

## Observations on some British Fishes.

By FRANCIS DAY, F.L.S.

[Read February 17, 1881.]

DURING the last twelve months I have collected a few facts relative to some reputed British fishes which would seem to show that the usually admitted forms may be still further reduced in number. The first species I wish to allude to is one which was obtained by a most indefatigable zoologist, Mr. Cornish, of Penzance, who has procured so many rarities from the seas of Cornwall.

PAMMELAS PERCIFORMIS, *Mitchill*.

Rudder-fish or Perch Coryphene, *Mitchill, Lit. & Phil. Soc. New York*, i. pl. xvi. f. 7 (no description). *Coryphæna perciformis, Mitchill, Amer. Month. Mag.* ii. p. 244. *Trachinotus argenteus, Storer, Mass. Report*, p. 55 (not *Cuv. & Val.*). *Palinurus perciformis, De Kay, New York Fauna, Fishes*, p. 118, pl. xxiv. f. 25. *Pammelas perciformis, Günther, Catal.* ii. p. 485. *Palinurichthys perciformis, Gill, Amer. Fish. Report*, 1873, p. 804. *Pimelepterus cornubiensis, T. Cornish, Zoologist* (2), ix. 1874, p. 4255.

Mr. Cornish has so fully described the specimen, which was  $14\frac{3}{4}$  inches long, that further remarks appear to be unnecessary. The fish is stuffed, and in the collection of Sir John St. Aubyn, by whose permission Mr. Cornish kindly had a photograph taken\* and sent to me. The history of the capture is so remarkable that I cannot resist transcribing it, as it may be open to discussion, how did the fish first get into the box? where did this take place? how did it arrive alive and well off Cornwall?

On October 9th, 1874, this fish was taken about six miles off shore by the crew of a Penzance trawler, who discovered it floating as a waif on the ocean in a wooden box or case, the four sides and bottom of which were perfect, but one board was torn off out of the four which had originally formed the lid. The captive fish was in a good state of health.

In examining Yarrell's and Couch's Histories of British Fishes the number of discrepancies among the Tunnies is remarkable.

\* Photograph exhibited at the Meeting.

*Oreynus* (or *Thynnus*) *brachypterus* is unquestionably the immature of *O. thynnus*, the Common Tunny.

Yarrell, edition 2, vol. i. p. 160, has a figure of *Auxis vulgaris*; the same woodcut reappears in edition 3, vol. ii. as *Thynnus brachypterus*, with which species it is not related. In the second edition, as a vignette, at p. 159, is shown a *Pelamys sarda*, having only transverse bands; in the next edition the same figure appears as *Auxis vulgaris*, while a new figure of *Pelamys sarda* is added, showing only the oblique, and not the transverse bands.

Couch equally is in error respecting his figures of these fish, as in volume ii. p. 102, plate lxxxv., we find the pelamid *Pelamys sarda* showing merely oblique, but not transverse, bands; while in volume iv. p. 425, plate lxxxii.\*, is the same species figured, showing transverse, but not oblique, bands, and named "Short-finned Tunny," *Thynnus brachypterus*. Consequently it does not appear that Couch ever received an example of the true *Thynnus brachypterus*, all the fish thus named by him being specimens of *Pelamys sarda*.

For the next few species I am chiefly indebted to Mr. Carrington, F.L.S., Naturalist to the Royal Westminster Aquarium. Some were obtained in the Channel Islands by his assistant Mr. Edward Matthews, others by Dr. Murie and Mr. George Brook, F.L.S., to all of which gentlemen my thanks are due.

#### LIPARIS MONTAGUI, *Donovan*.

Some very fine examples, up to 3·6 inches in length, were taken at the mouth of the Thames. The largest had D. 30, A. 24, and a very distinct membrane connecting the last ray of the dorsal and anal fins with the upper and lower edges of the caudal, while the pectoral was deeply notched. Ventral disk oval, not quite half as long as the head. The greatest depth of the body thrice and one fourth in the entire length of the fish, and the length of the head slightly less. The teeth rasp-like. *Colours* of a dull grey, covered with small black spots, which on the fins, especially the caudal, become almost bands.

#### LEPADOGASTER DECANDOLII, *Risso*.

A beautiful example, 3 inches in length, was taken from under a stone in a rock-pool at low-water at Jersey by Mr. Matthews, while searching for crabs. Of a beautiful red colour, its head

and body were covered with oval light spots, some of which were also seen on its dark dorsal fin. The large round black spot, surrounded by a light ring, on the cheek and the band on to the opercle were well marked. Lips very thick.

LABRUS MACULATUS, Bloch, var. DONOVANI.

? Comber, *Jago*, in *Ray's Synopsis Pisc.* p. 163, fig. 5. Comber, *Pennant*, *Brit. Zool.* ed. i. 1776, iii. p. 252, pl. xlvi. fig. 122, and ed. ii. 1812, iii. p. 342, pl. lviii. *Labrus lineatus*, *Donovan*, *Brit. Fishes*, iv. pl. lxxiv; *Turton*, p. 99; *Fleming*, p. 209; *Jenyns*, p. 209; *Yarrell*, ed. i., i. p. 315, c. fig. *Labrus cornubiensis*, *Couch*, *Trans. Linn. Soc.* xiv. pt. 1, p. 80. *Labrus Donovan*, *Cuv. & Val.* xiii. p. 39; *Yarrell*, ed. ii., i. p. 315, c. fig.; *Günther*, *Cat.* iv. p. 71; *Steindachner*, *Ich. Span. u. Port.* 1868, p. 25, t. iv. fig. 2. *Labrus comber*, *Yarrell*, *Brit. Fish.* ed. i., vol. i. p. 289, c. fig., also in ed. ii. & iii. *Green Wrasse*, *Couch*, *Fish. Brit. Isles*, iii. p. 30, pl. cxxvi. f. 1, and *Comber Wrasse*, iii. p. 32, pl. cxxvi. f. 2.

The varieties of *Labrus maculatus* to which my remarks will be almost confined are those that have been included under the terms of the *Green Wrasse* of Donovan and the *Comber Wrasse* of Pennant. They are very easily distinguished by their respective colours; but, as pointed out by Thompson in 1837 (*P. Z. S.*), the tints of the *Ballan Wrasse* are prone to assume so many changes, that he proposed to term it *Labrus variabilis*, under which he included *L. lineatus*, or the *Green Wrasse* of Donovan.

Valenciennes first drew attention to the *Green* and *Comber Wrasses* being probably identical, and suggested that such might eventually turn out varieties of the *Labrus bergylta*, the *L. maculatus* of Bloch. *Yarrell* and *Couch*, however, continued to consider the *Green* and the *Comber* both as distinct species, and different from the *Bergylt* or *Ballan*. Thompson, as I have stated, considered the *L. lineatus* as a variety of *L. maculatus*, but omitted any reference to the *Comber Wrasse*; while *White* placed all these forms under that of *Labrus bergylta*, but without stating his reasons for doing so. *Günther* located the *Green Wrasse*, *L. lineatus*, *Donovan*, as a synonym of *L. maculatus*, *Bloch*, but gave *L. Donovan*, *Cuv. & Val.*, as a separate species, on which very probably *L. comber* of Pennant has been founded. *Steindachner* has described and figured *L. Donovan*, *Cuv. & Val.*, the adult of the *Comber* of Pennant and others. This brings us to consider whether the *Green* and the *Comber Wrasses* are distinct species,

and also if they are, or are not, varieties of the *Ballan* or *Bergylt* Wrasse.

Among the fishes which I received from Mr. Carrington, captured by Mr. Matthews from crab-pots at Jersey, I found eight examples of the *Green Wrasse*, or *Labrus lineatus* of Donovan. The length of these specimens and the number of spines and rays in their dorsal fins were as follows:—Length 2 to 4 inches; two had D. 21/11, two D. 21/10, three D. 20/11, and one D. 20/10; while a very fine example, 16 inches long, from Brixham in the autumn of 1880, had D. 21/9. Thus one had 32 spines and rays, six had 31, and two had 30.

The first thing that attracts one's notice in the eight small specimens referred to is that the height of the dorsal spines equals or nearly so that of the rays. If we examine the adult example, we perceive the soft portion of the fin much higher than the spinous, a similarity to what also obtains in a *Ballan* Wrasse of the same size. Secondly, in all of these eight immature examples there existed a dark spot at the base of the last one or two dorsal rays. The number of spines and rays are not constant: thus, out of nine examples they numbered from 30 to 32, the spines varied between 20 and 21, and rays between 9 and 11. In short the teeth become less prominent with age, the lips larger, the eye smaller, and the spines of the dorsal fin of less height than the soft rays, while the caudal becomes more obtuse, and a single row of scales accompanies each ray.

These changes are not restricted to this one form, the *Labrus lineatus*, Donovan, or *L. Donovanii*, Cuv. & Val., as the same occurs in other varieties of the same species; and among the examples given me by Mr. Carrington from Jersey was a beautiful specimen of the *Labrus comber* of Pennant, or Couch's and Yarrell's *Comber Wrasse*. This fish would appear to be somewhat rare, and seems to have been first alluded to by Jago; but his figure and description are too vague to enable one to be sure. It is certainly identical with Pennant's *Comber*, while his figure is from an immature example, as is also Couch's, as may be recognized by the spinous dorsal being as high as the rayed portion, as I have remarked occurs in the *Green Wrasse*. Steindachner has given a beautiful figure, which he also refers to *Labrus Donovanii*; it is a little over  $9\frac{1}{4}$  inches long, and the dorsal fin shows the same change as in the *Green Wrasse*, the spines being of less height than the rays, the example, in fact, approaching the adult stage.

Not only do we see changes of form in this fish occurring with age, but the vividness of the colours also diminishes. In Cuvier and Valenciennes it is observed that the back and fins of *Labrus Donovanii* are green, the under surface of the throat yellowish, abdomen olivaceous. A longitudinal silvery streak divides the darker back from the pale sides, and some white bands exist on the head and abdomen. Couch found in *Labrus comber* the ground-colour of a rich, deep mahogany-red, with pale streaks on the head and a wide white band along the body; abdomen reddish, tail with six broad transparent patches irregularly arranged, and dots of very dark brown at the base of the rays. He tells us that "a few hours after death these spots generally vanished, and the colours became uniform." In Steindachner's example the white lateral band is seen, but those upon the head have vanished.

The true *Comber Wrasse* may be defined as invariably possessing a white lateral band along the body from the eye to the centre of the base of the caudal fin. My Jersey specimen is immature, as demonstrated by its fins, while its entire length is  $5\frac{1}{4}$  inches. Its colours were very beautiful when I first saw it, although it had been some time out of the sea. The back was red, separated by a white lateral band from an olive dashed-with-red abdomen. Some irregular dark bands went from the back down the sides, while the lower half of the body had numerous light spots. A white dark-edged band passed from the snout through the centre of the eye, terminating in the white lateral body-band. A second band crossed from the angle of the mouth below the eye on to the opercle, while a lighter one existed along the subopercle. The spinous portion of the dorsal fin had dull reticulations; an oblique and broad light band crossed the soft dorsal, which was also spotted, and had a dark mark at the base of the last five rays. Three black dots at the base of the pectoral fin; anal with a dark spot at the root of the third spine and a light ocellus on the base of the central rays; caudal with some black spots, giving the appearance as if the fin had been reticulated.

The *Comber Wrasse* may be red or green, but with a light lateral body-band, those on the head being present or absent. Its fin-rays, scales, and proportions are identical with what obtains in the *Ballan Wrasse*, *Labrus maculatus*, with which it must in future be included as one of its many variations in colour.

CRENILABRUS MELOPS, *Linn.*

*Crenilabrus Baillonii*, Couch, *Fish. of the Brit. Isles*, iii. p. 45, pl. cxxxii.

I have no hesitation in uniting these two forms as figured by Couch. I received from Mr. Carrington, nearly two years since, a beautiful example of *C. melops*, var. *Donovani*, Cuv. & Val., coloured as shown in my figure\*. The specimen kept in spirit has now lost nearly all its markings and become, on a casual inspection, quite similar to Couch's figure. If the latter is examined, it will be seen that it has five rows of scales across the cheek, and a dark mark behind the eye, as seen in *C. melops*, whereas *C. Baillonii*, Cuv. & Val., has only two or three rows of scales across the cheek and no dark spot behind the eye. Couch, in introducing this fish to the British Fauna†, observes that he does so "with some degree of hesitation; but a drawing of one which came a few years since into my possession, and which then appeared to differ from the ordinary appearance of the Corkwing," conveyed so near a likeness to Dr. Günther's description of *Baillon's Wrasse*, that he inserted it. Identifications of Wrasses simply from coloured sketches is at all times a dangerous plan; but when it becomes a question of two so nearly allied, it is hardly justifiable. However, my kept specimen would be similar to a fresh one some time from its native element; and shows the conclusion of Couch is inadmissible, his fish being *C. melops*, Cuv. & Val.

On February 11th I received from Brixham two exceedingly interesting examples of Pleuronectoids coloured on both sides of the body, the one being a *Brill*, the other a *Common Sole*. The remarkable phenomenon existed in both, that the eyes had gone completely over in a perfectly regular manner to what should have been the upper surface; and, as will be seen in the coloured drawings [exhibited], the dorsal fin is likewise in its normal position in each specimen, or passing forwards anterior to either eye, completely dividing the two sides of the head.

## RHOMBUS LEVIS.

This example of the Brill is  $21\frac{1}{2}$  inches in length; D. 81, A. 56.

\* Drawing exhibited at the Meeting.

† In *Catal. Fish. Brit. Museum*, 1862, iv. p. 84, "British Channel" is given as one locality of its habitat, but its capture there is not otherwise referred to.

Eyes in the normal position. The whole of the under surface of the body, except the head, coloured similarly to the upper surface.

SOLEA VULGARIS.

Length  $11\frac{1}{2}$  inches; D. 76, A. 67. Eyes in the normal position. The whole of the under surface of the body except the head coloured as on the upper surface.

These two specimens afford proof that the position of the upper eye is not necessarily correlated to the colour which exists upon, or is absent from, the under surface of the fish. In most of the double examples, or those coloured on both sides, which I have previously obtained, doubtless the upper eye has had its progress arrested when in course of passing over to the opposite side of the head—apparently confirmatory of the theory which has been advanced, that the under surface becomes etiolated, due to the loss of influence of the organ of vision over its pigment-cells; and that in double examples the colour is due to the eye not having been completely transferred, and still retaining its power. Other theories have been advanced, but it would seem by no means unworthy of consideration whether these double flat fishes are not retrogressions towards what existed in an earlier stage of development.

PLEURONECTES FLESUS.

This example, from the Westminster Aquarium, is 3 inches long; D. 61, A. 41. Eyes normal; anterior half of body dark; posterior half white blotched with brown; caudal fin mostly grey; some blotches on dorsal and anal fins; under surface of the body white. Here the eyes were normal on the usual side, yet the posterior half of the body was white blotched with darker. Some authors have considered these more or less albinos, or as sports due to crossing.

OSTRACION QUADRICORNIS, *Linn.*

Couch, in the 'Intellectual Observer,' v. p. 407, remarks that one of these fish, residents of the tropical parts of the Atlantic Ocean, had been taken in Cornwall in a net at some rather considerable distance from land; and in his 'Fishes of the British Isles' it is figured at pl. ccxlii., leaving no doubt as to the species alluded to.

Couch laid claim to this fish having been discovered as a rare visitor to our shores, informing his readers that the authority was R. Lakes, Esq., of St. Austel's, from whom he received the specimen, "with the assurance that it had been obtained from a fisherman of Mevagissey, on the south coast of Cornwall, and that this man affirmed he had taken it in a net at some rather considerable distance from land." On inquiry this fisherman asserted "that a fish exactly similar had been taken about two years before by a fisherman of the same place; and another was viewed at leisure, and particularly described to myself, but not taken, by an ordinary observer, who watched it in shallow water further east on the same coast."

Having received an invitation to Mevagissey in order to see the Pilchard-fishing in August 1880, I gladly availed myself of the opportunity, and among other subjects inquired about the amount of credit to be attached to this fish as a British specimen. It appeared that the example had been parted with to Mr. Lakes by a sailor, who was also a fisherman, named Matthew Barron, and that he had been mate of a vessel, 'The Roseland,' which at the time inquiries were first being instituted happened to be lying in St. Austel's Bay. The master, on being shown Couch's figure of the fish, at once expressed his opinion that his mate had brought the example to England in salt, and which he remembered supplying to him for the purpose of preserving it in. Barron on being spoken to declined any information, except that it came from a long way off land. Subsequently the figure from Couch was taken round to the various fishermen in Mevagissey, one and all of whom denied ever having seen such a fish captured at that port, although most of them had seen such a one brought by Barron from "foreign parts."

My informant sent Mr. Couch the foregoing information, and I was shown his letter received in reply. Mr. Couch observed, on March 2nd, 1868, "After all such a fish may have wandered to our coasts is not beyond the bounds of belief, although its native country is far away; but the fact of a doubt among your neighbours throws some suspicion on what had been reported to Mr. Lakes."

That this fish may wander to our shores is perhaps hardly more improbable than the advent of *Pammelas perciformis*; still the fact that Couch's specimen had been captured at Mevagissey is as unreliable as that of *Holocanthus tricolor*, reported last

year to have been taken on the island of Lewes, but which on investigation turned out to have been similarly brought from its native habitat\*.

CLUPEA SPRATTUS.

Although Mr. Holdsworth, in his excellent work on 'Deep-Sea Fisheries' (pp. 133, 134), has alluded to the subject of the spawning of these fishes, I have thought that further confirmation of his observations might be desirable. I have therefore this season had examples collected and sent to me from Cornwall, when on January 12th I found some had fully developed ova and others similarly forward milt.

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On the Apparent Retention of a Sur-anal Plate by a young *Echinometra*. By F. JEFFREY BELL, M.A. (Communicated by Dr. J. MURIE, F.L.S.)

[Read March 3, 1881.]

IT will, I think, be of interest to direct the attention of the Society to the characters of the apical system of a small specimen of what I take to be an example of the species *Echinometra viridis*. Did it stand alone, we might have some difficulty in associating it with any completely adult form as yet known to us; fortunately, however, there are in the National collection three other specimens, which exhibit a less remarkable arrangement of the parts of their apical area: none, unfortunately, have any definite history, and they are all denuded of spines.

The retention of a sur-anal plate in a test with its longest (though not its morphological) axis as much as 12·5 millim. long is a point of sufficient importance, in so differentiated a genus as *Echinometra*, as to make the determination of the species a matter of comparatively secondary concern.

That the plate in question is to be regarded as a persistent sur-anal will be seen to be something more than a plausible suggestion, if the illustrating woodcut be carefully examined. In character and relation it would correspond either to the definition

\* Since reading this paper I have received a note from Mr. Dunn, of Mevagissey, who informs me that he has just seen Captain Ball, of 'The Roseland,' who has informed him that Barron brought the Ostracion in question from the Island of Ascension.



Day, Francis. 1881. "Observations on some British Fishes." *The Journal of the Linnean Society of London. Zoology* 15(86), 310–318.

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