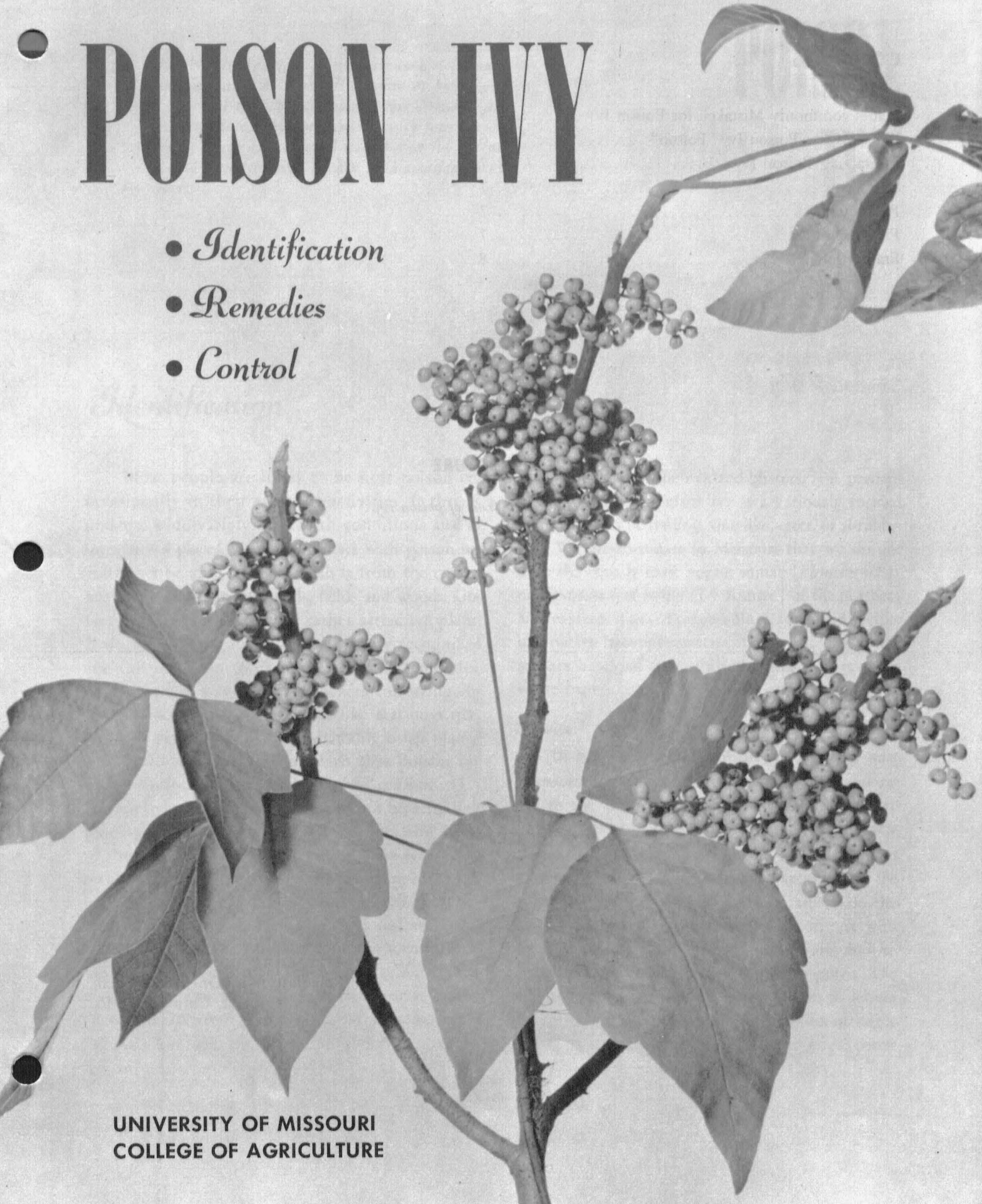


# POISON IVY

- *Identification*
- *Remedies*
- *Control*



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## COVER PICTURE

*Typical leaves and fruit of poison ivy.*

## Acknowledgment

The author was assisted in gathering information on medication by Dr. T. F. Darnell, Dermatologist, Columbia, Mo.

# POISON IVY

*Few North American plants have such evil reputations or cause as much discomfort as poison ivy. This plant is widely distributed over Missouri and it is estimated that one out of every four persons living in an area infested with poison ivy is sensitive to the dermatitis or skin inflammation that it causes.*

## Identification

R. E. McDERMOTT

Most people are likely to be near poison ivy occasionally in their everyday activities. It thrives under a wide variety of growth conditions and in unexpected places. To avoid contact with poison ivy you must be able to distinguish it from the countless other plants in backyards, fields and woods. Unfortunately, poison ivy is a rather attractive plant. It doesn't have features that are easily recognized and call attention to its unpleasant characteristics. And, while it may occur in thickets consisting entirely of poison ivy, or as a vine-like mat on a tree, it grows just as often scattered among other plants.

Many are surprised to learn that poison ivy [*Rhus radicans* L. or *Toxicodendron radicans* (L.) Kuntze] may have three forms. It can be a trailing plant, vine-like, or erect. But the leaves and twigs of the three forms are similar and skin symptoms resulting from contact with the three are identical.

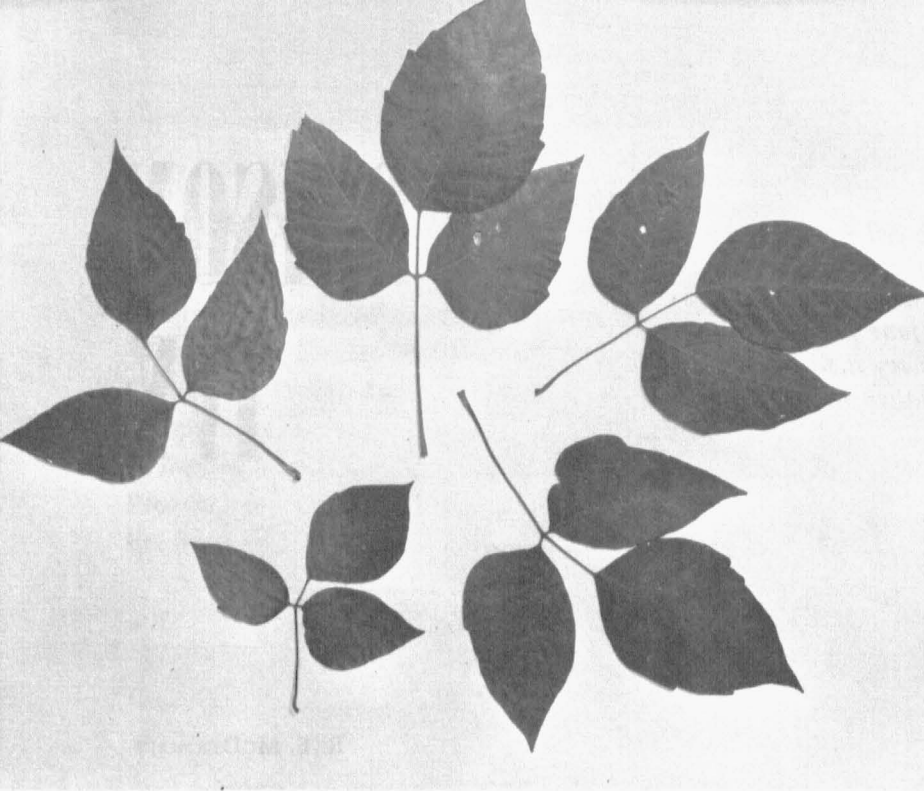
Commonly, poison oak is considered as an entirely different plant. However, it is not an "oak" but is more or less a shrubby southern form of poison ivy with more deeply lobed leaflets. Some botanists have designated poison oak as a separate species [*Rhus toxicodendron* L. or *Toxicodendron quercifolium* (Michx.) Greene]. But for simplification in identify-

ing the sources of the itch and blisters, it is perhaps easier to consider poison ivy as a variously formed plant that may be trailing, vine-like, erect, or shrubby.

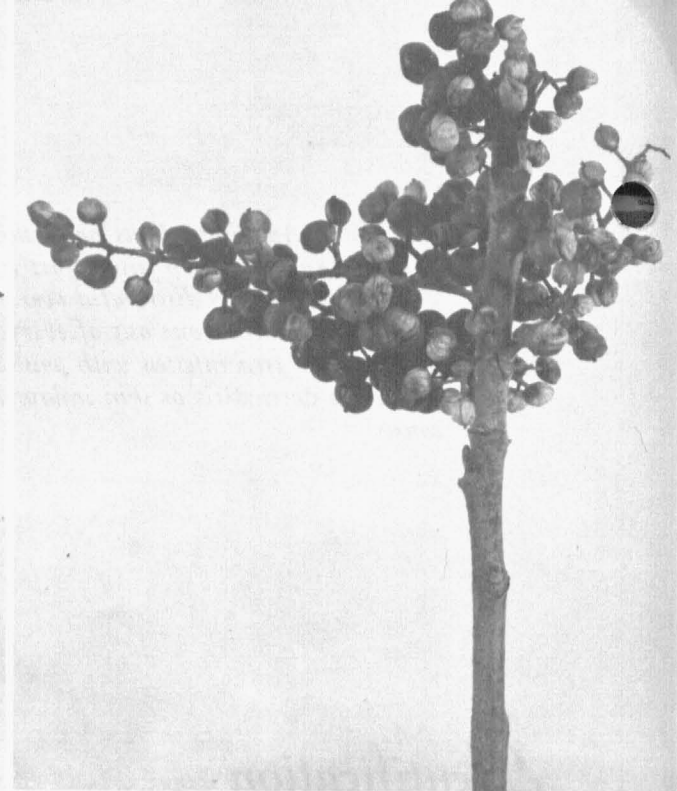
We are fortunate in Missouri that we do not have the equally toxic poison sumac [*Rhus vernix* L. or *Toxicodendron vernix* (L.) Kuntze] of the northern and eastern states. Poison sumac looks quite like our native harmless sumacs. However, our native sumacs have red fruit while the poison sumac has white fruit.

### Leaves

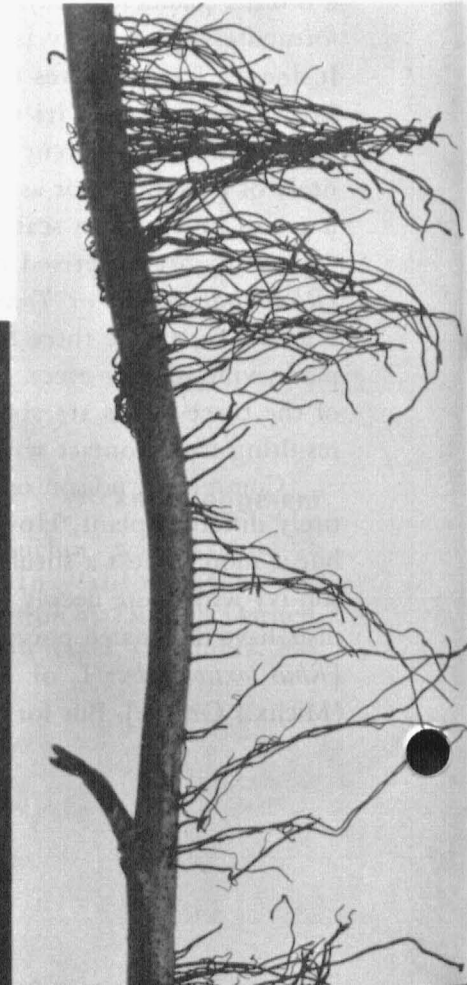
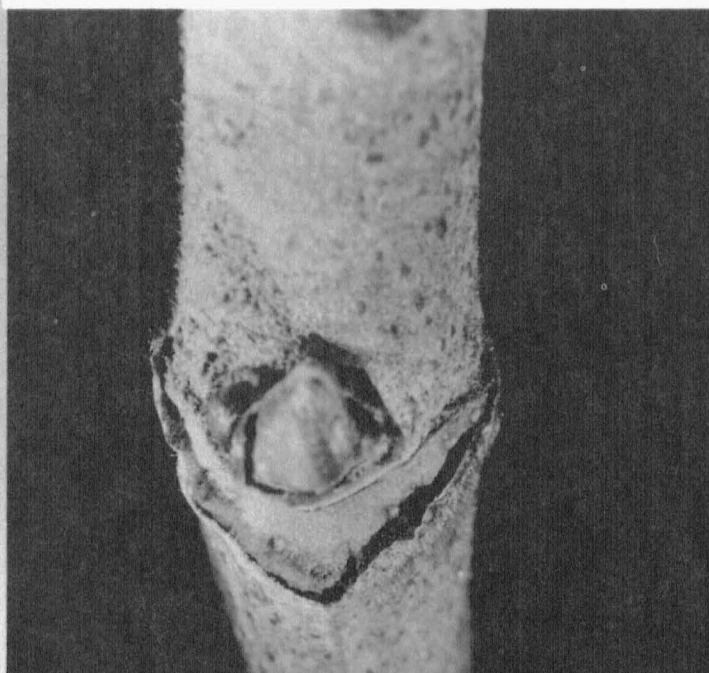
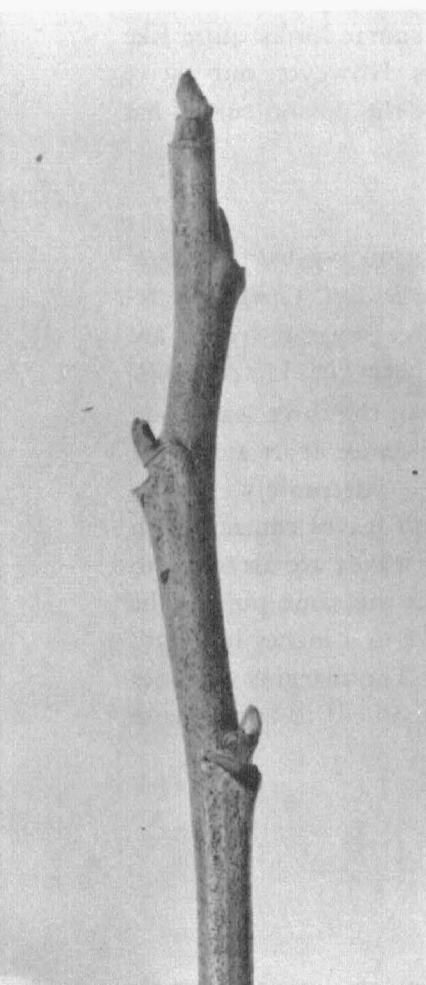
In botanical terms, poison ivy has *alternate compound* leaves with three *leaflets*. *Compound* refers to the fact that the three separate *leaflets* are actually a part of one leaf (see Fig. 1). *Alternate* means the leaves, composed of the three leaflets on a stem, are attached some distance apart along the twig. (Note the buds placed "alternately" on the twig at left in Fig. 3) *Opposite* leaves contrast with *alternate* leaves in that two leaves are attached to opposite sides of the twig at the same point. The individual leaflets vary from 2 to 4 inches in length and are ovate (egg-shaped). The margins or edges vary from smooth (not saw-toothed) to large, coarse



*Fig. 1—Leaves of poison ivy showing the variability in size and margins of leaflets.*



*Fig. 2—Fruit of poison ivy in late fall.*



*Fig. 3—Winter condition of poison ivy twigs. Left, rapidly growing twig. Below, detail of scar and bud (enlarged). Right, vine-like section with aerial roots.*

teeth. Some are even lobed. The surfaces may be smooth and shiny or have fine hair.

In spring and summer the leaves are a handsome green, and in the fall they change to brilliant colors, ranging from the yellow of shaded plants to the vivid reds of plants growing in full sunlight. Hostesses have been known to include this colorful foliage in table decorations, occasionally with embarrassing reactions from guests.

### **Fruit**

The fruit grows in gray-white clusters (see Fig.

2). These clusters are most conspicuous in late fall. The individual berries (drupes) are approximately one-fourth inch in diameter. Birds are the main distributors of the seeds, which accounts for the common abundance of poison ivy where birds roost.

### **Twigs**

The twigs are gray-brown and either smooth or slightly hairy (see Fig. 3). The leaf scars are V- or U-shaped with several bundle scars. When poison ivy is vine-like, it attaches itself to the bark of a tree by aerial roots instead of tendrils.

## *Plants Commonly Mistaken for Poison Ivy*

### **Fragrant Sumac**

Fragrant sumac (*Rhus aromatica* Ait.) is a shrubby plant. The leaves are somewhat similar to poison ivy in that they have three leaflets. But the leaflets are smaller, more regularly large-toothed, and lighter gray-green in color. They are densely hairy and pleasantly fragrant when crushed. Also, the fruits are red. Distribution is statewide.

### **Polecat Bush**

Polecat bush [*Rhus trilobata* Nutt. var. *serotina* (Greene) Barkley] is very similar to fragrant sumac. The leaves however, are not fragrant when crushed. This plant is found only in the central and eastern parts of the state.

### **Virginia Creeper**

Virginia creeper [*Parthenocissus quinquefolia* Planch.] is a *vine*. It is readily distinguished from poison ivy because the leaves have five leaflets, the stems are attached to trees by tendrils and not aerial

roots like poison ivy, and fruit is blue. Distribution is statewide.

### **Boxelder**

Boxelder (*Acer negundo* L.) seedlings may have three leaflets per leaf and be mistaken for poison ivy. Older trees more commonly have five leaflets and occasionally seven or nine. There are several other characteristics you can note to distinguish the seedlings from poison ivy. The leaves of boxelder are *opposite*, while the leaves of poison ivy are *alternate*. The twigs of the current growth of boxelder are shiny green or purple and the fruit have very conspicuous wings as do the fruit of all the maples. Distribution is statewide.

### **Red Maple**

Occasionally, red maple (*Acer rubrum* L.) seedlings are mistaken for poison ivy. The leaves, however, are *simple* (not dissected into leaflets) and *opposite*. Found in the eastern part of the state.



## What Makes Poison Ivy "Poison"

The trouble-making ingredient of poison ivy is a fluid, *oleoresin*, which is contained in resin canals in the leaflets, leaf stems, twigs and bark. This oleoresin has been found in the wood also. To become afflicted with the skin irritation, actual contact with the oleoresin is necessary. Thus, people do not get infected by passing near poison ivy as repeat victims are apt to conclude. The poisonous juice is not ejected by the plant. Light contact with the plant will not liberate the resin. You have to bruise the leaves, stems, or roots before you will contact the toxic oleoresin. It has also been demonstrated that there are no resin ducts in the outer third of the stamens or in the anthers of ivy flowers, so pollen is not responsible for infection. Oleoresin is a stable chemical compound, so dried specimens can cause inflammation. This explains why a severe case of poison ivy dermatitis can be contracted when burning refuse. Soot particles actually carry the poisonous oleoresin.

### "I Never Get Poison Ivy . . ."

Medical research has shown that almost all of us start life immune to poison ivy dermatitis and that sensitivity to it is an acquired condition. Once a person has become sensitized, only a minute quantity of the poisonous juice is necessary for a skin reaction. Individuals vary in the amount of exposure necessary to make them sensitive to poison ivy. But it should be emphasized that although many people come in frequent contact with the plant without unpleasant effects their luck may not hold. Cases have been reported where such seemingly immune persons suddenly became sensitized and severe dermatitis resulted. Thus it is recommended that no undue chances be taken in handling this plant.

An ungrounded and risky bit of folk lore

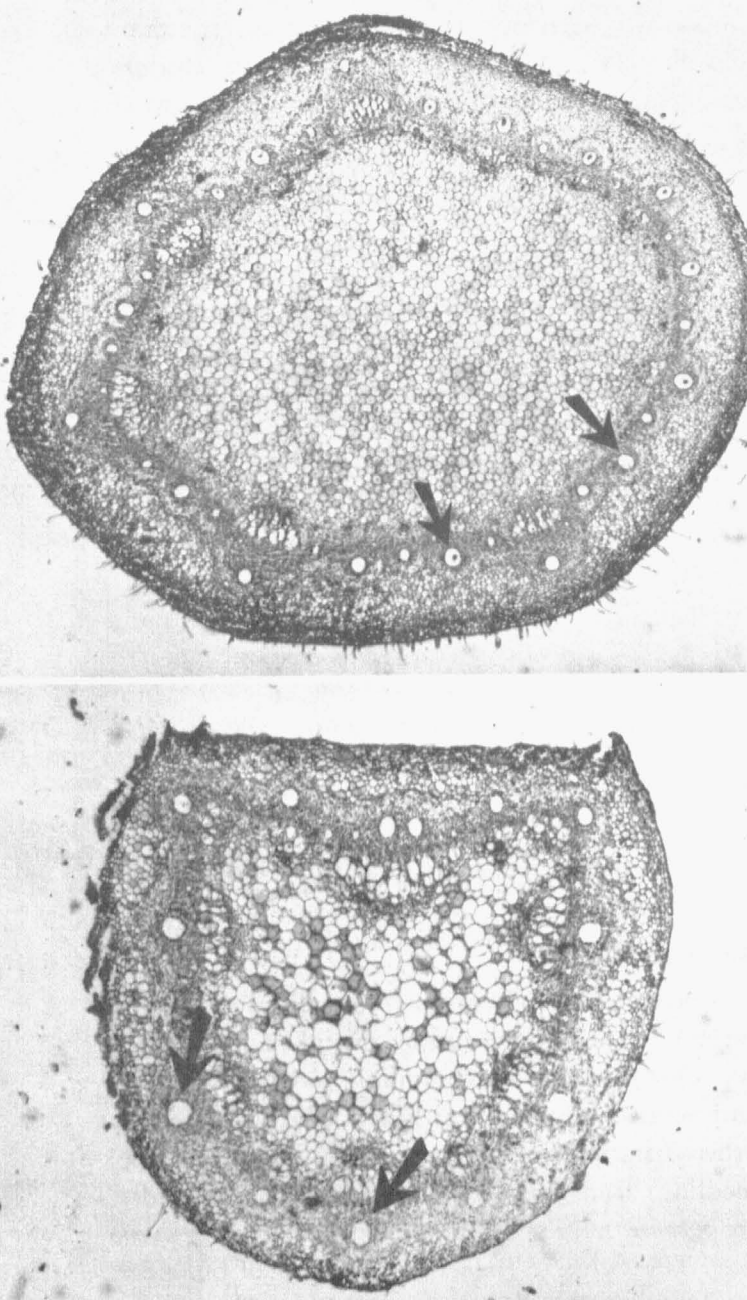


Fig. 4—Top, a greatly enlarged section of leaf-stem (petiole) showing the large oleoresin canals near the outer periphery. Bottom, an enlarged cross-section of a twig showing the large oleoresin canals near the outer periphery. In both of these sections, the poisonous oleoresin has been removed from the canals.

found in some sections of the country is the belief that immunity can be gained by chewing poison ivy leaves in the spring. This is an extremely dangerous practice. Medical research has shown that exposure to the oleoresin either locally or by injection is of questionable value for gaining immunity.

## Contacting Poison Ivy

Sometimes people become afflicted by poison ivy when, to their knowledge, they have not been around the plant. This seems particularly true in the spring and thus the common belief that the poison must be carried by the wind. As mentioned previously, poison ivy pollen does not carry the oleoresin nor is it disseminated by wind. The "wind," however, can be a dog that brushes through the plant and brings the poison home. Or you may carefully avoid touching the plant with exposed skin and then contact oleoresin that has rubbed on to clothing or shoes. Exposed clothing should be laundered or cleaned as quickly as possible but caution must be taken in handling it.

More cases of poison ivy are reported in the spring because the soft, young spring leaves and stems are more easily broken to exude the sticky, poisonous fluid. Tools and work gloves that have been used to eradicate poison ivy may be a source of inflammation weeks after their use. Occasionally, cases are reported where persons became afflicted by handling golfclub heads that had gone through poison ivy, or where poison ivy roots were contacted while gardening. Among plant researchers, severe cases have been reported where soil pits have been dug and poison ivy roots have rubbed against their wrists and forearms.

## Symptoms

Ordinarily, people who are sensitive to poison ivy begin to show symptoms one to two days after contact with the plant. People who are not sensitive to poison ivy may go through a period of a week to 20 days after exposure during which their body be-

comes sensitized, even though their skin shows no outward symptoms. These people will show a skin reaction in one to two days after their *next* contact with the plant. The first skin reaction is a reddening. Then comes the itching and burning, followed by blisters. The fluid from these blisters does not cause additional skin eruption if applied to an uninfected area.

## Remedies

One researcher has listed 250 remedies for poison ivy dermatitis. The main value of a remedy is to relieve itching and dry up the blisters. In spite of the best remedies, however, the eruption often reaches a certain peak in severity before it can be brought under control.

It is a good idea to ask a reputable pharmacist for remedies if you contract a mild case of poison ivy. In the wet or blistery stage, lotions or astringent packs are better than ointments. In severe cases, a qualified medical dermatologist should be consulted.

## Preventives

Preventive ointments are available which are alleged to protect skin areas when exposed to poison ivy. Clinical tests have shown that anointing the skin with white petroleum, 10 percent ferric chloride ointment, 10 percent perborate ointment, or a 10 percent solution of ferric chloride before contact with the oleoresin *only occasionally* prevented poison ivy dermatitis. Recent experiments with ointments of zirconium salts indicate that when they are applied one hour after contact with the oleoresin they will prevent development of the dermatitis condition *in some instances*.

Washing skin areas with strong laundry soap and then applying rubbing alcohol within a minute of contact with poison ivy oleoresin may help reduce symptoms for people who are not particularly sensitive. For sensitive people, washing with strong soap and application of alcohol does not seem to help much, and if a time of five minutes lapses be-



*Fig. 5—Effective use of a “hormone” herbicide stands out here. Area at right was sprayed.*

tween contact with the plant and washing, no beneficial results can be expected.

Some extremely sensitive people who must spend a great deal of time in the outdoors report good preventive success from applying a thick lather of strong yellow laundry soap to the hands and arms. They allow the lather to dry and wash it off after contacting the poison ivy. It seems that the soap lather provides a thin protective film. However, the soap itself is an irritant when left on in full strength and may result in a skin reaction.

## *Eradication*

For a small number of plants, pulling or grubbing is a satisfactory control. Larger areas or dense patches of plants can be controlled with chemicals. Chemical herbicides that will kill poison ivy will also kill other vegetation. So be careful not to spray your valuable plants while killing the poison ivy.

The “hormone” herbicides are recommended for control of poison ivy because they are easy to handle, offer little danger to humans and animals, and have

practically no detrimental residual effects on the soil. These are known as 2,4-D in the salt form, 2,4-D in ester form, and 2,4,5-T ester. Recent research work at the Missouri Agricultural Experiment Station\*, has demonstrated that good eradication of poison ivy can be obtained by spraying with any of these herbicides. The concentrations and other recommendations of the manufacturers are stated on the container or labels and should be followed closely.

You need to spray plants at a certain stage of growth for best control. In general, the best time to spray poison ivy is when the plants have the most leaves, which will be when the new growth has just reached full size. In Missouri this occurs in June in the south and July in the north.

Poison ivy is a very tenacious plant and will appear repeatedly on areas that have been cleared either by manual or chemical means.

The chemical herbicides, while effective in killing poison ivy, do not eliminate the poisonous oleoresin in the dead plants. Hence, plants killed by chemicals should be handled and burned as carefully as plants that are pulled or grubbed out.

\**Chemical weed control in horticultural crops*, by Hemphill, Murneek, and Smith. Mo. Agr. Exp. Sta. Bul. 568, Mar. 1952