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Fertility and Development of Newt Eggs Obtained after Anterior Lobe Implants.

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Five pairs of adult Newts of the species *Triturus viridescens,* Woods Hole strain, were transferred on January 6, 1932, from the water in which they were received at 5°C. to aquaria at 20°C. Courtship by the males followed and at least one spermatophore was deposited on the sand in each of 2 aquaria; the females, however, were not incited to follow far and the uncollected sperm cell masses were scattered by the movements of the animals. No egg-laying occurred. After a week, the males were removed from the aquaria and the females were given daily implants of anterior lobe of amphibian pituitary to stimulate ovulation (Wolf[1]). Anterior lobes obtained from Newts of the same species, from *T. dorsalis,* and from the frog, *Rana pipiens,* were placed intramuscularly as in the work of Adams,[2] one lobe being used for each implant. Only non-fertile eggs were deposited; egg-laying ceased when implants were stopped. Untreated isolated males deposited no spermatophores.

Males of Triturus were stimulated to deposit whole spermatophores or small clusters of sperm cells (not always mature and active) by 3 methods: (1) isolated males after 2 and after 3 daily implants of amphibian anterior lobe; (2) isolated males after 4 and after 6 daily injections intraperitoneally of gonadotropic hormone as extracted from human pregnant urine; (3) males paired in aquaria with females, when the preliminary period of courtship was shortened if either had received implants. After the sperm cell masses were gathered from the bottom of the aquaria by a small glass pipette and were transferred to the cloacas of 4 treated females (with 5, 5, 6, and 2 daily implants), they laid fertile eggs. Three of the females began to deposit eggs within a day, the fourth after an interval of 8 days during which 2 more implants were given; fertility after this delay would seem to indicate that some of the spermatozoa inserted had made their way to the spermatheca. The low degree of fertility obtained by this method (142 of 365 eggs from the 4 fe-

[1] Wolf, O. M., PROC. SOC. EXP. BIOL. AND MED., 1929, **26**, 692; *Anat. Rec.,* 1929, **44**, 206.

[2] Adams, A. E., PROC. SOC. EXP. BIOL. AND MED., 1930, **27**, 433; *Anat. Rec.,* 1930, **45**, 250.

males), in addition to the lack of fertility without pipette transfer of sperm, suggests that no spermatozoa had been collected during the fall mating season and that the few present to fertilize the eggs were those retained from the laboratory procedure.

Fertile eggs were usually attached to the water plants; those which dropped to the bottom of the aquaria had been forced out after too short a stay in the cloaca for fertilization to occur. There was marked individual variation not only in the number and fertility of the eggs laid (33 fertile of 48 laid, 57 of 120, 32 of 160, 20 of 37), but also in the size and degree of their maturity, in the duration of the egg-laying period (6, 17, 6, and 4 days), and in the relation of this period to the total number of implants received (9, 10, 7, and 4, respectively). The third female produced, during the last 2 days of her egg-laying, very small immature eggs, unpigmented and pressed end to end in a long trailing albuminous strand.

Isolated female Newts from the same source given implants in February, 1933, laid only non-fertile eggs. Non-treated females laid no eggs. Further work was prevented by deaths of both sexes, probably due to the 2 species of tapeworms found on autopsy.

The embryos developing from the induced eggs of January, 1932, showed a high degree of asymmetry, appearing for the most part before the closure of the neural folds. Duplications of balancers or of gills, supernumary or fused digits were frequent. Except for these latter minor variations, 94 animals were selected as apparently normal upon arrival at the eating stage and were reared for 6 weeks on ostracods, 2 species of daphnids, and enchytreids. Synthetic diets, used for the remaining period of larval growth, led to a range in length from 32 to 47 mm. at the time of metamorphosis.

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Precipitin and Fermentation Reactions of the Moniliae.

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In the course of the study of smears from cases of bronchial asthma and routine cultures taken from cases of ringworm infection of the feet, numerous yeast-like organisms were encountered, especially