

MEDICINE

Live Mosquitoes Replaced by Glands in Paresis Treatment

Discovery Saves Government Money and Provides Better Weapon Against General Paralysis of Insane

CUTTING the costs to the government of producing and transporting malaria-infected mosquitoes for treatments of paresis is the latest accomplishment of Dr. Bruce Mayne, U. S. Public Health Service research worker. Paresis, also known as general paralysis of the insane, is a brain disease resulting from syphilis.

Working in cooperation with the State Hospital for the Insane at Columbia, S. C., Dr. Mayne has been in charge of the breeding of special strains of mosquitoes used to give malaria to paresis patients. The mosquitoes are shipped to distant hospitals, out of the malaria belt, for use in treatments. It cost the government \$200 per mosquito, Dr. Mayne figured, to get the mosquito bred, infected with malaria, and transported to the paresis patient. Now instead of shipping the mosquito, Dr. Mayne first uses it for patients at the South Carolina Hospital, and then removes its salivary gland, which contains the malaria parasites, and ships this to the distant institutions.

The cost of shipping a package of infected salivary glands to San Francisco by air mail was \$5.50. If mosquitoes had been sent, it would have been necessary to send an attendant to care for them en route. The additional cost for his railroad fare, salary and other expenses can easily be calculated. Dr. Mayne has not yet figured the total saving to the government. Besides saving on transportation costs, which is considerable, since the San Francisco shipment was the most expensive, there is saving on production costs. Each mosquito can be used to infect several patients at the home institution and the salivary glands might be considered a by-product. Furthermore, sixty per cent. of the mosquitoes were dead and could not be used when they reached their destination, a loss which is eliminated by the new method of shipping the glands.

From the purely scientific standpoint, it is much more satisfactory to ship the salivary glands, since Dr. Mayne can

be sure that these are infected and will be useful in producing malaria. When the mosquitoes were shipped, there was no way of knowing whether they were infected until they had been allowed to bite the patient.

The salivary glands are put into a special medium containing blood and the whole mixture is then injected into the patient's vein. The bottles containing serum and infected glands are packed for shipment in a thermos bottle which has been chilled to just the right temperature.

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PHYSICS-ASTRONOMY

Starlight to Help Open Century of Progress

ILLUMINATION at the Century of Progress exposition in Chicago is to be turned on Saturday, May 27, by light which left the star, Arcturus, 40 years ago. Just a stunt, of course, but a good

one that dramatically calls attention to achievements of both astronomy and engineering.

It was suggested by Dr. Edwin B. Frost, retired director of Yerkes Observatory, Williams Bay, Wis., who had in mind the fact that the light from Arcturus which will be used in opening this 1933 exposition left the planet in 1893, the year of the last Chicago world fair.

Allegheny Observatory in Pittsburgh, University of Illinois Observatory and Harvard College Observatory at Cambridge, Mass., will cooperate in the ceremony with instruments at Williams Bay. Starlight traveling at the rate of 186,000 miles per second will be picked up by telescopes and focused on photoelectric tubes. This light will start an infinitesimal flow of current in the tubes and this, amplified hundreds of times, will operate switches in the Century of Progress circuits to Chicago.

"While the practical value of this experiment is not great, it demonstrates vividly that our earth is receiving vast amounts of energy from the sun and from the stars," Dr. Otto Struve, director of the Yerkes Observatory, said. "The impulse of light which will be used by us corresponds to the area of the telescope objective. Every square inch of the surface of the earth receives the same amount of light from Arcturus, and if all of it could be converted into mechanical energy the result would indeed be enormous.

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TO PUT STARLIGHT TO WORK

Left to right—Dr. Edwin B. Frost, former director of Yerkes Observatory; Dr. C. T. Elvey, specialist in stellar photometry; and Dr. Otto Struve, present director of the Observatory. Dr. Elvey is demonstrating a vacuum tube and photoelectric devices to be used in connection with the opening of the Century of Progress.