CASTRATION OF THE BOX TURTLE, *TERRAPENE CAROLINESIS*

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Male Box turtles collected in Maryland and Virginia were used in these experiments. Preliminary castrations had been performed by Chester N. Dale at The George Washington University during the preceeding year. These turtles had been selected at random during the early summer without reference to the seasonal variation in the reproductive tract of the turtle. The results of these operations showed a diminution of the epithelial height of the epididymis, and a contraction in the total volume of the epididymis provided the time elapsed was long enough. These experiments presented castrations varying in length from 10 to 23 days. The ten day period was ineffective.

It became obvious that longer castration periods were necessary for clear cut results, that the castration picture could be accentuated by choosing the animals at the proper time in the seasonal cycle, and that great variations in epididymal epithelial height were present in any normal epididymis. The normal epithelium will show a range from 5 to 32 micra. With these factors in mind, the author continued the experiments in Washington and Salsbury Cove.

Castration is accomplished by cutting a pair of square windows in the carapace over the region of the testes. This is easily done with an electric circular hand saw. Caution has to be exercised to miss the underlying major blood vessels, and to prevent puncture of the lungs. The testis is then lifted through the opening and removed either alone or with the accompanying epididymis.

The seasonal variation in the reproductive tract follows closely that described by Risley for the Musk turtle. The testis is at its smallest size during the early Spring months. It begins to enlarge in May and rapidly increases in size and turgidity until a maximum is reached toward the end of July. This external enlargement is the result of rapid and extensive spermatogenesis. Then a wave of spermiogenesis sets in with a loss of turgidity of the testis, and a decrease in the thickness of the wall of the seminiferous tubules. The cycle of spermatogenesis completes itself toward the end of September and the walls of the seminiferous tubules are reduced to the basal layers of cells. Testicular regression in size follows through the winter months.

It has been observed that the cells of the epididymis also show a cyclic behavior in regard to their height. This is not as pronounced as in the testis, and shows an epididymal cell at its maximum size early in May. Regression in size follows

slowly through the summer as the epididymis is refilled with new spermatozoa.

With this added information, castrations were performed in May and again in August. These were controlled by animals unilaterally castrated, and by a comparison of the one epididymis removed at the time of operation with the one recovered at autopsy. They were carried for a period of three months before they were sacrificed. These all showed a marked diminution in total epididymal size compared with the normal. The epithelial cells likewise were reduced to their minimum range. Spermatozoa, however, can still be recovered after the elapse of 74 days of castration, and they are actively motile.

The results of these experiments all point to an epididymis sustained through the hormonal action of the testis. It is in no sense as closely dependent as in the case of the mammal. These results are still indecisive, however, because of the possibility that diet may affect the general condition of the reproductive tract and there is some reason to suspect that this may be the case. For this reason the operations will be continued to eliminate this possible source of error.

REFERENCE

Risley, Paul L., 1938, Seasonal changes in the testis of the Musk turtle, *Sternotherus odoratus L. Journ. Morph.*, **63**, 301.

THE EXPERIMENTAL HORMONAL STIMULATION OF THE REPRODUCTIVE ORGANS OF THE COMMON EEL

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Preliminary experiments designed to stimulate the gonads of the teleostean eel, *Anguilla rostrata*, were performed. It was anticipated that by the use of appropriate hormones or some combination of them the gonads might be matured and ripe eggs and sperm produced. This has been effectively demonstrated in amphibian material by numerous authors and is a common procedure for procuring embryological material. In the case of the eel, such experimental maturation would provide ample material which might throw considerable light upon the early development of the eel. With that as an objective, the following experiments were performed.

All eels available were females, and varied in length from fifteen to thirty one inches. The smaller eels were sacrificed without experimental manipulation and gonads and pituitaries saved. Smaller eels were considerably less mature than the larger ones as shown by the macroscopic condition of the gonads, and the microscopic size of the oocytes. Experimental