

readily modified. Accordingly, the fore-brain, particularly the anterior median region, is extremely susceptible to modification in the early stages of development. In later stages, other regions of the brain are also modifiable, particularly the hind-brain at the time of flexure and turning of the head. As the embryonic axis elongates posteriorly, the neural fold and somite region cease to develop normally in a large percentage of the cases indicating a double gradient of differences in susceptibility relations along the axis.

From these results we may conclude that there is a difference in susceptibility to modification of development by means of ultraviolet radiation along the axis of the chick embryo. The difference is in general coincident with an anteroposterior gradient in early stages, although in later stages, such a gradient is complicated by the appearance of highly susceptible regions which express local rapid development or differentiation, as for example, in the region of the hind-brain or in the posterior somite region. The fact that eggs exposed before incubation show in their later development the same axial differences in susceptibility to developmental modification as they do later, indicates the early presence of an axiate organization in the egg, even before it can be detected morphologically.

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### **The nutritional value of chlorophyll as related to hemoglobin formation.**

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A study of the problem of organic precursors of the hematin part of hemoglobin shows that no attention has been directed toward the possible relation of vitamines therein, whether this be as a direct precursor, or as involved in the use of such possible precursors as chlorophyll.

The problem was to determine whether rats could be rendered anemic by the absence of one or more vitamines in a synthetic diet

and whether phaophytin, obtained from chlorophyll, functions as a hemoglobin precursor in anemic rats, however this anemia may have been brought about. Rats kept upon such diets were systematically followed as to weight, blood hemoglobin and red blood cell count. The tentative conclusions arrived at as applied to rats are the following:

1. Synthetic rations containing 18 per cent casein and deficient in Vitamines A, B and E do not produce anemia but do produce an unusually high hemoglobin content.
2. Phaophytin may not be substituted for any one of the Vitamins A, B, or E.
3. Casein at a 10 per cent level produces a lower hemoglobin content than does casein at an 18 per cent level.
4. Casein extracted with acetic acid and aerated is less efficient in maintaining hemoglobin than is casein extracted with lukewarm alcohol.
5. Casein is much more efficient in the maintenance of hemoglobin than is gluten.
6. Experimental anemia may be produced on synthetic rations using wheat gluten as the protein and this anemia may be at least partially and temporarily alleviated by the addition of 0.2 to 1 per cent phaophytin to the ration.
7. It appears that proteins contain an important precursor of hematin and that since casein contains this in greater quantity than wheat gluten, the indications are that possibly tryptophane is involved.

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**Gonad cross-transplantation in Sebright and Leghorn fowls.**

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**I. INTRODUCTION.**

The main problem attacked was the question of a difference in the endocrine secretions of the testes of the Sebright and the Leghorn. The Sebright male is so-called "hen-feathered" as it has a feathering similar to that of the female, while the Leghorn