

PHOTOGRAPHY—MEDICINE

# Color Movies of Disease Show How Malaria Kills

## First Moving Pictures of Circulating Blood in a Living Animal Show How Malaria Thickens the Blood

**N**EW aid to national defense on the medical side may come from color movies shown at the Southern Medical Association meeting in Louisville. They are the first motion pictures ever taken of disease in the circulating blood of a living animal.

The disease is malaria, the old "chills and fever" which scourged American troops during the Spanish American War. With the supply of quinine, chief anti-malaria chemical, threatened by present war conditions, medical authorities planning for national defense have been worrying over the problem of protecting American troops from malaria if they should be sent to Central or South American tropics on hemisphere defense duty.

The color movies were taken by Dr. Melvin H. Knisely, University of Chi-

cago anatomist now on loan to the University of Tennessee, Dr. Warren K. Stratman-Thomas, malaria expert of the Tennessee Valley Authority, and Dr. Theodore S. Eliot, associate professor of histology at the University of Tennessee.

They show that malaria kills by turning the fluid blood into a thick sludge which plugs up the tiny arteries and veins. Then, contrary to popular conception, the heart is literally worked to death trying futilely to push more blood against the blockade of this malarial sludge in the veins and arteries.

As the disease progresses, the color movies show, the power of the blood's scavenger cells to engulf the clumps of sludge-sticky red blood cells lessens or vanishes. Gradually much of the life-sustaining blood passages are blocked off.

This stage in the progress of the disease

is known as the crisis. In some cases, the scientists reported, the crisis is successfully passed but the ensuing oxygen starvation, caused by exhaustion of the red blood cells, brings death.

Heparin, newly-purified anti-blood-clotting chemical, prevents the formation of the dangerous malarial sludge in the blood. When heparin is used, however, the malaria parasites, or germs, multiply and kill by devouring the oxygen-carrying hemoglobin in the blood. Heparin makes it possible, however, to differentiate the mechanical and chemical effects of the disease and to study them separately.

New knowledge of the scavenger cells of the blood, as well as of malaria was obtained from these color motion pictures, made possible by Dr. Knisely's adaptation of the quartz rod light for observing and photographing blood in the veins and arteries of living animals.

The scavenger cells, it now is seen, "know" which material in the blood stream to grasp and which to leave alone as being harmless by a sticky substance which coats injurious substances such as germs or particles of carbon.

The changes produced in blood by other diseases than malaria, and the way some drugs or chemicals can counteract these, may now be observed in living

(Turn to next page)



CLIMBS AT MILE A MINUTE

*This is the latest type of Curtiss-Wright interceptor-fighter which can climb over a vertical mile in 60 seconds and is said to be the fastest climbing plane in the world. It is powered with a Wright Cyclone engine and has a speed of 330 miles per hour.*

*It has four machine guns which fire through its propeller disk.*

ABRONAUTICS

## Interceptor-Fighter Plane Climbs at Mile a Minute

**T**HE fastest climbing airplane in the world, able to ascend more than a vertical mile in a minute, has just had its first public demonstration.

Made by the St. Louis Airplane Division of the Curtiss-Wright Corporation, and known as the Curtiss Model 21B, it is a highly streamlined, single-place, low-wing monoplane, powered with a Wright Cyclone engine. It is one of a large number now being built, it is said, "for a foreign government." Presumably this is England.

A speed of 330 miles per hour can be attained, which gives it great maneuverability, and increases the difficulty of ground forces in locating the ship. It has four machine guns, which fire through the propeller disk, as well as radio equipment and the latest military aircraft accessories.

During test flights, the St. Louis factory received many inquiries about "a mysterious plane that could be heard but not seen."

*Science News Letter, November 30, 1940*