

THE

Big Itch

TRUE OR FALSE?

- You can't get poison oak or poison ivy in the winter.
- Scratching spreads the rash.
- You can get it from a toilet seat.
- If you think you know the answers, read on.

OF all the horror stories I've heard, an old college friend's is still the worst. His dorm was throwing a Halloween costume party. He'd decided to go as Caliban, the rustic of Shakespeare's *The Tempest*. Outfitted in a loincloth, he draped himself in vines gathered from the woods nearby. *Two* days later he found himself in the university hospital, his arms and legs so raw and swollen he could hardly move. The vines were poison ivy.

And then there's the story of one of my neighbors. New to the area, she gathered up the brilliant red leaves she saw along the roadside for a fall centerpiece. She and her husband arranged them. They were beautiful. They were also western poison oak. Welcome to California.

As a kid in New Jersey I broke out with poison ivy rashes every time I left the suburbs for Boy Scout camp. I was so allergic it seemed I could catch the stuff by standing downwind of a vine. But my horror story didn't really begin until I moved to the Golden West.

Two days after hiking through the forests of Big Sur, I began to break out in rashes. Soon they covered my forearms, ankles, other body parts I'm reluctant to name. The itch was excruciating. Worst was my face, which became so inflamed that my right

eye swelled completely shut, my left eye very nearly so. The blisters oozed. The ooze turned crusty. The crusts turned scaly. I wasn't a pretty sight.

I'd never even heard of poison oak. How was I to know I'd be allergic to it, too? And in the part of California I was soon to call home - rural Sonoma County, north of San Francisco - the weed was everywhere.

Six months and half a dozen rashes later, I wanted answers. I knew enough by then not to wander obliviously through the woods. So why was I breaking out in rashes even when I stayed indoors? Once, two weeks into a trip to Europe, I suddenly discovered rashes around my ankles. What was going on? How was it that friends, visiting me in Sonoma for a rainy weekend, never even going outside, broke out once they returned to the city?

People told me of odd cures for the rash, from hairspray to mouse-ear herb boiled in milk. Bathing in horse urine was said to help. So was the juice of plantain leaves. A neighbor claimed you could become immune by drinking the milk of a goat that had grazed on poison oak. Would any of these work?

I had other questions, too. What was in those plants? How did the rash spread? Why didn't everyone get it?

FOR STARTERS, I called up Harold Baer at the Food and Drug Administration in Washington, D.C. Chief of the FDA's Laboratory of Allergenic Products, Baer began studying the itchy weeds in the mid-1960s.

"First of all, if you're allergic to poison ivy, you're allergic to poison oak and to poison sumac, though fortunately it's a much less common plant," Baer said. "The culprit is urushiol, a sap that flows through canals in the leaves and stems and even the roots of the plant. The canals are inside the plant, so brushing up against an intact leaf won't cause trouble. But if there's a crack or tear in the leaf and the stuff leaks out, you've got a problem."

There are other ways to encounter urushiol. The stuff flows in the Japanese lacquer tree and remains active in the lacquer derived from it. Occasionally an American tourist returns from the Far East with a mysterious ringed rash - the result of sitting on toilet seats coated with Japanese lacquer. And you can happily eat a mango and unhappily find yourself suffering from "Florida grin"; the rind of the mango contains urushiol. So does the oil of cashew nut shells. A few years ago, a puzzling epidemic of itchy rashes in rural Pennsylvania was traced to improperly shelled cashews sold door-to-door by Little Leaguers.

I hadn't been sitting on any Japanese toilet seats lately or munching on mangoes. I asked Baer whether urushiol could be carried by the wind.

He laughed. "That's a common myth. Urushiol doesn't blow in the air. But plant particles can be carried in smoke, and for fire fighters in forested areas, poison oak and ivy are a major problem."

I told Baer about my own mysterious outbreaks. "Do you have a dog or cat?" he asked.

Jake, my German shepherd, was sitting under my desk idly scratching a flea bite.

"He's one of the ways you're probably getting it - even when you don't go outside yourself," Baer said. "Urushiol sticks to anything. Pets carry it on their coats." Aha. So Jake was bringing urushiol home from his romps in the woods. That might also explain the rashes my city friends carried home with them.

"And not only pets. You can pick it up from tools that have been in contact with the plants," Baer continued. "Or old clothes."

I remembered the gardening gloves and overalls I never thought to wash. And I remembered something else. I'd brought my running shoes to Europe with me. About two weeks after I arrived, I took them out running - and promptly broke out in a rash around my ankles.' They were probably covered with urushiol.

"And once you've gotten it on your hands, you can spread it almost everywhere," Baer said.

Exactly how spreadable the stuff is I discovered when reading about dermatologist Albert M. Kligman's experiment at the University of Pennsylvania in 1958. A volunteer who wasn't allergic to urushiol first crushed a fresh poison ivy leaf against his thumb. He then pressed his thumb 500 times against the back of another nonsensitive volunteer. Every 100th thumbprint, however, was made on the forearm of an exquisitely allergic person. Even the final 500th thumbprint caused a mild reaction.

I was beginning to get the picture. I saw myself wiping my forehead in the hot sun, rubbing my eye, scratching the back of my neck, using the bathroom. A few days later I would have a record of every move written in angry red rashes.

"It sounds hopeless," I said to Baer.

"Well, not completely. One way to prevent the rash is to wash as soon as you can. Urushiol takes time to penetrate the skin. Wash it off in time and you won't react at all."

"How much time have I got?"

"Depends on how much urushiol you've been exposed to. How sensitive you are. What areas of skin are exposed."

Urushiol penetrates more easily where the skin is loose or thin - as on the face, genitals, inner arms, and thighs. You almost never get a rash on the thick skin of your palms or on the soles of your feet. As for washing off the offending substance, if you're only mildly sensitive, you may have an hour or more. For the highly sensitive among us, five minutes may not be soon enough.

"When it comes down to it," Baer said, "the only reliable prevention is to recognize the plant and stay away."

"LEAVES OF THREE, let it be." I remembered the common wisdom from my Boy Scout days - that poison ivy and poison oak could be recognized by the three notched or lobed leaflets on each stem.

I soon learned it isn't so easy. A naturalist friend led me through the woods around my house to demonstrate. "Poison oak," he said, indicating a thick, bushy shrub. "Poison oak," he said, pointing to a scrubby-looking ground cover. "Poison oak," he said, indicating a long vine trailing up a tall fir.

The weed was everywhere. On the drive to my house there is a lush, beautifully shaped bush. I've often wondered whether a hedge of it might look nice beside the deck. "Poison oak," my naturalist friend said. He told me to look closely at a bush I knew was manzanita. Poison oak wound among its branches.

In some parts of the United States, varieties of the poison weed are more common than anything else in the landscape. (Sonoma County seems to be one of those places.) And no area of the country, except the most arid parts of the southwest, is free of it. The plants can thrive in bright sun and relative shade, in forests and along the edge of sandy beaches, in cities and in the countryside.

In general, poison ivy grows east of the Cascades and Sierra Nevada, western poison oak to the west, and poison sumac in bogs and swamplands east of the Mississippi. There's also eastern poison oak, which is nearly indistinguishable from the western variety. In some parts of Washington and Oregon, poison oak and poison ivy cross-pollinate, making precise identification tricky.

In fact, the bewildering diversity of its forms gives western poison oak its formal name, *Toxicodendron diversilobum*. Even in my own yard the leaves of poison oak are sometimes small with scalloped edges, sometimes large with sharp toothy outlines. True, there are almost always three leaves, but there can be up to eleven. And they may be dark green, lighter green, green with a reddish cast. . .

Still, after our tour I was beginning to feel more confident about recognizing it- at least in my own back yard. We returned to the house, where I pointed out some new plantings in the garden. I stooped to pluck a spindly weed.

"Stop!" my naturalist friend shouted. Too late. Poison oak.

I IMMEDIATELY washed my hands. But remembering what Baer had said, I wondered how much time I might have before urushiol set in.

So a few days later, I tried an experiment. I took a leaf of poison oak, crushed it, and pressed my thumb onto three distinct areas on my forearm. Then I washed them off in sequence: one after ten minutes, the second after 20 minutes, the third after 30 minutes.

The results would take a few days. In the meantime, I placed a call to William Epstein, a dermatologist at the University of California at San Francisco. Baer had described Epstein as one of the world's leading authorities on poison oak and ivy. I'd discovered that it wasn't possible to avoid poison oak completely. So what did modern medicine have to offer?

"Frankly, not much," Epstein told me. "There have been dozens of formulations that were supposed to prevent poison ivy and poison oak rashes. The trouble is, none of them has ever worked."

Epstein agreed with Baer - avoid the plant, and failing that, wash the urushiol off as soon as possible. "Years ago, people were told to wash with harsh soap," he said. I remembered buying a bar of Fels Naptha on a neighbor's advice - apparently not such a great idea. "Soap can be counterproductive if you're highly sensitive. It may push the urushiol around on your skin, spreading it. When I spill urushiol on myself in the laboratory, I run to the sink and pour water over it."

I asked Epstein to explain what happens under the skin when you don't get rid of the urushiol that quickly. "The first time you're exposed, there's no visible reaction," he said. "But your immune system is revving up, multiplying the number of cells in your bloodstream that recognize the urushiol molecule. Now you're sensitized. The next time you're exposed, all hell breaks loose."

As in other allergic reactions, overzealous immune cells begin to kill healthy skin cells. Dilating blood vessels color the rash red. Temporary damage to nerve endings results in an excruciating itch. The process can begin within minutes of exposure. Rashes may take a day or two to appear, another day or two to reach their peak of oozing yuckiness.

Doctors have tried to prevent this immune response with desensitization, the traditional treatment for allergies. "The idea is simple," Epstein said. "We purify urushiol and feed it to patients in gradually increasing amounts. I have one patient in the Sierra Club who's been doing it for almost five years now. The last time I saw her she brought me a bouquet of poison oak, just to prove it was working." I asked Epstein to sign me up.

He laughed. "I'd try to talk you out of it. It takes a long time - maybe six months - to work. And desensitization doesn't necessarily mean you won't get rashes, just that they won't be as severe or long-lasting. Once you stop the treatment, in a matter of months

you're sensitive again. Also, because the side effects can be serious, the doses must be carefully controlled."

What about taking the poison oak drops I've heard about, or eating the leaves of the plant?

"I wouldn't recommend it," Epstein said. "Poison oak isn't something to fool around with. People can get very, very sick. The most severe case ever recorded actually, was a rancher from Sonoma County."

Terrific.

"From day one he had it on his legs- probably picked it up riding his horses. He never had a severe case. But after six months he decided to try the poison oak drops available over the counter at the time. He took one drop and broke out in a severe reaction." By the time Epstein saw him three months later, the rancher's kidneys were failing; his immune system had turned against him. Eventually he died, one of the few recorded cases of a death from poison oak or ivy.

I asked Epstein for some good news.

"Actually, there are two things we're interested in. By altering the urushiol molecule slightly, we've been able to create an experimental vaccine. In mice and guinea pigs, the vaccine produces immunity to poison oak. Whether the vaccines will work in humans is another question."

The other promising possibility, he said, is a spray that prevents urushiol from seeping into the skin. Its discovery, as Epstein tells it, is as good a poison oak and ivy story as any. "We noticed that some common deodorants and cosmetics seemed to block urushiol from penetrating the skin. At first I thought the active ingredients were aluminum salts. But we had the ingredients broken down, and even by itself the compound used as a base seemed to block urushiol. I wanted to find out what that compound was."

It turned out to be organoclay, commonly used as a base for cosmetics. Epstein ordered a jug of it. "What I got was just that: a jug of thick, brownish clay. Maybe it did block urushiol. But who the hell was going to spread it over their body?"

So Epstein arranged for the clay to be produced in spray form. Three summers ago, the spray - called Ivy-Block - was tested by hundreds of U.S. Forest Service workers in California. Though the results haven't been published yet, Epstein assured me they were impressive. "The stuff works," he said. Unfortunately, it'll be a while before Ivy-Block hits the shelves. The FDA has ruled that organoclay must be tested as a new drug, which may take several years.

As we spoke, I realized that I was lightly scratching my forearm. I looked down: three distinct patchy rashes. So the results of my experiment were in. I'd broken out even where I'd washed the urushiol off after ten minutes. Great.

"It sounds like you're highly sensitive," Epstein said when I told him about my experiment.

"How sensitive is sensitive?"

"We figure a crushed leaf of poison oak exposes you to about 2.5 micrograms of urushiol. People who react to 0.5 micrograms are going to be highly sensitive to the plant. But I've seen patients who react to as little as .001 micrograms. Let me tell you, very few chemicals produce allergic reactions at that level."

"So what should I do now?"

"Steroid creams can reduce the swelling and itching," he said. "For serious cases, doctors usually prescribe steroid pills or injections. The steroid creams you can buy over the counter aren't potent enough to do any good once you have blistering eruptions. They only have an effect later, when the rash is healing but still itchy."

Calamine lotion would be soothing and cooling, he said - but then so would cold water. It does help dry up the blisters, however. "Definitely stay away from calamine lotion with additives like Xylocaine and Benadryl. They don't add anything except expense. And some people may become sensitive to them."

I asked Epstein if he'd advise anything else. "Just one thing. Spray that dog of yours with deodorant every time he comes in from the woods. Most deodorants contain organoclay - probably enough to neutralize urushiol. I've been meaning to set up a study along those lines. Tell me how it works."

SPRAY DEODORANT for my dog wasn't exactly what I'd hoped for from the cutting edge of medical science. But it was something.

Next morning, as soon as Jake came in from his romp through the poison oak, I sprayed him. Field tests like this, I knew, were notoriously difficult to control. It would take a few months before I could report how it was working.

Still, when one of my neighbors stopped by that afternoon, I told her about my discovery. She listened politely. But I knew what she was thinking. Spray deodorant on his dog! Right. . .

I say, time will tell. Even if it doesn't work, there are other remedies to try. The next time I talk to Epstein, I'll ask him about drinking the milk of goats that graze on poison oak. Heaven knows there's plenty of the weed around. All I need is a goat.

Peter Jaret co-authored In Self-Defense: The Human Immune System.

SCRATCH THAT MYTH

SO YOU THINK you're immune? Don't be so sure. Only 10 to 15 percent of us are truly safe from poison ivy and oak. About half the population has suffered one or more outbreaks of the itchy rash; For the rest of you, chances are you simply haven't been exposed or haven't yet developed sensitivity, which can take more than one contact with the weed. And assuming you're immune can be hazardous to your health. Two college students who anointed themselves with crushed leaves to prove they weren't allergic made dermatology history.

In fact, there's more folklore than fact in what most of us believe. Among the more common misconceptions:

If you're not allergic to other plants, you won't be allergic to poison oak or poison ivy.

Sorry. Even if you can stand in a cloud of pollen without sneezing, you can still break out with poison ivy or oak.

Once allergic, always allergic.

Luckily, not true. People who have long been highly sensitive to poison ivy and oak may begin to tolerate the plant. On the other hand, those who've never had a case may begin to breakout.

Some people are so allergic, they break out if they stand downwind of the plant.

It's a common belief among the supersensitive, but it's not true. Urushiol can't be carried on the wind. But don't try burning the plants to get rid of them. Plant particles borne aloft in smoke can cause serious rashes, and breathing in the smoke can cause inflammation, of the throat and lungs.

Just touching a leaf is enough to provoke a rash.

No. The itch-provoking oil, urushiol, flows in canals inside the leaves, stems, and roots, so the plant must be damaged to allow urushiol to leak out. Dermatologist Albert Kligman at the University of Pennsylvania proved it by taping intact leaves on the forearms of sensitive subjects. Rashes appeared only at the cut stem of the leaf. But don't get cocky: Anything

from a strong wind to insects munching on a leaf can damage the plant and release urushiol.

You can't get poison oak or poison ivy in the winter.

Scratch another common myth. The plants are potent all year round. Even a bare, leafless stem is full of urushiol. And direct contact is only one way to get it. You can break out in a rash at Christmas from a sweater you wore last summer- urushiol remains potent on unwashed clothing for up to a year.

Ooze from the blisters spreads the rash.

Perhaps the most common myth, this one doesn't have a drop of truth. The clear fluid that oozes from the blisters doesn't contain urushiol. It's composed of serum (the clear component of blood) and damaged cells. But while scratching doesn't spread the rash, it can open you up to infection. So hands off.

Eating the leaves can make you immune.

In 1609, in the first written record of poison ivy, Captain John Smith reported seeing Indians eating poison ivy leaves to protect themselves from the rash. But don't try it, or you may find yourself breaking out at both ends. Urushiol administered orally can desensitize you but the doses must be carefully controlled, and even then, the itchy side effects can be worse than the rash.