

INSTRUCTOR LITERATURE SERIES

203

Little Plant People of the Waterways

BY ANNIE CHASE



F. A. OWEN PUBLISHING COMPANY
DANSVILLE, N.Y.

INSTRUCTOR LITERATURE SERIES

Little Plant People of the Waterways

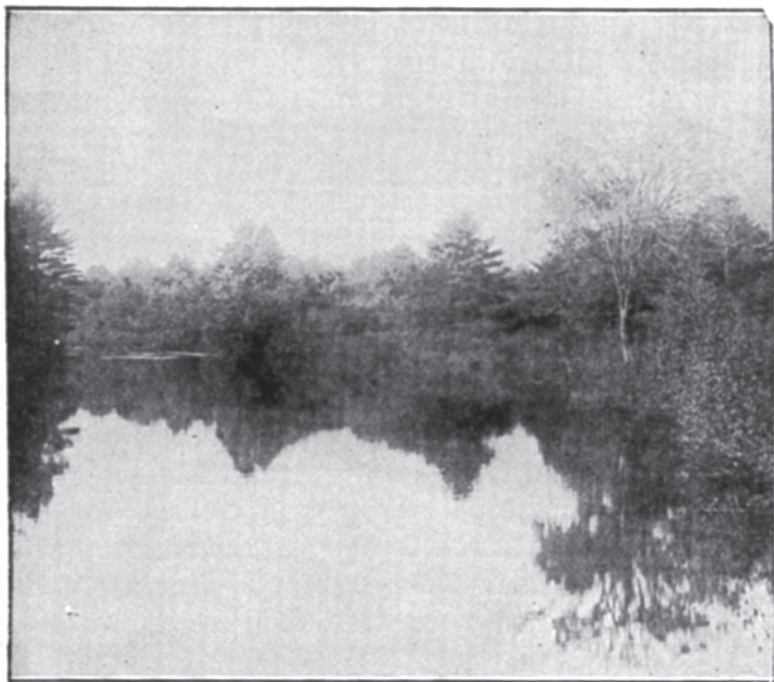
BY
Annie Chase



F. A. OWEN PUBLISHING COMPANY
DANSVILLE, N.Y.

Copyright, 1912, by
F. A. OWEN PUBLISHING CO.

Little People of the Waterways



ALONG THE WATERWAYS

Merry and glad are all the brooks and rivers with the joy of giving, for they have plenty and to spare.

The brooks begin to sing about it as soon as they are big enough to make little waterfalls over the woodland rocks; the rivers gush and

gurgles and dimples or shout and huzzah about it as they run between green banks or over the dam the miller built. The lakes, silent and serene, smile about it so brilliantly you can scarcely look upon their glittering lights, and every little pool in meadow or in bog is lighted with it as with a candle.

“We can give, give, give! hurrah!” they all shout together; “we can give to the air to make moisture and rain, to the leaves to make strength and nourishment, to the roots near by us when our abundance fills the soil.”

Seeds blown from afar alight near these free givers, not to die of thirst as they so often must on the dry hot hill, but to be bathed and fed till they grow strong to spring up and blossom by thousands of their kind.

And lo! these givers are soon wreathed and garlanded about with the most beautiful of all the plants and flowers the world holds.

HOW PLANTS DRINK

All the Plant People must have water to drink. They drink, with their roots, both water and food stuffs dissolved in water from the soil.

Unless they have water to drink they cannot get at the food though they grow in the richest of rich soil, for all a plant's food has to be made into broth.

The wonderful root tips feel their way along underground, searching, searching, searching for water and food, food and water.

From cell to cell of the root the "broth" is pushed upward, from the root to the stalk, from the stalk to the stems, from the stems to the leaves, the sunlight and air on the leaves doing a great deal toward the pumping upward of this broth into the air and light.

In the leaves spread out in the sun all the broths for each plant are cooked and then sent down through all the plant to nourish and allay the thirst of every leaf, stem, and blossom. Of course, then, all plants are water-lovers. Certainly they are, but certain kinds of plants

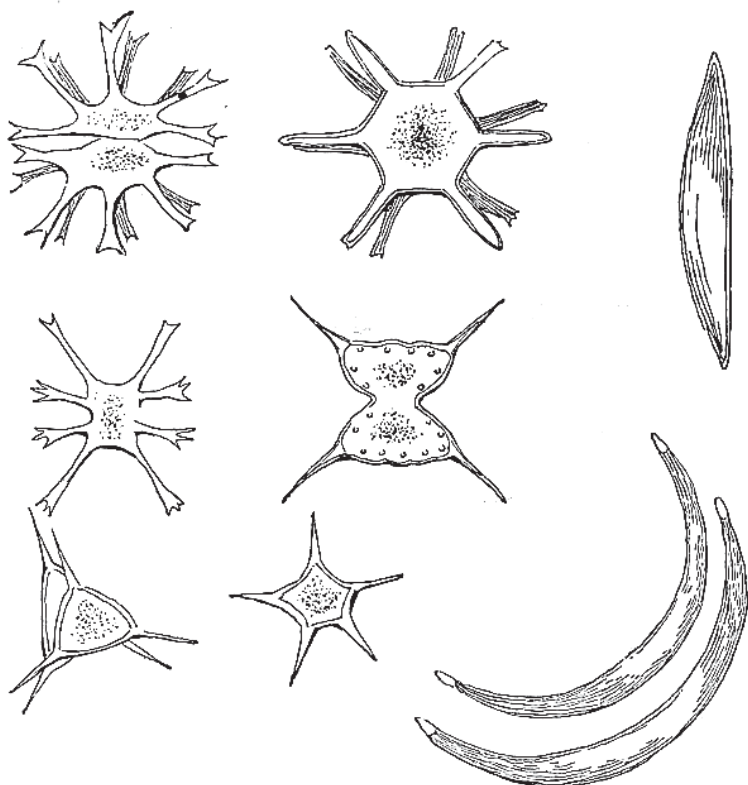
drink much more than others and spend their store more freely.

There are many kinds of these water-loving plants, tiny one-celled affairs which float and do nothing but drink; lilies which root under the water, floating queenly blossoms and big waterproof leaves on the surface, pickerel weeds and their ilk who only wade out a little into the shallow water, taking care not to go over their shoes, and hundreds of others, which only sit near or hang over the water to dip a finger or two when the water is at its highest point.

The one-celled plants (water algae) float on the top of the water; without roots, without



WATER LILIES



ONE-CELLED PLANTS

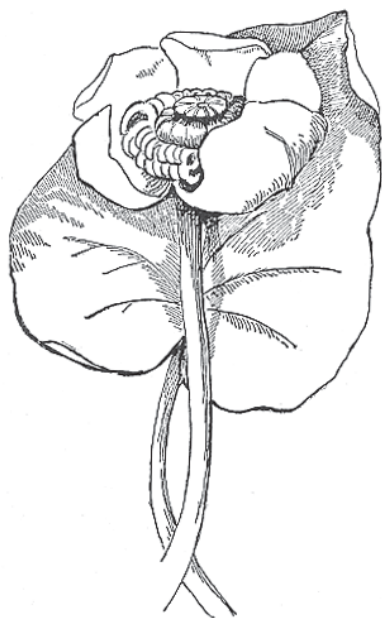
leaves, without blossoms, yet they are so beautiful under a glass you will forsake your toy sail boat to examine them.

Most of these one-celled plants multiply not by seeds but simply by dividing one cell into two, two cells into four, and so on till the top of some still pool is covered all over with them and their children.

IN THE WAKE OF THE DRAGON FLY

If we follow the dragon fly across the still pool to the other side of those reeds and rushes, which seem to be wading out into the water like an army crossing a stream, we come at once upon the big, round, tight-fisted looking buds of the yellow water lily, a poor relation of Pond Lily, the Queen. The showy part of the yellow water lily is only the cup which holds the real flower. The flower petals themselves are those yellow stamen-like parts in the centre. The

stigma is that golden flat disc in the centre upon which Bee and Beetle love to sit while they sip honey from those curled yellow stamen-like petals arranged all around it.



YELLOW POND LILY

Under this queer table all the anthers are crowded.

When the flower begins to open she opens first a little triangular window right over the heads of these anthers under the table, a

window so small that any insect coming in will have to step on the table first.

After Bee has been in and left the pollen, which he may have had sticking to his shins from a visit to some other yellow water lily, upon the table where it will help the seeds to form down below, then, and not until then, do the anthers dare to pop their heads out from under the table and shake out their own pollen to be carried by the next visiting bee or beetle to another flower.

This is done so that seeds shall not be formed from the pollen of the home flower and so be weak and good for nothing.

To see the white queen, Water Lily, at her best is to see her in the early morning when the swamp maples and the stately cinnamon ferns throw their shadows half way across the pool and the morning sky tints dash the space between the shadows with red and pink and gold reflections.

Then, breathing out incense, she unfolds to the new, clean, dew-bathed day.

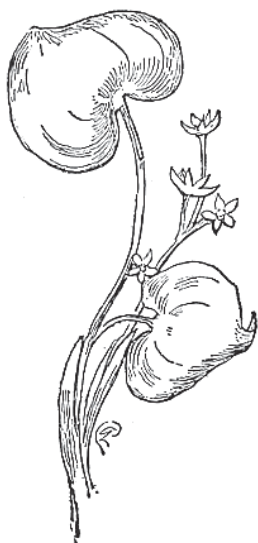
Do not snatch her up selfishly; let her rest there while you listen for what she will say to you.

As the sun creeps higher her yellow stamens and anthers fairly radiate golden lights, and see! on her outer petals a dash or two of pink. Did she catch and hold those pretty morning colors

to be her coat of arms? Her big red and green pad or leaf is a marvel of waterproof tissue. It lies all summer on the water, where dropping tree leaves perish and sink, without a sign of decay. Bees, beetles, and water-loving insects are the pollen carriers of this royal family.

PICKEREL WEED

Trying to get as near as possible to Water Lily and her sister we came near stepping on these more humble plants along the water's edge.



MUD PLANTAIN

Pickerel Weed is growing up here, her toes in the shallow waters along shore. She is tall with one blunt arrow-head shaped leaf, shiny and rich as a calla lily leaf, and one spike of violet blue flowers. Every one of these queer blue flower cups is fashioned in such a manner that an insect cannot possibly enter the flower cup without brushing off some of the pollen upon his jacket or trousers.

The deer in the Adiron-

dacks haunt the lake shores in search of this juicy plant which they eat with great relish.

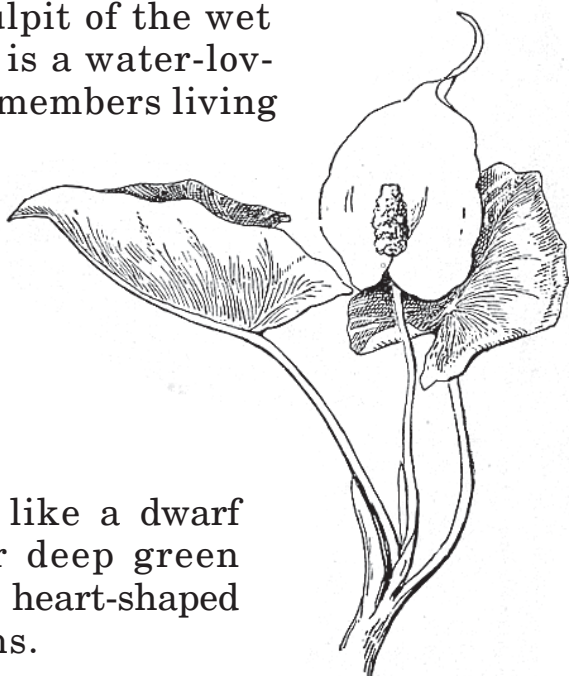
The Mud Plantain is a small water plant, a sister of the Pickerel Weed, with deep green floating kidney-shaped leaves on long stems and with a few white or pale blue flowers.

THE ARUM FAMILY

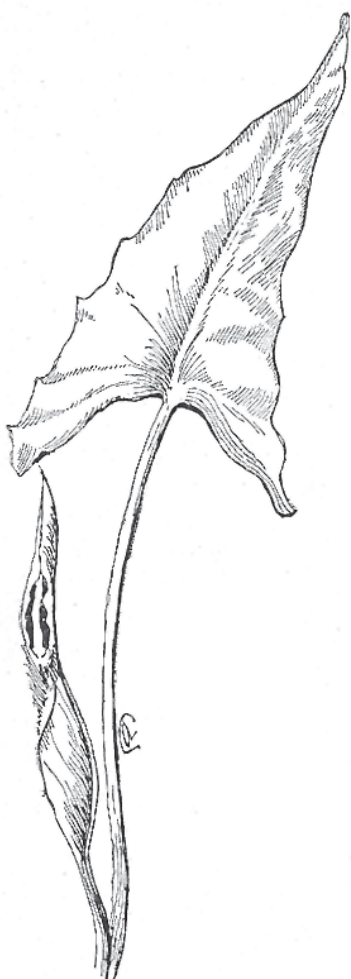
The Arum family to which Jack-in-the-Pulpit of the wet woods belongs is a water-loving family; its members living in or near the ponds or streams.

Water Arum is one of the most beautiful of these looking much like a dwarf calla lily. Her deep green leaves are long heart-shaped with long stems.

The white part is only a spathe wrapped around the real flower inside it. On the



WATER ARUM



ARROW ARUM

yellow spadix in the centre are the real flowers, (crowded like little folks in school), the lower flowers having petals, stamens and pistils, the upper ones often having nothing but stamens.

Pond snails and insects carry the pollen. The berries are red like Jacks.

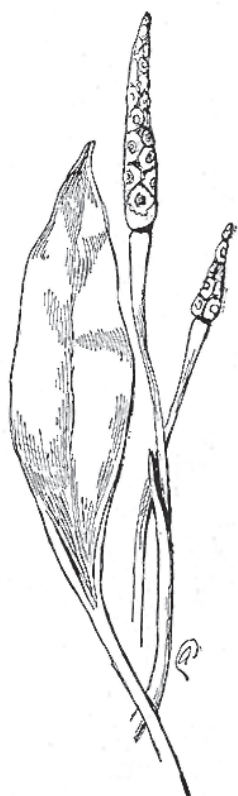
Water Arum has a sister, Arrow Arum, with long pointed arrow-shaped leaves. A pointed green spathe wraps the spadix up from top to toe, leaving only a little window through which the flowers may peep out and the insects creep in.

The Skunk Cabbage of the swamps is another of this same family, wrapping her flowers in an envious spathe that would rival Jack's pulpit were it not for its horrible odor, which

odor, by the way, this plant secrets for the attraction of insects.

Golden Club is a member of this same family who does not, however, consider it necessary to wrap up her spadix in a spathe but holds it up on naked stems. The spathe, perhaps kept for the sake of family custom, is to be found away down at the lower end of the stem. The long-stemmed, oblong, dark green leaves float upon the water.

Who does not know and love the stiff, sunny-green, sword-like leaves of the sweet flag with their spicy flavor! All the country boys and girls have pulled and eaten it for generations. What are city dancing parties and fancy ices when compared with a run for this over golden meadows and a feast upon its life-giving leaves or its fiery root? Sweet Flag is also a member of of the Arum Family.



GOLDEN CLUB



WATER PLANTAIN

THE WATER PLANTAIN FAMILY

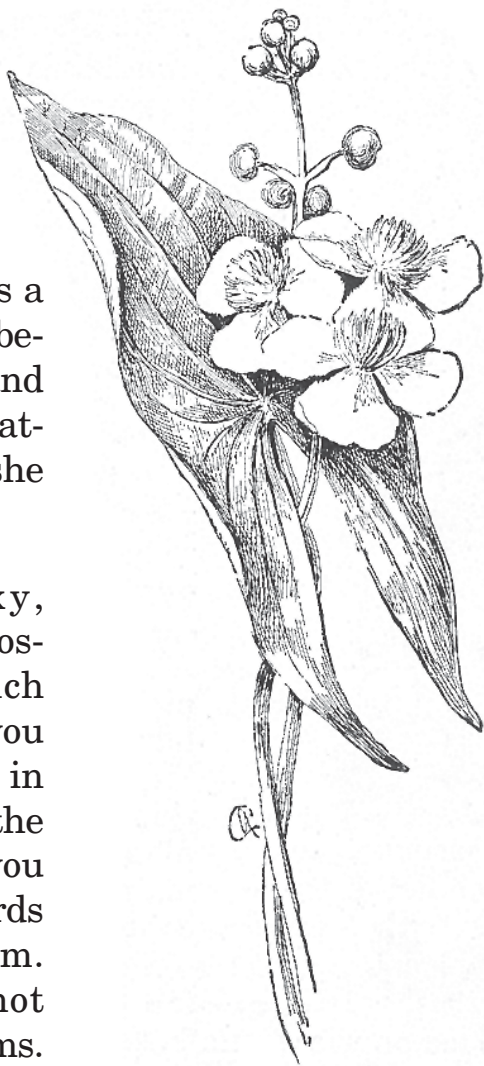
In the shallow water of ponds and sluggish streams we often find a plant from one to three feet high, growing its leaves all from the root and sending up a tall branching flower stem rather sparingly decorated with wee white or pinkish flowers.

The bee-like drone flies carry the pollen from plant to plant of this species.

Arrow Head, a handsome white waxy blossom of the low wet lands, is a sister to this plain little plant.

Arrow Head is a wonderful little being, handsome and decorative, no matter which way she turns.

White, waxy, three-petaled blossoms with a rich yellow centre; you spy them down in the wetlands of the meadow while you are yet many yards away from them. But you cannot pluck the blossoms. They will wither in a short time away from their home drinking grounds.



ARROW HEAD

THE CAT-TAIL FAMILY



CAT-TAIL

Standing boldly up around the pool's margin or stalking fearlessly across it, find the famous cat-tails of the cat-tail family. The flowers are on a stiff spike at the top of a tall stiff stem. The leaves are flat, narrow and ribbon-like. The upper half of the spike is covered with stamens the lower half with pistils, the yellow powdery pollen scattering itself down over the staminate flowers below to make seeds. The cat-tails we pick to keep over winter have shed the stamens at the tip, only the down, tipped with reddish brown of the pistil flowers, remaining in a dense long cat-tail shaped mass.

The narrow-leaved cat-tail keeps a long empty space on the stem between its pistil and its stamen flowers.



TALL MEADOW RUE

TALL MEADOW RUE

Looking down upon the meadow from far up on the hills you can see the airy, fairy, feathery plumes of the Meadow Rue floating on their long stems above the meadow grasses.

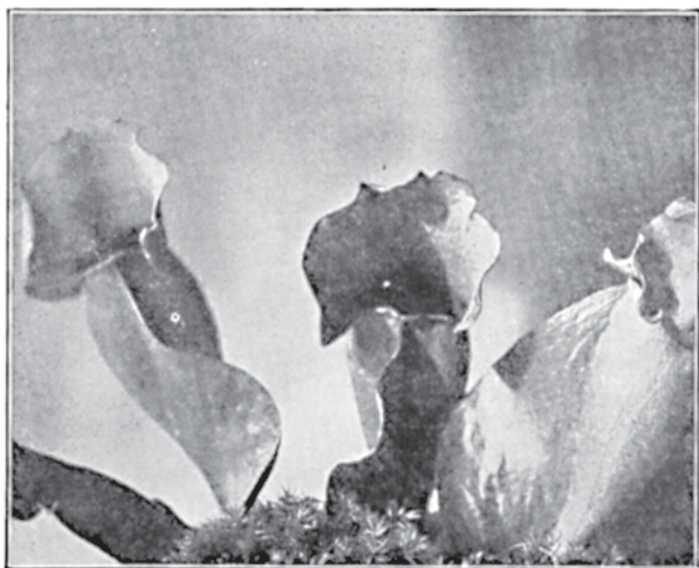
The Daisies and Buttercups, resting after their June carnival and dance, are very few of them to be seen else the Rue would not be so easily espied.

Rue belongs to the same family (Crowfoot) as the Buttercup, but you would never guess it, for her flowers do not have petals but many thread-like stamens, a part of this feathery plume being made up of stamen flowers, a part of pistil flowers and a part with both stamens and pistils.

A bouquet of Meadow Rue and Wild Roses is more lovely than any the conservatory can boast.

THE BURR REED FAMILY

In all the bogs and marshes we find little low-growing plants with leaves like those of cat-tail but shorter, weaker and lighter in color. The plants have downy flowers in dense round heads. The fruits are green nutlets wedged together into a crowded sphere that looks something like a pineapple.



PITCHER PLANT

PITCHER PLANT

Down among the grasses of the meadow we find some reddish green, leathery leaves curled like pitchers, with a big, leathery, odd sort of blossom standing on a tall stem in their midst.

The whole plant is a trap set for unwary insects.

The pitcher-shaped leaves, themselves just the color of raw meat, and perhaps having an odor we cannot sense, are half filled with water, for not one of these queer dishes leak. Carrion flies, always hovering over the meadows and

bogs in search of dead mice, moles or other decaying things, come straight to these pitchers which stand so invitingly open. All around the throat of the opening are some rows of bristles which are soft as silk when rubbed the way a fly rubs them going down into the pitcher, but becoming a barbed wire fence to him trying to come out.

Again and again the distressed prisoner beats against these and buzzes angrily; now he gets into a panic, rushes about, slips, falls, sinks into the pool in the pitcher!

And, if you will believe me, this queer plant having drowned him at last eats his broth with relish! It is one way of obtaining the sort of food the plant needs.

The blossom helps to bait the trap. The style, which is that thin part of the blossom shaped like an umbrella and having five ribs, has a sticky surface on the inside.

Carrion flies from other flowers can enter the little arched doorways which lead under the umbrella, but the hanging petals and sepals keep all the rain from the precious pollen and drip every drop possible into the pitchers below.

The flies come from far and near to eat from the under side of the style, some to become pollen carriers, others to be killed for "soup."

When the pitchers grow in the sunshine they are green with reddish veinings.

There is another family of insect eaters in the bogs called the Sundew family.

Every leaf of these plants is a contrivance to tangle, stick, and hold the feet of insects to its surface.

The glands of the leaves give out clear drops of sticky fluid which looks like dew or honey drops—while covering each leaf from top to toe are tiny red bristles or filaments.

Gnats and other tiny woodland insects come fluttering carelessly along.

“Aha! a feast!” The table cloth looks rather bristly, but oh how sweet the goodies are!

“Never mind the tablecloth,” says another, “I want some honey, too.” “I too,” hums another. “Here is something free!” cries another in a tiny voice.

Down they all swoop upon the feast, but they have no sooner tasted than the bristly red filaments on the tablecloth have curled and clasped them about and strangled them to death. The plant sucks up their juices for her pay, tosses them aside, and spreading her leaves again in the sunshine makes ready for another feast.

MEADOW BEAUTY AND GERARDIA

In fresh sandy marshes in August blooms the Meadow Beauty, a flower with four bright pink petals, with eight golden stamens and one long pistil, which ripens in advance of the stamens so that the flower shall receive pollen from another's anthers rather than from its own.



MEADOW BEAUTY

Butterflies and honey bees, always looking their best against this flower's bright magenta pink, are the visitors and pollen carriers.

The stems, nearly square, and the three-ribbed opposite leaves turn so red in autumn that Thoreau once said: "The scarlet leaves and stem of the *Rhexia* (Meadow Beauty) sometime out of flower, make almost as bright a patch in the meadows now as the flowers did. Its seed vessels are perfect little cream pitchers of graceful form."

Side by side with Meadow Beauty in the sandy marsh, in the sunshine or in partial shade, we find the dainty pink bells of the *Gerardia*, which belongs to another family (Figwort family) but

which seems to need the same sort of food.

Gerardia is a sister of the Yellow Foxglove we found on the mountain side and the flowers are nearly the same in form.

There is the purplish pink Gerardia, the Seaside Gerardia, which grows only a few inches tall, and the Slender Gerardia. All of these carry the same quaint little vases.

Over on the brook banks among the tall weeds is the Monkey Flower, so called because some one thought the blossom ape-like in expression. It certainly is wonderfully beautiful and much more elegant than its name. The peculiar rich but delicate blue of this flower helps us to spy it from afar. It, too, belongs to the Figwort family.



GERARDIA

Painted Cup in the low wet meadow, another of the Figworts, is an odd little plant with its



WILD IRIS

flower almost hidden in along, cylindrical, two-lobed calyx which is tipped with brilliant scarlet. The flower itself is greenish yellow and not a bit showy, but these scarlet calyx parts show a dash of red as bright as the red berries of the alder.

IRIS FAMILY

Iris was named from a Greek word which means Rainbow.

Look closely at the tall blue Iris by the brook; you will find all the tints of the rainbow in one flower and will understand why it was so named.

Those showy, purple-veined petals range from violet to pale blue, to yellow, buff, whitish, while those little curled parts which lie prostrate upon them are tinted with pinks and reds.

These strap-like curled parts which lie upon the showy petals are divisions of the style of the pistil, and under each of these stamens lie hidden. Bee, to reach the honey, alights upon the showy petal, crawls beneath this strap-shaped part, brushes past the anther or pollen box hidden there, and dislodges some of the pollen, carrying it, all unbeknown to himself, to the next Iris blossom which he visits. But often the little yellow butterfly steals the nectar from Iris' cupboard. She alights between those upright divisions of the flower and so long is her tongue she can reach away down where the nectar is and sip her fill. So it often happens that Bee comes to find the cupboard empty, but he carries the pollen away none the less.

Little Blue-Eyed Grass belongs to the Iris family.

ARETHUSA



ARETHUSA

Beside the Pitcher plants in the June meadow we find a dear little pink flower with the sweetest of perfumes.

It is *Arethusa*, one of the Orchids and one of the most charming posies in the meadow lot. That pretty speckled tongue of hers is thrust out for Bee's benefit. Bumblebee braces his feet against those little upturning parts of the "tongue" and thrusts his head deep down where the nectar is stored. Once in, there is nothing; to do but to back out, when he has "filled his baskets," as best he can. If you watch *Arethusa* when he is blundering awkwardly out, heels foremost, you will catch her laughing with her mouth wide open.

At this time too, she opens her pollen box and pours the whole contents on Bee's innocent head, who goes buzzing; off at last never thinking how droll he looks with a big yellow blot over each eye, on the top of his head and down his back.



SWAMP AZALIA

SWAMP AZALIA

White, sweet waxy blooms among glossy leaves of a tall shrub which grows just on the margin of the maple swamp yonder are the Swamp Azalias, the loveliest of all the swamp flowers.

“Bzz! hm! m-m!” all the bees, butterflies, moths come to feast; so would the creeping-insects if they could, but the clammy, sticky parts of the tubes of the flowers hold them fast, or drive them back, sending them away empty-handed.

It is upon the stems of this shrub early in the

season that those queer, green, fleshy growths we call swamp apples and May apples make their appearance. Once supposed to be the work of an insect, these delicious "apples" are now believed to be buds which for some mysterious reason have taken on this strange form.

To taste the juicy sweetness of those apples is to know the flavor of a piny woodland swamp sweetened with honey dew.



CARDINAL FLOWER

CARDINAL FLOWER

In the meadow there is through all the warm season a revel and a carnival of bloom—Daisies, Buttercups, Arethusas, Pitcher Plants, Violets, Rue in early summer, Joe Pye weeds, Golden Rods, Wild Carrots and dozens of others in the later weeks of bloom.

Late in summer and close by the brook in the

sunshine of the meadow glows the Cardinal Flower, red as the reddest sunset, staining the brook with its reflection, a queen of color. The beauty of the Lobelia family is Cardinal Flower, but do not *pluck her blossoms*. So many people have gathered the beautiful things that there is danger of our losing this wonderful plant because of the selfishness of such people.

GENTIANAS

Last but not least in the train of the summer flowers come the Gentians of the meadows. All the other flowers have past on but this one lingers, low down in the grass where the October sunshine warms the damp, soft soil and the shrivelling reeds, turned to sunbeam yellow, make a shelter from the cold winds.

To find a family of Fringed Blue Gentians looking serenely up at the sky is to learn something of flower spirits which we have never known before; but we cannot tell it one to another; we can only wonder at it and watch for it next year when again the flowers are passing in their gay procession.

The Fringed Blue Gentian blooms from the seed each year and has leafy, straight perpendicular stems with one blossom at the top of

the stem. The blossom has a deep tube and four violet blue petals deeply fringed.

The Downy Gentian blooms as the Sweet William does from year to year from the same root but does not bloom the first year from the seed.

The Closed Gentian has buds which never open: sometimes a very persevering Bee will force his head down into the bud by tearing apart its tight folds, but of itself the strange plant never opens its eyes to the world.

Like a little blind girl it gropes for the light and basks in the warm sunbeams but it cannot look with open eyes at the beloved sun.



An Elfin Press e-reprint