4665

An Experimental Study on the Nictitating Membrane of the Frog, Rana pipiens.

VERLUS F. LINDEMAN. (Introduced by J. H. Bodine.)

From the Department of Zoology, State University of Iowa.

The larval nictitating membrane, as it occurs in the frog tadpoles prior to the onset of metamorphosis, consists of a small mass of tissue imbedded within the integument bordering the anterior end of the eye socket. During metamorphosis this mass of tissue undergoes rapid growth which results in the formation of the nictitating membrane.

It seemed likely that extirpation and transplantation experiments with this mass of tissue before its transformation might throw some light upon the nature of the development of the nictitating membrane. By means of operative technique parts of it were removed and transplanted to other locations on the body. The animals used were normal tadpoles of the species, *Rana pipiens.*

The total extirpation of the integument in the region anterior to the eye socket in which this tissue is imbedded resulted in the failure of the nictitating membrane to be formed during metamorphosis. Removal of any part (*i. e.,* anterior half, posterior half, dorsal or ventral half) of this mass of tissue in the larvae, failed to hinder in any way the formation of a complete and well developed nictitating membrane during metamorphosis.

Autoplastic transplants to the back, of a section of the integument surrounding the eye and including the conjunctiva and the undifferentiated mass of tissue, resulted, during metamorphosis, in the formation of a mass of tissue resembling a partially formed nictitating membrane.

Extirpation of the integument along the ventral border of the eye which forms the lower eyelid and upon which the nictitating membrane normally forms, resulted in the partial regeneration of this area and the formation of a perfect nictitating membrane during metamorphosis.

It may be concluded that the small mass of tissue imbedded within the integument at the anterior border of the eye is undifferentiated in the larval stages of the frog, and that growth and differentiation are due primarily to hormonic influences released into the blood stream during metamorphosis.