



Enemies of Swine

EARTHWORMS have been found to play a villain's role in the transmission of swine influenza, a troublesome and money-losing disease of pigs. Their conviction as disease carriers is based on experiments conducted at the Rockefeller Institute for Medical Research, by Dr. Richard E. Shope. (*Science*, May 12)

The cycle of swine influenza is a more complicated affair than the mosquito-man combination in such diseases as malaria and yellow fever. It involves the pig, the earthworm, a parasitic lungworm that lives part of the time in the pig and the rest of its life in the earthworm, a filterable virus (the ultimate cause of the disease) that the lungworm always carries, and a bacterium known as *Hemophilus influenzae suis* that provokes the virus to produce the disease symptoms.

It goes something like this: the earthworm unconsciously eats the bloodworm eggs after they are discharged from the pig's body. The virus, associated with the eggs, lives on in the young bloodworms that emerge from them. Then a pig eats the earthworm.

The larval lungworms burrow through the digestive organ walls, enter the blood stream, and finally arrive in the lungs, where they stay. There they encounter the bacteria which cause the influenza virus to become active, producing typical symptoms of swine influenza.

The bacteria are not necessarily the only possible stimulus to the virus, Dr. Shope states. Under experimental conditions he was able to activate the virus with an injection of calcium chloride solution into the cavity around the lungs.

Once started in a herd of swine, the highly contagious disease is able to pass directly from pig to pig without the assistance of the earthworms.

Science News Letter, July 8, 1939

PUBLIC HEALTH

New Health Menace Seen in Cadmium Coatings on Utensils

A NEW health menace, chronic cadmium poisoning from foods contaminated with this metal which is being used in coating metal utensils, was revealed in a report to the American Association for the Advancement of Science's Pacific Division by Drs. R. H. Wilson and Floyd DeEds, of the U. S. Bureau of Chemistry and Soils stationed at Stanford University School of Medicine.

Cadmium is being used to coat articles which may come in contact with foods, such as buckets and milk cans, meat hooks, meat grinders and the like.

An outbreak of acute cadmium poisoning, due to cadmium contamination of cottage cheese from milk cans, was reported some years ago.

Without wishing to alarm the public, the government scientists have been investigating the possibility of a chronic form of the poisoning arising from eating small amounts of cadmium contaminated foods over a long period.

Anemia and markedly enlarged hearts were found in rats that had been fed a minute amount of cadmium chloride (0.0125 per cent) in the diet. The heart enlargement, it is believed, is due to increased heart work in the effort to keep the body supplied with sufficient red blood cells, which are too low in anemic blood.

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Dye For Trichinosis

NOW IT IS trichinosis which medical scientists are trying to conquer with their new chemical weapon, sulfanilamide. Trichinosis is the disease that comes from eating undercooked "measly" pork. There is no specific remedy for it.

Sulfanilamide, famous for its curative effect in streptococcus and other germ ailments, was less effective as a trichinosis remedy in rats than phenothiazine, Drs. James B. McNaught, Rodney R. Beard and Floyd DeEds, of the U. S. Department of Agriculture and Stanford University School of Medicine, reported.

The infected rats that got phenothiazine in their diet had 74 per cent less trichinella larvae at the end of six weeks than did those on a diet containing no drug.

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Living Fossils in Protein

THE MYSTERY of life is locked in the structure of the proteins, the characteristic chemical compounds which always accompany life and without which life is impossible, Prof. J. D. Bernal, of the University of London, suggested.

There is much evidence that protein, familiar to us in food, clothing and other material from living things, is the product of a long evolution of chemical forms, Prof. Bernal explained. Another theory, for which there is less evidence, is that protein is simply an arrangement of atoms or of amino-acids of such low energy that it will tend to be formed whenever suitable materials are found together.

The protein molecule may be considered a living fossil, Prof. Bernal said. This is because all protein molecules that we know now have been made by other protein molecules, and these in turn by others. Thus the evolution of the protein molecule has run parallel with the evolution of the organisms which are constructed from them. The structure of proteins is viewed as a key to the solution of many of the problems of the development and origin of life.

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