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The physiological action of light — Source link

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11 receiving blood of rabbits that gave evidence of reaction. Inoculations were given intravenously in amounts varying from 1 to 15 cc. All the rabbits inoculated with human blood gave evidence of reaction, as did all, save 2, of the rabbits subinoculated from these 6 rabbits. Passage from 1 human case of measles was carried on through 5 rabbits, and a monkey inoculated with the blood of the fifth rabbit gave typical symptoms of measles. Fifteen rabbits developed symptoms in from three to seven days. The symptoms were not so marked as in monkeys. In some cases there was a rise in temperature, coincident with a decrease in the total leukocyte count, but this was by no means constant. Ten rabbits developed small hyperemic, slightly elevated spots on the labial mucosa, 5 of which had whitish centers. Twelve rabbits developed a marked conjunctivitis in from two to four days. "In no instance was a distinctly typical exanthem noted," but all of the 15 rabbits desquamated, beginning from the fifth to the fourteenth day. Aërobic and anaërobic cultures made of blood prior to inoculation showed no evidence of growth. Blood from cases other than measles failed to produce evidence of infection when inoculated into rabbits.

HYGIENE AND PUBLIC HEALTH

UNDER THE CHARGE OF

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Physiological Action of Light.—CLARK (*Physiol. Rev.*, 1922, **2**, 277) states that the first systematic effort to study the biological effects of light, and its therapeutic uses, was made by Finsen when he founded his Light Institute in Copenhagen in 1896. Much valuable work, both theoretical and practical, has been done there since, with especial success on the therapeutic side, in the treatment of lupus, but the fundamental problem of the mode of action of light on the living cell remains unsolved. Recently, the rapidly accumulating clinical results of light treatment in tuberculosis, rickets, malaria, etc., closely related as they are to the results of roentgen-ray and radium treatment, continually emphasize the importance of this problem and increase its mystery. It is at first disappointing to find that there is, apparently, in the animal kingdom no effect analogous to the action of light on the chlorophyl system of the green plant, by means of which light energy is stored and oxygen restored to the atmosphere. Although there is a universal conviction that sunlight is healthy, it is certain that people and animals can live a long time in darkness without any noticeably bad results. Blessing, who acted as physician to Nansen during his expedition in the *Fram*, published a report showing that members of

the party exhibited no evidence of anemia during the trip. More recently, Grober and Sempell examined horses that had worked for years in coal mines and found no anemia in any case where a satisfactory nutritive condition existed. But, though the physiological effect of sunlight seems at first sight indefinite and of dubious importance, the action of far ultraviolet light on normal tissue, and the action of near ultraviolet and visible light under certain pathological conditions, has been investigated enough to show that there are well-defined effects due to light, closely related to the physiological results of exposure to radium and roentgen rays. These results are gradually assuming considerable importance in clinical medicine and present theoretically an interesting but illusive problem in physiology. The rest of the article is given over to a discussion of the effect of light on microörganisms, on the eye, on the skin, muscles, blood and metabolism. It also considers photodynamic sensitization, heliotherapy and a theory of light action. The review is a model of critical excellence, clarity and completeness.

Demonstration of Lepra Bacilli by Aspiration of Nodules.—GREENBAUM and SCHAMBERG (*Jour. Am. Med. Assn.*, 1922, **78**, 1295) state that in suspected cases of leprosy it is a common procedure to excise a nodule for microscopic study, but this, for various reasons, cannot always be done. Another method of searching for bacilli in the nodules is to scrape off the epidermis over a suspected nodule and make smears from the serum which exudes. This is satisfactory for dermic nodules, but for hypodermic infiltrations the procedure is less simple and is likely to draw blood. Characteristic lepra bacilli may be demonstrated in smears by acupuncture of lesions, a method which is simple, virtually painless and easy to carry out in timid and apprehensive patients. The technic consists in the use of a syringe with tightly fitting plunger, a small record syringe by preference, a short-pointed needle of average gauge and a few drops of salt solution or distilled water. The node is first gently massaged in order to bring as much fluid into it as possible. The needle is then introduced, after careful cleansing of the cutaneous surface, and the salt solution or distilled water slowly injected and withdrawn several times, thus making a sort of emulsion of the tissue about the needle point. The needle and its contents are then withdrawn, and smears are made from the fluid. This mode of diagnostic acupuncture is a simple and valuable aid in the diagnosis of leprosy. There are very few lesions of the skin which are likely to yield acid-fast bacilli. In lupus vulgaris bacilli are so sparse that they are with difficulty demonstrable by sectioning and staining. It has been shown that lepra bacilli in enlarged subcutaneous lymph nodes may be demonstrated by this method, and this may be of particular value in macular leprosy. The successful finding of Spirochæta pallida in lymph glands by this technic is well known.

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