

BACTERIOLOGY

New Vaccine Method

Protection against brucellosis which causes abortion in animals and undulant fever in man, foreseen from development of a new method of making vaccines.

► A NEW method of making vaccines has been used by University of California scientists to produce a promising protection against brucellosis in sheep and goats.

The disease causes abortion in cattle, sheep, goats and hogs. At present a vaccine exists for the disease in cattle, but not in other animals. In man, brucellosis infection causes undulant fever which is successfully combated by streptomycin.

Drs. Sanford Elberg and Mendel Herzberg, California bacteriologists, approached the problem of a vaccine in sheep and goats by a method previously considered but not carried to a conclusion.

The scientists cultured *Brucella melitensis*, the organism that attacks sheep and goats, in a medium containing streptomycin. Most of the organisms were killed. Some survived, however, and these were subjected to stronger doses of streptomycin.

After many generations, a strain of the organism was developed that was not only resistant to streptomycin, but actually de-

pendent upon the presence of the drug for its survival and growth in animals.

The scientists' idea was to give the new strain of organisms as a live vaccine, along with streptomycin. When immunity had been conferred, streptomycin would be withdrawn and the organism would cease growing. Thus the immunizing organism would be kept under complete control.

Much to their surprise, the scientists found that their vaccine worked even without streptomycin. In mice, guinea pigs and goats, the vaccine caused the mild infection associated with immunization, but no signs of the disease. Abortion has been prevented in goats in preliminary experiments.

Dr. Elberg is now in England at the Microbiological Research Station, Porton, to use the special facilities of that laboratory to complete his experiments in monkeys.

The scientist stated that the method may prove useful in developing other vaccines for other diseases.

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TECHNOLOGY

Flying Saucer Reports

See Front Cover

► SOME FLYING saucer reports were caused by experimental tests of the "Hell Roarer," the Air Force has now revealed.

The "Hell Roarer" is a device for taking night photographs of enemy activity by fast-flying airplanes. It burns powdered magnesium to provide an extremely intense light for more than four minutes.

During the first test flights of the device, conducted at Windsor Locks, Conn., police were besieged with phone calls reporting flying saucers or planes going down in flames.

Contained in a torpedo-like 12-foot cylinder, the mechanism attaches to the airplane's wing and can be turned on and off as required by the pilot. It has built-in warning signals to indicate anything wrong, and can be jettisoned if necessary.

The Hell Roarer, so named because of the roar emitted when in operation, was developed for the Air Force by scientists at Wesleyan University, Middletown, Conn. Special cameras are used to make the night aerial photographs. The Air Research and Development Command's Wright Air Development Center, Dayton, Ohio, is working with the Wesleyan group on the project.

Pulverized magnesium powder burns at

an extremely high temperature and must be handled with great care. The Hell Roarer, shown on the front cover of this week's SCIENCE NEWS LETTER, puts out light of approximately 10,000,000 candlepower.

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PLANT PATHOLOGY

Change in Properties Alters Virus Effect

► THE EFFECT of a virus disease may be altered by changes in the physical and chemical properties of the virus itself. These changes may actually be mutations, or change in the heredity mechanism.

This is indicated in a study at the University of California at Los Angeles of a virus that causes a disease in tobacco plants known as tobacco mosaic. Drs. Samuel G. Wildman, Irving Rappaport, Albert Siegal and William Ginoza are performing the research under an AEC grant.

Eight different strains of the virus, each of which produces a different symptom of the disease in Turkish tobacco, were studied. Four of the group were identical in four different physical and chemical properties. When injected into a plant, they overcame its natural resistance and invaded the plant.

The other strains differed from the first group in one or more of the four characteristics. They were confined to the local lesions on an infected leaf and could not spread to the rest of the plant.

Correlation of physical-chemical changes of viruses with alterations in the course of a virus disease seems a significant clue to the virus mutation process.

Apparently mutations may be of two kinds: 1. radical changes in the virus protein molecule as indicated by changes in four physical-chemical properties, and 2. subtle changes, manifested only in different symptoms but with no detectable change in physical-chemical properties.

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METEOROLOGY

No Break in Drought Foreseen for Texas

► NO BREAK in the Texas drought is foreseen by forecasters at the Weather Bureau in Washington in their outlook for the weather to mid-August.

"Subnormal precipitation" is predicted over most of the state. This means that Texans can expect no more than an inch or an inch and a half in the northern sections, two inches near Houston and in the eastern areas, and under one inch in the extreme southern portions of the state.

It would take at least two or three months of good, ground-soaking rains to relieve the drought permanently.

For the rest of the country, the Weather Bureau predicts that temperatures during the period to mid-August will average below seasonal normals in the eastern and southern sections, as well as in the Pacific Northwest. Above normal temperatures are expected in the Southwest, Great Plains, upper Mississippi Valley and in the western Great Lakes states. Elsewhere, near normal temperatures are predicted.

Rainfall until mid-August is expected to be greater than normal along the Atlantic seaboard, in the Northwest and in Arizona. Besides Texas, subnormal precipitation is also forecast for the Midwest and the northern plains states. In other areas, amounts not far from normal are predicted by the Weather Bureau forecasters.

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MEDICINE

New Medical Certificates Speed World Travel

► LESS DELAY and less red tape for international travelers will result from the issuance of revised immunization certificates. They provide travelers with a record of compliance with vaccination requirements in accordance with changes, effective last year, in International Sanitary Regulations. Old certificates will continue to be acceptable until the expiration date of the recorded vaccinations.

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