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Occurrence of gigantic cuttlefishes on the coast of Newfoundland

A. E. Verrill

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of nerve is asserted. The probability of a continuous plexus round the *Actinia* and beneath each chromatophore is suggested, and the physiological action of the structures in relation to light is explained.

The minute structure of the muscular fibres and their attached fibrous tissue in the base of *Actinia* is noticed; and the nervous system in that region is asserted to consist of a plexus beneath the endothelium, in which are fusiform cells and fibres like sympathetic nerve-fibrils. Moreover, between the muscular layers there is a continuation of this plexus, whose ultimate fibrils pass obliquely over the muscular fibres, and either dip between or are lost on them.

The other parts of the *Actinia* are under the examination of the author, but their details are not sufficiently advanced for publication. The nervous system, so far as it is examined, consists of isolated fusiform cells with small ends (Rötteken), and of fusiform and spherical cells which communicate with each other and with a diffused plexus. The plexus at the base is areolar; and its ultimate fibres are swollen here and there, the whole being of a pale grey colour.

MISCELLANEOUS.

Occurrence of Gigantic Cuttlefishes on the Coast of Newfoundland.

By A. E. VERRILL.

CONSIDERABLE popular interest has been excited by several articles that have recently been published and extensively circulated in the newspapers of Canada and the United States, in regard to the appearance of gigantic "squids" on the Newfoundland coast. Having been so fortunate as to obtain, through the kindness of Professor S. F. Baird, the jaws and other parts of two of these creatures, and, through the courtesy of Dr. J. W. Dawson, photographs of portions of two other specimens, I have thought it worth while to bring together, at this time, the main facts respecting the several specimens that have been seen or captured recently, so far as I have been able to collate them, reserving for a future article the full descriptions and figures of the jaws and other portions now in my possession.

We now have reliable information concerning five different examples of these monsters that have appeared within a short period at Newfoundland.

1. A specimen found floating at the surface, at the Grand Banks, in October 1871, by Captain Campbell, of the schooner 'B. D. Haskins,' of Gloucester, Mass. It was taken on board, and part of it used for bait. Dr. A. S. Packard has given, in the 'American Naturalist,'

vol. vii. p. 91, Feb. 1873, all the facts that have been published in regard to this individual. But its jaws have since been sent to the Smithsonian Institution, and are now in my hands to be described and figured. They were thought by Professor Steenstrup, who saw a photograph of them, to belong to his *Architeuthis monachus*, which inhabits the northern coasts of Europe, but is still very imperfectly known. The horny jaw or beak from this specimen is thick and strong, nearly black; it is acute at the apex, with a decided notch or angle on the inside, about $\cdot 75$ of an inch from the point; and beyond the notch is a large prominent angular lobe. The body of the specimen from which this jaw was taken is stated to have measured 15 feet in length and 4 feet 8 inches in circumference. The arms were mutilated; but the portions remaining were estimated to be 9 or 10 feet long, and 22 inches in circumference, two being shorter than the rest. It was estimated to weigh 2000 pounds.

2. A large individual attacked two men, who were in a small boat, in Conception Bay; and two of the arms which it threw across the boat were cut off with a hatchet and brought ashore. Full accounts of this adventure, written by Mr. M. Harvey, have been published in many of the newspapers*. One of the severed arms, or a part of it, was preserved in the museum at St. John's; and a photograph of it is now before me. This fragment represents the distal half of one of the long tentacular arms, with its expanded terminal portion covered with suckers, 24 of which are larger, in two rows, with the border not serrate, but 1.25 inch in diameter; the others are smaller, very numerous, with the edge supported by a serrated calcareous ring. The part of the arm preserved measured 19 feet in length, and 3.5 inches in circumference, but wider, "like an oar," and 6 inches in circumference, near the end where the suckers are situated; but its length, when entire, was estimated at 42 feet†. The other arm was destroyed, and no description was made; but it was said to have been 6 feet long and 10 inches in diameter; it was evidently one of the eight shorter sessile arms. The estimate given for the length of the "body" of this creature (60 feet) was probably intended for the *entire length*, including the arms.

3. A specimen was found alive in shallow water, at Coomb's Cove, and captured. Concerning this one I have seen only newspaper accounts. It is stated that its body measured 10 feet in length and was "nearly as large round as a hog's head" (10 to 12 feet); its two long arms (of which only one remained) were 42 feet in length and "as large as a man's wrist;" its short arms were 6 feet in length, but about 9 inches in diameter, "very stout and strong;" the suckers had a serrated edge. The colour was reddish. The loss of one long arm and the correspondence of the other in size to the one amputated from No. 2, justifies a suspicion that this was actually

* Also in the 'Annals and Magazine of Natural History,' January 1874, with a woodcut of the arm.

† Doubtless these long arms are very contractile and changeable in length, like those of the ordinary squids.

the same individual that attacked the boat. But if not, it was probably one of the same species and of about the same size.

4. A pair of jaws and two of the suckers were recently forwarded to me from the Smithsonian Institution. These were received from Rev. A. Munn, who writes that they were taken from a specimen that came ashore at Bonavista Bay, that it measured 32 feet in length (probably the entire length, including more or less of the arms), and about 6 feet in circumference. This jaw is large and broad, but much thinner than that of No. 1, and without the deep notch and angular lobe seen in that specimen. It probably belongs to the *Architeuthis dux* of Steenstrup, or at least to the same species as the jaw figured by Dr. Packard.

5. A smaller specimen, captured in December, in Logic Bay, about 3 miles from St. John's, in herring-nets. Of this I have a description in a letter to Dr. Dawson from the Rev. M. Harvey, who has also published a brief account of it in the 'Morning Chronicle' of St. John's. The letter is accompanied by two photographs of the specimen—one showing the entire body, somewhat mutilated anteriorly, the other showing the head with the ten arms attached. The body of this specimen was over 7 feet long, and between 5 and 6 feet in circumference; the caudal fin was 22 inches broad, but short, thick, and emarginate posteriorly on each side, the end of the body being acute; the two long tentacular arms were 24 feet in length, and $2\frac{1}{2}$ inches in circumference, except at the broader part near the end, the tips slender and acute; the largest suckers 1.25 inch in diameter, with serrated edges; the eight short arms were each 6 feet long; the two largest were 10 inches in circumference at base, the others were 9, 8, and 7 inches. These short arms taper to slender acute tips; and each bears about 100 large, bell-shaped suckers with serrated margins. Each of the long arms bears about 160 suckers on the broad terminal portion, all of which are denticulated; the largest ones, which form two regular alternating rows of twelve each, are about an inch in diameter. There is also an outer row of much smaller suckers, alternating with the large ones, on each margin; the terminal part of these arms is thickly covered with small suckers; and numerous similar small suckers are crowded on that portion of the arms where the enlargement begins, before the commencement of the rows of large suckers. The arrangement of the suckers is nearly the same as on the long arm of No. 2; but in the latter the terminal portion of the arm, beyond the large suckers, as shown in the photographs, is not so long, tapering, and acute; but this may be due to the different conditions of the two specimens. It is probable that this was a young specimen of the same species as No. 2.

From the facts known at present, it appears probable that all these specimens, and several others that have been reported at various times from the same region, are referable to two species—one (probably *Architeuthis monachus*) represented only by the first of those enumerated above, and having a more elongated form of body and stouter jaws; the second (probably *A. dux*) represented by

Nos. 2 to 5, above described, having a short, thick, massive body, and broad, but comparatively thin jaws, which are also different in form. Some of the differences in size and proportions, and in the suckers, observed among the four specimens referred to the latter species may be due to sex; for the sexes differ considerably in these characters in all known cuttlefishes.—*American Journal of Science and Arts*, Feb. 1874.

Umbellula from Greenland. By JOSHUA LINDAHL.

Mr. Lindahl has written a paper on the two specimens of *Umbellula* taken on the coast of Greenland. It will appear in the next volume of the 'Kongl. Vetenskaps-Akad. Handlingar' of Stockholm, illustrated with three quarto plates, each containing several figures.

Mr. Lindahl considers the two specimens different from one another and from the *Umbellula encrinurus* of Linnæus figured by Mylius and Ellis. He observes he must confess that the difference may depend upon the difference of age, and as for *U. encrinurus* upon imperfection in the figure and description. At all events, he thinks it better to describe his two specimens as two different and new species in order to call attention to the differences, observing "that when new investigations of the deep sea have brought together richer materials, as no doubt they will, if I have committed a mistake in this respect it will be easily corrected." He considers that *Umbellula* and *Crinillum* form one group, as Dr. Gray has pointed out. He regards them as true Pennatulids, and puts them among the "Zunft" Pennatulidæ as the fifth family, *Umbellulæ*, close to the family *Bathypyleæ* (Kölliker, 'Die Pennatuliden,' p. 380). The rachis, or *pars polypifera*, is about one fortieth of the length of the stem; polypes not retractile, without calyces, the lateral ones large and the dorsal small; the zooids are crowded in lateral and ventral shields ("Wülste," Köll.); the axis square, with one deep groove on each side; no spicula in any part of body.

On the Bos pumilus of Sir Victor Brooke.

By Dr. J. E. GRAY, F.R.S. &c.

Sir Victor Brooke's paper in the last number of the 'Annals' shows that he does not understand the question between us, and it contains many erroneous statements. I will therefore state the question as shortly as I can.

Sir Victor Brooke states at p. 159:—"Turton, having founded the name *Bos pumilus* upon Pennant's 'Dwarf,' it follows that the horns spoken of and figured by Pennant are typical specimens of '*Bos pumilus*.'" The statement that the fragment of the forehead and horns are typical of Pennant's "Dwarf," and therefore of the *B. pumilus* of Turton, who never refers to the specimen, is entirely inaccurate, as the following statement will prove.

Columna figured a buffalo from Morocco. Pennant and Turton abbreviated his description and called it the dwarf buffalo and *Bos*