

BACTERIOLOGY

Protects in Biological War

Two vaccines have been reported. One will protect against tularemia; the other will help animals fight botulism. Fungi that may rid animals of worms were also reported.

THE UNITED STATES has taken another step toward protecting itself against possible biological warfare attacks by developing a potent, live vaccine that can be inhaled to give protection against tularemia, or rabbit fever.

Dr. H. T. Eigelsbach of the U. S. Army Biological Warfare Laboratories told a meeting of the Society of American Bacteriologists in Philadelphia that the inhalable, or aerogenic, form of the vaccine gives greater immunity than does the injected form.

In tests with human volunteers the injected form has proved more potent than any other tularemia vaccine available.

The aerogenic vaccine, tested in guinea pigs and monkeys, not only provided protection against catching tularemia by inhaling it, but also gave greater protection against infection by skin contact.

The human victim of tularemia, which can be fatal to man, is usually infected when he handles a sick rabbit or when he is bitten by an infected tick or deer fly.

Giving the new vaccine to laboratory workers, hunters and persons living in tick-infested areas will cut down the number and severity of tularemia cases, Dr. Eigelsbach said.

The medical research leading to this important observation was performed by Dr.

Eigelsbach, J. J. Tulis, and W. R. Griffith of Fort Detrick, in collaboration with Lt. Col. E. L. Overholt, of the U. S. Army Medical Unit at Fort Detrick, Md. (now stationed at the Walter Reed General Hospital). Fort Detrick is an installation of the U. S. Army Chemical Corps.

Science News Letter, May 14, 1960

Botulism Vaccine Tested

THE DEVELOPMENT of a vaccine that can protect animals in epidemic outbreaks of botulism was also reported at the Society of American Bacteriologists meeting in Philadelphia.

Botulism is caused by the toxin produced by the bacterium *Clostridium botulinum*. It affects man, domestic animals and wildlife, and is nearly always fatal. Seven ounces of the poison is said to be enough to wipe out half the population of the world.

Occurrences of botulism in man are sporadic and are usually due to improperly processed canned foods. Outbreaks of the disease in cattle, mink and poultry, however, are more common and of great economic importance in such industries. Recently an epidemic of botulism killed 8,000 pheasants in New York State.

Dr. Daniel A. Boroff of the New Eng-

land Institute for Medical Research and James R. Reilly of the Conservation Department of the State of New York have developed a vaccine that will protect pheasants against 3,000 times the dose of toxin ordinarily considered fatal. In two experimentally induced epidemics, 72% of non-immunized birds died while only 20% of the immunized birds died.

The two scientists believe their vaccine is sufficiently effective to be used in routine immunization of pheasants and that, with little modification, it could be used in other animals as well.

Science News Letter, May 14, 1960

Fungi Can Kill Worms

JUST AS THE VENUS flytrap plant captures and digests insects, so certain types of fungi can capture, kill and consume parasitic worms.

Research aimed at putting this phenomenon to work to rid animals of worm infestation was described at the Society of American Bacteriologists meeting in Philadelphia by Dr. Waldimero Coscarelli of Rutgers University.

Dr. Coscarelli identified the worms that can be destroyed by fungi as nematodes. These include certain types of both roundworms and threadworms.

The fungi are not difficult to breed under laboratory conditions, he said. But in order to harness their worm-destroying property, it will first be necessary to select a species that can be grown in quantity, be controlled and be harmless to animals and man.

One possibility, the researcher said, is a species called *Arthrobotrys conoides*, which appears to be similar to other fungi until nematodes are added to culture media.

Science News Letter, May 14, 1960

BIOLOGY

Wastebaskets Used As Miniature Ponds

THE POLYETHYLENE wastebasket has found a new use in the study of lakes. It is being used to create small ponds within a larger one. This enables the biologist to test natural observations experimentally.

An ever-increasing demand for food to feed the world's exploding population may be met by intensive farming of ponds since they provide the most intensive means of agriculture at man's disposal. Large yields of food from ponds are achieved only through continuous application of plant fertilizers, much more often than is necessary on crop land. In soils and water there are substances present which precipitate plant nutrients. In soils the roots of the plant come in contact with the precipitated nutrients and redissolve and absorb them, but in ponds the plants are microscopic and suspended in the water while the nutrients lie on the bottom out of the plant's reach.

As a result continuous addition of nutrients, although inefficient, is necessary to supply the demands of the plants. Dr. Raymond G. Stross and Grover Butz of the University of Maryland are using miniature ponds to search for efficient ways of preventing precipitation of plant fertilizers.

Science News Letter, May 14, 1960



FARMING PONDS—In experiments of food-farming of ponds, Dr. Raymond G. Stross and Grover Butz of Maryland University use polyethylene wastebaskets as ponds within ponds.