

the transplanted limb and the normal limb of the donor species appear at the same time. During the major portion of larval life the transplanted limb and the normal limb of the donor species maintain the same size. Eventually, in late larval life, the normal limb of the *tigrinum* becomes somewhat larger than the limb transplanted to the *punctatum*, and the transplanted *punctatum* limb becomes larger than its control. The growth relations of the eye and limb after heteroplastic transplantation are therefore the same.

There is a great difference in the growth rate of the 2 species. With maximum feeding, 5 weeks after operation the *tigrinum* has attained a length twice that of the *punctatum*, and therefore requires much more food. We have found that if this greater food requirement of the *tigrinum* is not met, its growth will be correspondingly retarded, and the normal *tigrinum* organ will be smaller than that transplanted to *punctatum*, and conversely the *punctatum* organ on *tigrinum* will not become as large as the normal control on *punctatum*.

With maximum feeding, then, the behavior of heteroplastically transplanted organs indicates that the factors controlling their growth are intrinsic to the grafted tissue.

4015

Anhydraemia in Rats Suffering From Lack of What Has Been Called Vitamin B.

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Students of vitamin "B" deficiency are well aware that animals fed a complete diet except with respect to vitamin "B" lose their appetite for the deficient ration and rapidly decline in body weight. It is also well known that an increase of blood concentration occurs in starvation. The question arises whether a deficiency of what has been spoken of hitherto as vitamin B is associated with anhydraemia, and if such is the case, whether this can be accounted for by the starvation phenomenon which so frequently prevails.

Consequently, a series of albino rats weighing between 200 and 250 gm. were placed on a vitamin "B" deficient diet. Control animals were given on an average the same amount of food and water daily as the vitamin "B" deficient rats consumed. Blood samples

were obtained by cardiac puncture from each rat of both groups from week to week during the course of the vitamin deficient and realimentation periods. Hemoglobin estimations were made by the Cohen and Smith¹ method.

The results indicate that a definite increase in hemoglobin occurs during the vitamin "B" deficient period followed by a very distinct drop during the first few days of realimentation. The parallel changes that developed in the control group of rats indicate that the phenomenon just described may be accounted for by the diminished food and water consumption incident to "B" avitaminosis. Other experiments performed on another species (dog) and extending over a period of approximately 1 year appear to confirm these results.

4016

Gastric Motility in Relation to Anhydraemia.

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In an attempt to throw some light on the disturbances of gastric motility occurring during the deficiency of what has been spoken of hitherto as vitamin B these experiments were undertaken. Dogs were deprived of water and parallel observations on gastric motility, and blood concentration as indicated by hemoglobin estimations, were made. Except for anorexia and decrease in general activity no abnormal symptoms were in evidence. All of the dogs developed an increase of approximately 20% in hemoglobin (estimated by the method of Cohen and Smith¹) and complete gastric atony. Liberal administration of water produced a rapid decrement in blood concentration, followed by a return of gastric motility to normal within a few days. The results indicate a striking parallelism to exist between anhydraemia and gastric motility. The significance of this phenomenon in relation to disturbances of gastric motility occurring in "B"-avitaminosis will be discussed elsewhere.

¹ Cohen, B., and Smith, A. H., *J. Biol. Chem.*, 1919, **xxxix**, 489.

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