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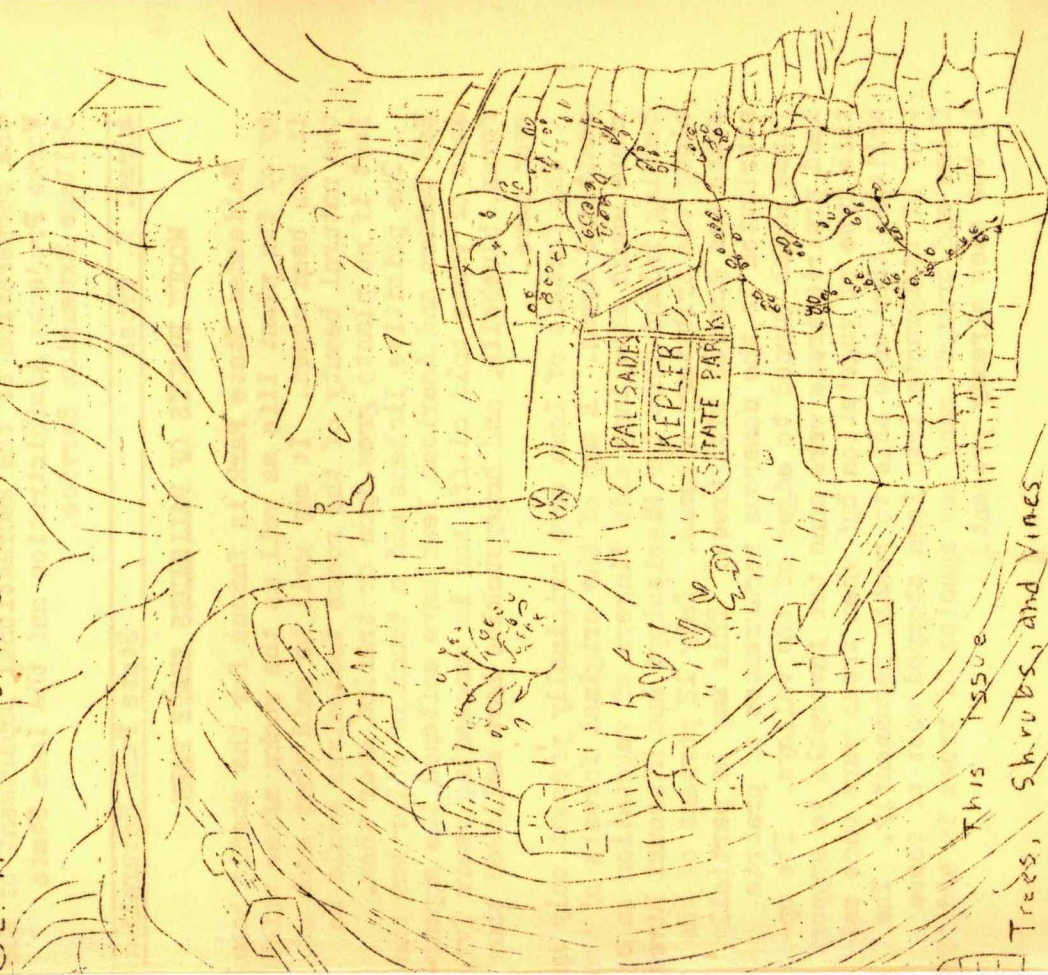
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PALISADES NATURE LEAFLETS

NO. 1

JANUARY 1940

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This Issue
Trees, Birds, and Vines

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Iowa. Conservation commission

Palisades nature leaflets

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OF THE STATE OF IOWA

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This bulletin is prepared by the Park Naturalist for the information of the guests of the Palisades State Park in order that the recreational and educational opportunities of an unspoiled primitive area may be more fully appreciated, utilized and protected. It is issued by the State Conservation Commission with the cooperation of the Recreational Department of the Works Projects Administration and the Iowa State College Extension Service.

Aureal T. Cross State Park Naturalist

WOODY PLANTS OF PALISADES STATE PARK

Palisades State Park is famous for the scenic beauty of its plant life as well as the rocks after which it has been named. It may well be said that much of the natural beauty of the rocks themselves would be lost if no plants grew upon or trailed over them.

The primitive lichens add a touch of color but the Red Cedars and American Yews have softened the appearance of these bold cliffs and in succeeding years ivy, ferns, bluebells, and honeysuckles have mellowed them even more.

The forests of Iowa were originally present only in scattered areas. A map of the original forests of the state would show long slim fingers of vegetation on extending inland from the Mississippi and Missouri River along the tributary streams. Only 12 percent of the state was covered with trees. This may be partially attributed to the numerous recurrences of prairie fires which burned to edges of the valleys. The upland prairie areas were none too favorable to support this type of vegetation but when trees were once established they were able to remain permanently. The tide of immigrants into Iowa stopped most of these fires and brought many new species of trees in addition to the ones already present.

The virgin forests were composed chiefly of elm, ash, walnut and willow on the floodplains and linden, oak and hickory on the uplands. There were about 75 species in the state originally and about 59 of these were to be found in the southeastern portion of the state. The list presented here is probably not complete but contains most of the woody species to be found at present within the borders of the park. Some of these have been introduced.

It may be well to note that some species listed below seem to be out of place, but this may be accounted for in two ways. There is some relic vegetation to be found along the cliffs. This is represented by a few species commonly found much farther north in Minnesota. The presence of these relics is attributed to the glaciers which pushed over this region thousands of years ago. The plants may have advanced ahead of the ice or seeds may have been carried into this region in some manner. The other explanation for some of the more unusual species is found in some extensive planting undertaken in the park by a CCC group.

The Naturalist has delayed the printing of this leaflet until the end of the summer in order to make sure of a few identifications which were uncertain until the late ripening fruits could be obtained.

Any additions or corrections shall receive due consideration.

The woody plants are divided into three groups - trees, shrubs, and vines. The dividing line between some of the trees and shrubs is not definite but those plants which have a single trunk and are over 7 feet tall have been included here as trees. No attempt has been made to include introduced Gymnosperms (evergreens) which are not native to Iowa.

A separate list of these and their location in the park will be made later. Other introduced species, (i.e. not native to this park) so far as we know, are starred with an asterisk.*

Report damages beyond reasonable wear to the State Traveling Library. IOW-MR. 41

TREES

- 1. *White Pine
- 2. Eastern Red Cedar
- 3. Large-toothed Aspen
- 4. Quaking Aspen
- 5. Cottonwood
- 6. Black Willow
- 7. Sandbar Willow
- 8. Pussy Willow
- 9. Butternut, White Walnut
- 10. Black Walnut
- 11. Shagbark, Shell-bark Hickory
- 12. Bignut Hickory, Kingnut
- 13. Pignut Hickory
- 14. Bitternut, Swamp Hickory
- 15. Blue Beech
- 16. Ironwood, Hop-horn-beam
- 17. Red or River Birch
- 18. Common Red Oak
- 19. Black Oak
- 20. White Oak
- 21. Chestnut or Chin-quapin Oak
- 22. Burr Oak
- 23. Cork or Rock Elm
- 24. American, White or Common Elm
- 25. Slippery, Red Elm
- 26. *Siberian, Chinese, Small Leaf Elm
- 27. Hackberry
Celtis occidentalis L.
- 28. Hispid Hackberry
Celtis occidentalis crassifolia (Lam.) Gr.
- 29. Red Mulberry
- 30. *White Mulberry
- 31. Sycamore, Buttonwood
- 32. *Apple
- 33. Wild or Iowa Crab
- 34. Hawthorn, Red Haw
- 35. Common Red Haw
- 36. Juneberry
- 37. Choke Cherry
- 38. Wild Black Cherry
- 39. Wild Plum
- 40. Pin Cherry, Wild Red Cherry
- 41. *Kentucky Coffee-Tree
- 42. Honey Locust
- 43. *Black or Common Locust
- 44. Bladdernut
- 45. Soft, Silver Maple
- 46. Sugar, Hard Maple
- 47. Black Sugar Maple
- 48. Box Elder
- 49. Basswood, American Linden
- 50. White Ash
- 51. Green Ash
- 52. Black Ash

SHRUBS

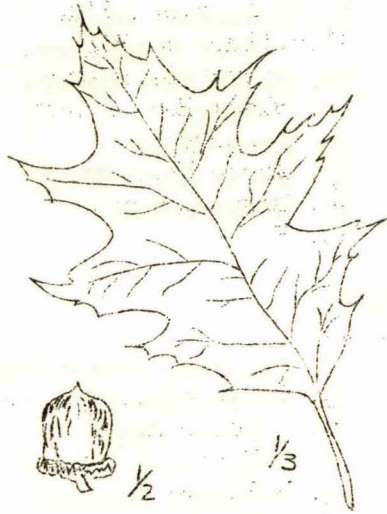
- 1. American Yew, Ground Hemlock
- 2. *Common Juniper
- 3. *Prostrate, Spreading Juniper
- 4. Hazelnut
- 5. *Mock Orange
- 6. Wild Black Currant
- 7. Missouri Gooseberry
- 8. Wild Red Raspberry
- 9. Dewberry
- 10. Black Raspberry
- 11. High-bush Black-berry
- 12. *Bridal Wreath
- 13. Woods Rose
- 14. Smooth Wild Rose
- 15. Wild Iowa Prairie Rose
- 16. Prickly Wild Rose
- 17. Juneberry, Service-berry
- 18. Prickly Ash
- 19. Staghorn Sumac
- 20. Smooth, Upland, or Scarlet Sumac
- 21. Poison Ivy (shrubby)
- 22. Wahoo, Burning Bush
- 23. Bladder Nut
- 24. Buckthorne
- 25. Leatherwood
- 26. Alternate-leaved Dogwood
- 27. Panicked Dogwood
- 28. *Common Lilac
- 29. Buttonbush
- 30. Common Elder, American Elder
- 31. *Viburnum, High Bush Cranberry
- 32. Black Haw, Nanny-berry
- 33. Arrow-Wood
- 34. Downy Arrow-Wood
- 35. Honeysuckle

VINES

- 1. Prickly Greenbriar
- 2. Virginia Virgin's Bower, Old Man's Beard
- 3. Moonseed
- 4. Climbing Poison Ivy
- 5. Climbing Bittersweet
- 6. River Bank or Frost Grape
- 7. Wild, Small Grape
- 8. Virginia Creeper, Woodbine

IDENTIFYING CHARACTERISTICS OF THE OAKS

The following sketches of the typical leaf and acorn of each of the five oaks of the Palisades may not always distinguish between the species. Often the tree shape and bark are important in identification. The acorn should always be obtained wherever possible but be careful in picking up acorns that they have not just washed under the tree in question or that some animal has not moved them. Leaf variation among the oaks is very great and is often influenced by the amount of soil, water and sunlight. The oaks may be divided into two great groups, the White Oak Group (page six) and the Black Oak Group (below). The tips of the lobes of the leaves from any of the oaks in the White Oak Group are rounded. Those of the Black Oak Group are pointed or bristle-tipped.



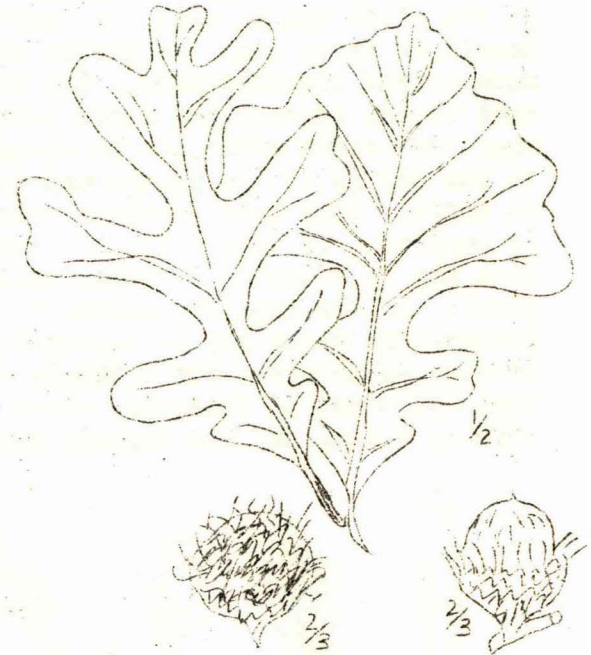
Common Red Oak, Quercus borealis maxima (Marsh) Ashe.



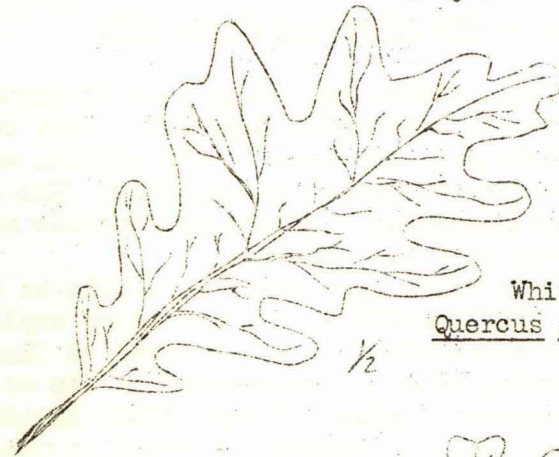
Black Oak, Quercus velutina Lam.



Chestnut or Chinquapin Oak
Quercus Muhlenbergii Engelm.



Burr Oak, Quercus macrocarpa Michx.

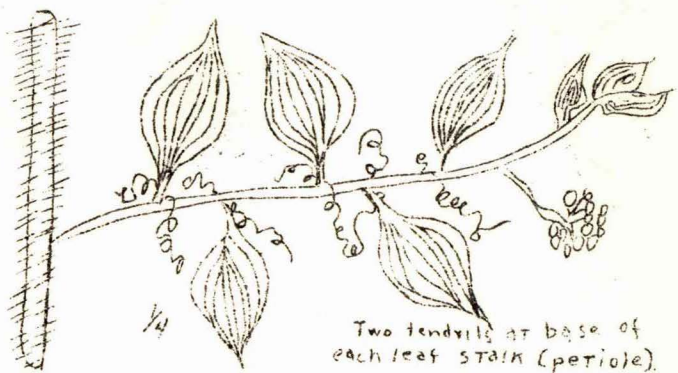


White Oak
Quercus alba L.

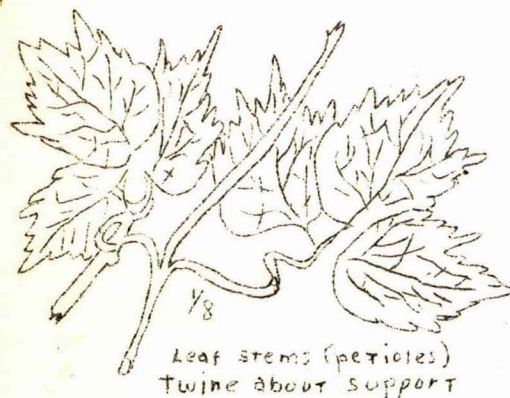
WOODY VINES OF THE PALISADES STATE PARK

Vines or twining plants are often used in gardens and along buildings for ornamental purposes. Very few people, however, have paid any heed to the various means employed by the different species in climbing. The 8 species in the Park represent 7 genera and include most of the modifications used for climbing.

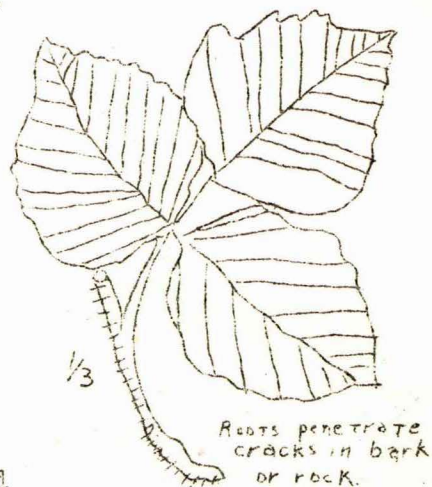
Sometimes these vines also occur as shrubs as in Poison Ivy. This climbing habit must have some explanation. In careful examination of the tissues we find that the strengthening tissue, represented by the wood, is not enough to support a plant of such great length. If the plant has no means of support it would be condemned to creep over the ground and try to live in such unfavorable circumstances. The small amount of light that breaks through the dense forest cover of trees many feet above would not be enough to build the food in the leaves of the plants and they would soon starve to death. They have developed various mechanical means of support. If they climb a slender tree the whole stem may be modified to twine about the supporting plant. If the support happens to be a rock wall, sucker-like disks may be employed. Tendrils, modified twining structures, are commonly found. In the drawings below and on following pages these structures as well as a leaf and the typical stem are shown.



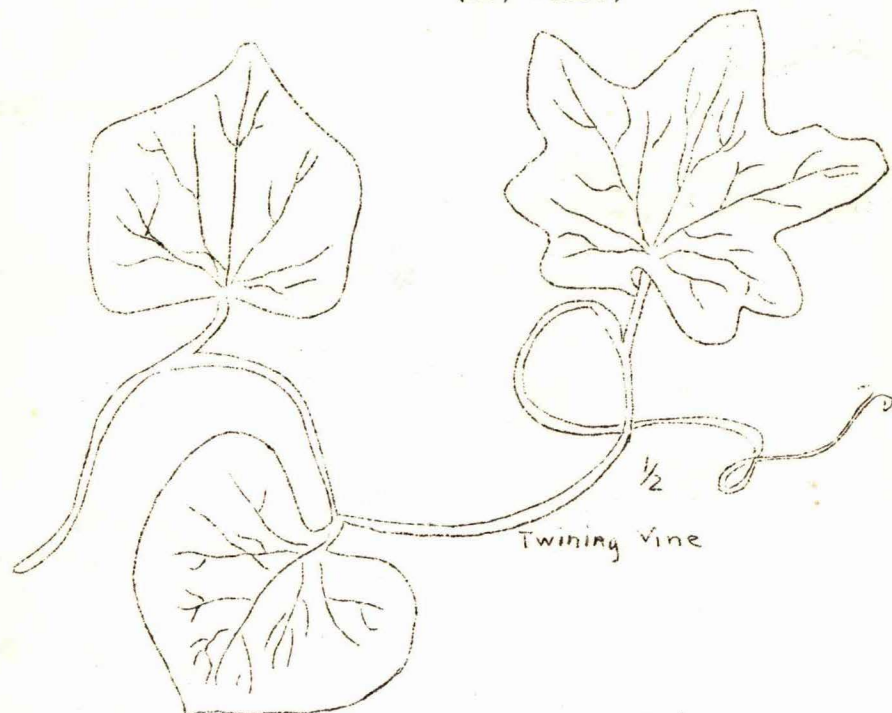
Prickly Greenbriar, (Smilax hispida Muhl.)



Virginia's Bower, Old Man's Beard
(Clematis virginiana L.)

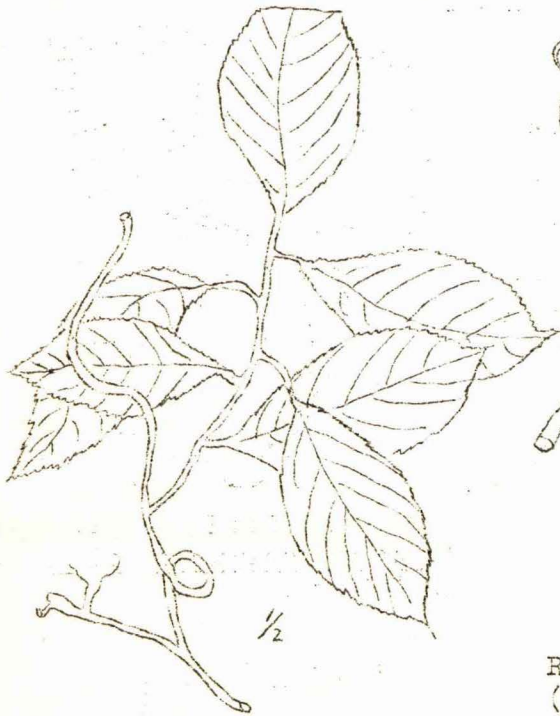


Climbing Poison Ivy
(Rhus toxicodendron radicans)
(L.) Torr!

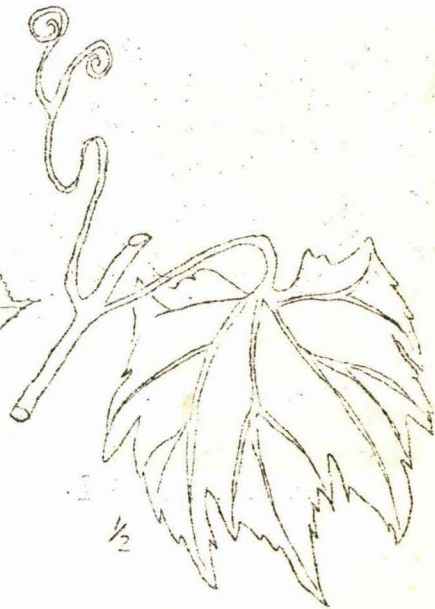


Moonseed, (Menispermum canadense L.)

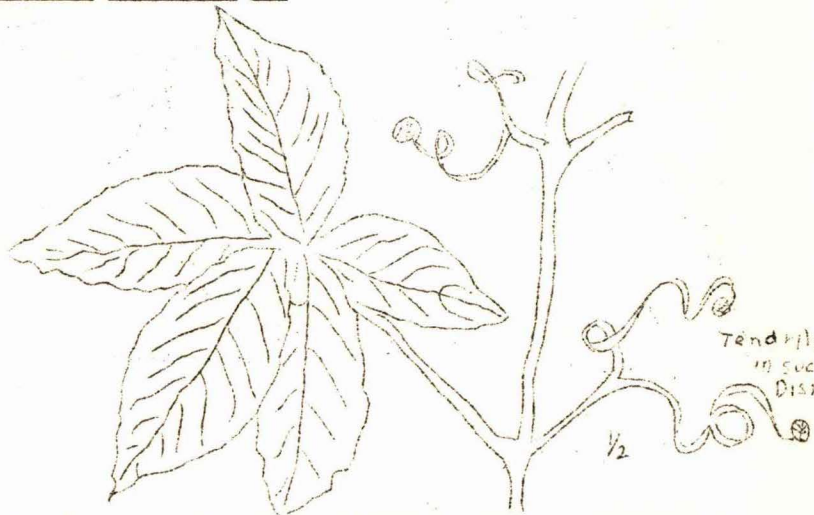
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Climbing Bittersweet
(Celastrus scandens L.)



River Bank or Frost Grape
(Vitis vulpina L.)



Tendrils ending
in sucker-like
discs.

Virginia Creeper, Woodbine (Parthenocissus quinquefolia
(L.) Planch.

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VOL. II

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NO. 3



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IOW-MR. 41

PALISADES NATURE LEAFLETS

Vol. II

May 1940

No. 3.

The Iowa State Conservation Commission, and the Works Progress Administration, Division of Recreation, in cooperation with the Iowa State College, present this circular for the information of the guests of the Palisades State Park. There is no charge for this leaflet.

Aureal T. Cross, Editor

State Park Naturalist.

SPRINGTIME IN THE PALISADES

When spring comes to the Palisades, it would seem as if a living world had sprung from the white blanketed grave of an old one. It is not the birds which herald the awakening, nor the bees who first stir the still air with their pleasant hum, but rather, it is a new green finery brought forth with explosive suddenness. Fresh rays of bright sunlight and soft austral winds caress the time-worn buds but shortly before the first few daring flowers peep forth. The winter's snows may still exist in secluded ravines when the first flowers push through the cold blanket of earth or the tight fitting coat of scales on the buds.

The first flowers grow from protected buds of the woody twigs, or from tubers or rootstocks, rather than from seeds. The tubers are full and rich with stored foods which the flower may use for its growth until new leaves are borne. In some plants the leaves appear before the flowers, in some they appear with the flowers, but in many the leaves do not appear until after the flower has bloomed.

When we think of the spring flowers, too many of us are guilty of fancifully picturing a gay woodland floor, carpeted with nodding blossoms of various hues. Beside us in the bushes and overhead in the trees, the drab buds are popping and flowers of great beauty, as well as less conspicuous ones, are making their appearance, often much earlier than the tender herbaceous flowers at their feet.

Come with me, through this springtime and let us see

the procession of life as it arrives on the scene. We must not delay. Come quickly, and dress warmly, for the first flowers are venturesome and hardy.

THE FIRST FLOWER

It is only late February when we start. The brilliant Cardinal seems even brighter against the snow. The Tree Sparrow and the Slate Colored Junco flit before us as we walk through the leafless woods. Shall we look for the new arrival nestled in some sheltered nook on a south hillside or will it be found above us in the trees where the Brown Creeper and the Tufted Titmouse are hopping?

No, my friends, we must proceed through the woods to the swamp, for it is here that we will find our modest visitor. We must look in very damp places, perhaps it will be necessary to brush aside some lingering snow to find it. Perhaps you will not recognize it as a flower but as a heavy green shoot. This lowly plant is aptly called "Skunk Cabbage." The flowers are on a short, thick axis inside the purple mottled bracts which hood it. Each flower is tiny but if we look closely we may see four definite petals. This cluster of flowers on such a stalk is called a "spadix" and the envelope enclosing it is the "spathe." In the summer this shoot has disappeared and in its place huge, green, cabbage-like leaves mark its place. They give off a very disagreeable odor.



Skunk Cabbage

A few days later we may come back to this scene for the second arrival. This is very familiar to all of us. We will find the furry visitor pushing aside a shiny purplish bud scale. All willows have only a single visible bud scale. The Pussy Willow flower bud is very large in comparison to most other willows so we may recognize it if we have come too early. The other willows all bloom much later.



Pussy Willow

As we walk back through the deep woods we may chance upon some dark green, three-lobed leaves on long stems. Remember them, for we will want to see them again, soon.

THE FIRST WOODLAND FLOWER

Hepatica or Liverleaf makes its appearance very early in March if the weather is not too bad. It appears rather suddenly so we must watch for it closely. On our trip back from visiting the first Pussy Willows we noticed the leaves of last year's growth still persistent. The purplish-white bloom appears on a silky stem during the first warm days.

There is something unusual about this flower. Can you find any petals? The five colored parts that resemble the petals are sepals, we find upon close investigation. Just below these sepals, 3 leaf-like organs called bracts, take the place of the sepals in general appearance. There are no true petals. Some flowers may lack either stamens or pistils. We shall mention this feature later when we discuss the flowers of the Poplars and the Oaks and the Ashes. (Turn to page 10 for further explanation).

There are no other herbaceous flowers which bloom for several weeks. In the meantime we may busy ourselves with the watching renewal of the busy animal life and the blossoming of the Soft Maples and the Hazelnuts.

ARRIVAL OF SUMMER BIRDS AND MAMMALS

One of the first signs of spring may be observed along the river when the ice breaks up about the 15th of March. If we observe closely the bases of old stalks of weeds and rushes which may be partially submerged we can find great masses of jelly-like eggs, each with a tiny black spot in it. This tells us that the salamanders are once more active. The tiny black spots protected by the jelly layer are young salamanders. These hatch out in about two to three weeks of favorable weather.

As we walk along the river we may see tracks of the Opossum which is already nesting. Migrating ducks and geese arrive about the same time. They warily frequent the shallow water areas in search of food before continuing their flight.

Killdeers, Meadowlarks, Red-Wing Blackbirds, Flickers, Phoebe, Blackbirds, Finches, Song Sparrows and Hawks all arrive shortly after the Robins.

The Raccoon ends its winter's sleep early in February and mates shortly thereafter and the young are born in late March. The Skunk makes its nest before the first of April.

There is considerable commotion above us as we walk back through the woods along the stream. The cause for the noise is quickly discovered. The squirrels have run short of food by this time. They have turned to the swelled buds of elm and the early flowers of maple. The Silver Maple trees seem to fairly glow against the dark background of naked black trees. Their early flowers often ruthlessly destroyed by late cold spells. The individual flowers are not showy and scarcely fragrant. The insects have not hatched out in abundance. How, then, are these early flowers pollinated?

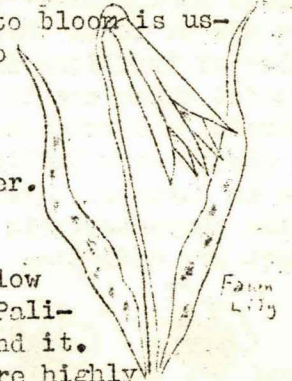
A rustling in the trees makes us look up just in time to see a slight shower of yellow pollen. The sunlight reflects on these millions of tiny particles as they are carried in the wind. Could that be the solution to our question? It is, indeed, and many other plants are pollinated in the same way. Of course, millions of pollen grains fall to the earth or lodge on the twigs and branches and only a few fall on the stigmas of the female flowers. That is the reason for such an abundance of pollen in each little anther. It insures the continuation of the race by seed production.

The Hazelnut is the next plant to flower. As we look around for its flower we can find only long, tassel-like objects hanging from the twigs. These are the flowers and the tassels are called "catkins." Many trees and shrubs have flowers like these. Among the common trees and shrubs which have catkins are the Willows, Birches, Poplars, Walnuts, Hickories, Ironwood, Blue Beech, Chestnuts and Oaks. Each catkin is made up of many incomplete and usually imperfect flowers. This means that the individual flowers on the catkins do not have all their floral organs, i.e., petals or sepals are usually absent, and that only one sex is represented in many cases. In such cases we find that we must get catkins from two different branches and often from different trees, as in the Cottonwood, to get both staminate (male) and pistillate (female) flowers.

A SCORE OF FLOWERS RUSH TO BLOOM.

A prominent group of herbaceous flowers burst into bloom just before mid-April. We must visit the woods almost every day to see the first of each species as it nods "Hello." These are found in rich woods where the trees are most dense. There may be a reason for this rush. Have you looked about you to see what might encourage it? It would seem that the leaves are about to spread forth from the elms and maples. Remember how shaded it was last season when the leaves were fully grown? If these tiny flowers of the forest floor do not bloom and produce leaves immediately, they may be unable to make food for lack of sunlight. If they can make no food the tubers and rootstocks will wither away and there will be no food to supply the early blooms next season. This may partially explain the mass blooming which follows after mid-April.

The first of the early April group to bloom is usually the common Dog-Tooth Lily. Why do I not call it Dog-Tooth Violet? The name is not correct for it is a lily rather than a violet. Is that not correct? The flower is white and slender. The lily-like green leaves are often mottled slightly with purple. A close relative of the Dog-Tooth Lily, the Yellow Adder's Tongue, is rarely found in the Palisades. Please do NOT pick it if you find it. It has a yellow flower with the leaf more highly mottled with purple. Otherwise it is very much the same.



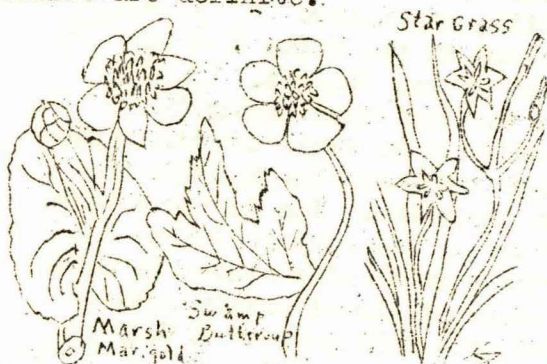
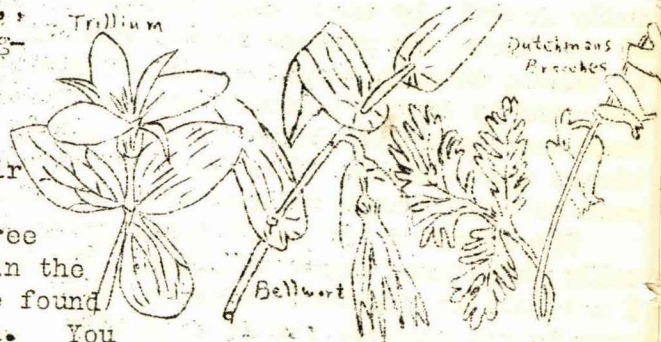
Spring Beauty, Blood Root and False Rue Anemone are the next three to appear in profusion. The Spring Beauty is not too well named for many of the spring flowers are more beautiful. It does have a fresh pink stripe in each white petal which lends a pleasant air of dainty satisfaction. The Blood Root has been well named. A tiny root will show you why. This acrid, red juice was once used for medicine but it probably did more harm than good. The leaf is characteristic and grows to be several inches across after blooming.



A CONTINUOUS PROCESSION OF FLOWERS

Every day we spend looking for new flowers should bring a worthy reward. Scarcely a day passes from mid-April to the latter part of May but what some new flower may be found. Tree flowers, herbaceous spring flowers, weeds and shrubs present an impressive array. Each species lasts only a few days. They disappear as rapidly as they come. This is especially true of tree flowers. Some of these such as the elms bloom less than three days.

Following closely, perhaps before the Dog-Tooth Lilies cease to bloom the Trilliums, Dutchman's Breeches and Bellwort make their glorious appearance. There are at least three species of trilliums in the Palisades which can be found by careful observation. You will always know Trilliums by their arrangements of floral parts in threes. Dutchman's Breeches needs no introduction and the characteristic leaf and large beautiful flower of Bellwort are definite.



If we can take a quick trip back to the haunts of the Skunk Cabbage, which has long disappeared, we will find the early six-petaled Marsh Marigold and the long-blooming Swamp Buttercup. The large stems of the Marsh Marigold as well as the roots are hollow.

A plant must have air in its roots so a storage space is necessary since there is little air in the mud of the swamp. In open grassy places along the swamp we may find the tiny Bluets and the sharp, bright yellow Star Grass. This flower is grass-like in appearance but is closely related to the lilies. It is only 2-6 in. high but worth finding.

At the edges of the woods are found the conspicuously flowered members of the rose family. The more common forms are the raspberries, blackberries, dewberries, cherries, plums, Juneberries, apples, Ninebark and Hawthorn. Of these we must surely see the flowering of the Wild Crab Apple. It is a native of Iowa and truly one of our most delightful and exotic flowers both in soft beauty and fragrance. The Juneberries are also worthy of note. These may be found on Cliff Trail between the Lookout and Hemlock Hollow on the left side going north. They are marked. The shrubby forms present a worthwhile display along the drive into the park. Two species of Honeysuckle are to be found near the Juneberries. Their leaves and stems in relation to the flower will make an exceedingly interesting study.

Near the main picnic ground two species of Dogwood and the later brilliant flowered Wahoo are to be found. Three species of gooseberry may be observed from Cliff Trail. Many of these will be found trailing over the cliffs with the long tubular flowers adding a fairy-like touch to the bold rocks. Near the Catacombs and other big cliff exposures the beautiful bell-shaped flowers of Bladdernut hang thickly clustered.

In the same locations may be found more of the later flowering herbaceous forms—Wild Ginger, with its peculiar cup-like, red flower growing from between the leaf bases; Solomon's Seal and False Solomon's Seal, both with the characteristic seals of Solomon stamped on the thick rootstocks. The true Solomon's Seal differs in the position of the flowers drooping from the underside of the arching stem throughout its length, whereas the flowers of the other species are in an inflorescence at the tip of the leafy stem.

Pussy's Toes, the Puccoons, the Phlox species, Bishop's Cap, Blue-Eyed Grass, the Chickwoods and Shepherd's Purse may be found throughout May on the Knoll and ravine at the Lookout.

Rarer plants as the Baneberrys, Fivefinger, and certain species of the Violets may be found variously scattered throughout the Park. Many pages could be written about these, most of which equal or surpass the beauty of the forms already described but space does not permit.

NAMES AND LENGTHS OF TRAILS

Cliff Trail

From Boat Landing to Council Fire Circle
Northern 2840 ft.
From Boat Landing to Park Limit toward
Upper Palisades. 6840 ft.
Total length 1 3/4 Mi. or
9680 ft.

Indian Trail

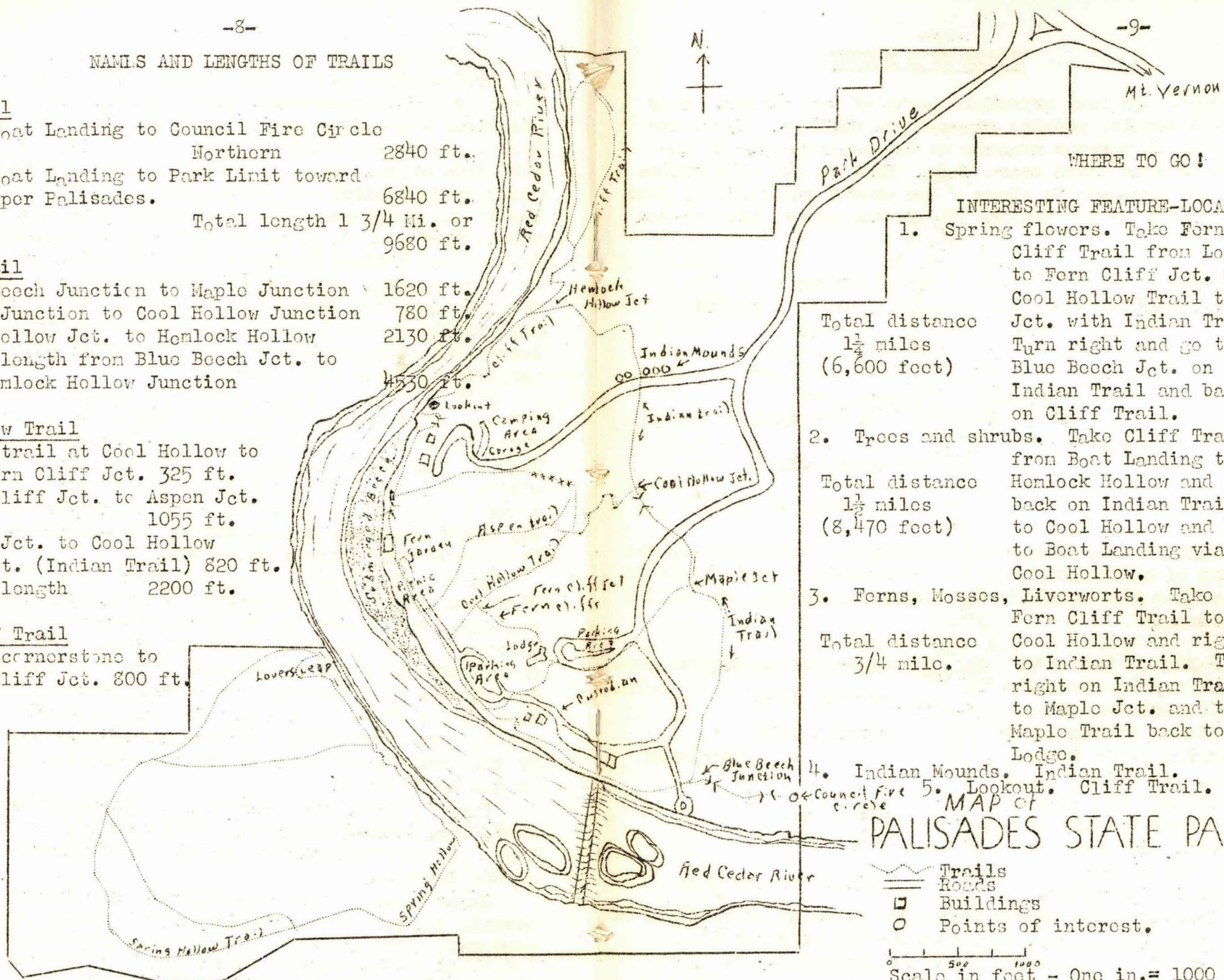
Blue Beech Junction to Maple Junction 1620 ft.
Maple Junction to Cool Hollow Junction 780 ft.
Cool Hollow Jct. to Hemlock Hollow 2130 ft.
Total length from Blue Beech Jct. to
Hemlock Hollow Junction 4530 ft.

Cool Hollow Trail

Cliff trail at Cool Hollow to
Fern Cliff Jct. 325 ft.
Fern Cliff Jct. to Aspen Jct.
1055 ft.
Aspen Jct. to Cool Hollow
Jct. (Indian Trail) 820 ft.
Total length 2200 ft.

Fern Cliff Trail

Lodge cornerstone to
Fern Cliff Jct. 800 ft.



WHERE TO GO!

INTERESTING FEATURE-LOCATION

1. Spring flowers. Take Fern Cliff Trail from Lodge to Fern Cliff Jct. Take Cool Hollow Trail to Jct. with Indian Trail. Turn right and go to Blue Beech Jct. on Indian Trail and back on Cliff Trail.
Total distance 1 1/4 miles (6,600 feet)
2. Trees and shrubs. Take Cliff Trail from Boat Landing to Hemlock Hollow and back on Indian Trail to Cool Hollow and back to Boat Landing via Cool Hollow.
Total distance 1 1/2 miles (8,470 feet)
3. Ferns, Mosses, Liverworts. Take Fern Cliff Trail to Cool Hollow and right to Indian Trail. Turn right on Indian Trail to Maple Jct. and take Maple Trail back to Lodge.
Total distance 3/4 mile.
4. Indian Mounds. Indian Trail.
5. Lookout. Cliff Trail.

MAP of PALISADES STATE PARK

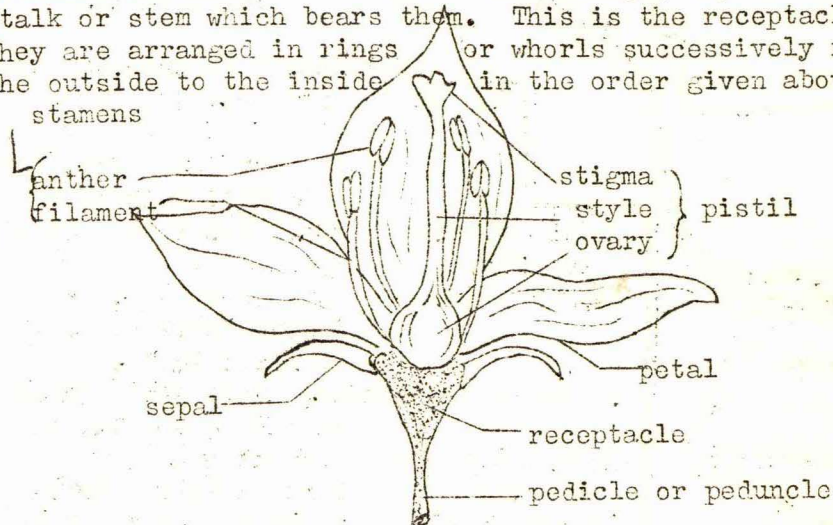
- Trails
- Roads
- Buildings
- Points of interest.

Scale in feet - One in. = 1000 ft.

100-MR. 41

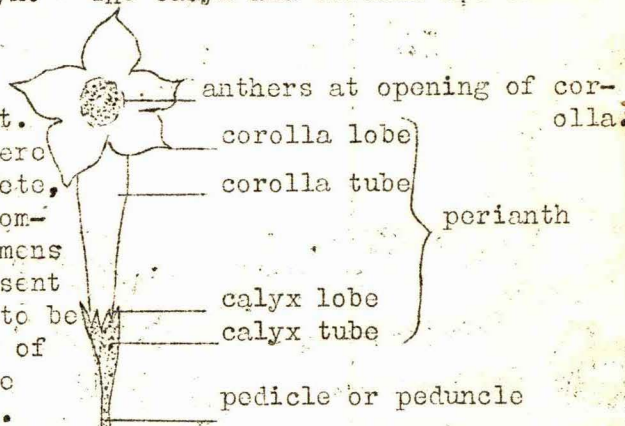
PARTS OF A FLOWER

There are four principle parts of the flower. They are the sepals, petals, stamens and pistils. These are attached in various manners to the enlarged tip of the stalk or stem which bears them. This is the receptacle. They are arranged in rings or whorls successively from the outside to the inside in the order given above.



Parts of the flower may be united. United petals are spoken of collectively as the "corolla" and united sepals are called the "calyx." The calyx and corolla are called "perianth."

Parts of the flower may be absent. If all parts are there the flower is complete, otherwise it is incomplete. If both stamens and pistils are present the flower is said to be perfect. If either of these are absent the flower is imperfect.



Sometimes the flower parts are attached at the base of the ovary (hypogyny), sometimes at the sides of it (perigyny) and sometimes above it (epigyny).

65 HERBACEOUS SPRING FLOWERS OF THE PALISADES (In taxonomic order with a short description).

1. JACK-IN-THE-PULPIT-*Arisaema triphyllum* Spadix 2-3 in. long. Moist woods. Trifoliate leaves from base.
2. SKUNK CABBAGE-*Symplocarpus foetidus* Swamps, spathe green-purplish, mottled, 3-6 in. high.
3. LARGE-FLOWERED BELLWORT-*Uvularia grandiflora* Yellow; 1-1½ in. long. Leaves white, rich woods, 6-15 in. high.
4. BELLWORT, OAKESIA-*Oakesia sessilifolia* Green-yellow, ½-1½ in. long. Lvs. tapered both ends, margins rough.
5. YELLOW ADDER'S TONGUE-*Erythronium americanum* Yellow, ¾-2 in. long. Grn. lvs. mottled brown. Moist woods, Rare.
6. DOG-TOOTH LILY (VIOLET)-*Erythronium albidum* White, lvs. less spotted, common, otherwise same as Yellow Adder's.
7. FALSE SOLOMON'S SEAL-*Snilacina stellata* Flowers white, in terminal cluster, otherwise same as Solomon's Seal.
8. SOLOMON'S SEAL-*Polygonatum biflorum* Flowers greenish, bell-like, hang all along underside of arching stem in leaf axils. Stem seems to pass through leaves.
9. PURPLE TRILLIUM-*Trillium recurvatum* Petals and leaves sessile (no pedicle), petals purple, 10-18 in.
10. LARGE WHITE TRILLIUM-*Trillium grandiflorum* 3 white-pink, stalked, deeply veined petals, 1½-2 in. long. Tall.
11. DROOPING TRILLIUM-*Trillium Gleasoni (declinatum)*. Petals white, ¾-1 in. long, anthers twice length of filaments, plant stalk stout, flower stalk horizontal.
12. EARLY, DWARF WHITE TR.-*Trillium nivale* Petals white, less than inch long, early, less than 6 inches high.
13. YELLOW STAR GRASS-*Hypoxis hirsuta* Small brt. yellow flowers, meadows, narrow grass-like lily lvs. 6 petals.
14. BLUE-EYED GRASS-*Sisyrinchium angustifolium* Dry meadows, violet-blue flowers, ½ in. broad. Like No. 13.
15. WILD GINGER-*Asarum canadense* Low plants. Deep green, heart-shaped, hairy leaves, peculiar reddish brown, cup-shaped flower grows from between bases of leaves. Rich woods and deep shade.
16. COMMON CHICKWEED-*Stellaria media* White, tiny, petals smaller than sepals, leaves with smooth stalks. Open fields, weed, not showy, small.
17. MOUSE-EARED CHICKWEED-*Corastium vulgatum* Flower white,

- with tiny notched petals. Plant hairy. Fields-Weed.
- 18. SPRING BEAUTY-Claytonia virginica Very early, white or pink with deeper pink veins, moist woods.
- 19. SMALL FLOWERED CROWFOOT-Ranunculus abortivus Yellow flowers. Less than 1/4 in. broad. Petals shorter than sepals. Basal lvs. round. Weed. Woods and moist waste places.
- 20. TUFTED BUTTERCUP-Ranunculus fascicularis Yellow flowers. 1 in. broad, basal lvs. 3-parted, middle part stemmed.
- 21. SWAMP BUTTERCUP-Ranunculus septentrionalis Swampy habit, yellow flowers, over 1 in. brd. Leaf divisions all stemmed. Erect stems often droop to form rooted runners.
- 22. EARLY MEADOW RUE-Thalictrum dioicum Drooping staminate flowers and inconspicuous pistillate on different plants. Greenish fl. 1-2 ft. high. Small leaves, stems.
- 23. RUE ANEMONE-Anemone thalictroides Early, small, 4-9 in. tall, flowers white-pink. Lobed leaves in 3's.
- 24. WOOD ANEMONE-Anemone quinquefolia Open woods, small slender stem, few leaves, flowers -single, white-purple.
- 25. HEPATICA, LIVERLEAF-Hepatica acutiloba Very early, old leaves persist, three lobed, flowers purple-white. Very shiny, hairy stems. Rich woods.
- 26. FALSE RUE ANEMONE-Isopyrum biternatum Small, early. 5 white sepals, lvs. 3-parted, each part 3-notched.
- 27. MARSH MARIGOLD-Caltha palustris Thick, fleshy stems, yellow flowers, 1-1 1/2 in. broad. Swamps, wet meadows. Leaves rounded with notched edge. Low growing.
- 28. RED BANE BERRY-Actaea rubra Slender stems, large thin, ash-like lvs. Clusters of small, white flowers on a long stalk. 9-18 in. tall. Deep woods. Rare.
- 29. WHITE BANE BERRY-Actaea alba. Very similar to Red B. (Above) Flower stalks thick. More lflts. than Red.
- 30. MAY APPLE; MANDRAKE-Podophyllum peltatum Fl. single, short stalked, white, waxy, large. Leaf umbrella-like.
- 31. BLOOD ROOT-Sanguinaria canadensis 8 petals in two 4's. Early, fragile, white, solitary. Roots red.
- 32. DUTCHMAN'S BREECHES-Dicentra cucullaria Whitish, spurred, flowers arranged in row on long stalk. Leaves lacy, similar to carrot leaves. Small plant.
- 33. SHEPHERD'S PURSE-Capsella Bursa-pastoris Tiny white flowers on long stalk. Seed pods heart-shaped.
- 34. TOOTHWORT-Dentaria laciniata Terminal cluster of white-purple flowers. 3-typical, 5-parted, toothed leaves on flower stalk. Rich, damp woods.

- 35. SPRING or BITTER CRESS-Cardamine bulbosa White flowers in cluster. Sepals greenish with white trim. Root leaves rounded. Leaves on fl. stalk long-pointed.
- 36. ROCK CRESS-Arabis lyrata Small, white flowers, 1/2-3/4 in. broad. Petals much longer than yellowish sepals. Pods 2" long. Leaves rough, lyre-shaped.
- 37. TOWER MUSTARD-Arabis glabra Yellowish-white flowers, less than 1/4" broad. Petals and sepals nearly equal. Old pods narrow and erect. Rocky wds.
- 38. BISHOP'S CAP-Mitella diphylla Tiny white flowers, resembling 5 pointed snow-flake. Two leaves on each fl. stalk. Fl. stalk very long and slender.
- 39. WILD COLUMBINE-Aquilegia canadensis Scarlet and yellow, 5 spurred flowers. Tall. 3-parted leaves.
- 40. WILD STRAWBERRY-Fragaria americana White, leaves thin, fl. stalk stronger than lf. stalk. Plant slender. Leaves broad at base. Rocky woods, pastures.
- 41. FIVEFINGER, CINQUEFOIL-Potentilla canadensis Flowers solitary, yellow, 1/4-1/2 in. broad. 5 lflts. Low plants spread by runners. Dry, sandy soil.
- 42. RED CLOVER-Trifolium pratense Flowers in heads, purple, stemless. Leaf immediately beneath.
- 43. WHITE CLOVER-Trifolium repens White heads of flowers less than 3/4 in. diameter. Long runners at base. Calyx teeth shorter than tube. Fragrant.
- 44. ALSIKE CLOVER-Trifolium hybridum White-pink, flower stalk less than 6" long. Calyx teeth=tube.
- 45. WOOD SORREL-Oxalis stricta or corniculata. Yellow flower. 3 heart-shaped. Lflts. at tip of each stalk.
- 46. CRANE'S-BILL-Geranium maculatum Purplish flowers with hairy petals and stalks. Leaves 5-6 parted.
- 47. BIRD-FOOT VIOLET-Viola pedata Deep-cleft leaves are typical. Leaves and flowers grow from base of plant. Upper petals deep violet, lower ones lilac. Open wood.
- 48. MISSOURI VIOLET-Viola missouriensis Flowers and leaves grow from base. Blue-white, flowers tubular. Leaves deeply toothed at base and narrowly heart-shaped.
- 49. MARSH BLUE VIOLET-Viola cucullata. Flowers and leaves from base. Blue-white, flowers scarcely scented with beard of side petals strongly knobbed. Lvs. broadly heart-shaped and evenly shallow toothed. Damp places.
- 50. ARROW-LEAVED VIOLET-Viola sagittata Leaves and flowers from base. Flowers purple, overtopping lvs. Lvs. twice

- as long as broad with coarse teeth at base. Sandy.
51. DOWNY YELLOW VIOLET-Viola pubescens Fls. from axils of lvs. on ordinary stem. Yellow. Plants softly, hairy.
 52. SMOOTH YELLOW VIOLET-Viola eriocarpa Similar to No. 51 above, but less hairy. One or two leaves arise from base of plant. Yellow flowers, short-stalked.
 53. CANADA VIOLET-Viola canadensis Fls. from axils of leaves. Flowers white within and purplish outside. Small stipules not toothed. Leaves heart shaped, tapered.
 54. SWEET CICELY-Osmorhiza longistylis Tiny white flowers. Leaves notched, lobed, smooth, hairy. Plant fragile.
 55. SHOOTING STAR-Dodecatheon meadia Purple-white petals turned back. Long smooth leaves at base. Tall.
 56. PURPLE PHLOX-Phlox pilosa Slender stems erect. Flowers pink-purple. Leaves linear, i.e., long and narrow. 10-20 inches high. Leaves longer than flower stem. Sandy.
 57. BLUE PHLOX-Phlox divaricata Leaves narrowly oval. Flowers clustered, blue-white, petals notched, faintly fragrant. Plant downy and sticky. Moist woods.
 58. CREEPING SAND-PHLOX-Phlox bifida Much branched with short ascending stems. Lobes of the corolla two-cleft to or below middle. Very dry sandy uplands.
 59. JACOB'S LADDER-Polemonium reptans Corolla bell-shaped, broad, open, bluish-purple. Fragile plant with 5-15 flts. arranged in pairs, ladder-like.
 60. HOARY PUCCOON-Lithospermum canescens Flowers orange-yellow, sessile and numerous. Stems and leaves densely white-hairy, 6-19 inches tall, oblong-linear leaves.
 61. NARROW-LEAVED PUCCOON Lithospermum angustifolium Flowers two inches long, clustered into an inflorescence. Pale yellow. Dry sandy soil. Open woods.
 62. GILL-OVER-THE-GROUND Nepeta hederacea Low, creeping plant with the long runners rooting freely. Flowers pale purple, $\frac{1}{2}$ -1 inch long. Damp ground.
 63. BLUEETS-Houstonia caerulea Tiny, blue-purple flowers with white or yellow centers. Slender, delicate. Few flowers on each stem.
 64. DANDELION-Taraxacum officinale Flowers bright yellow. Leaves all basal. Open woods, meadows.
 65. PUSSY'S TOES, RABBIT TOBACCO-Antennaria species. Many heads of flowers on long stalks. Silky appearance. Several large basal leaves. Smaller, narrow leaves borne on whitish stalk.

30 WOODY PLANTS OF THE PALISADES WITH CONSPICUOUS FLOWERS

- | | |
|-----------------------------|--------------------------------|
| 1-PRICKLY GOOSEBERRY | <u>Ribes cynosbati</u> |
| 2-MISSOURI GOOSEBERRY | <u>Ribes missouricnsis</u> |
| 3-SMOOTH GOOSEBERRY | <u>Ribes hirtellum</u> |
| 4-NINEBARK | <u>Physocarpus opulifolius</u> |
| 5-WILD CRAB APPLE | <u>Pyrus iconsis</u> |
| 6-APPLE | <u>Pyrus malus</u> |
| 7-SHRUBBY JUNE BERRY | <u>Amelanchier florida</u> |
| 8-JUNE BERRY | <u>Amelanchier canadensis</u> |
| 9-SERVICE BERRY | <u>Amelanchier laevis</u> |
| 10-HAWTHORN | <u>Crataegus mollis</u> |
| 11-RED RASPBERRY | <u>Rubus strigosus</u> |
| 12-BLACK RASPBERRY | <u>Rubus occidentalis</u> |
| 13-HIGH BUSH BLACKBERRY | <u>Rubus nigrobaccus</u> |
| 14-DEWBERRY | <u>Rubus procumbens</u> |
| 15-WILD BLACK CHERRY | <u>Prunus serotina</u> |
| 16-CHOKO CHERRY | <u>Prunus virginiana</u> |
| 17-WILD RED, PIN CHERRY | <u>Prunus pennsylvanica</u> |
| 18-WILD PLUM | <u>Prunus americana</u> |
| 19-KENTUCKY COFFEE TREE | <u>Gymnocladus dioica</u> |
| 20-HONEY LOCUST | <u>Gleditsia triacanthos</u> |
| 21-BLACK LOCUST | <u>Robinia pseudo-acacia</u> |
| 22-POISON IVY | <u>Rhus toxicodendron</u> |
| 23-BITTERSWEET | <u>Celastrus scandens</u> |
| 24-BLADDERNUT | <u>Staphylea trifolia</u> |
| 25-PANICLED DOGWOOD | <u>Cornus candidissima</u> |
| 26-ALTERNATES-LEAVED DOGWD. | <u>Cornus alternifolia</u> |
| 27-HONEY SUCKLE | <u>Lonicera prolifera</u> |
| 28-HONEY SUCKLE | <u>Lonicera dioica</u> |
| 29-COMMON ELDER | <u>Sambucus canadensis</u> |
| 30-RIVER BANK, FROST GRAPE | <u>Vitis vulpina</u> |

This list includes only those species which have large conspicuous flowers, usually highly colored or those species which have dense clusters of flowers and thus attract attention. Many flowers such as these found on the maples are very beautiful if examined closely.

Only those species which flower before June 1 are given. A later pamphlet will take up the summer blooming species of woody plants.

NATURE NOTES

The Naturalist will open the Sunday Lecture Tour series either the 2nd or 9th of June. Watch for the date in your paper. The subject will be "Late Spring Flowers of the Palisades."

There are ready for distribution three nature leaflets including this number. Six more will be prepared this summer. Be sure to ask for your copy. After you are through reading it, don't throw it away but pass it on to a friend. We have only a small number.

If you wish information concerning the park features or flowers you can always ask Charlie Moyer, the Custodian for he knows plenty in the naturalist line.

Those groups wishing to schedule nature hikes or trips, which are all free, of course, may do so by writing to Mr. Aureal T. Cross, Naturalist, Palisades State Park, Mt. Vernon, Iowa.

Now is the best time to study the birds. Bird hikes can well be taken during the late morning hours or the late afternoon hours. The songs are not quite as good at these times but the bird habits are much better than the 4:00 a.m. bird study.

The naturalist is attempting to establish a stargazer club to meet once every week or two weeks this summer for a general knowledge of the stars. You are most cordially invited to attend. The first meeting will be Sunday evening, June 9. We will collect at the lodge. The lecture and discussion will be as long or short as you wish.

One of the best ways to see the fine rock exposures and Palisades is to take a boat ride up the river. The Naturalist believes it will be well worth your while.

Did you know there are three stone faces visible from the rocks near the end of the dam? See if you can see them.

Let's hope for a big season with lots of good weather.

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