

BULLETIN
OF THE
UNITED STATES FISH COMMISSION.

1885.

1.—NOTE ON THE MALE ORGANS OF THE EEL.

By JOHN A. RYDER.

Through the courtesy of Dr. T. H. Bean, curator of the ichthyological department of the United States National Museum, I have been enabled to study the male generative glands or Syrskian organs of a species of *Anguilla*, taken at Fire Island Beach, Great South Bay, Long Island, by himself and party during the latter part of the summer of 1884. Four specimens handed to me for investigation proved to be males. Two of these bear the Museum number 35979, taken October 7, and two others, the number 35935, taken September 25. In all four I found the lobulated organs, first described by Syrski, in a condition of development which leaves no doubt whatever that they are truly the male generative glands of the animal.

In the females hitherto examined by the writer the generative folds attached along either side of the mesentery on the dorsal wall of the abdomen are found as continuous folds, lobulated on their external faces, and are mostly composed of very young ova, fat cells, and very little or no connective tissue or ovarian stroma.

In the generative organs of the male specimens alluded to above the glands extend along either side of the mesentery, in the same position as in the females, but the structure consists of very distinct reticulate-shaped lobules, which connect at their bases with a common *vas deferens*, which extends along their bases and opens posteriorly into a triangular space, which in turn opens into the common genito-urinary outlet.

Syrski states that these lobulated organs are filled with granules, which are confined to compartments separated by fibrous membrane. I may say that this description is in general terms correct, but I would in addition point out the fact that these compartments are more or less convoluted, long, and tubular, and therefore present the character of

true spermatic tubuli, as may be seen from the accompanying figures. It is thus evident that there can be no shadow of doubt but that these are truly the male organs of the eel, for I find that the granules alluded to by Syrski are really the heads of what in future will probably become spermatozoa, for they are globular and nearly uniform in size. The whole character of the organs, both macroscopically and microscopically, is so entirely different from that of the ovaries found in the female that there is no possibility of confounding them.

Another important fact I would point out, namely, that the Syrskian lobules of the testicle of the male eel correspond almost exactly to the muscular and skeletal segments of the animal, a trait which is not discoverable in the female organs, and one which illustrates a singular fact in morphology, viz, that metamerism may show itself in the glandular part of the reproductive organs of one sex and not manifest itself in the structure of the generative apparatus of the other.

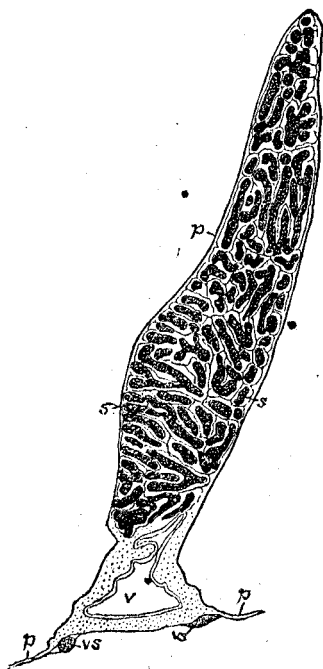


FIG. 1.

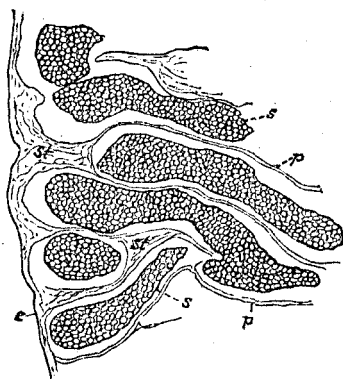


FIG. 2.

In the accompanying figures there is undoubted evidence of the existence of something analogous to seminiferous tubules, in the solid strands of adherent and immature spermatic bodies; how nearly the spermatozoa are mature must, of course, remain an open question. The Fire Island specimens were taken near the shore, in one to two fathoms of water, during the month of September. Another series of specimens from Wood's Holl, Massachusetts, bearing the Museum number 29959,

taken in November, 1881, show the Syrskian organs slightly larger than in the Fire Island specimens, indicating possibly that functional maturity of the male organs is not attained till midwinter. This is rendered all the more probable from the fact that the young eels about 2 inches long which constitute the swarms which come into fresh water in the spring must have had three or four months during which to grow in order to reach the dimensions which they attain, which would render it probable that actual oviposition occurred sometime during the months of December or January.

For a full account of what has been hitherto known in regard to the breeding habits of the eel, the reader is referred to a paper by G. Brown Goodé, entitled "Notes on the Life history of the Eel, chiefly derived from a study of recent European authorities," and published in the Bulletin of the United States Fish Commission, I, 1881, pages 71-124. The only points which the writer has more fully elaborated are such as relate to the finer structure of the male organs, and he also takes pleasure in announcing that the male eel has been positively identified from at least two points along our eastern coast, the animals in both instances showing the male reproductive elements so far advanced in development that there can be but little doubt if the animals had been taken a few weeks later, ripe spermatozoa would have been found in the *vasa deferentia* of the testes.

EXPLANATION OF FIGURES.

Fig. 1. Vertical transverse section through one of the Syrskian lobules of the male eel, showing the spermatic masses *s s*, the peritoneum *p p p*, which invests the testes and is reflected over the abdominal parietes on either side of the *vas deferens v*, which has two vessels *vs vs* almost underlying it. From the Fire Island specimens. X 35.

Fig. 2. More magnified view of a portion of a section of the testicle of the eel, showing the outer layer of peritoneum *e* with the septa *st st* extending inwards between the spermatic masses, and which thin out into the very thin partitions *pp*. From a Fire Island specimen, X 200.

2.—THE PORPOISE FISHERY OF HATTERAS, N. C.

By F. W. TRUE,

Curator, Department of Mammals, United States National Museum.

THE SPECIES CAPTURED.

The primary object of my visit to Hatteras in September last was to determine whether the species of dolphin captured at that point was the same as that described by Professor Cope under the name of *Lagenorhynchus perspicillatus*, and, if so, to obtain material to confirm or dispel my suspicion that this species is the same as the *L. acutus* of Gray.