SCIENCE NEWS

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MEDICAL HEROES

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WHILE the year 1932 was making another record of continued good health in spite of depression, a group of heroic men and women dared illness and death in the constant fight against disease. Many of these daring ones have escaped the enemy, disease, but a few have suffered illness and at least one died.

Dr. William Brebner, twenty-nine years old, assistant professor of bacteriology at New York University and Bellevue Medical School, lost his life in the battle against infantile paralysis. In the course of his research on this disease at the City Health Department Laboratories of New York City, he was badly bitten by a healthy monkey. The wound became infected and after about ten days, Dr. Brebner was paralyzed below the waist. Later the paralysis ascended till it reached his lungs and his breathing failed. Fellow investigators at the health department have not yet been able to determine the type of the germ that caused the fatal infection. It was not infantile paralysis or hydrophobia, they are certain.

Special guardians of the nation's health are the disease-fighters of the U. S. National Institute of Health in Washington. They work defiantly with ticks and fleas that carry deadly disease, and with the disease germs as well.

Within the last year three of them have suffered from typhus fever, and others are still risking an attack as they continue their studies. But they have found that in the United States this disease is carried by fleas from typhus-infected rats to healthy persons. And they are on the track of a protective vaccine.

First to suffer with the disease was Dr. Elmer T. Ceder, who was in the hospital just one year ago. Next was Dr. R. E. Dyer, chief of the typhus research team, who had barely recovered in December of this year when Dr. William G. Workman became ill. Now Dr. Workman is about well again, and others on the team, Drs. L. F. Badger and A. S. Rumreich, are wondering if it is about their turn.

Dr. Rumreich has been out in the field, seeking typhus patients and looking for rats and fleas. When Dr. Dyer was ill, he directed his assistants to feed some of his blood to body lice, in order to determine whether this insect can carry the American form of the disease, as it does the European. Drs. Rumreich and Badger searched every flophouse in Washington and Baltimore, but could not find any lice for their experiments, as this was not the season for lice, which do not appear until colder weather than prevailed in Washington in October.

One of the most dangerous disease-fighting jobs of the year, and one which will continue into the next year, is being tackled by Dr. H. E. Hasseltine in California. Dr. Hasseltine, also of the staff of the U. S. Public Health Service, is setting up his laboratory for investigation of parrot fever or psittacosis, which has been found to exist in breeding aviaries of Southern California. This is thought to be the source of the attack of parrot fever suffered this year by Mrs. William E. Borah, wife of the Idaho Senator.

Parrot fever research caused the death of one and the illness of eleven members of the staff at the U. S. National Institute of Health in 1930, when the first big outbreak of it occurred in the country. Dr. Hasseltine himself was one of the first to suffer an attack. His share in renewing the investigations of it is nevertheless daring, because it is not known whether or not one attack of the disease gives immunity or protection against further attacks.

Associated with him in California is Dr. V. M. Hoge, another federal disease-fighter. Dr. Hoge has never had parrot fever, but he knows that almost every one who had anything to do with the former research, and many who had nothing to do with it but merely worked in the same building, suffered from it. He and Dr. Hasseltine both know that one out of every five who get the disease dies of it.

From New York comes the report of another medical hero of 1932. B. R. Rickards, director of state public health education, deliberately risked carbon monoxide poisoning to gain firsthand knowledge of this peril, that he might be better able to teach the people of his state how to avoid it. Mr. Rickards closed the doors of his three-car garage and started the motor of his automobile. In just a minute, he reported, he felt a metallic taste in his mouth, got dizzy and drowsy. He rushed to the door just as his son, stationed outside to watch the proceeding, flung it open.

Finally, this healthy year of 1932 saw the death of that great disease-fighter, Sir Ronald Ross. His discoveries about malaria at the close of the last century have led to the effective prevention in nearly all parts of the world of that disease which once made a very black mark on the health records of any country in any year.

THE CANCER-PRODUCING CONSTITUENT OF COAL TAR

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THE exact chemical nature of the substance in coal tar which produces cancer has been discovered. The substance itself has been produced synthetically in the laboratory. This important success, following many years of failure, was recently reported in *Nature*, by Dr. J. W. Cook, I. Hieger and Hewett, of the Cancer Hospital Research Institute, London.

One type of cancer, which often afflicts chimney sweeps and workers in the coal tar industries, is due to irritation with coal tar. The same type of cancer occurs in mice that have had coal tar painted on the skin. Now the British investigators have found that the cancer-pro-

ducing constituent of the coal tar is a previously unknown compound of hydrogen and carbon, 1.2 benzpyrene.

Samples of this compound which they made in the laboratory were as effective as material isolated from pitch in producing cancer of the skin in mice. The rapidity with which this synthetic compound caused skin cancer in mice indicated that it is the most active cancer-producing hydrocarbon known. Ordinarily it takes some time for the coal-tar cancers to be produced.

The cancer-producing benzpyrene was isolated by concentrating active fractions of coal tar pitch using a method of fluorescence spectroscopy developed by Mr. Hieger and W. V. Mayneord. The synthetic material was produced from pyrene, a complex hydrocarbon isolated from coal tar, but not to be confused with the popular fire extinguisher which has the trade-name of pyrene and is carbon tetrachloride.

While the identification and synthetic production of this substance responsible for one type of cancer has no immediate bearing on discovery of a cure for the disease, it should be a great aid to cancer research.

In the course of their study, the investigators also isolated from coal tar pitch three other hitherto unrecognized coal-tar constituents and identified one of them by synthesis. These are two hydrocarbons composed entirely of benzene rings, namely perylene and 4.5 benzpyrene, and one other compound, 1.2 benzanthracene from the chrysene fraction of coal tar. The 4.5 benzpyrene, which is closely related to the cancer-producing substance, was the one synthesized.

A HYGIENIC BUTCHER'S SHOP

A BUTCHER'S shop, clean and germ-free like a hospital operating room, has been opened in Paris with the public blessings of several professors of the faculty of medicine and of representatives of the local authorities.

Dr. Kaplan, the author of this new venture in practical hygiene, has installed his salesmen in a huge glass chamber, the air of which is constantly being renewed and filtered, and kept at a temperature of 7 degrees Centigrade (45 degrees Fahrenheit). The salesmen wear rubber gloves and are dressed in white from top to toe. They cut up, weigh and pack the meat under the eyes of their customers with whom they communicate by means of microphones and loud speakers.

In the basement the meat is kept in refrigerators or in cold storage during the 48 hours which intervene between the arrival of the meat and its sale. Many other eatables besides meat are sold, and Dr. Kaplan has developed remarkable ingenuity in shepherding food from its source to the customer's hands through the necessary channels with the minimum of contamination and exposure.

Not only are Parisians being served with much cleaner food than heretofore, but they are absorbing practical lessons in hygiene which it is to be hoped they will apply on returning from this shop, the first of its kind in France, to their homes.

On the whole, the reaction of the Parisians has been favorable. But one captious critic has protested against the white raiment and rubber gloves of the salesmen. They reminded him painfully of a surgeon in an operating theater. Butcher's shops, he felt, existed to provide palatable meat, not visions of appendicitis or peritonitis. This squeamishness does not, however, seem to have overtaken many of the shop's customers, for it is thronged by housewives willing to pick up not only bargains in meat, but also tips in hygiene.

The shop bristles with such tips. The housewife who for years has been accustomed to finger and smell meat before she buys it must feel baulked of these exercises of her tactile and olfactory faculties, but she will doubtless console herself with the reflection that smells in such a Pasteur-inspired atmosphere as that of this modern butcher's shop are an anachronism.

ITEMS

THE discovery, on December 17, of a comet that may prove to be Tempel's comet of 1866, known to be associated with the famous Leonid meteors of November, is reported by Dr. G. F. Dodwell, director of the Adelaide, Australia, Observatory. The close approach of Tempel's comet had been predicted, and for the past two months astronomers the world over had been searching for it. The theory is that the Leonids are the débris of a part of the comet or one traveling in a similar orbit around the sun. The comet observed from Adelaide is in the southern skies and it is visible only through powerful telescopes. Appearing as a diffuse object on photographic plates, it was located on December 21 by Professor George Van Biesbroeck, of the Yerkes Observatory.

WARNING against a holiday outbreak of trichinosis has been issued by the U. S. Department of Agriculture. The disease, which is often fatal, is caused by a parasite and is contracted by eating untreated raw pork or improperly cooked pork. Cases are especially common during the holiday season and winter in general, when sausage and various other pork products are eaten without proper cooking. There are approved methods of treating certain pork products that are customarily eaten without cooking which make them safe to eat in the uncooked state. These methods, however, are not practical outside commercial establishments and the treatment should be under official supervision, as provided in Federal meat inspection. No case of the disease occurring during fifteen years of observation has been traced to pork products prepared in establishments operating under the Federal meat-inspection service.

GOVERNMENT officials have notices of an invasion of locusts from over the border in Chiapas which have destroyed crops in the Papanotepec and Petapa region of southern Oaxaca, Mexico. Devastating floods in Chiapas during the past month were followed by great swarms of locusts flying in from Guatemala, invading the region of Tonalá and extending to the shores of the Pacific. Local forces of southern Oaxaca are being organized by the Bureau of Agricultural Defense of the Mexican Ministry of Agriculture to take the possible steps in combatting the insect plague.