

CHEMISTRY-MEDICINE

New Drug May Check TB

Christened neomycin, this new antibiotic is effective against TB germs that cannot be stopped by streptomycin. Manufacturing difficulties are yet to be solved.

► WITH the hope of completing the medical conquest of tuberculosis, a new drug from the soil better than streptomycin has been discovered by Dr. Selman A. Waksman, the Rutgers microbiologist who has already given the world the best treatment of the white plague.

Christened neomycin, the new antibiotic comes from the same general kind of microscopic organism that produces streptomycin.

Neomycin has the great advantage of being active against strains of human tuberculosis germs that cannot be stopped by streptomycin. Experiments outside the living body, with limited amounts of the new wonder drug, demonstrate this superiority and show that it lacks troublesome toxicity that has tended to limit treatment of some tuberculosis cases.

Tests first in animals and then in human cases will be made when the Rutgers laboratory in New Brunswick, N. J., and co-operating manufacturers produce enough neomycin.

So new is the drug that not all the inevitable difficulties in manufacture have been solved. But the same apparatus and general methods used in streptomycin production can be used for neomycin.

When given to mice by mouth, neomycin was effective in combatting germ infections. For this reason, scientists hope that tuberculosis will eventually be treated by a drug that can be swallowed, saving patients the bother of injections now necessary with streptomycin.

A large variety of bacteria other than those that cause human and animal tuberculosis are subdued by neomycin, and the new drug gives promise of fighting infections that have built up resistance to streptomycin.

The details of neomycin's discovery, which Dr. Waksman made jointly with Hubert A. Lechevalier, a Canadian graduate student, are given in a report to the journal, *SCIENCE* (March 25).

The new antibiotic is produced by an organism known as *Streptomyces fradiae* whereas streptomycin is produced by a very closely related strain of the actinomycetes, known as *Streptomyces griseus*. Strangely, the two substances are different both chemically and in the way they act on bacteria.

Striking reports of effectiveness of streptomycin in treating tuberculosis are being received by Dr. Waksman from all parts of the world and it is being produced abroad as well as by eight companies in this country. Streptomycin is now only five years old.

Streptomycin does produce some nerve

symptoms when it is administered for a prolonged time and this limitation, as well as the resistance that develops in some cases, will cause doctors to welcome neomycin when it proves itself and is produced in

sufficient quantity. The neurotoxic effect is upon the eighth nerve, which controls body balance, and causes dizziness and inability to walk a straight line without wobbling.

Much of the streptomycin now used is a new form of the drug, called dihydrostreptomycin, which is proving to be less toxic, although Dr. Waksman hopes neomycin will be even better.

The soil microbe that produces neomycin is a close relative of a culture that was isolated from the soil in 1915 by Dr. Waksman and a fellow student when they were both laboratory assistants at Rutgers.

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BIOLOGY

Cow Ova Transplanted

► PEDIGREED, blue-blooded calves produced by scrub cows are the startling promise of a revolutionary method developed by Raymond Umbaugh, a young zoologist at the Foundation of Applied Research in San Antonio, Texas. Mr. Umbaugh's method consists in the surgical removal of fertilized ova or egg cells from the body of a pedigreed cow and their transplantation into the body of a scrub cow which thereafter serves as a biological foster-mother during the development of the embryo calf.

Thus far, it has been possible to get several bovine pregnancies started by the use of this method, though as yet no living

calves have been born, Dr. Harold Vagt-borg, director of the Foundation and president of the affiliated Southwest Research Institute, announced. Dr. Vagt-borg added that he is quite confident that with improvements in technique it will become entirely practical to use the method in everyday stock-raising operations, with resulting vast improvements in both meat and dairy industries.

To obtain the pedigreed ova, the "donor" cow is induced to release them from her ovary by injecting into her veins a stimulating female sex hormone. Artificial insemination is then used, to fertilize the ova.



ARTIFICIAL BREEDING PROJECT—This cow is about to have its fertilized egg removed as one step in the project seeking to permit birth of pedigreed calves from ordinary scrub cows. Raymond Umbaugh, research associate in charge of project, is preparing to make the transfer.