

# COMMON AMERICAN WILD FLOWERS

*In this number, pages 591 to 606, the GEOGRAPHIC MAGAZINE, at very great expense, prints another series of colored pictures of Common American Wild Flowers. These exquisite paintings, as well as the subjects of the previous series, were drawn from life by Mary E. Eaton, of the New York Botanical Garden, the able director of which, Dr. N. L. Britton, has cordially coöperated in their preparation.*

*In future numbers the GEOGRAPHIC will present additional paintings of native wild flowers.*

*No out-of-door interest brings to old and young richer returns in entertainment and instruction than is found in making the acquaintance of our wild flowers. Many of these, such as the daisy, mullen, aster, blue-flag, etc., are so plentiful that they may be picked at will; but there are others—for instance, the May-apple, spring beauty, lupines, lady's-slipper, etc.—which may become as rare as the trailing arbutus unless every one unites to preserve them. So it is to be hoped that the city dwellers who on their automobile excursions thoughtlessly cut and bring back great branches of dogwood and baskets laden with our rarer wood flowers will soon realize that, unless their plucking be tempered with judgment, the suburbs of all our cities will in the not-distant future be bereft of many of these flower treasures.*

## FORGET-ME-NOT (*Myosotis scorpioides* L.)

(See page 591)

The forget-me-not is a delightful immigrant belonging to that numerous family which includes the Virginia cowslip, hound's tongue, and comfrey.

The flowering season of this plant is from May to July. It came to us from Europe and Asia, and is now spreading from Nova Scotia southward along the Atlantic coast. It was led into captivity many centuries ago. As far back as we are able to trace flower history it held an honored place in the flower garden, and when America was settled, it was brought along to cheer the settler's austere life, and to remind him of the old roof-tree across the billowy sea.

The forget-me-not likes to play hookey from the flower garden, and to steal down to the brookside and meadow and live within ear-shot of the gurgling stream. With all that man has done for it, he has never bred out of it the spirit of independence that has been lost by most of the other flowers of the garden, for whenever opportunity affords, the forget-me-not yields to the call of the wild.

Have you ever noticed the little golden circle around the center of the flower? That little circle is put there by the flower as a honey guide, to tell the bee just where to insert her tongue to get the richest draught of nectar, and at the same time to touch both anther and stigma and thus fertilize the plant. And if you will watch the bees, you will discover that they are as careful to follow this signboard pointing to the well of nectar as a motoring tourist is to follow the signboard to the best hotel when night overtakes him.

There are many legends concerning the forget-me-not. Tennyson once wrote that it grows

for happy lovers. Another writer tells us that once upon a time a young lover, trying to gather a bunch of these lovely blossoms for his sweetheart, slipped into the water and, as he was sinking, tossed the flowers to her and asked her to keep them and not to forget him.

## VIRGINIA CREEPER (*Parthenocissus quinquefolia* (L.) Planchon)

(See page 592)

The Virginia creeper is a member of the grape family, cousin alike to the sour frost-grape of the woods and the luscious Concord of the vineyard. It has been called the false grape, although it is too fair a plant thus to be slandered by a name. No lover of the woodland will ever be made to believe that the Virginia creeper essays a rôle to which it is not entitled. Some people mistakenly call it the woodbine, but that name more properly belongs to another plant of the honeysuckle family.

Many people confuse the Virginia creeper with the rascally poison ivy, a confusion which nothing but carelessness in remembering the characteristics of plants could bring about; for the Virginia creeper is careful always to put forth five leaves where the poison ivy has only three (compare pages 592 and 593).

This graceful climber has traveled as far north as Newfoundland, as far south as Cuba, and as far west as the western part of the Mississippi Valley.

It lives true to its name, creeping on and on, securing a new foothold here and another there, sending out its tendrils as it grows. When one of these succeeds in arranging its branches so that they can press upon any surface, its curved tips swell and become bright red. On their undersides they form little disks or cushions, which attach themselves to the surface and afford a new foothold for the vine.



It is surprising how much weight one of these little disks can bear. Darwin tested their strength and found that one of them will stand a strain of two pounds, while five of them grouped together on a tendril can bear a weight of ten pounds.

What is more picturesque than the old-fashioned stone fence, or the stake-and-rider worm fence, with its load of green foliage in summer and its clusters of bright blue berries in the fall! Over fences, walls, and trees it rambles luxuriantly, and, while it seems to love its wild life best, it will gladly adopt one's very doorstep as its home, and welcome an opportunity to weave a curtain of living green over the sunny sides of the veranda.

In the autumn its blood-like sprays are outlined against the dark evergreens about which they twine, making a contrasting picture of rare beauty. The Virginia creeper has perhaps more honor abroad than at home, being widely cultivated in Europe. Even in Venice one may see it covering crumbling walls or gracefully clinging to carefully prepared trellises.

#### **POISON OR THREE-LEAVED IVY** (*Toxicodendron radicans* (L.) Kuntze)

(See page 593)

The poison ivy is a member of the sumac family, having as relatives the vinegar tree, the smooth sumac, and the smoke-bush. Its range reaches as far north as Nova Scotia, as far south as Florida and Texas, and as far west as Utah and British Columbia.

As described in the sketch of the Virginia creeper, it is often confused with that beautiful member of the clinging-vine clan. The Virginia creeper is condemned as being poison ivy oftener than poison ivy is accredited with being a Virginia creeper. Many a Virginia creeper has reached the untimely end of mattock execution by the error, and not a few people have received a painful reminder of their mistake when they have failed to observe that three leaves spell "foe" in the ivy vine and five leaves "friend."

The poison ivy, or poison oak, as some call it, is a prodigal climber, inclined to run over everything in sight. Even the oak sometimes is almost smothered when the poison ivy reaches its topmost branches and spreads its dense foliage over them.

It begins to blossom in May and June, its flowers being small, fragrant, yellowish green, and arranged in densely clustered spikes. Toward fall these develop into smooth, white, wax-like berries that often hold fast the winter through. The three leaves are shining green, short-stemmed, and oval-pointed.

The poison of this ivy is a powerful, non-volatile oil which penetrates the pores of the human skin and develops hosts of tiny itching blisters, followed by a burning swelling of the affected parts.

While we very naturally dislike a plant that poisons us when we touch it, yet if we investigate the reason for its poison we discover that

a vast number of plants develop poisons and near-poisons, and when we look over the list we find that we would be rather badly off without them. It is true that most of them are poisonous only when eaten, and that few are poisonous to the touch, but they have all developed these qualities in self-defense.

Some of them store their poison in their seeds, others in their root-stocks, and others in their roots to protect their progeny from harm. They do not go about looking for trouble or seeking, like the devil, whom they may destroy; but they are prepared to resist invasion of the rights of their children. Nuxvomica and aconite are two of many such illustrations that might be cited.

Others develop alkaloids, like the nicotine of tobacco, the quinine of the cinchona tree, and the theine of tea, to protect themselves. Strychnine, digitalis, and a hundred and one indispensable drugs that are poisonous in overdoses are the gift of the plant world to man as a by-product of plant preparations for self-defense (see also gentian, page 589).

And so, when the poison ivy learned to give off its poison by contact rather than through its own destruction, it simply went a step further than its neighbors. It has arranged its plans of defense, so that it can wage war without first being eaten. In that respect it meets the problem in the same way as the thistle and the thorn, although it fights by subtle stealth rather than open warfare.

#### **STEEPLE BUSH OR HARDHACK** (*Spiraea tomentosa* L.)

(See page 594)

Close of kin to the meadow-sweet, the goat's beard, the ipecac, and the common rose, the hardhack, or steeple bush, is one of the most cheery of the pink and magenta flowers of the roadside, ditch, and swamp, blooming from July to September.

Living in territory where competition for insect favor is always fierce and the battle of the blossoms a lively one, the hardhack arrays itself in a remarkable cluster of delicate florets at the top of a two or three foot stem, which waves welcome in the swaying breezes to the insect hordes.

And that it receives its share of the business of bee and butterfly is evident to any one who will stop to count the shoppers who visit this floral department store. The bees and the butterflies are welcomed, but the plebeian ants are frowned down upon and given a chilly reception. Most of the hardhack's trade is in pollen, as its supply of nectar is somewhat limited, and as difficult to secure as are fast colors among us in these war times.

Being a dweller in damp soil, the hardhack has had to take precautions to protect itself from colds. If the under side of its leaves were not covered with woolly hairs, the vapors rising from the ground would clog their pores and interfere with their breathing. Behind the shelter of this smooth coat of vegetable fur



the steeple bush can resist changes in the weather and degrees of moisture that otherwise would be injurious, if not fatal.

Many other flowers wear their coats on the top of the leaves rather than underneath. They are usually flowers that grow out in the open and get the full benefit of the noonday sun; they would die of thirst if they did not have some way to check the process of transpiration when subjected to undue heat; hence this coat of fur.

The distribution of the hardhack is rather wide, reaching from Nova Scotia to Georgia and Kansas. It has so arranged its domestic economy that in the event the insects fail to bring it pollen from other flowers it can use its own for purposes of reproduction—a plan which it resorts to, however, only in a last desperate effort to insure itself against an unproductive life.

### BUTTER-AND-EGGS OR YELLOW TOAD FLAX (*Linaria vulgaris* Hill)

(See page 595)

Butter-and-eggs is another flower that prefers to dwell in the open among men rather than in the forests among the trees. It inhabits waste lands, roadsides, and fallow fields, and blooms from June to October. It continues to add its orange and yellow color to the landscape until the frost comes upon the pumpkins and the fodder has been gathered into the shock. It is an immigrant, having come originally from Asia by way of Europe; but it has already spread from Nova Scotia to Nebraska and Virginia.

The butter-and-eggs is preëminently a bumblebee's flower. If other insects visit it, they have a very difficult time to persuade it to give them a sip of its nectar. The doors to its honey wells are always closed, and are so hinged that nothing but a heavy bee can push them open. The honey-bee is too light to operate them, and consequently it usually departs hungry.

When the bumblebee arrives at one of the butter-colored cornucopias holding the yolk of an egg, it alights on the lower lip of the flower, and its weight causes the door to fly open and the sign of welcome to be displayed. The bee enters, sticks its pump-like tongue down into the cup of nectar, and takes a draught. While it is doing this it is receiving in its turn a liberal dusting of pollen and depositing some of that which it received from the flower previously visited. Then it backs out, flies away to another blossom, while the door closes after the departing guest.

The butter-and-eggs has a hearty dislike for ants, and it has therefore built itself breastworks which can withstand every attack they make. It covers itself with bristly hairs, all pointing in the direction of possible invasion, and the ant armies that can successfully overcome this preparedness program are few and far between.

The plant has many qualities that protect it, among others the acidity of its juices. Housewives, in the days when everything was home-made, mixed its juices with milk, and the result was an excellent fly-poison. They also made an infusion from its leaves, which they administered to ailing chickens in the spring.

Butter-and-eggs has many aliases. In some localities it is called yellow toad flax, while elsewhere eggs-and-bacon, flaxweed, and gallwort are names used to designate it. It is a member of that numerous and prolific family, the figworts. Among its cousins are the mul-lens, the blue-eyed Marys, the monkey flower, and the foxglove.

### COMMON MULLEN OR VELVET PLANT (*Verbascum thapsus* L.)

(See page 596)

The mullen is a distinguished member of the figwort family—a family that includes the butter-and-eggs, the monkey flower, blue toadflax, hairy beard-tongue, the Indian paint brush, and the wood betony.

The mullen is a lover of dry fields, banks, and stony waste lands. An old abandoned grass field is its particular preference, and it grows there in numbers that are very discouraging to the lad with a hoe who has been assigned to the task of waging a single-handed war of extermination against it. It flowers from July to September all over the northeastern part of America and in Europe and Asia as well.

Like many of its fellow-members of the figwort family, the mullen looks like something else. In some places it is called the taper flower, because its tall stalk seems a "taper tall" carried by the witches in the olden days. In other places it is called Aaron's rod, shepherd's club, and Jacob's staff.

The mullen has been with us in America so long that Europe has almost forgotten the fact that it is a native of that continent. Indeed, in the popular mind there it is a native of America. The Irish cultivate it in their flower gardens and call it the American velvet plant; but, in reality, it is an immigrant which has made itself decidedly at home on our shores. It came over as a stowaway, riding in the ballast, like many another weed that has developed the instincts of the globe-trotting hobo.

Indeed, one might trace the history of commerce by the weeds that grow along its pathways. Many plants won a footing on strange shores by riding in earth ballast in the old days, and in more modern times cattle were driven hundreds of miles to market, leaving the routes they took marked with weeds and plants more or less alien to those districts. Today railroads are active disseminators of alien vegetation, many a weed having been able to start colonies far and wide through that agency.

The mullen owes its name of velvet plant to the soft, velvety appearance of its leaves. Being forced to endure intense heat in summer by reason of its preference for an open situa-



tion on a sunny hillside, it needs some check to keep it from transpiring too freely; and being under the necessity of enduring intense cold in the winter by reason of the open, unprotected situations in which it finds itself when in the year old rosette stage, it has had to find something in the clothing line capable of acting as a sunshade in summer and an overcoat in winter.

If you examine this sunshade or overcoat—depending whether you study the plant in summer or winter—you will find it made of many minute and interlacing hairs which are equally efficient in keeping out the cold and heat.

This velvety coat has its romantic as well as its commonplace uses. We are told that rural maidens rub their cheeks with it and thus produce that peach-blossom effect that the best rouge and enamel can never give them; and also it is said that humming-birds gather the downy velvet from the leaves to make their nests.

The mullen has had many uses. The Romans dipped the stalk into tallow and used it as a funeral torch. In the Middle Ages it was used as a candle-wick by many people. It is reputed to have medicinal virtues for both man and beast, smoking dry mullen leaves and drinking mullen tea being resorted to by those having colds. It won, in England, by reason of its reputation as a healer of cattle diseases, the name of "bullock's lungwort."

### SWAMP ROSE-MALLOW (*Hibiscus moscheutos* L.)

(See page 597)

The swamp rose-mallow is one of the largest and most gorgeous of all indigenous American flowering plants. Growing to a height of 3 to 8 feet and having a flower from 4 to 8 inches in diameter, it is a marked feature of any landscape it undertakes to adorn. Its flowering season is in August and September, and it occurs as far north as Massachusetts and as far south as the Gulf of Mexico.

It is one of that vast group of wild flowers that are truly wild, preferring to remain away from the haunts of man rather than to come out and force him to cultivate it by stealing a place among his crop plants. Rather, as if to be of service to humanity by adding its touch of beauty to spots that otherwise would be ugly, it seems to prefer brackish swamps, unkempt river banks, and unattractive stretches of lake shore.

But while it is one of the truly wild flowers, it submits without protest to domestication and very peacefully takes its place in the flower garden alongside the hollyhock, which, by the way, is its distant cousin.

It has many other cousins, some more remote and some closer than the hollyhock. The velvet-leaf mallow came from India as a cultivated flower, but so attractive was the call of the wild to it that now it belongs in the category of "escapes"; for whenever a domesticated species runs away and gets a footing of its own it is written down by the botanist as an "escape."

And it is surprising how many of the flowers we see in the field and forest have thus seemed to resent the idea that they cannot live except under cultivation. We have bred the ability to set seed almost entirely out of sugar-cane; we have practically bred the seeds out of the banana and the orange; we have so cultivated our corn and wheat and most of our garden crops that they are wholly unable to shift for themselves any longer.

But, on the other hand, there are hundreds of plants that, despite long generations of coddling, still retain enough of vitality and self-reliance not only to shift for themselves when they have to, but even to seek the chance of doing so.

The mallow is a cousin of the cotton plant, the cotton fiber being nothing less than the woolly hairs with which that plant surrounds its seeds.

Many people confound the rose-mallow with the marsh-mallow. It is indeed a marsh mallow, growing in marshy ground; but it is not *the* marsh-mallow. That mallow has a small pink flower and is an alien brought to our shores; yet it is a true American in its spirit of being useful. It is from this mallow's roots that the tasty mucilage comes which we call "marshmallow" in the commercial world.

Still another cousin of the swamp rose-mallow is the gumbo, or okra plant, so popular in the Southern vegetable garden and figuring so much in the culinary operations of the kitchen.

The mallows can point with pride to a long lineage of useful service to mankind. Even as far back as the days of Job, many wandering tribes cut up mallows and juniper roots for meat, and the Romans had a mallow which they served as a vegetable. The ancients considered the mallow a powerful medicinal herb; Pliny records this high regard by declaring that whoever eats a spoonful of mallows "shall that day be free from all the diseases that come unto him."

### SPOTTED BONESET OR SPOTTED JOE-PYE WEED (*Eupatorium maculatum* L.)

(See page 598)

Spotted joe-pye weed is a member of the thistle family and has many aliases. In some places it masquerades as trumpetweed; elsewhere it travels under the name of thoroughwort, while in still other localities it passes as cottonweed.

First of all, spotted joe-pye asks for a moist soil. Given that, it will live either in meadow or in wood. It is a rather late-comer in the flower procession, August to September being its months. As a habitat it claims all of that portion of North America between New Brunswick and Manitoba on the north to the Gulf of Mexico and the Rio Grande on the south.

Spotted joe-pye marches through the world with head held high, having long since learned that in the flowery kingdom, as well as in the business world, it pays to advertise. Therefore



it erects a sort of Metropolitan Tower in flower land, decked with a beautiful and wonderful collection of magenta flags. Of course, no insect could miss it, and during its business season it has a host of visitors, to each of whom it offers a cup of nectar in return for a little service as a pollen-carrier.

A clever arrangement has been worked out by the spotted joe-pye weed, whereby, if there happens to be a rainy spell and the insects are not flying when it blooms, it can fertilize its own florets, and thus protect itself against the evils of race suicide in flower land.

The spotted joe-pye weed derives its name from Joe Pye, an Indian herb doctor of Pilgrim days in Massachusetts. It is claimed that he cured typhus fever with decoctions he made from this weed. It is also claimed that with it he set shaking bones to rest in ague-rent bodies; hence its name "spotted boneset."

### CHICORY OR BLUE SAILORS (*Cichorium intybus* L.)

(See page 599)

Chicory, otherwise known as "blue sailor" or "bunk," is an alien which came to our shores "riding the bumpers," so to speak. In the olden times, when ships carried earthen ballast, many a European weed got free transportation to America. It now flowers in Canada and the eastern United States as far south as the Carolinas; and in recent years it has pushed its star of empire westward, until it includes Nebraska in its American dominions.

It is a plant that loves to dwell around the haunts of men, and never wanders very far away from them; hence the roadside and the fallow field are its favorite dwelling places. It begins to flower in July, and is one of the last to pass of that myriad throng which comes while springtime snow-banks still linger, and goes only when the biting frosts of autumn come to stay.

Chicory has long been one of the wild flowers of immediate and important use to man. The Belgians, for instance, even in the years before the great war, their incomes being too slender to justify the drinking of coffee, resorted to the chicory as a substitute; and in the days before our own pure-food laws were enacted it became such a generally used adulterant that even the adulterant came to be adulterated.

Many a pound of what purported to be roasted chicory was perhaps half chicory and half roasted wheat or barley. In a single year we have imported nearly 7,000,000 pounds of chicory root. Even under the conditions prevailing just before the outbreak of the present war we were importing about 2,250,000 pounds annually. Some people claim that chicory added to coffee imparts a flavor which makes it better than coffee in its pure state.

In Europe chicory itself is very widely used as a pot herb. The French force it and blanch it, much after our way of forcing and blanching celery, and make of it a salad which they call *barbe de capucin*.

Homer used chicory root as a part of his frugal fare, and Pliny tells us that it was one of the staple dishes of the Egyptians.

There are many denizens of the plant world close of kin to the chicory. One of these is the dandelion and another is the endive.

Somebody has said that the chicory is a peasant posy, which, opening its eyes on a cloudy day, sets its pale-blue flowers abloom, one after the other, as sparingly as the lights are kindled in the candelabra of decaying palaces. To insure its reproduction, it never allows all of its flowers to come into bloom at once. By having them bloom in installments, it is sure at one time or another to have insect visitors that will fulfill its plans.

Chicory is very methodical in its ways, keeping regular hours and being one of the leading exponents of the idea that "early to bed and early to rise" works as well in the flower kingdom as among men. It generally awakens by 5 o'clock in the morning and shuts its eyes again at 10 a. m.; but during that time it has entertained some of the most delightful insect visitors that are to be found in any community. So regular is the chicory in its habits that the Swedish naturalist, Linnæus, used it as one of the flowers of his floral clock.

### BUTTON BUSH (*Cephalanthus occidentalis* L.)

(See page 600)

The button bush is a member of the madder family, having among its relatives the dainty bluet, the fragrant partridge berry, the ride-stealing beggar's lice, and the aromatic-berry-producing coffee-tree.

One of the first traits we notice about the button bush is its constant endeavor to keep away from mankind. Knowing that the swamp is about the safest place from human incursions that it can find, it goes there and dwells in enviable isolation.

We are prone to be selfish enough to think that the flowers' beauty and fragrance were created for our especial pleasure and edification; and yet a study of nature's flower garden reveals the fact that some of the most fragrant of the blossoms of summer shed their sweetness and pour forth their beauty in precincts far removed from man's accustomed haunts.

One of these is the button bush. With an odor as seductive as that of jasmine, it could win its way into the hearts and homes of humanity if it desired to do so; but it has no inclinations in that direction, although, like the swamp-rose mallow, when led captive it submits gracefully and grows even more attractive than before.

Its closely packed host of florets, hundreds in number, with their long styles and capitate stigmas, making it resemble a well-filled pin-cushion, do not remain fresh long after plucking.

The flowering season of the button bush begins in June and ends with September, and its range is from New Brunswick to Cuba and



California. It is a shrub, and grows to a height varying from 3 to 12 feet.

The button bush relies more on its appeal to the nose than to the eye of the insect world, having discovered that most insects can smell further than they can see. Only a comparatively few flowers have learned this to as full an extent as the button bush. It is said by naturalists that in New York State, which has rather a wide range of plant species, borrowing both from the northern and southern flora, there are only about thirty really fragrant species to be found.

The result of the button bush's fragrance is that, in spite of any lack of gorgeousness its flowers may show, it always has a liberal share of the nectar drinkers of the insect world. Every "pin in the cushion" has its own individual honey well, and these are so deep that a short-tongued bee or butterfly never succeeds in drinking one dry. Butterflies come first among its visitors, and after them honey-bees and bumble-bees, though wasps and carpenter bees also seek a chance cup of nectar now and then.

The button ball has learned in the hard school of experience that there is degeneracy in self-fertilization, and has therefore so shaped its household economy that self-fertilization cannot take place. The power to produce pollen is lost by its anthers before the power to receive it is developed by its stigmas. Thus the pollen produced by a given set of anthers is not available for their companion stigmas, but must be transferred to those of some other flower.

In many flowers self-fertilization is prevented by the maturing of anthers and stigma at different times, just as is the case in the button bush; others have the stamens curved outward and away from the stigma. Still others have found still other ways equally ingenious and equally effective for the same end (see also fringed gentian, below).

And so it is that we see flowers ascending the scale of existence, ever laboring to improve their race, ever striving for a higher and better existence, ever seeking so to live and so to act that they will be able to bequeath to their posterity strength and fitness to survive.

Through the centuries fate goes on and on weeding out the unfit in flower land and teaching its inhabitants that the path to excellence is the only sure road to survival.

### FRINGED GENTIAN (*Gentiana crinita* Froelich)

(See page 601)

The fringed gentian lives in low, moist meadows and woods, and begins to blossom when most of its fellows of the flowery kingdom have gone to seed and to death. One meets the fringed gentian from Quebec to Georgia, and as far West as the region beyond the Mississippi River.

When this handsome but late comer arrives even the birds have nearly all flown and their songs are only a memory, while the color of

autumn is largely that of leaves which have arrayed themselves in the bright-hued garments in which they bid their parent trees farewell. It seems, indeed, that the poet was right who wrote that the fringed gentian comes with its merry blue to cheer the melancholy days that portend the passing year.

In order to insure the production of a full supply of fertile seeds, it has adopted methods insuring it against self-fertilization. The stamens mature and lose their power to fertilize before the pistils are developed, and it thus saves itself from that harmful inbreeding to which only flowers low down in the scale of floral existence resort (see also button bush, page 588).

The fringe of the gentian adds grace to it, but that was not the flower's thought in providing the fringe, for even the most lovely of flowers is utilitarian in its instincts. The ants long generations since developed a fondness for the nectar of the gentian; great hordes of them overran it and drained its nectar cups. But, since the flower had taken precautions to insure cross-fertilization, it could not afford to have the ants pilfer the nectar which was the currency with which it rewarded the bees and butterflies for their assistance in its new plan of fertilization. Therefore, like the butter-and-eggs (see page 586), espousing the cause of preparedness, it developed a system of defenses against ant invasions that is remarkable alike for its thoroughness and its beauty.

There are many kinds of preparedness in the plant world other than that used by the fringed gentian and the butter-and-eggs. Some plants secrete a milky juice which exudes whenever the plant is injured and which usually covers the invader with a touch of raw india-rubber. Others secrete resins, such as turpentine. Others supply themselves with a defense of tannic acid, while still others manufacture poisons, or have strong scents, like lavender and mint, or spines like thistles, or thorns like roses (see also poison ivy, page 585).

Some even go so far as to make friends with certain kinds of fierce ants, which keep the leaf-cutters away, as in the case of the South American acacia. The latter employs a species of police, or a standing army, of ants to keep off injurious insects or larger animals. The plant has hollow thorns, and upon the tips of its leaflets there are small projections full of sugary material. The hollow spines are inhabited by colonies of fierce soldier ants, which swarm out and drive off any insect enemy. They are fed, or "boarded," on these sweetish projections.

### BUTTERFLY-WEED (*Asclepias tuberosa* L.)

(See page 602)

This hardy American, like many another wild flower, has no taste for the solitude of woods and marshes. Rather, it prefers to add its touch of color to the roadside, the dry or sandy field, and the hills. It loves to watch the world



go by and to cheer the passing throng with its brilliant orange-red flowers, its green leaves, and red stalk.

Nor is the butterfly-weed stingy with its favors, for June finds it decking itself with its splendid array of flowers; and only in September does it doff its gorgeous colors.

The butterfly-weed sweeps in stately grandeur from Maine and Ontario to Arizona and the Gulf of Mexico.

Weed it may be to us, but sweetest inhabitant of nature's flower garden it is to the myriads of butterflies, for whom it is indeed a "land flowing with milk and honey." The high and the low, the rich and the poor, the great and the small—prince, noble, and pauper alike—come to its table. Here is the exquisite half-moon-winged swallow-tail, touching elbows, as it were, with the scrubby little cabbage butterfly, and the elegantly attired spice-bush swallow-tail sipping from a cup next to the one which the little old mud-puddle "yaller" butterfly is draining.

This flower, like its kinsfolk of the milk-weed family, has a marvelous mechanism for forcing its guests to pay well for their board.

The alighting place where these animated *aëros* effect their landings is decidedly smooth and slippery, and the arriving guest finds himself on a surface which makes a newly waxed ball-room floor seem like a stony pathway in comparison. As he does a combination of the tango, the fox trot, and the jig trying to find a stable footing, one foot, or mayhap two, slips into a little slot, which holds fast. While wriggling around to get loose, his foot slips down farther into the slot. A sharp jerk releases the foot, if the insect is strong enough, but not until a little pair of pollen saddle-bags has been bound to it. Bumblebees sometimes get away from a plant with half a dozen of these little saddle-bags hanging to their legs.

At the Centennial Exposition at Philadelphia, in 1876, a bed of beautiful flowers brought over from Holland won the admiration of many thousands of people; and yet they were only a Dutch edition of our own butterfly-weed.

The Indians used the butterfly-weed's root in treating pleurisy, and made a crude sugar from its flowers. They used the young seed pods in the cooking of buffalo meat much as we might use green peppers with chicken or hash.

#### JACK-IN-THE-PULPIT (*Arisaema triphyllum* (L.) Torr.)

(See page 603)

Jack-in-the-pulpit is one of the denizens of flowerland that seldom ventures out of the forest. It loves wet, marshy ground, blossoms from April to June, and claims as its own all of that vast territory from Nova Scotia westward to Minnesota and southward to the Gulf of Mexico.

Jack is a member of a numerous family, among its relations being the stately calla lily, loved by all who appreciate beauty and grace, and that black sheep of flowerland, the skunk cabbage.

What country boy has not been tempted into tasting of "Indian turnip root," to his sorrow and to the great burning of his mouth? And why should he not suffer, for that root which has been ruthlessly torn up represents the hard-earned savings of Jack-in-the-pulpit. During the happy days of the summer-time Jack labors hard to pay the premium on his life insurance, so that in the spring to follow, when he is dead and gone, his heirs may rise up possessed of a "grub-stake" that will provide them until they can win their own place in the world. Many plants thus insure their lives in behalf of their posterity, giving every bit of their surplus income over to a root-stock fund for their children.

Jack-in-the-pulpit got his name through the resemblance of the little hooded house of green which he builds to the old-time pulpits, which had a sort of hood over them.

He received his name of "Indian turnip root" through the fact that the Indians habitually raided his root-stock insurance, and, boiling the "bite" out of it, made of it what they considered a delectable dish.

Another cousin of Jack's, as stated before, is the skunk cabbage, which has the painful habit of smelling bad; and yet there is method in its madness, for it is an insectivorous flower. It tries to simulate the odor of decaying meat in order that all of the flies, the big blue-bottle ones and all their neighbors, may be attracted its way. As soon as it gets them, it lays hold of them, and makes a feast of them instead of for them. It is strange that a family with such a noble head as the calla lily could possess a sheep so black as the skunk cabbage, and it is equally strange that the floral procession of the year should be headed by this evil-smelling representative of the flowery kingdom.

Jack-in-the-pulpit is gradually copying the ways of the most disreputable member of his family, instead of trying to live up to the beautiful reputation of his fair cousin the calla. He has so arranged his pulpit that once a tiny fly or ant or bee gets in, it has mighty little chance to escape. A bear was never more firmly held by the jaws of a big steel trap than are the bees in the little green trap which Jack sets.

#### YARROW OR MILFOIL (*Achillea millefolium* L.)

(See page 604)

The yarrow is a member of the thistle family, though it defends itself from the attacks of grazing animals by its odor rather than by pricking spines. It is true that it has incipient spines in the shape of bristly hairs, but these are not stiff enough to do any damage.

Yarrow has as many different names as a modern Raffles. Some call it milfoil, crediting it with having a thousand leaves, just as rural folk credit a centipede with being a thousand-leg worm. Others call it "old man's pepper," by reason of its spicy aroma, and others nose-bleed, by reason of its nosebleed-producing qualities. Still others call it soldierwort, by





FORGET-ME-NOT  
*Myosotis scorpioides* L.





VIRGINIA CREEPER  
*Parthenocissus quinquefolia* (L.) Planchon  
Contrast it with the dangerous Poison Ivy on the next page





POISON OR THREE-LEAVED IVY

*Toxicodendron radicans* (L.) Kuntze

Contact it with the harmless Virginia Creeper or preceding ones





STEEPLE BUSH OR HARDHACK  
*Spiraea tomentosa* L.





BUTTER-AND-EGGS OR YELLOW TOAD FLAX  
*Linaria vulgaris* Hill





COMMON MULLEN OR VELVET PLANT  
*Verbascum thapsus* L.  
596





SWAMP ROSE-MALLOW  
*Hibiscus moscheutos* L.  
597





SPOTTED BONESET OR SPOTTED JOE-PYE WEED  
*Eupatorium maculatum* L.





CHICORY OR BLUE SAILORS  
*Cichorium intybus* L.





BUTTON BUSH  
*Cephalanthus occidentalis* L.  
600





FRINGED GENTIAN  
*Gentiana crinita* Froelich  
601





BUTTERFLY WEED  
*Asclepias tuberosa* L.





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





YARROW OR MILFOIL  
*Achillea millefolium* L.



FIRE WEED OR GREAT WILLOW-HERB  
*Chamaenerion angustifolium* (L.) Scopoli





NEW ENGLAND ASTER  
*Aster novae-angliae* L.  
605





WILD YELLOW OR RED PLUM  
*Prunus americana* Marsh.





Eaton, Mary E. 1916. "Common American Wild Flowers." *The National geographic magazine* 29(6), 584–606.

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