

MEDICINE

Mice May Help TB Fight

Their reactions to infection by tuberculosis germs help scientists to get a better idea of what happens to human victims of this still deadly plague.

➤ MICE may become mankind's most useful allies in the war against tuberculosis, Prof. Rene Dubos of the Rockefeller Institute for Medical Research declared in a lecture given in Baltimore before the Johns Hopkins University chapter of Sigma Xi.

Their reactions to infection by TB germs help scientists to get a better idea of what happens to human victims of this still deadly plague, with better hopes of eventually sending it into the limbo of once devastating but now nearly extinct diseases like smallpox and typhoid fever.

It has been discovered that mice have hereditary differences in their susceptibility to tuberculous infection. Since mouse lives are cheap, these little animals can be used freely in an effort to throw light on resistance and susceptibility in our own species.

"It has also been found that all strains of mice become more susceptible to tuberculosis as a result of a concomitant infection with the influenza virus, or following physiological disturbance caused, for example, by nutritional deficiencies," said Dr. Dubos. "This suggests that mouse tuberculosis, a disease well adapted to laboratory analysis, may serve as a useful tool for the study of human tuberculosis."

That tuberculosis does call for intensive study is well attested by the fact that it is still the greatest single cause of death in the 15-40 age group, despite a steady decline in its death rate for the past 75 years. Before that, there had apparently been a steep rise in TB mortality, perhaps connected with the crowding into cities of great masses of the ill-fed, ill-housed poor brought about by the Industrial Revolution. Gradual amelioration in the laboring population's living conditions has been credited with the falling off in the tubercular death rate.

Industrialization of tropical countries is just getting fairly under way, the speaker pointed out. Tuberculosis is still a very serious disease in the tropics, especially in Latin America; it will be necessary to gain a conqueror's knowl-

edge of tuberculosis soon, if the tragic conditions of northern Europe and eastern America a century ago are not to be repeated in lower latitudes.

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ELECTRONICS

VT Fuze Creates Problem As Great as Atomic Bomb

➤ THE VT fuze, better known to laymen as the war-developed proximity fuze, poses problems to military field forces as difficult to solve as does the atomic bomb.

The statement is made by Lt. Col. F. P. Henderson, U.S.M.C., director of the Marine Field Artillery School at Quantico, Va., in *Ordnance*, (Nov.-Dec.) official publication of the Army Ordnance Association.

The VT fuze is a weapon of today, he says, and will be present on the battle fields of the future whether the atom bomb is there or not. This electronically operated fuze, used first in anti-aircraft warfare, is carried in the nose of a bomb or shell and is triggered to cause their explosion at the proper distance from the target by electric pulses which are sent out by it, and reflected back to it by the target.

If used by an enemy in a future conflict, the Colonel declares, the VT fuze will prove deadly to American troops for it will unfailingly detonate a shell at the optimum height above the target, thus nullifying the protection of the open foxhole or gun emplacement by spraying shell fragments into it.

"What we must provide," he continues, "is complete splinter-proof protection against VT fire from artillery, mortars, naval guns, or close-support aviation to all elements of a military force, whether it is defending or attacking. To provide this protection without hampering the mobility of troops will be one of the most knotty problems that science, industry, and the armed forces will be called upon to solve."

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ATOMIC POWER PLANT—The basic parts are shown in this model being inspected by Dr. Kenneth H. Kingdon. At the left is the atomic "pile" where matter is transformed into energy. The striped rods projecting horizontally represent the control rods which would prevent the process from running away. A heat exchanging fluid would be pumped through the pile, thence to the heat exchanger on the right, where water would be turned to steam.