

MEDICINE

"Green Germ" of Ceylonese Malaria is New Species

CEYLON'S "green germ" malaria, which has swept disastrously across that once ideal island, is still a mystery disease to the U. S. Public Health Service. The emphasis on the green color of the causal parasitic cells appears to be the distinguishing characteristic that would set it up as a quite new malarial species.

The three well-recognized species of malaria "germs" already known also have pigments; but two of them are described as dark brown to black, and the third as light brown. The darkest of them, the species causing the quartan or "four-day" type of malarial fever, is described by some observers as "greenish." But, noted Dr. Louis L. Williams, Jr., of the U. S. Public Health Service, "if the British medical men on the island, who are exceedingly competent in the malarial field, describe the present form as 'green', it is not likely that they are confusing it with any of the already known species."

All forms of malaria are caused by one-celled animal parasites, of the genus known to scientists as *Plasmodium*. There are three well-recognized species, and a number of varieties of less certain distinctness. Of the three known species, one causes quartan fever, one tertian fever, and one a most virulent type of tertian or three-day fever which because of its seasonal nature is called aestive-autumnal, or summer-and-fall fever.

The parasites causing all malarias pass through a most complicated life cycle, partly in the body of the human victim, partly in that of the carrier mosquito. In the human blood they attack the corpuscles, breaking them down as they themselves multiply. Because of this peculiarity, the most marked of the many disagreeable effects of malaria are seen in the blood itself and in the organs where blood plays an important role, especially the spleen, the liver and the red marrow in the spongy parts of the bones. In the especially vicious attacks of pernicious malaria that end in death, it is often found that so many of the red blood corpuscles are broken down that the tiny capillaries are choked with their debris. In other cases, death seems to

result from simple massive poisoning from a toxin secreted by the parasites.

The present terrific epidemic in Ceylon is not without precedent in that part of the world. In the Punjab, in northern India, Dr. Williams told Science Service, more or less localized epidemics break out at intervals of a few years, seldom occurring twice in the same region. In these epidemics it is not uncommon for 65 per cent. of the population in the affected area to be attacked; and of the sick, sometimes a third or more will die. This is much more severe, though less extensive, than the present Ceylon epidemic where about a sixth of the total population are ill, with deaths of only one in a hundred.

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PHYSICS

Quick Photographs Possible With New Ignitron Tube

TO DEMONSTRATE the rapidity with which it is possible to start high current electric arcs, engineers of the Westinghouse Electric and Manufactur-

ing Company have used their new ignitron tube to "stop," photographically, the motion of a rubber ball fired from an experimental gun at a velocity of 240 miles an hour.

Dr. Phillips Thomas, research engineer, is demonstrating the experimental apparatus consisting of the special gun, a rubber ball bullet, a rubber tube enclosing a fine wire and the special ignitron tube control.

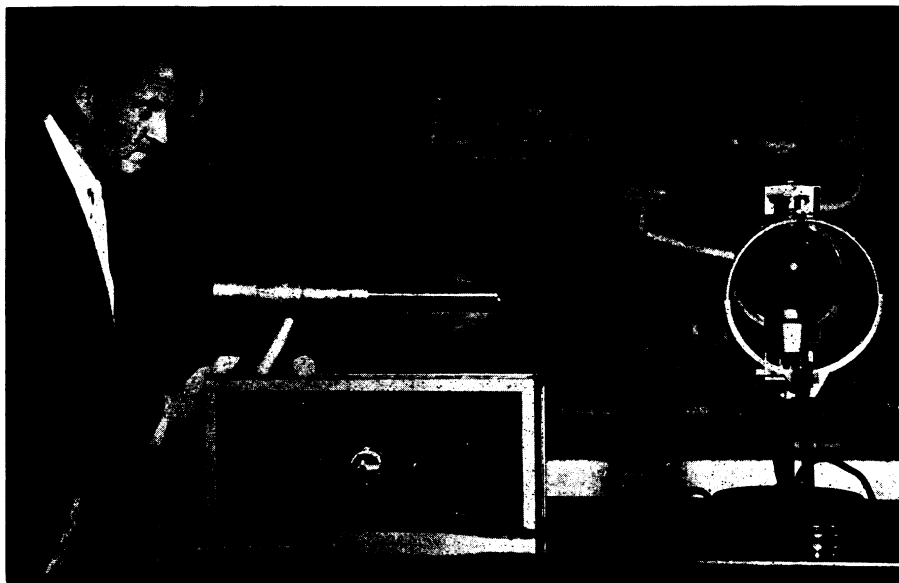
Impact of the rubber ball on the rubber-enclosed wire broke an electrical current which caused a powerful flash in the ignitron tube of 1,000 amperes for one millionth of a second. By the light of this mercury flash the ball was photographed, as shown, in contact with the rubber tube and wire. At the instant of photographing the stretch of the rubber tube was local around the fired ball. The ball, in the picture, is moving from left to right.

In engineering practice the ignitron tube is used to start powerful electric arcs in lines carry enormous currents.

The interior of the tube contains mercury vapor which has high current carrying capacity when in use. A tiny current in the tube flashes on the arc within the tube, which in turn carries the large currents.

The demonstration was performed to show how promptly such tubes could build up this flashing current-carrying arc.

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EXPERIMENTAL GUN WITH RUBBER BALL BULLETS

Dr. Phillips Thomas, research engineer of Westinghouse Elec. Co. demonstrates the experimental gun from which was fired the rubber ball at a muzzle velocity of 240 miles an hour. By breaking an electrical contact the swift motion was "stopped" and the ball photographed in flight. The test was made to prove the rapidity of the company's new ignitron tube for starting high-current electric arcs.