

offered presumptive evidence of the non-specific character of what is, after all, a decidedly distinctive form; and as I have brought home some specimens and planted them in my botanical garden, where I shall also introduce the *acaulis* and *acanthoides*, I shall look forward to the result of experiments with these with no little degree of interest, as in all probability, like so many other experiments which I have been enabled to perform in the same direction, these may serve still more to perplex the question "What is a species?"

Cirencester, July 1857.

XXXIII.—On the *Amphioxus lanceolatus*.

By ALEXANDER LINDSAY, M.D.

THE *Amphioxus lanceolatus* is said to inhabit most, if not all, the European seas. It was first discovered on the coast of Cornwall. Since that time it has occasionally, and at distant intervals, been found on various other parts of the British coasts. The late Mr. Yarrell, to whom we are indebted for its first accurate description, had, when he wrote, only one specimen for his guidance. Mr. Goodsir, who ably investigated the anatomy of this interesting fish, had, while making his researches, only two at his disposal. Hitherto it has been reckoned among the rarest of our fishes,—the securing a specimen a something worthy of note.

The object of this communication is to show that in some localities the *Amphioxus* is neither so rare nor so difficult to obtain as is generally supposed, and that in localities supplying the necessary conditions for its existence, it may be sought for with every hope of success. We think it due to naturalists to make them aware of this fact. To the zoologist this little creature is full of interest, to the anatomist and physiologist equally so. From the transparency of its tissues, and from its being, like all animals low in the scale of organization, tenacious of life, it affords great facilities for microscopic observation.

The writer was desirous of procuring an *Amphioxus* for anatomical purposes. Aware that it had been obtained within recent years on the west coast of Scotland, he concluded that by a diligent search others might be secured. His own opportunities for researches of this kind being few, he solicited the aid of an intimate friend and industrious naturalist, Mr. David Robertson of this city. He is engaged in preparing a list of the Crustaceans procurable in the Frith of Clyde, for the Natural History Society of Glasgow. Much of his spare time being

devoted to dredging for this purpose, he was requested to watch for the fish when opportunities offered for pursuing his investigations. In April last he succeeded in obtaining one.

No further examination of the ground whence the first was obtained was made till August. In that month the writer, with his friend and a companion naturalist, Mr. Little of Millport, made arrangements for a second exploration of the locality. To the surprise of all, we captured no less than three in our first dredge, and on the same day other three were taken. On a subsequent occasion, Mr. Robertson obtained five in one haul. Without entering into particulars, we may at once state, that in five different dredgings, on separate days, twenty-two were captured.

The scene of operations was on the Ayrshire coast, near Portincross, at a point nearly midway between the mainland and the east end of the Little Cumbrae. Dr. Landsborough mentions his having dredged one near the same place.

On looking at some statements regarding this fish, it is said to be found principally among sand. It may be so; but this did not by any means accord with our experience. Invariably they were present in clean unmixed gravel. When even a very moderate amount of sand or mud appeared in the dredge, we soon learned not to expect the fish. As regards this, we were never disappointed. It was further remarkable, that when we had secured the *Amphioxus*, there was a complete absence of everything else likely to interest either the marine botanist or zoologist. To this we may state there was one exception, there being invariably an Annelide present, evidently one of the family Nereidæ. The species we were unable to determine.

Already we have spoken of the tenacity of life manifested by the *Amphioxus*. Half an hour under the microscope seemed to interfere little with its vitality: on being replaced in the water, it darted rapidly off, little the worse for the examination. It may not, however, be always convenient to examine them in the live condition. When placed in alcohol, they speedily become opaque: the addition of soda, in certain proportions, is said to prevent this. We cannot on this point speak from our own experience; but we can confidently advise the use of glycerine as a preservative fluid; the appearance of specimens of the *Amphioxus*, after being put up for weeks, being not in the slightest degree altered.

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