

- |                                    |        |
|------------------------------------|--------|
| 48. NOTOPTERUS CHITALA, Ham. Buch. | M.     |
| 49. MONOPTERUS JAVANENSIS, Lacép.  | M., I. |
| 50. ANGUILLA SIDAT, Blkr.          | M.     |
| 51. MURÆNA TILE, Ham. Buch.        | M.     |

## LOPHOBRANCHII.

- |                                 |    |
|---------------------------------|----|
| 52. DORYICHTHYS CAUDATUS, Ptrs. | M. |
|---------------------------------|----|

## PLECTOGNATHI.

- |                                    |    |
|------------------------------------|----|
| 53. TETRODON PALEMBANGENSIS, Blkr. | M. |
| 54. TETRODON LIURUS, Blkr.         | M. |

5. A Contribution to our Knowledge of British Pleuronectidæ.  
By Dr. A. GÜNTHER, F.R.S., V.P.Z.S.

[Received December 6, 1889.]

(Plate III.)

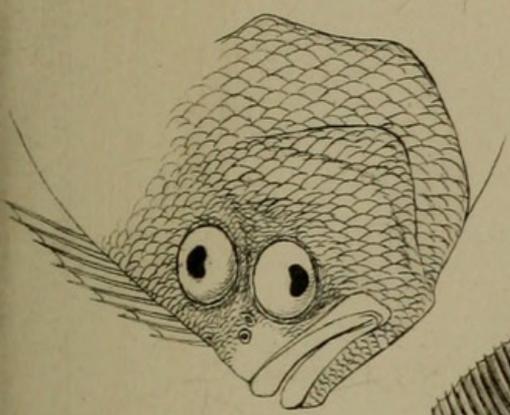
1. *On the Occurrence of Arnoglossus lophotes and Arnoglossus grohmanni in British Seas.*

In the fourth volume of the 'Catalogue of Fishes,' p. 417 (1862), I described from three skinned specimens which formed part of the Yarrell Collection a new species of *Arnoglossus* under the name of *A. lophotes*. I was unable to give the locality whence these specimens were obtained, but inferred from the mode of their preservation that it was more probable that they came from British seas than from the Mediterranean. I placed this new species close to *Arnoglossus grohmanni* from the Mediterranean, which is sufficiently well figured in Bonaparte's 'Fauna Italica,' and correctly described by Canestrini (Arch. Zool. i. p. 12, tav. i. fig. 3); and pointed out such differences between the two species that it seemed almost impossible to confound them.

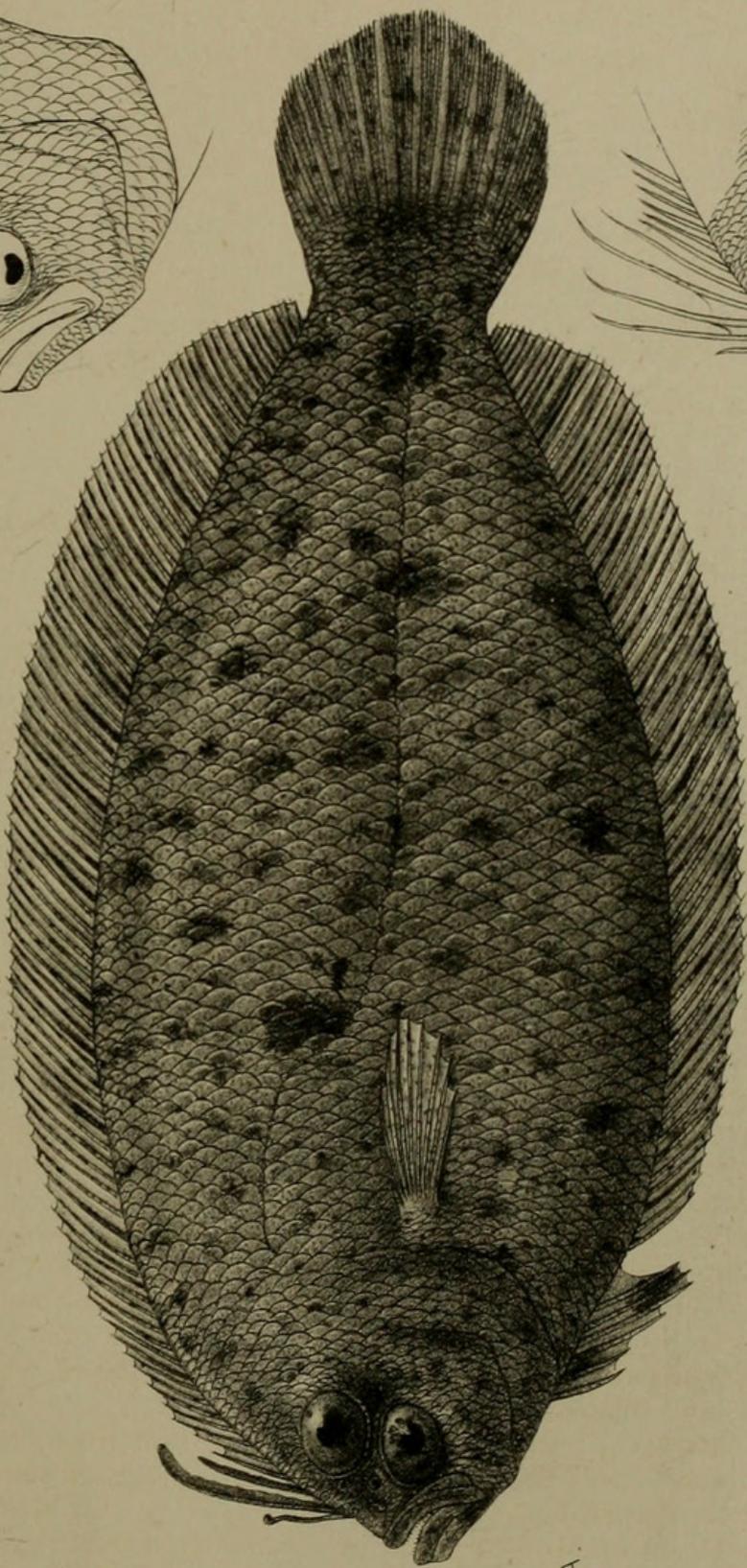
The uncertainty about *A. lophotes* being a British species was, however, soon removed by Couch, who in his 'History of British Fishes' (1864) states that he had examined a specimen obtained at Plymouth, and by Professor Moseley, who in 1882 captured another example of the same species in the trawl off Lundy Island, which he deposited in the British Museum.

To the late Mr. F. Day neither the evidence brought forward by me nor that of Couch seemed satisfactory enough to introduce this fish into the British fauna (Fish. Great Brit. ii. p. 23), and it was only after Professor Moseley's capture that he admitted it, asserting, however, that it was identical with the Mediterranean *A. grohmanni* (Proc. Zool. Soc. 1882, p. 748, pl. 53).

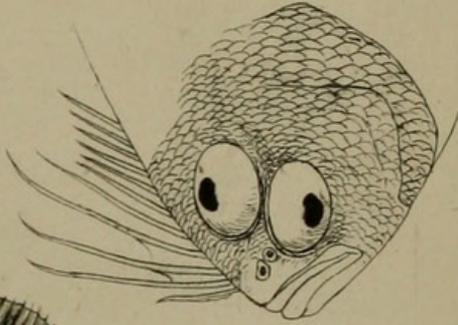
The opportunity of again setting right this error is now offered



C.



A.



B.

R. Mintern del. et lith.

A. ARNOGLOSSUS GROHMANNI. B. ARNOGLOSSUS LOPHOTES. C. ARNOGLOSSUS LATERNA.

Mintern Bros. imp.



by the discovery by the Rev. W. S. Green of a fish on the coast of Ireland which proves to be an adult specimen of the true *A. grohmanni*. Thanks to the kind help of the Marquis G. Doria, Professor Doderlein of Palermo, and Professor Bellotti of Milan, I have materials before me which place the question beyond any doubt, the result of my examination being:—

1. That the two species are quite distinct, and well characterized by constant characters.

2. That both species are found both in the Mediterranean and on the British coasts, but are rarer in the latter area.

3. That the outlines of the figure in Proc. Zool. Soc. 1882, pl. 53, are taken from a British specimen of *A. lophotes*<sup>1</sup>, with the scaling and markings added from a Mediterranean *A. grohmanni*.

The arguments brought forward by Mr. Day in support of his assertion that the two species are identical were the following:—

1. That he had received specimens of *A. grohmanni* from Prof. Giglioli of Florence, “which are identical with Prof. Moseley’s fish.” If that was the case, and if those specimens had the four or five anterior dorsal rays prolonged, and not the second only, then I have no hesitation in stating that those specimens were misnamed *A. grohmanni*.

2. That “the typical specimens of *A. lophotes* are stretched or abnormally elongate skins.” It is quite possible that these skins are a little more elongate than the fishes were whilst in the flesh; but all the fresh specimens of *A. lophotes* have a more elongate body than adult and halfgrown specimens of *A. grohmanni*, as may be seen on comparing the figure of this species now given (Plate III. fig. A) with the figure in P. Z. S. 1882, pl. 53. And in conformity with this greater prolongation of the body, the numbers of the fin-rays and transverse series of scales are larger in *A. lophotes* than in *A. grohmanni*. I have to add, however, that the smallest and youngest specimen of *A. grohmanni* ( $2\frac{1}{2}$  inches long), which I received among those sent by Prof. Bellotti, has the body more elongate than older examples: a very common occurrence in the Pleuronectidæ.

3. That the numbers of fin-rays show greater variations in Pleuronectoids than in other fishes; that, for instance, in the Lemon Sole (*Solea lascaris*) the number of dorsal rays varies between 65 and 89, and of the anal between 52 and 70! This is contrary to the observations of almost all ichthyologists (Mr. Day included): the fin-rays of Pleuronectoids do not vary more than in other fishes with a similarly great number of fin-rays; and the statement of so extraordinary a variation as the one referred to can only be accounted for by the observer having mixed up several species. The following table of the fin-rays of our specimens of *A. lophotes* and *A. grohmanni* will be, however, more to the point than any far-fetched comparisons of doubtful value.

<sup>1</sup> The specimen when brought to the Museum by Professor Moseley immediately after its capture had lost not only the scales, but also the integuments; and of course every trace of colour was gone.

*Arnoglossus lophotes.*

	Dorsal rays.	Anal rays.
Dry typical specimen no. 1 . . . . .	95	77
"    "    no. 2 . . . . .	96	76
"    "    no. 3 . . . . .	102	81
Lundy Island specimen in spirit . . . . .	99	79
Specimen from Palermo    "    . . . . .	98	75

*Arnoglossus grohmanni.*

Specimen from Kenmare River in spirit . .	86	64
"    Dalmatia    "    . .	85	65
"    Nice no. 1    "    . .	84	64
"    "    2    "    . .	88	61
"    "    3    "    . .	88	62
"    "    4    "    . .	84	65

It is difficult to understand why Mr. Day in his paper makes no reference whatever to the most striking distinctive character, viz. the prolonged dorsal rays. Bonaparte and Canestrini distinctly say that in *A. grohmanni* the second dorsal ray is prolonged, and so it is in the six specimens before me, in the youngest as well as oldest. In *A. lophotes* the four or five anterior rays are prolonged; and there is no difference in this respect in the five specimens before me, in the smallest as well as in the largest. No author mentions a prolongation of fin-rays in the common British species of Scald-fish, *Arnoglossus laterna*, which, besides, has a conspicuously smaller eye than *A. lophotes* (see Plate III. figs. B, C), as may be seen from the following measurements:—

	<i>A. laterna.</i>	<i>A. lophotes.</i>
Total length . . . . .	187 mm.	174 mm.
Horizontal diameter of eye . . . . .	7½ mm.	9½ mm.
Total length . . . . .	120 mm.	136 mm.
Horizontal diameter of eye . . . . .	5½ mm.	8 mm.

Also the maxillary is somewhat shorter in *A. lophotes* than in *A. laterna*.

I add now a complete diagnosis of *A. grohmanni*, drawn up from specimens preserved in spirit:—

D. 84–88. A. 61–65. P. 9. L. lat. 51.

The greatest width of the body is contained twice and one third in the total length (without caudal), the length of the head four times. The upper profile of the head descends rapidly downwards, there being a considerable space between the upper eye and the upper profile. Eyes of moderate size, one fourth of the length of the head and equal to the length of the snout; eyes separated by a sharp ridge, the lower somewhat in advance of the upper. Mouth oblique and rather narrow, with prominent lower jaw and with the maxillary not extending to below the middle of the eye. The length of the maxillary is one



1890. "A Contribution to our Knowledge of British Pleuronectidae."  
*Proceedings of the Zoological Society of London* 1890, 40–44.

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