though it had completely lost its infectivity by this treatment. It was evident, therefore, that oxygen uptake could not be attributable to the presence of the virus.

After a subsequent period of 3 months of ageing in glycerin, the samples of tissues yielded emulsions which were still infective but produced no detectable CO_2 during 48 hours sojourn in the respirometer, either under aerobic or anaerobic conditions.

The emulsions tested contained in each case 0.05 grams of tissue (by moist weight). This is twice the amount used for intracerebral injection in the test animals. Twenty-five thousandths of a gram of this material invariably produced typical symptoms, in a minimum number of days, and therefore, presumably contained a large amount of active virus.

These experiments suggest that either the viruses studied do not respire, or that the respiration proceeds at such a low rate that its detection is beyond the limits of the sensitiveness of the method.

[1] Bronfenbrenner, J. J., *Science*, 1926, lxiii, 51.

[2] Bronfenbrenner, J. J., PROC. SOC. EXP. BIOL. AND MED., 1924, xxii, 81.

[3] Warburg, O., *Biochem. Z.*, 1923, cxlii, 317.

3284

Photopharmacology. VII: Effect of Ultra-violet Rays on Germicidal Properties of Mercurochrome.

DAVID I. MACHT AND JUSTINA H. HILL.

From the Pharmacological Research Laboratory, Hynson, Westcott and Dunning, and the Brady Urological Clinic, Baltimore, Md.

The effect of Ultra-violet radiation on the potency of Mercurochrome Solution was studied on *B. coli*. The method used was as follows: 2 cc. of Mercurochrome Solution 1:500 was inoculated with one standard loopful of a twenty-four hour culture of *B. coli*. At the end of the exposure time, 0.1 cc. of the drug-and-organism mixture was removed by means of a sterile pipette and transferred to 5 cc. of sterile broth. Inasmuch as controls showed that in this transfer enough drug was carried over to prevent the growth, a second transfer of 1 cc. was made to 9 cc. of sterile broth. A control of this latter method of dilution showed that prompt and heavy growth of bacteria was obtained with these dilutions in the absence

of the drug, while the amount of drug present in the second transfer tube was not sufficient to visibly inhibit the growth of the organisms. The times of exposure which were studied were 1, 2, 3, 4, and 5 minutes.

The irradiation of Mercurochrome Solution was performed in the following ways: Solution of Mercurochrome were radiated with the Hanovia Alpine Sun Lamp at a distance of 30 centimeters. Other samples of the same solution were radiated with a water cooled Krohmayer Lamp (Hanovia Company) at a distance of 5 centimeters from the mercury arc. The solutions were exposed to the Ultra-violet rays in three different containers, namely, 1. Quartz Test Tube; 2. Pyrex Test Tube; 3. Ordinary Soft Glass Test Tube. The rays emitted by the Krohmayer Lamp ranged as low as 2000 Angstrom units, while those emitted by the Alpine Sun Lamp at close range extended a little farther, namely, to 1850 Angstrom units. Spectroscopical examination of light transmitted by the Pyrex tube indicated that the shortest weight transmitted by them were 2820 Angstrom units, while the shortest wave lengths transmitted by the ordinary glass tube were not shorter than 3000 Angstrom units.

Two sets of experiments were performed. In the first series the exposure of all the solutions in the different test tubes and with both lamps was for 30 minutes. In the second series of experiments a longer exposure, namely, 1 hour and 15 minutes, was made. The results obtained may be summarized briefly as follows: No visible change in the color of the solution or any precipitation was observed. Bacteriological examination, carefully performed according to the method described above, showed that no deterioration was produced by the irradiation in the antiseptic or germicidal potency of the drug.