opinion that there was no evidence of "refection". It has been suggested that potato starch at times may carry traces of vitamin B which would explain the delayed symptoms in one of the animals.

These results are indicative of the failures to observe in our laboratories phenomena comparable to "refection".

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Effect of Thyroparathyroidectomy on the Action of Irradiated Ergosterol.

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In a recent publication[1] we suggested that irradiated ergosterol increased the calcium concentration of the blood by acting on the parathyroid glands. This view was based on the following observation: Latent tetany, manifested by calcium concentration of about 6 mg. per 100 cc. of serum, was first brought about in a monkey by means of a low calcium diet. It was then found possible to raise the calcium level to about 11 mg. by means of large amounts of irradiated ergosterol given by mouth. However, after extirpation of the parathyroid glands, the calcium could not be elevated much above 7 mg. per 100 cc. of serum. Slight hypercalcemia was induced by means of injections of parathyroid extract (Collip).

Urechia and Popoviciu[2] have given irradiated ergosterol to dogs in which tetany had been induced by means of parathyroidectomy. They concluded that the tetany was not relieved by this means nor the calcium level raised. They do not state the exact composition of the dietary. Brougher[3] carried out similar experiments. He concluded that irradiated ergosterol "when given in conjunction with milk from the day of operation prevents the development of violent tetany."

During the past year we have carried out numerous extirpation experiments on monkeys and on dogs with the same object in view. In many instances the technic has been modified by giving irradiated ergosterol at the outset in order to establish the fact that hypercalcemia could be induced; levels of 13-16 mg. per 100 cc. of serum

[1] Hess, A. F., Lewis, J. M., and Rivkin, H., *J. Am. Med. Assn.*, 1928, xci, 783.

[2] Urechia, C. I., and Popoviciu, G., *Compt. rendu. de la Soc. Biol.*, 1928, xcviii, 405.

[3] Brougher, J. C., *Am. J. Physiol.*, 1928, lxxxvi, 538.

were brought about in this way. Following operation, however, we were not able to raise the calcium above the normal level. It should be added that after large doses of irradiated ergosterol has been given for a period of some weeks, removal of the parathyroid glands does not result in the precipitous fall in the calcium which we are accustomed to observe following extirpation. This distinction is due probably to a storing of the calcium in the tissues. The results of this series of experiments may be summarized by the statement that our preliminary observation has been substantiated, in that hypercalcemia could not be induced or the calcium level elevated markedly, after the parathyroids had been removed.

Irradiated ergosterol was found to increase not only the calcium concentration but that of the inorganic phosphorus in the serum. The phosphorus rose frequently to a level of 12 to 14 mg. per 100 cc. of serum several days after irradiated ergosterol had been given. In this respect the action of irradiated ergosterol differs from that of parathyroid extract, which does not bring about an increase of inorganic phosphorus until hypercalcemia is marked and the animal is in a highly weakened condition. This effect may not be associated with the activity of the parathyroid glands. It should be mentioned also that the hypercalcemia brought about by irradiated ergosterol is far more prolonged, both in man and in animals, than that which follows injections of parathyroid extract.

The mechanism of the action of irradiated ergosterol is not entirely clear, but these experiments seem to be of interest as demonstrating that a vitamin may function, at least to a certain extent, through the medium of one of the endocrine glands.

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Attempts to Cultivate Vaccine Virus in the Growing Chick Embryo.

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The propagation of vaccine virus in the skin and cornea of susceptible animals has been supplemented by evidence of mass growth in the testicle (Noguchi[1]) and perhaps the brain (Levaditi[2]). At-

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[1] Noguchi, *J. Exp. Med.*, 1915, xxi, 565; xxvii, 423.

[2] Levaditi, Harvier and Nicolau, *Compt. Rend. Soc. Biol.*, 1921, lxxxv, 345.