

Soap and a Snail Killer

An accident of modern medicine may end a world health problem.

An African doctor noticed dead snails in the wash water—and may have written the end to one of the world's worst health problems—bilharzia, a parasite-borne disease also called schistosoma.

The berries of the endod plant are used in Ethiopia for many medical purposes—as a purgative, a cure for worms, inducing abortion, and as an insecticide. They are also used as soap; farm wives believe they wash clothes cleaner than ordinary soap, as well as leaving then free of vermin.

The endod plant, *Phytolacca dodecandra*, remained just another useful part of the folk pharmacopoeia until Dr. Aklilu Lemma saw the dead snails in the wash water; he realized that endod might be the weapon with which to attack the worm that causes bilharzia, during that part of its life cycle spent inside snails.

No snails, no worms. No worms, no bilharzia.

Dr. Aklilu, Dean of the Faculty of Science of Haile Selassie I University in Addis Ababa, Ethiopia, tested extracts of the ripe berries and found that they killed snails within 24 hours down to a concentration of 10 parts per million. By comparison, copper sulphate and sodium pentachlorophinate, the two most widely used molluscicides, act in pure form at 10 ppm.

A cheap, powerful molluscicide is desperately needed—the World Health Organization has estimated that 150 million people suffer from the disease.

It infects up to 90 percent of the rural population in tropical countries like Egypt, where irrigation is widespread and sanitation minimal. It is a serious problem from China to tropical Africa, and has even infected tourists swimming in Caribbean islands.

Bilharzia is spread when an infected person voids feces containing the eggs of the parasite into water used for swimming or drinking. The eggs develop into larva-like micracidia, which infect certain species of snail. These develop into a free-swimming cercaria armed with enzymes that enable them to penetrate human skin. The worms migrate through the circulatory system, mate, and eventually lay their eggs in the lungs, liver, digestive tract, or around the bladder, depending on the species of worm.

The result is a chronic, debilitating disease almost invariably found in com-

ination with malnutrition, or any of a dozen other tropical complaints. In many areas, almost everyone is infected in childhood while swimming in streams or irrigation ditches. They think everybody normally has cough, diarrhea, and pain in the lower abdomen, and do not realize what a toll this disease is exacting from their daily efficiency. Moreover, bilharzia is often very difficult to diagnose.

In any case, doctors rarely see a case of pure bilharzia. They do not know with any precision how many people suffer from it or even exactly how the disease causes death. In most cases, bilharzia apparently sets the stage for some other fatal infection.

Cures exist for bilharzia, but they are dangerous and not completely effective. In any event, curing the patients will not help if they are immediately reinfected. Better sanitation would solve the problem, but this will take many years to establish. In the meantime, new irrigation projects spread the disease to areas where it was never before a problem. There is also some chance that monkeys or other mammals may also harbor the parasite and serve as reservoir hosts.

The key to the bilharzia problem is thus to eradicate the carrier snail. This is exactly what Ethiopian public health officials hope that endod will eventually be able to do, perhaps simply by being planted along infected bodies of water. Much research remains to be done. Endod's active ingredient must be isolated, and its effects on livestock and drinking water tested. Endod may in fact be so powerful that it may disrupt the whole balance of aquatic life. If it works, however, Dr. Aklilu, trained at Johns Hopkins University, Baltimore, Md. will have shown that an African scientist working in his own country with minimal facilities, can make an inestimable contribution to developing countries all over the world.

FROM AUSTRALIA

Vaccine for Cancer

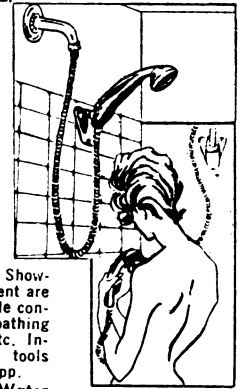
A team of medical researchers has achieved temporary remission in skin cancer cases by inoculating sufferers with smallpox vaccine.

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treatment in more than 300 cases.

The longest remission occurred with the first patient ever treated with the vaccine. Before the treatment, the patient, a woman, had been given nine months to live. She died last year of a brain hemorrhage unrelated to the cancer.

Out of the series of 300 cases, about 100 are still alive. The results were reported by one of the team members, Dr. Malcolm Lane-Brown, who is a senior research fellow in Sydney University's department of surgery.

Dr. Lane-Brown said that spectacular results to date did not mean that the vaccine was a cure for cancer. It was just one facet of a very perverse cancer. But the number of cases treated indicated that more was involved than spontaneous natural remission—which often happens with this cancer.

Why the vaccine should have had this effect is unknown. But it is probably connected with the fact that the cowpox virus from which it is made causes lesions on the skin.

Dr. Lane-Brown said the skin tumor cells may be somehow sealed off or mummified against the body's immunity or defence system. The vaccine might break the seal of the tumor cells releasing antigens, or bits, of the cells into the blood stream. These would provoke production of antibodies. The antibodies would then attack and control the cancer.

White Australians have the world's highest incidence of the cancer which is caused by excessive exposure to sunlight.

FROM GENEVA

International Cancer 'Atlas'

A lung cancer "map," the first of a series of lavishly illustrated cancer monographs, is ready for distribution. The sponsoring World Health Organization in Geneva considers it part of a monumental cancer "Atlas" to be distributed to researchers all over the world. Too many researchers, WHO believes, work in ignorance of the work of their colleagues.

The monograph contains 40 "typical" plates and 10 rarer lung tumor illustrations, along with paraffin blocks containing tissue and other samples. Packages will be distributed free to 1,400 pathology departments of institutions by the International Council of Pathological Societies.

Remaining sets will be sold at cost in Europe, the United States and Canada, but for 30 percent of cost in Latin America, Asia and Africa. WHO doctors feel that the materials will have great importance in those developing

regions, most often deprived of needed contact with the science being done in advanced centers.

The next series will be on breast cancer, probably in 1967, followed the same year by a series on soft tissue cancer by Dr. F. M. Enzinger of the Armed Forces Institute of Pathology in Washington, D.C. Following this package, will be one on leukemia by Dr. George Mathe, National Medical Research Institute, Villejuif, Paris, France.

Dr. Humberto Torloni, hard-working Argentinian pathologist of WHO's cancer unit, is coordinating the vast project. On the wall of his office overlooking Lake Geneva, he has a chart and map showing where every classification stands.

He has recently attended meeting of International Reference Centers and talked to colleagues in London, Agra, Paris, Tokyo, Buenos Aires and Teheran.

"There never seemed any possibility of world-mapping cancer in a scientific way," he says. "Now we hope each center will continue to serve with us as an international registry of pathologic tissue for its field, as diagnostic consultants and as educators for the training of younger scientists."

Almost 200 pathologists in 126 centers in 37 nations are participating in the project. Twenty-two teams are being organized, each with one International Reference Center, chosen by colleagues themselves because of excellent work in the particular field. The 22 will cover the various cancer sites—pelvic, bone, skin and so on—accounting for 95 percent of the world's cancer.

The lung cancer section was produced by a task force of 18 pathology units in 15 countries, headed by Prof. Leif Kreyborg, director of the Institute for General and Experimental Pathology of the University of Oslo.

In this first published volume on lung tumors, he pays tribute to two chief collaborators, Dr. A. A. Liebow of Yale Medical School (now in California), and Dr. E. A. Uehlinger of Zurich. Other collaborators were from Paris and Bonn.

FROM MOSCOW

Sonic Signal Makes Pix

Seeing by sound, a new technique that may well replace the X-ray in metallurgical applications, has recently been developed at the Institute of Acoustics of the U.S.S.R. Academy of Sciences.

It is an instrument which transforms a reflected sound signal into a picture. It is possible to see objects a few tenths of a millimeter in size in a mass of absolutely non-transparent substances.