PHYSIOLOGY

Have Ultraviolet Vision

Persons whose front eye lenses have been removed in cataract operations see with ultraviolet radiations invisible to normal eyes.

➤ A "BUG'S-EYE" view of the world is obtained by persons who have had the front lenses of their eyes removed in operations for cataract. Their eyes become sensitive to ultraviolet radiations which have no effect on normal eyes but which many insects are believed to use regularly, Prof. George Wald of Harvard University told members of the Optical Society of America at their meeting in New York.

It was formerly assumed that insects, with their ultraviolet vision, would see a quite different world from the one visible to human beings. However, since there are thousands of men and women who have ultraviolet vision as an after-effect of cataract operations, it has become evident that things do not look particularly different when ultraviolet is added to the ordinary range of visible radiations.

As a special case, Prof. Wald mentioned a brilliant young English physicist, Dr. A. G. Gaydon, who lost his right eye and the lens of his left in an explosion. Courageously carrying on with his researches, which were on light and related radiations, he found that his misfortune was in part good fortune, for he could now see the ultraviolet portions of the spectrum previously invisible.

The eye's front lens, Prof. Wald explained, cuts out ultraviolet and much of the higher blue-violet radiations because its yellowish tinge causes it to act as a ray-filter. This yellow color in the lens, and also the highly sensitive yellow spot in the retina directly opposite the lens, are due to the presence of xanthophyll, a yellow pigment related to carotin, both of which are abundant in such yellow vegetables as carrots and rutabagas, in green leaves, and in the yolks of eggs. Xanthophyll has actually been extracted from the retina.

Studies in Prof. Wald's laboratory have shown wide ranges in sensitivity of the retina to different wavelengths of light. The reginal cones have their maximum sensitivity in the yellow-green part of the spectrum. At the borderline of the ultraviolet the cones still function, but with a sensitivity only about one forty-thousandth of the maximum. Similarly they still function at the lowest red wavelength, at the margin of the infrared, but their sensitivity there is only one ten-thousandth of the maximum.

The retinal rods, which operate chiefly in dim light and "see all things gray", are most sensitive to blue-green light.

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MEDICINE

Promin for Leprosy

Has brought improvement in 137 cases. Sores, other symptoms clear up and the germs disappear. Takes at least six months before improvement shows.

➤ PROMIN, chemical remedy distantly related to the sulfa drugs, comes closer to being a cure for the age-old scourage of leprosy than anything so far known, it appears from results with it at the National Leprosarium in Carville, La.

"The best experimental treatment ever tested at the National Leprosarium" is the verdict given by Dr. G. H. Faget and Dr. R. C. Pogge, U. S. Public Health Service. (*Public Health Reports,* Oct. 5)

The chemical has now been given to 137 patients. In these it has checked the progress of the disease and even caused the dreadful sores of leprosy to clear up in some patients. Other symptoms also abated. In more than 10% of 62 patients treated for more than one year no germs could be found in the sores. In another 30%, the patients have had occasional negative bacteriology tests since the treatment was started. Only two patients, each with an advanced mixed type of leprosy with laryngeal involvement, got worse under the treatment and it had to be stopped after a few months.

The results, Dr. Faget and Dr. Pogge believe, are due to a true remedial action of the chemical on the disease and not to psychological response of the patient nor to the chemical's effect on secondary infections or other complications. The improvement is not believed to be a spontaneous remission because it occurred in patients having types of the disease with the worst outlook and least likely to improve spontaneously for a time.

Promin cannot, however, be called a "specific" for leprosy, since it cannot be proved that it acts directly on the germs of the disease. These germs cannot be grown in the laboratory, so no tests of promin's action on them can be made directly. Neither can guinea pig tests be made of promin's effect in leprosy, because the human disease cannot be reproduced in laboratory animals.

The chemical acts slowly. It takes at least six months of treatment before improvement shows. The longer the patient is treated and the more promin he gets, the greater his improvement, the physicians found in more than three years experience with the drug.

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PHYSICS

Mica Indispensable For Many Applications

➤ MICA, now well-known as a war essential because of its electrical properties that make it invaluable in controlling wavelength in radio, has other physical properties that make it almost indispensable in many other applications. Some of the micas have tremendous expansion when heated, an outstanding peculiar property that make them of special use in temperature-control devices.

The micas all vary widely in thermal expansion, power factor, and color, the National Bureau of Standards states. (*Journal of Research.*) Their properties depend upon chemical composition, the nature of the crystals, their magnitude and orientation, amount of impurities, and other features.

The report on the physical properties of mica in the journal is made by Peter Hidnert and George Dickson of the bureau staff and records findings made by them in laboratory studies. They present data on the linear thermal expansion, changes in structure, power factors in radio frequency control, and the effects of heat treatment on thickness, opacity and color of micas from many different sources, both domestic and foreign.

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