

invertebrate course for several years. However, his major research interest soon changed to parasitology. Beginning at the Kansas State Agricultural College and later as research parasitologist at the Agricultural Experiment Station of the University of Wyoming, he at first concerned himself with parasites of livestock, demonstrating the insect transmission of swamp fever in horses and working extensively with *Sarcocystis tenella* of sheep. Later he became interested in the parasites of wildlife, particularly the tapeworms of the genus *Diphylobothrium* and the coccidian parasites of the

sage grouse. Working out the life-cycle of the latter led to the first description of the mating behavior of the sage grouse, the discovery of one of the highest degrees of social organization in gallinaceous birds, and a comparative behavioral study of two related species. At the time of his death he was working on two problems: one on the relationships between *Diphylobothrium cordiceps* and *D. latum*, which he concluded were physiologically and morphologically distinct, and the other on the races of *Eimeria* in the sage grouse, which developed in isolation conforming to the isolation pro-

duced by the social behavior of the host.

As a teacher, Scott had a gift for presenting a clear organization of a subject, but his outstanding capacity was for friendships. He was an idealist in human affairs and could understand and appreciate any quality except selfishness. Those whom he inspired share his belief that the pursuit of knowledge is an honorable occupation whose end is general and individual welfare. He died on 15 August 1956 in Laramie, Wyoming.

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News of Science

AAAS Awards

The following awards were presented during the recent AAAS annual meeting in New York.

The AAAS-Anne Frankel Rosenthal memorial award went to Jacob Furth, associate director of research at the Children's Cancer Research Foundation, Harvard Medical School. The award, consisting of \$1000, is from funds provided by the Rosenthal Foundation.

Furth was born in Hungary and educated in Germany, where he began his professional career. He came to the United States in 1924. After a year on the staff of the Henry Phipps Institute in Pennsylvania, he was appointed to the faculty of Cornell University College of Medicine, where he remained until 1948. Then for the 4 years he served as chief of the pathology and physiology section of the Biology Division of the Oak Ridge National Laboratory. In 1954 he was appointed to his present position at Harvard.

Herbert C. Kelman, research psychologist at the National Institute of Mental Health, received the \$1000 AAAS Socio-Psychological Research award. Kelman was born in Vienna 29 years ago. Following receipt of a Ph.D. degree from Yale University in 1951, he was given a fellowship by the Social Science Research Council and spent a year at the Phipps Psychiatric Clinic of Johns Hopkins University. From 1952 to 1954 he served as a U.S. Public Health Service research

fellow. Then, after a year at the Center for Advanced Study in the Behavioral Sciences at Stanford, Calif., he assumed his present position.

Kelman's prize winning study was a theoretical and experimental investigation of social influence. Social influence or social pressure sometimes leads a person to change his attitudes or behavior, but this conformity takes place at different levels. A person may conform because he expects to be rewarded for conforming and punished for nonconforming behavior. He may conform because he wants to maintain good relations with other people whose behavior or attitude he copies. Or, he may conform because he really believes that the ideas or actions are good and proper. Kelman analyzed and studied experimentally some of the factors involved in these three kinds of compliance with social influences. Kelman was a college roommate of Yehudi A. Cohen of the Albert Einstein College of Medicine who received the award last year.

The AAAS-Ida B. Gould memorial award for research on cardiovascular problems was presented jointly to C. W. Lillehei of the University of Minnesota School of Medicine and his associate Richard Allison DeWall. The award is being given for Lillehei's leadership in the field of open heart surgery through the preparation of oxygenators of various sorts, including the pump oxygenator that was originated by DeWall.

Neal E. Miller, James Rowland An-

gell professor of psychology at Yale University, and James Olds, associate research psychologist in the department of anatomy at the University of California, Los Angeles, received the 29th Newcomb Cleveland \$1000 award for their experiments with animals which show that certain areas in the brain apparently govern feelings of punishment and gratification. The prize-winning papers were "Learning and performance motivated by direct stimulation of the brain," by Miller, and "Effects of hunger, sex, and tranquilizers on localized reward systems in the brain," by Olds.

Miller and his colleagues at Yale have shown how different emotions and drives may be aroused by stimulating certain places deep in a primitive part of the brains of rats and other animals. They have studied reactions that seem to be like pain and fear, flight, rage, hunger, sex, and thirst. Olds, working with Milner in Montreal, discovered that electric stimulation of other points deep in the brain can act as a reward. Thus, while the animals used by the Yale group would work to escape direct stimulation of the brain, Olds' rats would work to get it. Since Olds found that his reward effect could be influenced by drives, he could use it as a means of studying the location of various "drive centers" in the brain. The work going on in the Yale and California laboratories and that in other laboratories is fitting together to begin to give a picture of how motivations are aroused deep in the brain.

Population Changes

Families are becoming larger in the United States, the Metropolitan Life Insurance Company's statisticians report. An increasing number of couples are now having a third or fourth child. The annual rate for third births has climbed from 1.8 per 100 married women under age 45 in 1940-41 to 3.1 per 100 in 1954-55. For fourth births, the rate in-