strikingly supported by experiments on markedly inflamed skin (produced with a carbon arc), a typical example, using 1.0 gm. cal. doses of long infrared (1.4μ to longer than 5.0μ) being summarized in Table III.

Other means of altering the rate of blood flow through skin influence the temperature changes due to irradiation. When the circulation of the leg is occluded by a tourniquet irradiation results in higher temperatures at all depths to 16 mm. than in a leg with normal circulation. On reestablishing the circulation of the leg after 30 or more minutes of occlusion, a reactive hyperemia occurs (indicated by higher than normal initial tissue temperatures) and then irradiation is found to result in temperature rises at all depths which are less than normally observed.

Conclusions. Pigment, natural or artificial, does not appear to protect deeper regions of the skin from excessive heating due to infrared. The slight diminution in heating in heavily artificially pigmented skin is probably due to increased blood flow.

8250 C

Hepatoflavin and Pernicious Anemia.

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The following reasons led to the idea that hepatoflavin might be related to the hematopoietic factor used in treating pernicious anemia. Liver and liver concentrates of therapeutic value are rich sources of flavin. Flavin appears to be one of the components of vitamin B_2, which has been regarded as concerned with the extrinsic factor of Castle. West and Howe[1] reported that the hematopoietic activity of their most potent liver concentrate was precipitated from alcoholic solution by $Ba(OH)_2$; we find that the flavin in liver extracts is similarly precipitated. It seemed desirable to test whether flavin might be effective in pernicious anemia therapy.

Incubation of liver with pig stomach, which appears to increase the hematopoietic activity, does not increase the flavin content.

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1 West, R., and Howe, M., *J. Clin. Invest.*, 1930, **9**, 1.

Purified flavin prepared from liver by a process described elsewhere, has been administered to 5 patients. The material was given by intramuscular injection, in amounts (5 cc.) representing 500 gm. of fresh liver. The criteria of effect were the hemoglobin, erythrocyte, and reticulocyte response. The 5 patients studied in this manner gave uniformly negative results. Since no effect was noted it is not necessary to record the protocols. The following statement is representative. Five cc. of flavin solution were given on alternate days until a total of 25 cc. had been injected. No significant change in the blood picture was noted during this period. The patient was then given commercial liver concentrate, which was followed by the typical reticulocyte response, generally on the fourth day.

One patient was treated by oral administration of Lilly's liver extract "343" which had been irradiated for 24 hours with a 300 watt light bulb. The irradiation was done at 15° in 10% NaOH solution, a treatment proved to change the flavin into photoflavin. After irradiation the material was neutralized, evaporated, and extracted with 80% alcohol. The alcohol extract was evaporated and the residue fed to the patient. A positive response was obtained, showing that the photolysis of the flavin had not impaired the hematopoietic activity of the material.

From these observations it may be concluded that liver flavin, given intramuscularly to patients with pernicious anemia does not exert an hematopoietic response; and that liver extract, the flavin of which has been converted to photoflavin, is still active.

8251 C

Influence of Estrogenic Substance upon Experimental Syphilis of the Adult Male Rabbit.

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It is well known that the human female is more resistant to syphilitic infection than the male, especially during the child bearing period of life. This difference has been attributed to the influence of pregnancy.[1, 2] Corroborating the observations on human individ-

[1] Moore, J. E., *Arch. Int. Med.*, 1922, **30**, 548.

[2] Moore, J. E., *Bull. Johns Hopkins Hospt.*, 1923, **34**, 89.