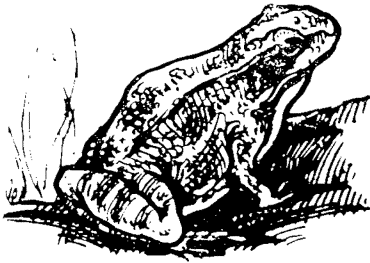


## NATURE RAMBLINGS

by Frank Thone



### Breathing Without Lungs

**S**OME animals are able to get along quite well with neither lungs nor gills.

Ordinarily, we think of lungs as absolutely indispensable for backboned animals that live on land, and of gills as equally necessary for their relatives that spend their lives in the water. But the lungless salamanders, which are rather scarce, shy creatures related to the more familiar frogs and toads, have no gills, and their lungs have degenerated into mere rudiments without function.

The answer to this physiological riddle is partly the same as Terence Mulvaney's to the question how a lot of soldiers got drunk with no visible means of inebriation: "They sukk it in through their skins."

The skins of the amphibia (frogs, salamanders, and their relatives) are thin and scaleless, and the tiny, thin-walled blood vessels crowd close to the surface. So long as the skin is moist, oxygen can pass in and carbon dioxide come out at any point on the body. The creature's whole outer surface thus becomes a sort of auxiliary lung.

Amphibia also practice what is known by the rather terrifyingly long name of buccopharyngeal respiration. Translated from its polysyllabic Greek into English, this means merely breathing with the mouth and throat. Most of the animals in this group have their mouth and throat cavities thickly lined with minute blood vessels, so that interchange of oxygen and carbon dioxide can go on there as well as in the lungs or through the skin.

The lungless salamanders have simply been able to develop the two auxiliary means of getting oxygen, through their skins and in their mouth-and-throat breathing, up to the point where they

can get along without any lungs at all. So they don't have any.

There are other curious developments of this auxiliary breathing among the amphibia. Frogs that live in rapid, cold streams and have thin skins very often possess undersized, underdeveloped lungs, while the commoner frogs, that live ashore most of the time, have

thicker skins and more highly functional lungs.

Perhaps the oldest among skin-breathers is the so-called hairy frog of Africa. During the mating season, when the males need an extra supply of oxygen, they develop gill-like growths on their sides and hind legs, that look like veritable fur pants.

*Science News Letter, November 21, 1936*

### MEDICINE

## CCC Men Help in Search For Ivy Poison Preventive

**O**NE HUNDRED THIRTY men at the CCC veterans' camp, MC-64, Morristown, N. J., served as willing guinea pigs to prove that there is a preventive and a definite cure for ivy poison. Lieutenant-Colonel J. M. Blank, U. S. Medical Reserve Corps, and Dr. Arthur F. Coca, Pearl River, N. Y., physician whom he called in as a consultant in the work, describe its results. (*Journal of Allergy*, September.)

From January the entire command of "2217 V," which includes the Morristown camp, was engaged in mosquito control in New Jersey. This involved much labor and scouting in swampy areas where poison ivy and poison sumac abound. As a result, there had been 129 cases of poison ivy by April 24, sixteen of them so bad they had required hospital care. The morale of the camp, the report continues, was being adversely affected, and still the number of cases increased.

No really critical tests had ever been made of prevention of the irritation by immunizing with injections into the blood stream, the best method to use if it would work. The doctors determined to try this way.

They divided the men into three groups. The first received a fairly weak injection of the actual irritant from poison ivy plants in four weekly doses. This caused their blood to prepare a material which would fight off the poison itself when they came into accidental contact with the plants, just as people vaccinated against typhoid fever acquire immunity to that disease. Of the 45 men in this group, only 9 reported poison ivy infection in the 6 weeks following their treatment. A second group was given similar injections, 12 times as strong as the first. The ensuing 6 weeks saw 3 cases develop among them.

A third lot, of 45 men again, got no injections. Of these 45, 30 got poison ivy! Members of each group were in each of the work gangs.

The report concludes on a faintly regretful note. As each man was found to have the skin irritation, he was given the anti-poison-ivy injections. Routine inspections saw to it that the cases were diagnosed early. The number of cases decreased from the hundreds earlier in the year to none at all in August. There was one case in September, but that was of a man who had not been immunized.

The regret of the doctors lies in the fact that because of this practice of treating the men as they became ill, nobody was left unvaccinated at the end of the treatments who could be used to tell quite certainly whether the men were being exposed as much as before to the poisoning.

*Science News Letter, November 21, 1936*

Brazil is experimenting with the silk-worm industry.

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