CHAPTER XXVII

FOREST ROOTS.

The facts set forth in the following pages are from American Root Drugs, a valuable pamphlet issued in 1907 by U. S. Department of Agriculture- Bureau of Plant Industry-and written by Alice Henkel.

Bethroot.

TRILLIUM ERECTUM L.

OTHER COMMON NAMES—Trillium, red trillium, purple trillium, ill-scented trillium, birthroot, birthwort, bathwort, bathflower, red wake-robin, purple wake-robin, ill-scented wake-robin, red-benjamin, bumblebeeroot, daffydown-dilly. dishcloth, Indian balm, Indian shamrock, nosebleed, squawflower, squawroot, wood-lily, truelove, orange-blossom. Many of these names are applied also to other species of Trillium.

HABITAT AND RANGE—Bethroot is a native plant growing in rich soil in damp, shady woods from Canada south to Tennessee and Missouri.

DESCRIPTION OF PLANT—This plant is a perennial belonging to the lily valley family (Liliaceae). It is a low growing plant, from about 8 to 16 inches in height, with a rather stout stem, having three leaves arranged in a whorl near the top.

These leaves are broadly ovate, almost circular in outline, sharp pointed at the apex and narrowed at the base, 3 to 7 inches long and about as wide, and practically stemless.

Not only the leaves of this plant, but the flowers and parts of the flowers are arranged in threes, and this feature will serve to identify the plant. The solitary terminal flower of Bethroot has three sepals and three petals, both more or less lance shaped and spreading, the former greenish, and the petals, which are $1\frac{1}{4}$ inches long and one-half inch wide, are sometimes dark purple, pink, greenish, or white. The flower has an unpleasant odor. It appears from April to June and is followed later in the season by an oval, reddish berry.

Various other species of Trillium are used in medicine, possessing properties similar to those of the species under consideration. These are also very similar in appearance to Trillium Erectum.

DESCRIPTION OF ROOT—Bethroot, as found in the stores, is short and thick, of a light-brown color externally, whitish or yellowish inside, somewhat globular or oblong in shape, and covered all around with numerous pale brown, shriveled rootlets. The top of the root generally shows a succession of fine circles or rings, and usually bears the remains of stem bases.

The root has a slight odor, and is at first sweetish and astringent, followed by a bitter and acrid taste. When chewed it causes a flow of saliva.

COLLECTION, PRICES AND USES—Bethroot is generally collected toward the close of summer. The price ranges from 7 to 10 cents a pound.

It was much esteemed as a remedy among the Indians and early settlers. Its present use is that of an astringent, tonic, and alterative, and also that of an expectorant.

Culver's-Root.

VERONICASTRUM VIRGINICUM L. [1]

SYNONYM—Leptandra Virginica (L) Nutt. (a)

OTHER COMMON NAMES—Culver's physic, blackroot, bowman's-root, Beaumont-root, Brinton-root, tall speedwell, tall veronica, physic-root, wholywort.

HABITAT AND RANGE—This common indigenous herb is found abundantly in moist, rich woods, mountain valleys, meadows and thickets from British Columbia south to Alabama, Missouri and Nebraska.

Culver's Root (Veronica Virginica), Flowering Top and Rootstock.

DESCRIPTION OF PLANT—Culver's-Root is a tall, slenderstemmed perennial belonging to the figwort family (Scrophulariaceae). It is from 3 to 7 feet in height, with the leaves arranged around the simple stems in whorls of three to nine. The leaves are borne on very short stems, are lance shaped, long pointed at the apex, narrowed at the base, and sharply toothed, 3 to 6 inches in length and 1 inch or less in width. The white tube-shaped flowers, with two long protruding stamens, are produced from June to September and are borne in several terminal, densely crowded, slender, spikelike heads from 3 to 8 inches long.

The flowers, as stated, are usually white, tho the color may vary from a pink to a bluish or

[1] (a) Some authors hold that this plant belongs to the genus Leptandra and that its name should be Leptandra virginica (L.) Nutt. The Pharmacopoeia is here followed.

purple and on account of its graceful spikes of pretty flowers it is often cultivated in gardens as an ornamental plant. The fruits are small, oblong, compressed, many-seeded capsules.

DESCRIPTION OF ROOTSTOCK—After they are dried the rootstocks have a grayish brown appearance on the outside, and the inside is hard and yellowish, either with a hollow center or a brownish or purplish pith. When broken the fracture is tough and woody. The rootstock measures from 4 to 6 inches in length, is rather thick and bent, with branches resembling the main rootstock. The upper surface has a few stem scars, and from the sides and underneath numerous coarse, brittle roots are produced which have the appearance of having been artificially inserted into the rootstock Culver's-root has a bitter and acrid taste, but no odor.

COLLECTION, PRICE AND USES—The rootstock and roots should be collected in the fall of the second year. When fresh these have a faint odor resembling somewhat that of almonds, which is lost in the drying, The bitter, acrid taste of Culver's-root also becomes less the longer it is kept, and it is said that it should be kept at least a year before being used. The price paid to collectors ranges from 6 to 10 cents a pound.

Culver's-root, which is official in the United States Pharmacopoeia, is used as an alterative, cathartic and in disorders of the liver.

Stone-Root.

COLLINSONIA CANADENSIS L.

OTHER COMMON NAMES—Collinsonia, knob-root, knobgrass, knobweed, knotroot, horse-balm, horseweed, richweed, richleaf, ox-balm, citronella.

HABITAT AND RANGE—Stoneroot is found in moist, shady woods from Maine to Wisconsin, south to Florida and Kansas.

DESCRIPTION OF PLANT—Like most of the other members of the mint family (Menthaceae), Stoneroot is aromatic also, the fresh flowering plant possessing a very pleasant, lemon-like odor. It is a tall perennial herb, growing as high as 5 feet. The stem is stout, erect, branched, smooth, or the upper part hairy.

The leaves are opposite, about 3 to 8 inches long, thin, ovate, pointed at the apex, narrowed or sometimes heartshaped at the base, and coarsely toothed; the lower leaves are largest and are borne on slender stems, while the upper ones are smaller and almost stemless. Stoneroot is in flower from July to October, producing large, loose, open terminal panicles or heads of small, pale-yellow lemon-scented flowers. The flowers have a funnel-shaped 2-lipped corolla, the lower lip, larger, pendant and fringed, with two very much protruding stamens.

DESCRIPTION OF ROOT—Even the fresh root of this plant is very hard. It is horizontal, large, thick, and woody, and the upper side is rough and knotty and branched irregularly. The odor of the root is rather disagreeable, and the taste pungent and spicy. In the fresh state, as well as when dry, the root is extremely hard, whence the common name "stoneroot." The dried root is grayish brown externally, irregularly knotty on the upper surface from the remains of branches and the scars left by former stems and the lower surface showing a few thin roots. The inside of the root is hard and whitish.

COLLECTION, PRICES AND USES—Stoneroot, which is collected in autumn, is employed for its tonic, astringent, diuretic and diaphoretic effects. The price of the root ranges from 2 to $3^1/_2$ cents a pound.

The leaves are used by country people as an application to bruises.

Crawley-Root.

CORALLORHIZA ODONTORHIZA (WILD) NUTT.

OTHER COMMON NAMES—Corallorhiza, crawley, coralroot, small coralroot, small-flowered coralroot, late coralroot, dragon's-claw, chickentoe, turkey-claw, feverroot.

HABITAT AND RANGE—Rich, shady woods having an abundance of leaf mold produce this curious little plant. It may be found in such situations from Maine to Florida, westward to Michigan and Missouri.

Crawley-Root (Corallorhiza Odontorhiza.)

DESCRIPTION OF PLANT—This peculiar native perennial, belonging to the orchid family (Orchidaceae) is unlike most other plants, being leafless, and instead of a green stem it has a purplish brown, sheathed scape, somewhat swollen or bulbous at the base and bearing a clustered head of purplish flowers 2 to 4 inches long. It does not grow much taller than about a foot in height.

The flowers, 6 to 20 in a head, appear from July to September, and consist of lance-shaped sepals and petals, striped with purple and a broad, whitish, oval lip, generally marked with purple and narrowed at the base. The seed capsule is large oblong, or some what globular.

DESCRIPTION OF ROOTSTOCK—The rootstock of this plant is also curious, resembling in its formation a piece of coral on account of which it is known by the name of "coralroot." The other common names, such as chickentoe, turkey-claw, etc,, all have reference to the form of the rootstock. As found in commerce, Crawley-root consists of small, dark-brown wrinkled pieces, the larger ones branched like coral. The taste at first is sweetish, becoming afterwards slightly bitter. It has a peculiar odor when fresh, but when dry it is without odor.

COLLECTION, PRICES AND USES—Crawleyroot should be collected it- July or August. The price ranges from 20 to 50 cents a pound. Other species of Corallorhiza are sometimes collected and are said to probably possess similar properties. This root is aid to be very effective for promoting perspiration and it is also used as a sedative and in fever.

CHAPTER XXVIII.

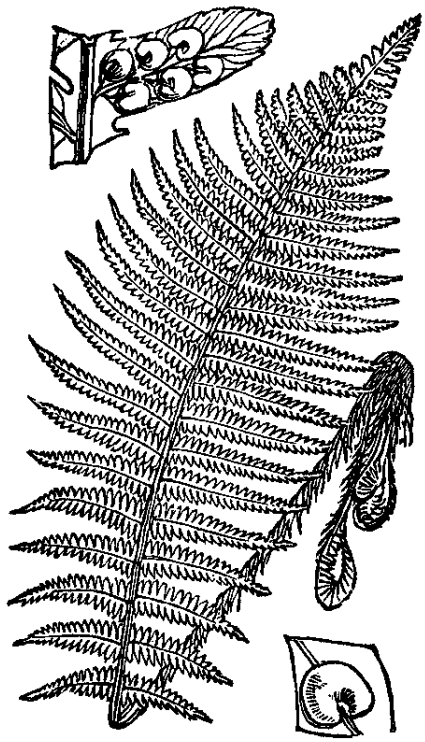
FOREST PLANTS.

Male Fern.

DRUG NAME—Aspidium.

OTHER COMMON NAMES: (1) Male shield-fern, sweet brake, knotty brake, basket-fern, bear's-paw root; (2) marginal-fruited shield-fern, evergreen wood-fern.

HABITAT AND RANGE—These ferns are found in rocky woods, the male shield-fern inhabiting the region from Canada westward to the Rocky Mountains and Arizona. It is widely distributed also through Europe, northern Asia, northern Africa, and South America. The marginal-fruited shieldfern, one of our most common ferns, occurs from Canada southward to Alabama and Arkansas.



Dryopteris Filix-mas

DESCRIPTION OF PLANTS—Both of these species are tall, handsome ferns, the long, erect fronds, or leaves, arising from a chaffy, scaly base, and consisting of numerous crowded stemless leaflets, which are variously divided and notched. There is but little difference between these two species. The male shield-fern is perhaps a trifle stouter, the leaves growing about 3 feet in length and having a bright-green color, whereas the marginal-fruited shield-fern has lighter green leaves, about 21 feet in length, and is of more slender appearance. The principal difference, however, is found in the arrangement of the “sori,” or “fruit dots.” These are the very small, round, tawny dots that are found on the backs of fern leaves, and in the male shield-fern these will be found arranged in short rows near the midrib, while in the marginal-fruited shield-fern, as this name indicates, the fruit dots are placed on the margins of the fronds. Both plants are perennials and members of the fern family

(Polypodiaceae).

DESCRIPTION OF THE ROOTSTOCK—These ferns have stout ascending or erect chaffy rootstocks, or rhizomes as they are technically known. As taken from the ground the rootstock is from 6 to 12 inches in length and 1 to 2 inches thick, covered with closely overlapping, brown, slightly curved stipe bases or leaf bases and soft, brown, chaffy scales. The inside of the rootstock is pale green. As found in the storm, however, male-fern with the stipe bases and roots removed measure about 3 to 6 inches in length and about one-half to 1 inch in thickness, rough where the stipe bases have been removed, brown outside,, pale green and rather spongy inside.

The stipe bases remain green for a very long period, and these small, claw-shaped furrowed portions, or "fingers" as they are called, form a large proportion of the drug found on the American market and, in fact, are said to have largely superseded the rootstock. Male-fern has a disagreeable odor, and the taste is described as bitter-sweet, astringent, acrid, and nauseous.

COLLECTION, PRICES AND USES—The best time for collecting Male-fern root is from July to September. The root should be carefully cleaned, but not washed, dried out of doors in the shade as quickly as possible, and shipped to druggists at once. The United States Pharmacopoeia directs that "the chaff, together with the dead portions of the rhizome and stipes, should be removed, and only such portions used as have retained their internal green color."

Great care is necessary in the preservation of this drug in order to prevent it from deteriorating. If kept too long its activity will be impaired, and it is said that it will retain its qualities much longer if it is not peeled until required for use. The unreliability sometimes attributed to this drug can in most instances be traced to the presence of the rootstocks of other ferns with which it is often adulterated, or it will be found to be due to improper storing or to the length of time that it has been kept. The prices paid for Male-fern root range from 5 to 10 cents a pound.

Male-fern, official in the United States Pharmacopoeia, has been used since the remotest times as a remedy for worms.

Grave results are sometimes caused by overdoses.

Goldthread.

COPTIS TRIFOLIA (L.) SALISB.

OTHER COMMON NAMES—Coptis, cankerroot, mouth root, yellowroot.

HABITAT AND RANGE—This pretty little perennial is native in damp, mossy woods and bogs from Canada and Alaska south of Maryland and Minnesota. It is most common in the New England States, northern New York and Michigan, and in Canada, where it frequents the dark sphagnum swamps, cold bogs and in the shade of dense forests of cedars, pines and other evergreens.

DESCRIPTION OF PLANT—Any one familiar with this attractive little plant will agree that it is well named. The roots of Goldthread, running not far beneath the surface of the ground, are indeed like so many tangled threads of gold. The plant in the general appearance of its leaves and flowers very closely resembles the strawberry plant. It is of low growth, only 3 to 6 inches in height, and belongs to the crowfoot family (Ranunculaceae). The leaves are all basal, and are borne on long, slender stems; they are evergreen, dark green and shining on the upper surface and lighter green beneath, divided into three parts, which are prominently veined and toothed. A single small, white, starshaped flower is borne at the ends of the flowering stalks, appearing from May to August. The 5 to 7 sepals or lobes of the calyx are white and like petals, and the petals of the corolla, 5 to 7 in number, are smaller, club shaped, and yellow at the base. The seed pods are stalked, oblong, compressed, spreading, tipped with persistent style and containing small black seeds.

Goldthread (Coptis Trifolia)

DESCRIPTION OF ROOT—Goldthread has a long, slender, creeping root, which is much branched and frequently matted. The color of these roots is a bright golden yellow. As found in the stores, Goldenthread consists usually of tangled masses of these golden-yellow roots, mixed

with the leaves and stems of the plant, but the root is the part prescribed for use. The root is bitter and has no odor.

COLLECTION, PRICES AND USES—The time for collecting Goldthread is in autumn. After removing the covering of dead leaves and moss, the creeping yellow roots of Goldthread will be seen very close to the surface of the ground, from which they can be easily pulled. They should, of course, be carefully dried. As already stated, altho the roots and rootlets are the parts to be used, the commercial article is freely mixed with the leaves and stems of the plant. Evidences of the pine-woods home of this plant, in the form of pine needles and bits of moss, are often seen in the Goldthread received for market. Goldthread brings from 60 to 70 cents a pound.

The Indians and early white settlers used this little root as a remedy for various forms of ulcerated and sore mouth and it is still used as a wash or gargle for affections of this sort. It is also employed as a bitter tonic.

Goldthread was official in the United States Pharmacopoeia from 1820 to 1880.

Twinleaf.

JEFFERSONIA DIPHYLLA (L.) Pers.

Twinleaf (Jeffersonia diphylla), Plant and Seed Capsule.

OTHER COMMON NAMES—Jeffersonia, rheumatism-root, helmetpod, ground-squirrel pea, yellowroot.

HABITAT AND RANGE—Twinleaf inhabits rich, shady woods from New York to Virginia and westward to Wisconsin.

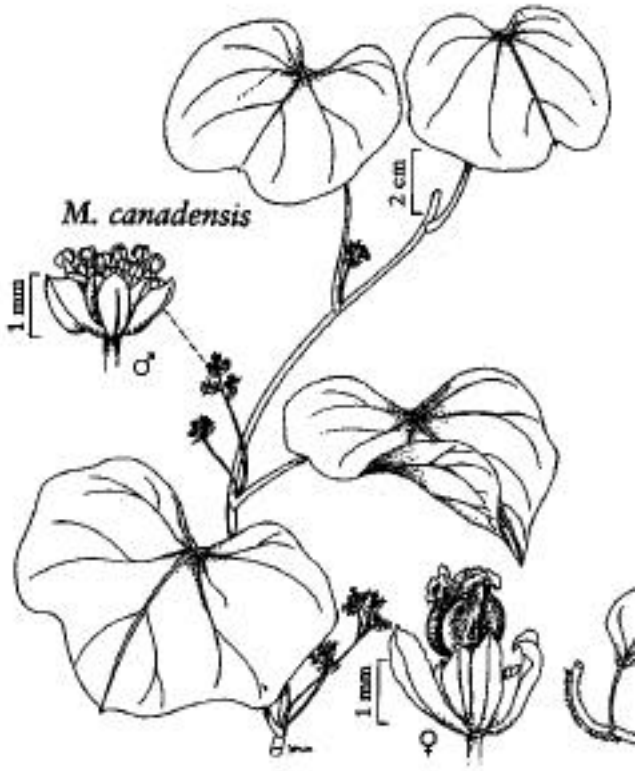
DESCRIPTION OF PLANT—This native herbaceous perennial is only about 6 to 8 inches in height when in flower. At the fruiting stage it is frequently 18 inches in height. It is one of our early spring plants, and its white flower, resembling that of bloodroot, is produced as early as April.

The long-stemmed, smooth leaves, produced in pairs and arising from the base of the plant, are rather

oddly formed. They are about 3 to 6 inches long, 2 to 4 inches wide, heart shaped or kidney shaped, but parted lengthwise into, two lobes or divisions, really giving the appearance of two leaves; hence the common name “Twinleaf.” The flower with its eight oblong, spreading white petals measures about 1 inch across and is borne at the summit of a slender stalk arising from the root. The many-seeded capsule is about 1 inch long, leathery, somewhat pear shaped, and opening half way around near the top, the upper part forming a sort of lid. Twinleaf belongs to the barberry family. (Berberidaceae.)

DESCRIPTION OF ROOTSTOCK—Twinleaf has a horizontal rootstock, with many fibrous, much-matted roots, and is very similar to. that of blue cohosh, but not so long. It is thick, knotty, yellowish brown externally, with a resinous bark, and internally yellowish. The inner portion is nearly tasteless, but the bark has a bitter and acrid taste.

COLLECTION, PRICES AND USES—The rootstock is collected in autumn and is used as a diuretic, alterative, antispasmodic and a stimulating diaphoretic. Large doses are said to be emetic and smaller doses tonic and expectorant. The price paid for Twinleaf root ranges from about 5 to 7 cents a pound.



Canada Moonseed.

MENISPERMUM CANADENSE L.

OTHER COMMON NAMES—Menispermum, yellow parilla, Texas sarsaparilla, yellow sarsarparilla, vine-maple.

HABITAT AND RANGE—Canada Moonseed is usually found along streams in woods, climbing over bushes, its range extending from Canada to Georgia and Arkansas.

DESCRIPTION OF PLANT—This native perennial woody climber reaches a length of from

6 to 12 feet, the round, rather slender stem bearing very broad, slender-stalked leaves. These leaves are from 4 to 8 inches wide, smooth and green on the upper surface and paler beneath, roundish in outline and entire, or sometimes lobed and resembling the leaves of some of our maples, whence the common name “vine-maple” is probably derived. The bases of the leaves are generally heart shaped and the apex pointed or blunt. In July the loose clusters of small, yellowish or greenish white flowers are produced, followed in September by bunches of black oneseeded fruit, covered with a “bloom” and very much resembling grapes. Canada Moonseed belongs to the moonseed family (Menispermaceae.)

DESCRIPTION OF ROOTSTOCK—The rootstock and roots are employed in medicine. In the stores it will be found in long, straight pieces, sometimes 3 feet in length, only about onefourth of an inch in thickness, yellowish brown or grayish grown, finely wrinkled lengthwise, and giving off fine, hairlike, branched, brownish roots from joints which occur every inch or so. The inside shows a distinct white pith of variable thickness and a yellowish white wood with broad, porous wood rays, the whole breaking with a tough, woody fracture. It has practically no odor, but a bitter taste.

COLLECTION, PRICES AND USES—Canada Moonseed is collected in autumn and brings from 4 to 8 cents a pound. It is used as a tonic, alterative, and diuretic and was official in the United States Pharmacopoeia for 1890.

Wild Turnip.

SYNONYM—ARUM TRIPHYLLUM L.

OTHER COMMON NAMES—Arum, three-leaved arum, Indian turnip, jack-in-the-pulpit, wake robin, wild pepper, dragon-turnip, brown dragon, devil's-ear, marsh-turnip, swamp-turnip, meadow-turnip, pepper-turnip, starch-wort, bog-onion, priest's-pintle and lords - and-ladies.

HABITAT AND RANGE—Wild Turnip inhabits moist woods from Canada to Florida and westward to Kansas and Minnesota.

DESCRIPTION OF PLANT—Early in April the quaint green and brownish purple hooded flowers of the wild turnip may be seen in the

shady depths of the woods.

Wild Turnip (Arisaema Triphyllum).

It is a perennial plant belonging to the arum family (Araceae), and reaches a height of from 10 inches to 3 feet. The leaves, of which there are only one or two, unfold with the flowers; they are borne on long, erect, sheathing stalks, and consist of three smooth, oval leaflets, the latter are 3 to 6 inches long, and from $1^1/_2$ to $3^1/_2$ inches wide, net veined, and with one vein running parallel with the margins. The "flower" is curiously formed, somewhat like the calla lily, con sisting of what is known botanically as a spathe, within which is inclosed the spadix. The spathe is an oval, leaflike part, the lower portion of which, in the flower under consideration, is rolled together so as to form a tube, while the upper, pointed part is usually bent forward, thus forming a flap or hood over the tube shaped part which contains the spadix. In fact it is very similar to the familiar flower of the calla lily of the gardens, except that, instead of being white, the wild turnip is either all green or striped with very dark purple, sometimes seeming almost black, and in the calla lily the "flap" is turned back, whereas in the wild turnip it is bent forward over the tube. Inside of the spathe is the spadix, also green or purple, which is club shaped, rounded at the summit, and narrowly contracted at the base, where it is surrounded by either the male or female flowers or both, in the latter case (the most infrequent) the male flowers being placed below the female flowers. In autumn the fruit ripens in the form of a bunch of bright scarlet, shining berries. The entire plant is acrid, but the root more especially so.

DESCRIPTION OF THE ROOT—The underground portion of this plant is known botanically as a "corm," and is somewhat globular and shaped like a turnip. The lower part of the corm is flat and wrinkled, while the upper part is surrounded by coarse, wavy rootlets. The outside is brownish gray and the inside white and mealy. It has no odor, but an intensely, acrid, burning taste, and to those who may have been induced in their school days to taste of this root wild turnip will be

familiar chiefly on account of its never-to-be-forgotten acrid, indeed, caustic, properties. The dried article of commerce consists of round, white slices, with brown edges, only slightly shrunken, and breaking with a starchy fracture.

COLLECTION, PRICES AND USES—The partially dried corm is used in medicine. It is dug in summer, transversely sliced, and dried. When first dug it is intensely acrid, but drying and heat diminish the acridity. It loses its acridity rapidly with age. Wild Turnip brings from 7 to 10 cents a pound.

The corm of Wild turnip, which was official in the United States Pharmacopoeia from 1820 to 1870, is used as a stimulant, diaphoretic, expectorant, and irritant.

CHAPTER XXIX.

THICKET PLANTS.

Black Indian Hemp.

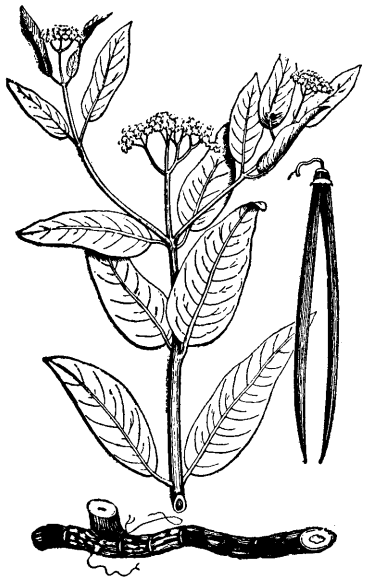
APOCYNUM CANNABINUM L.

DRUG NAME—Apocynum.

OTHER COMMON NAMES—Canadian hemp, American hemp, amy-root, bowman's-root, bitterroot, Indian-physic, rheumatism-weed, milkweed, wild cotton, Choctaw-root,

The name "Indian hemp" is often applied to this plant, but it should never be used without the adjective "black." "Indian hemp" is a name that properly belongs to Cannabis indica, a true hemp plant, from which the narcotic drug "hashish" is obtained.

HABITAT AND RANGE—Black Indian hemp is a native of this country and may be found in thickets and along the borders of old fields thruout the United States.



Black Indian Hemp (Apocynum Cannabinum), Flowering Portion, Pods, and Rootstock.

DESCRIPTION OF PLANT—This is a common herbaceous perennial about 2 to 4 feet high, with erect or ascending branches, and, like most of the plants belonging to the dogbane family (Apocynaceae), contains a milky juice. The shortstemmed opposite leaves are oblong, lance shaped oblong or ovate-oblong, about 2 to 6 inches long, usually sharp pointed, the upper surface smooth and the lower sometimes hairy. The plant is in flower from June to August and the small greenish white flowers are borne in dense heads, followed later by the slender pods, which are about 4 inches in length and pointed at the apex.

OTHER SPECIES—Considerable confusion seems to exist in regard to which species yields

the root which has proved of greatest value medicinally. The Pharmacopoeia directs that “the dried rhizome and roots of Apocynum cannabinum or of closely allied species of Apocynum” be used.

In the older botanical works and medical herbals only two species of Apocynum were recognized, namely, A. cannabinum L. and A. androsaemifolium L., altho it was known that both of these were very variable. In the newer botanical manuals both of these species still hold good, but the different forms and variations are now recognized as distinct species, those formerly referred to cannabium being distinguished by the erect or nearly erect lobes of the corolla, and those of the androsaemifolium group being distinguished by the spreading or recurved lobes of the corolla.

Among the plants that were formerly collected as Apocynum or varietal forms of it, and which are now considered as distinct species, may be mentioned in the following:

Riverbank-dogbane (A. Album Greene), which frequents the banks of rivers and similar moist locations from Maine to Wisconsin, Virginia and Missouri. This plant is perfectly smooth and has white flowers and relatively smaller leaves than A. cannabinum.

Velvet dogbane (A. pubescens R. Br.), which is common from Virginia to Illinois, Iowa and Missouri. The entire plant has a soft, hairy or velvety appearance, which renders identification easy, According to the latest edition of the National Standard Dispensatory it is not unlikely that this is the plant that furnishes the drug that has been so favorably reported upon.

Apocynum androsaemifolium is also gathered by drug col, lectors for Apocynum cannabinum. Its root is likewise employed in medicine, but its action is not the same as that of cannabinum and it should therefore not be substituted for it. It closely resembles cannabinum.

DESCRIPTION OF ROOTSTOCK—The following description of the drug as found in commerce is taken from the United States Pharmacopoeia: “Of varying length, 3 to 8 mm. thick, cylindrical or with a few angles produced by drying, lightly wrinkled, longitudinally and usually more or less fissured transversely; orange-brown, becoming gray-brown on keeping; brittle; fracture sharply transverse, exhibiting a thin brown layer of cork, the remainder of the bark nearly as thick as

the radius of the wood, white or sometimes pinkish, starchy, containing lactiferous ducts; the wood yellowish, having several rings, finely radiate and very coarsely porous; almost inodorous, the taste starchy, afterwards becoming bitter and somewhat acrid."

COLLECTION, PRICES AND USES—The root of black Indian hemp is collected in autumn and brings from 8 to 10 cents a pound.

It is official in the United States Pharmacopoeia and has emetic, cathartic, diaphoretic, expectorant and diuretic proper, ties, and on account of the last-named action it is used in dropsical affections.

The tough, fibrous bark of the stalks of Black Indian Hemp was employed by the Indians as a substitute for hemp in making twine, fishing nets, etc.

Chamaelirium, or Helonias.

CHAMAELIRIUM LUTEUM (L.) A. Gray.

Chamælirium luteum.

SYNONYM—Helonias Dioica Pursh.

OTHER COMMON NAMES—Unicorn root, false unicorn root, blazing star, drooping starwort, starwort, devil's-bit, unicorn's-horn.

In order to avoid the existing confusion of common names of this plant, it is most desirable to use the scientific names Chamaelirium or Helonias exclusively. Chamaelirium is the most recent botanical designation and will be used thruout this article, but the synonym Helonias is a name very frequently employed by the drug trade. The plant with which it is so much confused, Aletris farinosa, will also be designated thruout by its generic name, Aletris.

HABITAT AND RANGE—This native plant is found in open woods from

Massachusetts to Michigan, south to Florida and Arkansas.

DESCRIPTION OF PLANT—Chamaelirium and Aletris (Aletris farinosa) have long been confused by drug collectors and others, owing undoubtedly to the transposition of some of their similar common names, such as “starwort” and “stargrass.” The plants can scarcely be said to resemble each other, however, except perhaps in their general habit of growth.

The male and female flowers of Chamaelirium are borne on separate plants, and in this respect are entirely different from Aletris; neither do the flowers resemble those of Aletris.

Chamaelirium is an erect, somewhat fleshy herb, perennial, and belongs to the bunchflower family (Melanthaceae.) The male plant grows to a height of from $1^1/_2$ to $2^1/_2$ feet, and the female plant is sometimes 4 feet tall and is also more leafy.

The plants have both basal and stem leaves, where as Aletris has only the basal leaves. The basal leaves of Chamaelirium are broad and blunt at the top, narrowing toward the base into a long stem; they are sometimes so much broadened at the top that they may be characterized as spoon shaped, and are from 2 to 8 inches long and from one-half to $1^1/_2$ inches wide. The stem leaves are lance shaped and sharp pointed, on short stems or stemless.

The white starry flowers of Chamaelirium are produced from June to July, those of the male plant being borne in nodding, graceful, plume-like spikes 3 to 9 inches long, and those of the female plant in erect spikes. The many seeded capsule -is oblong, opening by three valves at the apex.

Another species is now recognized, Chamaelirium obovale Small, which seems to differ chiefly in having larger flowers and obovoid capsules.

DESCRIPTION OF ROOTSTOCK—The rootstock of Chamaelirium. does not in 'the least resemble that of Aletris, with which it is so generally confused. It is from one-half to 2 inches in length, generally curved upward at one end in the form of a horn (whence the common name, “unicorn”) and having the appearance of having been bitten off. It is of a dark brown color with fine transverse wrinkles, rough, on the

upper surface showing a few stem scars, and giving off from all sides numerous brown fibrous rootlets. The more recent rootlets have a soft outer covering, which in the older rootlets has worn away, leaving the fine but tough and woody whitish center. The rootlets penetrate to the central part of the rootstock, and this serves as a distinguishing character from Aletris, as a transverse section of Chamaelirium very plainly shows these fibers extending some distance. within the rootstock. Furthermore, the rootstock of Chamaelirium exhibits a number of small holes wherever these rootlets have broken off, giving it the appearance of having become "wormy." It is hard and horny within and has a peculiar odor and a very bitter, disagreeable taste, whereas Aletris is not at all bitter.

COLLECTION, PRICES AND USES—Chamaelirium should be collected in autumn. The prices paid to collectors may be said to range from about 30 to 45 cents a pound. In the fall of 1906 a scarcity of this root was reported. As already indicated, Chamaelirium and Aletris are often gathered and mistaken for each other by collectors, but, as will be seen from the preceding description, there is really no excuse for such error.

From the confusion that has existed properties peculiar to the one plant have also been attributed to the other, but it seems now generally agreed that Chamaelirium is of use especially in derangements of women.

Wild Yam.

DIOSCOREA VILLOSA L.

OTHER COMMON NAMES—Dioscorea, colicroot, rheumatism-root, devil's bones.

HABITAT AND RANGE—Wild yam grows in moist thickets, trailing over adjacent shrubs and bushes, its range extending from Rhode Island to Minnesota, south to Florida and Texas. It is most common in the central and southern portions of the

United States.

DESCRIPTION OF PLANT—This native perennial vine is similar to and belongs to the same family as the well-known cinnamon vine of the gardens-namely, the yam family (Dioscoreaceae.) It attains a length of about 15 feet, the stem smooth, the leaves heart shaped and 2 to 6 inches long by 1 to 4 inches wide.

The leaves, which are borne on long, slender stems, are thin, green, and smooth on the upper surface, paler and rather thickly hairy on the under surface. The small greenish yellow Rowers are produced from June to July, the male flowers borne in drooping clusters about 3 to 6 inches long, and the female flowers in drooping spikelike heads. The fruit, which is in the form of a dry, membranous, 3-winged, yellowish green capsule, ripens about September and remains oil the vine for some time during the winter.

Growing farther south than the species above mentioned is a variety for which the name Glabra has been suggested.

According to C. G. Lloyd, there is a variety of Dioscorea Villosa, the root of which first made its appearance among the true yam roots of commerce, and which was so different in form that it was rejected as an adulteration. The plant, however, from which the false root was derived was found upon investigation to be almost identical with the true yam, except that the leaves were perfectly smooth, lacking the hairiness on the under surface of the leaf which is characteristic of the true wild yam. The false variety also differs in its habit of growth, not growing in dense clumps like the true wild yam, but generally isolated. The root of the variety, however, is quite distinct from that of the true wild yam, being much more knotty. Lloyd states further that the hairiness or lack of hairiness on the under side of the leaf is a certain indication as to the form of the root.

Lloyd, recognizing the necessity of classifying these two yam roots of commerce, has designated the smooth-leaved variety as Dioscorea Villosa var. Glabra.

DESCRIPTION OF ROOTSTOCKS—The rootstock of the true wild yam runs horizontally underneath the surface of the ground. As found in commerce, it consists of very hard pieces, 6 inches and sometimes 2 feet in length, but only about one-fourth or one-half of an inch in

diameter, twisted, covered with a thin, brown bark, whitish within and showing stem scars almost an inch apart on the tipper surface, small protuberances on the sides, and numerous rather wiry rootlets on the lower surface.

The false wild yam, on the other hand, has a much heavier, rough, knotty rootstock, with thick branches from 1 inch to 3 inches long, the upper surface covered with crowed stem scars and the lower side furnished with stout, wiry rootlets. Within it is similar to the true yam root.

COLLECTION, PRICES AND USES—The roots are generally collected in autumn, and bring from $2^1/_2$ to 4 cents a pound. Wild Yam is said to possess expectorant properties and to promote perspiration, and in large doses providing emetic. It has been employed in bilious colic, and by the negroes in the South in the treatment of muscular rheumatism.

CHAPTER XXX.

SWAMP PLANTS.

Skunk-Cabbage.

SYNONYMS—SYMPLOCARPUS FOETIDUM L.

OTHER COMMON NAMES—Dracontium, skunk-weed, polecat-weed, swamp-cabbage, meadow-cabbage, collard, fetid, hellebone, stinking poke, pockweed.

HABITAT AND RANGE—Swamps and other wet places from Canada to Florida, Iowa and Minnesota abound with this ill-smelling herb.

DESCRIPTION OF PLANT—Most of the common names applied to this plant, as well as the scientific names, are indicative of the most striking characteristic of this early spring visitor, namely, the rank, offensive, carrion odor that emanates from it. Skunk-Cabbage is one of the very earliest of our spring flowers, appearing in February or March, but it is safe to say that it is not likely to suffer extermination at the hand of the enthusiastic gatherer of spring flowers. In the latitude of Washington Skunk-Cabbage has been known to be in flower in December.

It is a curious plant, with its hood shaped, purplish striped flowers appearing before the leaves. It belongs to the arum family (Araceae) and is a perennial. The "flower" is in the form of a thick, ovate, swollen spathe, about 3 to 6 inches in height, the top pointed and curved inward, spotted and striped with purple and yellowish green. The spathe is not like that of the wild turnip or calla lily, to which family this plant also belongs, but the edges are rolled inward, completely hiding the spadix. In this plant the spadix is not spike-like, as in the wild turnip, but is generally somewhat globular, entirely covered with numerous, dull-purple flowers. After the fruit has ripened the spadix will be found to have grown considerably, the spathe meantime having decayed.

The leaves, which appear after the flower, are numerous and very large, about 1 to 3 feet in length and about 1 foot in width; they are thin in texture, but prominently nerved with fleshy nerves, and are borne on deeply channeled stems,

DESCRIPTION OF ROOTSTOCK—Skunk-Cabbage has a thick, straight, reddish brown rootstock, from 3 to 5 inches long, and about 2 inches in diameter, and having a whorl of crowded fleshy roots which penetrate the soil to considerable depth. The dried article of commerce consists of either the entire rootstock and roots, which are dark brown and wrinkled within, or of very much compressed, wrinkled, transverse slices.

When bruised, the root has the characteristic fetid odor of the plant and possesses a sharp acrid taste, both of which become less the longer the root is kept.

COLLECTION, PRICES AND USES—The rootstock of SkunkCabbage are collected early in spring, soon after the appearance of the flower, or after the seeds have ripened, in August or September. It should be carefully dried, either in its entire state or deprived of the roots and cut into transverse slices. Skunk-Cabbage loses its odor and acridity with age, and should therefore not be kept longer than one season. The range of prices is from 4 to 7 cents a pound.

Skunk-Cabbage, official from 1820 to 1880, is used in affections of the respiratory organs, in nervous disorders, rheumatism, and dropsical complaints.

American Hellebore.

VERATRUM VIRIDE AIT.

DRUG NAME—Veratrum.

OTHER COMMON NAMES—True veratrum, green veratrum, American veratrum, green hellebore, swamp-hellebore, big hellebore, false hellebore, bear-corn, bugbane, bugwort, devil's-bite, earth-gall, Indian poke, itchweed, tickleweed, duckretter.

HABITAT AND RANGE—American Hellebore is native in rich, wet woods, swamps and wet meadows. Its range extending from Canada,

Alaska, and Minnesota south to Georgia.

DESCRIPTION OF PLANT—Early in spring, usually in company with the Skunk-Cabbage, the large bright green leaves of American Hellebore make their way thru the soil, their straight, erect leaf spears forming a conspicuous feature of the yet scanty spring vegetation. Later in the season a stout and erect leafy stem is sent up, sometimes growing as tall as 6 feet. It is solid and round, pale green, very leafy, and closely surrounded by the sheathing bases of the leaves, unbranched except in the flowering head. The leaves are hairy, prominently nerved, folded or pleated like a fan. They have no stems, but their bases encircle or sheathe the main stalk, and are very large, especially the lower ones, which are from 6 to 12 inches in length, from 3 to 6 inches in width, and broadly oval. As they approach the top of the plant the leaves become narrower. The flowers, which appear from May to July, are greenish yellow and numerous, and are borne in rather open clusters. American Hellebore belongs to the Lily family (Liliaceae) and is a perennial.

American Hellebore **(Veratrum Viride).**

This species is a very near relative of the European white hellebore (Veratrum album L.), and in fact has by some been regarded as identical with it, or at least as a variety of it. It is taller than V. album and has narrower leaves and greener flowers. Both species are official in the United States Pharmacopoeia.

DESCRIPTION OF ROOTSTOCK—The fresh rootstock of American Hellebore is ovoid or obconical, upright, thick, and fleshy, the upper part of it arranged in layers, the lower part of it more solid, and producing numerous whitish roots from all sides. In the fresh state it has a rather strong, disagreeable odor. As found in commerce, American Hellebore rootstock is sometimes entire, but more generally sliced, and is of a light brown or dark brown color externally and internally yellowish white. The roots, which are from 4 to 8 inches long, have a shriveled

appearance, and are brown or yellowish. There is no odor to the dried rootstock, but when powdered it causes violent sneezing. The rootstock, which has a bitter and very acrid taste, is poisonous.

COLLECTION, PRICES AND USES—American Hellebore should be dug in autumn after the leaves have died and washed and carefully dried, either in the whole state or sliced in various ways. It deteriorates with age, and should therefore not be kept longer than a year.

The adulterations sometimes met with are the rootstocks of related plants, and the skunk-cabbage is also occasionally found mixed with it, but this is probably unintentional, as the two plants usually grow close together.

Collectors of American Hellebore root receive from about 3 to 10 cents a pound.

American Hellebore, official in the United States Pharmacopoeia, is an acrid, narcotic poison, and has emetic, diaphoretic, and sedative properties.

Water-Eryngo.

ERYNGIUM YUCCIFOLIUM MICHX.

SYNONYM—Eryngium aquaticum. L.

OTHER COMMON NAMES—Eryngium, eryngo, button snakeroot, corn-snakeroot, rattlesnake-master, rattlesnakeweed, rattle snake-flag.

HABITAT AND RANGE—Altho sometimes occurring on dry land, Water-Eryngo -usually inhabits swamps and low, wet ground, from the pine barrens of New Jersey westward to Minnesota and south to Texas and Florida.

DESCRIPTION OF PLANT—The leaves of this plant are grasslike in form, rigid, 1 to 2 feet long and about one-half inch or a trifle more in width; they are linear, with parallel veins, pointed, generally clasping at the base, and the margins briskly soft, slender spines. The stout, furrowed stem reaches a height of from 2 to 6 feet and is generally unbranched except near the top. The insignificant whitish flowers are borne in dense, ovate-globular, stout-stemmed heads, appearing from June to September, and the seed heads that follow are ovate and scaly. Water-Eryngo belongs to the parsley family (Apiaceae) and is native in this country.

DESCRIPTION OF ROOTSTOCK—The stout rootstock is very knotty, with numerous short branches, and produces many thick, rather straight roots, both rootstock and roots of a dark brown color, the latter wrinkled lengthwise. The inside of the rootstock is yellowish white. Water-Eryngo has a somewhat peculiar, slightly aromatic odor, and a sweetish mucilaginous taste at first, followed by some bitterness and pungency.

COLLECTION, PRICES AND USES—The root of this plant is collected in autumn and brings from 5 to 10 cents a pound.

Water-Eryngo is an old remedy and one of its early uses, as the several common names indicate, was for the treatment of snake bites. It was official in the United States Pharmacopoeia from 1820 to 1860, and is employed now as a diuretic and expectorant and for promoting perspiration. In large doses it acts as an emetic and the root, when chewed, excites a flow of saliva. It is said to resemble Seneca snakeroot in action.

Yellow jasmine or jessamine.

GELSEMIUM SEMPERVIRENS (L.) Ait. f.

DRUG NAME—Gelsemium.

OTHER COMMON NAMES—Carolina j asmine or jessamine, Carolina wild woodbine, evening trumpet-flower.

HABITAT AND RANGE—Yellow jasmine is a plant native to the South, found along the banks of streams, in woods, lowlands, and

thickets, generally near the coast, from the eastern part of Virginia to Florida and Texas, south to Mexico and Guatemala.

DESCRIPTION OF PLANT—This highly ornamental climbing or trailing plant is abundantly met with in the woods of the Southern states, its slender stems festooned over trees and fences and making its presence known by the delightful perfume exhaled by its flowers, filling the air with fragrance that is almost overpowering wherever the yellow jasmine is very abundant.

Yellow Jasmine (Gelsensium Sempervirens).

The smooth, shining stems of this beautiful vine sometimes reach a length of 20 feet. The leaves are evergreen, lance shaped, entire, $1^1/_2$ to 3 inches long, rather narrow, borne on short stems, and generally remaining on the vine during the winter. The flowers, which appear from January to April, are bright yellow, about 1 to $1^1/_2$ inches long, the corolla funnel shaped. They are very fragrant but poisonous, and it is stated the eating of honey derived from jasmine flowers has brought. about fatal results.

Yellow jasmine is a perennial and belongs to a family that is noted for its poisonous properties, namely, the Logania family (Loganiaceae), which numbers among its members such powerful poisonous agents as the strychnine-producing tree.

DESCRIPTION OF ROOTSTOCK—The rootstock of the Yellow jasmine is horizontal and runs near the surface of the ground, attaining great length, 15 feet or more; it is branched, and here and there produces fibrous rootlets. When freshly removed from the ground it is very yellow, with a peculiar odor and bitter taste. For the drug trade it is generally cut into pieces varying from 1 inch to 6 inches in length, and when dried consists of cylindrical sections about 1 inch in thickness, the roots, of course, thinner. The bark is thin, yellowish brown, with fine silky bast fibers and the wood is tough and pale yellow, breaking with a splintery fracture and showing numerous fine rays radiating from a

small central pith. Yellow Jasmine has a bitter taste and a pronounced heavy odor.

COLLECTION, PRICES AND USES—The root of Yellow Jasmine is usually collected just after the plant has come into flower and is cut into pieces from 1 to 6 inches long. It is often adulterated with portions of the stems, but these can be distinguished by their thinness and dark purplish color. The prices range from 3 to 5 cents a pound.

Yellow Jasmine, which is official in the United States Pharmacopoeia, is used for its powerful effect on the nervous system.

Sweet-Flag.

ACORUS CALAMUS L,

DRUG NAME—Calamus.

OTHER COMMON NAMES—Sweet cane, sweet grass, sweet myrtle, sweet rush, sweet sedge, sweet segg, sweetroot, cinnamon-sedge, myrtle-flag, myrtle-grass, myrtle-sedge, beewort.

Acorus calamus

HABITAT AND RANGE—This plant frequents wet and muddy places and borders on streams from Nova Scotia to Minnesota, southward to Florida and Texas, also. occurring in Europe and Asia. It is usually partly immersed in water, and is generally found in company with the cat-tall and other water-loving species of flag.

DESCRIPTION OF PLANT—The sword like leaves of the Sweet-Flag resemble those of other

flags so much that before the plant is in flower it is difficult to recognize simply by the appearance of its leaves. The leaves of the blue flag or "poison-flag," as it has been called, are very similar to those of the Sweet-Flag, and this resemblance often leads to cases of poisoning among children who thus mistake one for the other. However, as the leaves of the Sweet-Flag are fragrant, the odor will be a means of recognizing it. Of course when the Sweet-Flag is in flower the identification of the plant is easy.

The sheathing leaves of this native perennial, which belongs to the arum family (Araceae), are from 2 to 6 feet in height and about 1 inch in width; they are sharp pointed and have a ridged midrib running their entire length. The flowering head, produced from the side of the stalk, consists of a fleshy spike sometimes $3^1/_2$ inches long and about one-half inch in thickness, closely covered with very small, greenish yellow flowers, which appear from May to July.

DESCRIPTION OF ROOTSTOCK—The long, creeping rootstock of the Sweet-Flag is thick and fleshy, somewhat spongy, and producing numerous rootlets. The odor is aromatic and agreeable, and taste pungent and bitter. The dried article, as found in the stores, consists of entire or split pieces of various lengths from 3 to 6 inches, light brown on the outside with blackish spots, sharply wrinkled lengthwise, the upper surface marked obliquely with dark leaf scars, and the lower surface showing many small circular scars, which, at first glance, give one the impression that the root is worm-eaten, but which are the remains of rootlets that have been removed from the rootstock. Internally the rootstock is whitish and of a spongy texture. The aromatic odor and pungent, bitter taste are retained in the dried article.

COLLECTION, PRICES AND USES—The United States Pharmacopoeia directs that the unpeeled rhizome, or rootstock, be used. It is collected either in early spring or late in autumn. It is pulled or grubbed from the soft earth, freed from adhering dirt, and the rootlets removed, as these are not so aromatic and more bitter. The rootstock is then carefully dried, sometimes by means of moderate heat. Sweet-Flag deteriorates with age and is subject to the attacks of worms. It loses about three-fourths of its weight in drying.

Some of the Sweet-Flag found in commerce consists of handsome white pieces. These usually come from Germany, and have been peeled before

drying, but they are not so strong and aromatic as the unpeeled roots. Unpeeled Sweet-Flag brings from 3 to 6 cents a pound.

Sweet-Flag is employed as an aromatic stimulant and tonic in feeble digestion. The dried root is frequently chewed for the relief of dyspepsia.

Blue Flag.

IRIS VERSICOLOR L.

OTHER COMMON NAMES—Iris, flag-lily, liver-lily, snake-lily, poison-flag, water-flag, American fleur-de-lis or flower-de-luce.

HABITAT AND RANGE—Blue Flag delights in wet, swampy localities, making its home in marshes, thickets, and wet meadows from Newfoundland to Manitoba, south to Florida and Arkansas.

DESCRIPTION OF PLANT—The flowers of all of the species belonging to this genus are similar, and are readily recognized by their rather peculiar form, the three outer segments or parts reflexed or turned back and the three inner segments standing erect.

Blue Flag is about 2 to 3 feet in height, with an erect stem sometimes branched near the top, and sword shaped leaves which are shorter than the stem, from one-half to 1 inch in width, showing a slight grayish "bloom" and sheathing at the base. This plant is a perennial belonging to the iris family (Iridaceae), and is a native of this country. June is generally regarded as the month for the flowering of the Blue Flag, altho it may be said to be in flower from May to July, depending on the locality. The flowers are large and very handsome, each stem bearing from two to six or more. They consist of six segments or parts, the three outer ones turned black and the three inner ones erect and much smaller. The flowers are usually purplish blue, the "claw" or narrow base of the segments, variegated with yellow, green, or white and marked with purple veins.

All of the species belonging to this genus are more or less variegated in color; hence the name “iris,” meaning “rainbow,” and the specific name

"versicolor," meaning "various colors." The name "poison-flag" has been applied to it on account of the poisonous effect it has produced in children, who, owing to the close resemblance of the plants before reaching the flowering stage, sometimes mistake it for sweet flag.

The seed capsule is oblong, about $1^1/_2$ inches and contains numerous seeds.

DESCRIPTION OF ROOTSTOCK—Blue Flag has a thick, fleshy, horizontal rootstock, branched, and producing long, fibrous roots. It resembles sweet-flag (Calamus) and has been mistaken for it. The sections of the rootstock of Blue Flag, however, are flattened above and rounded below; the scars of the leaf sheaths are in the form of rings, whereas in sweet-flag the rootstock is cylindrical and the scars left by the leaf sheaths are obliquely transverse. Furthermore, there is a difference in the arrangement of the roots on the rootstock, the scars left by the roots in Blue Flag being close together generally nearer the larger end, while in sweet-flag the disposition of the roots along the rootstock is quite regular. Blue Flag is grayish brown on the outside when dried, and sweet-flag is light brown or fawn colored. Blue Flag has no well-marked odor and the taste is acrid and nauseous, and in sweet-flag there is a pleasant odor and bitter, pungent taste.

COLLECTION, PRICES AND USES—Blue Flag is collected in autumn and usually brings from about 7 to 10 cents a pound. Great scarcity of Blue Flag root was reported from the producing districts in the autumn of 1906. It is an old remedy, the Indians esteeming it highly for stomach troubles, and it is said that it was sometimes cultivated by them in near-by ponds on account of its medicinal value. It has also been used as a domestic remedy and is regarded as an alterative, diuretic and purgative. It was official in the United States Pharmacopoeia of 1890.

Crane's-Bill.

GERANIUM MACULATUM L.

DRUG NAME—Geranium.

OTHER COMMON NAMES—Spotted crane's-bill, wild crane's-bill, stork's-bill, spotted geranium, wild geranium, alum-root, alumbloom,

chocolate-flower, crowfoot, dovefoot, old-maid's-nightcap, shameface.

HABITAT AND RANGE—Crane's Bill flourishes in low grounds and open woods from Newfoundland to Manitoba, south to Georgia and Missouri.

DESCRIPTION OF PLANT—This pretty perennial plant belongs to the geranium family (Geraniaceae) and will grow sometimes to a height of 2 feet, but more generally it is only about a foot in height. The entire plant is more or less covered with hairs, and is erect and usually unbranched. The leaves are nearly circular or. somewhat heart shaped in outline, 3 to 6 inches wide, deeply parted into three or five parts, each division again cleft and toothed. The basal leaves are borne on long stems, while those above have short stems. The flowers, which appear from April to June, are borne in a loose cluster; they are rose purple, pale or violet in color, about 1 inch or $1^1/_2$ inches wide, the petals delicately veined and woolly at the base and the sepals or calyx lobes with a bristle-shaped point, soft-hairy, the margins having a fringe of more bristly hairs. The fruit consists of a beaked capsule, springing open elastically, and dividing into five cells, each cell containing one seed.

Crane's-bill (Geranium Maculatum), Flowering Plant, Showing also Seed Pods and Rootstock.

DESCRIPTION OF ROOTSTOCK—When removed from the earth the rootstock of Crane's-bill is about 2 to 4 inches long, thick, with numerous branches bearing the young buds for next season's growth and scars showing the remains of stems of previous years, brown outside, white and fleshy internally, and with several stout roots. When dry, the rootstock turns a darker brown, is finely wrinkled externally, and has a rough spiny appearance, caused by the shrinking of the buds

and branches and the numerous stem scars with which the root is studded. Internally it is of a somewhat purplish color. Crane's-bill root is without odor and the taste is very astringent.

COLLECTION, PRICES AND USES—Crane's-bill root depends for its medicinal value on its astringent properties and as its astringency is due to the tannin content, the root should, of course, be collected at that season of the year when it is richest in that constituent. Experiments have proved that the yield of tannin in Crane's-bill is greatest just before flowering, which is in April or May, according to locality. It should, therefore, be collected just before the flowering periods, and not, as is commonly the case, in autumn. The price of this root ranges from 4 to 8 cents a pound.

Crane's-bill root, which is official in the United States Pharmacopeia, is used as a tonic and astringent.