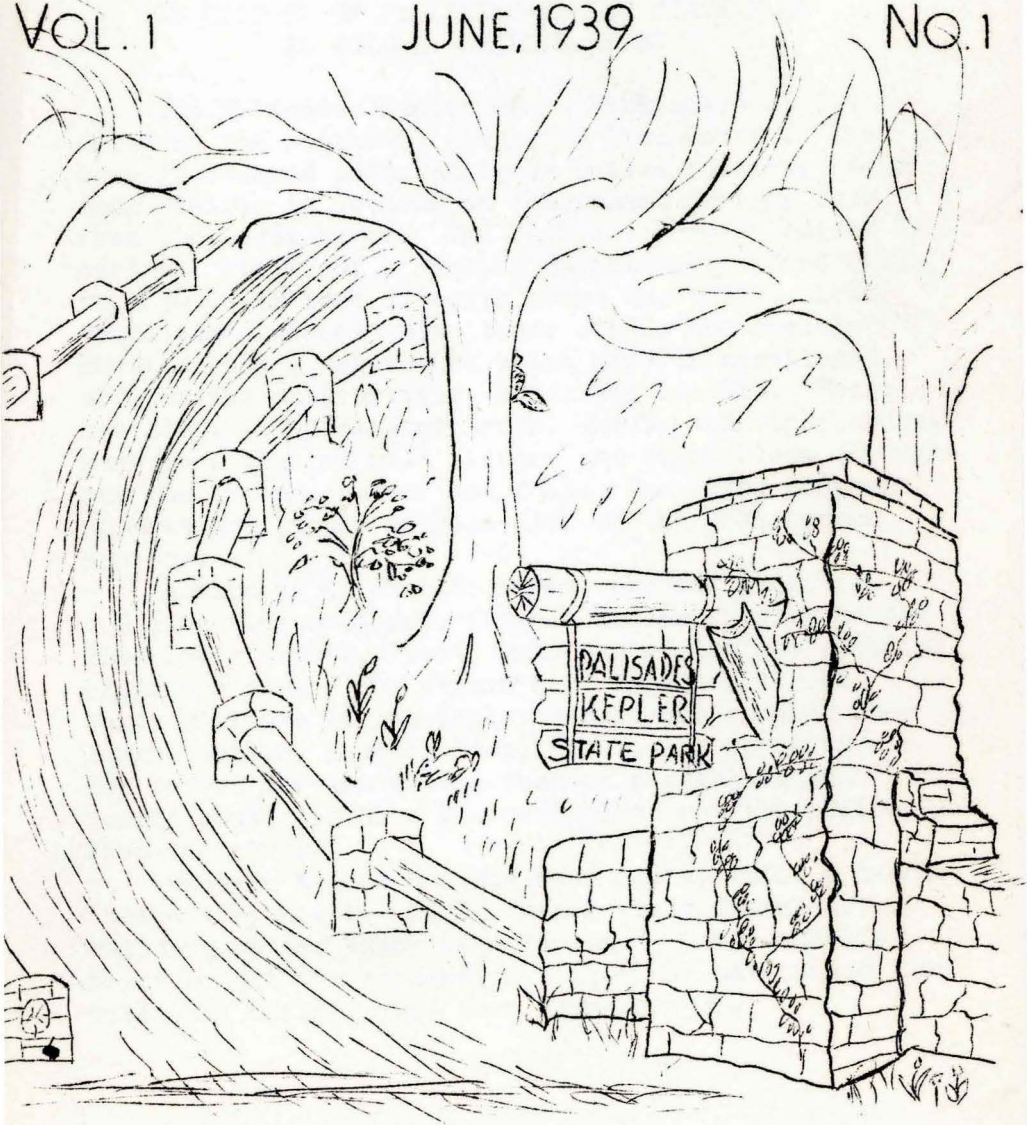
PALISADES NATURE LEAFLETS

VOL. 1 JUNE, 1939 NO. 1



PALISADES NATURE LEAFLETS

Vol. I June-1939 No. 1

Edited by Aureal T. Cross, Park Naturalist. Printed through courtesy Iowa State College, Ames, Iowa.

THE HISTORY OF PALISADES-KEPLER STATE PARK AS TOLD BY CHARLIE MEYER

The Palisades-Kepler State Park embraces 734 acres in the southeast corner of Linn County. The area is covered principally by native forests. Some open prairie is located on the upland further back from the Cedar River. The region is characterized by vertical cliffs of a massive dolomite-limestone which rise 30 to 70 feet directly above the water. Less precipitous slopes above these cliffs are densely covered with a vegetation which affords excellent shelter for many animals, birds and insects. There are about 75 species of trees, shrubs and vines alone. Many varieties of wild flowers and ferns bloom throughout the spring, summer and fall. The river contains an abundant supply of game fish of the most common species.

According to Charlie Meyer, present custodian and long time resident, Captain Kepler, father of the late Louis Kepler, first owned the region now contained in the park. The figure most familiar to the early visitors of the Kepler domain was an old, one-legged sailor, Captain (Cap) Minet. He operated a log tavern for the convenience of picnickers and rented boats to those who desired to see the palisades from the river.

Captain Kepler and his son, Louis, built a large, three-story hotel. R. C. Turner first operated this building as the "Rock View Tavern." Later Charlie Meyer bought the concession rights and maintained them until the building was torn down in 1931.

In 1922 the first acquisition of land was made by the State of Iowa. The original tract of 163 acres is situated on the west side of the river. Mr. Meyer was appointed custodian and the region was opened to the public. Additional gifts of land, mostly by Louis Kepler, and purchases by the State Conservation Commission have increased the area to its present size. Nearly one-third of the Park is on the west side of the river. This portion has been closed to the public and has been converted into a nature preserve. The territory on the east side of the river was opened as the Palisades-Kepler State Park in 1928.

A well 632 feet deep was drilled during the winter of 1931. This penetrates the St. Peter sandstone and provides a permanent, approved, adequate supply of water.

A one-way trail provided the only means of access to the Park until 1932. This was impassable much of the season. In 1932 the road was widened and graded, and some fills were made. In 1933 crushed rock was spread over the surface and in 1937 the road was oiled.

A Civilian Conservation Corps camp was established in the park in 1933. Over 200 boys were stationed there until 1936. During this time they constructed over 5 miles of trails, assisted with the building of a beautiful lodge, two modern four-room stone cabins and a beautiful lookout, high above the river. In 1935-36 they assisted in the building of a rock dam across the river. This was an exceptionally worthwhile project, for the river had been so shallow, that during the summer months it could be crossed easily by wading. At present the stream is over 600 feet wide and is fairly deep. Other major contributions by this group were the building of additional parking areas and roads, and the construction of an eleven car garage for future use.

Dr. Keyes of Cornell College at Mt. Vernon has explored several Indian mounds in the park. In 1932 he recovered over 200 fragments of pottery from an Indian kitchen. There are several small caves in the vicinity.

The faculties of Coe College, Cedar Rapids; Cornell College, Mt. Vernon; Iowa University and Iowa State College have been enthusiastic in their cooperation for the development of an educational program in the Park. The success of nature tours guided by capable men in the various fields of botany, geology, forestry, natural resources, etc., has prompted the State Conservation Commission, in conjunction with the Works Progress Administration, to maintain throughout the summer months, a naturalist equipped for such a position. His duties are strictly confined to an educational recreation program which is free to the public. This service includes marking of the trails, conducting nature tours and lecturing to groups in the Park on the natural sciences.

---A.T.C.

POISON IVY.

Why is it so well-known?

Poison Ivy, Rhus toxicodendron, is a low growing or semi-erect shrub found abundant in native woods throughout the state. It is a member of the same family as Poison Oak or Poison Sumac. Its renown to the public is due entirely to a poisonous oleo-resin, which causes serious inflamation and blistering of the skin accompanied by a very distracting itch. The oily substance is secreted by the leaves and bark, and is found in all parts of the plants including the roots. Although some people believe that the oil is shot into the air, and poisoning may result from this method of spreading the poison, scientists generally agree that actual contact with the plant is necessary, or in some cases an indirect contact may be made by touching some article such as clothing that has brushed the plant. Some people are more susceptible to the poisoning than others. However, those who claim immunity should not be careless in handling it.

How to recognize Poison Ivy. Poison Ivy is often confused with several other woodland plants. Figures 1, 2, 3 and 4 on page 5 show the general leaf differences of these plants. A brief description of each of these is given here to simplify comparison.

POISON IVY, (Rhus toxicodendron), Fig. 1.

Leaflets: Three, nearly equal, 2-6 inches long and 1½-4 inches wide, veins or ribs definite to edge of leaflet, margin may be either entire (i.e. without dents or teeth), crenulate, or irregularly toothed; dark green, shining above, paler below.

Fruit: Globular, with shallow grooves, yellowish white, smooth, shining, ¼ inch in diameter, stays on through the winter.

Stem and twigs: Bark on older stems gray, young twigs yellowish or brownish-green.

Growth habit: Low, semi-erect shrub, 1-3½ ft. high. Grows from branching or creeping underground stems (rhizomes).

Where found: Thickets, woods and roadsides.

BLADDER-NUT (Staphylea trifolia), Fig. 2.

Leaflets: Three, terminal (end) leaflets slightly larger than side leaflets, oblong in shape, slightly smaller than Ivy leaflet, similar to elm and ironwood leaves but more bluntly pointed, veins much branched and not definite to edge, edge finely toothed, fine texture, medium to dark-green in color.

Fruit: A nut, born in a large, rounded, angular, 3 lobed papery sac-like pod about 1 in. in diameter. It is filled with air, hence, "bladder-nut."

Stem and twigs: Grayish to gray brown, fairly smooth bark, marked with large dark gray blotches. Young branches greenish and striped.

Growth habit: Occurs here usually as shrub but is often a small tree.

Where found: Widely scattered along rocky hillsides or along bottomlands.

VIRGINIA CREEPER OR WOODBINE, (Parthenocissus quinquefolia), Figure 3.

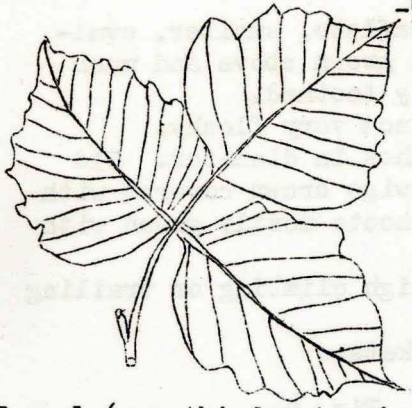


Fig. 1 (one-third nat. size)
Poison Ivy
Rhus toxicodendron

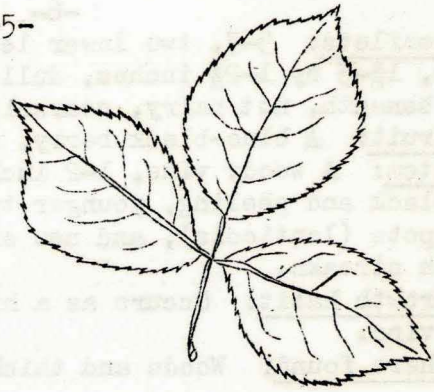


Fig. 2 (one-third nat. size)
Bladder-nut.
Staphylea trifolia

Fig. 3 (one-third nat. size)
Virginia Creeper (Woodbine)
Parthenocissus quinquefolia

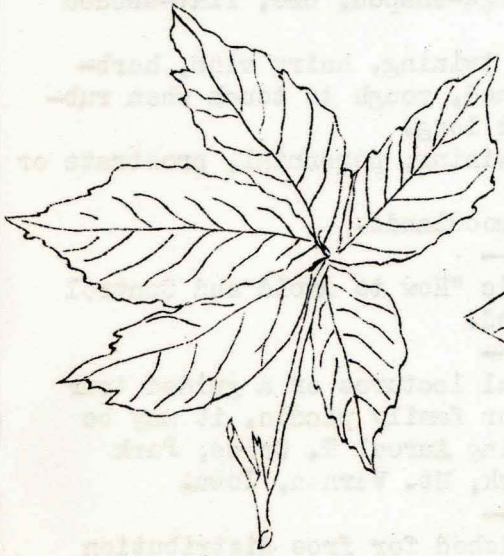
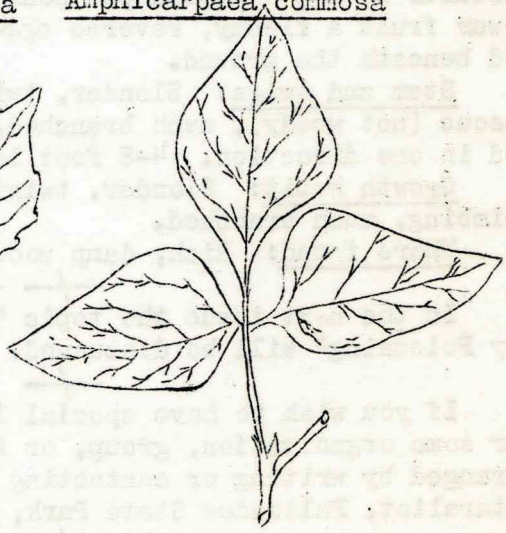


Fig. 4 (one-half nat. size)
Hog-peanut
Amphicarpaea commosa



These sketches show the distinguishing characteristics in the appearance of the three common woodland shrubs or vines which are so often confused with Poison Ivy. (See page 3).

Leaflets: 5-7, two lower leaflets, smaller, oval-oblong, $1\frac{1}{2}$-5 by 1-$2\frac{1}{2}$ inches, dull green above and much paler beneath, not hairy, coarsely toothed.

Fruit: A blue-black berry, not very fleshy.

Stem: A woody vine, 1-2 inches in diameter. Old bark black and peeling, younger twigs brown covered with many spots (lenticels), and new shoots mostly green with reddish streaks.

Growth habit: Occurs as a high climbing or trailing woody vine.

Where found: Woods and thickets.

HOG PEANUT (Amphicarpaea commosa), Fig. 4.

Leaflets: Three, nearly equal, $\frac{1}{2}$-3 inches long, not quite as wide, somewhat egg-shaped, veins much branched, not conspicuous, blade thin, margin entire (i.e. not toothed or lobed), pale green.

Fruit: There are two types of fruit. The most conspicuous is a 3-4 seeded pod near the upper branches, the lower fruit a fleshy, reverse egg-shaped, one, flat-seeded pod beneath the ground.

Stem and twigs: Slender, twining, hairy vine, herbaceous (not woody), much branched, rough to touch when rubbed in one direction. 4-8 feet long.

Growth habit: Slender, twining, perennial, prostrate or climbing, much branched.

Where found: Rich, damp woodlands.

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In the next issue the topic "How to Avoid and Control Ivy Poisoning" will be discussed.

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If you wish to have special lectures or a guided tour for some organization, group, or family picnic, it may be arranged by writing or contacting Aureal T. Cross, Park Naturalist, Palisades State Park, Mt. Vernon, Iowa.

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This leaflet will be published for free distribution twice monthly. Perhaps you have some suggestions. These will be gratefully accepted.

A.T.C.

PALISADES NATURE LEAFLETS

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PALISADES NATURE LEAFLETS

Vol. I July-1939 No. 2

THE GEOLOGY OF PALISADES-KEPLER STATE PARK

Introduction

Palisades-Kepler State Park has long been famous for its scenic beauty. The vertical cliffs along the Cedar River are suggestive of the Palisades of the Hudson River in New York, after which they are named. The natural beauty of the steep ravines and wooded uplands is hardly surpassed in any of our other state parks. In order to more fully appreciate the plant and animal life of the region, as well as its unusual scenery, we should know something of the history of the surface features.

Perhaps it would be best to tell the story of the rocks by answering some of the questions which are asked most frequently. Typical among these are: "Where did the rocks come from? Have these cliffs always been here? How can a river cut through solid rock? How long did it take to cut such a channel? Why are the cliffs steep first on one side and then the other? Will the cliffs always be here? How many glaciers were here?" and "Did they have any effect on the region?"

Since GEOLOGY is the science that deals with the rocks and the processes involved in their formation and destruction, we can answer these questions by turning to that great science.

Formation of the Rocks

Along the shores of a present day ocean we find great accumulations of sand and gravel. These may eventually become cemented together to form SANDSTONES and CONGLOMERATES respectively. Beyond these beach deposits, finer materials are dropped which have been carried to the seas by the rivers. These form a soft clay mass

which when heated or dried forms what geologists call SHALE. Still further out in the ocean and adjoining the outer edge of the shale deposit, we find that the tiniest particles of sediment that are carried in suspension in the river water are deposited.

It is possible to see the sand and heavier particles of earth moving downstream on a river bottom. These particles may have been removed from the bed or sides of the river by the running water. Often they are washed into the stream by heavy rains from the surrounding hillsides. These particles do not keep their original size for very long. The constant rolling along the bottom of the river breaks them into still smaller particles and eventually they become almost as fine as dust. This is the material which makes a stream muddy. These small particles are light enough that the water buoys them up and carries them in suspension to the sea. They are not dropped immediately but are washed far out from shore, often many miles. Here they finally settle to the bottom in a thick, sticky ooze. After lapse of enough time, the sediments may become firmly packed together and cemented into LIMESTONE. This is the common limestone. If the principle mineral is magnesium instead of calcium (lime), the rock formed is DOLOMITE. If both minerals are present in great enough quantity we have DOLOMITIC-LIMESTONE. The rocks which are exposed in the valleys of this park are dolomitic-limestone.

Fossil remains in the Palisades rocks.

During the time that this limestone deposit was gathering on the floor of the sea, many aquatic animals died and sank into the ooze. Most of these animals are not found in present day oceans, but are ancestors of our modern sea inhabitants. In this region we find fossils which indicate the different kinds of animals that lived while these rocks were being laid down. FOSSILS are any remains or trace of former life preserved in the rocks of the earth. The most common of the abundant fossils found here are the crinoid stems. These are the stems of animals which grew attached to floating objects or the floor of

the sea. Where they were abundant, they resembled vast fields of waving grain. They are related to the modern sea lilies and star fish. Other common fossils are corals, and brachiopods, which have only a few descendants in the deeper seas of today. These evidences of former oceanic life are important to the geologist in estimating the age of the rocks, the climate at the time of their deposition, the depth and the extent of the sea. It happens that fossil remains are abundant here. They are grouped into special masses similar to our coral reefs and are called BIOHERMS.

The age of the rocks in this park.

Geologists tell us that the rocks in this region were laid down in the Silurian Period of the Paleozoic Era. This has been estimated to be between 300,000,000 and 500,000,000 years ago. During the early part of the Silurian Period, the sea spread over part of North America. It withdrew for a while and then came back again. This process was repeated several times. During the many submergences of the continent of North America, between 30 and 40 percent of the land was under the sea at one time or another. Each period of submergence has been named and the one that is particularly important to the region of this Park is called the Niagran Epoch of the Silurian Period. It was in the Niagran Epoch that the rocks of this region were deposited. When the seas withdrew, a thick covering of limestones, sandstones and shales covered the former sea basins. The rocks were almost continuous from the middle part of Iowa east to the present site of Niagara Falls. It is interesting to note that the resistant rock which causes the falls of the Niagara River was deposited at approximately the same time as that exposed in the Palisades State Park. Since the deposition of the Palisades rocks, the seas have covered parts of North America many times. The material deposited by the later seas has all been removed in this region.

The coming of the glaciers.

About a million years ago, after the time of dinosaurs and about the time of the first man, the glaciers advanced over the country from the north. The two oldest glaciers of this period, which geologists refer to as PLEISTOCENE, moved over the Palisades region and stopped further south. These two ice sheets are known as the Nebraskan and Kansan stages. The third stage, the Illinoian, enters only the eastern part of the state. The fourth glacial epoch, the Iowan, advanced over this region and stopped a few miles south of the Park. Here much of its huge load of sand and rocks was deposited in the form of confused, heterogenous masses which we call MORAINES. The glacial soils are many feet thick forming hills and valleys. Much of the uneven upland on the northeast side of the river here is caused by this varying thickness of glacial drift which was dropped when the ice melted. Perhaps some of these valleys existed before the deposition of this drift, but possibly it was laid down on a more rolling terraine.

The formation of the valley.

During the melting of the ice, the rivers were much larger than they are today. The Cedar River was the one which drained from the front of the ice in this region. It flowed south or southeast. As the ice melted, the river in some places cut into the limestone beneath and formed its present channel. Whether or not this entire valley existed before the glacier came is not definitely known, but during the 50,000 years or so since the Iowan ice sheet disappeared, the river could have cut all this valley. Part of the valley which is known to have existed before the coming of the ice was probably filled by the ice and its deposits and was later re-excavated. The Cedar River is called a SUPERIMPOSE stream here. This means that the stream first flowed ove the glacial material and possibly part of the ice. As it wore down through the drift deposits or ice it came to the solid limestone. Even though this was harder to cut

into and therefore took much longer, the stream stayed in its valley and cut a deeper gorge.

The downcutting in the stream bed is accomplished by the use of tools. A river uses rocks and gravel as its cutting and grinding tools. As the channel is worn down further and further, the tributary valleys must also wear down as far at the point where they join the main valley which holds the stream. If they did not cut in as fast, a falls would form where these tributary waters enter the main channel. YOUNGER valleys are "V" shaped and have a very steep gradient. They are also usually very short, or short in comparison with the stream into which they flow. The steep ravines in this Park are very young valleys. Most of the cutting in such a valley is done right in the bottom of the valley but as the valley gets older, the gradient or fall per mile is less steep, the cutting power is reduced and the stream cuts into the sides more than the bottom. This makes the valley wider and more "U" shaped. Such a valley is found in this region. It is the valley of the Cedar River, which at this point is called a MATURE valley. Here the downcutting is not proceeding as rapidly at present as it did formerly. This is because the gradient is less steep and the speed of the water is reduced. With less speed, the water cannot carry away all the material which it gathers along its sides or from tributaries further up stream where the stream is younger. These sediments are dropped in the channel as bars, or islands or beaches. When the floods come, often great quantities of this material is washed loose and is carried further downstream where it is again deposited. Eventually, as we mentioned earlier, these sediments are broken down finer and finer until they reach the sea. Since the Cedar River flows into the Mississippi River and it in turns flows into the Gulf of Mexico we should expect to find much Iowa soil in this sea. Every year millions of cubic feet of the finest Iowa topsoil is washed into the ocean. The work of the soil conservation agencies is to prevent the rapid removal of this soil. It cannot be stopped entirely but it can be retarded greatly.

How the cliffs are formed.

At present the river swings from one side of the valley to the other. In doing so, it widens its channel by undercutting the rocks. The vertical cliffs are caused by the rocks above falling when the support beneath them is removed. The limestone is not highly jointed in this region, but it is cracked in many places. The breaking occurs along these cracks. After the stream ceases to cut into the wall at one place and cuts into it at another, the steep cliffs just formed begin to be worn off.

How the cliffs are worn down.

Plants grow on the cliff faces and their roots penetrate the pores of the rocks forming cracks. The first plants to grow are not trees or even common flowers. If we examine a present cliff face we will find very primitive plants growing in the most difficult places. Such plants as the colorless or gray lichens are first. If the cliff is protected from the sun, the mosses will be the next to gain a foothold. After some time, these hardy plants plus many agencies of the weather such as frost wil have formed tiny crevices in the rock. Organic matter fro dead plants will accumulate in these cracks and some of th higher plants will find enough room to grow. Eventually trees like the hardy Eastern Red Cedar which is so abundan in this region will be able to gain a foothold. Their roo penetrate even further into the rocks forming bigger crack Animals may burrow into them and give a better chance for water to penetrate the soil between the rocks. When water freezes, it expands, and in doing so it makes the cracks wider. After the passing of a long enough period of time these rocks will break off and fall. Eventually the cliff then, become only hills, and in time, we might say, even the hills may be removed.

--A.T.C.

HOW TO AVOID THE ILL EFFECTS OF POISON IVY

Some people claim immunity to the skin disorders caused by ivy-poisoning. It does not pay to be careless in handling it. The poison is often slow in reacting. Sometimes no sign of it will appear for three or four days. The cures often are equally slow in showing results. Complete cure may not be accomplished for two or three weeks if handled improperly.

How to avoid contacting the poison.

1. Learn to recognize the plant. Keep watch for it.
2. Stay on the trails! This is important. Poison ivy is not allowed to obstruct them even though it grows alongside of the trails. If the guide takes you away from the trail, follow him closely, for he will keep clear of Poison Ivy.
3. It is advisable to wear socks or stockings.
4. Do not handle or touch any leaves or twigs. Be careful not to rub exposed parts of the body, face or neck with the hands. They may have accidentally contacted some of the poison.
5. Wash all exposed parts of the body, including ankles or legs (if the socks are thin) with a strong solution of soap and water within an hour or two after the hike. This simple remedy has not been known to fail. The poison is merely an oil which is dissolved by the soap and washed away.

What to do in case poisoning sets in.

1. Wash inflamed areas thoroughly with soap and water.
2. Apply sugar of lead or a ferric chloride compound which may be obtained at any good drug store. Flood the surface affected.
3. Do not apply any salves or lotions to afflicted areas as they often help it to spread.
4. Ice packs will relieve the itching.
5. Do not touch the infected parts with the hands or other parts of the body as it spreads easily in this way.
6. If the poison spreads rapidly, see your doctor as

soon as possible.

7. Ask the naturalist for any information or help!

NATURE NOTES

Did you know the fox family is well represented in the park? Charlie Meyer, the Custodian, says both red and gray may be found and the Naturalist has seen a young Gray Fox near the Indian Mounds.

Fifty-seven trees, shrubs and woody vines were identified during the scheduled nature hike Sunday, July 2.

Mr. Howard Hall, prominent manufacturer, businessman, and sportsman, and a long time booster for the Palisades, has given the Naturalist nearly 300 signs for tree labels in the park. Many interesting plants and unusual features besides the trees will be labelled with an instructive message.

A small hornets' nest is located on one of the cliff faces north of the Lookout.

Some beautiful Poison Ivy vines have climbed almost 60 feet up some of the cliffs in the Park. The woody stems are very similar to grape vines and are nearly three inches in diameter.

The star-gazing groups are certainly enthusiastic. The visibility is very good at present.

The bright, ruddy star which is to be seen in the southeast during the early evening is Mars. It is only about 3/20ths the size of the earth.

A brightly colored young milk-snake attracted considerable attention on one of the nature hikes. The neat red and white markings rated the description, "beautiful".

Birds are very hard to find in the Park at present. An excellent variety earlier in the season included the Painted Bunting and the Bohemian Waxwing.

A Barred-Owl, about 18 inches long, gave the Naturalist a scare the other night. The Naturalist was hunting moths and possibly the Owl was doing the same when the collision occurred. The bird struck him on

the forehead and fell, thrashing wildly, a few feet away.

Marion and Mt. Vernon have been well represented on several of the nature hikes.

Many nature hikes are being arranged by mail. If you would like this free service, write to Mr. Aureal T. Cross, Park Naturalist, Palisades, Mt. Vernon, Iowa.

"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 Palisades-Kepler State Park.

"It is prepared for your information in order that the recreational and educational opportunities of an unspoiled primitive area may be more fully appreciated, utilized and protected."
