medical effect of the flaxseed is purely demulcent and protective, and officinal in form of an infusion and, when ground, in form of a poultice. In the earlier history of man we find the flaxseed used for diet, and it is still an article of food in some parts of Egypt.

When the seeds are ground and expressed from their oil they are used extensively as a food for cattle.

Linen and cambric are woven from the fibres of the flax plant. Tow is also made from flax; this consists of the coarser fibres, which are removed by the process termed hackling. The patent lint of the stores is a scraped material of the coarsely woven linen cloth. The articles manufactured from the flax fibre are much more useful in surgery than those obtained from the cotton, from the fact fhat they are less irritating and cooler. The old literature of the Greeks and Hebrew frequently alludes to fabrics woven of flax, and many clothes of the ancients were made of fine linen, mentioned in Genesis of the Bible when Joseph was promoted to the dignity of a ruler in the land of Egypt.

Nux Vomica, Nux Vomica, Strychnos Nux Vomica.—Natural order Loganiaceæ. Native of India and the East India Islands. This small tree is said to resemble the dogwood tree of the United States; the trunk is crooked and branches irregular, and adorned with oval, smooth, shining leaves, with 3 to 5 nerves, and ornamented with greenish-white flowers in terminal corymbs; corolla funnel-form, with 5 stamens; fruit round and smooth, and not unlike an orange in size and color. The testa is fragile, and the pulp soft, gelatinous, and white when fully ripe, containing several seeds, which are disc-like or peltate in shape, about an inch in diameter, of a greenish-gray color, covered by a soft pubescence of a silk-like character. Each seed has on its edge a slight prominence, extending from

which is the raphe, running along to a central scar, which is the hilum or, more properly speaking, the umbilicus, which lies on the ventral side of the seed. Nux Vomica has little or no odor, but a persistent, bitter taste, and contains *strychnine brucine*, *igasurine*, *igasuric acid;* also *gum*, *sugar* and *fat* in small quantity. *Srtychnia* and its compounds give a blue color when treated with *potassium bichromate* and acid sulphate. *Strychnine* and its compounds are intensely bitter, and crystallize in four-sided prisms, whilst *brucine* occurs in octahedral prisms, and is colored red by nitric acid, changing to orange; its compounds are intensely bitter, and poisonous also. The sulphate of strychnine is soluble in distilled water, but the other compounds are only sparingly so; all are soluble in alcohol.

Nux Vomica and its constituents are tonic and spinal nervines, but very poisonous in their effects, and are given in form of powder, extract, and tincture, also in the alkaloid form of strychnine. Dose of the powder 2 to 3 grains; of the extract and abstract, 1 or 2 grains; of the tincture and fluid extract, 3 to 5 drops; of the strychnia, from $\frac{1}{30}$ to $\frac{1}{12}$ of a grain. All parts of the plant are said to contain strychnine, but it is asserted that birds eat the pulp of the fruit with impunity. Nux Vomica was used as a medicine in the sixteenth century, but was employed for the poisoning of dogs and cats in England before that time, hence the name of dog-button. The origin of the word seems to be obscure, but the Arabians speak of the *khaunk-al-kulb*, or dog-killer.

Ricinus Communis, Castor Oil plant, Palma Christi.—Natural order Euphorbiaceæ. Native of India and cultivated in tropical countries and many of the sub-tropical regions of the world. The castor oil plant in India is a perennial, and attains a height varying from 16 to 20 feet, and adorned with large palmetto-peltate-shaped leaves, with purplish petioles. The segments of the leaves are deeply divided into lanceolate and serrated partitions. Flowers in terminal panicles, the lower ones being male and the upper ones female, but all articulated with thin peduncles, and often supported by double glandular bracts. Fruit a tricoccus capsule covered with yielding spines, with 1 seed in each of its three cells. The Semen Ricini is usually about $\frac{3}{5}$ of an inch (15 millimeters) long, somewhat flattened, and oval-oblong in shape; the apex of the seed is prolonged into a short protuberance, or beak, which is covered by a whitish caruncle, under which is the hilum and micropyle; the raphe is on the flattened surface and the chalsa at the base of the seed. The testa of the seed is of a grayish-brown, variegated with bands or spots of gray and brown, and very glossy. The kernel or nucleus fills the testa, and when separated (which is easily done) shows a covering of a delicate nature, which is the tegmen or inner membrane. The seed has a straight embryo, the radicle of which is somewhat conical in shape, whilst the two cotyledons are broad and thin. When not rancid the seeds are without odor, whilst the taste is bland, but occasionally acrid. The seeds of the Ricini Communis contain nearly 50 per cent. of

fixed oil, *sugar*, *mucilage*, *proteids*, a crystallizable substance termed *ricin*, a poisonous matter an *albuminoid*—compound. The seeds are cathartic and emetic, but are not used as a medicine in modern times; from them we obtain the castor oil of commerce. The name is derived from a Greek word which signifies a tick, also the Latin *ricinus*, a tick, because the seeds resemble the dog-tick in appearance. The plant was cultivated by Albertus Magnus, bishop of Ratisbon, in the middle of the thirteenth century.

Theobroma Cacao, Cocoa or Cacao Tree — Natural order Byttneriaceæ. This small tree is said to be a native of Mexico and the tropical Americas, and cultivated in the West Indies and Guayaquil. The tree rarely exceeds a height of 20 feet, and is adorned with large, oblong, lanceolate leaves; flowers of a red color, with 5 petals and 15 stamens, in axillary clusters, while the pistils number as many as 10. Fruit indehiscent, oval in shape, large, yellow and cucumber-like in appearance, the capsule fleshy, thick and 5-celled, and each cell having from 8 to 10 seeds piled one upon another. Seeds ovate or ovate-oblong in shape, about $\frac{1}{5}$ of an inch (20 millimeters) long, having a thin, delicate testa of a brown color; the hilum of the seed is at the larger end, whilst the chalza is at the apex, in this wise reversing the order of seeds.

The mode of preparing the seeds for commerce is of two ways—drying them by means of clay while in the fruit, or drying after they have been removed from the fruit; this process not only cures the seeds, but removes much of

their astringent nature. The seeds of the Theobroma Cacao contain *fat*, *starch*, *sugar*, *proteids* and theobromine, the latter constituent occurring in a white crystalline form, and may be converted by chemical process into caffeine. The fat of the seeds is the cocoa butter of the stores, and obtained by expression. The chocolate is a mixture of the seeds, sugar, starch, cinnamon and vanilla. The chocolate is really a compound paste made up of various ingredients—generally at the will of the manipulator—and forming a table luxury much esteemed. The shells or testa are also found for sale as a substitute for coffee and tea. Whilst cocoa and chocolate both form a basis of a very agreeable and nourishing diet or beverage, they are often adulterated, and if this be not the case they often disagree with people partaking of them, hence they are frequently peptinised or pancreatinised, to make the fat more easily digested. The name Theobroma is of Greek origin, and signifies food for the gods.

Physostigma Venenosum, Calabar Bean.—Natural order Leguminosæ Papillionaceæ. Native of Western Africa, near the mouth of the Niger river and Old Calabar. This lofty twining plant is adorned with trifoliate leaves, the leaflets of which are ovate and acutely pointed, ornamented by pink flowers in axilliary racemes, having 10 stamens; stigma has a large sac or hood; fruit, a pod 7 inches long, more or less curved and dehiscent; seeds, from 2 to 3, oblong, inclining to a reniform shape, 1 inch (25 millimeters) long, and about $\frac{3}{5}$ of an inch (15 millimeters) in diameter. The testa is firm and

hard, but very brittle, and of a pale chocolate color; the hilum is in a groove, which extends along the entire length of convex edge of the seed, and ending in the micropyle at one end and the chalza at the other; the seed is made up of two cotyledons, which are hard and white, between which is the embryo, with its short and curved radicle. The seeds have little or no odor, but the taste is of the bean-like character, and other edible leguminous seeds. The kernel of the bean contains about 48 per cent of starch, 23 per cent of *legumin*, ½ per cent of oil, some *mucilage*, *sugar*, and an active principle variously termed *physostigmine*, or *eserine*, *calabarine* or *eseridine* reputed to antagonize *eserine*. This latter constituent is an amorphous, colorless and tasteless substance, of an alkaline reaction, soluble in alcohol, ether, chloroform, and to some extent soluble in water; it is very poisonous, and has the power to contract the pupil of the eye. The medical effects of the physostigma, and its active principle, are powerfully sedative, having the power to contract the pupil of the eye. The officinal preparations are the tincture solid extract, and salicylate. The dose of the tincture, 2 to 4 drops; of the alcoholic extract, from 1-16 to $\frac{1}{6}$ of a grain (0.004-0.01 gram), whilst the dose of eserina, 1-64 of a grain. The seed is known technically as the physostigma faba, and called in Africa *esere*, and used by the natives as an ordeal poison. The name is derived from the peculiar character of its hooded stigma.

Sabadilla, Cevadilla, Asagræ Officinalis.—Natural order Melanthaceæ. Native of Venezuela and Mexico. This bulbous plant attains a height of 5 or 6 feet, adorned with grass-like, tapering leaves, which are 3 to 4 feet long, and arise from the root of the plant. The scape (stem) is smooth and erect, bearing a dense, long raceme of light yellow flowers, from 12 to 18 inches in length. Stamens numerous; stigma obscure, and 3 simple ovaries. Fruit, a follicle, about ½ inch (12 millimeters) long, and containing from 1 to 3 seeds, somewhat curved and winged in shape, of a dark brown color and shining; testa fairly delicate in texture and rugosely wrinkled. The albuminoid matter of a creamy, white embryo, somewhat lance-shaped and very small. Odor, little or none; taste bitter and intensely acrid. The cevadilla contains *cevadine*, cevadilline, cevedic and veratric acids, *veratine*, a fixed oil, *sabadine sabadinine* and *angelic acid.* The seeds have long been in use for the destruction of vermin and for the preparation of the alkaloid, veratrina, of the stores, which latter constituent is found in the form of a creamy, white powder, but is said to be capable of crystallizing. Dose of of veratrina, 1-30 to 1-16 of a grain. It is a powerful irritant and poison, and used in form of an ointment. The name is from the Spanish word *cebada*, barley, so called from the resemblance of its frowning spike to barley.

Sinapis Alba, White Mustard.—Natural order Cruciferæ Siliquosæ. Native of Asia and southern Europe and cultivated in many of the subtropical countries of the world. This annual

plant arises to the height of 1 or 2 feet, adorned with lyrate and pinnatifid leaves. Flowers yellow, and larger than those of the Sinapis Niger, and in the shape of a cross. Pods bristly and spreading, about an inch long, and containing from 4 to 6 yellowish seeds, almost globular in form and about $\frac{1}{12}$ of an inch (2 millimeters) in diameter. The testa of the seed is pitted in a vein-like manner, but so delicately that it appears smooth to the naked eye, but under a glass of one or two diameters the reticulation can be seen plainly. The mustard seed has little or no odor, but a very decided, pungent and acrid taste. The mustard contains *oil*, *mucilage*, *sinalbin myrosin*, *sugar*, *sinapina* in form of a sulphate, and *acrinyl sulphocyanide*, which latter ingredient is an acrid, fixed oil according to some authors, while others assert that it is volatile, and bears the same relation to the White Mustard that the oil of mustard does to the black seed, the name is of uncertain origin, but the word brassica, which is applied to the order, is of Celtic derivation.

Sinapis Niger, Brassica, Nigræ, Black, Brown or Red Mustard.—Natural order Cruciferæ Siliquosæ. Native of Asia and southern Europe and cultivated. This annual plant attains the height of 1 or 2 feet, and adorned with pinnatifid leaves, lyrate in shape; flowers yellow, and smaller than those of the White Mustard. Pods smooth and erect, and are closely pressed against the axis of the long raceme, thus differing from its fellow. The seeds are about one-half the size of the White Mustard and not more than $\frac{1}{25}$ of an inch (1 millimeter)

in diameter. The testa is reddish-brown, inclining to black, finely netted, and quite hard. The pod contains about the same number of seeds as the White Mustard. Often the seeds are covered by a light pellicle, which gives to them an appearance of having gray seeds mixed with them. The seed is made up of two cotyledons, with a curved radicle and a yellowish-green embryo. Odor faint, taste pungent and acrid, and contains *mucilage*, *sinunegrin*, *sinigrin* a *fixed* and *volatile oil*, the latter being the oil of mustard of the stores. Mustard is diuretic, stimulant, and emetic; externally a rubefacient, and forms the well-known mustard plaster. The oil and liniment are officinal. The flour or ground mustard of the stores is usually a mixture of both the white and black seeds, and when mixed with water it gives off an acridity and pungency which was lying dormant and inactive. This fact is a singular one, for the seeds under pressure only yield a bland, fixed oil, without any flavor of the mustard. The Black Mustard seed is occasionally adulterated with turnip and cabbage seed, but rarely for the purpose of fraud, but by accident.

Staphisagria, Stavesacre, Delphinium Staphisagria.—Natural order Ranunculaceæ. Native of southern Europe. This little biennial rarely attains a greater height than 4 feet, and possesses a soft, pubescent, erect stem adorned with dark-green leaves, which are quite broad and palmately cut, the segments of which are entire and acutely pointed. Flowers blue and in a loose raceme; petals 4 in number, with 5 petaloid sepals, the upper one shortly spurred.

Fruit an oblong capsule or boll, inclosing numerous seeds in two rows, tetrahedral in shape, somewhat flattened and rough-pitted, etc., one side of the seeds being quite convex; testa dark brown in color; embryo straight, and embedded in the oily, albuminoid kernel. The Stavesagria seeds have little or no odor, but an acrid, bitter taste, and contain *delphinine*, *delphinoidine* (the former being a white crystal and the second an amorphous substance), *delphisine* and about 20 per cent. of *fixed oil*. The three alkaloids are soluble in alcohol, ether and chloroform. The seeds were employed by the Greeks as a medicine, but in modern times have found little favor as a remedy, except as an external remedy in killing vermin. Although they have cathartic, diuretic, and emetic properties, they are very poisonous, and should be dispensed with caution.

Stramonii, Semen, Stramonium Seed, Seed of the Stramonium or Thorn Apple, Daturia Stramonium.—Natural order Solanaceæ. The plant from which the seeds are obtained has been fully discussed under the head of leaves. Therefore, we will describe the fruit and seeds only. The solitary white flower is succeeded by an ovoidal, spinous capsule about the size of a walnut, having 4 valves. It is bilocular, with each cell incompletely divided into 2, and contains many seeds, which are veniform in shape and about $\frac{1}{6}$ of an inch (4 millimeters) long. On the concave edge of the seeds we find the hilum and micropyle; testa of a very dark-brown color, wrinkled and pitted when seen under a lens of 2 or 3 diameters; kernel or albumen creamy

white, inclosing a curved embryo; odor, little or none; taste, bitter, nauseous,, and oily. The seeds of the Daturia Stramonium contain *resin*, *mucilage*, *proteids*, *ash*, *daturine* and 25 per cent. of *fixed oil.* Their medical properties are diuretic and narcotic, having the power to dilate the pupil of the eye. The officinal preparations are the extract, fluid extract, and tincture. The dose of the extract, ½ to 1 grain; of the fluid extract, 1 to 5 drops; of the tincture, 10 to 20 drops. The name is probably derived from the Sanskript word *lhatoora*, and used by the Hindoos as a medicine.

Daturine which was for a while believed to be two alkaloids, differing from each other in weight, and termed light and heavy daturine, it is now known that the alkaloid is a mixture having the same composition as that of atropine and hyoscyamine.

EXCRESENTIA, MEDULÆ, TRICHOMES, GLANDULÆ, ET FECULÆ—EXCRESCENCES, PITHS, HAIRS, GLANDS, AND STARCHES.

These constitute a class of drugs differing in all respects from those already described, and will require especial attention, as many of them are well-known remedies, whilst the starches should claim an earnest investigation from the fact that they exist abundantly in the vegetable kingdom, and play an important part as an article of food in the animal economy.

Quercus Infectoria, Quercus Lusitanica, the Gall or Dyer's Oak.—Natural order Cupuliferæ. This stunted tree is a native of Asia Minor, rarely exceeds 8 feet in height, and resembles in its foliage the oaks of this country, but its fruit is not in clusters—which is the case with many of our native oaks—but exists as a solitary acorn. It is from this tree we obtain the gall of commerce. The gall-nut is an excrescence, and is formed by the female species of *cynips* piercing the buds of the tree (quercus infectoria) and therein depositing their eggs; around the

larva the gall is formed. When fully developed the insect escapes from the prison house, and the gall-nut of commerce is the result. There are several varieties, which are distinguished by the names of blue and white galls—these are from the Levant and are the officinal. The blue vary in size, and are usually gathered before the insect escapes from its interior. Some of the galls have more right to be called green than blue, from the fact that they have a greenish tinge. The white galls are so called because they are lighter in color, and are to be readily distinguished by the hole in them by and through which the insect escapes. All the varieties of galls are globular or sub-globular in shape, more or less; some smooth, others tuberculated, shining, quite heavy and hard; when broken, the fracture is granular. The internal arrangement is of lighter color and moderately compact in character, having a cavity in the centre, where we find the undeveloped remains of the insect. Galls have little or no odor, but a decided, strong astringent taste. The Mecca galls or Dead Sea apples are imported from Bussorah; whilst somewhat globular in shape, they have a number of prominent projections, and are rarely found in this market. The other varieties of galls—such as the Chinese, Japanese, and Californian—are really nothing more than balls covered by a thin fragile shell, inclosing the remains of many insects. Gall-nuts contain about 50 per cent. of *tannin* and 2 or 3 per cent. of *gallic acid*, also *starch*, *resin* and *sugar* of the variety termed glucose. Gallotannic or digallic acid or tannin, as it is familiarly known, occurs

in thin, amorphous, glistening scales of a pale-yellow color, or in yellow vesicular masses. Tannin is incompatible with all the vegetable alkaloid; with salts of iron, lime water, acids and solutions of gelatine and albumen. Forms Tannin tannates with the alkaline salts, and insoluble precipitates with animal compounds. Galls were known to Hippocrates, and fairly described by many of the Indo-Persian writers. Galls have been used as an antidote in the poisoning by alkaloids. The officinal preparations are the tincture, ointment and powder. Dose of the tincture, 1 fluid drachm (4 grams); of the powder, 5 to 10 grains. The ointment is principally used for its astringent effect. The tannin and gallic acid are now more generally used as remedies. Galls are imported from Smyrna and Aleppo, and are often known by these names. The best galls are those without holes and the variety known as the blue or green galls.

Zea Mays, Maize, Indian Corn, Corn.—Natural order Graminaceæ. Native of the Americas, and now cultivated as a food in many parts of the world. The height of the clum or stalk depends much upon the soil and season. The Indian corn is one of the most interesting of the Graminaceæ family, with its sessile-pistillate spikelets and its staminate flowers, which are arranged at the summit of the plant, throwing their pollen upon the pistillate spikes below, which are covered by abortive leaves or husks. The silk of the ear is but the elongated pistils, one of which proceeds from each grain, kernel, or ovary. The rachis is commonly known as the corn-cob, and the chaff which covers it, the

paleæ and glumes. The plant, more frequently the fruit, is subject to a disease, which is the ustilago or corn smut—a fungus growth which occurs in irregular globular masses, covered by a very dark, almost black, gelatinous membrane, inclosing thousands of black globular spores, the odor and taste of which are peculiar and disagreeable. The corn smut is a comparatively new remedy, and contains about 2 per cent of *fixed oil*, *secaline* (also found in the ergot), a crystalline principle, *mucilage*, *acid*, *fixed oil*, *resin*, *sugar*, *albuminoids* and *ash*. This fungoid growth developed by the Puccinia graminis has emmenagogue properties, and is given in form of a fluid extract, which is the favorite way of administering it, although the ustilago is given in substance in doses of 15 to 30 grains (1 or 2 grams). The fruit of the Zea Mays is familiar to everyone, and forms one of the staple products of this country. The zea is of Greek origin and means *to live*, and maize is a word of American etymology.

Secale, Cereale, Rye.—Natural order Graminaceæ. Native of the Eastern countries, and now cultivated in many parts of the world. Rye is to Russia what corn is to America, and comes nearer to bread-making qualities of the wheat than any other grain. The culm attains a greater height than wheat, and glabrous except near the spike. The leaves are smooth beneath and rough on their upper surfaces, from 6 to 18 inches long, and linear-lanceolate in shape. Spike 4 to 6 inches long, two-sided and flattened; spikelets, as a rule, two-flowered, with an awn-like rudiment of a third flower;

seed oblong, sub-cylindrical, and grooved on the upper side, pubescent at the apex, and of a rich brown color. The seed or grain is subject to a diseased condition, especially in wet seasons; this disease produces the Ergot of the stores, Secale, Cornutum, the origin of which is the Claviceps Purpurea, and the natural order Fungi. The Ergota is obtusely triangular in shape, and resembles the cock's spur as to its curvature; in length an inch or less, and about one-eighth of an inch in thickness, having three furrows running nearly the entire length of the grain; externally of a purple color, inclining to a black; internally they are of a creamy white, breaking with an abrupt fracture. Odor peculiar, and resembles the extract of beef at first, then becoming heavy and unpleasant; taste oily and disagreeable. The constituents are *ergotinine* (crystalline), *scier-oiodin picrosclerotin* (poisonous), *sclerotic acid*, *ecbolina*, *proteids*, *mycose cornutine* which is a very active alkaloid, and about 30 per cent of *fixed oil*. The medical effects of Ergot and its preparations are emmenagogue, parturient, ecbolic and hemostatic. Given in form of powder, tincture and extracts. Ergotin (Bonjean's Ergotin) is only an aqueous extract, precipitated by alcohol and evaporated. The Ergotine extract and fluid extract are official; also the wine. Dose of the Ergotine and extract, 1 to 3 grains (0.06 to 0.2 grams); of the tincture, fluid extract and liquor, from ½ to 1 fluid drachm.

Ergot is often found on wheat and oats, but differs much in shape and size. Many of the pestilential diseases of Europe are said to have

arisen from eating the grain that was badly effected by this fungus growth. Origin of the name obscure; said to be from the Latin *secare*, to cut, or Celtic *sega*, a sickle, from the supposed resemblance of the grain to the curvature of the sickle.

Sassafras Medulla, Sassafras Pith. Obtained from the central portions of the well-formed branches of the Sassafras Officinale.—Natural order Lauraceæ. This very light, spongy substance is found in white, cylindrical or curled pieces, turning slightly yellow by age; rarely more than a few inches long, having a mucilaginous taste, with a slight flavor of the Sassafras. Forms with water a limpid mucilage, which is not affected by alcohol. The mucilage is officinal, and is generally used as a soothing application in combination with other remedies. It has also been used in form of mucilage in inflammatory conditions of the bowels and kidneys. Dose, *ad libitum*. One or two drachms of the pith to the pint of boiling water furnishes an excellent mucilage. The medical effects are purely protective and demulcent. One drachm of the pith to a pint of boiling water makes the mucilage of sufficient consistence to apply to the eye. When the quantity of pith is doubled it is used for internal administration.

Lycopodium Clavatum, Club Moss.—Natural order Lycopodiaceæ. Native of northern and central Europe, also found in the North American woods. This plant has creeping stems several feet long, adorned with long leaves terminating in hair-like processes; flowers in pairs,

also solitary and infloresce in spikes; bracts heart-shaped, serrate and sharply pointed. Fruit one-celled, with two or three valves; spores minute, granular and tetrahedral in shape, each side presenting four facets. Under the microscope a network of hexagonal lines are seen. Lycopodium of the stores is a tasteless, mobile, straw-colored powder, floating upon water and not easily wetted. When thrown into a flame ignites immediately, with a slight explosion. Lycopodium contains about 40 per cent of fixed oil, with a volatile base and about 4 per cent of ash. Lycopodium is known as vegetable sulphur, and is occasionally given internally, but more generally used as a local application for sores and excoriated surfaces; also used as an agent to prevent the adhesion of pills and troches. The name is supposed to be derived from the foot-like leaves and the club-like processes of the pollen.

Lupulinum, Lupulin, or Lupuline. Obtained from the dried strobiles of the female plant, Humulus Lupulus, the common Hop of the temperate climates of the world.—Natural order Cannabineæ, or Urticaceæ. Lupulin is the minute, yellow grains or glands adhering to the base of the strobiles of the hop. In appearance they are of a light brownish yellow, but becoming deeper in color by age. Under the microscope the grains of Lupulin are hood-shaped and netted; the lower half of the grain is obtusely conical in outline. Six pounds of hops yield about six ounces of Lupulin. The minute grains or glands contain about 2 per cent of *volatile oil*, 10 per cent of *bitter extrac-*

tive, nearly 50 per cent of *resin*, *choline* and *lupamaric acid*. The volatile oil is said to yield valerianic acid on exposure to the air. The medical effects are stimulant, anodyne and tonic, and is given in form of powder, tincture and fluid extract. Dose of the tincture, 30 to 60 drops; of the fluid extract, 10 to 15 drops.

Crocus, Saffron, Crocus Sativa.—Natural order Iridaceæ. Native of Western Asia, and now found and cultivated in France, Italy and Spain. This small plant, with its bulbous or cormous root, sends up numerous narrow lance-shaped leaves having a white midrib, ornamented with light-purple flowers, funnel-form, with a long tube or throat, and bearded; they precede the leaves. The stigmas are in three deep, wedge-shaped divisions and notched at their extremities; fruit an oval capsule, three-celled and containing many seeds. The stigmas and part of the style are the saffron of the stores. To the naked eye, when not carefully examined, the Saffron appears only to be a mass of orange-brown fibres, but when carefully examined these thread-like styles have at one end three long orange-colored stigmas, broadest at the summit. Odor peculiar and penetratingly aromatic; taste aromatic and bitter; tinging the saliva yellow when chewed. The carthamus or dyers' saffron is often used as an adulterant. Saffron contains *wax*, *mucilage*, *sugar*, *proteids*, *ash*, *picrocrocin*, *crocin*, and a *volatile oil*. Its effects as a medicine are carminative, emmenagogue, and diaphoretic; administered in form of powder, infusion, and syrup. Dose from 5 to 30 grains. Saffron en-

ters into combination with the following compounds: Decoction of ALOES; PILLS, AL ES, ET MYRRHÆ; PULV. CRETÆ COMP.; TINCTURE OPII AMMONIATED; TINCT. RHEI, and TINCTURE CINCHONÆ COMPOUND—all of which are recommended by the British codex. The tincture is made after theU. S. Pharmacopœia.

The Crocus Sativus is known also as the Hay or Autumnal Saffron. It requires some 40,000 or 50,000 flowers to furnish a pound of the stigmas. When dry, saffron is liable to adulterations of the scientific kind, such as dried shreds of beef and vegetable matter, all colored to imitate the style-like threads of the genuine article. See Dispensatory 17 Ed. page 456. The Crocus Sativus is mentioned in the works of Homer, and was used by the Arabians as a medicine in the second century.

Mucuan, Cowage, Mucuna, Pruriens, or Dolichos Puriens.—Natural order Luguminosæ. Papillionaceæ. Native of the East and West Indies. This twining perennial climber is adorned with pinnate and trifoliate leaves on long petioles, the leaflets of which are somewhat rhomboidal in shape. The plant is ornamented with large red or purple colored flowers, resembling in shape those borne on the common garden pea. The fruit is a pod (legume) about 4 inches long, and in outlines resembling the letter f. The hairs attached to these pods are of a red-brown color, about $\frac{1}{12}$ of an inch long, very stiff, and easily penetrate the skin, causing a terrible itching. They are said to contain resin and a small quantity of tannin. Cowage is no longer officinal, but it was once used as an anthelmintic and

counter irritant. Dose, 2 or 3 grains mixed with syrup. Cowage is rarely, if ever, found in the stores, and should not be kept, on account of its power to torment, for cases have been known of its pernicious influence in the hands of the practical joker.

Amylum, Starch; obtained from the Common Wheat, Triticum Vulgare.–Natural order Graminaceæ. It is also found to exist as a constituent in all kinds of grain, rhizomes, tubers, and acorns. The principal source of the commercial starch is from the wheat, potato, and corn, the latter starch usually occurring in packages and sold for culinary purposes. Starch varies as to the size of its granules, rice yielding the smallest and the tuber of the canna edulis (which is cultivated in the West Indies) yielding the largest. Amylum, as it occurs in commerce, is white opaque, occurring in column-like masses, easily pulverized, and producing a peculiar sound of its own kind when rubbed between the fingers. The granules of starch have a lens-like form, in the centre of which is a small dot termed a hilum. The arrow-root and potato starches present an appearance of small shells with many concentric rings; they are larger granules than those existing in the wheat or corn starch. To examine these minute objects it requires a powerful microscope. Starch has neither taste nor odor, and is insoluble in cold water, alcohol, and ether, but when boiled in water the granules are broken up and dissolve. On cooling, a mucilaginous compound or jelly is the result, which turns blue by adding the smallest quantity of iodine. By dry, intense heat starch is converted

into dextrin, which substance is called British gum. It is also obtained by boiling the starch in dilute sulphuric acid; by continued boiling, glucose or grape sugar is the result.

The sago (from the metroxylon sagus and other palms), commonly known as the pearl sago, arrow-root (from the rhizome of the Maranta Arundinaceæ), and tapicoa or cassava starch (from the rhizome of the Manihot Utilissima) are all starches, and are used for delicate articles of diet. They resemble the other starches as regards acid, boiling water, and their insolubility in alcohol, ether, etc. Starch may be called the flour of all soft cellular roots and grains; for if we wash any well-ground root or grain in cold water, then strain the liquid through muslin, the starch passes over with the water and falls to the bottom in the form of a white powder.

SUCCI, EXTRACTI, ET SACCHARA—JUICES, EXTRACTS AND SUGARS.

This is a class of interesting substances which are partly or entirely soluble in water, and consist of secretions and concreted exudations of the plants from which they are obtained. With but a few exceptions, they are air dried; the exceptions are catechu, kino and sugar, these requiring heat in some form. Many of the juices exude spontaneously when incisions are made into the tree or plant, whilst others again require great pressure. This class of drugs is devoid of cellular structure, and none of them crystallize, except the sugars. I should here mention that gutta percha, India rubber, and the sugars are insoluble in alcohol; the two first mentioned substances are insoluble in water, but are acted upon by chloroform, turpentine and bisulphide of carbon. Each drug will therefore be spoken of in a brief manner, from whence and how obtained; its constituents, adulterants, uses, doses, etc.

Aloe, Aloe Socotrina, Aloe Vulgaris, Aloe Spicata, Aloe Indica, Aloe Capensis, Natal Aloes and Moka Aloes. All the species are succulent plants, and have a spiked inflorescence. Corolla tubular and 6-cleft, stamens hypogynous and as long as the tube of the flower; style as long as the stamens, but often rudimentary, and with 3 furrows; stigma simple or triple, very small and replicate; fruit a capsule triangular in shape, 3-celled and 3-valved; seeds numerous and in two rows; 3 cornered, flattened, or else angled and winged in shape. The Aloe Vulgaris has long, erect, lanceolate green leaves, and greenish-yellow flowers. Aloe Socotrina or Socotrin Aloe, has sword shaped leaves with small, white, spiny prominences along their margins, whilst the flowers are scarlet at the base, pale in the middle and green in color at the apex. The Aloe Spicata differs only in a few minor particulars. The Aloe Indica is a low plant and has a spike of red flowers. The Aloes of commerce is the inspissated juice of the various aloe plants, and is obtained from the leaves; these are cut off and the juice collected and evaporated to the proper consistence. The Socotrin Aloes occurs in form of a dark yellowish brown powder, or as it is found in commerce, in hard opaque orange brown fragments; under the microscope it exhibits numerous crystals. This variety of Aloes is exported from Zanzibar and other places of eastern Africa, and derives its name from the Island of Socotra. Aloes Vulgaris, or Barbadoes Aloes, is opaque and of a deep orange-yellow brown; it differs somewhat from the aforementioned in odor, be-

ing less agreeable, otherwise it is dificult to distinguish them. It is exported from the Island of Barbadoes. Cape Aloes, Aloe Spicata, Aloe Capensis or shining Aloes, has been dropped from the recent edition of the Dispensatory. This species of aloes, however, is of an olive black or shining blackish brown color, with an unpleasant odor and not crystalline, and is easily distinguished from the other varieties. The Natal Aloes is of a lighter shade of brown than those already mentioned, but crystalline under the microscope and of inferior quality, little valued as a medicine. It is exported from Port Natal. The plant yielding this Aloe is said to be unknown.

Moka Aloes resembles the aforementioned varieties to some degree, but are very much inferior and are brought from the interior of Arabia. The Caballine Aloes or Horse Aloes, as they are familiarly known, occur in dark colored opaque masses or fragments, with a tendency to run together at a temperature of 70 deg. Fah. They have a disagreeable odor, and a bitter, nauseous taste; are mostly used as ingredients to horse powders. Aloes contain *aloin* (a yellow crystalline substance), a so-called *resin*, *socaloin*, *barboloin*, *nataloin*, and a trace of volatile oil. Cape aloes does not yield aloin. These principles are named after the aloes from which they are obtained. The medical effects of Aloes and its preparations are vermifuge, laxative, drastic purgative and emmenagogue; dose of the powder 2 to 5 grains. It is also given in form of tincture, pills, wine, enema and suppository, and enters into combi-

nation with the colocynth to form the pills of colocynth comp.; and hyoscyami to form the pills of colocynth et hyoscyami. The word Aloe is thought to be of Hindoo origin, and supposed to be derived from the word *elwa*. It has been used as a medicine from the earliest history of man.

Ammoniacum, Ammoniac, Gummi Resina Ammoniac, Ammoniac gum resin. The juice concreted of the Dorema Ammoniacum—Natural order Umbelliferæ. The plant from which we obtain the gum is perennial and rises to a height of 7 to 9 feet, adorned with large petiolate and bipinnate leaves 2 feet long, the lower leaflets of which are distinct, but the upper one confluent and deeply pinnatifid. The leaflets are leathery, veined beneath and entire. Flowers white and sessile, petals ovate in their outlines, disk fleshy, cup-shaped with yellow stamens and pistils. This plant is a native of the sterile regions of Persia; it is also found in Africa, at least one of the species, for the Morocco gum is still an article of commerce between Egypt and Arabia. Ammoniac exudes spontaneously from the stem of the plant, and occurs in irregular tiers somewhat flattened, which are either distinct in form or in one agglutinated mass, having a yellowish or pale brown color externally; when fractured it presents a waxy and cream-like appearance. The heat of the hand will cause it to soften, and increase the peculiar and balsamic odor. The taste is bitter, acrid and unpleasant; it forms with water a milk-like emulsion, partially soluble in alcohol and ether, but does not strike a

color with alcohol and muriatic acid, as is the case with galbanum. Ammoniac contains from 60 to 70 per cent. of *resin*, when fused with *caustic potash* it is converted into *resorcin* and *protocatchuic acid*), 18 to 20 per cent of *gum* and about 3 or 4 per cent. of volatile oil. As a stimulant and expectorant, it has been used as a remedy from the remotest ages, and is still highly thought of by some physicians of the present day. Ammoniac is given in the form of pills and emulsion; the dose being from 5 to 30 grains (0.3 to 2.0 grams). The name is said to be derived from Jupiter Ammon, because a species of it is found (Ferula Tingintana) growing near the temple of Jupiter Ammon in Africa.

Callitris Quadrivalvis, Sandarach Tree.—Natural order Coniferæ. This evergreen tree is a native of North Africa, and is a link between the arbor-vitæ and the cedar of this country; in general appearance resembles them in foliage. The Sandarac of commerce is obtained in the same way as the mastic, but occurs in longer tiers; they closely resemble each other, the sandarac being used as an adulterant of the mastic. Odor balsamic; taste bitter and prominently terebinthinous; not so freely soluble as the mastic, but rather more inflammable; when powdered, it has a glass-like lustre, and forms the pounce sold by stationers. It is largely used as an ingredient in plasters and varnishes, etc. It is said to contain three distinct *resins* differing in solubility, also a bitter principle soluble in water. As a remedy it

has been used as a stimulant and protective, also as a pigment in the arts. From the Greek *sandarake*, a pigment or paint.

Catechu, Catechu.—Natural order Leguminosæ Mimoseæ. Native of India and found growing in the tropical parts of eastern Africa. This tree, with its straggling, thorny branches, is adorned with bi-pinnate leaves; the leaflets smooth and auricular in shape; the petiole on which they are arranged is often armed with a row of prickles. Flowers white, with a monopetalous corolla; calyx 5-parted and pubescent; fruit, a legume, with several kidney-shaped, black, hard seeds. The catechu of commerce occurs in irregular masses, incorporated with fragments of leaves. It has a dark, glossy, brown color; breaks with a shell-like fracture. Odor, little or none, but has a decided astringent and sweetish taste; soluble in alcohol, but only slightly so in water. The catechu is an aqueous extract of the heart-wood of the tree, and is obtained by boiling it with water. Catechu contains nearly equal parts of *catechin* and *catechuo-tannic acid.* The catechin or catechuic acid occurs in insoluble acicular crystals; there is also a coloring matter called catechu red, and a substance termed quercetin.

The variety known as Catechu Nigrum, Black Catechu, Cutch, etc., is exported from Peru.

The catechu and its preparations are tonic and astringent, and are given in form of powder, pills, troches and tincture, the dose of the powder being from 8 to 30 grains, of the tincture 1 or 2 fluid drachms. The Pale Catechu, or

Catechu Pallidum, also known as Terra japonica belongs to the natural order of Cinchoneæ Rubiaceæ and is a native of the East India Islands. As the name indicates, it is of lighter color than the afore-mentioned, and less astringent in its effects, but more highly thought of as a remedy by English physicians. It is known as Gambir, or the Uncaria Gambier, or Gambier shrub. It is a climbing plant, and the catechu is obtained from the leaves and stems by boiling them in water, then evaporating. Used for the same purposes as the other varieties, and is administered in the same form and manner.

Convolvulus Scammonia, Scammony. — Natural order Convolvulaceæ. This twining plant is not unlike the Morning Glory (Convolvulus) of our gardens, but adorned with leaves completely arrow-shaped, truncate and angular at the base, with acutely pointed lobes. Flowers, pale yellow, and funnel-shaped, with 5 erect stamens; ovary 2-celled, with 4 seeds; fruit, berry-like; capsule, 2-celled and 4-seeded. The plant is native of Asia Minor, and now found in a number of places along the shores of the Mediterranean sea. The stem is annual, whilst the root is perennial. From the latter we obtain the juice which, when concreted, is the Scammony of commerce and of the stores. The juice is usually collected in shells and dried, after which it occurs in irregular angular pieces or in circular cakes, having a gray-green or a deep brown color. When broken, the internal arrangement is porous and of a resinous lustre. The odor is cheese-like, and the taste

bitter and slightly acrid. When found powdered, it has a grey-green appearance; rubbed with water, the mixture presents a green color, and is not colored blue by iodine. Scammony contains about 80 or 90 per cent of *resin*, and is therefore very freely soluble in alcohol and ether. The resin is said to be identical with *Jalapin*, and is termed *scammonin*. The most frequent adulterants are other gum resins; starch and lime carbonate are also used. Scammony is a very powerful hydragogue cathartic, and is an exceedingly old remedy. Administered in form of CONFECTIO SCAMMONII BR. formulary, also as COMP. PILLS, with COLOCYNTH, and PULVIS SCAMMONII COMP. The dose of the drug is from 1 to 5 grains (0.06 to 0.3 grams).

The name is probably of Greek origin, and is spelt *Skammonia*, and Latinized into Scammonia, and Convolvulus from the form of its flower.

Dipterocarpus Turbinstus, Gurjun Balsam Trees. Also known in India as the Goa or Wood Oil Tree. Natural order Dipterocarpaceæ. Other species of this giant family also furnish the oil, such as the Dipterocarpus Gracillis, D. Hispeidis, and D. Littoralis. All the spices are to be found in India and the East India Islands. In general character of foliage these trees differ little from the species of Copaifera. The gurjun balsam or wood oil is obtained by boring into the wood of the tree; this excavation is then charred, and the balsam begins to exude. A single tree is said to yield a large amonnt of oleo-resin—as much as 30 gallons in one season. Gurjun balsam closely resembles balsam copaiba

in odor and taste, but may be distinguished from the latter by heating, by which means the gurjun balsam becomes a solid jelly, whilst the copaiba is rendered more fluid. Gurjun contains from 40 to 70 per cent of *volatile oil*, *resin*, and *gurjunic acid*. As a medicine, the gurjun balsam is used for the same diseases as the copaiba, and in the same doses. It is said to make a good varnish for protecting wood against insects.

Fraxinus Ornus, Ornus Europœa, the Flowering Ash, or Manna Tree.—Natural order Oleaceæ. Nativity somewhat in doubt; probably the countries lying along the Mediterranean Sea; found growing in Sicily. The tree attains a height of 25 feet, more or less, adorned with imparipinnate leaves, which are made up of 7 to 9 leaflets, these being oblong in shape, acutely pointed, and serrated. Flowers occur in dense, terminal panicles; corolla white, and somewhat drooping; fruit a capsule, long and narrow in shape. The manna of commerce is obtained by making incisions into the bark of the tree and inserting sticks, straws, etc., below the incision; the juice flows over these and concretes thereon. This manna is the flake manna of the stores. The mannas are concrete, saccharine exudations from the varieties of Ornus, and are found in uneven, porus, friable pieces, ranging from a cream to a dark-brownish yellow color. Odor rather faint, but the taste sweet and slightly bitter; containing *mucilage*, 90 per cent of *imannit*, *glucose*, *fraxin* and *resin*. Manna is a very old remedy, and spoken of in the Bible. Its effects

are demulcent, laxative, and said to have been a food in the early history of man. Dose, 1 to 2 drachms, usually given with senna or other medicine.

Guarana, Guarana Paullinia Sorbilis.—Natural order Sapindaceæ. Native of Brazil. This woody climber is adorned with alternate leaves on long petioles, and arranged impari-pinnately (unequally pinnate), having 5 oblong, oval leaflets, coarsely dentated as to their edges; about 5 inches in length and 3 inches broad with obtuse points. The flowers are arranged in axillary, spicate panicles, about 4 inches in length. Fruit, a capsule about the size of a grape, having 6 longitudinal ribs or ridges and a 3-valved pericarp. The seeds are covered by a flesh-colored arillus, which is easily separated when dry. The testa is almost black, and quite thin and hard. The seeds are dried, then powdered and mixed with water into a pasty mass; this is then made into cakes, and dried, either by the sun's rays or by artificial means. These cakes occur in commerce in sub-globular or in cylindrical masses, hard, and of a deep-red brown color; when broken, the fracture is uneven, showing many fragments of the seeds. Odor, agreeable and peculiar: taste, bitter, astringent, and granular; containing 4 or 5 per cent of *caffeine*, 26 per cent. of *tannin*, existing as *paullinatannic acid*, *starch*, *fat*, *mucilage*, *resin* and a volatile oil. Guarana is comparatively a new remedy in this country, but long known and used in South America as an article of diet, and designated by the natives as Guarana Bread. Its medical effects are tonic, nervine, astringent and stimulant; given in

form of powder and fluid extract. The dose of the powder is 8 to 60 grains (0.5 to 0.4 gram); of the fluid extract, 8 to 60 drops. Part of the name is said to be derived from Frederick Paullini, a botanist who flourished in the early part of the eighteenth century.

Kino, Kino, Pterocarpus Marsupium.—Natural order Leguminoseæ. Papillionaceæ. Native of Ceylon and other parts of the East Indies. This tree attains a height of 40 to 70 feet, adorned with pinnate leaves, unequal in their arrangement, with from 5 to 7 leaflets of a leathery texture, a dark-green color, elliptical in shape, and slightly emarginate. Flowers, white, with a slight tinge of yellow, in terminal panicles; they have 10 stamens, diadelphous above and monodelphous below; ovary has 1 or 2 cells; fruit, a legume, which is indehiscent and winged, and contains one black, kidney-shaped seed. The Kino of commerce is also obtained from other pod-bearing plants and trees, and from the Myrtle and Eucalyptus genus. The African or Gambier Kino is rarely found in the market. The varieties known as the West India Kino (Coccoloba Uvifera), Australian or Botany Bay Kino (from the Eucalypti Myrtle), and the Palas or Bengal Kino (Butea Frondosa) are all found in commerce. Kino occurs in small irregular pieces or fragments either of a dark-brown or of a ruby-red color, shining and brittle, having little or no odor but an exceedingly astringent taste, slightly sweet when chewed. Soluble in alcohol and alkaline solutions, and sparingly so in water. Kino cotains kino-tannic acid, gallic acid, kinoin, and a small quantity of ash, also

a coloring matter termed kino-red. Some of the varieties contain a large per cent. of gum. Kino is obtained by making incisions in the trunk of the tree, whence its red juice exudes, and becomes inspissated without the aid of artificial heat. Kino is tonic and astringent in its effects, and is given in form of powder, troches, and tincture. The dose of the powder is from 8 to 30 grains; of the tincture, 30 to 60 drops (2 to 4 grams). Kino is also called gum, Gambier, or Gambia, from the fact of being found on the river Gambia in western Africa.

Lactucarium, Lactucarium, obtained from the Latuca Virosa, wild or strong-scented Lettuce.—Natural order Compositæ. Native of central and southern Europe, and cultivated for the purpose of obtaining the Lactucarium, or lettuce opium. The wild lettuce is a biennial plant, rising to a height of two or three feet; stem erect, adorned with horizontal leaves, which are finely dentated, with a prickly keel, otherwise nearly smooth as to their surfaces. The radical leaves are obovate in shape, undivided, and resemble the leaves of the garden lettuce (Lactuca Sativa). Flowers of a light yellow color, and arranged in numerous panicles, with many small cordate bracts, Achenia striated, with a white beak as long as the small black fruit.

The L. Sativa, garden lettuce, and L. Scariola also yield lactucarium, but they are not considered so valuable, nor do they yield half the amount.

Lactucarium occurs in the stores in small, irregular pieces, but in commerce the pieces are circular, plano-convex cakes, externally of brownish-gray color, internally of a yellowish-white, possessing a waxy lustre when cut; odor heavy and opium-like; taste bitter and gummy; partially soluble in alcohol and æther, but forming a turbid mixture with water. Lactucarium contains *caoutchouc*, *resin*, *mucilage*, *sugar*, *asparagin*, *lactucin*, *lactucic acid* (crystalline), *lactucopicrin*, and 50 per cent. of *lactucerin*, which is said to be tasteless. Lactucin is the principal bitter found in the concrete juice of the lettuce, and crystallizes in pearly scales which are soluble in 60 per cent. of water.

The medical effects of the Lactucarium are anodyne, hypnotic and sedative. It is administered in form of syrup, powder, and fluid extract. A fluid extract of the root of the lettuce is also used, and said to be the French Lactucarium. Dose of the powder, 2 to 8 grains; of the extract, about the same amount; of the syrup, 1 or 2 fluid drachms (4 to 8 grams). The name is derived from the Latin *lac*, and has reference to its milk-like juice.

Narthex Asafœtida, Ferula Narthex Scorodosma Fœtidum and Ferula Scorodosma.—Natural order Umbelliferæ Orthospermæ. The Asafœtida plant is large and herby, arising to the height of 8 or 10 feet, adorned with long, green bipinnate leaflets, about 18 inches long, linear, obtuse, entire or sinuate in contour. Flowers in umbels, small and not at all showy. Fruit matures on partial umbels, supported on short foot-stalks, and number from 7 to 15.

The principal sources of the gum resin are Persia, western Thibet, Turkestan and Afghanistan. The asafœtida is obtained from the root, and the mode of procedure is to cut thin slices from the top and gather the milk-like juice. This is allowed to concrete in irregular masses, made up of whitish tiers imbedded in a brown or yellowish sticky mass, which as a rule contains many impurities, such as sticks, stones, vegetable fibre and calcium sulphate. Odor, garlicky and disagreeable; taste, bitter, alliaceous and acrid. Asafœtida is freely soluble in water, and with it forms milk-like emulsion. The gum is partly soluble in ether and alcohol. Asafœtida is said to contain, besides the usual impurities, 40 per cent. of *resin* and 30 per cent. of *gum*, in which is found a volatile oil containing 2 *terpenes* a *sesquiterpene* and two sulphur compounds, and traces of *acetic*, *formic* and *valerianic* acids. The oil is of a pale yellow color, very acrid, and with a very offensive odor.

The drug known to the ancients as Laser and Hengu is supposed to be the asafœtida of this generation. There is much diversity of opinion, however, upon this subject. The majority of writers are satisfied that the only source of the asafœtida of commerce is the Narthex Asafœtida. This drug has been used as a remedy from the earliest ages of man, and is still highly thought of as an anti-spasmodic stimulant, expectorant and laxative, the dose of which is 5 to 22 grains (0.3 to 1.5 grams), given in form of pills, emulsion and tincture.

Opium.—Opium is obtained from the green capsule or fruit of the Papaver Somniferum.—Natural order Papaveraceæ—and cultivated in western Asia for the opium contained in its capsule. We have already described the poppy plant under its proper head, hence repetition will be unnecessary. Opium, Meconium, Thebaicum, or Succus Thebaicus, as it has been variously called, is the evaporated juice of the poppy, and obtained by making incisions into the unripe capsule of the Papaver Somniferum. The juice is milk-like at first, but becomes on exposure dark and thick, and on further evaporation becomes the opium of commerce, which occurs in irregular or sub-globular masses, having the remains of leaves or other packing adhering to it. Good opium should be moderately heavy, free from mould, and of a rich brown color, with a heavy narcotic odor and bitter taste, and should yield 10 per cent of morphine. The varieties are the Smyrna, Turkey, Persian, East Indian, Egyptian, and Mozambique. Opium contains *mucilage*, *pectin*, *ash*. *glucose*, *wax*, *caoutchouc*, *fat*, *and meconic acid*, besides the alkaloids of *morphine*, *codeia*, *Thebaine*, *Narceine*, or *Narceine*, *Papaverine*, *Narcotine*, *Rhœadine*, also a secondary list, such as *Apomorphia*, *Apocodeia*, *Codamine*, *Cotarnine*, *Hydrocotarnine*, *Meconidine*, *Cryptopine*, *Landanine* and *Lactic acid*. Opium is poisonous, sedative, anodyne, anti-spasmodic and hypnotic in its effects, whilst the constituents have various effects. Narceine, Papaverine, Cryptopine and Codeine are hypnotic; the Narcotine is revulsive and anti-periodic; the Apomorphie an

emetic. The preparations of opium are more numerous than any other drug in the list of Materia Medica. It is given in form of TINCTURE, COMP. TINCTURE, WINE, EXTRACT, POWDER, and PLASTER; also as a DEODORIZED TINCTURE. The dose varies, and much depends upon the quantity of opium in the preparation. The dose of the tincture is from 10 to 25 drops; of the paregoric, 1 or 2 fluid drachms (4 to 8 grams); of the powder and extract, 1 or 2 grains. Opium is an ingredient in the Dovers powder, the aromatic chalk powder and comp. kino powders. For further account see Dispensatory, 17th Edition.

Pistacia Lentiscus, Mastiche or Lentisk Tree.—Natural order Terebinthaceæ Anacardiaceæ, native of the Grecian Archipelago, and cultivated in the Island of Scio. This tree or shrub rarely attains a greater height than 12 feet, adorned with pinnatifid leaves, the leaflets of which are small, oval and lanceolate in shape, and arranged in from 8 to 10 pairs; the flowers are without petals, diœcious in character, and in axillary racemes. The male flowers are in compound catkins, each supported by a bract having 5 stamens which are nearly sessile; ovary, one-celled; fruit, small, round and drupe-like, of a brown-red color and containing a solitary seed. The Mastich is obtained from the Pistacia Lenticus tree, by making vertical incisions into the bark of the male tree, and the juice allowed to concrete. Mastic or Mastich, as it occurs in commerce, is in globular or in elongated tears about the size of a pea, having a pale-yellow color and is semi-transparent,

easily fractured and becomes soft by chewing. Odor, balsamic and agreeable; taste, bitter and feebly terebinthinous; contains about 90 per cent. of *resin*, termed *alpha resin* or *mastichic acid*, and a trace of volatile oil, soluble in oil of turpentine, alcohol and ether. The Pistacia Cabulica, Bombay Mastic, differs little from the aforementioned, except that it is more opaque and less free from foreign material; both varieties are liable to be adulterated with the Sandarac. Mastic is an old remedy and used by the ancient Greeks as a medicine. In modern times used as a varnish and cement, it however still retains a place in the officinal preparations in form of the Pilulæ Aloes et Mastiches. As a mild stimulant, it has been used in chronic disorders of the mucous membrane.

Saccharum Officinarum, Sugar Cane.—Natural order Graminaceæ. Native of southern Asia and cultivated in other tropical and subtropical countries. The stem of the sugar cane arises to a height of 6 to 12 feet, much jointed and adorned with long linear leaves, enveloped in sheaths at the point of their insertion. Flowers in panicles 1 to 2 feet long, wavy and silvery in appearance; this is due to the long hairs attached to the florets. The sugar cane is cultivated by cuttings, and takes about 12 months to come to maturity; it is then cut and the juice (which is between 70 and 80 per cent. of the cane) expressed. From this 80 per cent. of juice we obtain 18 per cent. of sugar. The expressed liquid is saturated with lime for the purpose of removing the acid present; it is then heated. This prepared fluid is then al-

lowed to separate and evaporate until it becomes granular, the molasses or treacle is drained off, and the raw sugar undergoes a refining process, such as dissolving, reheating, filtering through charcoal, etc. Refined sugar, white sugar, crushed sugar, loaf sugar, are terms applied to the same sugar. Occurs in crystalline pieces or granular masses; inodorous, but sweet to the taste; soluble in cold water and more freely so in hot water; sparingly soluble in alcohol and insoluble in ether. Forms with water a colorless syrup; the specific gravity of sugar is 1.60. The inferior sugars of commerce are whitened with Prussian blue or ultramarine. The Saccharum album of the first grade when recrystallized forms the rock candy (saccharum crystallizatum) which occurs in very large crystals. Sugar is obtained from the palms in the East and West Indies. In France, Germany, Austria and Russia, the beet is the principal source of sugar. The maple of our own country affords a good quality of sugar; barley is also another source of sugar. Cane sugar, when heated to 200° C. (292° F.) is converted into burnt sugar or caramel.

The cane sugars are universally used as a luxury in all the civilized countries of the world, and in medicine as a demulcent and preservative of fruits, petals, etc. It forms an agreeable adjunct to otherwise nauseous remedies. When an aqueous solution is exposed to the light and heat for any length of time, it is converted into glucose, and becomes fermentable. The grape sugar (saccharum uveum) is also known as starch sugar or glucose. This is ob-

tained by boiling starch in dilute sulphuric acid, any excess of acid being removed by lime carbonate, and the solution is then filtered and evaporated. Glucose or grape sugar is less sweet than cane sugar, and occurs in creamy white masses or irregular granules soluble in water. When an aqueous solution is mixed with alcohol it yields a white precipitate. The commercial glucose is a mixture of *dextrin* and two peculiar sugars called *levulose* and *dextrose* whilst the solid substance that is called grape sugar, is a mixture of *dextrose* and *levulose*. The word glucose is a term used in rather a random manner, but the liquid grape sugar of commerce contains a great deal of dextrine, and is more generally known as glucose. All the preparations are fermentable.

Saccharum Lactis, Milk Sugar.—This peculiar substance is to be found in the milk of all the mammalia, and nowhere else. It is obtained by evaporating the milk and then purifying by recrystallizing. The milk is first acidulated with diluted sulphuric acid, which is allowed to stand days and even weeks, until the sugar collects upon such material as the manipulator prefers, generally cords, small sticks, etc. Milk sugar crystallizes in four-sided prisms, often adhering in cylindrical masses. Sugar of milk is white, hard and gritty, with a feeble sweet taste, and a neutral reaction. Sugar of milk, lactin or lactose is prepared on a large scale in many of the European countries as an article of food, and it is recommended by Dr. Turnbull, of England, as an article of diet in all wasting diseases. Milk sugar will not form a

syrup with water. It is insoluble in alcohol and ether, and by boiling its solution we obtain caramel. It does not undergo vinous fermentation, except by the action of some acid which converts it into a glucose. Milk sugar, up to this time, is rather used as an inert vehicle for supplying the place of some ingredient, as is the case with the Dovers powder, substituting Milk sugar for potassium sulphate, which should never have been done.

Syrupus Fuscus, Molasses, also known as Treacle, Theriaca and Saccharifæt.—Obtained in the manufacturing and refining of sugar. Molasses occurs in various colors and degrees of consistence from a very dark semi-fluid to a light brown, honey-like syrup. All the grades are sweet to the taste and fermentable, and not crystallizing by rest or evaporation, having a specific gravity of 1.40. By boiling the juice of the cane sugar in vacuo, the quantity of sugar is increased and the molasses diminished.

BALSAMA ET OLEORESINÆ—BALSAM AND OLEORESINS.

These constitute a number of natural vegetable products, containing resin and volatile oils, varying in proportion. They are usually semi-liquid and unctuous, and some contain benzoic and cinnamic acids. Medicinally, they are antiseptic in their nature, and for this reason are held in high esteem as curative agents.

Many of the balsams act specifically upon the mucous membrane. Many of the oleoresins become hard and brittle on exposure to the air, due partly to loss of their volatile principle, and go to form ingredients with other substances in making plasters, ointments, etc.

Abies Balsamea, American Silver Fir, Balsam Fir, Canada turpentine tree.—Natural order Coniferæ. Native of the northern parts of the United States and Canada. This tree often attains the height of 40 feet, and is adorned with solitary, small, flat leaves, entire or emarginate in their outlines. Cones (fruit) large, cyndrical and erect, of a purple-like color, covered with a resinous exudation, which gives

them a varnished-like appearance; flowers monœcious, the male flowers in solitary catkins and the female flowers in simple ones. Balsam of Fir, or Terebinthina Canadensis, Canada Turpentine, is obtained by incisions. The exudation occurs as a yellowish or greenish-yellow, transparent, viscid liquid, about the consistence of honey, having an agreeable, balsamic odor, with a bitter and slightly acrid taste, and belongs to the turpentines. Balsam of Fir is soluble in alcohol, ether and chloroform, and contains about 25 per cent. of volatile oil, *resin* and a bitter principle. The Venice or larch turpentine is obtained from the Larix Europœa, and resembles in many particulars the above-mentioned balsam. Both turpentines are liable to be adulterated with resin and turpentine, particularly the Venice, which is often composed entirely of a mixture of turpentine and resin. Both have been used as diaphoretics and diuretics, and as a rule they are employed externally.

Balsamodendron Myrrha, *Myrrh.*—Natural order Burseraceæ. This bush or shrub forms an undergrowth in the forests on the shores of the Red Sea, in Africa and Arabia; it is also found in the mountains of Abyssinia. The Myrrh rarely attains a greater height than 10 feet, and is adorned with ternate leaves, the leaflets of which are obovate and obtuse in outline, but denticulated at the apex; ornamented with flowers composed of 4 petals and 8 stamens, which are inserted under a cup-shaped disc, under which is a 2-celled ovary; fruit, almond shaped and about the size of a buckshot. The gum Myrrh exudes

spontaneously, and dries in irregular tears or masses of a brown, or a brown-red color; when broken, the fracture is waxy and splintery; odor, of its own kind and balsamic; taste, bitter, slightly acrid, and to most people pleasant. When rubbed with water the mixture does not become white, which is the case with the other gum resins. Myrrh is freely soluble in alcohol and ether. The inferior qualities of Myrrh are like those of the other gums gathered from the ground; the fragments or masses are dark and very unsightly in appearance, and contain sand, sticks and other foreign matter. Gum Myrrh contains nearly equal proportions of *resin* and *gum*, the *resin* predominating by about 10 per cent., the average being 50 per cent., a small quantity of volatile oil named myrrhal and a bitter extractive matter. The gum myrrh has tonic, expectorant, stimulant and emmenagogue properties. This gum has been an article of trade from the earliest history of man, and is frequently mentioned in the Bible as an offering of value. The name is probably of Arabic origin, and signifies bitter; from the Latin *myrrha*, a kind of stone, and the Greek *murrha*, Myrrh.

Boswellia Thurifera, Boswellia Carterii, Olibanum, or Frankincense Trees.—Natural order Burseraceæ. The two species of the Boswellia yield the Olibanum of commerce. The Olibanum trees are found at an elevation of several thousand feet above the level of the sea, on the southern coast of Arabia and the eastern coast of Africa. These trees with their handsome green foliage, are said to perfume the air with their balsamic odor for miles around. The

branches are adorned with ovate, oblong leaflets, arranged in pairs, numbering from 7 to 10, whilst the flowers are in long racemes, and arise from the axil of the leaf stalk; fruit, somewhat like an almond in size and shape. Gum Olibanum exudes spontaneously from the bark in the form of a milk-like juice, but becomes on exposure of a brownish yellow or of a brown-red color. The tears or masses are of irregular shape, from the size of a pea to that of a marble; odor agreeable, balsamic and terebinthinous; taste bitter, aromatic and balsamic; forms with water a milk-like mixture, but with alcohol a partial solution. Olibanum contains from 60 to 70 per cent. of *resin*, 20 or 25 per cent. of *gum*, and a small quantity of *volatile oil*, which is termed *Olibene*. Olibanum was an offering to the Divinity, and as an article of commerce has been known from the most remote age of man. It has been used as a stimulant and expectorant, but is almost obsolete as an internal remedy, though largely used as an ingredient in plasters, either alone or with other gum resins or spices; also an ingredient of incense in church ceremony. Most of the gum is said to come from the port of Bombay. The origin of the name is uncertain, but it is probably derived from the Hebrew word *lebonah*, which signifies milk. The allied gums are the Elemi and Bedellium, the former gum from the Canarium, Cummune, or Java almond or Elemi tree, and the latter from the Balsamodendron Mukel. The Elemi is also known as the pitch tree, and is used for caulking boats in the Island of

Java. There are many varieties of the species yielding this gum or pitch. It is rarely found in the stores as a remedy.

Copaifera Multijuga C. Laugsdorfii, C. Officinalis, etc., Copaiba Trees.—Natural order Leguminosæ Cæsalpineæ. A native of Central America, Brazil, Venezuela and other South American countries. The trees that furnish the Balsam Copaiva of commerce are all lofty woodland giants, adorned with alternate and pinnatifid leaves, the leaflets of which are leathery (coriaceous) in texture and ovate in shape, whilst the flowers are in compound axillary and terminal spikes; fruit, a legume, leathery, two-valved and one seeded. Copaiba is an oleo-resin, which is obtained from incisions made in the trunk of the above trees, the viscid liquid being caught in various kinds of receptacles. The balsam from the port of Rio Janerio is almost like olive oil in appearance; the Para is also limpid and pale, whilst the Maracaibo is thick, of a dark brown color and often turbid. The best qualities of Copaiba contain betwen 50 and 80 per cent. of volatile oil. The adulterants are turpentine and Gurjun balsam. Copaiba contains volatile oil, *resin*, a bitter principle, and three acids, *Copaivic*, *oxycopaivic metacopaivic*, the last two acids are capable of crystallization. Copaiva is a stimulant, diuretic, expectorant, laxative and nauseant, and is given in doses from 8 drops to 60 (0.5 to 4.0 grams), either alone or in form of an emulsion.

Ecballium Officinarum, Ecballium, Elaterium, (Momordica), Squirting Cucumber.—Natural order Cucurbitaceæ. Native of western

Asia, and cultivated at Hitchin and Mitcham, England, also in some of the southern parts of Europe. This annual trailing plant closely resembles in general character our cucumber vine. The trailing stems are adorned with cordate leaves, crenately-toothed as to their edges; surfaces pubescent and on long petioles; flowers yellow, monœcious, with stamens united in three sets (triadelphous); the style trifid and the stigmas bifid; fruit, ovate in shape, about 1½ inches long; seeds, numerous, brown in color, compressed and reticulated. When the fruit is plucked from the vine it suddenly contracts, and ejects from the scar left by the stalk its seeds and juice. The juice of the nearly ripe fruit is the Elaterium of the stores, which is obtained by straining it through some fine muslin or a hair sieve. The strained juice is then dried rapidly on porous tiles or bibulous paper. Elaterium occurs in gray or light buff colored, flattish fragments, very light in weight and easily broken; when fractured it shows a granular nature; the odor reminds one of tea, whilst the taste is intensely bitter, with slight acridity. Elaterium is converted into Elaterin by the action of chloroform and ether, and contains about 27 per cent. of this active principle, 8 per cent. of *Chlorophyll*, *Prophetin*, *Ecballin* and bitter extractive matter. Elaterin is crystalline and fusible at 392° F. soluble in chloroform and hot alcohol. It is said that it requires 40 pounds of the fruit to obtain ½ ounce of Elaterium. The chief adulterants are the calcium salts and starch; in its medical action Elaterium is a powerful hydrogogue cathartic. The dose of Elate-

rium is $\frac{1}{8}$ to $\frac{1}{4}$ grain (0.008 to 0.016 grams), whilst, the dose of the Elaterin is $\frac{1}{16}$ to $\frac{1}{12}$ grain, in form of pill or alcoholic solution. This very old drug was known to Greeks, and called by them *ecballa*, which signifies to expel, also by the Greek word *eletarion*, which applies to its powerful, expulsive action on man. Squirting cucumber is a name given it because, when fully ripe, it expels part of its contents on being removed from the vine.

Galbanum Galbanum, Gummi-resina Galbanum. — Natural order Umbelliferæ Orthospermæ. This gum is obtained from many species of the Umbelliferæ found in the East, but mostly from the Ferula Galbaniflua and the Fenela Rubicaulis, which are natives of northern and southern Persia. These plants attain a height of 4 or 5 feet, with very thick, solid stems, ornamented with grayish tomentose leaves. Galbanum exudes spontaneously from the stem of the plant, and like all the gum resins, it is fluid and either transparent or milky at first. becoming brown and hard on exposure to the air. The Galbanum as it occurs in commerce is from the size of a mustard seed to that of a small marble; of brown or yellowish brown color, having a waxy appearance; taste, bitter and aromatically pungent; odor, of its own kind, balsamic and agreeable. The gum is often found agglutinated and in masses; often so soft that it will spread over a large surface. This is distinguished from the tears by being called in commerce lump Galbanum, and is considered of inferior grade. It is obtained from the Ferula Rubicaulis. Galbanum

is not soluble in water, but forms a milk-like emulsion not unlike the asafœtida and ammoniac; neither is it perfectly soluble in alcohol and ether. Treated with alcohol and a slight quantity of muriatic acid the solution becomes of a purple color. Galbanum contains between 60 and 70 per cent. of *resin*, 15 or 20 per cent of *gum*, and a small quantity of *volatile oil*; upon dry distillation yields a blue volatile oil, and a substance termed Umbelliferone, which occurs in rhombic crystals. The history, both ancient and modern, on the subject of Galbanum, is somewhat antagonistic and obscure. The Hebrews called it *chelbenah*, and used it as an ingredient of the incense offered in their worship; under the name of *kinnah* it was known to the Arabians, whilst the many writers on medicine believe the source of Galbanum to have been the juice of the Narthex.

Garcinia Morella, Garcinia Hanburii, Variety Pedicellata, Gamboge Tree.—Natural order, Guttiferæ. Native of Siam and Cochin-China. This tree attains an altitude of 50 feet, and is adorned with laurel-like leaves, obovate, elliptical and abruptly pointed, ornamented with small yellow flowers in axillary clusters; the calyx is also colored, with 4 sepals; stamens numerous, female flowers sessile, the pistil surrounded by the abortive stamens; fruit about the size and color of the black-heart cherry. The tree abounds in yellow juice, semi-fluid in character, which is obtained by making incisions into the bark; this is collected in bamboo joints, which are about 2 inches in diameter. Gamboge occurs in commerce in the form of

cylindrical pieces which are often hollow in the centre, also in cakes, the latter being obtained from the broken leaves and twigs, the juice of which the natives allow to flow into cocoanut shells; it is then placed in earthern vessels and exposed until it hardens; this latter is termed cake Gamboge and the former pipe Gamboge. Gamboge is of an orange yellow color, of waxy appearance, makes a mixture with water, and is partly soluble in alcohol and ether, and contains 80 per cent of *resin* (gambogic acid so considered), and from 16 to 20 per cent of *gum*. In its action Gamboge is a hydragogue cathartic and is rarely administered alone, but given in conjunction with other remedies; much used as a pigment in the arts; derivation of the name obscure, but supposed to be called after those who first described the tree.

Guaiaci Resina. Guaiac Resin. Obtained from the Guaiacum Officinale.—Natural order Zygophyllaceæ, and found in South America and West India Islands. The large tree yielding this resin has already been described, and therefore we shall only speak of the exudation, which is obtained in three ways, viz., by incision, by heating the heart wood of the trees, and by boiling the chips in water. The resin occurs in commerce in very irregular masses, occasionally in small, globular pieces, of a red brown or greenish-brown color, with a metallic lustre. When held in the hand for a few moments it gives off a feeble aromatic odor. Taste, bitter, spicy and acrid. Spirits of nitre turns its solution green, and the tincture of iron, blue. The resin contains an acid and a

yellow coloring matter, both capable of crystallizing; also two other acids, termed *guaiaretic* and *guaiaconic*, one of which is amorphous; also some *gum*, *ash*, *guaiacene* (which has a bitter almond odor), an aromatic oil termed *creosol*, and *guaiacol*, a colorless aromatic oil. The resin guaiac is an alterative, diaphoretic and stimulant, and given in doses from 8 to 30 grains, in form of troches, pills, tinctures, and glycerites. The three former preparations are officinal.

Palaquium Oblongifolium, Isonandra Gutta, Gutta Percha Tree.—Natural order Sapotaceæ. This is an evergreen tree, arising to a height of 50 or 60 feet; found growing in Sumatra and other parts of the East India Islands. The branches of the tree are adorned with alternate ovate-oblong, leathery, shining green leaves, the under surface of which is covered with a russet-brown pubescence. Flowers resemble the holly in character and color; they are arranged in axillary clusters. The tube of the corolla has within its throat 12 stamens, with extrorse anthers. Fruit, fleshy, hard, and 6-celled, containing an oily seed in each cell. The trunk of the Gutta Percha Tree abounds in a milk-like juice, which is collected and allowed to harden in the air, which it does very rapidly. Gutta Percha is imported in blocks, weighing about five pounds, more or less. In appearance it is of a pale brown color. The mass or blocks are purified by softening in hot water, and then separated into sheets or shreds by machinery. These shreds are tough, elastic and flexible; of a chocolate-brown color;

soluble in volatile oils, carbon bi-sulphide, benzole and chloroform. Gutta Percha becomes very soft in boiling water; it has little odor, and is entirely tasteless. Contains a yellow *resin*, (*fluavil*), and a white *resin*, (termed *albane*), of crystalline form—*pure gutta* is of extreme whiteness, found either as a solid or fine powder.

Gutta Percha is used in the arts as a waterproof dressing; in medicine as a protective and adhesive agent for abrasions, wounds, etc., also manufactured into pessaries, bougies, and other surgical appliances. The name is from the Latin *gutta*, a drop, and the Malay word *percha*, signifying ragged gum.

This must not be confounded with Caoutchouc, or India Rubber, which is used for the same purposes. Caoutchouc gum, or Resina Elastica, is the milky juices of plants and trees belonging to the natural order of the Euphorbiaceæ, and when incorporated with 10 per cent. of sulphur forms the vulcanized rubber of commerce: when a larger per cent. of the sulphur is used, (with the addition of pressure), the ebonite or vulcanite rubber is obtained which goes to form the many useful articles of trade — pessaries, syringes, bougies, knife handles, etc.

Myroxylon Pereriœ, the Balsam of Peru Tree.—Natural order Leguminosæ Papilionaceæ. Is native of Central America and naturalized in the Island of Ceylon, and, according to Dr. Royal, is adorned with imparipinnate leaves, the leaflets of which are arranged in 5 to 11 pairs; these are oval-oblong and abruptly

pointed in shape. Flowers in loose racemes 6 to 7 inches long. Fruit, one-celled and one-seeded, winged and indehiscent, with unequal sides, about 3¼ inches long. Seed sub-reniform in shape, with a thin testa.

The tree is a lofty one, and the balsam is obtained by loosening the bark by means of heat and charring. The exudation is collected on rags, which are then placed in hot water, after which they are subjected to pressure. The balsam as it occurs in commerce is a thick, brownish, syrupy liquid, with an agreeable odor, having a warm, balsamic taste, afterward becoming acrid; fairly soluble in alcohol. It has an acid reaction to test paper. Balsam Peru contains about 50 or 60 per cent. of colorless, aromatic *oil*, 30 per cent. or more of *resin*, *cinnamein* or *benzylic cinnamate*, and by destructive distillation yields *styrol*, *benzoic acid*, *benzylic benzoate*, *stilbene*, *styracin*, and *toluol*. By expression of the seed we obtain a semi-solid substance, termed Balsamo Blanco, or white Balsam. This substance should not be confounded with Balsam Tolu, which it resembles to some extent, but it has a distinctive odor of its own kind by which it may be readily distinguished. The Balsam is not infrequently adulterated with fixed oils and and resins; these may be detected by agitating the Balsam with petroleum benzine. The oils are soluble, whilst the resins form a sticky mass.

Balsam Peru has stimulant, expectorant and vulnerary properties, and may be given in form of an emulsion, in doses of 30 drops (2 grams).

It is rarely used internally, but highly recommended as a wash in inflammatory conditions of the mucous membrane.

The Sweet Gum (Liquidambar Styraciflua), which is a native of Mexico, Central America and the United States, and belongs to the natural order of Hammamelaceæ, is very much like tolu, and having the odor and taste of storax, may be used for the same purposes. Not officinal. See Dispensatory, page 1686.

Myroxylon Toluifera, The Balsam of Tolu Tree.—Natural order Leguminosæ Papilionaceæ. Native of South America; found grow-in Venezuela and New Granada. This large evergreen forest tree closely resembles Balsam Peru tree in the general character of its leaves, flowers and trunk, and was considered for a long time as identical, but Mr. Achille Richards believes it to be a distinct species, and therefore decided to give it the name of Myroxylon Toluiferam. The balsam Tolu is obtained by making V-shaped incisions in the bark of the tree, and receiving the exuding juice in large gourds (calabash); this juice is then allowed to concrete in brownish-yellow semi-fluid or solid masses before it is ready for commercial purposes. Balsam Tolu has an agreeable, balsamic odor, an aromatic, agreeable taste, but becomes acrid on being held in the mouth for any length of time. The constituents and adulterants of Tolu are about the same as the balsam Peru, though perhaps more resin is used in its adulteration. Tolu is a stimulant, expectorant and vulnerary, is employed in forms

of tincture, syrup, and also as an ingredient in Comp. Tincture of Benzoin; all of which are officinal.

Calamus Draco, Sanguis Draconis, Dragon's Blood, Draconis Resina.—Natural order Palmaceæ This resin is obtained from the fruit of many species of Calamus, most frequently from the Calamus Draco and Calamus Rotang. They are small palms found growing in Sumatra, Borneo and the adjacent islands. The dragon's blood issues spontaneously from the fruit of the small palms, and is separated from the debris by heat and then moulded. It occurs in sticks or globular pieces of a dark brown color externally, and of a bright red internally; when heated gives off an odor resembling benzoin; soluble in alcohol, chloroform, and benzol; contains *resin*, *benzoic acid*, *cinnamic acid* and a *waxy matter*. Dragon's Blood is a mild astringent and stimulant, but is rarely used internally, mostly employed for varnishes and as an ingredient in plasters and tooth powders. The name is derived from its supposed resemblance to the blood of the fabulous animal called the dragon.

Styrax Benzoin, Benzoin or Benjamin Tree.—Natural order Styraceæ. Native of Sumatra, Borneo, Java and Siam. This tree, a large one and of quick growth, sends from its trunk many branches, covered by a whitish, hoary bark; the twigs are adorned with alternate, oblong and acuminate leaves, the upper surfaces of which are smooth, whilst the under side is *hairy* (tomentose); the flowers are as long as the leaves, and occur in compound, axillary

racemes; corolla, 5-parted and of a gray color, having 10 stamens, the filaments of which cohere at the base; ovary pubescent and adhering at the base, with three incomplete cells. The Benzoin of commerce is obtained by making incisions in the tree when about 7 years old; this gum is known as the head, belly and foot Benzoin or gum Benjamin, the above names signifying the quality; the first flow of the gum being considered the best (head); by continued tapping, the tree is soon dead, then the inferior qualities are obtained. Benzoin occurs in aggregated and agglutinated masses, consisting of yellowish brown tears, having here and there milk white masses imbedded within; odor agreeable and balsamic; taste aromatic and somewhat acrid. When heated Benzoic acid is given off in fumes, which in turn are deposited in feathery, colorless, acicular crystals. Resin Benzoin is soluble in some of the alkalies and alcohol. Gum Benzoin contains about 20 per cent of *benzoic acid*, *vanillin*, *cinnamic acid*, *paraoxy-benzoic acid*, and 2 or more *resins*. Benzoin and its preparations are stimulant, expectorant and protective in their action, rarely used internally, except as an inhalant in throat affections. The officinal preparations are the simple compound tinctures and the benzoated lard. The resin is frequently an ingredient in the sachet powders and incense of the perfumer. The resin from the plant Xanthorrhœa Hastilis (acaroid resin) natural order Liliaceæ native of Australia, gives a spontaneous exudation from its leaves which resembles dragon's

blood in appearance, but having the identical constituents of the benzoin and only differing in proportion. The source of the benzoic acid is not from the benzoin, but from the artificial sources of toluol, from phthalic acid, and from hippuric acid which is found in the urine of cows and horses. See Dispensatory.

GUMATA—GUMS.

The gums, like other hardened juices obtained from the vegetable kingdom, have their own peculiar characteristics. Although exuding spontaneously, and becoming hard like many of the gum resins, they differ from these substances by dissolving in water or forming a jelly-like mass, which becomes adhesive on drying. They are classified into Arabin, the soluble series, and Bassorin, the partly soluble series. They differ again in their behavior towards the acetate of lead one of which it precipitates.

Acacia, Gum Arabic, from the Acacia Vera, or Verek, and other species of Acacia.—Natural order Leguminosæ Mimoseæ. Native of and found in eastern and western Africa, in or about Kordofan, near the river Senegal. The species of Acacia, either shrubs or trees, are adorned with bipinnate leaves, entire, and somewhat ovoidal in shape. Flowers polygamous, and usually in racemes or spikes, and are found yellow, white or red as to their petals. Fruit a dry, luguminous pod, bivalved

and containing from 3 to 6 seeds. Acacia exudes spontaneously from the trees or from incisions made into the bark of the tree, and occurs in commerce in the form of spheroidal tears, or in broken, angular fragments with shining and glass-like surfaces, showing many minute cracks or fissures. The best qualities of gum are opaque, from the numerous fissures, and nearly colorless; inodorous, with an insipid and mucilaginous taste. Gum Arabic is insoluble in alcohol, but soluble in water. The aqueous solution gives no precipitate with neutral acetate of lead, but forms with the subacetate an opaque, white precipitate, and is not colored blue by idodine. Gum Acacia contains *arabin*, or *arabic acid*, in combination with the salts of *lime*, *magnesium* and *potassium*. The varieties of Acacia are numerous, and are produced from the species found in Morocco, Cape Colony and Australia. The Kordofan gum, just described, is the most valuable; the next in value is the Senaar gum. The Acacia known as the Savakin (Suakin) gum is very brittle and of handsome appearance, but is not so freely soluble in water as the above varieties.

The gum known as the East India is mostly obtained from Eastern Africa, and shipped from the port of Bombay. The Senegal gum is usually found in larger tears than the preceding, more transparent, and of yellow or brown-red color. The North American gum (Mezquite), from the tree (described by Messrs. Torrey and Gray) Algarobia Glandulosa, found in western Texas and Mexico is mostly of a red-brown or

yellow color, and resembles to a high degree the inferior grades of the Senegal Gum Arabic.

The medical properties of Acacia are principally protective and demulcent. It was known to the early Egyptians and used by them as an ingredient in paints. The word is derived from the Greek word *kammi*, and the Latin *gummi*.

Astragalus Gummifer, Astragalus Verrus, Tragacanth, Gum Tragacanth.—Natural order Leguminosæ Papillionaceæ. These small, tangled, thorny bushes, bearing the gum found in the stores, are natives of Armenia, Kurdistan, and the mountain districts of Central Asia. The bush resembles the English furze to a high degree, and is ornamented with five or six oblong, linear, smooth leaflets. Flower yellow, and in axillary clusters; 10 stamens in two sets. Fruit a legume, having two cells.

Tragacanth either exudes spontaneously or is obtained by incisions made into the bush. The best gum is obtained by this means; the inferior gums from the spontaneous exudation. Flake Tragacanth occurs in irregular opaque pieces, and differs from the other varieties by being broader and more transparent. The inferior Tragacanth, or Sorts, are subglobular, conical or irregular in shape, and of dark brown color, and often adulterated with other species of gum. Tragacanth does not dissolve in water like the acacia, but swells and forms a jelly-like mass, which is colored blue by iodine, although some authorities assert that the Tragacanth is the soluble gum found in Tragacanthin, and that it only differs from Arabin in some of its reactions. Tragacanth, there-

fore, is made up of two distinct gums, termed Tragacanthin and Bassorin, together with a small quantity of *starch*, *calcium carbonate*, and 3 per cent. of *ash*.

Tragacanth is principally imported from Smyrna and the Levant. Besides the aforementioned varieties, there are the Astragalus Microcephalus, A. Pycnocladus A. Stromatodes, and A. Aristatus, all of which varieties are liable to find their way into the commercial world.

GUMMI RESINÆ—GUM RESINS AND RESINÆ—RESINS.

The first are milky exudations of certain plants, which are really compounds of gum, resin and other products of vegetable origin, which exude from incisions made into the plant or tree, and are partially soluble in water forming emulsions. Alcohol and ether dissolve them almost entirely, whilst the Resins are solid, transparent (or nearly so) vegetable products, which are insoluble in water, but soluble in oils, alcohol, and ether.

Pinus Palustris, Pinus Australis. The long-leaved Pine, Yellow Pine, or Pitch Pine.—Natural order Coniferæ. Native of the southern parts of the United States, from Virginia to the Gulf of Mexico. This large tree, with its leaves arranged in threes with pinnatifid stipules, is the origin of the common turpentine of the stores (Terebinthina Communis), and known as gum turpentine. This substance exudes spontaneously, also by means of incisions into the tree. When found in commerce it is in large lumps or irregular masses, of a creamy

white color, inclining to a yellow; by age and cold it becomes solid and opaque, showing a crystalline-like fracture when broken. Odor, of its own kind; taste, bitter, gummy and acid Turpentine, or American Frankincense, contains 20 or more per cent. of *abietic anhydrid* (abietic acid crystals), *formic*, *succinic acids* and *oil*. Turpentine forms with hydrochloric acid an artificial camphor, which is a crystalline compound. Turpentine is a stimulant, stringent, diuretic, diaphoretic and anthelmintic, the dose of which is 15 to 30 grains (1 to 2 grams), given in form of pills, and enters into the Emplastrum Galbani and Charta Epispastica as an ingredient.

Pix Liquida, Tar.—This empyreumatic Oleoresin is obtained by the destructive distillation of the wood of the Pinus Palustris, and other species of the Coniferæ. Tar occurs in commerce as a blackish-brown, semi-fluid substance, either in barrels or cans, becoming granular by age and exposure. The odor is of its own kind, empyreumatic, with a decided reminder of the turpentine; taste, sharp, bitter and empyreumatic. Tar is slightly soluble in water, but freely so in alcohol and strong alkaline solutions. Tar contains methylic alcohol, toluol, xyol, mesit, cumol, acetic acid and methol, all of which, by distillation of Tar, pass over with the light oil of tar. Tar also contains *creosote*, *phenol*, *paraffin*, *pyrene napthalin*, *chryssene*, *pyrocatechin*, and *resin*. *Pyrocatechin* is a crystalline substance, soluble in alcohol, ether and water.

The Juniper Tar, or Oil of Cade, is obtained from the destructive distillation of the wood of the Juniperus Oxycedrus, and is analagous to the oil of tar. Tar and its preparations are stimulating, insecticide and irritant. They are given in form of syrup, wine and glycerite, and externally applied as an ointment. The dose of the wine and syrup is 1 to 2 fluid drachms (4 to 8 grams).

Abies Excelsa, Pinus Abies, Norway Spruce or Burgundy Pitch Tree.—Natural order Coniferæ. This tree often attains the height of 150 feet, and is a native of Europe and northern Asia. The branches are adorned with short, four-cornered leaves, which are often curved. The male flowers are in axillary catdins, and of a purple color; the female flowers are of the same color, but inflorescent in terminal catkins. The fruit is in pendant purple cones, the scales of which are ovoidal with ragged edges. Stigmas glandular; ovaries two in number, and seeds dicotyledonous, digitale and pastile.

It is said that the European Silver Fir Tree is the chief source of the Burgundy pitch; we know that it is obtained from these species of Abies, and that after incisions into the tree the resin exudes spontaneously. Pix Burgundica, Burgundy, occurs in commerce in yellowish or brownish opaque masses, usually taking the form of the receptacle in which it is kept. Burgundy Pitch contains *volatile oil*, *resin* and a variable proportion of water, and is distinguished from the spurious varieties by lacking their

bitterness. Used in plasters and ointments as a stimulant and counter-irritant.

Colophonium, Resina Colophony, Resin, and comonly known as Rosin.—Obtained from the various species of pines growing in the southern parts of the United States, which belong to the Coniferæ family. The *volatile oil* is distilled from the *turpentine*, and the residue is the Rosin of commerce. Resin occurs in semi-transparent masses, from the size of a marble to that of twenty-pound lumps. When free from foreign matter, such as sticks, sand, and like debris, the color is of a handsome amber. This is the yellow Resin, which when melted and agitated with water becomes relieved of some of its impurities, and constitutes the Resina Alba (white rosin) of the stores. Resin is soluble in alcohol, ether and the fixed and volatile oils, also in the alkalies. Resin is known to the chemists as the *anhydride of abietic acid*, because by agitating the powdered Resin with alcohol, *abietic acid* is found. Rosin is a mild stimulant, but is rarely given internally, and is an ingredient in many of the officinal plasters and ointments of the pharmacopœia. For account see Dispensatory. Rosin is largely used in the arts.

OLEA FIXA—FIXED OILS.

Olea Fixa, Fixed Oils; also known as Fatty Oils.—Like the volatile, they exist both in liquid and solid form. The vegetable oils are divided into the drying and non-drying, and these are again divided into groups—the Olive Oil group, the Cottonseed Oil group, Linseed Oil group, Castor Oil group, Whale Oil group, Lard Oil group, Tallow group (solid fat oils), and the Spermaceti group, which latter substance is placed under the head of waxes. This group differs from the true fixed oils and fats by not yielding glycerine when saturated with the alkalies of potassium and sodium. The fixed oils of vegetable origin are mostly obtained by cold process—that is by a powerful pressure; whilst those of animal origin are obtained by heat, directly or indirectly applied. All the fixed oils in their natural state, whether they be of animal or vegetable origin, consist of two or more distinct ingredients of an oleag-

inous nature; the liquid portion is termed olein, and the solid or concrete portions are called stearin and palmitin. The former substance predominates in the animal oil or fat, and the latter in the vegetable oils, although they may both exist in the same fat or oil. Thus olein is the liquid principle of all fats, though it is difficult to obtain in a pure state; palmitin or palmitic acid, is found in the semi-liquid fats, such as cocoanut oil, butter, palm oil, etc.; whilst stearin is abundantly found in animal fats. There are also many other principles beside the above mentioned existing in the fixed oils and waxes, such as butyrin, caprin, etc., the whole of which are termed by chemists glycerides, and further designated by them as salts or ethers of the triatomic alcohol glycerine, $C_3H_5(OH_3)$. For further information I refer you to the Dispensatory, page 905; 17th ed., or to some modern work on chemistry. The specific gravity of the fixed oils is less than that of water, the exceptions being some of the solid fatty substances found and incorporated with them, and termed Oils. The fixed oils, with but a few exceptions, are insoluble in alcohol and universally leave a greasy stain upon bibulous paper. They are particularly subject to rancidity and should therefore be kept in well closed vessels.

Oleum Amygdalæ Expressum, Expressd Almond Oil.—Obtained from the seeds of the Sweet and Bitter Almond by expression; (the Amygdalus Communus.) The process of extracting the oil from the seeds is first to deprive the almonds of their shells; they are then ground in a mill or bruised in a mortar; after which they are placed in canvas bags and subjected to pressure between plates of iron or wood. The oil as it comes from the press is turbid, but by standing and filtration it becomes transparent, with a slight greenish color; has a specific gravity between 0.90 and 0.92; little or no odor, but a bland, sweetish taste. The oil is not soluble in alcohol, but freely so in ether and chloroform. Congeals at about (4° F., 20° C,) 4° below zero, Fahr. Contains 76 per cent. of olein and 24 per cent. of palmitin and a trace of stearin. The oil is said to be frequently adulterated with poppy, walnut and benne oils. One test of its purity is by shaking five parts of the oil with one part of the following mixture (equal parts of sulphuric and fuming nitric acids) a yellowish white linament is formed. The oil is occasionally prescribed in form of an emulsion for pulmonary diseases. The dose is from a fluid drachm to a fluid ounce (4 to 30 grams). Almond oil enter into the following officinal preparations: UNGUENTUM AQUÆ ROSA U. S., UNGUENTUM SIMPLEX, UNGUENTUM CETACEI BR., ETC.

Oleum Lini, Flaxseed or Linseed Oil.—Obtained by expression from the seeds of the Linum Usitatissimum, or Flax Plant, which has already been described. There are several methods of preparing the oil for commercial

uses; that selected generally is roasting the seeds before the pressure is placed upon them. This is done to destroy the gum which exists in the coating. When intended for medicinal purposes, heat is not used to extract the oil. The oil boils at about 600° F., does not congeal at zero, and has a specific gravity of about 0.93 and contains a large per cent. of *linolein*, *palmitin* and *myristin*. Flaxseed oil is of a brownish yellow color, with a feeble, unpleasant odor and a nauseous taste. The reaction is neutral. It is slightly soluble in alcohol, but more freely so in ether. The oil is divided into the drying and non-drying. The drying property is said to be due to the linolein, the antipode of the olein found in the non-drying oils. The latter oil is used only in the arts and in the manufacture of printer's ink. It is rarely used as an adulterant, nor is it often adulterated. The oil is laxative in doses of a fluid ounce. It is not often employed as a remedy, but enters into the the following officinal preparations: LINIMENTUM CALCIS, and the CERATUM RESINÆ COMPOSITUM.

Oleum Gossypii Seminis, Cottonseed Oil.—This fixed oil is obtained from the seeds of Gossypium Herbaceum by expression, and occurs in commerce in three conditions, viz.: clarified, refined and winter-bleached, the last mentioned closely resembling almond oil in appearance and tase. After having been put through the various processes, it occurs in the stores as a pale yellow, oily liquid, inodorous, with a bland, nut-like taste; of neutral reaction, having a specific gravity of about 0.92 congealing at 3° below the

freezing point. Cottonseed oil is very slightly soluble in alcohol, but freely so in ether. Acid sulphuric, when shaken with the oil, forms a turbid, red-brown mixture, The oil when first expressed is said to contain as much as 18 per cent. of *mucilage*, *albun*, *olein*, *palmitin* and *coloring matter*. This mucilaginous substance probably accounts for its turbidity and drying qualities. The better kinds of *oil* are largely used to adulterate the *olive oils*. *Cottonseed oil* is largely manufactured in Europe and this country. Seven million gallons is the yield in Europe, which amount is increased by many million gallons in the United States. The oil enters into the following officinal preparations: LINIMENT UMAMMONIÆ, LINIMENTUM CALCIS, LINIMENTUM CAMPHORÆ, and LINIMENTUM PLUMBI SUBACETATIS.

Oleum Morrhuœ, Cod-Liver Oil.—This fixed oil is obtained from the fresh livers of the various kinds of Cod Fish, the Gadus Morrhua, Gadus Callarias, Gadus Molva, Gadus Carbonarias, etc. These are technically arranged into the Class Pices, Order Teleostia, Family Gadida. The fishes from which the livers are obtained are of various sizes, ranging in length from 2 to 3 feet, and weighing from 3 pounds up to 20. The different species are found in the waters bounded by the coasts of New England, Newfoundland, Nova Scotia and Norway. The oil is extracted from the livers of the fishes by heat, the better qualities by heating with water or by steam; it is then subjected to extreme cold, the frozen mass finally placed in bags and put under the press; the pure oil exudes through the

meshes of the bag, and a tallow-like mass is left behind, which is made up of stearin, portions of liver, and other matter. The specific gravity of the oil varies, according to the quality. Prof. Proctor says a pure quality of light-colored oil at 72° F. is about 0.91, brown, 0.92, and the dark brown as much as 0.93 specific gravity. The three commercial oils are designated as the white or pale yellow, brownish yellow and the dark brown. The white is prepared from the fresh livers, the brownish yellow from those livers which have been removed from the fish for several days or weeks, and the dark brown oil is from the livers after putrefaction has taken place. The finer qualities of oil have little or no odor of the fish; taste, bland, oily and insipid; but the coarser oils are fishy, nauseous and acrid. Cod-Liver Oil contains *asseline* and *morrhuine* which are alkaloids; *oleic*, *palmitic* and *stearic acids*, with *glycerine*; *acetic* and *butyric acids* with traces of chlorine, iodine, phosphorus, sulphur, cholesterin and other compounds, These substances exist in all biliary matter other than fish livers. Cod-Liver Oil yields, with nitric acid, a purple mixture changing to a brown color after standing. For further tests of purity I refer you to the U. S. Dispensatory. The oil, from a medical standpoint, is tonic, alterative and a food, and is given in doses of 1 to 4 fluid drachms; it is also given in form of emulsion. Emulsions are oils combined with various other medicaments, such as dilute *phosphoric acid*, *egg*, *lime*, *iron*, and *soda*. Cod-Liver Oil is also known as the Oleum Hepatis Morrhuæ and Oleum Jecoris Aselli.

Oleum Myristicæ Expressum, Expressed Nutmeg Oil, also known as Mace Oil.—The concrete fixed oil is obtained from the nutmegs by exposing them (bruised and placed in a canvas bag) to the steaming process, after which they are subjected to pressure between heated plates of iron. The oil, when it first exudes from the bag, is liquid, but after cooling it becomes of a butter-like consistence, soft and unctuous to the touch, of a light brown or orange-yellow color, more or less mottled in appearance, with the characteristic odor and taste of the nutmeg. It melts at 88° F., is partially soluble in alcohol and ether, and contains the following constituents: About 6 per cent. of volatile oil, 70 per cent. of *myristin*, 20 per cent of *olein*, 3 per cent. of *resin*, and the balance salts. The specific gravity is about 0.95. The *myristin* or *uyristicin*, as it is sometimes called, upon saponification yields glycerine and *myristic acid.* The expressed oil is artificially made and sold as the genuine. Artificially made by mixing various fatty substances, such as spermaceti, palm oil, wax and suet, then flavoring the mass with the volatile oil of nutmeg. It is not often used in medicine, except as an ingredient for plasters.

Oleum Olivœ, Olive Oil, Sweet Oil, etc. Obtained from the ripe fruit of Olea Europæa. Natural order Oleaceæ. Native of the Levant, but naturalized in most of the European countries bordering on the Mediterranean. This evergreen tree, whose fruits furnish the much-esteemed olive oil, attains a height of 15 to 20 feet; the branches are adorned with ovate

lanceolate leaves, on short petioles of a gray-green color on their upper surface, and hoary beneath. Flowers white, and in short axillary clusters; the calyx is four-toothed and quite small; corolla four-cleft and tubular, having two stamens; style short and the stigma double (bifid); has a one-celled ovary, which is two-seeded; fruit a drupe, about the size of a damson, and of a purple color when fully ripe, and contains one hard seed or nut, similar in shape to the fruit. The olives found in the stores for sale as an article of diet are subjected to an alkaline treatment before ripening; they are then preserved in salt and water. The oil is expressed from the ripe fruit after being bruised; this is called virgin oil, and is considered the best. The common kinds of oil are obtained from the pulp of the fruit already pressed, which is subjected to a treatment with boiling water, or else the over-ripe and decayed olives are used. There is a third grade of oil, used in the preparation of soaps, etc., which is obtained from the olives which have been heaped in piles and allowed to ferment. Pure Olive Oil is a pale yellow or greenish colored liquid, with scarcely any odor, having a smooth, sweetish taste, which is agreeable to most persons. Its specific gravity is about 0.90 or 0.91, and it congeals a few degrees above the freezing-point; is only partly soluble in alcohol, but soluble in twice its volume of ether. Contains *olein*, *palmitin*, *stearin*, etc. When subjected to a great degree of cold, the oil is separated into solid and liquid portions, the latter being the olein which constitutes the bulk. The oil is

converted into a solid mass by the action of mercury, nitrate and nitrous acid. Peanut Oil (Oleum Arachis Hypogea) and Lard Oil are largely used as adulterants. Acid nitric and acid chromic are said to be the best tests for the purity of the oil. Olive Oil is nutritious, protective and laxative in its effects, and may be given in doses of 1 or 2 fluid ounces. Olive Oil forms an ingredient in the following preparations: CERATUM CAMPHORÆ, CERATUM CETACEI, EMPLASTUM AMMONIACI CUM HYDRAGYRI, EMPLASTRUN CERATE SAPONIS BR., and EMPLASTUM HYDRAGYRI.

Oleum Ricini, Castor Oil. This fixed oil is expressed from the seeds of the castor oil plant, Ricinus Communis or Palma Christi.—Natural order Euphorbiaceæ. A native of India, and cultivated in many parts of the world. The plant in its native place assumes the dignity of a tree, often attaining the height of 30 feet, but in the cooler latitudes it rarely exceeds 10 feet. The stem is vigorous, erect, round, smooth, hollow, and of a purplish color, expanding at the top into numerous branches or footstalks, which are inserted into the large, alternate, and palmately cut leaves. The leaf of the castor oil plant is from 6 to 12 inches in diameter, having from 7 to 9 pointed, serrated lobes, smooth on both sides and of a bluish green color, inclining to purple when fully matured. The flowers are in terminal racemes and pyramidal in form; male and female flowers on the same plant (Monœcious), neither of which have any corolla. Male flowers have a five-parted calyx and many stamens (polyga-

mous), whilst the female flowers have a three-parted calyx and three bifid styles, capsule or fruit three-celled, somewhat globular in form, and containing one seed in each cell; the outside of the capsule is covered with many tough spines. The seeds are smooth, shining, and of a greyish-ash color, with brown spots, connected with lines or veins. The oil is obtained from these seeds, after they are crushed and denuded of their integuments by winnowing. It is then subjected to a treatment with warm water, and the clarified oil drained off and filtered. Castor oil is a thick, transparent liquid, nearly colorless after filtration, congealing at zero, with a specific gravity of about 0.96; soluble in alcohol and partly so in petroleum benzine. When in contact with other organic matter, the odor is sweet and of its own kind, taste, clammy and nauseous, and of its own kind. The oil contains an acrid principle (*Ricinolic acid*), *palmitin*, and a substance termed *ricinolein*. The name is derived partly from the Latin *ricinus*, a tick or bug, from the supposed resemblance of the seeds to that insect. The medical properties of the oil are protective, demulcent, and cathartic; the dose from one fluid drachm to one fluid ounce (4 to 32 grams), either alone or in form of an emulsion. The oil forms one of the ingredients in the flexible collodium.

Oleum Sesami, Sesamun Oil, Benne Oil. This fixed oil is obtained from the seeds of the Sesamum Indicum.—Natural order Pedaliaceæ. Native of India and cultivated in many of the sub-tropical countries of the world. This an-

nual plant arises to the height of 4 or 5 feet, the branches adorned with ovate-lanceolate leaves; the lower ones are often divided into three lobes, whilst the upper ones are undivided. The plant is ornamented with solitary red and white flowers of tubular form, with the lower lip larger than the upper one. Inserted within the tube are four connected stamens and the rudiments of a fifth one. Fruit, a capsule, oblong in shape, with four cells and numerous seeds, which are small, oval in shape, and of a yellow color. The oil is expressed from the seeds in the same manner as the flax-seed, and occurs as a yellow, inodorous, transparent, bland liquid, not prone to become rancid by keeping, and contains about 75 per cent of *olein*, 20 per cent of *palmitin*, and about 5 per cent of *resin* and *myristin*. Oil of *benne* is a non-drying oil, and is used very much as an adjunct to food. The leaves are rich in mucilage, and may be used as a demulcent in many inflammatory diseases. See Dispensatory.

Oleum Theobromæ, Theobroma Oil, Cacao Butter. This fixed oil or butter, as it is commonly termed, is obtained from the seed of the Theobroma Cacao or Chocolate Nut.—Natural order Sterculiaceæ. The modes of preparing this substance are three—by decoction, by actual solvents, and by expression between two hot plates of metal; the latter is that usually adopted. The yield of the oil is between 40 and 45 per cent, and it has a specific gravity of about 0.90; it is firmer than tallow, and melts at about 95 degrees F. The butter is of a creamy white appearance, with little or no

odor, but has a decided taste of chocolate, and contains *olein*, *stearin*, *palmitin*, *laurin*, *arachin*, *formic*, *acetic*, and *butyric acids*, and some *resin*. Oil of theobroma is largely prepared in Philadelphia from the nuts, which are first soaked in hot water and then expressed. This substance is extensively used in the preparation of cosmetics, and as an adjunct to other remedies in medicine in form of ointments and suppositories. The butter may be readily powdered by adding to it a few drops of alcohol, by which means it may be easily manipulated. By the addition of a few drops of castor oil to the powder, suppositories are easily made.

Oleum Tiglii, Croton Oil.—This fixed oil is obtained from the seeds of the Croton Tiglium, which have been previously deprived of their shells and then subjected to pressure. It may also be separated from the seed by macerating with water, or by the action of ether or carbon bisulphide, which dissolves the oil, which is then subsequently recovered by evaporation.

The plant and seeds are described under another head, and by a reference to the Croton Tiglium you will find that its natural order is placed in the Euphorbiaceæ or Spurge family. The seeds yield about *22* per cent. of fixed oil, which occurs in the stores as a viscid liquid of pale yellow or red-brown color; the yellow colored oil is said to be imported from India, whilst the red oil is expressed from the seeds in Europe and in this country. The odor of the oil is feeble and of its own kind, whilst the taste is hot, acrid and permanent. According to analysis, croton oil contains the glycerides of *pal-*

mitic, *stearic*, *lauric* and *myristic acids;* also the volatile acids, *acetic*, *formic*, *tiglinic*, *isobutyric* and *valerianic acids*, which are said to exist as glycerine ethers. Croton oil is a drastic cathartic, and may be given in doses of ½ to 1 drop. Officinal preparation, LINIMENTUM CROTONIS, a powerful poison.

Cera, Wax, Beeswax. Obtained from the hives of the *apis mellifica.* CLASS, *Insecta;* ORDER, *Hymenoptera.* This substance is found already formed in the plant, and worked by the apis mellifica (honey bee) into compartments for the reception of the honey and the eggs of the queen bee, and for the temporary home of the *larvæ.* The honeycomb is freed from the honey and then melted in water, and the liquid wax drawn off and placed in suitable vessels to cool. The Cera Alba, or white wax, is the yellow wax bleached by exposure to light, air, and moisture, and occurs in round cakes or thin strips. Yellow wax contains *cerin*, or *ceotic acid*, *myricin*, or *myricyl palmitate*, which occurs in acicular crystals. The constituents are obtained by boiling alcohol. Wax melts at about 140 degrees F., and is not soluble in cold alcohol, but freely so in turpentine and oil; specific gravity about 97. Wax is often adulterated with tallow and paraffin. It enters into combination with other remedies to form cerates, ointments and suppositories. The chemistry of wax is complex, and the detection of its adulterants not an easy matter, and I therefore refer you to the more exhaustive works on the subject.

OLEA VOLATILIA—VOLATILE OILS.

These volatile principles of the leaf, flower, seed and fruit, with the exception of orange and lemon oils, are obtained by distillation, and are also known by the names of distilled or essential oils. They are distinguished from the fixed oils (which are obtained by expression) by being readily soluble in alcohol, ether and chloroform; by communicating their odorous properties to water, and by leaving no stain upon bibulous paper. With the exception of mustard and bitter almond oils, they exist, already formed, in the substances from which they are obtained. The mustard and almond require to be macerated in water and subsequently distilled to produce the volatile principle which is decomposed by certain principles stored within the seeds. The oils of orange and lemon are procured by scarification and wiping with sponges, etc.

As a rule, with few exceptions, only one volatile oil is obtained from the plant. The orange tree yields one oil from the fruit, another from the flower (Neroli), and again another from the unripe fruit and leaves. Volatile oils are divided by chemists into non oxygenated (as copaiba and turpentine, which are exclusively composed of $C_{10} H_{16}$). Oxygenated oils include the greater part of the aromatic oils and the sulphuretted, or those oils containing sulphur, as the mustard and horseradish, $C_4 H_5 N. S.$

The volatile oils are capable of rotating the plane of polarization either to the right or left hand. An exception to the rule is the American and French oil of turpentine; the former rotates the plane of polarization to the right, whilst the latter turns to the left. This means of distinguishing one turpentine from another is not always a feasible one, even when you can command the instrument called the polariscope. The volatile oils are made up of two principles, termed oleopten and stearopten, the former a true hydrocarbon, lighter than water and very volatile, and the latter a solid, resembling camphor in general character, and, as a rule, heavier than water, containing oxygen with an average specific gravity of about 0.95. The colors of the volatile oils are said to be due to the

presence of resin, azulene or cœrulein; the variety of colors is said to be due to the different proportion existing in these bodies. A brown color is due to the resin, a green to the second substance, and the blue color to the cœrulein. Be this as it may, they all become darker by age, and soon become unfit for use by exposure. For further account and information, see the U. S. Dispensatory, page 909, 17th ed.

Oleum Amygdalæ, Amaræ, Bitter Almond Oil.—A volatile oil, prepared by macerating the bitter almond in water and then distilling. The water seems to act on the almond in the same manner as on the black mustard-seed, for this volatile substance does not exist until it is produced by the reaction of the water, for by expression we get the bland, tasteless oil, which will be found under the head of Fixed Oils. The volatile substance distilled from the peach kernel and the cherry-laurel leaf is identical in every respect with that of the bitter almond. The oil as it occurs in the stores is of a straw-color, with an odor of peach leaves, having a burning, bitter, acrid taste; of neutral reaction, with a specific gravity of 1.043, and contains *acid hydrocyanic*, *acid benzoic* and *benzoin*.

The theory is advanced that after maceration the emulsin decomposes the Amygdalin, and thus the oil is generated. But the chemistry of these substances is very complex, and I refer you to the Dispensatory. It is never administered in form of the oil, but in the form of the officinal water, *Aqua Amygdalæ Amaræ*. It is often

used, however, to disguise the nauseous taste of other medicaments, and as a flavor. The oil is highly poisonous, and caution should be exercised at all times in its use.

Oleum Anethi, Dill Oil. Obtained from the fruit of the Anethum Graveoleus.—Natural order Umbelliferæ. The oil is distilled from the fruit of the Dill plant, and is of a pale yellow color, boiling at 330° C. (446 F.) with a specific gravity of about 88. This volatile oil is made up largely of a fluid hydrocarbon, termed Anethene, which is identical in composition with turpentine oil. The remaining portion is an oxygenated oil, having the same odor, symbols and proportions as Carvol (C_{12} H_{16},) which resembles mace in odor. Dill Oil is an aromatic and carminative, but is not often found in the stores; semetimes employed for making dill water.

Oleum Anisi, Anise Oil.—Obtained from the fruits of the Pimpinella Anisatum and the Illicium Anisatum (Star Anise), the former belonging to the natural order of the Umbelliferæ, and the latter to the Magnoliaceæ. Whilst the two oils are identical in color and chemical composition, they differ somewhat in odor and taste. This volatile oil is almost colorless, congeals at between 50° and 60° F., and has a specific gravity of 0.98, the solid mass being made up of *Anethol* or *Anise Champhor.* Dilute *nitric acid* converts the oil into *anisic, oxalic acids* and *anisyl hydrate.* When treated with an alcoholic solution of *potassium,* the oil is converted into *anisylic alcohol* and *anisic acid.*

The odor of the oil is of its own kind; taste, sweet, aromatic and warm Most of the commercial Anise Oil is that distilled from the Star Anise. The marketable value of the oil is, of course, an invitation to adulterate it, and the most common foreign bodies thus employed are spermaceti, paraffin and camphor. The first two may be distinguished by the insolubility, but when the oil is treated with alcohol, the camphor can only be detected by the odor.

The oil, like the seed, is carminative and stomachic in its action, and whilst rarely administered alone, it is a favorite ingredient in the following officinal preparations: AQUA ANISI, SPIRITUS ANISI SYR. SARSAPARILLÆ COMPOSITUS, TINCT. OPII CAMPHORATA, TROCHES of GLYCERRHIZA ET OPII, etc.

Oleum Anthemidis, Camomile Oil; distilled from the flowers of the Anthemis Nobilis.—Natural order Compositæ. The plant has already been described under the head of flowers, therefore repetition is unnecessary. It is said that it requires 80 or more pounds of flowers to yield an ounce and a half of the oil. When first prepared it is a pale-blue color, but by age it gradually becomes yellow, with a penetrating, aromatic odor of the flower much intensified; taste, bitter, pungent and aromatic; having a specific gravity of 0.983, and containing a compound of *angelic* and *tiglinic acids*; also *hevyl; isamyl*, and *isobutyl tethers*.

This oil must not be confounded with that obtained from the German Camomile (Matricaria Chamomilla), which is much employed, and sold under the name of Camomile Oil, the former

being entirely an English preparation. The oil is a tonic and stomachic, and is used as an adjuvant to other remedies. The dose is from 5 to 15 drops (0.3 to 0.9 grams). It is not much used in this country as a medicine, as most practitioners prefer the flower or extract.

Oleum Aurontii Corticis, Orange Peel Oil; a volatile oil obtained from the fresh rind or peel of the fruit of the Orange.—Natural order Auranticeæ. This oil is prepared for the market in four different ways: 1, by distillation; 2, by putting the scrapings into hot water and skimming; 3, by expressing; 4, by wiping the fruit with sponges. The two latter processes are considered the best modes of obtaining the most valuable qualities of oil. This is of a yellow color, possessing the characteristic aromatic odor of the fruit, with a warm, aromatic, bitter taste, and containing a resinous hydrocarbon, hesperidene, and hesperidin, a bitter extractive matter. The oil is difficult to preserve, and should be well corked and kept from the light, and when in use should have about 5 per cent. of alcohol added to it as a preservative, otherwise it will have the odor and taste of turpentine. The oil enters into combination with the following officinal preparations, viz.: ELIXIR AURANTII, SPIRITUS AURANTII, and the SPIRITUS MYCCIÆ, or artificial bay rum.

Oleum Aurantii Florum, Orange Flower Oil, Oil of Neroli, Essence de Neroli.—This volatile oil is prepared by distilling the flowers of the Citrus Aurantium or Sweet Orange with water. This oil is of the first quality, and is known in commerce as the Neroli Petale. The

next quality is obtained in the same manner, but from the blossoms of the bitter orange (Citrus Bigaradia), and is known as the Neroli Bigaradia. The oil known as the essence of *petit grain* is obtained by distilling the leaves and unripe fruit of the tree. The finer grade of oil is of a deep yellow or brownish color, with a fragrant odor, having an aromatic, bitter taste, neutral reaction, and a specific gravity between 0.85 and 0.89, and yields with alcohol a violet fluoresence. The greater part of the oil is a true hydrocarbon, and the remainder composed of a crystalline body called *neroli camphor*, which is neutral and tasteless. All of the oils or essences are much used in perfumery, and prove great adjuncts to colognes, toilet waters, etc. Orange Flower Oil is used as an ingredient in the officinal *spiritus odoratus*. All the oils are prepared either in Calabria Messina and Sicily, Italy, or near the cities of Grasse, Cannes and Nice, France. Turns the plane of polarized light to the right.

Oleum Bergamii, Bergamot Oil; a volatile oil prepared from the rind or peel of the Citrus Bergamia or Bergamot Orange.—The tree from which the fruit is obtained is said to be a hybrid between the orange and lemon tree, and belongs to the same natural order. It is a small tree, cultivated on the Calabrian coast for the volatile oil which its fruit contains. The oil is prepared and obtained in the same manner as the oils of orange and lemon, and occurs as a greenish-yellow volatile liquid, very fragrant, having a specific gravity of about 0.88, possessing the same chemical equivalents as the tur-

pentine oil with which it is often adulterated. The fruit closely resembles the lemon in size, color, and shape, but is rather more pyriform in outlines. Bergamot contains several *hydrocarbons*, and a solid, greasy substance termed *bergaptene* or *bergamot camphor*. Bergamot is employed exclusively as an adjunct to perfumery, and is one of the ingredients in the officinal preparation of the *spiritus odoratus*. The pure oil is readily distinguished from the oils of orange and lemon by forming a clear solution with liquor potassa.

Oleum Cajuputi, Cajeput Oil. This volatile oil is obtained from the leaves of the small tree known as the Melaleuca Minor or Melaleuca Cajuputi.—Natural order Myrtaceæ. Native of the Molucca Islands; also found in the eastern regions of Australia. In the Indian language it is known as the Kayapootee Oil Tree, Anglo-Saxonized into the Whitewood Oil Tree. The leaves are macerated in water for several hours and then distilled. The oil occurs in commerce as a transparent mobile liquid, having a pale-green or bluish green color, with a strong, agreeable, camphoraceous odor, and a warm, aromatic taste, with a specific gravity of 0.92, and congealing at 13° F. (25° C.). The color of the oil is said to be due to the copper cans in which it is placed, and a trace of copper is always to be found in the commercial oil. The principal constituent is cajuputol, a substance which, when treated with phosphoric *anhydride*, yields *cajuputene*. The Cajuput Oil is a stimulant and carminative, and a mild rubefacient applied externally. The dose is from

8 to 15 drops (0.5 to 1.0 gram), given in form of an emulsion or on a lump of sugar. The Eucalypti yield oils almost identical in composition.

Oleum Caryophylli, Clove Oil; obtained from the unexpanded flower buds (cloves) of the evergreen tree Caryophyllus Aromaticus or Eugenia Caryophyllata.—Natural order Myrtaceæ. This volatile oil is obtained by distilling the cloves with salt and water, the salt is used to raise the temperature to boiling point. When fresh, the oil is thin, clear, and almost colorless, but by age and exposure to the light it becomes of a rich brown color and less fluid. The specific gravity is an exception to that of most of the volatile oils, it being 1.034, a little heavier than water. It is also the least volatile of all the essential oils, and requires several degrees below zero to crystallize or congeal it. Like the caraway, it is said to consist of two distinct oils, one lighter and one heavier than water, the former being inert and having the same formula as the pure terpentine oil. The heavy oil contains *eugenic acid*, (egenol), which is easily converted into vanillin. By acid nitric the Oil of Cloves yields a substance called *caryophyllinic* acid. The oil is rarely given alone as medicine, but enters into the composition of *confectio scammonii* and the *pilulu colocynthidis composita* of the British Pharmacopœia. It is also used as an adjunct to perfumes, and as a local remedy in toothache, etc.

Oleum Camphora, Camphor Oil; obtained from the Crude or Concrete Oil by pressure.—

This yellow or yellowish-brown oil has a specific gravity of 0.94, and boiling at 356° F. (180° C.), with an odor and taste decidedly camphor-like. This oil is a true hydrocarbon, and congeals or crystallizes on the application of cold. The medical properties are rubefacient and resolvent, and used in the form of liniment.

Oleum Carui, Caraway Oil. This volatile oil is obtained by distillation from the fruit of the little plant Carum Carui.—Natural order Umbelliferæ. As we have already described the plant, it is unnecessary to again allude to it. The oil is of a pale yellow, becoming by age of a handsome brown color, and somewhat viscid. It has the odor of the fruit and an aromatic, acrid taste, and is said to consist of two liquid oils of different boiling points and easily separated by distillation—one termed *carvene*, specific gravity 0.861, and the other called *carvol*, the specific gravity of which is 0.953. Caraway Oil is rarely used alone, but as an adjuvant is highly thought of to prevent the griping of other medicines. Used in pills of ALOES and in SPIRITS OF JUNIPER CO.

Oleum Chenopodii, American Worm Seed Oil. A volatile oil obtained by distillation from the fruit of the small plant, Chenopodium Ambrosioides. Variety Anthelminticum. — Natural order Chenopodiaceæ. This is truly an American product, and the best is prepared near the city of Baltimore, Md. When recently distilled this oil is of a light straw color but becomes by age and exposure of a brown or red-brown tinge. Odor, peculiar and of its

own kind; taste, like the odor, peculiar and acrid. Specific gravity 0.90, boiling point less than the clove oil, but like the aforesaid, it contains two distinct oils, one light and the other heavy, which reacts with acid hydrochloric, forming an analogue to the turpentine oil. This neutral volatile oil is used only as an anthelmintic and given in doses of 4 to 8 drops (0.24 to 0.5 gram) in form of an emulsion. In over doses it has been known to destroy life, therefore every precaution should be taken to guard against an accident.

Oleum Cinnamoni, Cinnamon Oil. A volatile oil distilled from the Cinnamonum Zeylanicum.—Natural order Lauraceæ. The Chinese variety yields the oil of Cassia. Whilst the Ceylon furnishes the true oil of Cinnamon. As the oil is distilled from the leaf, bark and root, it seems undecided which part of the tree furnishes the true oil. It is asserted that 80 pounds of the bark yield something over 2 ounces of the lighter oil (true oil) and about 5 ounces of the heavy, which is really the oil of Cassia, although it is again asserted that both the light and heavy oils exist in the one. The oil of Ceylon Cinnamon differs only in three particulars from the Cassia oil, viz., in an acid reaction, a finer flavor, and higher price. When recently distilled it is almost amber colored, but ultimately becomes red by age. It is composed of *Cinnamyl Hydrid* and a *hydrocarbon* analagous to turpentine oil. Acid nitric converts the oil into a crystalline mass; when heated with caustic potash, *Cinnamic acid* is formed, the crystals of which occur in brilliant

scales after being boiled in water. The oil is a powerful stimulant, and in large doses dangerous; administered in form of Spiritus Cinnamoni and Aqua Cinnamoni. Dose of the oil, 1 to 5 drops. Does not affect the plane of polarized light to any extent.

Oleum Copaibæ, Copaiva Oil. This volatile oil is obtained by distilling the Oleo-resin with water; it is isomeric with turpentine oil, having a specific gravity of 0.89, colorless or with a slightly straw-like tinge, having a strong odor and taste of the balsam somewhat intensified; it contains no oxygen and is therefore recommended as a better preservative for potassium than naptha. It boils at 475° and solidifies and crystallizes at 15° below zero. Absorbs the vapors of hydrochloric acid and forms crystals of artificial camphor. The medical effects on the human being are like those of the balsam (Oleo-resin). It is administered on sugar in form of an emulsion, or as an addition to other remedies. The dose is 10 or 15 drops (0.6 to 0 9 gram). It is sometimes applied as a counter-irritant, and preferred by some practitioners to the turpentine spirits.

Oleum Coriandri, Coriander Oil. Distilled from the fruit of the Coriandum Sativum.—Natural order Umbelliferæ. When first prepared colorless, but on being kept for some time it assumes a deep yellow color. It has a specific gravity of about 0.87. The fruit is not very rich in oil, for one pound only yields about a fluid drachm. Like the other oils chiefly made up of hydrocarbon; not much used.

Oleum Cubebæ, Cubeb Oil.—Obtained by distilling the fruit of the Cubebæ Officinale with water. The berries yield about one ounce of oil to the pound, and when recently distilled the oil has a green color, but on standing for some time assumes a yellow tinge. Odor that of cubebs, with a warm, aromatic taste, somewhat camphoraceous. Contains about one-half the quantity of hydrocarbon of the volatile oils already described. Specific gravity about 0.92. By age and exposure, deposits crystals of *stearopten*; which is the camphor peculiar to many of the essential oils.

The Oil of Cubebs is used instead of the *Oleoresin*, and the powdered fruit, in form of an emulsion or in capsules, in doses of 10 drops (0.6 gram), and for the same diseases.

Oleum Erigerontis, Fleabane Oil. A volatile oil distilled from the small plant Erigeron Canadense.—Natural order Compositæ. Said to consist of two distinct oils, as it begins to boil at 310° F., and the temperature continues to rise to 365° F.; neutral to test paper; specific gravity about 0.85; very limpid, and of light straw color. Its medical effects are astringent and hæmostatic. It is given in doses of 10 to 30 drops (0.6 to 1.0 gram), on sugar, or in form of an emulsion.

Oleum Eucalypti, Eucalyptus Oil. Obtained from the Eucalyptus globulus and other species of the Eucalypti.—Natural order Myrtaceæ. This volatile oil is distilled from the fresh leaves of the tree, and occurs in commerce as a colorless or pale yellow, limpid liquid having a peculiar aromatic odor, with a pun-

gent, aromatic, cooling taste. Its specific gravity is about 0.90, and it contains two distinct oils, the larger portion of one of them is termed *Eucalyptol*, which is obtained by redistilling, and may be converted into a substance called *Eucalyptene*, by means of acid phosphoric. The oil is a stimulant, narcotic and febrifuge, and is given in doses of 10 to 15 drops (0.6 to 0.1 gram) in capsules.

Oleum Fœniculi, Fennel Oil. Obtained from the fruit of the Fœniculum Vulgare.—Natural order Umbelliferæ. This distilled and volatile oil is colorless when first prepared, but becomes yellow on standing, and possesses, in a high degree the characteristic odor and taste of the fruit; specific gravity 0.96, congeals at 50° F., and capable of being separated into a solid and liquid *stearoptene* and *eleoptene*, the former heavier than water, and less volatile than the latter. Officinal preparations: AQUA FŒNECULI, and SPIRITS JUNIPER CO.

Oleum Gaultheriæ, Gaultheria Oil, Wintergreen Oil, Teaberry Oil, Partridgeberry Oil, etc. This volatile substance is distilled from the leaves, flowers, twigs, etc. of the Gaultheriæ procubens.—Natural order Ericaceæ, and when freshly prepared is nearly colorless, but when found in commerce it is of a yellow-brown inclining to a red-brown color. Odor peculiar, and to most persons agreeable; taste, warm, sweetish, and of its own kind. This is the heaviest of all the volatile oils, having a specific gravity of 1.17. Boils at 412° F., and when mixed with water, the iron salts give it a purple color, which is not the case with the other

oils. The oil consists of a small quantity of hydrocarbon, about $\frac{1}{10}$, the balance is the *Methyl Salicylate* or *Acid Methyl Salicylate;* at one time the source of the salicylic acid. Its medical effects are carminative, alterative, and stomachic, but it is principally used as a flavor or an adjunct to other remedies. It enters as an ingredient into the following officinal preparations: SPIRITS GAULTHERIA, SYRUPUS SARSAPARILLÆ, COMPOSITUS and TROCHISCI MORPHIÆ ET IPECACUHÆ.

Oleum Hedeomœ, Hedeoma *Oil,* Pennyroyal Oil. This volatile oil is distilled from all parts of the plant Hedeoma *Pulegioides.*—Natural order Labiatiæ, also from the Mentha Pulegium, a native of Europe. Although from distinct plants, the oils are analagous in their properties. When first distilled both oils are of a light straw color, but become brown by exposure and age. Specific gravity about 0.92, boils at about 365° F. Odor, pungent, aromatic, and of its own kind; taste, warm, pungently aromatic, and reminds one of the mint oils. Its medical effects are carminative, and uterine stimulant; given in doses of from 2 to 10 drops (0.12 to 0.6 gram); in large doses, poisonous, and therefore should not be sold indiscriminately.

Oleum Juniperi, Juniper Oil. Distilled from the fruit or berry of Juniperis Communis.—Natural order Coniferæ. When this volatile oil is first distilled, it is colorless, but assumes on standing, a greenish tinge, having a specific gravity of 0.87. Odor, terebinthine; taste, warm and

acrid; contains two distinct oils which are hydrocarbons, somewhat analagous to turpentine oil. The medical effects are stimulant and diuretic, and to it Holland gin owes its virtues. Officinal preparations, SPIRITUS JUNIPERI, and SPIRITUS JUNIPERI COMP.

Oleum Lavendulæ, Lavender Oil. This volatile substance is distilled from the flowers and leaves of the Lavendulæ Vera.—Natural order Labiatæ. That obtained from the flowers is more fragrant and more highly valued both as a perfume and medicine, although much of the oil of commerce is obtained from the whole plant. The finer quality of oil is almost colorless and very limpid, whilst the inferior grades are of a lemon-yellow color. Odor of the former, delicate and fragrant; the latter, aromatic and terebinthine; specific gravity, 0.90. The oil is often adulterated with French lavender, which is known in commerce as *oil of spike*, and is obtained from the broad-leaved lavender (Lavendulæ Spica), which grows wild in Europe. Oil of lavender is said to consist of a small quantity of hydrocarbon and the balance, oil which is isomeric with turpentine oil. The oil of lavender is carminative and anti-spasmodic in its action. The dose is from 5 to 10 drops (0.3 to 0.6 gram); it is rarely given alone, but forms an ingredient of the following officinal preparations: SPIRITUS AMMONIÆ AROMATICUS, SPIRITUS LAVENDULÆ, and TINCTURA LAVENDULÆ COMPOSITA. The oil of the flowers is largely used in perfumery.

Oleum Limonis, Lemon oil, obtained from the peel or rind of the Citrus Limonum.—Nat-

ural order Aurantiaceæ. The mode of extracting this volatile oil from the epicarp of the fruit is by expression or scarification, as with orange oil. It is chiefly prepared in Sicily, at Reggio, Mentone, and Nice; it is also prepared in the States of Florida and California, U. S.; but the chief supply is from Europe. The oil is of a pale yellow color; odor, like the fruit; taste, warm, aromatic, and bitter; specific gravity, 0.85. By age and exposure it deposits a crystalline fat; it absorbs about one-half its weight of acid hydrochloric in gaseous form, and is converted into a crystalline substance, identical to the artificial camphor produced by the action of acid hydrochloric on turpentine oil. The oil of lemon consists of several hydrocarbons, turpentine, terpene, or citrene, hesperidene, cymene, and a compound ether. See Dispensatory, page 941, 17th ed. Oil of lemon is rarely if ever given alone, although it has the medical properties of the aromatic oils, but enters as an ingredient into the following officinal preparations: SPIRITUS AMMONIÆ AROMATICUS, SYRUPUS LIMONIS, SYRUPUS ACIDI CITRICI, SPIRITUS LIMONIS and the SPIRITUS ODORATUS.

Very seldom found perfectly free from adulterants. One ounce of alcohol to the pound preserves it.

Oleum Menthæ Piperitæ, Peppermint Oil, distilled from the fresh flowering tops of the herb Menthæ Piperitæ.—Natural order Labiatæ. The best oil is prepared at Hitchin, or Mitcham, England, and by Messrs. Hotchkiss & Co., although we get a good oil from the distilleries of Michigan, Ohio, and New York,

where the plant is cultivated for its oil. The herb only yields about 1 per cent, and therefore the oil commands a good price, and is liable to adulteration, the most frequent adulterants being turpentine and oil of fleabane. The genuine oil is of a pale yellow color, inclining to a greenish tinge, with a specific gravity of about 0.90, having the odor of the herb, with a warm, aromatic taste, afterward becoming cool to the tongue and fauces. The oil of Erigeron is detected by being insoluble in alcohol, and producing a milky solution. To detect all the adulterants is not easy, therefore we will refer you to the dispensatory. The oil boils at 410° F., and deposits crystals of menthol (which is the camphor) at 24° below zero. The Chinese oil is nearly all composed of menthol, and is rarely found fluid. The medical effects are stimulating and carminative. Dose, from 2 to 6 drops. Off. Prep., AQUA, ESSENCE, PILLS RHEI CO., SPIRITS, and TROCHES.

Oleum Menthæ Viridis, Spearmint Oil. This is distilled from the entire plant, Menthæ Viridis.—Natural order Labiatæ. Largely distilled in this country, and occurs as a pale yellow or greenish fluid when recently prepared, but by exposure and age assumes a mahogany color. The odor not unlike the peppermint, but the taste is milder and more agreeable; specific gravity 0.95, and boils at 437° F. Like many oils of the same class, it contains a *hydrocarbon*, *stearoptene*, and *terpene*. The dose, as a carminative, is about 6 drops (0.36 gram). Rarely given in this form, but as an adjuvant

to other remedies in the form AQUA MENTHÆ VIRDIS, and SPIRITUS MENTHÆ VIRIDIS.

Oleum Myrciæ, Myrciæ Oil, Bay Oil. This volatile oil is distilled from the leaves of *Myrciæ Acris.*—Natural order Myrtaceæ, and occurs as a light brown liquid, deepening in color by age, with an aromatic, clove-like odor, and a spicy, pungent taste. Unlike most of the volatile oils mentioned, it has an acid reaction. The distillate is said to consist of two oils, one lighter, and the other heavier, than water, the lighter oil being a *hydrocarbon*, identical in composition to that found in cloves and allspice. The oil is used for making the officinal preparation of SPIRITUS MYRCIÆ. This must not be coufounded with the Spirits from the leaf.

Oleum Myristicæ, Nutmeg Oil. There are two oils obtained from the fruit of the Myristicæ fragrans.—Natural order Myristicaceæ. One volatile, and obtained by distillation; the fixed obtained by expression. The volatile oil is prepared from the kernel of the nutmeg, and occurs as a colorless or straw colored limpid liquid, of neutral reaction, specific gravity 0.93, and composed of a hydrocarbon termed *myristicene*, and *myristicol*, a substance containing oxygen; the former constituent being the camphor steroptene, which is found in most of the volatile oils. The oil by exposure loses its fluidity, absorbing oxygen more slowly than many of the other oils. It is not often employed alone as a remedy, but is an ingredient in the PILULA ALOES, SOCOTRINÆ BR., and SPIRITUS MYRISTICÆ.

Oleum Picis Liquidæ, Tar Oil.—A volatile oil, distilled from the tar of commerce. When first obtained, almost colorless, but on standing becomes brown and less limpid. The odor is strong and tarry; taste, acrid and tarry; specific gravity, about 0.97. The oil has all the medicinal virtues of the tar, and the advantages of being less bulky and offensive to the taste. Like the tar, it is stimulant, diuretic, and diaphoretic in its medicinal effects, and may be given in doses of 3 to 6 drops (0.18 to 0.36 gram).

Oleum Pimentæ, Pimento Oil, Allspice Oil. This volatile oil is distilled from the fruit of the Eugenia Pimentæ. — Natural order Myristicaceæ. Like many of the other oils, when first distilled it is almost colorless, but by age and exposure it becomes brown and less limpid; specific gravity 1.37, and when dropped in water it sinks. It is the heaviest of the volatile oils. The oil resembles that of cloves in odor and taste, except in being a little less pungent. It consists of two distinct oils—one lighter, and the other heavier, than water; the former a pure hydrocarbon, and the latter forming crystalline compounds with the alkalies, and therefore may be termed *eugenic* or *pimentic acid*, for it is identical in every respect with the eugenic acid found in the clove oil. The oil, medically, is an aromatic stimulant, and may be given in doses of 3 to 6 drops (0.18 to 0.36 gram), but is not often given alone. It forms an ingredient in the officinal preparation of the Spiritus Myrceæ.

Oleum Rosæ, Rose Oil. Rose Attar, or Otto. Distilled from the flowers of the Rosæ Damascenæ.—Natural order Rosaceæ, or Roseæ. Most of the oil is obtained from the rose farms of Adrianople, in Turkey in Europe, Broussa and Uslak, Turkey in Asia. The oil is also prepared in the lower countries of the Balkan mountains, between Selimno and Carloya, and as far north as Bulgaria. According to authority it requires as many as two thousand roses to yield one drachm of oil. The rose is also grown in India for the purpose of obtaining the Attar; whilst at Grasse, France, the flowers are cultivated for the perfume alone, and the much esteemed odor is obtained by macerating the flower in oil, or some fat free from smell. The Oil of Rose is of a pale straw color, having a specific gravity of 0.86 to 0.89, with the property of congealing at a temperature of 59° to 60°, forming thin, iridescent crystals of steropten, or steroptene, a substance which is devoid of the odorous properties of the oil. The other constituent is an oxygenated hydrocarbon, termed *Elæoptene*, which is the true odoriferous principle. The oil is rarely found entirely free from adulterants, and it is said to be systematically doctored with rose geranium oil and the volatile oil of ginger grass, *Andropogon-Schœnanthus*. The Oil of Rose is used only as a perfume. For further account, see Dispensatory.

Oleum Rosmarini, Rosemary Oil. Distilled from the leaves and flowering tops of the Rosmarinus Officinalis.—Natural order, Labiatæ. This volatile oil is colorless, and remains so un-

less exposed too long to the air. Specific gravity between 0.88 and 0.90, boiling at 365° F. Like all these volatile substances, it is made up of two distinct oils, one of which is a true hydrocarbon. On exposure and by heating with caustic potassium, Stearoptene is deposited. The yield of oil is about 1 per cent—that is, one pound of the herb produces only one drachm of the oil. It is frequently adulterated with turpentine; this can be detected by shaking the suspected oil with equal parts of alcohol; the turpentine is left and the oil dissolved, and thus the fraud exposed. Like the herb, the oil is stimulating and carminative in its action, and may be given in doses of 3 to 6 drops (0.18 to 0.36 gram). It is rarely if ever given alone, but forms an ingredient in the following compounds, which are officinal: LINIMENTUM SAPONIS, SPIRITUS ODORATUS, and TINCTURE LAVENDULÆ COMPOSITA. When pure, the oil makes an excellent addition to perfumes.

Oleum Rutæ, Rue Oil. Distilled from the leaves and tops of the Rutæ Graveolens.—Natural order Rutaceæ, or Ruteæ. This volatile oil is of a pale-yellow color, with a characteristic odor of the plant; taste acrid and bitter. According to Mr. Strecker, it is chiefly composed of a substance termed Methyl nonyl-Ketone, $CH_3\ CO\ C_9\ CH_{22}$. This Ketone is said to be analogous to Acetone, $CH_2\ CO$, $C_9\ H_{19}$, and yields by the action of acid nitric, pelargonic acid, which is much used in the preparation of the artificial fruit essences, and known in commerce as pelargonic ether. The oil has a specific gravity of about 0.88, and congeals at or

below zero F. The oil is anti-spasmodic and stimulating in its effects, and is given in doses of from 2 to 5 drops (0.12 to 0.3 CC.)

Oleum Sabinæ, Savine Oil. Distilled from the tops of the Juniperus Sabinæ.—Natural order Coniferæ. This volatile oil is colorless, of neutral reaction, with a specific gravity of about 0.91, boiling at 315° F, and is made up chiefly of a hydrocarbon analogous to the turpentine oil. The odor is penetrating, and the taste bitter, acrid and terebinthinous. Its medical effects are emmenagogue and stimulating; externally rubefacient. The dose is 2 to 5 drops (0.12 to 0.3 gram). The oil is poisonous in large doses, and should not be sold indiscriminately.

Oleum Santali, Santal Oil, Sandalwood Oil. Distilled from the wood of the Santalum Album.—Natural order Santalaceæ. This volatile oil is of a pale yellow color, with a penetrating odor of its own kind, and a strong, penetrating, spicy taste. Specific gravity about 0.95. The wood is very rich in oil, 100 pounds yielding as much as 30 ounces of the pure otto. This comparatively new remedy is now employed as a curative in diseases of the mucous membrane, the dose being from 5 to 15 drops (0.3 to 1.0 gram), in form of capsule and emulsion: it is also used in perfumery.

Oleum Sassafras, Sassafras Oil. Distilled from the root of the Sassafras Officinale.—Natural order Lauraceæ. The root yields about 1 or 2 per cent of oil; the bark of the root yields rather a larger amount. Maryland and Virginia furnish most of the oil of commerce,

which when freshly distilled is without color, but on standing assumes a brown-red tinge. Odor fragrant; taste pungent and aromatic, and of neutral reaction. The oil has a greater specific gravity than any in the list, being about 1.094. The hydrocarbon *Safrene* composes about nine-tenths of the whole; the balance is *Safrol*, an oxydised compound, which is capable of crystallizing in six-sided prisms. The oil is used only as an external remedy, in form of liniments; rotating power very feeble, slightly dextrogyre.

Oleum Sinapis, Mustard Oil. Obtained from the Sinapis Nigra.—Natural order Cruciferæ. There are two oils existing in the Black Mustard seeds, fixed and volatile; the latter is obtained after the expression of the former, then the seeds are mixed with water and distilled. This very volatile substance, which seems to awaken in all its pungency in contact with water, is usually colorless, or of a pale straw color; specific gravity, 1.018; boiling at 298° F. The odor is powerfully pungent; it has an intensely acrid, burning taste, and when applied to the skin, blisters at once. The oil forms, with alkaline solutions, sulphocyanates. The activity of the volatile oil is due, it is said, to the myrosin (a ferment) coming in contact with sinigrin (myronate of potassium) under the influence of water. The White Mustard seeds yield compounds of entirely a different nature, and the chemistry of the two are interesting (see Dispensatory). The volatile oil of mustard has been made artificially by treating

allyl iodide (propionyl) with *potassium sulphocyanate.* Like all the oils, it is liable to be adulterated with alcohol, petroleum oil, etc. The oil is used externally only, in form of the LINIMENTUM SINAPIS COMPOSITUM. The oil has no rotating power.

Oleum Succini, Amber Oil. Obtained by the destructive distillation of the fossil resin of the extinct species of the Coniferæ, found in Prussia and thrown up by the Baltic Sea. The fossil has also been found in Sicily and the United States. The volatile oil is purified by subsequent rectification, and accurs in commerce as a nearly colorless liquid; specific gravity, 0.758, and boils at about 186° F. The odor unpleasant and of its own kind; taste, hot and acrid; imparts to water its odor and taste, but is freely soluble in pure alcohol, ether, and chloroform. By long exposure to light and air it turns very dark, and ultimately becomes solid. The constituents of the oil are not clearly defined, but it is termed by Mr. Doepping a carbo-hydrogen. The rectified oil is stimulating and antispasmodic in its effects. The dose is from 5 to 15 drops (0.3 to 1.0 gram), given in olive oil and brandy. Not much used as a remedy in modern practice.

Oleum Terebinthinæ, Turpentine Oil. Distilled from the oleoresin of the various Pines; in this country from the Pinus Palustris.—Natural order Coniferæ. This volatile oil is known in commerce as spirits of turpentine. By redistillation with a solution of caustic potash it is obtained perfectly pure. In this state it is a limpid, colorless liquid, with a penetrating odor

and a burning, penetrating, bitter taste; specific gravity, between 0.85 and 0.87; boils at 300° F., and is very inflammable; only slighly soluble in water and not freely so in alcohol. When perfectly pure the turpentine is strictly a hydrocarbon, but as found in commerce it contains oxygen. The oil forms with water terpinal, terpine, or terpene, and terpene hydrate, all of which are necessarily hydrates. The latter hydrate crystallizes under the action of acid nitric. Two artificial camphors are formed by the action of hydrochloric acid gas. By the application of intense heat in a sealed tube, turpentine is converted into a substance called isoterebenthene, which has the odor of the lemon oil. Turpentine *oil* is a stimulant, diuretic, anthelmintic, and cathartic, and externally rubefacient. Dose from 5 to 30 drops (0.3 to 2.0 grams) in form of emulsion or capsule. Turpentine is an ingredient in several officinal liniments, ointments, and confections. (See Dispensatory). Rotates the plane of light to the right (dextrogyre) whilst the French Oil is levogyre.

Oleum Thymi, Thyme, Oleum Origani, Origani, Origanum Oil. Distilled from the entire plant, the Thymus Vulgaris.—Natural order Labiatæ. This volatile oil is prepared in the south of France, and the first distillated is known as the red oil, or Oil of Origanum of commerce; the second distillation is known as the white oil, or true refined Thyme Oil. This product is a thin liquid of a pale yellow color, becoming thicker and darker by age and exposure, having the odor of the herb and a warm, pungent taste;

specific gravity about 0.88, but the oil found in commerce is of a red-brown color, and much less agreeable in odor and taste, varying in density, etc. The oil is a hydrocarbon, which consists of *cymene* and *thymene*, these constituting the most volatile portions, whilst the balance is *thymol*, a white, crystalline solid recently introduced as an antiseptic, etc. The oil is used as an external remedy altogether, and is considered a good adjunct to other rubefacients.

Oleum Valeraniæ, Valerian Oil. Distilled from the root of the Valerianæ Officinalis.—Natural order Valerianaceæ. When first prepared, colorless, but by age and exposure it becomes yellow and thick. Odor, pungent, with intensified aroma of the root; taste, aromatic and warm; specific gravity about 0.95; constituents, not thoroughly known; rarely found in the stores; effects, same as the root. There are seven aforementioned volatile oils heavier than water, cloves, almond, cinnamon, mustard, sasafras, gaultheria and pimento, the two last are the heaviest.

Laurus Camphora, Cinnamonum Camphora, Camphora officinarum.—Natural order Lauraceæ. Native of China and Japan. This large evergreen tree is adorned with smooth, coriaceous, shining, green leaves, alternately arranged on the branches and ovate-lanceolate in shape, ornamented with small white flowers arranged in terminal corymbose panicles, and hermaphrodite; perianth, 6-parted, with a deciduous limb. The fertile stamens number 9, and these are arranged in three rows, the three inner ones supported at the base by two stipate,

compressed glands. The anthers have 4 cells, which open by as many ascending valves. The fruit is a drupe, and situated in the base of the perianth. The wood of the tree is much used in China for making boxes, trunks, etc., to preserve clothing against moths.

Camphora, Camphor, Gum Camphor; is really a concrete volatile oil, and is obtained from the above trees by exposing the wood and branches to the vapors of the boiling water. The crude camphor thus obtained is pressed from the adhering volatile oil of camphor, after which it is refined by sublimation. Crude Camphor occurs in commerce in small grains or granular masses, packed in lead-lined chests containing about 130 pounds. The Chinese camphor is cheaper than the Japanese, and is produced in the Island of Formosa. Most of the crude camphor is sent from Canton, but it also comes from Batavia, Calcutta, Singapore, and even London. Crude camphor is rarely if ever to be found in the drug stores. Refined Camphor is found in blocks or tough translucent masses of a crystalline texture, easily pulverized in the presence of a small quantity of alcohol or ether; odor of its own kind and penetrating; taste, cool and pungent, slightly soluble in water, but freely so in alcohol, ether and oil. When heated with acid nitric it yields 2 acids: Camphoric and Camphoronic acid; with the zinc chloride it yields a substance called cymol. The specific gravity of campor is 0.99, whilst it melts at 347° F. (175° C.), boils at 401° F. (205° C.), and burns without leaving any residue. The

medical effects of camphor and its preparations are antispasmodic, stimulant, rubefacient, sedative and resolvent, the dose of which is 1 to 15 grains (0.06 to 1.0 gram), and forms an ingredient in the following officinal preparations: AQUA CAMPHORA, CERATIUM PLUMBI, SUBACETATIS, TINCTURE OPII CAMPHORATA, MISTURA CHLOROFORM, SPIRITUS CAMPHOR, LINIMENTUM SAPONIS.

ANIMAL DRUGS.

Animals and parts of animals have been used from the earliest history of man as curative agents, they have either been applied externally, as charms against disease, or given in form of some famed elixir; after which crabs' eyes, egg shell, burnt sponge, and the powdered remains of the cuttle fish have been used. The list of animal drugs, now recommended by the Pharmacopœia is but a small one, a portion of which might be advantageously excluded as remedies for internal use.

Adeps, lard; **Axungia Porci,** Hogs' lard.—The prepared fat of the *sus scrofa.* class Mammalia, and order Pachydermata. The finest quality of lard is obtained from the fat around the kidneys and the intestines of the animal. This select fat is subjected to washing and the removal of all membrane; the water is then carefully drained off, after which heat is applied, but the temperature should never go beyond that of boiling water (212°); the liquid fat is then strained, and in a few hours is ready for use.

Lard is a soft, greasy, white substance, having a specific gravity of 0.94, readily melting at 95° F., and when pure has little odor, but a decided fleshy taste. Lard contains about 60 per cent. of *olein*, with a combination of *stearin* and *palmitin*. Gum benzoin is added to lard to preserve it from rancidity, also to form the officinal *adeps benzoatus* of the Pharmacopœia.

Lard enters into combination with wax, oil, and spermaceti to form the officinal ointments and cerates. The word lard is derived from the French, *lard*, and the Latin, *lardum;* whilst the word hog is derived from the Welsh, *kwoch*, a swine, or from the Breton, *hoch*, from *houcha*, to grunt, etc.

Ambra Grisea, Ambergris.—This substance is found floating on the sea in the vicinity of the East Indian Islands; also on the coasts of Brazil, China, Japan, and America. Ambergris is said to be found in the stomachs of most voracious fishes, but it is described as a morbid excretion of the *physeter macrocephalus* (spermaceti whale), class Mammalia, and order Cetacea. Most of the authorities on the subject assert that it is only found in the intestines of sickly fish. Some authors of equal authority affirm that ambergris is of vegetable origin, and somewhat similar, or rather, analogous, to amber; hence the name—ambergris, gray amber. This substance is found on the bosom of the ocean in various-sized pieces, varying from a few ounces to several pounds; it is also found in small pieces in the intestines and stomachs of the various large fishes. In appearance ambergris is of a gray or brownish-gray color, dot-

ted and streaked; it closely resembles pumice stone, and contains extractive matter and ambrein, which when isolated occurs in needle-shaped crystals. The odor resembles fœcal matter found in a country privy, the urine of which has been drained off by the earth. Only used as an adjunct to perfumery.

Butyrum, Butter.—Obtained from the cream (rising upon milk) by process of churning, and as a rule is made from the milk of the cow—the genus *Bos Taurus*, class *Mammalia*, and order *Ruminantia*. This substance, so well known as a food and luxury, exists in the milk of all the Mammalia.

The quality and odor of butter depend greatly upon the length of time the cream is allowed to stand, and the kind of food upon which the animal is fed. Butter, like the other fats of animal origin, contains *olein*, *palmitin*, *stearin*, and *glycerides*. The first named principle constitutes about 30 per cent., the second 68 per cent while the glicerides make up the balance in a hundred parts of the whole. When saponified by the alkaline salts butter yields *caprylic*, *capronic*, and *butyric acids*. Butter when used for medicinal purposes should be fresh and free from salt and casein, and this is done by melting it in warm water and decanting the clear liquid. Fresh butter ointment is recommended as a remedy in some skin affections.

Castoreum, Castor.—This substance is obtained from the Castor Fiber, or Beaver, and from both the male and female animals. The follicles are situated in or about the genital

organs. The beaver belongs to the class Mammalia, and the order Rodentia, although the tail differs from that of the rat family by being almost oval in form, and flattened horizontally. The castor sacs occur in pairs about 3 inches long and somewhat pyriform in shape, of a grayish-black or deep brown color, containing a resin-like substance of a dark brown color, with a peculiarly strong odor and an acrid, nauseous taste; fairly soluble in 95 per cent alcohol; also in ether. There are two kinds of castor found in commerce, the European and American; the former sacs contain about twice the amount of secretion, whilst the latter (the American, or Canadian) weigh from 1 to 4 ounces only. The secretion contains the following constituents: *Fat*, *albuminoid principles*, some *salts*, *volatile oil*, *resin*, *carbolic acid*, *salicin*, and *castorin*. The castor is adulterated occasionally with blood, resin, and other foreign substances; it is used in medicine as a stimulant, emmenagogue, and antispasmodic, and given in doses of 5 to 30 grains; the tincture is the usual form of its administration.

Cantharis, Cantharides, Spanish Flies; also technically called by Linnæus, *molæ*, *vesicatorius ;* by Geoffrey, *cantharis vesicatoria ;* and by Fabricius, *lytta vesicatoria* (the names adopted by many of the Pharmacopœias), and belong to the class of Insecta, and order Coleoptera.—There are said to be eleven or more species of the fly or beetle, among which are the *mylabris cichorii*, *mylabris phalerata*, and the *cantharis vittata*, which latter insect is a native of the United States, and is commonly known as the

potato fly, because it is found on the green and flowering tops of that vegetable. The Spanish fly, the one under discussion, is a native of central and southern Europe, and is found abundantly on the trees and shrubs belonging to the natural order of Caprifoliaceæ and Oleaceæ. They are obtained for the drug market by beating the branches of the trees or shrubs. The insects are caught upon cloths placed beneath for that purpose. They are then plunged into vinegar, or else placed in sieves and exposed to the action of turpentine and the vapor of vinegar, hot water, etc. The Spanish fly is of a bronze or copper-green color, with brown, transparent wings, about 1 inch long (25 millimeters) and ¼ inch broad 6 millimeters); the odor is strong and unpleasant. The powder presents a grayish-brown appearance, showing many green and bronze-like looking particles. Cantharides contains *acetic* and *uric acids*, *phosphates of lime*, *magnesia*, *fatty matter*, *oil*, and *cantharidin*, which is the active principle, an intermediate substance between a *resin* and *volatile oil*, crystallized in colorless scales, and composed of $C_{10} H_{12} O_4$; soluble in alcohol, ether, volatile oils, chloroform, and some of the fats.

The potato fly must not be confounded with the small potato bug. The former is about the size of the Spanish fly, with black wing cases, striped with yellow along the margins, with a yellow stripe along the back. The bug is small, and is dotted with yellowish-red and black spots, and has none of the qualities of the species. The medical properties of the Spanish fly are

diuretic and aphrodisiac. Externally it is rubefacient and vesicant; it is also an acrid poison; the dose $\frac{1}{6}$ *to* 1 *grain* (0.01 to 0.07 grams). The officinal preparations are the TINCTURE, CERATE, COLLODION, and WARMIMG PLASTER (emplastrum calefaciens), etc.

Cetaceum, Spermaceti.—This solid crystalline fat is obtained from the head of the sperm whale, the *physeter macrocephalus*, class Mammalia and order Cetacea, which is found in the waters of the Indian and Pacific Oceans. Spermaceti is not found in the whale as we see it in the stores, but as a mixture of oil and other foreign bodies, from which it is separated by melting in water, expressing, congealing, etc.

Spermaceti, as found in the stores, occurs in large masses or cakes of a white crystalline nature, easily powdered by the means of alcohol, melting at about 120° F., with a specific gravity of 0.95, and contains principally a substance called *cetin*, which the chemists term *cetyl palmitate*. When saponified, spermaceti yields a white crystalline substance, called ethal, in in place of glycerine, which latter constituent is found in all of the other fats and oils. Spermaceti, in conjunction with other remedies, forms ointments and cerates, several of which are officinal.

Civetta, Civet.—This substance is found in a pouch or gland, between the anus and genital organs of the Viverra Zibetha, or civet cat; class Mammalia, and order Carnivora.

Civet, when fresh, is unctuous and of a yellowish color. but as found in commerce it is of a brownish shade, and somewhat agglutinated;

partly soluble in alcohol and ether, but insoluble in water. When fresh, civet has a disgusting odor of its own kind, but when largely diluted with alcohol the perfume is not disagreeable to most persons, and reminds one of musk. At one time the civet was obtained from the animal while confined in cages, the pouch being scraped out once or twice a week. Amsterdam furnished the supply obtained in this way many years ago. The source of civet is now from the province of Malabar and Bassora, a city on the river Euphrates. Civet contains, according to authority, *fat*, *resin*, *coloring matter*, *salts*, and a *volatile oil*. This substance has been used as a stimulant and anti-spasmodic, but is now wholly employed as an adjunct to perfumery.

Coccus, Cochineal.—The female of the coccus cacti, which belongs to the class Insecta, and the order Hemiptera. This little bug or insect is found clinging and propagating upon the opuntia cochinilliferæ, and other species of the cactus family found growing in Central America and Mexico. The coccus are obtained by brushing or shaking the plants, and then subjecting the insect to hot water or heated plates of sheet iron. In appearance the cochineal closely resemble vegetable matter, but upon close examination we will find them angular, flat, oblong in shape and concave beneath, and about one-fifth of an inch long; they have six short legs. The insect in a dry state is very much wrinkled, and of a gray, inclining to a purple color. When powdered, the mass presents a dark purple-like appearance, with a faint

odor and a bitter taste. The cochineal contains *carminic acid*, *fats*, *salts* and *mucilage*, and is anti-spasmodic, diuretic and stimulating in its effects. It is more used as a dye and coloring matter than as a medicine for the cure of disease. Dose from 1 to 15 grains (0.06 to 1.0. gram).

Fel Bovinum, Ox Bile, Ox Gall.—Obtained from the gall-bladder of the bos taurus; class Mammalia, and the order Ruminantia. This substance is mixed when fresh with double its volume of alcohol, and allowed to stand some ten or twelve hours. It is then evaporated over a water bath to the consistence of solid extracts. After this process the gall is said to be purified, and occurs as a yellowish green substance of the consistence of an extract, with a faint and peculiar odor. Taste is at first sweet, after which intensely bitter and nauseous. Bile is the secretion which emulsifies all the fatty matters taken in as food, and therefore may be called a natural solution of soap. Bile contains *taurocholic* and *glycocholic acids*, in combination of the *salts of sodium*, *cholesterin*, *phosphates*, *bilirubin* and *mucus*.

The medical properties of the purified ox bile or gall are tonic and laxative, and it is given in doses of 5 to 60 grains (0.03 to 4) grams. For further account see some late work on organic chemistry.

Glycerinum, Glycerin or Glycerine.—This substance is obtained from all the fats and fixed oils, with the exception of spermaceti. It was first discovered by Scheele in 1789, and called

by him the *sweet principle of oils*; but the process for obtaining the glycerin from fatty matter was first patented by Mr. R. A. Tilgham in 1854. This process is used in the manufacture of glycerin by Messrs. Price & Co., of London, also by many firms in this country. Glycerin is obtained by the decomposition of fats and fixed oils in the manufacture of soap, which is the principal source of the commercial glycerin. By Mr. Tilgham's process it is purified and distilled for medical use. The best glycerine contains some water, and it is impossible to free it entirely from this element. When absolute, it still holds in solution two per cent. of water; specific gravity, 1.25; mixes in all proportions with water, and forms officinal compounds with *starch*, *carbolic*, *tannic* and *gallic acids*, also with the yellow of the egg, and borax. As to its medical effects, it is not well defined. It is used as a vehicle for other remedies, but it is said to be a laxative. Externally it is used in the cure of some skin diseases. (See Dispensatory, 17th ed.

Mel, Honey.—This saccharine substance is deposited in cells which are made for that purpose by the Apis Mellifica (honey bee), class Insecta, and order Hymenoptera. Honey is obtained by draining the comb or cells, by which we get a pale yellow or brownish-yellow syrup liquid. Pressure and heat are also resorted to. This is done by the means of the water bath; the impurities are removed by skimming, and freed from all extraneous matter we obtain the Mel Despumatum (clarified honey) of the Parmacopœia. Honey has a slight acid reaction; odor,

faintly aromatic; taste, sweet and of its own kind. Honey contains two sugars [which are distinguished from each other by their rotating power on polarized light and are called levulose and dextrose], *wax*, *oil*, *coloring matter*, *mucilage* and *acid*. This well known luxury is also used in medicine as a demulcent and protective; it enters as an ingredient into the confections of rose, pepper, turpentine and scammony; also in honey of rose, borax and honey; also in the oxymel of squills. Honey is often subjected to adulteration; sugar and its syrup are used extensively for the purpose. There are various tests, and very delicate ones, one of the surest being that the common house fly is not attracted by the pure article.

Hirudo, Leech (sanquis medicinalis; sanquisuga, officinalis). The leech belongs to the class of Verms, order Annulata and sub-order Apoda, family Hirudinea. This worm is found in the northern, central and southern portions of Europe in the fresh water ponds, and attains a length of from three to six inches, the body being made up of numerous rings; the leech on the back is of an olive or blackish-green, with six stripes running along the entire length showing many black dots, whilst the belly is of an olive-green color inclining to a mixture of yellow and green.

The Sweedish or German worm, found in northern and central Europe, has the greatest number of spots, and sucks or draws about its own weight of blood. The Hungarian leech of southern Europe has none of the black spots, and may be distinguished also by a black line

on either side of the body; this leech draws a larger amount of blood than the German worm. Both varieties taper toward each end, and are armed with three jaws, and in each jaw are to be found a double row of teeth. Leeches are propagated in shallow ponds, and feed upon the blood of the worn-out horses which have seen their best days. These poor beasts are driven into ponds, and allowed to remain until they are covered over with blood-sucking worms. The leeches are thus fattened for the market; and, indeed, the horse is only allowed to come out to be fed that he may have the strength to return and be bled to death by these blood-thirsty worms. Notwithstanding the propensity of the leech for this kind of food, they can only be kept in a state of health, for application to the human being, by preserving them in clean river water at a temperature not above 68° F. (20° C.), and it is usual to place in the water some pebbles, moss, charcoal, etc. Leeches when once applied should be placed by themselves, and should not be again used for six months. A little table salt will cause the worm to disgorge the blood it has drawn.

The leech is used in medicine only for local blood letting. The leech found in this country is known as the hirudo decora, and will draw a little more than two fluid drachms of blood, whilst the European will extract as much as one fluid ounce. (For further account see Dispensatory).

Ichthyocolla, Isinglass.—Obtained from the *acipenser huso* and other species of the Acipenser, and called by the Russians bulugo; belong-

ing to the class Pisces (fishes) and the order Sturiones (sturgeon), which are found abundantly in the Black and Caspian seas. Isinglass is but the dried air bladder (*also known as* sound) *of the fish, which bladder enables the* fish to *rise or sink in the water at will.* The isinglass is also prepared in this country (New England) from the sounds of the hake (*gadus merluccius*), which is quite abundant in the waters along the New England coast. In commerce isinglass is known as the leaf, book and staple isinglass; the first is found in separate sheets, the second in two or more sheets, folded together, whilst the last named staple isinglass is folded or rolled into various forms. This membranous tissue occurs as a horny or pearly substance exhibiting either a creamy or a yellowish, semi-transparent appearance, the odor of which is *feeble and the taste insipid* and sticky.

The constituents of isinglass are principally made up of *glutin*, say about 95 per cent; the balance, 5 per cent, is made up of membrane and salts. Medicinally, isinglass is of little use, save as a protective and nutritive agent, forming also the basis of the English court plaster.

Gelatin, Gelatina.—Obtained from boiling and evaporating the bones, skins and cartilages of the various animals slaughtered for the market. This substance closely resembles isinglass, and is used for the same purposes, except the inferior qualities, which are known in commerce as white and common glue. The bet'er qualities are used domestically as a jelly and medicinally to form capsules, in which are

placed the many nauseous remedies which are applicable to the cure of disease, and these capsules are divided into hard and soft. (See Dispensatory).

Lac, Milk.—As a food this liquid is well known. Its constituents are not so familiar, and its technical arrangement as a food is understood only by the chemist. Milk is from the mammary gland and udders of the cow, Bos Taurus, class Mammalia, and order Ruminantia; milk is white, opaque, with little odor and a bland sweet taste, having a specific gravity varying from 1.030 to 1.035. Milk is really a natural emulsion and contains *water*, *butter*, *casein* and *salts;* water constitutes about 87 per cent of the whole, and the solid matter about 13 per cent. The butter is held in suspension or emulsion by the *casein.* The salts are chiefly the chlorides and phosphates and make up about 0.7 per cent of the amount. Ordinarily the heat of summer converts the milk in a few hours from an alkaline to an acid reaction. This is the lactic acid of the stores. Whilst this body is a constituent of milk, it is said to be an abnormal one, and is developed by the agency of *casein*, which is supposed to act as a ferment on the sugar in the milk. The fat or cream (cremor lactis), consists of *serum* and *albuminoid* matter, whilst the skim milk contains *sugar*, *salts*, and some of the *albuminoid* principles. By long agitation, as in the process of churning, the fat or butter is partially separated, and the thick opaque residue is the butter-milk, (lac ebutyratum) which contains minute specks of *butter*, *sugar*, *salts* and *acid.* By

heat, acid and rennet (serum lactis dulce) milk is converted into a pearly liquid which is the true serum of this body, and contains *salts* and *sugar*. Milk is the only food that is capable of supporting life without the aid of water; and is, therefore, well adapted for nutritive purposes in all wasting diseases or mechanical injuries, where solid food would be inadmissable. The ass's milk contains the largest per cent of water, the greatest quantity of sugar and soluble salts, and the smallest amount of fat of all the milks analyzed. Human milk contains 88.6 per cent of water, 2.6 per cent fat, 4.9 per cent salts and sugar, and about 3.9 per cent of insoluble salts and casein; whilst the goat milk contains more fat and more casein than any of the other milks. The various conditions and forms in which we find this animal secretion existing are both entertaining and instructive, and I refer you to some late work on the chemistry of milk.

Moschus, Musk.—This odoriferous substance is obtained from the preputial follicles of the male animal known as the *moschus moschiferus*, which differs from the deer family by the absence of horns. It belongs to the class Mammalia and the order of Ruminantia. This small deer inhabits the mountain regions of central Asia from Thibet to China. The sac containing the musk is naked and smooth above where it is attached against the belly of the deer, and convex below and covered with hair; internally, the sac is made up of irregular crumbly grains or masses, which have a brown red color and a penetrating and persistent odor,

with a peculiar, bitter taste. The size of the sac varies, but is usually one or two inches in diameter; 95 per cent alcohol dissolves only about $\frac{1}{10}$ of the weight of musk, and water nearly one-half of the weight of the substance, the solution of which is of a deep brown color, very odorous and of an acid reaction. On being burned the musk gives off an odor somewhat like urine. The musk found in commerce is known as the Chinese, Thibet or Tonquin musk; this is said to be the best, although the Siberian or Russian musk is often of fine quality. The musk sacs are often relieved of their contents, and dried blood, resin, etc., perfumed with the genuine secretion, is placed therein. Musk contains *fat*, *acid*, *ammonia*, *wax*, *gelatine*, *albumin*, and a substance called *cholesterin*, and its powerful odorous principle, which has not been isolated. Musk is anti-spasmodic, stimulating and aphrodisiac in its action, and may be given in form of pill, powder and tincture, the dose of which is from 5 to 10 grains (0.3 to 0.6 grams). The tincture is officinal, but is rarely prescribed, probably on account of the high price.

There is no doubt that the musk is obtained from the animal described; but the Chinese writers assert that this timid animal is capable of throwing off the secretion during the rutting season, and does so always in one place, and Dr. Macgowan asserts that as much as twenty pounds have been found in these depositories made by the animal year after year. This statement seems reasonable from the fact that the animal is very timid, the demand large,

and the supply ample, which would not be the case, if we obtained the sacs only from the slaughtered animals.

Ovum, Egg. Source Gallus Bankiva; variety DOMESTICUS, class AVES, order GALLINÆ.—Native of Java and Cochin China, and now domesticated in all parts of the world. The egg is made up of shell, lining membranes, albumin and yolk.

The testa ovi is composed of calcium carbonate and magnesium phosphates and some organic matter, the latter probably accounting for the shades of brown that some eggs have. The white (albumin ovi) weighs in an ordinary sized egg about five drachms (20 grams), and consists of about 80 or 90 per cent of water and the balance of solid matter, the larger portion of which is pure albumin; the balance constitutes but a trace of *sugar*, *fat*, *sodium chloride*, *potassium chloride*, *calcium carbonate*, and some *phosphates of iron*, and *magnesium*. The yelk or yolk (vitellus ovi), constitutes about one-half of the entire egg by weight, and is made up of the following constituents: *water*, 50 or more per cent; *vitellin*, 15 per cent; *nuclein*, 1½ per cent; *palmitin stearin* and *olein*, 20.3 per cent; *cholesterin*, 0.4 per cent; *phospho-glyceric acid*, 1½ per cent; *lecithin*, 7 per cent; *cerebrin*, $\frac{3}{10}$ per cent; and coloring matter makes up the balance in a possible hundred parts of the whole. The use of the egg as a food is too well known to need an explanation, but as a remedy and adjunct to other remedies will we only call your attention. The testa ovi is antacid in its properties and was once highly

thought of; at present it has been superceded by the alkaline carbonates of lime, soda and potassium. The white or albumin ovi is used to clarify mixtures and to act as an antidote to most of the metallic poisons, whilst the yellow (vitellus ovi) is employed for emulsifying the oils and forming an ingredient with those agents which are administered for a supporting treatment in all wasting diseases. The yolk forms an ingredient in the following officinal preparations: MISTURA CHLOROFORMI, U. S., and the MISTURA SPIRITUS VINI GALLICI of the British Pharmacopœia.

Pepsinum, Pepsin.–The digestive principle of gastric juice. Obtained by washing the stomach and scraping off the mucous membrane, which is then digested in distilled water, adding lead acetate, which throws down a precipitate of the metal and pepsin. This precipitate is subjected to the action of sulphuretted hydrogen, which body unites with the lead and leaves the pepsin in solution; this is then acidulated with lactic acid, after which the solution is evaporated and dried and mixed with starch or sugar of milk (although much of the pepsin is but the mucous membrane dried and powdered). This substance is from the stomachs of the calf (the young of the *bos taurus*), hog (*sus scrofa*), and the sheep (*ovis aries*). The pepsin made from the stomach of the hog is said to be stronger than that made from the calf and sheep, and is procured without the aid of lead; 5 or 10 grains of pepsin (when carefully prepared) in solution and acidulated should readily dissolve 100 grains

of albumen or fibrin, when kept at a temperature of 100° F. Pepsin is used in feeble digestion in doses of 2 to 10 grains, and administered in form of wine, liquor, etc. For further information see Dispensatory. The name is from the Greek word *pesso*, or *pepso*, I digest; French, *pepsine*.

Spongia, Sponge (Spongia officinalis).—Belongs to the class Spongida, or as some naturalists have it, Poriphera, and the order Ceratospongia. The sponge was long thought to be of vegetable growth, but it is now proven to be of animal origin; they are found attached to the rocks in the Mediterranean Sea, Grecian Archipelago, and the waters of the Bahama and West Indian Islands. The Turkey or Mediterranean sponges are best known, but even many of these are of inferior quality. The best, however, are fine and soft in texture and cup-shaped, and composed of a mesh-work of solid interlacing threads or filaments, averaging in diameter about one millimeter. Of course, the common varieties of sponge present under the microscope filaments of a much coarser nature, and numerous spicules of various forms.

The Mediterranean sponges are sorted out as follows: Cups, toilets (which are of all sizes and shapes), toilet baths, carriage, and brown Turkey sponges. These, with the West India and Florida, boat or sheep wool, velvet, grass, and glove sponges are about the list of the kinds found in the market. Sponge contains, besides the many impurities lurking within its meshes, various *salts* of *iodine*, *bromine*, *potassium*, *lime*, and a substance termed *spongin*. Sponges are

used medicinally for sponge-tents, and cleansing wounds, etc. (See Dispensatory).

Sevum, Suet.—This fat is obtained from the sheep, *ovis aries*, class Mammalia, and order Ruminantia. Suet, or mutton tallow, as it is more commonly called, is purified by melting in water, straining and allowing it to cool in shallow moulds or dishes. Suet occurs in solid white masses or cakes, with an odor of mutton, with the characteristic taste of the animal; melting at about 113° F. (45° C.) and containing *olein*, *stearin*, *palmitin* and *hircin*, the *stearin* forming two-thirds or more of the entire constituents. The mutton suet is used externally as a protective and emollient, and as an ingredient in the *emplastrum cantharides* and *unguentum hydragyri*. Mutton suet must not be confounded with fat obtained from the *bos taurus*, which yields the *sevum bovinum*, which is principally used in the manufacture of soaps, glycerine, etc.

GLOSSARY

CONTAINING

The most important terms used in Materia Medica and Botany, their derivation and correct pronunciation.

WITH AN

Addenda of abreviations used by physicians in prescribing.

Alphabetical List

or

Abbreviations Used in the Glossary.

A. S., – – – –	ANGLO SAXON
Celt., – – – – –	CELTIC
Dan,, – – – –	DANISH
Dut., – – – – –	DUTCH
Eng., – – – –	ENGLISH
F., – – – – –	FRENCH
Gael., – – – –	GAELIC
Ger., – – – – –	GERMAN
Gr., – – – –	GREEK
Icel., – – – – –	ICELANDIC
It., – – – – –	ITALIAN
Lat., – – – – –	LATIN

Abietic—a-bi′-et-ic (Lat. *abies*, the fir tree). Pertaining to the fir tree.

Abortive—a-bor′-tive (Lat. *abortio*, a miscarriage, from *ab*, *orior*, I arise). Where the plant, flower or fruit fails to come to maturity.

Absinthe—(Fr. *absinth*). A well known compound liqueur composed of wormwood and other ingredients; a French intoxicating beverage.

Acacia—a-ka′-shi-a (Lat. *acacia*: Gr. *akakia*, a thorn). A tree known as the Egyptian thorn; the acacia vera, which yields the well known gum arabic.

Acanaceous or **Acanthaceous**—a- kan-tha′-shus (Gr. *akantha*, a spine). A plant armed with spines or thorns.

Acaulous—a-kaw′-lis, also **Acauline** (Gr. *a*, without; *kaulos*, a stalk). Stemless, a plant without a visible stalk.

Acerose—as′-er-oz, also **Acerous** (Lat. *acus*, a needle or chaff; *acer*, sharp). Applied to leaves like the pine tree.

Acetyl—as′-et-il (Lat. *acetum*, acid vinegar; Gr. *hule*, matter). The hypothetical radical of acetic acid.

Aceric—a-ser′-ik (Lat. *acer*, a maple tree) of the maple tree, as aceric acid, an acid found in its juice.

Actinoid—ak-tin′-oyd (Gr. *aktin*, a ray; and *eidos*, form, resemblance). Formed like, or resembling a ray, applied in botany to those flowers whose rays are like the daisy, dandelion, etc.

Actinology—ak′-tin-ol-oji (Gr. *aktin*, a ray; and *logos*, a treatise or discourse). The science or doctrine of the rays of light.

Acrocarpi, plural—ak′-ro-kar-pi (Gr. *akros*, at the highest point; *karpos*, fruit). Mosses which have their fruit terminating the axis.

Acrocarpous—ak′-ro-kar-pous, bearing fruit at the terminating axis of the plant, at or near the apex.

Acheillary—ak-il′-er-i (Gr. *a*, without; *cheilos*, a lip). An undeveloped lip-shaped petal, occurring as a rule in the orchid family.

Achene—ak-e′-ne, also **Achaenium,** ak-e-nium (Gr. *achanes*, from *a* not, without; *chaino*, I crack or yawn). A one-seeded seed vessel which does not crack or open.

Achlamydeous—ak′-lam-id-e-us (Gr. *a* without; *chlamus*, a loose, warm cloak). Naked flowers, plants having no floral envelope.

Acicular—a-sik′-u-lar (Lat. *acus*, a needle; *acicular*, a little needle). Applied to chemicals of mineral and vegetable origin.

Acid—as′-id (Lat. *acidus*, sharp to the taste, sour; from *aceo*, I am sour or sharp; connected with *acus*, a needle). A body which unites with bases to form salts; but chemically speaking, acids are not always sour.

Acinaceous—as′-i-na′-shus (Lat. *acinus*, a stone or seed in a berry). Full of kernels.

Acinaciform—as′-in-as′-i-form (Lat. *acinaces*, a straight sword or sabre). Leaves shaped like a Turkish scimetar or sword.

Aconite—ak′-o-nit (Lat. *aconitum*; Gr. *akonitum*). A poisonous plant commonly known

as monk's hood or wolf's bane, used as a medicine. Nat. order Ranunculaceæ.

Acotyledon—a-kot'-i-le'-don (Gr. *a*, without; *kotuledon*, a seed lobe). A plant whose germs have no seed lobes.

Acrogen—ak'-ro-jen (Gr. *akros; gennao*, I produce). A plant which increases its growth at the top; summit grower, as in the ferns, horsetails and club mosses.

Adventitious—ad'-ven-tish-us (Lat. *adventitius*, abroad, foreign, from *adventus*, a coming to, an arrival, from *ad*, from, and *venio*, I come). Abnormal position, accidental, relating, in botany, to false position of organs in the plant, as roots growing on aerial stems.

Ærophytes—ar'-o-fits (Gr. *aer*, air; *phuton*, a plant). Plants that live and flourish exclusively on and in the air.

Æstivation—(see estivation). The plants that blossom in summer.

Agamous—ag-a'-mus (Fr. *a*, without; *gamos*, marriage). Plants that have no visible organs of reproduction.

Aggregate—ag'-gra-gat (Lat. *aggrego*, I gather together, as in a flock; from *grex*, a flock). A number of compound flowers also used in the umbellate, cymose, glumose and spadiceous inflorescence.

Albuminous—(Lat. *albus*, white). Having the nature of albumen.

Alburnum—(Lat. *albus*, white). The soft, white portion of a tree next to the bark; the sap wood.

Alembic—a-lem'-bik (Arabic *hleo* or *al*, the, and *ambig*, a chemical vessel; Spanish *alam-*

bique). A vessel, shaped like a gourd, for chemical purposes.

Algæ—al′-je (Lat. sea weed). An aquatic plant.

Alkali—al′-kali (Arabic *alqali*, the salt of ashes). A substance like soda or potash, capable of neutralizing an acid.

Alliaceous—al-la′-shus (Lat. *allium*, garlic. An onion-like odor.

Allopathy—al-lop′-a-thi (Gr. *allos*, another, and *pathos*, a disease). The practice of medicine which consists in using drugs which produce an opposite condition from that of the disease to be cured or alleviated.

Amaranth—am′-a-ranth (Lat. *amarantus*, unfading). A flower inclined to a purple color.

Amber—am′-ber (Fr. *ambre*; Spanish *ambra*; Arabic *ambar*). A fossil gum resin of a transparent yellow color, found in the Baltic sea.

Ambergris—am′-ber-gres (Fr. *ambre*, and *gris*, gray). A waxy, ash-colored substance; a secretion of the sperm whale; a fragrant drug.

Ament, or Amentum—(Lat. a leather thong). A catkin or an imperfect flower. Example; the willow, like a rope or a cat's tail.

Amphigens—am′-fi-jenz (Gr. *amphi*, on both sides, both, and *genos*, birth) Plants that grow on all sides. Example: lichens.

Amphitropal — am-fit′-ro-pal (Gr. *amphi*, around, and *tropeo*, I turn). Where the embryo of a seed turns or curves so much as to bring both ends close together towards the hilum.

Amplexicaul—am-pleks'-i-kawl (Lat. *amplector*, I embrace, and *caulis*, stem). Leaves that embrace the stem. Examples: honeysuckle, jasmine, etc.

Ampulla—am-pul'-la (Lat.) A flask or bottle, a hollow leaf swelled out like a bottle.

Amyl—am-il, (Lat. *amylum;* Gr. *amulon*, starch, from Gr. *a*, without; and *mule*, a mill). In chemistry the base or hypothetical radical of the methyl series.

Analysis—a-nal'-i-sis (Gr. *ana*, again; *lusis*, loosing). A separation of a compound into its elements; in botany, the separation of the proximate principles of a plant, oils, resins and alkaloids.

Anastomose—an-as'-to-moz (Gr. *ana*, through; *stoma*, a mouth). In botany, the union of vessels, as in the delicate crossings, and unions, of the veins of a leaf.

Anatropal—an-at'-ro-pal, also **anatropus** (Gr. *ana*, up or over, and *trepo*, I turn). In botany, where the hilum and micropyle come near each other; an inverted ovule.

Antacid—ant-as-id (Gr. *anti*, against; Lat. *acidus*, acid). Any substance that neutralizes an acid. Examples; potash, soda, magnesia, etc.

Anaethesia—an'-es-thezh'-i-a (Gr. *anaisthesia*, the want or loss of feeling, from *an*, without; *aisthesis*, sensation). The loss of feeling by organic or functional disease, or by chloroform, ether, or other etherial vapours.

Androcœum—an-dro-se-um (Gr. *aner*, genitive, *andros*, a man). The male organs; the stamens of the flower.

Androgynous—an-droj′-i-nus (Gr. *aner*, a man, and *gune* a woman). Of both sexes; hermaphrodite; having male and female organs on the same footstalk.

Anemone or **Anemony**—a-nem′-o-ne (Gr. *anemos*, wind). Anemone patens, wind flower.

Angiosperms—an′-ji-o-spermz (Gr. *anggeion*, a vessel, *sperma*, a seed). Plants that have their seeds enclosed or encased in a seed vessel.

Anisostemonous — an′-i-sos-tem′-o-nus (Gr. *anisos*, unequal; Lat. *stamen*, a thread, a fibre). Stamens not as numerous as the floral envel-
‘pes.

Annelida—an-nel′-i-da or an-nelids (Lat. *annellus*, a little ring Gr. *eidos*, resemblance). The lower order of animals whose bodies are largely made up of rings. Examples: leech and earth-worm.

Annular—an-nu′-lar (Lat. *annulus*, a ring). In botany, made up of rings. Example: ring or annular tissue.

Anodyne—an′-o-din (Gr. *an*, without, *odune*, pain). Any medicine that relieves pain; soothing. Examples: opium, hyoscyamus, hops, etc.

Anomopteris—an′-o-mop′ter-is Gr. *anomos*, without rule, and *pteris*, fern). Fossil ferns, differing from all recent ones.

Anophyte—an′-o-phite, plural anophites (Gr. *ano*, upward, from *ana*, up, and *phuton*, a plant, from *phuein*, to grow), a moss.

Anthelmintic — an′-thel-min-tik (Gr. *anti*, against, and *helmius*, a tape-worm). Any

medicine that is destructive to intestinal worms.

Anther—an′-ther (Gr. *antheros*, flowery, blooming). The head or top part of the stamen; the part secreting the pollen,

Antheriferous—an′-ther-if′-er-us (Gr. *antheros*; Lat. *fero*, I bear). Bearing anthers or flowers.

Antherozoides plural, an′-ther-o-zoy′-dez (Gr. *antheros*, blooming, flowery; *zoe*, life, and *eidos*, resemblance). The impregnating, movable, or male spores of the sea-weeds, mosses, and ferns.

Anthesis—an-the′-sis (Gr. *anthesis* bloom, from the word *anthos*, a flower). A word used to indicate the opening or bursting of a flower.

Anthocarpus—an-tho-kar′-pus (Gr. *anthos*, a flower, *karpos*, fruit). Formed, as a certain class of fruits, from a number of blossoms united into one body.

Anthodium—an-tho′-di-um (Gr. *anthos*, a flower, and *duo*, I put on). A term used to designate the head of a flower. Example: in the compositæ.

Anthology—an-thol′-o-ji (Gr. *anthos*, a flower, and *logos*, a discourse). A discourse on flowers; a selection or collection.

Anthophore—an′-tho-for (Gr. *anthos*, a flower, and *phero*, I carry). In botany, the stalk supporting the inner floral envelope, and separating it from the calyx.

Antiphlogistic — an′-ti-flo-jis′-tik (Gr. *anti*, against, *phlogizo*, I consume, or burn up). Medicines which check or have a tendency to subdue inflammations. Examples: calomel, and the antimonial salts, etc.

Antiseptic—an′-ti-sep′-tik (Gr. *anti*, against, *septos*, putrid). Any chemical plant or medicine that opposes rottenness or decay.

Antispasmodic—an′-ti-spas-mod′-ik (Gr. *anti*, against, *spasmos*, spasm or convulsion). A medicine that has the power to control or allay nervousness and cure spasmodic pains.

Antitropal—an-tit′-ro-pal, also antitropus (Gr. *anti*, against, and *trepo*, I turn). In botany, at the extremity most remote from the eye of the seed, as the radicle from the hilum.

Antrorse—an-trors′ (Lat. *ante*, before, and *versum*, to turn). Applied to plants whose flowers or leaves grow in an upward direction toward the summit of some particular point.

Aperient—a-per′-i-ent (Lat. *aperiens*, opening). Any mild laxative medicine that gently moves the bowels.

Apetalous—a-pet′-a-lus (Gr. *a*, without, *petalon*, a flower-leaf). A flower without petals.

Apex—a′-peks (Lat. *apexes* or *apices*, top, summit). The top or summit of a flower; the point of a leaf extremity.

Aphrodisiac—af′-ro-diz-i-ak (Gr. *aphrodisios*, pertaining to Venus). Any medicine that excites the animal in man, or excites the sexual appetites.

Aphyllous—af-fil′-lus (Gr. *a*, without, *phullon*, a leaf). Without, destitute of leaves.

Apocarpous—ap′-o-kar′-pus (Gr. *apo*, from, *karpos*, fruit). Applied to fruits when the carpels are separable, entirely separate, or only partially united.

Apophysis—a-pof′-i-sis (Gr. *apo*, from, and *phuo*, I grow). A term used in anatomy to

Arnica—ar′-ni-ka (Gr. *arnion*, a little lamb; from *arna*, a lamb). So called from the resemblance of the leaf to the soft coat or wool of the lamb. Leopard's bane, the Arnica Montana.

Aroma—a-ro′-ma (Gr. *aroma;* French, *arome*, the odor or fragrant principle of plants). Scent, perfume, etc.

Artemesia—ar-te-mizh′-i-a (Gr. *Artemis*). One of the names of Diana in mythology. She is said to have presided over women in childbed. Mother-herb, a genus of plants. Examples: Wormwood and mugwort, etc.

Asafœtida—as′-a-fet′-i-da (Lat. *asa*, a gum, and *fœtidus*, fœtid; Arabic, *asa*, healing). A gum resin; a medicine; the narthex asafœtida.

Asbestos—*as-bes′-tos or asbestus* (Gr. *asbestos*, unquenchable). A fibrous mineral of the Hornblende family, resembling fibres of flax, called rock-wood, rock-cork, mountain leather, etc.

Archegonium—ar′-ke-go′-ni-um (Gr. *arche*, beginning; and *gone*, seed, generation). The female organ of reproduction in the flowerless plants. (Cryptogams.)

Are—ar (Lat. *area*, an open place). A French measure of 100 sq. metres, or 119.60 sq. yards.

Ascidium—as-sid-i-um (Gr. *askidion*, a little bag). In botany, a form of leaf in which the stalk is hollowed out, and closed by the blade of the leaf like a lid. Example: the pitcher-plant leaf.

indicate a protuberance or a process of bone. Example: In the thigh and bones of the arm. In botany, any irregular swelling on the surface of a plant, or any enlargement at the base of a seed-vessel.

Apothecary—a-poth′-e-kar-i (Lat. *apotheca*, a storehouse; Gr. *apotheke*, *apo*, from, *theke*, a box or chest). One who prepares and sells drugs and medicines.

Apothecium—ap′-o-the′-sha-um. In botany, a case or cluster of spore cells (in lichens, as a rule) cup-shaped.

Apyrenus—a′-pi-re′-nus (Gr. *a*, without, and *puren*, a seed). Fruit which produces no seed. Example: Some varieties of the cultivated orange and pineapple, etc.

Arachnoid—a-rack′-noyd (Gr. *arachne*, a spider, *eidos*, form). In anatomy the spider-like membrane covering the brain, termed piamater. In botany, a tissue of fine downy fibers.

Arbor, or **arbour**—ar′-ber (Lat., a tree). A place shaded either by trees or vines.

Arborescent—ar′-bo-res′-ent (Lat. *arborescens*, grow to a tree). Resembling a tree; becoming woody.

Arefaction—ar′-e-fak′-shun (Lat. *areo*, I am dry, *facio*, I make). The act of drying; the act of plants drying rapidly.

Aril or **arillus**—a-ril′-lus (French *arille;* Spanish, *arillo*, and from the Lat. *aridus*, dry). The covering or exterior of a seed attached at the base only. Example: the mace of the nutmeg.

Ascus—as-kus (Gr. *askos*, a cavity or bladder). In botany a bladder-like tubular cell, many of which cells are to be found in the substance of lichens and fungi. The cells contain thin sporules.

Asperifolious—as′-per-i-fo-li-us (Lat. *asper*, rough; *folium*, a leaf). Having leaves rough or harsh to the touch.

Aspergilliformis—as′-per-jil′-li-for′-mis (Lat. *aspergo*, and *forma*, shape). A term used in botany, when little knobs or tufts of fibres assume the form of a brush.

Aspermous—a-sper′-mus (Gr. *a*, without, and *sperma*, seed). Plants devoid of seed; seedless.

Asphodel—as′-fo-del (Gr. *asphodelios*, a plant sacred to Prosperine, a mythological character). The king's spear or the day lily—and some assert it is the daffodil, and not the lily.

Aspidium—as-pid′-i-um (Gr. *aspidos*, a shield). A genus of ferns.

Atropia, Atropine, Atropina—(Gr. *atropos*, (mythology), one of the fates whose duty it was to cut the thread of life). The alkaloid of atropia belladonna, obtained from root and leaves.

Attar, also **Otto**—(Hindoo, *utr.*, Arabic, *itr;* essence perfume). Any oil extracted from the flower as a perfume. Example: rose neroli.

Auriculated—aw-rik′-u-la-ted (Lat *auricula*, the ear-flap). Petals or leaves having or bearing a resemblance to the human ear.

Auriform—aw-ri′-fawm (Lat. *auris*, an ear, and *forma*, shape). Leaves and petals resembling the human ear.

Avenaceous—av-e-na′-shus (Lat. *avena*, oats). Like oats.

Avoirdupois—av-er′-du-poyz (French, *avoir*, to have, and *du*, of the; *poids*, weight). Sixteen ounces to the pound, sold by weight, etc.

Awn—awn (Icelandic, *ogn;* Gr. *achne*, chaff, beard). As in beard of grass and oats, chaff of rye.

Axil—ak′-sil (Lat. *axilla*, the arm-pit). The upper angle formed by the attachment of a leaf or flower to the stalk or stem.

Axillary—Arising from the axil in plants.

Axunge—ak′-sunj, also **Axungea,** ak-sun-ji-a (Lat. *axis*, an axle-tree: and *unguo*, I smear). The firmest part of animal fat; lard.

Baccate—bak′-kat (Lat. *bacca*, a berry; bacciferous, from *bacca*, a berry, and *fero*, to produce). Producing berries.

Badius—bad′-i-us (Lat). A brown color; chestnut-like in color.

Bast—(Dutch *bast*, bark or peel; Swedish, *basta*, to bind). The inner bark.

Begonia—be-go′-ni-a. An interesting genus of plants named after a French botanist, Mons. Begon.

Belladonna—bel-la-don′-na (Italian, *bella*, beautiful, and *donna*, a lady). The active principle atropia is from the Gr. *atropos*, the name of one of the fates mentioned in mythology whose duty was to cut the thread of life.

Bicapsular—bi-kap′-su lar (Lat. *bis*, twice, *capsular*, a little chest). Having two seed capsules to each flower.

Biennial—bi-en′-ni-al (Lat. *bis*, twice, and *annus*, a year). Applied to plants and flowers, that bear their seeds and flowers at the end of the second year and die.

Biferous—bif′-er-us (Lat. *bis*, twice, and *fero*, I carry). Bearing fruit and flowers twice a year.

Bifurcated—bi-fer′-ka-ted (Lat. *bis*, twice, and *furca*, a fork). Separated into two heads or branches.

Bilabiate—bi-la′-bi-at (Lat. *bis*, twice, and *labium*, a lip). The mouth of any tubular organ, divided into two portions termed lips.

Bilateral—bi-lat′-er-al (Lat. *bis*, twice, and *latus*, a side). On or toward opposite sides of the plant.

Bilocular—bi-lok′-u-lar (Lat. *bis*, twice, *loculus*, a little place). A fruit or seed containing two cells.

Bioplasm—bi′-o-plazm (Gr. *bios*, life, and *plasma*, what has been formed, a model). The material through which every form of life manifests itself, the basis of life. See *Protoplasm*

Bipetalous—bi-pet′-a-lus (Lat. *bis*, twice; Gr. *petalon*, a leaf). A flower with only two petals or flower-leaves.

Biplicate—bip-li′-kat (Lat. *bis*, twice, and *plico*, I fold). Double fold in transverse manner, as in some seed lobes.

Bipinnate—bi-pin′-nat (Lat. *bis*, twice, and *pinna* or *pinno*, a feather). Having the leaf-

lets arranged doubly winged or opposite, feather-like.

Bisect—bi-sekt′ (Lat. *bis*, twice, *sectus*, to cut or divide). To cut or divide into two equal portions.

Bisexual—bi-seks′-u-al (Lat. *bis*, twice, and *sexus*, male or female. (Of both sexes, hermaphrodite.

Bite—bit (Goth. *beitan*; Icelandic, *bita*, to tear to pieces, to crush with teeth). A root, leaf or flower that has the appearance of being bitten off short. See premorse.

Blastema—blas-te′-ma (Gr. *blastano*, I germinate). The entire embryo or life of the plant.

Blastoderm—blas′-to-derm (Gr. *blastos*, a bud; *derma*, the skin). The spot, point or germinal disc of the egg, seen after the hen has set for a day or two.

Boll—bol (Dutch, a head). A capsule or pod of a plant. Example: cotton, etc.

Bolus—bo′-lus (Lat *bolus*, a mass; Gr *bolos*, a lump). A soft pill mass; a huge pill.

Borage—bo′-raj-new (Lat. *borago*, said to be a corruption of *corago*,, from *cor*, the heart, and *ago*, I bring). A medicinal plant supposed to have the power to strengthen the heart.

Botany—bot′-a-ni (Gr. *botane*, herbage, fodder; also from *boskein*, to feed or graze upon the herbage). A branch of natural history which treats of plants, their structure, habits, etc.

Botryoidal—bot′-ri-oy′-dal (Gr. *botrus*, a bunch of grapes; *eidos*, shape). Resembling a bunch of grapes. See raceme.

Bough—bow (A. S. *bog*, *bugan*, to bend). The arm or main branch of a tree.

Bourgeon—ber′-jon (Fr. *bourgeon*, pronounced boor-jon, a young sprout or bud of a vine). The first shoot or bud of a plant.

Bracheate—bra′-ka-at (Lat. *brachium*, the arm). A plant or shrub having opposite branches at right angles to each other.

Bracts—brakts (Lat. *bractea*, a thin leaf of metal). In botany, modified or imperfect leaves at the foot of a flower or stalk.

Bryology—bri-ol′-o-ji (Gr. *bruon*, moss, and *logos*, discourse). A treatise, discourse or study of mosses.

Bud—bud (Bohemian, *bodka*, a point; *bodek*, a thorn). The shoot or sprout of a plant, flower, leaf; the unexpanded flower or leaf.

Bulb—bulb (Lat. *bulbus*; Gr. *bolbos*, a globular root). A root made up of layers or scales. Example: the onion.

Bulbiferous—bul-bif′-er-us. Bulbous, bulblet. Terms applied to bulbs.

Byssus—bis′-sus (Lat.; Gr. *bussos*, fine flax). In botany, the delicate tufts of mould of fungus growth springing from damp walls or decayed vegetable matter.

Byssaceous—bis-sa′-shus. A term used to indicate the delicate cotton or wool-like filaments of plants.

Byssoid—bis′-soyd (Gr. *bussos*, and *eidos*, form). A term used to indicate delicacy in structure; cobweb-like.

Caballine—kab′-al-lin (Lat. *caballus*, a pack or inferior riding horse; Gr. *kaballes*, to a horse), an inferior Cape Aloes, horse aloes.

Caducous—ka-du′-kus (Lat. *caducus*, falling from, *cado*, to fall). The early falling of the leaves of a tree or shrub.

Cæspitose—ses′-pi-toz (Lat. *cæpez*, turf). In botany, a term applied to plants which grow in turf-like patches.

Calyptra—ka-lip′-tra (Gr. *kaluptra*, a covering for the head of a woman). The covering or hoods found on the mosses during flowering.

Calyx—ka′-liks, plural calyxes or calyces (Lat. from the Gr. *kalux*, the cup of a flower). The envelope or outer covering of the lower portion of a flower.

Calyculate—kal-lik′-u-late. A flower having the appearance of a double calyx.

Cambium—kam′-bi-um (new Lat.) The sap between the young wood and the bark of the tree or plant; the cambium layer, the young, white wood of the tree underneath the bark.

Camellia—ka-mel′-i-a (named after a Jesuite of Moravia who traveled much in Asia). A flower much admired.

Chamomile—kam′-o-mil (Gr. *chamai*, *melon*, earth apple). So called from the odor of its flower (anthemis). Natural order, Compositæ.

Campanulate—kam-pan′u-lat (Lat. *campanula*, a little bell). Plants that bear bell-shaped flowers.

Campylotropous — kam′-pi-lot′-ro-pus (Gr. *kampulos*, curved, and *trepo*, I turn). When the seed is so bent that the apex is brought near the hilum the hilum and chalaze being together. Campylotropal has the same meaning.

Cantharides—kan-thar′-i-dez (Gr. *kantharis*, a kind of beetle). Spanish flies. So called from the brown color.

Caoutchouc — ko′-chook (a native Indian word). India rubber, the dried juice of various tropical plants. Nat. order, Euphorbiaceæ.

Capillary—kap′-il-ler-i (Lat. *capillus*, a hair). Resembling a hair in minuteness; delicate tubes or fibres through which pass moisture.

Capitulum—ka-pit′-u-lum (Lat. *capitulum*, a little head). A flower composed of a number of flowerets arranged without stems on the top of a single flower-stalk. Example: clover.

Capreolate—kap′-re-o-lat (Lat. *capreolus*, a tendril of a vine, a wild goat). Having tendrils.

Capsicum—kad′-si-kum (Lat. *capsicum*, from *capsa*, a box, a chest; red or Cayenne pepper). Capsicum annuum, capsicum fastigiatum. Nat. order, Solanaceæ.

Capsule—kap′-sul Lat. *capsula*, (a little chest). The vessel or cavity in which a seed is enclosed. Example: poppy-head.

Capsular—kap′-su-lar. A hollow; full of cells.

Carminative—kar′-min-a-tiv (Italian, from *carminare*, to card wool, to break up humors). Medicine that has a warming sense after being swallowed; to expel wind and cure flatulence.

Carpel—kar-pel (Gr. *karpos*, fruit). One of the parts composing the innermost sets of the floral envelope by which the complete flower is separable.

Carpology—kar-pol′-o-ji (Gr. *karpos*, fruit, and *logos*, a discourse) The study of fruits; a treatise on fruits.

Carpophore—kar′-po-for (Gr. *karpos*, fruit, and *phoreo*, I carry). A term used when the stalk bears the pistil and raises it above the stamens.

Carthamus—kar′-tha-mus (Gr. *kathario*, I purge, I purify). The Latin name for dyer's saffron, safflower.

Caryopsis—kar′-i-op-sis (Gr. *kariion*, a nut or kernel, and *opsis*, sight, form). A dry one-seeded fruit within a thin covering or pericarp. Examples: wheat, barley, etc.

Catapetalous—kat′-a-pet′-a-lus (Gr. *kata*, under, and *petalon*, a petal). A flower having its petals held together.

Cataplasm—kat′-a-plazm (Gr. *kata*, down, *plasso*, I mould). A poultice or plaster.

Catarrh—ka-tar′ (Lat. *catarrhus*; from the Gr. *kata*, down, and *rheo*, I flow). A chronic cold in the head or an exudation from any mucous membrane.

Catkin—kat′-kin (after the domestic cat, and *kin*, little; Dut. *Katte Ken*, a little cat). A loose spike of unisexual flowers resembling a cat's tail. See Ament.

Caudate—kaw′-dat (Lat. *cauda*, a tail). The thread-like attachment at the bottom of the seed of a plant.

Caudated—kaw′-da-ted. Applied to seeds having a tail-like appendage.

Caudex—kaw′-deks (Lat. the trunk). The main axis or trunk of a plant or tree.

Caulescent—kaw-les′-ent (Lat. *caulis*, a stalk). Having a true stem on stems or stalks.

Cell—sel′ (Lat. *cella*, a hiding place). A small cavity.

Cellular—(Lat. *celula*, a little cell). Consisting of a number of cells.

Celliferous—Cellular, and *fero*, I bear. Producing cells.

Cellulose—sel′u-loz. A compound of H. O. and C. which goes to make up the principal part of the cell structure of plants.

Centimetre or **Centimeter**—sen-tim′-e-ter, (Lat. *centum*, a hundred; Gr. *metron*, a measure). A French measure of length, 0.3936 inch, about $\frac{2}{5}$ of an English inch.

Cerate—se′-rat (Lat. *cera*, wax; Italian, *cero*). Any ointment containing wax.

Ceracious—se-ra′-shus. Applied to flowers that have a wax-like appearance.

Ceratium—se-ra′-shi-um (Gr. *keras*, a horn). A long one-celled pericarp with two valves, many seeded, horn-shaped.

Cereals—se′-ri-als (Lat. *cerealis*, pertaining to grain, to the goddess of agriculture Ceres). All kinds of grain.

Cerebellum—ser′-a-bell′-um (Lat., Ital., *cerrebello*, the back and lower part of the brain base).

Cerebrum—ser′-e-brum (Lat.) The front and larger brain.

Cerebriform—(Lat. *cerebrum*, and *forma*, shape, brain-like). Example: kernel of the hickory nut, etc.

Cerulean—se-ru′-li-an (Lat. *caeruleus*, dark blue). Flowers of a sky blue color.

Cespitose—ses′-pi-toz (Lat. *cespes*, turf, turfy). Plants that have a turf like root.

Cestoid—ses′-toyd (Gr. *kestos*, a girdle, *eidos*, form). Like a girdle; intestinal worms, with long, flat bodies. Example: tape worms.

Cetaceous—se-ta′-shus (Gr. *ketos*; Lat. *cetus*, a whale). Pertaining to whales.

Chaff—chaf (Dutch *keffen*; Gr. *kaff*, to bark, to hull; idle winds, etc.; to chatter, to talk). The hull of oats, wheat, etc.

Chalza—ka-la′-za, sometimes **Chalaze** (Gr. *chalaza*, a small knob or tubercle). The point or scar where the vessels of nutrition enter the nucleus of the ovule, or seed.

Chalybeate—ka-lib′-i-at (Lat. *chalybs*; Gr. *chalups*, very hard iron). A medicine or water containing iron in solution.

Charlatan—shar′-la-tan (Spanish *charlar*, to chatter; Italian *charlatano*, a quack doctor). A pretender; one who pretends to do more than he can.

Chartaceous—shar-ta′-shus (Lat. *charta*; Gr. *chartes*, paper). Any plant or leaf flexible and thin like paper.

Chemistry—kem′-is-tri (Arabic *kimia*, the occult art; Gr. *chumos*, juice). The science which ascertains the nature of all bodies and their radicals. Organic chemistry treats of the structure of all animal and vegetable substances.

Chlorophyll—klo′-ro-fil (Gr. *chloros*, grass green; and *phullon*, a leaf). The green coloring matter in plants and leaves.

Cholagogue—kol′-a-gog (Gr. *kole*, bile, and *agogos*, a leader). Any medicine which acts

on the liver and its secretion, producing biliary discharges.

Chorion—ko′-ri-an (Gr. *chorion*, skin). In medicine the external membrane investing the fœtus in the womb. In botany, the fluid or jelly investing the ovule in its earliest stages.

Chorisis—kor′-i-sis (Gr. *chorizo*, I separate). The act of separating of one part of an organ to form a scale or the doubling of any organ of a plant.

Ciliated—(Lat. *cilium*, an eyelid with the lashes growing on it). Furnished or surrounded with parallel hairs, fibers or bristles.

Cinenchyma—si-nen′-ki-ma (Gr. *kineo*, I move, *engchuma*, an infusion). The milky tissue formed by interlacing of the various vessels of the plant.

Cinque-foil—singk′-foil (Fr. *cinque*, five, and Lat. *folium*, a leaf). A genus of plants, the Potentillas, five fingered, five leaflets.

Circinate—ser′-si-nat (Lat. *circino*, I turn around). In botany, rolled in from the summit towards the base, as in the frond of the fern, like a crosier.

Cirrose—sir′-roz (Lat. *cirrus*, a curl). Having or giving off tendrils

Cirriferous—sir-rif′-er-us (Lat. *cirrus*, and fero, I bear). Plants having or bearing tendrils.

Clavate—kla′-vat (Lat. *clava*, a club; Sanscrit, *cula*, a lance or club). Club shaped. Example: Lycopodium, club moss.

Cleistogamos—klis-tog′-a-mos (Gr. *kleistos*, shut, and *gamos*, marriage). Inconspicuous,

self fertilized flowers, as distinguished from the large conspicuously colored ones, found on the same plant, as in the violet

Clematis—klem′-a-tis (Gr. *klematis*, a vine branch, a small twig). A genus of plants mostly climbing. Example: Clematis or virgin's bower.

Clinandrium—kli′-nan-dri′-um (Gr. *kline*, a a bed; *andra*, a man). That part of the column of orchidaceous plants in which the anther lies.

Clove—klov (Lat. *clovis*, a nail; Dutch *krudgnaegel*, the nail spice). Clove spice; unexpanded flower.

Clyster—klis′-ter (Fr. *clystere*; Gr. *kluzo*, I wash or rinse). An injection for the bowels.

Coagulate—ko-ag′-u-late (Lat. *coagulare*, to curdle). To congeal, to change from a fluid into a thick mass, as the sap of various trees.

Coalesce—ko′-a-les (Lat. *coalescere*, to grow together). To unite; to grow together.

Cocciferous—kok-sif′-er-us (Gr. *kokkos*, a berry and from Lat. *fero*, I bear). Trees and plants that produce berries.

Cochineal—(Spanish *cochinilla*, a wood louse). A small insect used in medicine, and as a dye.

Cochleariform—kok′-ler-i′-fawrm (Lat *cochlear*, a spoon, and *forma*, a shape). Shaped like a spoon. In botany, leaves or petals spoon-shaped.

Codeia, or Codein—ko-de′-a (Gr. *kodeia*, a poppy-head). One of the active principles of opium, a medicine producing sleep and relieving pain; poisonous.

Collenchyma—kol′-len-ki′-ma (Gr. *kollo*, glue, and *engchuma*, a tissue). The substance between the uniting cells.

Collodion—(Gr. *kollu*, glue, and *eidos*, form). A solution of gun cotton in ether.

Comose—ko′-moz (Lat. *coma*, a hair). Furnished with hairs pubescent, as in the seeds of the willow.

Contuse—kon′-tuz (Lat. *contusum*, a bruise, from *con* and *tusus*, beaten). In medicine, the pounding of an herb or root in a mortar.

Convection—(Lat. *convectum*, to convey). The act of conveying or transmitting heat through fluids.

Convolute—kon-vo′-lot, also **Convoluted** (Lat. *con*, and *volutus*, together, curled). Rolled, curled or winding up; twisted.

Cordate—kor′-dat (Lat. *cor*, heart). Cordated, leaves of plants which resemble the heart in shape; heart-shaped.

Coriaceous—ko′-ri-a-shus (Lat. *corium*; Gr. *chorion*, skin, hide). Leaves of a leathery texture. Example: laurel, magnolia leaves.

Corolla—ko′rol-la (Lat. *corolla*, a small wreath or crown). The crown of the flower, usually the colored portion.

Corona—ko-ro′-na (Lat. *corona*, a crown). The circumference or margin of a compound flower; the margin of the corolla.

Corrugated—kor′-roo-gat-ed (Lat. *corrugatus*, to make full of wrinkles; from *con* and *ruga*, to wrinkle). When the leaf or petal is folded or wrinkled; furrowed.

Cortex—kor′-teks (Lat. *cortex*, the bark of a

tree). The natural outer covering of trees and shrubs.

Corymb—kor′-imb (Gr. *korumbos;* Lat. *corymbus*, a cluster, top cluster). An inflorescence in which the lower stalks or peduncles are longest, the flowers coming to a level.

Corymbose—Approaching in form like a corymb.

Cotyledon—kot′-i-le-don) Gr. *kotuledon*, a cup-like hollow). The temporary leaf of a plant which first appears above ground.

Cotyledonous—kot-led′-o-nus. Having seed lobes, like a bean. Example: almond, peach, bean, etc.

Cremocarp—krem′-o-carp (Gr. *kremao*, I suspend, and *karpos*, fruit). The fruit of the umbelliferæ, consisting of two one-seed carpels, completely invested by the tube of the calyx.

Crenate—kre′-nat, also **Crenated** (Lat. *crena*, a notch). A rounded notched leaf around the margin, as the buchu, crenulata.

Cristate—kris′-tat (Lat. *crista*, a crest). Plants having a crest or tuft.

Cruciferous—kru-sif′-er-us (Lat. *crux*, a cross, and *fero*, I bear). Relating to the cross-bearing plants, crusiferæ.

Cruciform—(Lat. *crux*, a cross, and *forma*, a shape). Plants having four equal petals, as in the mustard family.

Cryptogamia—krip′-to-ga-mia (Gr. *kruptos*, concealed, and *gamos*, marriage). One of the great divisions of plant life comprising mosses, lichens, mushrooms, seaweed and ferns.

Cryptogamous—krip-tog′-a-mus. Plants belonging to the order of the Cryptogamia.

Culm—kulm (Lat. *culmus*, a stalk). The stalk of wheat, rye and other cereals of like growth.

Cuniform—ku′-ni-fawrm (Lat. *cuneus*, a wedge, and *forma*, shape). The leaves of plants having a wedge-like form.

Cuticle—ku′-ti-kl (Lat. *cutis*, skin). The delicate outside covering of a plant; the exterior covering.

Cyathiform—si-ath′-i-fawm (Lat *cyathus*, a cup or small ladle, and *forma*, shape). Cup-shaped, as the cup of the acorn.

Cyme—sim (Lat. *cyma;* Gr. *kuma*, the young sprout of cabbage). An inflorescence resembling a flattened panicle. Example: the elder flower.

Cymose—simoz. Flowering in cymes.

Cyperaceous—si′-per-a-shus (Gr. *kupeiros*, a kind of rush). A natural order of plants in botany to which the sedges and grass-like plants belong, growing in tufts like sedge.

Cytoblast—si′-to-blast (Gr. *kutos*, a vessel, and *blastano*, I bud). The nucleus; the point of life in the cell, animal and vegetable.

Cytogenesis—si′-to-jen-e-sis (Gr. *kutos*, a cell, and *genesis*, origin). The grown or development of cells in animal and vegetable tissues.

Decca—dek′-a (Gr. *deka;* Sanscrit, *decan*, ten). A prefix to another word signifying ten.

Decalitre—dek′-a-le-tr)Gr. *deka*, ten; F. *litre*, a quart). French measure of capacity of ten litres.

Decametre—dek′-a-ma′-tr (Gr. *deka*, and French *metre*, a French measure of length). Nearly eleven English yards.

Decandria—de′-can-dri-a; **Decandrian**—de-kan-dri-an (Gr. *deka*, ten, and *aner*, a man, genitive, *andros*). An order of plants having ten stamens.

Deciduous—de-sid′-u-us (Lat. *deciduous*, falling off or down, from *de*, from, and *cado*, I fall). Plants that lose their leaves once a year; not perennial; not permanent.

Decoction—de-kok′-shun (Lat. *decoctus*, from *de*, from, and *coctus*, boiled or baked). The extraction of the virtues of a plant by boiling water.

Decorticate—de-kor′-ti-kat (Lat. *decorticatus*, deprived of the bark, from *de*, from, and *cortex*, bark). To peel or strip off the bark of a shrub or tree.

Decurrent—de-kur′-rent (Lat. *decurrens*, running down from a higher point, from *de* and *currens*, running). A term used in botany when flowers or leaves are attached along the stem below the point of insertion.

Decussate—de-kus′-sat (Lat. *decussatus*, to divide crosswise). Opposite leaves crossing at right angles.

Dedalous—ded′-a-lus (Lat. *dædalus*, artificial). Used in botany to indicate a winding border of leaves; irregular, jagged, not dentate or serate; by no means evenly cut.

Defoliation—de′fo-li-a-shun (Lat. *de*, from, and *folium*, a leaf). Dismantled plants whose leaves have fallen.

Dehisce—de-his'-ce (Lat. *dehisco*, I split open, from *de*, down, and *hisere*, to gape). To part, to open, to split; the act of seed pods in plants.

Dehiscent—To open, like a pod.

Dehiscence—Gaping, opening; as a pod containing seed.

Deliquesce—del'-i-kwes (Lat. *deliquescere*. to dissolve; from *de*, from, and *liquere*, to be fluid). A term used to indicate that a substance is not permanent; to absorb moisture from the air; to become liquid; zinc chloride.

Demulcent — de-mul'-sent (Lat. *demulcens*, stroking down; from *de*, from, aud *mulceo*, I soothe, gently). Any medicine which lessens the irritation of the mucous membrane, or that softens.

Deobstruent—de-ob'-stroo-ent (Lat. *de*, from, and *obstruens*, building; anything for the purpose of closing the way). A medicine having the power of moving obstructions acting on the intestines; not necessarily cathartic.

Despumate—des'-pu-mat (Lat. *despumatum*, to remove the froth or scum; from *de* and *spumo*, I foam). To froth; to throw off scum.

Despumation—The act of a liquid throwing off foam, scum and impurities; the act of separating the impurities from a syrup or liquid by boiling and straining.

Detergent — de-ter'-gent (Lat. *detergere*, to wipe off; from *de* and *tergeo*, I wipe clean). The property of cleansing, as in the soapwort family of plants; any article which has a cleansing or purifying property.

Dextrine—dek-strin (Lat. *dexter*, on the right hand). A gummy matter from grain, also obtained from starch by the action of an acid; it is called dextrine from the fact that it turns the plane of polarized light to the right hand.

Diabetes—di′-a-be′-tis (Gr. *diabetes*, a siphon; from *dia*, through, and *baino*, I go). An immoderate flow of urine; sugar in the urine.

Diachylon—di-ak′-i-lon (Gr. *dia*, through, or by means of, and *chulos*, juice). An oxide of lead ground in oil; a plaster once made from the juice of plants.

Diadelphian—di′-a-del′-phin (Gr. *dis*, two, and *adelphos*, a brother). The filaments of the stamens united into distinct bundles of brotherhoods.

Diaphoresis—di′-a-fo-re′-sis (Gr. diaphoresis, from *dia*, through, and *phoreo*, I carry). An increase of perspiration, a diaphoretic, a midicine which increases or promotes perspiration.

Diastase—di′-a-stas (Gr. *diastasis*, a standing apart; a separation). A peculiar azotised principle which converts starch into sugar; a white, amorphous substance produced in buds and seeds during the germinating period.

Dichlamydeous — dik′-la-mid′-i-us (Gr. *dis*, twice, and *chlamus*, covered; a garment). Having two coverings; in botany a flower having both a calyx and corrolla.

Dicotyledonous—di′-kot-i-led′-o-nus (Gr. *dis*, twice, and *colytedonous*). A seed having two lobes, as the bean, etc.

Didynamous—di-din′-a-mus (Gr. *dis*, twice, and *dunamos*, twin, double). Plants, flowers, seeds, growing in pairs, or twined; botanical class, to which belong flowers having two long and two short stamens, as in the class Didynamia.

Dimerous—dim′-er-us (Gr. *dis*, twice, and *meros*, a part). Composed of two pieces.

Diœcian—di-esh′i-an; also **Diœcious** (Gr. *dis*, twice, and *oikos*, a house, both words pertaining to diœcia). Plants of a class having male flowers on one plant and female on another of the same kind.

Dipetalous—di-pet′-a-lus (Gr. *dis*, twice, and *petalon*, a petal). Flowers having only two petals.

Diphyllous—di-fil′-lus (Gr. *dis*, twice, and *phullon*, a leaf). Plants having only two leaves.

Disk—(Lat. *discus*, a quoit). In botany, the centre or fleshy expansion between the stamens and pistils, or the flat button-like portion of a flower after the stamens and pistils have been taken off; also the leaf between the edges known as the limb of the leaf.

Dissect—dis′-seckt (Lat. *dissectum*, form, *dis*, asunder, and *sectus*, to cut). The cutting up or separating the parts of a plant.

Dodecandrous—do′-dek-an-drus Gr. *dodeka*, twelve, and *aner*, a man, genitive, *andros*). A class of plants whose flowers have twelve stamens.

Drastic—dras′-tic (Gr. *drasticos*, active, vigorous, from *drao*, I do or act, and the French *drastique*). A powerful, a strong-acting drug;

a purgative acting violently. Examples: castor oil, eleterium, etc.

Drug—(Fr. *drouge*, drug, Dutch, *droog*, dry, hot, of a pungent nature). A medicine, a substance slow of sale; drugging; drugged; and druggist, one who deals in drugs, not necessarily an apothecary.

Drupe—drup (Lat *druppa*, an over-ripe wrinkled olive). Any fruit containg a hard stone. Examples: peach, cherry, plum.

Drupel—dro′-pel. A fleshy or pulpy fruit containing many small hard-seed, as the blackberry, currant, etc.

Drupaceous—Formed or like a drupe in character.

Dulcamara—dul′ka-ma′-ra (Lat. *dulcis*, sweet, and *amarus*, bitter). A common European hedge plant, a medicine. Bitter-sweet, woody nightshade; taste, first bitter then sweet.

Dura-mater—du′ra-ma′ter (Lat. *duras*, hard, and *mater*, a mother). The membrane of the brain, the external one, the piamater being the inner one.

Duramen—du-ra′men Lat. *duramen* Lat. hardness, from *dures*, hard). The inner or heart wood of trees, the hardest part of the wood.

Edible—ed′-i-bl (Lat. *edo*, I eat). Any plant or flesh or fruit suitable for food, fit to be eaten.

Effloresce—ef′-flo-res′ (Lat. *efflorescere*, to blow or bloom, as a flower, from *ex*, out, and *flos*, a flower). A term used in chemistry when a salt gives up its water of crystallization.

Efflorescence—a plant in flower or bloom.

Elecampane—el′-e-kam′-pane (Fr, *enule-campane;* Span. and Italian, *enula-campana;* Lat. *inula helenium*, from the Gr. *helinion*). Medicinal plant said to have sprung from the tears of Helen of Troy. Nat. order compositæ.

Electuary—e-lek′-tu-er-i Lat. *electuarium*, from Gr. *ek*, out of, and *leicho*, I lick). Any medicine consisting of honey or sugar, of a semi-fluid nature.

Elixir—e-liks′ir (Arabic, *el-iksir*, the philosopher's stone, a life-producing or prolonging tincture of gold). In medicine a cordial or a tincture with sugar.

Emarginate—e-mar′-ji-nate(Lat.*emarginatus*). To deprive of its edge. Slightly notched at the summit as if a piece had been cut out.

Embryo—em′-bri-o (Gr. *embruon*, an infant in the womb; from the two words, *em*, in, and *bruo*, I shoot or bud). The first rudiment of plant or animal. See protoplasm.

Emetic—e-met′ik (Gr. *emetikos*, from *emeo*, I vomit; Lat. *emetica*). Any drug that will cause vomiting.

Emmenagogue—em-men′-a-gog(Gr. *emmenia*, the menses, and *ago*, I lead). Any medicine which promotes the flow of the menstrual discharge.

Emollient—e-mol′-li-ent (Lat. *e*, out of, and *mollio*, I soften). Any medicine that softens, sooths, relaxes, etc.

Empiric—em-pir′ik (Lat. *empirici;* Gr. *emperikoi*, physicians who practice medicine on experience alone; divided from the two Greek words, *em*, in and *peira* an effort or trial). A pretender, a quack; one without skill.

Emulsion—e-mul-shun (Lat. *emulsus*, milked out). A liquid for softening and agitating a mixture of gum water, sugar or oil until the matters are held in suspension and have a milky appearance.

Endocarp—en′-do-karp Gr. *endon*, within, and *karpos*, friut). The membrane which lines the cavity of seeds; the shell of the almond, peach, plum, etc

Endochrome—en′-do-krom (Gr. *endon*, within, and *chroma*, color). The color that exists in vegetable matter and fills the cells, exclusive of the green coloring matter.

Endogens—en′-do-jens (Gr. *endon*, within, and *gennao*, I produce). One of the divisions of plant life, in which are included the palms, grasses, rushes, etc.; plants that grow from within.

Endogenous—en-doj′-e-nus. Increasing by internal growth.

Endophœlum—en′-do-fle′-um (Gr. *phloios*, the bark of trees). The inner layer of the bark of trees.

Endopleura—en-do-plu-ra (Gr. *pleura*, a side). The inner covering of the seed investing the embryo and all the albuminoid principle of the seed.

Endosperm—en′do-sperm′ (Gr. *endon*, within, and *sperma*, a seed). The albumen formed within the embryo sac.

Enema—e-ne′-ma (Gr. *eniemi*, I cast or throw in). A liquid medicine for injection into the bowels.

Engraft—See Ingraft.

Ensiform—en′-si-fawrm (Lat. *ensis*, a sword, and *forma*, shape). Plants that have sword-shaped leaves.

Epicarp—ep′-i-carp (Gr. *epi*, upon, and *karpos*, fruit). The outer skin of fruits, the inside pulp being the sarcocarp.

Epichillum—ep′-i-kil′-um (Gr. *epi*, upon, and *cheilos*, a lip). The upper portion of the lip of orchid plants when the lip is divided into two parts which differ in appearance.

Epidermis—(Gr. *epi*, upon, and *derma*, the skin). The out-coating of the tree or plant. Also epiderm.

Epigœus—ep′-i-je′-us (Gr. *epi*, upon, and *ge*, the earth). Growing on the earth; close to the earth, as the trailing arbutus.

Epigone—e-pij′-o-ne (Gr. *epi*, upon, and *gone*, the offspring). The cellular layer which surrounds the seed-case of the mosses.

Epigynous—e-pij′-i-nus (Gr. *epi*, upon, and *gune*, a woman). When the outer whorles of a flower adhere to the ovary, the upper portions of which are the only parts free, and thus appearing to be placed or seated on the the ovary itself.

Epipetalous—ep′-i-pet′-a-lus (Gr. *epi*, upon, and *petalon*, a petal). On the petal; inserted on the petal.

Epiphite—ep-i′-fite (Gr. *phuton*, a plant, from *epi*, upon, and *phuo*, I grow). Applied to those plants which grow upon another, a plant attached to another, not parasitic in its nature, feeding on air, or suspended in the air.

Epiphyllous—ep′-i-fil′-lus (Gr. *epi*, upon, and *phullon*, a leaf). Growing or inserted upon the leaf.

Episperm—ep′-i-sperm (Gr. *epi*, upon, and *sperma*, a seed). The external covering of a seed; outer coat.

Errhine—er′-rin (Gr. *errhinon*, a medicine causing sneezing, from the two words *en*, in, and *rhin*, the nose). Affecting the nose; to cause one to sneeze.

Esculent—es′-ku-lent (Lat. *esculentus*, fit for eating). Suitable for food; fruits and plants suitable for food.

Estivation—es′-ti-va′-tion (Lat. *æstas*, summer). The arrangement of the unexpanded leaves of the flower bud which burst in summer; opposed to vernation.

Etiolation—e′-ti-o-la′-shun (French, *etioler*, in gardening, to grow up long-shanked, delicate and colorless) To bleach; to blanch by excluding the sun's rays; to become white.

Euphorbia—u-for′-bi-a (Gr. *euphorbion*, a certain gum resin from Euphorbus, a Greek physician to King Juba). A genus of plants of many species yielding an acrid, milky juice; the spurge family.

Exalbuminous—eks′-al-bu′-mi-nus (Lat. *ex*, out of, and *albumen*). Applied in botany to seeds which have no perceptible albumen.

Exfoliate—eks-fo′-li-at (Lat. *ex*, out of, and *folium*, a leaf). To scale off; exfoliation, the process of scaling; separation.

Exogens—eks′-o-jens (Gr. *exo*, without, and *gennao*, I produce). One of the divisions of the vegetable kingdom in which plants grow

from without, forming new layers each year. Example: Forest trees.

Exogenous—Growing annually by increase from the outside, as in the oak, and other forest trees.

Exothecium—eks′-o-the-shi-um (Gr. *exo*, without, and *theke*, a sheath, box or case). The external or outer coat of the anther.

Exotic—egx-ot′-ik (Gr. *exotikos*, foreign, strange, from *exo*, outside; Lat. *exoticus;* French, *exotique*). A plant, tree or shrub introduced from a foreign country; a plant not native

Expectorant—eks-pek-to-rant (Lat. *expectoratus*, from *ex*, out of, and *pectus*, the breast). Any medicine that promotes a discharge of mucus or phlegm from the air passages of the lungs.

Exserted—ek-ser′-ted (Lat. *exsertus*, thrust forth). Above and beyond something else, as the stamens and pistils extending beyond and above the corolla.

Extrorse—eks-trors′ (Lat. *extra*, on the outside, and *orsus*, commencing or beginning). When the pollen escapes towards the outside of the flower by means of the anther, and not, as the usual rule, towards the pistil.

Fastigiate—fas-tig′-i-at, also **fastigiated** (Lat. *fastigium*, that which is made pointed, the highest point). A pyramidal form. Examples: capsicum fastigiatum, red pepper.

Febrifuge—feb′-ri-fuj (Lat. *febris*, a fever, and *fuga*, I drive away). Any medicine that allays or removes a fever.

Fenestrate—fen′-es-trate, also **fenestrated** (Lat. *fenestra*, a window). Pierced with holes; a leaf with holes in it from any cause.

Fennel—fen′-nel (Lat. *feniculum*). The fennel of the stores, an umbelliferous plant. Feniculum vulgare.

Ferment—fer-ment′ (Lat. *fermentum*, leaven, from *ferveo*, I boil). To swell, to rise frothy, fermenting, working, frothy, effervescing, fermentative, tending to fermentation.

Fern—(As *fearn*, fem., Swiss, *fara*, to go, a word applied to diabolical art, and the *as faer*, meaning sudden death). Ferns, crytogamic order of plants.

Fibrous—fi′-brus (Lat. *fibra*, a fibre). A delicate string or thread found in animals and plants forming a tissue.

Fibrine—fi′-brin. The material in animals and plants forming fibres, the formative material of fibres.

Filament—fil′-a-ment (Lat. *filum*, a thread. a fibre). The stalk supporting the anther; an appendage to the male flower.

Filiform—fi′-i-fawm (Lat. *filum*, a thread, and *forma*, shape). Slender, delicate, thread-like.

Fimbriated—fim′-bri-a′-ted (Lat. *fimbriae*, threads, fringe). Any part of a plant thread-like or fringed at the margin.

Flabellate—fla-bel′-lat or **flabelliform** (Lat. *flabellum*, a fan, and *forma*, shape). Fan-like or having the appearance of a fan, as the petals and leaves of some plants.

Flatulent—flat′-u-lent (Lat. *flatulentus*, *flatus*, a breath or breeze). Flatulence, flatulency,

air in the bowels, a discomfort, belching, gas from the stomach.

Flexuose—(Lat. *flexus*, bent). Wavering, winding, having curvations in opposite direction, as in some of the melon family.

Floculence, Floccus, Flocci—(Lat. *flocculus*, a lock of wool). Plants with wool-like tufts, woolly filaments, a tuft of down, terminating like the tail of an animal.

Flora—flo′-ra (Lat. *flos*, a flower, genitive *floris*). Blossom; the whole plant; plants peculiar or indigenous to a country in which they grow; the goddess of flowers.

Floret—flo′-ret. A small flower, as in the compound order of plants.

Floriculture—flor′-i-kul-tur (Lat. *flos*, a flower, and *cultura*, cultivation). All that relates to the culture or arrangement of flowers, as objects of taste, pleasure, profit and beauty.

Floscular—flos′-ku-ler, also **flosculous** (Lat. *flos*, a flower). Applied to the corolla of a floweret when tubular.

Foliaceous—fo′-li-a′-shus (Lat. *foliaceous*, like leaves, from *folium;* Gr. *phullon*, a leaf). Consisting of leaves.

Foliation—fo′-li-a′-shun. The putting forth of leaves; the leafing of plants.

Foliferous—fo-lif′-er-us (Lat *fero*, I bear, and *folium*, a leaf). Plants producing leaves.

Follicle—fol′-i-kl (Lat. *folliculus*, a small bag or sack inflated with air, from *follis*, a bag or bellows). A seed vessel opening along the side to which the seed is attached. Example: the pea pod.

Foramen—for-a′-man, plural **foramina** (Lat. *foro*, I bore, a small opening). A small aperture or opening in the coverings of the ovule of the seed.

Frond—(Lat. *frons*, a leaf, genative, *frondis*). The stem, caulis or stalk of the ferns.

Frondescence—fro-des′-ens. Putting forth leaves, or the season in which the leaves of the ferns uncurl.

Fructification—fruk′-ti-fi-ca′-shun Lat. *fructus*, fruit, and *facio*, I make). The perfection of the flower and fruit; the season of generation, or the union of the organs of the plant.

Fuchsia—fu′-shi-a. A handsome ornamental flower, drooping and brilliant in coloring, and known to some as the lady's slipper. Named after Fuchs, the botanist.

Fucus—fu′-kus, plural **fuci** (Lat. *fucus;* Gr-*phukos*). Rock lichen; sea weeds. Example: Fucus versiculosus and natans.

Fungus—fung′-us, plural, fungi (Lat. *fungus*, a mushroom or toad stool). An order of plants; a term used to designate any spongy excrescence on animal or plant.

Fungoid—fung′-goyd (Lat *fungus*, a mushroom, and Gr. *eidos*, form, likeness). Resembling a mushroom.

Funicle—fu′-ni-kl (Lat. *funiculus*, a slender rope, from *funis*, a cord). The cord-like attachment of the seed to the pod or hull.

Fusiform—fu′-zi-fawrm (Lat *fusus*, a spindle, and *forma*, shape). In form like the carrot; spindle-shaped; the shape of many roots used in medicine.

Gamboge—gam-boj′. A yellow gum resin used

in medicine as a pigment; gets its name from a place in Asia called Gambodia.

Gamopetalous—gam′-o-pet′-a-lus (Gr. *gamos*, a marriage, and *petalon*, a leaf). A union of the petals of the corolla into one tube.

Gamosepalous—gam′-o-sep′-a-lus. The union of the sepals; the calyx in one piece only, the same as monosepalous.

Gemmation—gem-ma′-shun (Lat. *gemma*, a bud). The disposition of buds on the plants; the period of the expansion of the buds.

Gemmule—jem′-mul. The first bud of the embryo; a little bud or germ.

Ginseng—jin′-seng (Chinese *genseng*, the first of plants). A root of aromatic flavor having medicinal qualities, more esteemed by the Chinese than any other nation.

Glabrous—gla′-brus (Lat. *glaber*, smooth, devoid of hair; Italian, *glabro*). A term used in Botany to denote the smoothness of stems and leaves; devoid of hairs, smooth, bald, not pubescent.

Gladiolus—gla-di′-o-lus (Lat. *gladius*, a sword). A genus of handsome flowering bulbous plants, the sword lily and gladiolus.

Glans—(Lat. *glans*, an acorn, genative *glandis*). Any acorn-shaped fruit, hazel nut, and which are enclosed in bracts.

Glome—(Lat. *glomus*, a ball). A head of flowers round or globe-like as the guelder rose (snowball).

Glomerule—glom-er′-ul (Lat. *glomus*, a ball). A dense head or cluster of flowers not necessarily round as the glome.

Glucose—glu′-kos (Gr. *glukus*, sweet). A form of sugar which exists in grapes and in other fruits.

Gluten—glu′-ten (Lat. *gluten*, paste or glue). A tough and tenacious substance found in wheat and other grains.

Glycerine—glis′-er-in (Gr. *glukus*, sweet). The sweet principle of fat and oils of animals and of plants (new).

Gongylus—gon′-gil-us (Gr. *gonggulos*, round). A word applied to the round, hard bodies found on certain algæ, which, after a time, become detached and germinate.

Gonidia—go-nid-i-a (Gr. *gonos*, offspring, seed). The green germinating cells in the thallus of the lichens.

Gonophore—gon′-o-for (Gr. *gonos*, generation, offspring, and *phero*, I bear). An elevated receptacle bearing the stamens and carpels in a conspicuous manner.

Gonus—go′-nus (Gr. *gonu*, the knee; also *gonia*, a corner). Kneed or angled, as polygonum, with many knees or joints; tetragon, with four angles.

Gourd—gored (Lat. *cucubita*). A family of plants with large fruits, bottle-shape, not eaten, unwholesome, gourdy, native of the warm climates.

Gymnocarpus—jim′-no-kar′-pus (Gr. *gumnos*, naked, and *karpus*, fruit). Naked seed or fruits proper; without hair, as the apple, plum, etc., or having no floral envelope about the seed or fruit.

Gymnosperms—jim′-no-sperms (Gr. *gumnos*, naked, and *sperma*, seed). Plants bearing

naked seed, not enclosed in a covering (pericarp or hull); with only its proper seed coats.

Gymnostoni—(Gr. *gum'nos*, naked, and *sto'ma*, a mouth). Applied to mosses when they have no membrane over their openings or mouths of their spore cases.

Gynœcium—gin-e'-si-um (Gr. *gune*, a woman, and *oikos*, a house). The pistils or female organs of the plant.

Gynostemium—(Gr. *gumnos* and *stemon*, a stamen). The column in the orchids bearing the organs of reproduction.

Hæmatoxylon—he'-ma-toks'-i-lon (Gr. *haima*, blood, and *xulon*, wood). Logwood, a dye stuff.

Hæmostatic—he-mo-stat'-ik (Gr. *haima*, and *stasis*, stationary). Any medicine which will stop the flow of blood, as iron, tamin, matico, etc.

Hastate—has'-tat (Lat. *hasta*, a spear). Spear-shaped, applied to the leaf when the lower or base of the leaf projects like a spear.

Heliotrope—he'-li-o-trop, (Gr. *helios*, the sun, and *trope*, a turning). The sun-flower. An ancient instrument for showing the time of the sun's arrival at the tropics. A small flowering plant with an almond-like odor. *Heliotropic*, the power that plants have of turning to the sun-light.

Hellebore—hel'-le-bore (Gr. *helein*, to injure, and *bora*, food). A plant used in medicine; also called the Christmas rose, blooming at that time.

Hemicarp—hem'-i-karp (Gr. *hemi*, half, and *karpos*, fruit). One portion of a fruit which spontaneously divides into halves.

Hemigamous—he′-mig-a′-mus (Gr. *hemi*, half, and *gamos*, marriage). Having two flowerets in the same spikelet, one of which is neuter and the other unisexual.

Hemiptera—he′-mip-te′-ra (Gr. *hemi*, half, and *pteron*, a wing). An order of insects usually with the upper wings partly conaceous and partly membraneous. Example: The Spanish fly, etc.

Heptandria—hep-tan′-dria (Gr. *hepta*, a prefix signifying seven, and *aner*, a man, genative, *andros*). In Botany a plant having seven stamens.

Hermaphrodite—her-maf′-ro-dit (Gr. *Hermes*, the God Mercury, and *Aphrodite*, the goddess Venus. A plant having both male and female organs of reproduction.

Heterocephalus—het′-er-o-sef′-a-lus (Gr. *heteros*, another, and *kephale*, a head). Male and female flower heads on the same plant.

Heterodromous—het′-er-od-rom-us (Gr *heteros*, different, another, and *dromos*, a course). Applied to the arrangement of leaves in branches, differing in their arrangement from those on the stem, or running in different directions.

Hetrogamous—het′-er-og′-a-mus (Gr. *heteros*, another, and *gamos*, marriage). Flowers bearing on different spikelets the organs of reproduction, but from the same root-stalk.

Heterophyllus—het′-er-ro-fil′-lus (Gr. *heteros*, another, and *phullon*, a leaf). Two kinds of leaves on the same stem.

Heterotropal—het′-er-ot′-ro-pal (Gr. *heteros*, another, and *trepo*, I turn). A term used

when the embryo of the seed lie in an oblique direction or position.

Hexandria, or **Hexandrous**—hex-an′-dria (Gr. *aner*, a man, genative *andros*, and *hex*, six). A flower having six stamens.

Hilum—hi-lum (Lat. *hilum*, a thread, a little thing). The eye of the seed, the scar or point of attachment to the pericarp or hull.

Homopetalous—ho′-mo-pet′-a-lus (Gr. *homos*, like, and *petalon*, a petal). Having all the petals formed alike, having all the flowerets alike, as in the Compositæ order.

Homotropal—ho′-mot-ro-pal (Gr. *homos*, like, and *trepo*, I turn). When leaves, seed, etc., of plants take or have the same general direction as the body of which they are but the part.

Horehound—(As. *hara-hune*, horehound, from the words *har*, hoary or grey, and *hune*, consumption). A medicinal plant belonging to the mint family, Marubium Vulgare.

Hortus-siccus—hor′-tus-sik′-kus Lat. *hortus*, a garden, and *siccus*, dry). A collection of dried specimens of plants arranged as a herbarium.

Hydragogue—hi′-dra-gog (Gr. *hudor*, water, and *ago*, I lead). A medicine or cathartic that produces a quick and watery discharge from the bowels.

Hydrangea—hi-dran′-ji-a (Gr. *hudor*, water, and *anggeion*, a vessel, a capsule). The hydrangea aboresceus, a dwarf flowering shrub, much admired for its flowers.

Hyoscyamus—hi′-os-si-a′-mus (Lat. *hyoscyamus*; Gr. *huoskuamos*, henbane, from the two

Greek words *hus*, a hog, and *kuamos*, a bean). A medicinal plant, the hyoscyamus niger, natural order Solanaceæ.

Hypnotic—hip-not′-ik (Gr. *hupnos*, sleep). Any medicine tending to produce sleep, a soporific, hypnotism, mesmeric sleep.

Hypogynous—hi-poj′-i-nus (Gr. *hupo*, under, and *gune*, a female). When the stamens are inserted below the pistil.

Immarginate—im-mar′-jin-at (Lat. *im*, not, and *margo*, a border margin; genative *marginis*). Not having a margin or border.

Indefinite—in-def′-i-nit (Lat. *indefinatus*, not certain, not distinctly, etc.). Applied to inflorescence, in which the central of terminal flowers is the last to expand; also, when a flower has more than twenty stamens; very numerous, etc.

Indehiscent—in′-de-his′-sent (Lat. *in*, not, and *dehisco*, I gape). Not opening; applied to such fruits as apples, pears, etc.

Indigenous—in-dij′-e-nus (Lat. *indigena*, a native, born and bred in the same counrty). Not exotic or introduced.

Inflorescence—in′-flo-res′-sens (Lat. *inflorescens*, blossoms, to begin to flower, from *in*, in or on, and *florescere*, to blossom, to flourish). Flowering or putting forth blossoms which makes the difference betwen plants.

Infundibular—in′-fun-dib′-u-lar (Lat. *infundibulum*, a funnel or tunnel). A corolla funnel-shaped.

Infundibuliform—in-fun′-di-bu′-li-fawm (Lat. *forma*, form, shape). Funnel-shaped as a flower, as in the morning glory.

Infusoria—plural, in′-fu-so′-ri-a (Lat. *infusoria*, from *infusus*, soaked. poured into). Animal organisms or animalcules inhabitating stagnant water, very minute, requiring a microscope of some power to see them, they are so-called from being found in the vegetable infusions.

Ingraft or **Engraft**—To insert a branch or twig of one tree or bush into another, to improve and propagate the species.

Inspissated—in′-spis-sa′-ted (Lat. *in*, into, and *spissatus*, to make thick). The juice of certain plants thickened by evaporation.

Intercellular—in′-ter-sel′-u-ler (Lat. *inter*, between, and *cellula*, a little store-house). That portion of the plant lying between the cells; cellular tissue.

Internode—in′-ter-nod (Lat. *internodium*, from *inter*, between, and *nodus*, a knot). The space between two knots or leaf buds on the stem of a plant.

Intracellular—in′-tra-sel′-u-ler (Lat. *intra*, within, on the inside, and *cellula*, a little storehouse). Within the cells, applied to the formation of a cell within a cell.

Introrse—in-trors′ (Lat. *introrsum*, within). Turned inwards towards the axis; applied to the anthers when they turn towards the pistil.

Involucre, also **Involucrum**—(Lat. *in*, into, *volvo*, I roll). A collection of bracklets or immature leaves surrounding a flower head.

Involute—in′-vo-lot (Lat. *involutum*, to enclose, to wrap). Rolled spirally inwards, as leaves.

Involuted—in′-vo-loo′-ted. Flowers or leaves rolled spirally inwards.

Isinglass—i′-zing-glas (Ger. *hausenblase*, the bladder of the sturgeon, from *hausen* and *blase*, a bladder). Isinglass is but the corruption of the word *hausenblase*, a pure kind of jelley obtained from the bladders or sounds of certain fresh water fish.

Juba—ju′-ba (Lat. *juba*, a mane). A word occasionally used to indicate a loose panicle; or a dense cluster of awns or bristles on certain grasses.

Juga—ju′-ga (Lat. *jugam*, a yoke). A term used occasionally to indicate the ribs on the fruit of the umbelliferæ.

Jugate—ju′-gat. Applied to a pair of leaflets in a series of leaflets or compound leaves.

Kilogramme—kil′-o-gram (Gr. *chilioi*, a thousand, and the Fr. *gramme*). A metric weight adopted by the French government, and agreed upon as 1000 grammes, and equal to 2.2046 lbs. avoirdupois.

Kilolitre—kil′-o-le-tr (Gr. *chilioi*, a thousand, and *litra*). A metric measure of 1000 litres, rather more than 220 gallons imperial measure, and 35 and .3171 a fraction of cubic feet.

Kilometre—kil′-o-me-tr (Gr. *chilioi*, a thousand and *metron*, a measure). A metric or French measure of a thousand metres, equal to 1093-.6389 English yards.

Labiate, or **Labiated**—(Lat. *labium*, a lip). Applied to irregular gamopetalous flowers with an upper and under portion (lip-like). An order of plants, as in the mint family.

Lac—lak (Ger. *lack*; Dan. *lak*, rose or ruby color). A resinous substance from many Eastern trees, and used in making wax, varnish, etc., as shellac.

Laciniate—la-sin′-i-at, also **Laciniated** (Lat. *lacinia*, a fragment of cloth). Adorned with fringes, slashed, torn or irregularly cut, as some leaves.

Lactiferous—lac-tif′-er-us (Lat. *lac*, milk, and *fero*, to bear or produce). Relating to the fibres or tubes bearing the white or milky sap of trees and plants.

Lævigatous—le′-vi-ga′-tus (Lat. from *levis*, smooth). Having a smooth, polished surface.

Latex—la′-teks)Lat. *latex*, a juice or liquid; genative, *lacticis*). The proper juice or purified sap of plants; the fluid born and found in the lactiferous vessels.

Latiseptæ, plural, lat′-i-sep′-te—(Lat. *latus*, broad, and *septum*, a hedge). The partitions broad in proportion to the thickness between the valves found in the flowering plants called cruciferous.

Lavender—lav′-en-der (Italian, *lavendola*, lavender; *lavanda*, a washing, from *lavare*, to wosh) An oderiferous plant used in perfumery, containing a volatile oil.

Leaf, plural leaves (Ger. *laub*, Dutch, *loof*, the leaves of trees). The lingo of the tree, foliage, etc.

Leek—lek (Bohemian, *luk;* Ger. *lauch;* Icelandic, *lauk*, a leek). A plant with edible leaves, a condiment, the national emblem of Wales.

Legume—le′-gume, also **Legumen** (Lat. *legumen*, that which is gathered, pulse; from *lego*, I gather; Fr. *legume*). A seed vessel of two valves, a pod, pea, etc.

Leguminous—le-gu′-mi-nus. Pertaining to the bean or pea order.

Lemon—lem′-on (Spanish, *limon ;* Italian, *limone*, a lemon). The well-known fruit of the sub-tropics.

Lentil—len′-til (Fr. *lentile ;* Lat. *lens*, a lentil; genative, lentis). An annual plant of the bean order, cultivated for its pods.

Lepidote, or Lepidoted—(Gr. *lepidotos*, covered with scales; from *lepis*, a scale). A term used when the stems or leaves of plants are covered with scales.

Lignine—lig-nin (Lat. *ligneus*, of wood, from *lignum*, wood). Pine woody fibre, the woody matter which thickens the cell wall of all exogenous plants and trees.

Lily—lil′-i (Lat. *lillium*, a lily). The many varieties of beautiful flowering plants, and a large natural order in which many medicinal plants are placed.

Limbus—lim-bus′ (Lat. *limbus*, a border or edge). The border or expanded portion of a leaf or petal; also called limb.

Linctus, or Lincture—lingk′-ture (Lat. *linctus*, licked). A thick medicine the consistence of molasses or honey, and to be taken by licking; too thick to run.

Linear, or Lineate—lin′-e-at (Lat. *lineatus*, reduced to straight lines; from *linea*, a line). A word to designate the shape of a leaf; the

veins or lines running straight from tip to base, as in the corn blades, etc.

Lingulate—lin′-gu-lat (Lat. *lingula*, a little tongue). Leaves that appear shaped like the tongue, in the animal.

Linseed, or **Lintseed**—(As. *linsæd*, lint and seed). Flaxseed linseed, from which the linseed oil is obtained by pressure.

Litmus—lit′-mus (Dutch, *lakmoes*, an infusion of lake or purple color. A purple coloring found in many lichens, in which unsized paper is dipped and used as tests for the feeblest acids.

Lobe—(Gr. *lobos*, the tip of the ear). The larger part of the leaf or seed; also lobate.

Lobelia—lo-be′-li-a (said to derive its name from *Lobel*, one of the botanists or physicians to King James the First). A large order of plants of medicinal virtue, known by the common name of Indian tobacco. Lobelia inflata.

Loment—lo′-ment (Lat. *lomentum*, bean meal). A pod or legume with transverse partitions, each division containing one seed.

Lyrate, or **Lyrated**—(Lat. *lyra*, a lyre). A leaf with a large terminal lobe and several pairs of smaller lobes; or resembling the lyre, the ancient musical instrument, a kind of harp much used by the Egyptians and Greeks.

Mace—(Lat. *macis*, a spice; Fr. *macis*). A spice; the second coat of the nutmeg termed the arilus.

Macrocephalous—mac′-ro-sef′-a-lus (Gr. *makros*, long, and *kephale*, the head). A word used in botany when the cotyledons of dicot-

yledнous embryo is confluent, or runs together, having a large head.

Maculated—mak′-u-la-ted (Lat. *maculatum*, to spot). A leaf is said to be maculated when full of spots or stains.

Magnolia—(named after Pierre Magnol of Montepellier). Known as the natural order of Magnoliaceæ or Lauraceæ.

Mallow—mal′-lo (Lat. *malva;* Gr. *malache*, mallow, from the Gr. *mallasso*, I soften). A large family of plants of soothing and mucilaginous medical properties. Example: marshmallow, natural order Malvaceæ.

Mandrake—man′-drak (Lat. and Gr. *mandragoras*, the plant of the mandrake). The May apple, podophyllun, a powerful cathartic much used in medicine.

Manna—man′-na (Hebrew, *man-hu*, what is this; also Lat. and Gr. *manna*). A medicine and exudation from certain trees in Arabia; also southern Europe.

Marcescent—mar-ses′-sent Lat. *marcescens*, pining away, decaying). A part of a plant withering but not falling off.

Marigold—mar′-i-gold (said to be named after the Virgin Mary, and gold). A common garden flower of a brilliant gold color, natural order Compositæ.

Marjoram—mar′-jo-ram (Ger. *majoran;* Ital. *majorana*). An aromatic plant of the mint family; a condiment, flavor.

Martagon—mar′-ta-gon (French). Turk's cap or mountain lily, a handsome flower. Natural order Liliaceæ.

Materia Medica—ma-te′-ri-a med′-i-ka (Lat. *materia*, substance, and *medica*). The various substances, natural and artificial, which are employed in medicine, and a written book treating on the subject.

Meconic—me-kon′-ik (Gr. *mekon*,, a poppy). An acid found in opium.

Medullary Rays—med′-u-la′-ri rayz (Lat. *medulla*, the marrow in the bones of animals). The pith rays of cellular tissue.

Menispermaceæ—men′-i-sper′-mi-see-a (Gr. *mene*, the moon and *sperma*, seed. A natural order of plants whose seeds are crescent shape or moon like.

Merenchyma—mer-eng′-ki-ma (Gr. *meris*, a part or particle, and *engchuma*, what is poured in). The tissue of plants composed of rounded cells.

Mericarp—mer′-i-karp (Gr. *meris*, part, and *karpos*, fruit). The half of the fruit of the umbelliferous plants as the parsnip, hemlock, parsley, etc., so-called seeds.

Mesocarp—mez′-o-karp (Gr. *mesos*, middle, and *karpos*, fruit). In botany, the middle of the thin layers of a fruit.

Mesophlœum—mez′-o-fle′-um (Gr. *mesos*, the middle, and *phloios*, bark). The middle layer of the bark of the plant or tree.

Mesophyllum—mez′-o-fil′-um (Gr. *mesos*, the middle, and *phullon*, a leaf). The inner portion of leaves; the parenchymatous tissue between the two external coats; the epidermis.

Mesosperm—mez′-o-sperm (Gr. *mesos*, the middle, and *sperma*, seed). The middle coat of the seed or second membrane.

Metre—(French). Equal to 39 English inches and .0371 of an inch.

Micropyle—mi′-kro-pil (Gr. *mikros*, small, and *pule*, a gate). The opening eye or foramen of the seed for the exit of the root of the embryo.

Milligramme—mil-li-gram (from the Latin *mille*, a thousand, and the Gr. *gramma*, a figure). The 1000th part of a gram.

Milliliter—mil′-li-le′-ter (from the Latin *mille*, 1000th part of a gramme measure). The 1000th part of a litre.

Millimetre—mil′-li-ma-tre (from the Latin *mille* and *metron*, a measure). 1000th part of a metre.

Mint—(A. S. *mynts*, Lat. *mintha*, Gr. *menthe*). The well known garden plant; many varieties, and belongs to the Labiatæ order.

Mistletoe, also **Miselтoe, Misseltoe**—(Icel. *mistelteiunn*, A. S., *misteltan*, Gr. *mistel*). The latter part of the word in Icelandic means a prong of metal. The mistletoe is an evergreen parasitic plant, found growing on the oak and other trees.

Monandria—mo-nan′-dri-a (Gr. *monos*, alone, and *aner*, a man genative, *andros*). Plants having only one stamen; also Monandrous, Monandrian.

Moniliform—mon-il′-i-fawn (Lat. *monile*, a necklace and *forma*, shape). Jointed, beaded, like a necklace.

Monocarpous, Monocarpon, also **Monocarpic**—(Gr. *monos*, alone, and *karpos*, fruit. Plants or trees bearing fruit but once annually.

Monodelphia — mon′-o-del′-fi-a (Gr. *monos*, alone, and *adelphos*, a brother). A class of plants having flowers which are hermaphrodite, all the stamens in one bundle and through which the pistil passes; in one house.

Monogynia—mon′-o-jin′-i-a (Gr. *monos*, and *gune*, a woman, a female. Flowers having one pistil.

Monopetalous—mon′-o-pet′-a-lus (Gr. *monos*, alone, and *petalon*, a leaf). Having the corolla in one piece formed by the union of its petals.

Monosepalous—mon′-o-sep′-a-lus (Gr. *monos*, alone; and *sepalon*, a sepal). Also called gamosepalous when all the sepals are united in one set.

Morphia—mor′-fi-a, also **Morphine** (from the Gr. *Morpheus*, the mythological god of dreams). One of the alkaloids of opium.

Morphology—mor-fol′-o-ji (Gr. *morphe*, form, and *logos*, discourse or description). The department of botany which treats of the forms the different organs of plants assume, and the law regulating their metamorphoses.

Moss, Mos—(Fr. *mousse;* Ital. *musco;* Lat. *muscus;* Ger. *moos*, *mos;* Dutch *mos*, mould; Icelandic *mosi*, swampy place, a mossy place). A large family of plants with simple branching stems and narrow leaves, and the lower order of plants.

Mullein—mul′-lin (Fr. *mouliene*, *molene;* Dan. *mol*, a moth). A common plant, verbascum, thapsus, with hairy, soft leaves; the seed are said to be a moth preventative.

Multicapsular—mul-ti-kap-su-ler (Lat. *multus*, many, and *capsula*, a chest). A fruit or seed with many capsules.

Multiflorus — mul′-ti-flo′-rus (Lat. *multus*, many, and *flos*, a flower, genative *floris*). A plant having many flowers.

Multiplex—mul′-ti-plex (Lat. *multus*, many, and *plico*, I fold). Having many folds, as the petals of a flower, etc.

Muriform—mu′-ri-fawm (Lat. *murus*, a wall, and *forma*, shape). Like a wall; applied to the tissues when they present a brick wall-like appearance.

Mycelium—mi′-se-li′-um, also **Mycelia** (Gr. *mukes*, a mushroom, a fungus; the cellular spawn of the fungi). The material from which a fungus is developed.

Mycology—mi-kol′-o-ji (Gr. *mukes*, a fungus, and *logos*, a discourse). A description or study of mushrooms.

Myriagramme—mir′-i-a-gram (Fr. from the Greek *murioi*, ten thousand, and the French *gramme*). Ten thousand grammes, twenty-two pounds and a fraction avoirdupois.

Myrimetre—mir′-i-a-ma-tr (Fr. from the Gr. *murioi*, 10,000, and Fr. *metre*). Ten thousand metres, within a fraction of six and a half miles.

Myrrh—mer (Lat. *myrrha*; Gr. *murrha*, bitter). An aromatic gum, the balsamo-dendron myrrh, used as a detergent, a purifier growing in Arabia.

Naked—na′-ked (Gothic *naquaths;* Ger. *nacht;* Icelandic *necquidr;* Gaelic *nochd;* Lat. *nudus*, naked, bare). Bare, plain, manifest, without

pubescence; a term applied to seeds not contained in a true ovary, also to flowers without any floral envelope.

Napiform—na-pi′-fawm (Lat. *napus*, a turnip, and *forma*, shape). Applied to roots that resemble a turnip in shape.

Narceine—nar′-se-in, also **Narceia** (Lat. *narce;* Gr. *narke*, torpor). An alkaloid, one of the constituents of opium.

Narcotic—nar-kot′-ik (Gr. *narkotikos*, from *narke*, torpor). Having the power to benumb, producing sleep, to assuage pain, etc.; a powerful medicine.

Narcotism—nar′-ko-tism, the effects of a narcotic, under the influence; usually poisons.

Nectary—nek′-ter-i (Lat. *nectar*; Gr. *nektar*, the drink mentioned in fabulous history as drink of the gods). That part of the flower which secretes the sweets, or the honey bag.

Nervine—ner′-vin (Lat. *nervus;* Gr. *neuron*, a sinew, a nerve, the string of a bow). Any medicine that allays or quiets the pain of the nerves, or has the power to soothe or strengthen the nerves.

Netted—(Gothic *nati;* Icelandic, *not;* Ger. *netz*, a net) Made of network; covered with raised lines, arranged like the threads of a net. Example: leaves denuded of the green and cellular portions; the frame work.

Node—nod (Lat. *nodus*, a knob or knot). The part of a stem of a plant out of which the leaves grow.

Nodulose or **Nodulous**—(Lat. *nodulus*, a little knot). Applied to roots when they have knobs or knots at intervals.

Nuculanium—nu′-ku-la′-ni-um (Lat. *nucleus*, a kernel, a small nut; from *nux*, a nut). A two or more celled indehiscent fruit, with a fleshy pulp; the grape is an example.

Nut—(As. *hnut;* Ger. *nuss*, a nut). A fruit consisting of a kernel, enclosed in a hard shell; any fruit with a bony pericarp, containing a single seed and producing only one of its kind.

Nutmeg—nut′-meg (Lat. *nux moschata*, nutmeg, from the Lat. *muscus;* Gr. *moschos*, musk; this animal's secretions being taken as a type of anything highly scented). The nutmeg is the kernel of the fruit of an East Indian tree; a condiment for flavoring.

Nux-Vomica—(Lat. *nux*, a nut, and *vomicus*, vomiting; from *vomero*, to vomit). The strychnos nux vomica, a poison medicine, a fruit yielding strychnia.

Obcordate—ob-kor′-dat (Lat. *ob*, in front, against, reversed, and *cor*, the heart; genative, *cordis*). Leaves, petals, etc., heart-shaped, with the apex near the stem; leaves inverted.

Oblong—ob′-long (Lat. *oblongus*, oblong, from *ob*, against, and *longus*, long). Any leaf which is longer than broad, oblong, ovate, between ovate and oblong.

Obtuse—ob-tus′ (Lat. *obtusus*, blunt; Spanish *obtuso*, not pointed). A blunt termination, somewhat rounded, the characteristic shape of some leaves.

Obvolute—ob′-vo-lute (Lat. *obvolutus*, to cover over, to wrap up round, from *ob*, around, and *volvo*, I roll). Having the margin of one leaf

overlapping those of the leaf opposite to it, as the petals of some roses.

Octandria—ok-tan′-dri-a (Gr. *okto*, eight, and *aner*, a male; genative, *andros*). A class of plants having eight stamens, with hermaphrodite flowers.

Officinal—of-fis′-i-nal (Italian *officinale;* Fr. *officina*, sold in the shops, from the Lat *officina*, a shop where goods are sold). A recognized medical drug; one used and directed to be used by the standard work on medicine. Example; the Pharmacopœia, now called Official.

Olibanum—o-lib′-a-num (Arabic *ol* or *al*, the and *luban*, frankincense; Gr. *labanos*, the frankincense tree). A gum resin of aromatic odor and bitter taste; frankincense.

Operculated—o-per′-ku-la′-ted, also **Operculate** (Lat. *operculum*, a lid or cover, from *operio*, I cover over). Any capsule of a fruit or seed having a lid or cover, or opening by a cap or lid.

Opium—o′-pi-um (Lat. *opium;* Gr. *opion*). The juice of the poppy; the concreted juice; a medicine and poisonous.

Opopanax—o-pop′-a-nakx (Gr. *opos*, juice, and *panax*, a plant, all heal). A gum resin; the dried juice of a plant found in the sub-tropics.

Orange—(Italian *arancio;* Spanish *naranja*, an orange, and said to be derived from the Ar. *naranji*, orange). So called from the color of the fruit.

Orchid—or′-kid, Or′chis Lat. *orchis;* Gr. *orchis*, a plant with roots in form of testicles; Ital. *orchide;* Fr. *orchis*). Plants with round, fleshy

tubers, whose flowers are of all colors, fantastic in shape, and much prized.

Orchidaceous, or′-ki-da′-shus, also **Orchideous**—appertaining to the Orchis family.

Orcin—or′-sin (Fr. *orcine*). A peculiar red coloring found in the orchill, cudbear, litmus, and many other species of lichen or rock and tree mosses.

Organography—or′-gan-og′-ra-fi (Gr. *organon*, an instrument, and *grapho*, I write). A scientific writing or description of the internal structure of plant life.

Orris—or′-ris (Gr. *iris*, a rainbow). A corruption of the word iris, the many colored flower of the flag; the dried root of the much esteemed Florentine orris root of the stores.

Orthospermæ—plural, or′-tho-sper′-me(Gr. *orthos*, straight, and *sperma*, a seed). Seeds having the albumen flat on the inner face; without curvature.

Orthotropous—or-thot′-ro-pus (Greek, *orthos*, straight, and *tropos*, direction; from *trepo*, I turn). The embryo of the seed lying straight towards the hilum, as the bean; usually applied to the ovule with the opening opposite to the eye of the hilum.

Oval—o′-val (Fr. *ovale;* Ital. *ovale*, shaped like an egg, from the Lat. *ovum*, an egg). Applied to leaves and seeds when they resemble an egg in shape.

Ovate—(Lat. *ovatus*, shaped like an egg). Like an egg in shape; ovate lanceolate; partaking of the egg and spear head in form.

Ovate-oblong—Shaped like an egg, but drawn out in length.

Oviform—(Lat. *ovum*, an egg, and *forma*, shape). Like an egg in shape; also ovoidal and ovoid, from the Gr. and Lat. *ovum*, and Gr. *oon*, an egg.

Ovule, o′-vul, also, **Ovulum**—(Lat. *ovum.*). The body in the plant which changes into the seed; those contained in the ovary.

Pachycarpous—pak′-i-kar′-pus (Gr. *pachus*, thick, and *karpos*, fruit). A term applied to any fruit having a very thick pericarp.

Pagina—pa′-ji-na (Lat. *pagina*, a page or leaf). The surface of a leaf or any flat surface.

Palea, also **Pales, Palz**—(Lat. *palea*, chaff). The scale plates in grains and compound order of flowers somewhat like chaff, within the glume or hull or chaff proper.

Palmate—pal′-mat, also **Palmated** (Gr. *palame;* Lat. *palma ;* Anglo-Saxon *folm*). Like the palms of one's hands; like the palm leaves; hand-shaped, resembling the hand and fingers; the shape of many leaves.

Palmatifid—pal-mat′-i-fid (Lat. *palma*, a hand, and *findo*, I cleave). A leaf resembling the hand.

Pampiniform—pam-pin′-i-fawm (Lat. *pampinus*, a tendril, and *forma*, a shape). Resembling a vine tendril.

Panacea—pan′-a-se′-a (Lat. *panacea;* Gr. *panakeia*, an herb having the power to cure all diseases, from *pan*, all, and *akeomai*, heal or cure). A universal cure-all.

Panduriform—pan-du′-ri-fawrm, also **Pandurate** (Gr. *pandoura*, and Lat. *forma*, a shape). Leaves resembling a violin in shape, or rather the stringed instrument of the Greek, called a pandoura.

Papaveraceous—pa-pav′-er-a′-shus (Lat. *papaver*, a poppy). Pertaining to and resembling the poppy; belonging to the natural order of the Papaveraceæ.

Papillose—pa-pil′-loz (Lat. *papilla*, a small pimple or nipple). Covered with elevated dots or points; warty.

Pappous, also Pappose—(Gr. *pappos;* Lat. *pappus*, seeds with hair or wool). Downy, as in the seeds of the thistle, cotton, etc.

Paregoric—par′-e-gor-ik (Gr. *paregorikos*, capable of affording relief). A medicinal tincture or elixir, a mixture of opium, camphor, oil, anise, honey, etc.

Parenchyma—pa-reng′-ki-ma (Gr. *parenchuma*, from *para*, beside, and *chuma*, juice). In botany the pith or cellular tissue of plants; also termed parenchymatous tissue.

Paripinnate—par′-i-pin′-nat (Lat. *par*, equal, and *penna*, a wing). A compound or double pinnate leaf ending in two leaflets.

Patchouly—pa-cho′-li (said to be derived from the Malay *pucha-pat*). An aromatic perfume, and much esteemed by some people; the plant contains an ottar, and on this depends its fragrance.

Pear—(As. *pera;* Fr. *poire;* Lat. *pirum*, a pear). The pear tree, the well-known fruit.

Pectoral—pek′-to-ral (Lat. *pectus*, the breast; genative, *pectoris*). Any medicine that is good for the lungs.

Pedate—ped′-at (Lat. *pedatus*, footed). Applied to certain palmate leaves having a division like feet.

Pedatifid—pe-dat′-i-fid (Lat. *pedatus*, footed, and *findo*, I divide). A term applied to a leaf whose parts are not entirely separate, but divided as a pedate one; irregularly lobed.

Pedicel—ped′-i-sel, also **Pedicle** (Lat. *pediculus*, a small foot stalk; from the Lat *pes*, a foot; genative, *pedis;* Fr. *pedicule*, or *pedicelle*). A short foot stalk of a fruit, flower or leaf.

Peduncle—pe-dung′-kl (Lat. *pedunculus*, a little foot, from the Lat. *pes*, a foot). The stems that support the flower or fruit.

Pedunculated—pe-dung′-ku-la′-ted (Lat. *pes*, a foot). Having a peduncle, growing on a peduncle.

Pellitory—pel′-li-ter-i (Spanish, *pelitre ;* Lat. *parietaria*, pellitory or wall plant, from *paries*, a wall). The name applied to certain plants used in medicine.

Pendulous—pen′-du-lus (Lat, *pendulus*, hanging, from *pendeo*, I hang downwards; Italian, *pendulo*, hanging or swinging). Hanging, drooping, as the flowers of the Fuschia.

Pennate—pen′-nat, or **Pinnate** (Lat. *pennatus*, feathered, from *penna*, a feather or wing). Applied to leaflets that are arranged on opposite sides of a common petiole or leaf stalk, as the locust.

Pentacapsular—pen′-ta-kap′-su-ler (Gr. *pente*, five, and the Lat. *capsula*, a little box). A fruit or seed having five cells or cavities.

Pentandria—pen-tan′-dri-a (Gr. *pente*, five, and *aner*, a man or male; genative, *andros*,). A flower having five stamens.

Pentapetalous—pen′-ta-pet′-a-lus (Gr. *pente*, five, and *petalon*, a petal). Having five flower leaves or petals.

Pentaphyllus—pen-taf′-il-lus (Gr. *pente*, five, and *phullon*, a leaf). Having five leaves.

Pentaspermous—pen′-ta-sper′-mus (Gr. *pente*, five, and *sperma*, seed). A fruit containing five seed.

Peony—pe′-o-ni (Lat. *pæonia*, gets its name from the discoverer. Pæon). A plant much esteemed for its showy flowers.

Pepo—pe′-po, also peponida (Lat. *pepo*, a gourd; from the Gr. *pepon*, a kind of melon, from *pepon*, ripe, mellow). The fruit of the cucumber, melon, etc.; natural order Cucurbitaceæ.

Pepsine—pep′-sin (Gr. *pesso*, I digest; *pepso*, I shall digest; *pepsis*, a digesting, a cooking). The well-known substance obtained from the gastric juice of animals; a medicine to promote digestion.

Perenchyma—per-eng′-ki-ma (Gr. *pera*, a pouch; *engchuma*, what is poured in, from *cheo*, I pour). Cellular tissue containing starchy matter.

Perennial—per-en′-ni-al (Lat. *perennis*, lasting through the year; from *per*, through, and *annus*, a year). A plant living only through one season.

Perfoliate—per-fo′-li-at (Lat. *per*, through, and *folium*, a leaf). Applied to the leaf when the stem seems to pierce the leaf; when the lobes of the leaf clasp the stem, giving the appearance of entering the leaf. Example: the honeysuckle and some of the boneset plants.

Perfume—per′-fum (Lat. *per*, through and *fumus*, smoke; Fr. *parfum*; Italian, *profumo*,

a perfume, a sweet odor, an imponderable vapor). Any substance that affects the organs of smell agreeably; an invisible agent; scent; the breath of flowers.

Pericarp—per′-i-karp; also **Pericarpium** (Gr. *perikarpion*, the covering of a seed; from *peri*, around *karpos*, fruit). The part of the fruit immediately investing the seed.

Periderm—per′-i--derm (Gr. *peri*, around or about, and *derma*, the skin). The outer layer of the bark of the tree or plant.

Perisperm—per′-i-sperm (Gr. *peri*, around, and *sperma*, a seed). The nutritive matter stored within the seed; the inner envelope of the seed.

Persimmon—per′-sim-un (the name is derived from the American Indian). A tree, native of North America, once used as an astringent medicine; the Diospyros Virginiana.

Persistent—per-sist′-ent (Lat. *per*, through, and *sisto*, I stand; Italian, *persistere*, permanent, continuing, remaining). Not falling off, remaining, adhering to the axis until the part bearing it matures.

Phanerogamic—fan′-er-o-gam′-ik, also **Phanerogamous** (Gr. *phaneros*, manifest, and *gamous*, marriage). Plants which have their organs of reproduction distinctly and visibly marked; plants opposed to the Crytogamic.

Pharmaceutical—far′-ma-su-ti′-kal, also **Pharmaceutic** (Gr. *pharmakeia*, the using of medicine, from *pharmakon*, medicine). Relating to medicine, the science of pharmacy.

Pharmaceutist—phar′-ma-su′-tist (Gr. *pharmakon*, a medicine). One who has the knowl-

edge of preparing his own medicine; one who understands the science of the apothecary.

Pharmacien—far-mas′-i- ang (Fr.) A qualified pharmacist.

Pharmacopœia—far-ma′-ko-pe′-a (Gr. *pharmakon*, a medicine, a drug, and *poieo*, I make). A book containing the standard or authorized directions for the selection of and preparations used in medicine.

Pharmacopolist—far′-ma-cop′-o-list (Greek, *pharmakon* and *poleo*, I sell). A druggist, an apothecary.

Pharmacy—far′-ma-si (Gr. *pharmakon*, a medicine, a drug) The art of preparing and preserving substances used in medicine for the cure of disease.

Phlox—floks (Gr. *phlox*, flame). The much admired genus of flowering plants having purple, red or white flowers.

Phyllodium—fil-lo′-di-um (Gr. *phullon*, a leaf, and *eidos*, appearance, form). A leaf stalk when it becomes developed into a flattened expansion like a leaf.

Phyllogen—fil-lo′-jen (Gr. *phullon*, a leaf, and *gennao*, I produce). The terminal bud from which the leaves of the plants grow.

Phylloid—fil′-loyd (Gr. *phullon*, a leaf, and *eidos*, form or appearance). Like a leaf.

Phylloptosis—fil′-lop-to′-sis(Gr. *phullon*, a leaf, and *ptosis*, a falling). The fall of the leaf.

Phyllotaxis—fil′-o-taks′-is (Gr. *phullon*, a leaf, and *tasso*, I arrange; *taxis*, order). The arrangement of the leaves on the stem or axis.

Physic—fiz′-ik (Gr. *phusikos*, conformable or agreeable to nature, from *phusis*, nature). A natural production of any kind; a knowledge of medicine; the art of healing; remedies for disease, from the Lat. *physica;* Fr. *physique*.

Physics—fiz′-iks (plural). The science of matter, laws of motion; signs of nature; natural philosophy.

Physiology—fiz′-i-ol′-o-gy (Gr. *phusis*, nature, and *logos*, discourse). The science which treats of the vital functions or actions performed by the organs of plants and animals.

Phytogeny—fi-toj′-e-ni, also **Phytogenesis**—fi-toj′-en-e′-sis (Gr. *phuton*, a plant, and *germao*, I produce). The doctrine of the production or generation of plants; the development of the plant.

Phytology—fi-tol′-o-ji (Gr. *phuton*, a plant, and *logos*, discourse). The science of the vegetable kingdom, Botany.

Phytonomy—fi-ton′-o-mi (Gr *phuton*, a plant, and *nomos*, a law). The science of the growth, origin and arrangement of plant life.

Phytotomy—fi-tot′-o-my (Gr. *phuton*, a plant, and *tome*, a cutting). The dissection of organized vegetable bodies.

Pilose—pi′-loz, also **Pilous** (Lat. *pilosus*, hairy, shaggy, from *pilus*, hair). Abounding in hairs: covered with hairy down, as in some leaves.

Pinnate—pin′-nat, also **Pinnated** (Lat. *penna*, a feather or fin). A compound leaf having several leaflets attached to each side of a central stem or rib.

Pistil—pis′-til (Lat. *pistillum;* Fr. *pistie;* Italian *pistillo*, a pestle, from *pinsere*, to pound or crush). The seed-bearing organ; the female part of the flower

Pith—(As. Dutch *pit*, pith, kernel). The soft, spongy mass or substance in the centre of plants and trees known as the medulla. Example: Sassafras.

Placenta—pla-sen′-ta (Lat. *placenta*, a cake, from the Gr. *plakous*, a flat cake). The cellular part of the carpel bearing the ovule of the fruit.

Plantain—plant′-an (Fr. *plantain;* Lat. *plantago*, a plantain, from *planta*, the sole of the foot). A plant common to many countries, and growing wild.

Plicate—pli′-kat, also **Plicated** (Lat. *plico*, I plait or knit). Plaited or folded like a fan.

Plumule—plu′-mul, also **Plumula** (Lat. *pluma*, plume or feather-like). The point of a seed which develops in a direction contrary to the radical, being the first gemmule or bud of the young plant.

Plurilocular—plu′-ri-lok′-u-ler(Lat. *plus*, more, genative, *pluris*, and *loculus*, a little place). Having several divisions containing seeds, as the orange and lemon.

Poculiform—pok′-u-li-fawrm (Lat. *poculum*, a cup, and *forma*, shape). Cup-shaped.

Pod—(Danish *pude*, a pillow; Breton *pod*, a pot). The pericarp of such plants as beans, peas, etc.

Podocarp—pod′-o-karp (Gr. *pous*, a foot, genative, *podos* and *karpos*, fruit). The stem supporting the fruit.

Podocephalous—pod′-o-sef′-lus (Gr. *pous*, a foot, and *kephale*, the head). A head of flowers elevated on a long stem or peduncle.

Podosperm—pod′-o-sperm (Gr. *pous*, a foot, and *sperma*, a seed). The thread or connection between the ovule and the placenta; the seed stalk.

Pollen—pol′-len (Lat. *pollen*, fine flour; Fr. *pollen*). The dust or fine powder secreted by the anthers of the stamen; the fecundating principle of the male organ of the plant.

Polyadelphian—pol′-i-a-del′-fi-an, also **Polyadelphous** (Gr. *polus*, many, and *adelphos*, a brother). Having the stamens united in three or more bundles, as in the class of plants, Polyadelphia.

Polyandrian—pol′-i-an-dri′-an, also **Polyandrous** (Gr. *polus*, many, and *aner*, a man or male, genative, *andros*). Many stamens, or any number above twenty.

Polyanthus—pol′-i-an′-thus (Gr. *polus*, many, and *anthos*, a flower). A variety of the primrose of many colors, a much esteemed garden flower.

Polycotyledon—pol′-i-kot-i-le′-don (Gr. *polus*, many, and *kotuledon*, a hollow vessel). Having more than two lobes, as in the seed of the firs.

Polygamian, also **Polygamous**—pol-ig′-a-mus (Gr. *polus*, many, and *gamos*, a marriage). Plants belonging to the class polygamia, which bear three descriptions of flowers, male, female and hermaphrodite.

Polypetalous—pol′-i-pet′-a-lns (Greek *polus*,

many, and *petalon*, a leaf or petal). A flower with many petals.

Polysepalous—pol′-i-sep′-a-lus (Greek *polus*, many, and *eng*, sepal). The calyx containing many separate parts or sepals not cohering.

Polyspermous—pol′-i-sper′-mus (Greek *polus*, many, and *sperma*, a seed). Many seeded.

Pome—pom (Lat. *pomum*, an apple; French *pomme*). A many-celled, fleshy fruit, apple, pear, etc.

Pomegranate—pom′-gran-at (Lat. *pomum*, an apple, and *granatus*, having many grains or seeds). A tree somewhat like tbe orange tree, fruit larger and flowers more showy.

Pomologist—po-mol′-o-jist (Lat. *pomum*, an apple or fruit, and Gr. *logos*, a discourse). One who is skilled in knowledge of fruits.

Poppy—pop′-pi (As. *popig*; Fr. *pavot*; Lat. *papaver*, a poppy). Flowering plants of many species, some of which yield the opium Papaver somniferum.

Primrose—prim′-roz (Lat. *primus*, first, and *rosa*, a rose). An early spring flower closely allied to the cowslip, *primula vulgaris*.

Procumbent—pro-cum′-bent (Lat. *procumbens*, leaning forward; from *pro*, forward, and *cubo*, I lie down). Lying upon, trailing upon the earth, trailing arbutos.

Proteine—pro′-te-in (Gr. *proteuo*, I hold the first place or rank; from *protos*, first). A peculiar nitrogenous substance forming the basis of albumen, caseine and fibrine; a term used in the animal and vegetable economy of nature.

Protoplasma—pro′-to-plas′-ma, also **Protoplasm** (Gr. *proto*, first, and *plasma*, a model or what has been formed). A coating of matter found on the inside of the cells of the cellular tissue; the material from which the cell nuclei are formed; the formative material of the cell.

Protozoa (plural) also **Protozoans** (Greek *protos*, first; and *zoe*, life or zoon, an animal). The lowest form of animal life, the line of demarcation between animal and vegetable life.

Pseudomorphos—su′-do-mor′-fus (Gr. *pseudes*, false, and *morphe*, form). Substances found in regular crystals but not possessing regular crystalline structure.

Punctate, or **Punctated**—pung′-tat (Lat. *punctum*, a dot, point or small hole). Having the surface covered with dots or small holes, as is the case with many leaves.

Purslane, also **Purslain**—(Latin *portulaca*, purslane). Annual plants or weeds with fleshy, succulent leaves and stems, native of Africa; the much admired little flowering plant called the portulacca is an example.

Putamen—pu-ta′-men (Lat. *putamen*, a pod or shell). The stone or shell of a fruit, also called undocrap; the peach stone and almond are examples.

Pyriform—pir′-i-fawm (Lat, *pyrum*, a pear, and *fero*, I bear). Pear shape, like a pear in form.

Pyrogallic Acid—(Gr. *pur*, fire, and *galla*, the gall nut). An acid obtained by the action of heat on gallic acid.

Pyroligneus, Acid or **Spirits**—(Gr. *pur*, fire, and *lignum*, wood). An acid obtained by the destructive distillation of wood, having a vinegar-like odor.

Quadricapsular — kwod′-ri-kap′-su-ler (Latin *quator*, four, and *capsula*, a small box). A plant having four capsules.

Quadrilocular—kwod′-ri-lok′-u-ler (Lat. *quatuor*, four, and *loculus*, a little space). A capsule having four cells or spaces.

Quadriphyllus—kwd′-ri-fil′-lus (Lat. *quatuor*, four, and the Gr. *phullon*, a leaf). A branch having four leaves.

Quassia—kwosh′-i-a (the name said to be derived from a South American negro named Quassy, who first gave a report of its virtues). A medicine of intensely bitter taste obtained from the wood of a large tree, the "quassia excelsa."

Quinquecapsular—kwin′-kue-kap′-su-ler (Lat. *quinque*, five, and *capsula*, a little chest or box). Having five capsules.

Quinquefoliate—kwin′-kue-fo′-li-at (Lat. *quinque*, five, and *folium*, a leaf). Having five leaves.

Quinquelocular—kwin′-kue-lok′-u-ler (Latin *quinque*, five, and *loculus*,, a little place or cell). A capsule having five cells.

Raceme—ra-sem′ (Lat. *racemus*, a cluster of grapes). A cluster of flowers arising from a common axis or stem, as in the currant, hyacinth, etc.

Racemose—ra-c′-moz (Lat. *racemus*). Bearing flowers in racemes, as the grape, etc.

Radical—rad′-i-kal (Italian *radicale ;* Fr. *radcal*, from the Lat. *radix*, a root, genative *radicis*, to grow, to rise). Proceeding to a point, to the summit or crown of the root; applied to leaves close to the ground and clustered at the base of the flower stalk.

Ramuli—ram′u-li (Lat. *ramulus*, a little branch, from *ramus*, a branch). The twigs or small branches of a tree or shrub.

Ranunculus—ra′-nun′-ku-lus (Lat. *ranunculus*, a little frog; from *rana*, a frog). Crow-foot, or frog-foot, an order of plants including many species, buttercups, etc.; so called from the species which grows where frogs are numerous.

Rape—rape (Lat. *rapum*, a turnip, rape; Ital. *rapa ;* Gr. *rapus*). A plant of the cabbage kind cultivated for the oil obtained from the seeds.

Raphe—ra′-fe (Gr. *rhaphe*, a seam, from *rhaptein*, to sew together). A term applied to the parts of a plant which look as if they had been glued together; the line connecting the hilum and chalza on the seed; the line of junction of two halves.

Raphides—plural, raf′-i-des, (Gr. *raphis*, or *raphida*, from *rhaptein*, to stitch togther). Minute needle-like crystals found in the tissue of plants.

Ray—Fr. *rai*, a beam of the sun; Lat. *radius ;* Italian *radio*, a ray). The outer petals in a flower of the natural order of Umbelliferæ and Compositæ, when differently formed from those in the centre.

Receptacle—re-cep′-ta-kl (Lat. *receptaculum*, a storehouse or magazine, from *re*, back, and *capio*, I take). A place or vessel in which anything is received; that part of the fruit or flower which bears or receives other parts, as an expanded peduncle. Example: the daisy, sunflower and dandelion.

Regma—reg′-ma (Gr. *rhegma*, a rupture). When the two halves of a seed vessel open with an elastic movement, as in some of the spurge family.

Reniform—re′-ni-fawm (Lat. *rens*, or *reins*, the kidneys, and *forma*, a shape). Kidney-shaped; resembling a kidney in shape, as is the case with some seeds and leaves of plants.

Repand—re-pand′ (Lat. *repandus*, backward, turned up, bent, from *re*, back, *pandus*, bent, crooked). Allied to a leaf when its margin is wavy, undulated, etc.

Repent, repens—(Lat. *repens*, genative *repentis*, creeping). Lying flat, creeping. Triticums repens is an example.

Replicate—rep′-li-kat Lat. *replicatus*, to roll or fold, from *re*, back, and *plico*, I fold). Doubled down; when the upper part of a leaf or petal comes in contact with the lower portion.

Retrorse—re-trors′ (Lat. *retrorsum*, backward, from *retro*, backwards, and *versus*, turned). Applied to petal stamens and leaves when they turn backwards.

Retuse—re′-tus (Lat. *retusus*, blunted, from *re*, back, and *tundere*, to beat; Italian *retuso*; Fr. *retus*). Applied to leaves and petals when blunt-pointed or have the appearance of being bitten off at the end.

Rhi′zanths, plural—**rizanths** (Gr. *rhiza*, a root, and *anthos*, a flower). Plants occupying a place between the flowering and non-flowing species.

Rhizocarpus—(Gr. *rhiza*, a root, and *karpos*, fruit). Plants whose roots last many years whilst the stems die annually.

Rhizome—ri′zom, also **Rhrizo′ma** (Gr. *rhizoma*, what has taken root). A thick root running horizontally, sending up shoots above and rootlets below.

Rhizotaxis—ri′zo-taks′-is Gr. *rhiza*, a root, and *taxis*, putting in order). The arrangement of roots in their relative order.

Rhodanthe—ro-dan′-the (Gr. *rhodon*, a rose, and *anthos*, a flower). A plant much esteemed for its beautiful flowers which bloom annually.

Rhodendron—ro′do-den′-dron (Gr. *rhodon*, a rose, and *dendron*, a tree). A plant much esteemed for ornamental gardening; it has evergreen leaves and large brilliant flowers.

Rhubarb—ru′-barb (from *Rha*, the former name of the river Volga, in Russia, on whose banks it is said it was first found, and from the Lat. *barbarus*, foreign). A valuable medicine of many varieties.

Rimose—ri-mos′, also **remous,** ri′-mous (Lat. *rimosus ;* Italian *rimoso*, full of cracks). Covered with cracks or fissures, as in the bark of some trees.

Rind—(As. *hrinde ;* Gr. *rinde*, crust or bark). The skin or outer coat of a fruit; peel; the bark of trees.

Ringent—rin′-jent (Lat. *ringens*, opening wide the mouth). A term applied to the labiate flowers, the lips of which are arched and gaping wide open, etc.

Rose—(Lat. *rose ;* Gr. *rhodon*, Lat. *rosa*, and F. *rose*). The universally admired flower of many varieties.

Rosaceous—ro-za′-shus, also **ro′saceæ**, like a rose. Applied to corollas having petals like the wild rose, one of the natural order of plants.

Rosemary—ros-mar-i (Lat. *rosamarinus*, rosemary, from *ros*, *mare*, the sea). A fragrant evergreen plant found growing most luxuriantly near the sea borders, hence the name; containing an oil much esteemed.

Rotate—ro-tat (Lat. *rotatus*, to turn round like a wheel, from *rota*, a wheel). A term used in botany when the corolla has a short tube and limbs spread out in form of a wheel.

Rubefacient—ro′be-fa′-shi-ent (Lot. *ruber*, red, and *facio*, I make). Any tincture or liniment which produces redness without blistering the skin.

Rubiginous—ro-bij′-i-nus (Lat. *rubiginosus*, abounding in rust, *rubigo*, mildew, rust). Applied to leaves or stems which have a brown red tint or red with gray.

Rugose—ru′-gos (Lot. *rugæ*, folds or plaits, from *ruga*, I wrinkle or plait). Applied to leaves or roots full of wrinkles.

Salep or **soloop**—sal′-ep (Turkish *salleb*). A small tuberous plant whose dried root is found in a granular powder, imported from Asia Minor and Persia.

Sarcocarp—sar′-co-karp (Gr. *sarka*, flesh and *karpos*, fruit). The fleshy part or pulp of a fruit. Also termed **sarcoderm**.

Sassafras—sas′sa-fras (Fr. *sassafras*, from the Lat. *saxum*, a stone, and *frango*, I break). The bark of the tree is used in medicine. Sassafras officinalis.

Saxifrage—saks′-i-fraj (Lat. *saxifragus*, stone breaking, from *saxum*, a rock, and *frango*, I break). A plant, when prepared as a medicine, said to have the power of dissolving stone in the bladder.

Scape—skap (Lat. *scapus*; Gr. *skapos*, a stem or stalk, from *shepto*, I support). A flower-stalk without leaves, with one or more flowers, usually with radicle leaves. Example: Dandelion.

Sclerogen—skler′-o-gen (Gr. *skleros*, hard, and *gennao*, I produce.) The hard or woody material deposited in the cells of plants; the material forming woody tissue.

Scorpioid—skor′-pi-oyd, also **Scorpioidal** (Gr. *skorpion*, a scorpion; *eidos*, resemblance). Flowers having a peculiar twisted inflorescence, resembling the tail of a scorpion, as in the Boraginaceæ.

Seed—(As.) (Ger. *saat;* Icelandic *sad*, seed, from the Lat. *satus*, sown). The part of the plant to be sown; the beginning and end of plant life.

Seed-vessel—The pericarp which covers the seed.

Segregate—seg′-re-gat (Lat. *segregatum*, to separate or set apart; from *se*, aside, and *gregare*, to collect in a flock). A separation, parting from each other.

Senega, or **Seneka**—A medicinal plant said to receive its name from the Seneca Indians, and used by them for snake bites.

Senna—sen′-na (Ital. *sena;* Fr. *sene*, from the Arabic *sana*, or *sene*, acute). Alluding probably to its acutely-pointed leaf, senna acutifolia.

Sepal—se-pal (said to be an invented term, by changing the Gr. word *petalon* into *sepalon*; Lat. *sepes*, a fence or hedge). The leaf-like division of the cup of the corolla; the parts of the calyx.

Sepiment—sep′-i-ment (Lat. *sepimentum*, a hedge, *sepio*, I hedge in). The partition in a capsule separating the seed.

Septic—sep′-tik, also **Septical** (Gr. *septikos*, that which causes putrefaction; from *sepo*, I putrefy). Anything or material causing decay, putrefaction.

Septicidal—sep′-ti-si′-dal (Lat. *septum*, a partition, and *cædeo*, I cut or divide). A term applied to seed-vessels which open by breaking through the septa of the ovary.

Septiform—sep′-ti-fawrm (Lat. *septum*, a partition, and *forma*, shape). Having the character of a partition or septum.

Septum, plural **Septa** (Lat. *septum*, a partition). Any membrane or partition separating a fruit or seed into two or more cells or divisions.

Sericeous—se-rish′-us (Lat. *sericus*, silken, from *seres*, appertaining to the people of Asia, the Chinese). Covered with fine hairs, silky.

Serrate—ser′-rat. also **Serrated** (Lat. *sera*, a saw). Applied to leaves whose edges appear like the teeth of a saw.

Sessile—ses′-sil(Lat. *sessilis*, of or belonging to sitting; from *sedio*, I sit). Applied to a leaf without a stem or petiole.

Seta—se′-ta. plural **Setæ** (Lat. *seta*, a stiff or thick hair). The awn or beard of grasses, wheat, etc.

Setose—se′-tos, also **Setores** (Lat. *setosus*, bristly, from *seta*, a bristle). Covered or beset with bristles, as in the thistle.

Shaddock—shad′-dok (gets the name from a West Indian trader, Captain Shaddock). A large fruit resembling the orange in appearance, and classed in the same natural order.

Sialagogue—si-al′-a-gog (Fr. *sialagogue*, probably from the Gr. *sialon*, saliva, and *ago*, I lead). Any medicine which increases the flow of saliva or spittle.

Silicle—sil′-i-kl, also **Silicula** (Lat. *silicula*, a little pod, from *siliqua*, a pod or husk). Applied to a pod whose breadth almost equals the length.

Silique—sil′-lik, also **Siliqua** (Lat. *siliqua*, a pod or husk). This differs from the silicle by being many times longer than broad, as in the cabbage, turnip, etc.

Sinapism—sin′-a-pizm (Lat. and Gr. *sinapi*, mustard). A mustard poultice or plaster.

Solanum—so-la′-num (Lat. *solanum*, night shade). One of the botanical names of the potato and bitter-sweet, etc.; many of the order are very poisonous.

Somniferous—som-nif′-er-us (Lat. *somnus*, sleep, and *fero*, I bring). Causing sleep, one of the botanical names of the poppy papaver somniferum.

Soporific—so′-po-rif′-ic (Lat. *sopor*, a heavy sleep, and *facio*, I make). Any drug having the power to produce or induce sleep.

Soredia—so-re′-di-a (Gr. *soros*, a pile or heap). The powdery-looking cells on the surface of the thallus of many lichens.

Sorus, plural, **Sori** (Gr. *soros*, a pile or heap). The patches of reproduction on the under side of fern leaves or fronds, and are known as sporangia.

Sorosis—so-ro′-sis (Gr *soros*, a pile or heap). A fleshy fruit formed by the aggregation or consolidation of many flowers, seed vessels, etc. Example: pineapples, etc.

Spadix—spa′-diks, plural **Spadices** (Lat. and Gr. *spadix*, a palm branch broken off together with its fruit of a dark or nut brown color). An inflorescence in which the flowers are arranged around a thick, large leaf termed a spathe.

Spathe, also **Spatha**—(Lat. *spatha;* Gr. *spathe*, a broad blade). A kind of leaf or branch covering a spadix, covering numerous flowers.

Spatulate—spat′-u-lat (Lat. *spathula*, a spoon). Shaped like a spatula or spoon handle; applied to leaves narrow and rounded at the apex, and narrow at the base.

Spike—(Ital. *spica*, a wheel; Lat. *spica*, an ear of corn). Numerous flowers sessile on a single stem or axis, as the lavender, wheat, etc.

Spiniferous—spi-nif′-er-us (Latin *spinifer*, thorn-bearing, from *spina*, a thorn, and *fero*, I bear). Producing or bearing thorns or spines.

Spongioles—plural, spun′-ji-olz (Lat. *spongiola*, from *spongia*, a sponge). The extremities of the roots, rootlets; the absorber of nutrition from the earth.

Sporangium—spo-ran′-ji-um, also **Sporangia,** (Gr. *spora*, seed, *anggos*, a vessel). The covering of the spores of some of the cryptogamic order of plants.

Spore, Spor—also **Sporule** (Gr. *spora*, a seed). One of the minute grains in the flowerless plants which reproduce the plant, as the seed in the flowering plants. Examples found in the club mosses and ferns.

Spurge—(Fr. *espurger*, to purge, to cleanse; Lat. *purgo*, I purge). The name of a medicinal plant of biting taste and cathartic in action; a name applied to quite a number of plants, order Euphorbiaceæ.

Squarrose—skwor′-ros, also spelled **Squarrous** (Lat. *squarrosus*, roughness of the skin). Applied in botany to leaves whose surfaces are covered with scales, small projections, etc. The term squarrosa is used to indicate the variety of the plant.

Squill—skwil (Fr. *squille;* Spanish *esquila;* Lat. *scilla;* Gr. *skilla*, the sea onion). A lily-like plant with a root much like an onion in shape, used in medicine; a drug.

Stalk—(Danish *stilk;* Gr. *stelechos*, a stem, a stump). The stem or main prop of a plant. See caulis stipule.

Stamen—sta′men, plural **Stamens** (Lat. *stamen*, from *sto*, I stand, the thread that hangs from the distaff). The male organs of a

flower, consisting of filaments and anthers which contain the pollen.

Staminate—stam′-i-nat; flowers bearing stamens.

Starch—(Ger. *starke*, strength, stiffness; Gælic *stalc*, to stiffen). A substance white and granular obtained from potatoes, grain and other vegetable substances.

Sternutatory—ster′-nu-ta′-ter-i (Lat. *sternuto*, I sneeze). Any drug that has the power to cause sneezing.

Stigma—stig′-ma (Lat. and Gr. *stigma*, a mark burned in; a mark made with a sharp pointed instrument; from the Gr. *stizo*, I mark with points). The upper portion of the pistil on which the pollen falls.

Stipule—stip′-ul (Lat. *stipula*, a stem, a stalk). A leaflet on an immature leaf at the base of the leaf.

Stole—stol, also **Stolen** (Lat. *stolo*, a twig or shoot springing from the stock of a tree). A trailing branch thrown off from the summit of the root and taking root at intervals, commonly known as a sucker.

Stomata—sto′-ma-ta (Gr. *stoma*, a mouth; *stomata*, mouths). Minute openings found on the under surfaces of the leaves, etc.

Strobile—strob′-il, also **Strobilus** (Gr. *strobilos*, in shape like a top). A number of fruits in form of a cone, as the pine cone, hop, etc.

Style—stil (Lat. *stylus*, a stake, a style for writing). Thread or stalk between the ovary and stigma composing the larger portion of the pistil.

Succulent—suk′-ku-lent (Fr. *succulent*, juicy, from the Lat. *succus*, juice, sap, moisture). Applied to plants and fruits that are soft and juicy.

Sudorific—su′-dor-if-ik (Lat. *sudor*, and *facio*, I make). Any medicine causing sweat.

Suffruticose—suf′-fru-ti′-koz (Lat. *sub*, under, and *fructicosus*, bushy, shrubby). Shrubby beneath, like an under shrub in character.

Sugar—shoog′-er (Arabic *sakkar;* Sanscrit *sharkara*, sugar; Lat. *saccharum*; Gr. *sakcharon*). The sweet substance obtained from vegetable matter, sugar cane, beets, etc.

Sumach—su′-mak (Fr. *zumac;* Spanish *zumaque;* Arabic *summak*). A small shrub or tree used for tanning leather, and occasionally used in medicine; many varieties.

Sumbul—sum′-bul (a word derived from the Tartar). A native of the East; the root used in medicine, ferula sumbul. Muskroot.

Supra-axillary—(Lat. *supra*, and *axilla*, the arm pit). Growing above the axil; contrary to sub-axillary.

Syncarpus—sin-kar′-pus (Gr. *sun*, together, and *karpos*, fruit). When the carpels are united so as to form one pistil or ovary; as the blackberry and raspberry, which are an aggregation of fruits.

Syngenesia—sin′-je-ne′-si-a (Gr. *sun*, with or together, and genesis, birth generation). A class of plants whose stamens are united in a cylindrical form by the anthers, as in the Compositæ.

Tamarind—tam′-a-rind (Arabic *tamr′-ul hindi*, from *tamar*, a dried date, the Indian date

palm), The Indian date tree whose pods and seeds are preserved in sugar.

Tansy—tan′-zi (Fr. *tanaisie*, the tansy plant, from the Gr. *athanasia*, immortality). A bitter, strongly scented plant with deeply cut, handsome leaves containing a volatile oil used in medicine. Tanacetum vulgare.

Taproot—tap′-root (Dutch *tap*, a plug put in to stop a hole). The main root of a plant which runs deeply into the ground.

Tegmen—teg′-men (Lat. *tegmen*, a covering). The second covering of the seed.

Tendril—ten′-dril (Fr. *tendron*, the tender shoot of a plant, from the Fr. *tendre*, tender, and the Lat. *tenere*, to hold). The twisting extremities of plants that attach them to the fences and trees, etc.

Tenuifolius—ten′-ui-fo′-li-us (Lat. *tenuis*, slender, and *folium*, a leaf). Narrow leaves.

Terete—te′-ret (Lat. *teres*, or *teretum*, rounded off, genitive *teretis*). Nearly cylindrical.

Testa—tes′-ta, plural **Teste** (Latin *testa*, a shell, a tile). The outer covering of the seed.

Tetradynamous—tet′-ra-din′-a-mus (Gr. *tetra*, four, and *dunamis*, strength). Having six stamens, four of which are longer than the others.

Tetrandrous — te-tran′-drus, also **Tetrandrian** (Gr. *tetra*, four, and *aner*, a man; genitive, *andros*). Plants having four stamens.

Tetrapetalous—tet′-ra-pet′-a-lus (Gr. *tetra*, four, and *petalon*, a petal). A flower containing four petals.

Tetraphyllous—tet′-ra-fil′-lus (Gr. *tetra*, four, and *phullon*, a leaf). A plant having four leaves.

Thalssiophytes, plural, thal′-as-si-o-fits (Gr. *thalassios*, belonging to the sea, and *phouton*, a plant). A term applied to the algæ or sea-plants when speaking of them as a portion of the vegetable kingdom.

Thallogen—thal′-o-jen (Gr. *thallos*, a young shoot, and *gennao*, I produce). A large class of the Cryptogami never showing a marked difference of root, stem or foliage.

Thecca—the′-ca, plural, **Thecæ** (Gr. *theca*, a case or sheath). The sheath containing the reproductive matter of many flowerless plants, as the spore cases of the mosses.

Theine—the′-in (Lat. *thea;* Fr. *theine*, the tea plant). The active principle of tea occurring in fine white needle-like crystals; used in medicine.

Theobroma—the′-o-bro′-ma (Gr. *theos*, a god, and *broma*, food). A substance obtained from the chocolate nut; used as food, and used as coffee, etc.

Therapeutics—ther′-a-pu′-tiks (Gr. *therapeutikos*, having the power of healing, from *therapeuein*, to heal). In medicine, the application of remedies to the cure of diseases.

Thistle—this′-l (Icelandic, *thistill;* Ger. *distel*, a thistle). The name applied to all varieties of prickly plants; the national emblem of Scotland.

Thyrsus—ther′-sus, also **Thyrse** (Lat. *thyrsus;* Gr. *thursos*, a stalk or stem entwined with

ivy). An inflorescence; very compact, like the grape or lilac, etc.

Tincture—tingk′-tur (Lat. *tinctura*, a dyeing, from *tinctum*, to moisten, to dye). A medicine of which alcohol forms the whole or part of the fluid portion or solvent.

Tomato—to-ma′-to (Spanish and Fr. *tomate*, but the word is said to be of Indian origin). Called love-apple; tomato, a well-known vegetable of many varieties. Lycopersicum esculentum.

Tomentose—to′-men-tos′, also **Tomentous** (Lat. *tomentum*, a stuffing for cushions(. Applied to leaves with dense, compact hairs having the appearance of wool, as the mullein.

Trachenchyma—track′en-ki′-ma(Eng. *trachea*, and Gr. *engchuma*, what is pounded in). The vascular tissue of plants, consisting of corkscrew-like vessels or like the windpipe or trachea in animals.

Tragacanth—trag′-a-kanth (Latin *tragacanthum*, from the Gr. *tragos*, a he goat, and *akantha*, a horn). The concrete juice or gum of many plants of the East; occurs in the stores in semi-transparent flakes; used in medicine as paste, and to give consistence to troches, etc.

Triadelphos—tri′-a-del′-fus (Gr. *treis*, three, and *adelphos*, a brother). Flowers having stamens united in three bundles by their filaments.

Triandrian—tri′-an-dri′-an, also **Triandrous** Gr. *tries*, three, and *aner*, a man, genitive,

andros). A flower with three distinct and equal stamens, as in the class Triandria.

Tricoccus—tri-kok′-kus (Gr. *tries*, three, and *kokkos*, a berry or kernel). A capsule having three one-seeded cells.

Trifoliate—tri-fo′-li-at (Lat. *tres*, three, and *folium*, a leaf). Having three leaves as the clover.

Trigynous—tri′-ji-nus (Gr. *treis*, three, and *gune*, a woman). Having three styles or carpels, of the order Trigynia.

Tripetalous—tri-pet′-a-lus (Gr. *tries*, three, and *petalon*, a leaf). Having three petals or flower leaves.

Triphyllous—tri-fil′-lus (Gr. *tries*, three, and *phullon*, a leaf). Applied to plants which have only three leaves, or in whorles of three.

Tripinnatifid — tri′-pin-nat′-i-fid (Lat. *tres*, three, and *penna*, a feather, and *findere*, to divide). Applied to a pinnatifid leaf that is thrice divided.

Truncate—trung′-kat (Lat. *truncatus*, to cut off; to maim). Applied to leaves and roots when they have the appearance of being cut off; the word premorse is used also.

Turio—tu′-ri-o (Lat. *turio*, the tendril or young branch of a tree). A young shoot covered with scales, as the asparagus.

Turmeric—ter′-mer-ik (Lat. of the middle ages *terramerita*, valuable earth. The word is said to be derived from the Hindoo *zurd*, yellow, and *mirch*, pepper). The root of an East Indian plant of a handsome yellow color which it imparts to alcohol and acetic solutions.

Turnip—ter′-nip (said to be from the Eng. word *turn* in the sense of mend, and the Lat. *napus*, a turnip). A garden vegetable of many varieties.

Turpentine—ter′-pen-tin (Ger. *terpentin;* Lat. *terebinthus;* Gr. *terebinthos*, the turpentine tree. An exudation from several species of pine.

Turpentine Spirits—(*terebinthus*, *terebinthos*, and the Lat. *spiritus*, breath, volatile, etc.). A volatile substance distilled from turpentine; gum resin.

Umbel—um′-bel (Lat. *umbella*, a sunshade; a little shadow, from *umbra*, a shadow). Where all the stalks of a flower arise from a common center, as the hemlock, parsnip, etc.

Umbelliferous—um′-bel-lif′-er-us (*umbra*, a shadow, and *fero*, I carry). Plants producing umbels.

Upas—u′-pas (Malay *puhn.* Upas, the poison tree, from *puhn*, tree, and *upas*, poison). A common tree found in the forests of Java and neighboring islands, once regarded as deadly to those coming in contact with it, but no longer so considered.

Urceolar—er′-se-o-ler (Lat. *urceolus*, a little pitcher; a water-pot). Fleshy or bulging, as leaves or tubercles.

Urceolate—(Lat. *urceolus*, like a pitcher). Like a pitcher in shape.

Urticaceous—er′-ti-ka′-shus (Lat. *urtica*, a stinging nettle). Having the character of a nettle.

Utricle—u′-tri-kl (Lat. from *uter*, a bag or bot-

tle made of animal hide). A thin skinned one-seeded fruit.

Utriculus—u-trik′-u-lus (Lat. *utriculus*, a small skin or leather bottle). The covering like a bladder filled with air found in many water plants.

Valerian—va-le′-ri-an (Lat. *valere*, to be strong, to be in health). A medicinal plant of peculiar odor, the valerian officinalis.

Valve—valv (Lat. *valvæ*, folding doors, from *volvo*, I turn round or about). Any segment or piece into which a fruit or pericarp separates.

Valvate—val′-vat (Lat.). Opening by valves.

Vanilla—va-nil′-la (Span. *vainilla*, a small pod or husk, from *vaina*, a sheath or scabbard, from the fact that the pod bears some resemblance to the sheath of a knife). A native of tropical America, and a plant well known for its fruit, which is used as a flavoring, etc.

Vascular—vas′-ku-lar (Lat. *vasculum*, a small vessel, from *vas*, a vessel, and *texere*, to weave). The woody tissue of plants; the arteries and veins.

Vascular System—(Lat. *vasculum*, and Gr. *sustema*, many things put together, an assemblage of things), In botany the tissue of plants.

Vasiform—vaz′-i-fawm (Lat. *vas*, a vessel, and *forma*, shape). Applied to tissue having many dotted vessels.

Venation—ve-na′-shun (Lat. *vena*, a vein). The arrangement of the frame-work or veins in the leaves.

Verbena—ver-be′-na (Lat. *verbenæ*, branches

of myrtle or laurel). A variety of small flowering plants cultivated for the beauty of their flowers and odor; also known as vervain.

Viscid—vis'-sid (Lat. *viscidus*, clammy, sticky, from *viscum*, the mistletoe; bird-lime made from the mistletoe). Applied to leaves, etc., that are sticky or gluey, etc.

Vivify—viv'-i-fi (Lat. *vivus*, alive, and *facio*, I make). To awaken, to endow with life.

Volatile—vol'-a-til (Lat. *volatilis*, winged, flying, from *volan*, to fly). Capable of passing into the aeriform state, as the volatile oils, etc.

Volva—vol'-va (Lat. *volva*, a wrapper). In botany, applied to the involucrum-like base of the stipes of the agarics, which was in the beginning a bag enclosing the whole plant.

Vulviform—vul'-vi-fawm (Lat. *vulva*, or *volva*, a wrapper, and *forma*, shape). A wrapper-like integument with projecting edges.

Walnut—wawl'-nut (Dutch *walnot*, a walnut; As. *walhnot*, a foreign nut, from *wealh*, a foreigner). A forest tree valued for its wood, fruit and oil.

Wheat—hwet (As. *hwæte;* Gothic, *hwaiteis*, wheat, from the Gothic *hveits*, white). The well-known grain from which flour is manufactured.

Whorl—hworl(Danish, *hverre*, to turn; Dutch, *worwel*, to whirl, to turn). Applied to leaves or petals arranged in a regular circumference round a stem.

Xanthic—zan'-thic (Gr. *zanthos*, yellow). Of a yellow color; pertaining to a fluid acid of an oily nature.

Xanthidium—zan′-thid-i-um, plural, **Xanthidia** (from *zanthos*, yellow). A very minute plant of a globular shape and with many spines, only to be seen with a microscope.

Xanthine—zan′-thin (Gr. *zanthos*, yellow; Fr. *xanthine*). The yellow, insoluble material found in many plants and flowers.

Xanthophylline—zan′-thof-il′-lin (Gr. *zanthos*, yellow, and *phullon*, a leaf). The yellow coloring of the leaves in autumn is due to this material.

Xylocarp—zi′-lo-karp (*zulon*, wood, *karpos*, fruit). Relating to fruits with a woody texture, or fruits that become hard and woody, xylocarpous.

Yarrow—yar′-ro (As. *gearwe*). The achilea milefolium belongs to the Compositæ order of plants; used as a medicine.

Yeast—yest, oascht, froth of beer (As. *gist*, yeast, a blast of wind; Dutch *gest*, yeast; probably from the Gr. *zestos*, ferment). The Cerevisiæ Fermentum; used for raising dough for bread, the *torula cerevisiæ*, a species of fungi.

Yerba—yer′-ba (Spanish, *yerba*, from the Lat. *herba*, an herb). A name applied to many small plants or shrubs, as the Yerba Santa, etc.

Zoophyte—zo′-o-fit (Gr. *zoon*, an animal, and *phuton*, a plant). A body resembling in many particulars the animal and vegetable.

Zoospores—zo′-o-sporz (Gr. *zoon*, an animal, and *spora*, seed). Applied to the active spores of sea-weed or algæ which appear to be endowed with voluntary motion.

Zostera—zos′-ter-a (Lat. *zoster*, a kind of sea-weed). A genus of sea or water plants.

Zymology—zi-mol′-o-ji (Gr. *zume*, ferment, leaven, and *logos*, to discourse). The science of ferments.

ADDENDA.

A List of Abbreviations and Latin Terms Used by Physicians in Writing Prescriptions.

a, a.—**a, ana**—of each (that is, of *each article*).
Ad—**to**—a named quantity, ℥ *ii ad.* ℥ *i*, that is, ℥ vi
Ad 2 vic.—**ad duas vicis**—*or doses*; as *2* doses.
Ad Lib.—**ad libitum**—*at will*, as *you please*.
Alter. horis—**alternis horis**—**every** *2* hours, alternately.
Aq. bull.—**aqua bulliens**—boiling water.
Aq. dest.—**aqua destillata**—distilled water.
Aq. fervens—hot water.
Aq. fluo.—**aqua fluvealis**—river water.
Aq. font.—**aqua fontana**—spring water.
Bis in d.—**bis in die**—twice a day.
Bol.—**bolus**—a large pill.
But.—**butyrum**—butter.
Cap.—**capiat**—let (the patient) take.
Caute—cautiously.
Chart, Charta, or Chartula—paper *of small* paper powder.
Cochl.—**cochlear**—a spoon or *spoonful*.
Cochlearia—spoon*fuls*.
Coch. ampl.—**cochlear amplum**—a tablespoonful.

Coch. magn.—**cochlear magnum**—a large tablespoonful.
Coch. med.—**Cochlear medium**—a dessertspoonful.
Coch. parv., or **Min. cochlear, parvum** or **minimum**—teaspoonful of, least size, or small spoon.
Col.—**Cola**—strain or filter the fluid to be used as a remedy.
Coll., Collutor.—**collutorium**—a mouth wash.
Collyr.—**collyrium**—eye wash; eye water.
Conf.—**confectio**—confection.
C., or **Cong.**—**congius**—a gallon.
Cont.—**contunde**—bruise; **contusus,** bruised.
Cuj.—**cujus**—of which; **cujus-libet**—of any.
Cyath.—**Cyathus (vinarius)**—a wineglassful.
Cyatho theœ—in a cup of tea.
Da.—give; **detur**—let be given.
D.—**dosis**—dose.
Dies—a day.
Dieb. alt.—**diebus alternis**—every second, every other day.
Dieb. tert.—**diebus tertiis**—every third day.
Dim.—**dimidius**—one half.
D. in p. æq.—**dividatur in partes æquales**—in equal parts.
D. P.—**directione proportia**—with proper directions.
Ejusd.—**ejusdem**—of the same.
Elect.—**electuarium**—an electuary.
En.—**enem, enema**—an enema (for the bowels).
Exhib.—**exhibeatur**—let it be given.
F.—**fac**—make; let them, or it be made.
F. pil.—**fiant pilulæ**—let pills be made.

Far.—**farina**—flower.
Fem. intern.—***femoribus internis***—*on the inside of the thighs.*
Fiat—make (singular number).
Fiant—make (plural number).
Ft. chart.—**fiant chartulæ**—make powders or papers.
Ft. empl. epespast,—**fiat emplastrum epespasticum**—make a blistering plaste.
Ft. haust.—**fiat haustus**—make a draught (one drink).
Ft. mist.—**fiat mistura**—make a mixture.
Ft. pil.—**fiant pilulæ**—make pills.
Ft. pulv.—**fiant pulveræ,**
F. S. A.—**fiat secundum artem**—make according to art.
Garg.—**gargarisma**—a gargle,
Gr.—**granum**—a grain; **grana**—grains.
Gtt.—**gutta**—a drop; **guttæ**—(plural) drops.
Haustus—a draught (all at once).
Hora—an hour; plural, **Horæ**—*hours.*
Idem or **eadem**—*the same.*
In d.—***in dies***—daily.
Infus.—*infusion.*
Lb., lb.—**libra**—a troy pound, 5,760 grains.
Lotio—a lotion.
Man.—**mannipulus**—a handful.
M.—**misce**—mix; **bene misceatur**—well mixed.
M. S. D.—**misce signa da**—mix the medicine and deliver to bearer with the written directions.
M.—**minimum, minum**—rather more than a drop.

M. F. P.—**misce fiat pulvis**—mix to form a powder.
Mass, massa, mass—of a consistence for pills.
Mic. pan.—**micæ panis**—with crumbs of bread.
O.—**octarius**—a pint, 16 fluid ounces.
Omn. hor.—**omni hora**—avery hour.
Omni bihoris—every 2 hours.
Omni quadr. hor.—**omni quadrate horæ**—every quarter hour.
Omni man.—**omni mane**—every morning.
Omni nocte—every night.
P. æq.—**partes æquales**—equal parts.
Par.—**parvus** or **parvo**—a little.
Part. vic.—**partitis vicibus**—in divided doses.
Pediluvium—a foot bath.
P. R. N.—**pro-re-nata**—occasionally, at intervals.
Pulv.—**pulvis**—a powder; plural, **pulveres**—powder.
Q. S.—**quantum suficiat,** or **quantum satis**—a sufficient quantity.
Q. L.—**quantum libet**—as much as you like, at will, without restriction.
QQ.—**quoque**—also.
Ras.—**rasuræ**—shavings.
Red. in pulv.—**reductus in pulverum**—reduced to powder.
S. A.—**secundum artem**—according to art.
S., Sig.—**signa**—write.
Semih.—**semihora**—every half hour.
Signat—**signatura**—a label, label.
Solve—dissolve
Trit.—**tritura**—triturate, rub well.
Troch.—**trochisci**—troches.
Ut. dict.—**ut. dictum**—as directed.

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