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

NEW 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 Chicago 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

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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.

AERONAUTICS

Interceptor-Fighter Plane Climbs at Mile a Minute

THE 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."

animals by the use of the techniques developed by Dr. Knisely and associates. Better defenses against many diseases may result.

Science News Letter, November 30, 1940

New Theory of Acne

A NEW theory of acne, which lays its cause to an upset of glands and chemical processes akin to that in diabetes, and a new treatment which succeeded in more than 400 cases, was announced by Dr. Richard L. Sutton, Jr., of the University of Kansas Medical School, at the meeting of the Southern Medical Association.

Acne, along with greasy skin and blackheads, is due, Dr. Sutton believes, to "failure of the bodily chemical economy to manage oils sucessfully," just as in diabetes the body fails to handle sugars and starches successfully. In diabetes, the glands called the Islands of Langerhans, in the pancreas, are disordered. In acne, Dr. Sutton believes, the disordered gland is the thyroid.

Diabetes is controlled by reducing the intake of sugars and starches, enhancing the body's ability to handle these, if necessary, by giving insulin. Acne is controllable, he finds, by reducing the intake of fatty foods, enhancing the body's ability to handle these, if necessary, by giving thyroid gland extract.

Some patients with acne are not helped by the low-fat diet plus thyroid extract. These are the redheads with very fine-textured skins. They are helped, Dr. Sutton discovered, by a diet low in carotinoids, the chemicals which give color to carrots and spinach and from which vitamin A is formed.

The low-fat diet, Dr. Sutton warns, can lead to serious trouble if it is not followed under a doctor's supervision. But no ill effects developed, he reported, in the more than 400 patients who followed it under his supervision and they were "relieved of fatigability, constipation and mental depression to a noteworthy degree, while at the same time their acne gave ground."

Science News Letter, November 30, 1940

Lotions Prevent Acne

ACNE can be prevented in many cases by starting children between the ages of 7 and 11 years on the regular use of lotio alba or other mild sulfur preparations for their faces, Dr. Andrew Louis Glaze, of Birmingham, Ala., declared.

Satisfactory results with this prophylactic treatment for 10 years in 200 cases has convinced him that acne can be mitigated and in many cases prevented, although cystic acne is not prevented by the procedure.

Young patients are advised to continue using the lotions through adolescence. The idea of prophylactic treatment is based on the general agreement among skin specialists that the earlier acne is treated, the better. Dr. Glaze believes in starting the treatment ahead of the early stages of acne, at the time when the ground is being paved for development of the condition.

Science News Letter, November 30, 1940

PHYSICS—PSYCHOLOGY

Artists, Like Rest of Us, Sing Best in the Bath

Public Address System Inaudible to Audience Enables Singer To Hear Himself as Though in Small Room

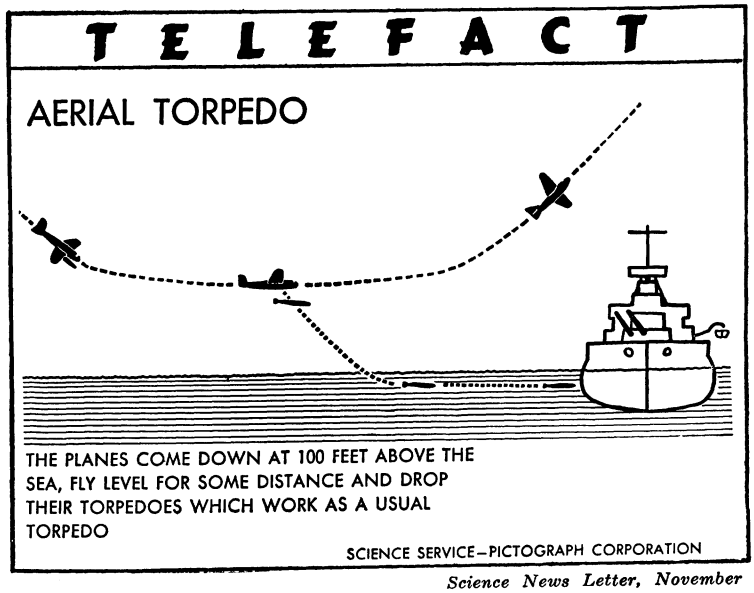
VOCALISTS on the concert stage will produce the best effect upon their audience if the stage is just one big bathroom, acoustically speaking. This is the latest advice from science to art.

Concert singers, like ordinary mortals, sing their best in the bathroom. Thus, their performance in public is better if the stage is made the equivalent acoustically to the bathroom, Harold Burris-Meyer, of Stevens Institute of Technology, Hoboken, N. J., has found.

Speaking before a meeting of the Acoustical Society of America in Chicago, he told how this effect is obtained, using a technique originated by Paul Robeson, and employed by him last month in a Carnegie Hall recital.

The Robeson technique, as Mr. Burris-Meyer has developed it, consists in using a public address system with the loud speaker about fifty feet away from the singer. This is aimed at him, so he gets the effect of the reverberation of a small room, and can hear himself. The volume of the reproduced sound is kept low enough that the audience is not aware of it.

"The results of not being able to hear," said the speaker, "are the catalogue of the artist's woes: tension, inability to relax, a feeling of being ill at ease, of low vocal efficiency, forcing the voice in an effort to project, using a higher key than is best for the song in an effort to get out more volume and fill up the house. Some singers carry all the pieces in their repertoire in a number of keys and use the one which is nearest the resonant frequency of the hall, despite the fact that few singers can sing the same number equally well in more than one key.



Science News Letter, November 30, 1940