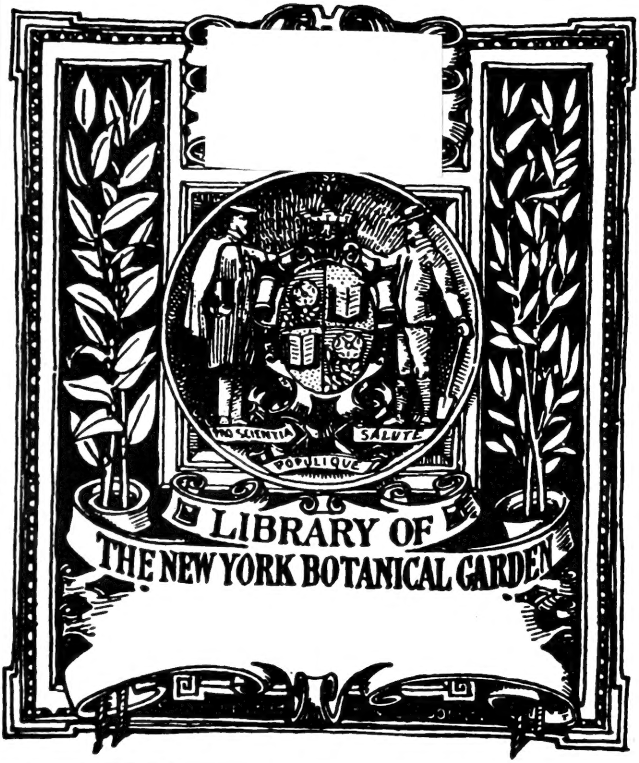

WILD PLANTS NEEDING PROTECTION

I. JACK IN THE PULPIT

ELIZABETH G. BRITTON

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WILD PLANTS NEEDING PROTECTION.[1]

1. "JACK IN THE PULPIT" (*Arisaema triphyllum* (L.) Torr.)

(WITH PLATE XCIII.)

When the trees are unfolding their fresh green leaves in May and June, and the violets and spring-beauties are in bloom, Jack-in-the-pulpit may be found in moist woodlands and on shady banks, where the earth is soft and loamy. It is a perennial herb, and if left undisturbed, it sometimes lives many years and attains a height of three feet, with a subterranean corm as large as an apple. This corm has given to the plant the name of "Indian turnip" though it is not edible, when raw, for it has an acrid taste, irritating to the tongue, on account of the acicular crystals of calcium oxalate which it contains, known as raphides. It propagates by forming smaller secondary corms around the older ones and in this way new plants are started. It often bears no fruit in the vicinity of New York, not only on account of the depredations of children, but because it is dioecious and the proper insect visitors, on which it is dependent for pollination, seem to be lacking. Usually the leaves turn yellow and the plant disappears in June and July, though this varies in different portions of its range, which extends throughout the Eastern and Central states, as far north as Nova Scotia and Ontario and south to Florida and Louisiana. It bears what would appear to most children to be a single large flower, but is really a cluster of small simple flowers, borne at the base of a fleshy club-shaped spadix, which is enclosed by the convolute base of the spathe, the summit of

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[1] Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

which arches over it, and is either pale green or a dark glossy brown, often striped with white.

There are usually two leaves, which are three-parted, graceful in shape and beautifully veined. The leaf-stalks are sheathing at base and enclose that of the flower-cluster. The staminate plants are often smaller and paler than the pistillate and wither as soon as they have discharged their pollen. Their flowers consist of only 2–4 almost sessile, white or purple anthers, borne on the fleshy mucilaginous base of the spadix. The pistils are crowded together, without calyx or corolla, green, globose and tipped with a sessile white stigma; occasionally a few stamens may be found above the pistils. The fruit cluster, when ripe, is usually prostrate, from 1–3 inches long and the berries are bright scarlet.

Plukenet appears to have been the first to figure this plant and he described it in his Phytographia in 1691 as "*Arum triphyllum minus atrorubente*" from plants sent to him by Bannister from Virginia. Linnaeus in his Species Plantarum, 1753, quoted this description and called it "*Arum triphyllum.*" It resembles some of the European species of *Arum* and belongs to the Araceae, a family of plants, most of which are tropical in their distribution and which includes about 105 genera and over 900 species, many of them being large and showy plants often climbing on trees and rocks.

ELIZABETH G. BRITTON.

WILD PLANTS NEEDING PROTECTION

II. SPRING BEAUTY

ELIZABETH G. BRITTON

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"SPRING BEAUTY"

(Claytonia virginica L.)

[Reprinted from JOURNAL OF THE NEW YORK BOTANICAL GARDEN, June, 1912.]

WILD PLANTS NEEDING PROTECTION.[1]

2. "SPRING BEAUTY" (*Claytonia virginica* L.).

(WITH PLATE XCV.)

In wet meadows, on grassy banks and even shady woodlands the Spring Beauty covers the ground in May with quantities of white flowers. It blooms consecutively for two or three weeks, opening a new blossom each day, gradually lengthening out its racemes, till sometimes they have borne as many as fifteen flowers. These measure half an inch or more across, have five white or pale pink petals, veined with rose-color; the stamens are five with pink anthers, and the style is three-lobed. There are two fleshy spreading sepals and the pedicels lengthen gradually from one half to an inch in length and become reflexed as the three-angled capsule matures. Half-way down the stem below the raceme, two narrow fleshy leaves, three or four inches long, clasp the stem, and a few basal ones arise from the large tuberous root which is buried rather deeply in the ground. Usually only the flowering stems are picked, so that the plant survives, but it will make no seed and stand little chance of spreading. The seeds are brown, reniform, slightly roughened, and the embryo is curved.

The Spring Beauty was named by Linnaeus in 1753 in honor of John Clayton, an American botanist and correspondent, who wrote, in 1743, a flora of Virginia. It was first figured by Plukenet in his Phytographia in 1691. There are about twenty-five

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[1] Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

species of *Claytonia* known to grow in northern North America, of which three occur in the eastern United States, one of these with broader leaves, *C. caroliniana* Michx., having about the same range as *C. virginica*, from Nova Scotia southward along the Alleghanies to Georgia and Texas.

They belong to the Purslane family, or Portulacaceae, with which they agree in their fleshy leaves, and flowers that bloom for a short time. The family is a large one, but the plants are usually small, few of them with showy flowers like *Portulaca grandiflora*, which occasionally escapes from cultivation.

ELIZABETH G. BRITTON.

"WILD PINK"

(Silene caroliniana Walt.)

[Reprinted from JOURNAL OF THE NEW YORK BOTANICAL GARDEN, July, 1912.]

WILD PLANTS NEEDING PROTECTION.[1]

3. "WILD PINK" (*Silene caroliniana* Walt.).

(WITH PLATE XCVII.)

Before the trees cast much shade, while their greens are still so exquisitely fresh and varied, a bright flash of color will attract the eye to the Wild Pink, growing in hilly places on rocks or often in their cracks and crevices with the Saxifrage. The beautiful rose pink and size of its flowers renders it very conspicuous, for it often makes a large patch or cushion with a number of stems about six to ten inches high, each bearing from three to five showy flowers more than an inch across. Each petal is wedge-shaped, with a long, pale white, basal claw enclosed in the tubular, 5-notched calyx and crowned at the summit of each claw by two erect, white appendages. The stamens are immersed in the tube, ten in number, five long and five short with purple anthers and slender white filaments attached at the base of the ovary which terminates in three short styles. The pod is stipitate, developing in the upper half of the withered calyx, splitting at apex into six recurved segments. The seeds are borne on a central column and are small and numerous, kidney-shaped and brown, with a rough surface.

The whole plant is viscid with glandular hairs forming a ciliate margin to the leaves, which are opposite, clasping at base a swollen joint of the stem; usually each stem has three pairs of

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[1] Illustrated by the aid of the Stokes' Fund for the Preservation of Native Plants.

leaves decreasing in size upward. The basal shoots have longer leaves, all gracefully recurved, and forming a crowded cluster at the summit of a long strong fibrous tap-root, which often penetrates deep down into some crevice and breaks off when uprooted. For this reason the plant frequently survives, in spite of its showy blossoms, though it is not abundant any longer, where it is frequently picked.

The Wild Pink was described by Thomas Walter in his Flora of Carolina in 1788, and redescribed by André Michaux in 1803 as *Silene Pennsylvanica.* It often grows in sandy or rocky soil on the borders of woods from Maine to Georgia in the Eastern States, along the Alleghanies, and flowers from April to June.

It belongs to the pink family or *Caryophyllaceae* a large family of about seventy genera and over 1,500 species, which are widely distributed, mostly in temperate regions. The generic name *Silene* was given by Linnaeus in 1753 in reference to the viscid hairs and about 250 species are known of which many are showy graceful plants, the showiest perhaps being the Fire-pink, *Silene virginica*, and the most graceful, the Starry Campion, *Silene stellata.*

Elizabeth G. Britton.

WILD PLANTS NEEDING PROTECTION

IV. WILD COLUMBINE

ELIZABETH G. BRITTON

Reprinted, without change of paging, from the JOURNAL OF THE NEW YORK BOTANICAL GARDEN
13: 123–124. August 1912.

WILD COLUMBINE.

[Reprinted from JOURNAL OF THE NEW YORK BOTANICAL GARDEN, Aug., 1912.]

WILD PLANTS NEEDING PROTECTION.[1]

4. "WILD COLUMBINE" (*Aquilegia canadensis* L.).

(WITH PLATE XCVIII.)

Nodding in the cool winds of spring-time, and so lightly poised on its slender stems, that it is almost impossible to take its photograph, the wild columbine adorns the rocks and ledges in May with its gay, red and yellow blossoms and occasionally is found in fields at middle elevations where it blooms until July. The flowers are pendent, about 1–2 inches long, bright red, the five short red sepals overlapping five tubular spurs which terminate below in thickened honey-sacs and broaden out above into five short yellow petals attached around a long-exserted, cluster of slender yellow stamens, about fifty in number. These are attached in five rows to a disc at the base of the ovaries, which are five in number and hairy with five long slender styles; they develop into five follicles with long spreading points. Each follicle contains about fifteen shining black seeds attached along the ventral suture.

The basal leaves are pale green beneath, three-parted and each leaflet again divided into three, toothed lobes; smaller, short-stalked, simpler leaves also grow on the flower stalks and diminish into bracts above. The stems vary in height from one to two feet and are smooth or slightly hairy above. The root is fibrous and easily uprooted and for this reason the plant largely depends on its seeds for reproduction and is likely to be quickly exter-

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[1] Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

minated on account of its showy flowers. Occasionally plants are found with pale yellow blossoms growing among the normal ones.

It ranges from Nova Scotia to Northwest Territory south to Florida and Texas and ascends to high altitudes in the Alleghanies and the Rocky Mountains.

It was first described and figured by Cornuti in 1635 and was called *Aquilegia canadensis* by Linnaeus in 1753. The generic name refers to a fancied resemblance of the spurs to the talons of an eagle; on this account and the wide range of the genus throughout the United States, it has been strenuously advocated for the honor of being called the national flower. About fifteen species of *Aquilegia* are known from the United States, ranging through the Rocky Mountains into Mexico and the western states; all have showy flowers varying from white to yellow and blue, and are greatly prized in cultivation.

This genus belongs to the crowfoot family, *Ranunculaceae*, of which about thirty-five genera and one thousand and fifty species are distributed throughout the temperate regions of the world.

ELIZABETH G. BRITTON.

WILD PLANTS NEEDING PROTECTION

5. "BIRD'S-FOOT VIOLET"

ELIZABETH G. BRITTON

Reprinted, without change of paging, from the JOURNAL OF THE NEW YORK BOTANICAL GARDEN
13: 135–136. September 1912.

"BIRD'S-FOOT VIOLET"

(Viola pedata L.)

[Reprinted from JOURNAL OF THE NEW YORK BOTANICAL GARDEN, Sept., 1912.]

WILD PLANTS NEEDING PROTECTION.[1]

5. "BIRD'S-FOOT VIOLET" (*Viola pedata* L.).

After the spring is well advanced, and most of the other violets have been in bloom for nearly two weeks, the bird-foot violet comes to show how lovely a violet can be! Its flowers are larger and more delicate in color than any other of our wild species, the petals spread with a jaunty air, like a pansy, and vary in color from deep violet to pale lavender or white. They stand above the leaves on long stout pedicels and when growing in masses, as they used to on the Hempstead Plains of Long Island and Todt Hill on Staten Island, are as showy as any of the Alpine violets of Europe, comparing favorably with the long-spurred pansy of the Alps, *Viola calcarata*.

The leaves give the plant its specific and common name from a fancied resemblance to a bird's foot. They are palmately divided almost to the base, into narrow segments which are entire, or again divided into 3–5 wedge-shaped subdivisions. There is great variability in the shape and size of the leaves and they also vary from nearly smooth to quite hairy. The rootstocks are erect and stout, scaly above, and bear a large number of leaves and flowers on each, so that the temptation is to pull up the whole plant at once. When growing luxuriantly, they sometimes reach a foot in height with a dozen or more flowers open at once. The leaf-stalks and pedicels are tinted with purple and vary from 2 to 6 inches or more in length. The two upper petals are bent backward over the short spur, the two lateral ones are spreading

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[1] Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

and the lower is broader and keeled, paler and veined with dark purple stripes, the base projecting to form a spur, in which a fragrant honey is found. The stamens are five, the two lower ones spurred, and all bear an orange-colored prolongation beyond the anthers, which project and surround the green club-shaped stigma, with a very small central stigmatic surface. The ovary is superior, one-called, three-angled, three-parted when ripe and bears the seeds in three rows on the walls. The five sepals also are unequal, thickened at base and auricled. The peculiar structure of the stamens and the fact that two of them have claws extending down into the honey-bearing spur are evidently aids in the fertilization by insects, and many of the violets are known to hybridize.

Viola pedata was named by Linnaeus in 1753 in his Species Plantarum but it was first described and figured by Plukenet in 1691 as "*Viola virginiana tricolor*, foliis multifidis, cauliculo aphylla." In the vicinity of Washington, D. C., and Harrisburg, Pennsylvania, the form known as *bicolor*, in which the two upper petals are dark purple, is more common. About one hundred and fifty species of violets are known from all the temperate parts of the globe. A few occur at high altitudes in the tropics. The *Violaceae* comprise fifteen genera and three hundred species, widely distributed; some of them are trees.

ELIZABETH G. BRITTON.

WILD PLANTS NEEDING PROTECTION

6. "WILD AZALEA"

ELIZABETH G. BRITTON

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14 : 79–81. April 1913.

WILD AZALEA

[Reprinted from JOURNAL OF THE NEW YORK BOTANICAL GARDEN, April, 1913.]

WILD PLANTS NEEDING PROTECTION*

6. "WILD AZALEA" (*Azalea nudiflora* L.)

WITH PLATE CXIV

About the end of May, when the snow-balls are in bloom and the dandelions have gone to seed, with their exquisite balls of fruit standing up tall among the grasses and buttercups; when the wild cherries scent the air with their bitter-sweet fragrance, then the wild azaleas brighten the gloom of the woodlands with their exquisite colors. In the region about New York City, it is known as "wild honeysuckle" from the shape of its flowers, which have a long tube filled with nectar. The flowers vary in color from pale pink to deep rose-color and grow about ten in a cluster at the summits of long naked branches, which usually arise in clusters from the stem. These shrubs sometimes attain a height of from two to six feet, and once were abundant in open woodlands in Greater New York, particularly in the Bronx and on Staten Island, though on account of their showy color and fragrance they are often ruthlessly broken. The flowers are large with long exserted stamens and with the tube, the pistil and the filaments darker-colored. The 5-parted limb of the corolla is unequally lobed, the two upper divisions spreading, the lowest being the broadest and overlapping the two narrower lateral ones. The pedicels and tube are quite hairy as well as the short green calyx. The ovary also is hairy and the style is over two inches long, curved upward and terminating in a disc-

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* Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

shaped stigma. The five long stamens are inserted with the corolla at the base of the tube, and a deep hairy groove extends down the center of each lobe of the corolla to the nectar, at its base. The leaves are oval or obovate, tapering to a short petiole and unequal in shape and size; usually five to seven are borne at the summits of naked branches, like the flowers forming an unsymmetrical rosette.

Azalea nudiflora was described by Linnaeus in 1762 in the second edition of his "Species Plantarum" and he cites Peter Kalm's description. In Kalm's travels under the date of May 5, 1749, he says: "Early this morning I went to Rapaapo, New Jersey which is a great village, inhabited by Swedes. . . . The Mayflowers, as the Swedes call them, were plentiful in the woods wherever I went to-day; especially on a dry soil, or one that is somewhat moist. The Swedes have given them this name, because they are in full blossom in May. Some of the Swedes and the Dutch call them Pinxterbloem (Whitsunday flowers) as they really are in blossom about Whitsuntide. The English call them Wild Honeysuckles; and at a distance they have some similarity to the Honeysuckle, or *Lonicera.* Dr. Linnaeus, and other botanists, call it an *Azalea.* Its flowers were now open, and added a new ornament to the woods, being little inferior to the flowers of the Honeysuckle and *Hedysarum.* They fit in a circle round the stem's extremity, and have either a dark red or a lively red color; but, by standing for some time, the sun bleaches them, and at last they get a whitish hue."

This species ranges from Maine to Florida and Texas, ascends to 3,000 feet altitude in Virginia and has been reported from Canada. About forty species of *Azalea* have been described from North America and Asia, many have been cultivated for their beauty, and many hybrids are known. Seven species are known to grow in the United States, of which the orange-colored *Flame Azalea* of the Southern States is the showiest and the *White Swamp Azalea* the most fragrant. The Heath Family or *Ericaceae,* to which they belong, includes about fifty-five genera and one thousand and fifty species, widely distributed, mostly in cool temperate regions in which the Laurel and Rhododendrons are our most familiar and exquisite members of this most charming family of plants.

Elizabeth G. Britton.

WILD PLANTS NEEDING PROTECTION

7. "PINK MOCCASIN FLOWER"

ELIZABETH G. BRITTON

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PINK MOCCASIN FLOWER

[Reprinted from JOURNAL OF THE NEW YORK BOTANICAL GARDEN, May, 1913.]

WILD PLANTS NEEDING PROTECTION*

7. "PINK MOCCASIN FLOWER" (*Cypripedium acaule* Aiton)

WITH PLATE CXVI

From the middle of May to the middle of June the "Stemless Pink Moccasin" or "Two-leaved Lady's Slipper" may be found blooming in moist woods and on the borders of swamps or on drier hillsides in pine woods. It comes when the orchards are in bloom, beginning with the violets, anemones and wake-robins and in colder, more northern, hilly regions may still be found when the laurel and the roses are just unfolding.

It is probably the most common of all the *Cypripediums*, having the greatest range, extending through British America from Newfoundland to Winnipeg and North West Territory, and is even supposed to have been one of the species recorded by Dr. Richardson from Arctic America. It also occurs sparingly in the United States from Minnesota to Kentucky and Tennessee.

The flower is large and showy, pendent on a long stalk, about a foot high, with two large basal leaves: they taper down to and clasp the base of the flower stalk and are in turn enclosed in a thin brown bract; there are five prominent parallel veins and both surfaces of the leaf are pubescent with short glandular hairs. Arching over the flower at the top of the scape is a single lanceolate bract, about 2 inches long, covering the ovary

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* Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

which is curved, strongly ribbed and glandular hairy; the large brown calyx is composed of two united sepals, the two lateral petals also are brown, narrow and twisted. The lip is a large showy pouch, 2–3 inches long, of a bright purplish pink color veined with darker lines, it is deeply split above with the aperture closed by the downward and inward curving of the sides; there are also minute short glandular hairs on the outside, but within the hairs are white and longer, becoming rigid and bent downward as they approach the anthers, serving to attract and direct the movements of insect visitors who come in search of nectar. When the insects reach the anthers, the two viscid sacs adhere to their backs and are thus carried off to some other flower, where they are brushed against the roughly papillose stigma and thus accomplish cross-fertilization. One sterile stamen is expanded into a heart-shaped bract, which is bent downward and inward covering the stigma and effectually preventing all exit, except by the apertures on each side of the anthers. The capsules when mature, are large, about 1–1.5 inches long and produce numerous small seeds, but they are nowhere very abundant, as the very showiness which insures fertilization by insects, defeats its object through the greediness of children and some selfish older people, who pick all they can find no matter how few there may be!

Cypripedium acaule was named by Aiton in a catalogue of the plants grown at Kew in 1789 from plants introduced by Wm. Hamilton, Esq., in 1786, from North America. He cites Plukenet's figures and description published in 1769 who described it as "*Helleborine Calceolus Mariae* dicta *Caroliniensis*, bifolia." Catesby in his Natural History of North Carolina in 1748 figured it in colors and says of it: "This plant produces the most elegant flower of all the Helleborine tribe, and is in great esteem with the North American Indians for decking their hair, etc. They call it the Moccasin Flower, which also signifies in their language, a shoe or slipper."

It was formerly found in the wilder portions of Greater New York, on Staten Island and in Van Courtland Park, but is becoming extinct, on account of its showy flowers, which are usually picked close to the root, as in the accompanying illustration.

Elizabeth G. Britton.

WILD PLANTS NEEDING PROTECTION

8. "AMERICAN OR MOUNTAIN LAUREL"
(*Kalmia latifolia* L.)

ELIZABETH G. BRITTON

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AMERICAN OR MOUNTAIN LAUREL

[Reprinted from JOURNAL OF THE NEW YORK BOTANICAL GARDEN, June, 1913.]

WILD PLANTS NEEDING PROTECTION*

8. "AMERICAN OR MOUNTAIN LAUREL" (*Kalmia latifolia* L.)

WITH PLATE CXVII

In the beginning of June, when the days are long and warm and the daisies and clover in the tall grass are waving in the breeze, when the tulip-trees are in bloom and the roses and paeonies fill the gardens with their perfume and color, then the flowers of the laurel may be found, rivalling in their delicacy of color and perfect symmetry of form any of the more showy blossoms of cultivation. It seems as if the climax of all that is dainty and lovely had been reached in this beautiful American wild flower.

But where the laurel once was abundant it is rapidly becoming scarce or extinct. On account of its evergreen leaves, it is gathered in winter for Christmas decorations and other festivities; all the year round it is used to decorate fruit-stands and its wood

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* Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

is eagerly sought for rustic furniture, for tools and as a substitute for making brier-wood pipes. It once grew abundantly on the banks of the Harlem River at High Bridge and Inwood; there is still a little of it left in Bronx Park, but it seldom blooms, which probably accounts for there being any of it still indigenous. The flowers grow in clusters at the ends of last year's branches, forming large cymes of white and pale pink. Each flower is a study in itself and most difficult to draw or paint, on account of the numerous ridges and projections on the outside of the buds and the delicate curves and depressions of the open flower.

The pedicels are about one inch long, and glandular hairy; the calyx is also glandular and small, with five narrow sepals; the corolla has a short basal tube and ten prominent dorsal ridges, five of which are longer and also glandular, the limb is five-lobed with shallow notches between the lobes and ten dark red blotches, marking the indentations in which the anthers are held; the filaments are white and curved. They spring upward around the pistil, if suddenly released by the visit of a bumble-bee, or other large insect, dusting his back with a white pollen which escapes from the anthers, through two apical pores. The pistil is at first curved, later becoming erect, with five greenish-yellow stigmatic surfaces and a superior glandular ovary, which develops into a five-lobed capsule. An unusual form of the laurel has been found near Deerfield, Massachusetts, with the corolla divided to the base into five long narrow petals. This freak has been cultivated, though not nearly as beautiful, and produces seed.

The leaves are thick and glossy and keep their dark green color and brilliancy throughout the winter. They are from two to five inches long and sometimes nearly two inches wide and when young have minute black glandular hairs on the upper surface; the petioles are short and thick, opposite or alternate and clustered at the ends of the branches, which are stout and woody, often spreading and usually making a small dense shrub about two to six feet high. Rarely, in sheltered inaccessible valleys of the southern Alleghanies, it is said to become a tree having a trunk thirty to forty feet high with a diameter of 18 inches; but this is probably a thing of the past.

The laurel is usually found on rocky or barren soil in hilly regions, ranging from New Brunswick and Ontario southward to Florida and Louisiana and blooms in May to July according to its range.

The earliest account of *Kalmia latifolia* appeared in 1705 in the "Almatheum Botanicum" of Plukenet, who figured it very poorly and it was named by Linnaeus in 1753. It was also described and figured in a colored plate by Marc Catesby in 1771 in his Natural History of Carolina, Florida and the Bahama Islands, who introduced it into cultivation. The following is his account:

"As all plants have their peculiar beauties, it is difficult to assign to any one an elegance excelling all others; yet, considering the curious structure of the flower, and beautiful appearance of this whole plant, I know of no shrub that has a better claim to it. After several unsuccessful attempts to propagate it from seeds, I procured plants of it at several times from America, but with little better success; for they gradually diminished, and produced no blossoms, till my curious friend, Mr. Peter Collinson, excited by a view of its dried specimens and description of it, procured some plants of it from Pennsylvania; which climate being nearer to that of England, than from whence mine came, some bunches of blossoms were produced in July, 1740, and in 1741, in my garden at Fulham."

The laurel belongs to the *Ericaceae*, or Heath family, as do the azaleas, rhododendrons, blueberries and arbutus, and it has been conclusively shown by Mr. Coville, Botanist of the United States Department of Agriculture in Washington, that what they need for successful cultivation, is an acid soil and an abundance of leaf mould. The arbutus has been grown in pots from seed and it may be that at no distant date, it may be forced as tulips and hyacinths are now, for Easter. Rhododendrons and laurel are being shipped in carload lots by dealers from the mountains of Pennsylvania and the southern Alleghanies, who supply florists and nurserymen from wild sources. How long can they last?

ELIZABETH G. BRITTON.

WILD PLANTS NEEDING PROTECTION

9. "FLOWERING DOGWOOD"

ELIZABETH G. BRITTON

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14: 133–134. July, 1913.

FLOWERING DOGWOOD

[Reprinted from JOURNAL OF THE NEW YORK BOTANICAL GARDEN, July, 1913.]

WILD PLANTS NEEDING PROTECTION*

9. "FLOWERING DOGWOOD" (*Cynoxylon floridum*)

WITH PLATE CXX

One of the new enemies of the dogwood is the automobile. It is not unusual in the vicinity of New York to see great branches torn off, with all the flowers drooping, being borne into the city, by people in automobiles. Such ruthless and wanton destruction of this most decorative tree of our woodlands and hillsides is unpardonable and should be punished as a misdemeanor, for it is undoubtedly true, in most cases, that the depredators do not own the trees that they destroy, and have taken the branches from either some public park or private land.

The dogwood attains a height of about 10–20 feet with a maximum trunk of 40 feet usually with low and broad, spreading branches. At the summit of each twig there is a cluster of small yellowish green flowers about twenty to thirty in number, surrounded by four large showy white bracts, which sometimes attain 2–3 inches in length and 1–2 inches in breadth. They are formed by the expansion of the involucre which surrounds the flowers in the bud. They are usually notched at the apex, often tinted with red and occasionally quite pink. The flowers are small, crowded together, with four recurved greenish yellow petals, attached in the mouth of the tubular 4-lobed calyx; the stamens are four, attached to and falling with the corolla and

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*Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

the ovary is inferior with two cells and the summit bears a fleshy yellow disc, surrounding the base of the pistil. The fruit is an ovoid drupe, bright scarlet when ripe, usually five to six in a cluster. They are eagerly eaten by birds in the autumn, and in this way the seeds are widely disseminated. The leaves are opposite, borne in pairs on lateral branchlets, with short petioles; they are ovate or oval, acute with a strong mid-vein and conspicuous lateral veins and quite entire. They are minutely hairy on the upper surface when young and pubescent particularly on the veins, beneath. The wood is fine-grained and is sometimes used as a substitute for box-wood.

The dogwood ranges from Maine to Florida, and in the Central States from Ontario to Texas, ascending the mountains of Virginia and in the Sierra Madre in Mexico. It was named by Linnaeus in 1753 from plants collected in Virginia and Carolina and was described by Plukenet in 1691 in his Phytographia probably from plants collected in Virginia by John Bannister. It has been in cultivation in England since 1730 and is greatly prized not only for its showy white masses of blossom in spring, but for the brilliant color of its foliage and fruit in the autumn. The rose-colored form was figured by Marc Catesby in 1771, and is highly esteemed in cultivation, occurring sparingly wild.

Elizabeth G. Britton.

WILD PLANTS NEEDING PROTECTION

10. "LIVER-LEAF"

ELIZABETH G. BRITTON

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17: 55–56. April, 1916.

LIVER-LEAF

Reprinted from the JOURNAL of the NEW YORK BOTANICAL GARDEN 17: 55-56. April, 1916.

WILD PLANTS NEEDING PROTECTION*

10. "LIVER-LEAF" (*Hepatica Hepatica* (L.) Karst.)

(With Plate CLXIX)

This most delightful of early woodland blossoms is rapidly being exterminated from our hillsides by fires and the dying out and cutting down of the chestnuts which have sheltered them for many years. They prepare their lovely blossoms and silvery leaves the year before and are ready to come forth with the slightest encouragement, so that in sunny sheltered places they have even been known to blossom in December and are generally found in this vicinity in March and April, though sometimes lingering in cool places at higher elevations till May.

The plant derives its common name from the dark purplish, red color of the under side of the leaves, which are bluntly 3-lobed and hardy, lying flat on the ground during the winter, their upper surface green and shining and their leathery texture protecting them from the cold and snow. They are seldom more than 2–3 inches wide and 1.5 inches long, with 3 blunt lobes, though occasionally notched again on the lateral lobes. The young leaves, as they unfold, are covered with long silky white hairs as are also the stalks of the flowers. The stems are usually prostrate and subterranean, densely covered with strong fibrous roots, forming an underground rootstock; the growing tip being protected by a few large white sheathing bracts. The flowers

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* Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants

arise singly or in clusters from among these bracts, and vary in color from white, through pale shades of blue and pink to deep violet, with stalks also varying in length from 2–5 inches; they are subtended by three small sessile green leaves, forming an involucre to each blossom and enclosing it in the bud, so that both the leaves and blossoms are well protected during the winter by their silken covers. The colored segments of the flower are usually 6 in number and variable in length as are also the stamens. The anthers are white and the achenes are beaked and also covered with silky hairs.

The *Hepatica* is widely distributed in the east from Nova Scotia to Florida and west in the central part of Canada to Manitoba and in the United States to Iowa and Missouri. A closely related species, *Hepatica acutiloba* overlaps and intergrades with it and both are known from Europe and Asia. They take kindly to cultivation and increase in size and the number and color of their blossoms, but should be mulched only with well-rotted leaf-mold.

The hepaticas belong to the Crowfoot or Buttercup family, of which about 35 genera and over a thousand species are known mostly from the temperate regions of the world.

ELIZABETH G. BRITTON

WILD PLANTS NEEDING PROTECTION

11. "BLOODROOT"

ELIZABETH G. BRITTON

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BLOODROOT

Reprinted from the JOURNAL of the NEW YORK BOTANICAL GARDEN **17**: 63–64. May, 1916.

WILD PLANTS NEEDING PROTECTION*

11. "BLOODROOT" (*Sanguinaria canadensis* L.)

(With Plate CLXXI)

This is another of the early spring flowers, whose stems are protected by being buried in the earth, forming a subterranean rootstock, abundantly nourished by strong fibrous roots. It is this red, underground, stem, which gives the plant its common name, for like many others of the Poppy family, to which it belongs, it contains a milky orange-colored sap, which flows freely from it when broken. The stems give rise, at intervals, to clusters of pale sheathing bracts, from which the leaves emerge and unroll, showing the white pearly blossoms within. The base and veins of the leaves and the stalks of the flowers are also tinted with the red coloring matter of the stems. When fully expanded, the leaves often measure 6–12 inches across, being wider than they are long, variously lobed or toothed and borne on stalks often 10–14 inches in height. The leaves are fleshy and pale green in color with a waxy bloom when young and disappear soon after the fruit matures. The blossoms open sometimes in March but usually in April and early May and the flowers are generally borne singly on stalks longer than the leaves, though rarely two are found on one stalk; they are large and usually pure white, though sometimes tinged with purple or pale pink, and measure from 1–2 inches across, having 8–12

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* Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

petals, which last only a day or two. The calyx falls off as the bud expands, a characteristic of other members of the Poppy family. The anthers are bright yellow and the stamens numerous, varying in length and attached at the base of the ovary which later develops into a two-valved pod, at the top of which the persistent stigma remains till it ripens.

Owing to the variations in the lobing of its leaves *Sanguinaria* has been variously named, but it is generally considered a monotypic genus, widely distributed in the east from Nova Scotia to Manitoba and southward to Arkansas and Florida, occurring also at higher elevations in the Alleghanies.

The Poppy family is widely distributed in the north temperate zone and 26 genera and 200 species are recognized, many of which have been used medicinally and are popular in cultivation on account of their showy flowers and beautiful foliage.

ELIZABETH G. BRITTON

WILD PLANTS NEEDING PROTECTION

12. "FRINGED GENTIAN"

ELIZABETH G. BRITTON

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17: 81–82. June, 1916.

CLXXII
PLATE [redacted]

FRINGED GENTIAN

Reprinted from the JOURNAL of the NEW YORK BOTANICAL GARDEN 17: 81–82. June, 1916.

WILD PLANTS NEEDING PROTECTION*

12. "FRINGED GENTIAN" (*Gentiana crinita* Froel.)

(With Plate CLXXII)

All lovers of wild flowers, love the "*fringed gentian*," love it to death! and ask, innocently enough, why they do not find it where it used to be abundant. How can an annual grow again in the same place, if all the flowers are taken and none allowed to go to seed? Pull up one of the plants and see the small roots, note that there are no fleshy root-leaves or rosettes, and that all the strength of the plant has been thrown into those showy flowers with fringed, purple petals to insure pollination by insects; and also remember, that of all the wild flowers, gentians last the longest when picked, opening and closing for weeks after they are brought home from the country, in a last vain effort to set their seed on which they have staked their whole life! Bumble-bees often rob them of the nectar by piercing through the flattened, sheathing calyx, and thus defeat the object of that exquisite 4-leaved table spread so temptingly for the last floral feast!

The fringed gentians used to grow in large colonies around the lake in Van Courtland Park and in the swamp at the southern end of Woodlawn Cemetery, usually among goldenrods near the tall bushes of winter berries, that once fringed those bogs, but with the moccasin-flower and other lovely wild flowers they

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* Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants.

have all disappeared from the parks of the Bronx. The last that I saw were sent to the Garden by a well-intentioned Scotch foreman of Van Courtland Park, who had great sods of them dug up hoping that we might be able to preserve them.

The plants are often 1 to 3 feet high, usually much branched, with the branches erect and 4-angled, with opposite ovate-acuminate leaves. The parts of the flower are in 4, including the white stamens, and the stigma is also white, 4-parted and sessile on the tapering ovary; the seeds mature in October or November. The flowers bloom late and all are familiar with Bryant's exquisite lines:

> "Thou waitest late and com'st alone,
> When woods are bare and birds are flown."

The plant is eastern ranging from Quebec to Minnesota, south to Iowa and Georgia.

The genus was named for King Gentius of Illyria and 300 species are known, mostly natives of the north temperate zones, ranging into alpine regions of Europe and America, also in the Andes of South America. They are not often found in cultivation and are rapidly becoming rare or extinct. Besides many alpine genera, various other beautiful and showy species and genera occur at sea-level and in the tropics, notably the Sabbatias or star-pinks, which are also rapidly disappearing from our eastern sea-coasts. A few are aquatic or semi-aquatic. Some of the plants have a bitter sap, which renders them a valuable tonic, and they are still in use medicinally.

Elizabeth G. Britton

WILD PLANTS NEEDING PROTECTION

14. "GREAT LAUREL OR ROSE BAY."

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ELIZABETH G. BRITTON

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WILD FLOWERS NEEDING PROTECTION[1]

14. Great Laurel or Rose Bay (*Rhododendron maximum* L.)

(*With plate 277*)

This is the tallest of our native rhododendrons, as its specific name implies. Its generic name refers to the rose-color of the flowers and the tree-like habit of many of the species, which, though usually shrubby, sometimes attain a height of 20 to 40 feet in this country and in China reach 50 feet and constitute large areas of the forest, mixed with wonderful groves of *Magnolia*. Some of these new Chinese species have yellow flowers, thus adding a new color series in this already wonderful genus, and making possible an entirely new series of hybrids, perhaps as varied and beautiful as those of the yellow *Azalea*, which by many students is classed with the *Rhododendron*.

The rose bay is native only in eastern North America, ranging from Nova Scotia and Ontario, southward along the Alleghanies to Georgia, often growing in dense impenetrable thickets,in wet woods and in shady ravines, being particularly abundant in the mountains of Pennsylvania and Virginia. Its southern relative, *R. Catawbiense*, is abundant on Roan Mt., N. C., and gives its name to that summit, from the deep purplish-pink color of its flowers. Both these species grow readily from seed and hybridize freely having been the source of many showy cultivated varieties which are replacing their parents in gardens. Still, car-loads are often shipped to dealers from the southern states, and their valuable wood and decorative masses of ever-

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[1] Illustrated by the aid of the Stokes Fund for the Preservation of Nativ plants.

green foliage render them still more liable to depredation in all unprotected localities where they grow wild. Their showy trusses of flowers open from June to July, maturing their anthers before their stigmas, and bending them upward, so that any insect visiting the flower for its nectar will be dusted by the pollen. By this means cross fertilization is accomplished. One of the lobes of the corolla is spotted and the necter is secreted at the base of the lobe, so that the markings are recognized as insect-guides. In this way many natural variations have been produced. About 350 species of *Rhododendron* are known to occur in the colder temperate regions of the northern hemisphere, 16 of which, if we include the *Azalea*, have been described from North America. All prefer a sour soil and leafmold and should be heavily mulched with rotten leaves, as they detest raw manure. They also like a cool, moist climate and partial shade when they attain their best growth.

A beautiful illustrated book on the *Rhododendron* by J. G. Millais has recently been published in England, and some of the colored illustrations of English gardens show the perfection to which these shrubs attain in that moist temperate climate. Many beautiful species and showy hybrids are described and figured in colors, which have originated either from crossing the Indian (*R. arboreum*) and the North American species or are 2d or 3rd crosses whose records have been lost. Species from Java and those recently discovered from China promise still greater choice of color and form for the future. Some few of the species are epiphytic and still others in the alpine regions of Western China are dwarfs and take the place of heaths in other countries. Still others are too tender to be grown except in green-houses. Some few of the evergreen species are fragrant and most of the azaleas have this added charm. Perhaps the new restrictions against importing these beautiful plants may encourage our own students and horticulturists to try experiments in crossing, which will add new treasures to this already rich and sumptuous genus. The accompanying illustration is of a plant grown at the New York Botanical Garden.

E. G. Britton

WILD PLANTS NEEDING PROTECTION

14. "VIRGINIA COWSLIP" or "BLUEBELLS" (MERTENSIA VIRGINICA)

ELIZABETH G. BRITTON

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VIRGINIA COWSLIP or BLUEBELLS

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WILD PLANTS NEEDING PROTECTION[1]

14. "VIRGINIA COWSLIP" OR "BLUEBELLS" [MERTENSIA VIRGINICA (L.) DC.]

(*With plate* 304)

This is one of the most beautiful members of the Borage Family, which includes also the Forget-me-nots and that attractively repellent weed, naturalized from Europe, the "Blueweed" or "Viper's Bugloss." The exquisite delicacy and grace of their pendent clusters of flowers and their dainty coloring, varying from pink in the bud to pale blue when fully opened, render this one of the most attractive of our American wild flowers. Their beauty has only recently begun to be appreciated and at last they have been discovered by our commercial dealers and the "fashionable, feminine landscape architects." This may spell their decimation or doom, for the commercial supplies all come from wild sources, and, as far as we know, no one has attempted, in the trade, to raise them from seed. Eight North American species of Mertensia have been described, ranging from Hudson Bay to Alaska, and in the Rocky Mountains from Colorado and Utah, south to Wyoming and New Mexico. Our eastern species occurs from Ontario to Minnesota, south to Nebraska and Kansas and seems to be more abundant in the Middle States, in Ohio, Illinois, and Indiana. Though fine illustrations, like the one accompanying this article, have been made from photographs taken in Pennsylvania, we know of only one station near New York City where

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[1] Illustrated by the aid of the Stokes Fund for the Preservation of Native Plants. The last previous number (Jour. New York Bot. Gard. **23**: 137, 138. *pl. 277.* 1922) of this series was erroneously numbered 14.

FIGURE 1. *Mertensia virginica.* From a photograph taken in Pennsylvania by the J. Horace McFarland Company and here reproduced by courtesy of the Ohio State University.

it grows in such abundance. It used to grow on the Orange Mountains near Montclair, New Jersey, but has long been gone from that locality. It prefers damp and shady places along streams and wet hillsides, and apparently seeds freely and grows readily from seed. If planted in shady moist places along streams or even in low swampy woodlands that are frequently overflowed in springtime, it will flourish and prove a permanent decorative feature.

It has a thickened storage rootstock which enables it to withstand ill treatment for a while, but it will ultimately dwindle and disappear if planted in uncongenial locations, or with unsuitable companions. If associated with tulips which have to be lifted and replaced each year, the Mertensias, if grouped around them, are sure to suffer and ultimately disappear. Their delicacy and charm are enhanced by natural surroundings and the ideal location is a shady bed of ferns, which gradually unfurl their fronds and hide the yellow and dying leaves of the "Bluebells." For *Mertensia virginica* blooms early, from March to May, and disappears entirely when the trees are in full leaf. The taller species, *M. paniculata* and *M. lanceolata,* bloom from June to August, but they also prefer thickets and woodlands and are entirely unsuited to sunny dry borders.

The flowers are clustered at the top of the stems, and have a tube with a lobed corolla, and a very short 5-parted calyx. The stamens also are free and inserted on the tube of the corolla. There are four round nutlets in each fruit.

Dr. Southwick has successfully established a group of them, brought from the colony on the Raritan River in New Jersey. They are planted in shade along one of the rills at the northern end of the Rock Garden, an ecological habitat much like their natural one.

There are several exotic species, which are said to be "not easy to cultivate, but are offered by some American dealers." These are natives of Siberia and Kashmir and prefer high mountain districts, as do several of our Rocky Mountain species.

Elizabeth G. Britton.