PUBLIC HEALTH

Cream Repels Leeches

Cheap chemical substance, rubbed onto shoes and legs up to knees, saves soldiers in Far East from disabling wounds. Also repels mosquito.

➤ LAND-LEECHES, one of the serious plagues of Far Eastern warfare, are going to find the soldier of the future less tempting prey.

A cheap chemical substance, di-methyl phthalate, made up into a cream with white wax and arachis oil and applied to the shoes and exposed skin of persons venturing into leech country is sufficiently offensive to the leech to make it think twice before attacking its intended victim.

"A light covering of the cream to the footwear and to the skin of the leg as far as the knee sufficed to prevent attacks in country where without such ai bites could have been frequent," reports Dr. F. M. G. Stammers, (PARASITOLOGY). This British scientist compounded his repellent in London's St. Bartholomew's Hospital and then proved its usefulness in southeastern Ceylon's leech-infested jungles.

The land-leech is a particularly vicious and disabling pest of jungle warfare. It attaches itself to the skin by the hundreds, sucks large quantities of blood and leaves a wound from which blood continues to ooze for a long time after the engorged leech itself has droppe off. These wounds also frequently become the seats of severe infections.

Found in Japan, China, Burma, Malaya, the East Indies, India and Ceylon, in some areas they number as high as 50 to the square yard. Only about an inch long and not thicker than a matchstick when hungry, the leech can worm its soft body through the eyelets of a boot and even between the mesh of a closely woven stocking, so that clothing itself is no protection against it.

Possibly even more effective than dimethyl phthalate, according to Dr. Stammers' findings, is the chemical hydroxycitronellal, but it is much more expensive than the former chemical and therefore not so practical for general use on large numbers of fighting troops. Both chemicals have the added advantage of being repellent to that other jungle pest: the mosquito.

In the course of his studies on the land-leech Dr. Stammers made some interesting observations on the prey-finding tactics of the parasite. He found that contact with a warm object brought the leech into a sucking position and that it would follow a warm current of air, showing that the temperature of the body is probably one of the signals used by the leech to show it when to attack.

He also found that a 50% reduction in the light shining on the leech brought it to position for an attack, so that it seems likely a person's own shadow is another signal to the leech that a potential victim is approaching.

Skin itself, regardless of its temperature, is attractive to leeches, but Dr. Stammers was not able to extract from skin the specific chemical which attracted the leech.

Science News Letter, December 2, 1950

RESOURCES

Critical Shortage Relieved

Process known as "platforming" can eliminate danger of shortage of benzene, needed for synthetic rubber, nylon, detergents and other uses.

➤ DANGER of a shortage of benzene, the extremely critical chemical that is already in tight supply, can be eliminated "quickly, permanently and economically."

Dr. Gustav Egloff, director of research for Universal Oil Products Co. in Chicago, states that a process, known as platforming, discovered by Dr. Vladimir Haensel and already placed in commercial operation, can relieve the present shortage.

In all-out war mobilization, increased use of benzene for synthetic rubber and aviation gas would mean cuts in the production of plastics, nylon, weed killers, detergents, insecticides and many other essential military and civilian products.

For some time Universal has been studying the production of benzene through platforming. The term "platforming" represents the reforming, or changing, of gasolines in the presence of hydrogen using a platinum catalyst. This process, now being used to improve the quality of motor gasoline, will successfully produce benzene in practically unlimited quantities, he stated.

Dr. Egloff emphasized that this is a "most important finding and one that will have a significant bearing on the nation's ability to produce benzene in adequate quantities so that all military needs can be met without affecting the production of civilian products requiring large amounts of this chemical."

Although approximately 170,000,000 gallons of benzene will be produced during 1950, all-out war would require at least twice this amount, a now unobtainable figure, Dr. Egloff said.

In addition to producing benzene, Universal has discovered that platforming can be used to make large quantities of toluene, basic chemical in the production of highly explosive TNT as well as an important component in fighting-grade aviation gas.

Science News Letter, December 2, 1950

RADIO

Device Turns Off Radio When Speaking Begins

➤ A DEVICE that will automatically turn off your radio when speaking interrrupts music was described to members of the Acoustical Society of America meeting in Cambridge, Mass.

Its most obvious use, sai Dr. R. Clark Jones of the Polaroid Corporation, who worked out the details of the device, would be by those music lovers who dislike having music programs interrupted by commercials. It might also be used by hotels or restaurants to obtain suitable background music, free from speech, directly from radios, thus supplementing wired music services.

Dr. Jones demonstrated how the small four-tube device works to the scientists. It silenced the radio after one or two syllables of speech. The radio then remained silent until about one second after the voice had stopped. Both switch-out and turning on again are entirely automatic.

In presenting the development, Dr. Jones suggested that its real importance is "the light it may shed on our knowledge of the nature of speech and music and of the working of the human brain."

The device works because of a fundamental difference between music and speech. Speech is full of extremely short pauses, such as the one between "s" and "t" in the word "stay." These pauses occur much more frequently in speech than in music, and are also much more abrupt. What the instrument does is to "listen" for these pauses, measure their abruptness, remember how many pauses there have been during the preceding few seconds and then make a "decision."

The device would not represent a threat to radio advertising, Dr. Jones declared, since it would probably cost $15 or $20 if commercially available and "anyone who dislikes radio commercials that much can scarcely be considered a profitable part of the radio audience."

When faced with patter songs, such as those of Gilbert and Sullivan, or with singing commercials, the device has difficulty in making a decision as to whether music or speech is playing—just as some people do.

Science News Letter, December 2, 1950