

MEDICINE

Typhus Fever in Man Proved To be Transmitted by Fleas

Latest Martyr of Science, Accidentally Bitten While Working with Insects, Now in Hospital Fighting Disease

BECAUSE he found that a bit of chiffon laid over the end of a glass tube made it possible for experimental fleas to bite guinea pigs infected with typhus fever. Dr. Elmer T. Ceder, 26-year-old research assistant at the U. S. National Institute of Health, is now lying on a hospital bed fighting the disease in his own body.

Fortunately this latest martyr to science is not critically ill and is expected to recover. The American typhus fever, from which he suffers, is not so fatal as the European form of the disease, public health officials pointed out.

Most of the fatal cases of supposed typhus fever in this part of the world have turned out to be Rocky Mountain spotted fever, investigations by Drs. R. E. Dyer, L. F. Badger and A. S. Rumreich of the National Institute of Health showed. It was in part of this very research that Dr. Ceder was assisting when he fell a victim to typhus fever.

Dr. Dyer, investigating the two diseases as they occurred in Washington and nearby states, found among other things that fleas apparently transmitted one of the diseases, which was presumably typhus fever. To prove this, it was necessary that he have uncontaminated fleas feed on animals infected with typhus fever and then have the same fleas feed on uninfected animals. If the animals caught the disease, he could prove that the fleas had transmitted it. However, he struck a snag in his investigation when he tried to get the fleas in their sterile glass tube to bite the guinea pigs.

When young Dr. Ceder joined the staff of the National Institute of Health he was set at this task. He discovered that the fleas in the glass tube could not bite because the slippery sides of the tube gave them no foothold for their legs. So he ingeniously covered the ends of the tube with a piece of chiffon which gave the fleas a good surface to anchor themselves to while they bit and sucked the pigs' blood.

In the course of his work, one of the infected fleas bit Dr. Ceder instead of

the pigs, it is thought, thus giving him the disease. This young research worker has thus contributed in two ways to science's knowledge of typhus fever. First, he advanced the laboratory research on the transmission of typhus fever in animals and second, he has given conclusive, if unintentional, proof that it is also transmitted to man by fleas.

Dr. Ceder was born in Minneapolis in 1905 and received his medical degree from the University of Minnesota in 1929. He served his internship in one of the U. S. Public Health Service hospitals and was assigned to duty in Pittsburgh as an officer of the Service. He was transferred to the National Institute of Health early in 1931.

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PLANT PHYSIOLOGY

Cold Storage Does Not Harm Vitamin C of Apples

APPLS come through cold storage safely without harm to their precious vitamin C, scientific studies have just shown. Frozen apples have been kept for four months without losing an

ARCHAEOLOGY-GEOLOGY

Tree Ring Studies Steadily Decrease Undated History

DATED HISTORY on the American continent will soon be pushed back to the dawn of the Christian era, if present studies of tree-ring material develop successfully. This news of his researches was revealed by Dr. A. E. Douglass of the University of Arizona, in his address before scientists gathered to honor himself and a fellow scientist, Dr. Ernst Antevs of Sweden.

Dr. Douglass and Dr. Antevs received Research Corporation Awards of \$2,500 each for their successful re-



DR. ELMER T. CEDER

—the 26-year-old research worker who was infected while experimenting with the transmission of typhus fever.

appreciable amount of this vitamin.

This important fact has been ascertained by Dr. S. S. Zilva and Miss M. F. Bracewell at the Lister Institute, and Dr. Franklin Kidd and Dr. Cyril West at the Low Temperature Station, Cambridge, England.

The apples used were Bramley's Seedlings. It was found that they could be stored in air at 3 degrees Centigrade or 35.6 degrees Fahrenheit for five months and yet contain as much vitamin C as they did originally.

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searches in measuring the years in undated centuries of the world's past. The awards were presented by Chief Justice Charles Evans Hughes, chancellor of the Smithsonian Institution.

Dr. Douglass told how, using tree rings as his yardsticks of time, he constructed an unbroken chronology of annual tree rings in the Southwest from the present back to 700 A. D. Tree-ring specimens for the earlier centuries of the series were gathered, with the cooperation of (Please turn to page 415)