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ART. VI. Contributions to the British Fauna. By GEORGE JOHNSTON, M.D., Fellow of the Royal College of Surgeons of Edinburgh, &c.

[Continued from Vol. III. p. 491.]

IN a preceding communication I had occasion to mention that the *Gammarus marinus* of Leach was common in this neighbourhood; but from a subsequent examination of my specimens I am now convinced that I was in error, and that they constitute a distinct and uncharacterised species, which I proceed to describe.

GAMMARUS CARINATUS.

G. corpore maculato, atomisque flavis irrorato; dorsi segmentis valde carinatis, marginibusque posterioribus granulatis.

Hab. Mare Britannicum.

DESC. *Body* one inch long, inflected at the tail, clouded with red and horn-colour, and sometimes with white, and sprinkled on the sides with minute yellow grains. *Segments* roughish, punctured, with a row of rather distant granules on their posterior margins; each with a cuneiform process, which forms, by its junction with the others, a strong and acute keel along the back. The keel commences between the antennæ, gradually increases, and then again decreases towards the tail. *Antennæ* nearly equal, stained or annulated with red, spinous. *Superior Antennæ* with the first and second joints nearly equal, third rather shorter, the last with short articulations, each armed with a whorl of very short spines. *Seta* one-third the length of the last joint, with rather long subclavate articulations. *Inferior Antennæ* with the basilar joint very short, the second and third nearly equal, and the last similar to the superior. *Eyes* lunate, brown with a blacker centre, placed at the base of the superior antennæ. *Hands* equal, alike, obovate, monodactyle,

toothed and hairy on the inner margin, with a brush of hairs above the claw. *Claw* long, slightly curved, serrulate. *Wrist* dilated with a semi-lunar fissure: the *arm* long and straight. *Legs* monodactyle, five-jointed, spinous. The two anterior pair with the claw turned backwards; the first joint elongated, dilated outwardly, the second very short, third and fourth nearly equal in length, and the fifth longer. The other legs have the claw turned in a contrary direction, with the thigh dilated and having attached to it a broad squamose plate. They are also spinous, and the spines spring from indentations on the joints. Behind the legs are the *natatory fins*, of which there are three pairs, each with a broad stem, bearing two branches beautifully ciliated with long hairs. On the sides of the tail are the *style-processes*, three on each side, and each consisting of a stem on which are articulated two lanceolate processes, unequal in length, and spinous on the edges.

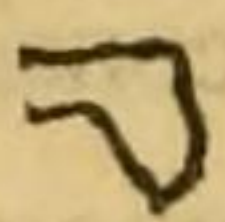
With this species I have been long familiar, and had always considered it as the *G. marinus* of Dr. Leach, until I observed that he describes that species as having the upper process of the style process *very short*; a character, which seems not at all applicable to our animal, in which, though unequal, they are tolerably long, as much so indeed as in those species which Dr. Leach places in his second section. His description is otherwise so brief that no further comparison can be drawn; but so much reliance is placed on the character adduced, that we feel ourselves warranted in considering the two species as quite distinct. Our animal inhabits the sea, and is common near Berwick. It has never been found under stones, or in pools left by the recess of the tide.

Cl. ANNELIDES	}	Lamarck.
Ord. AN. ANTENNÉES		
Fam. NÉRÉIDÉES		
Gen. PHYLLODOCE		

1. PHYLL. GIGANTEA.

Phyll. virescenti-purpurea, margaritacea; dorso obscure maculato; lamellis branchialibus dolabriformibus.

Hab. Mare Britannicum.

DESC. *Body* 14 inches long, somewhat compressed, convex on the back, flattened below, of nearly equal thickness throughout, until within an inch or so of the tail, which tapers to an obtuse point; smooth, greenish, reflecting a metallic lustre, and changeable, with the margins of the segments purple, and a purple ill-defined spot in the centre of each. Towards the tail the green colour becomes generally diffused and deeper. Ventral surface perlaceous, tinged with green. *Proboscis* thick, short, white, cylindrical, without teeth or hard points. *Head* small, a subtriangular corneous plate, bearing *two eyes*, and *two* short conical *Antennæ* in front. On each side of the head, but arising from the body, are *four* rather short setaceous *Tentacula*, the two first shorter than the posterior pairs, of an olive green colour, and thickish. The segments are very numerous, and each bears on each side a leaf-like process, boot-shaped  placed obliquely, of a brownish colour, slightly clouded, with even smooth margins. Each *foot* consists of two sub-equal papillary processes, one of which is armed with a fascicle of short black bristles. Tail without filaments?

Obs. This fine species I found amongst the refuse of a fishing boat, and it is of course possible that the filaments at the tail may have been torn off. It does not seem to have been described by any author which I have had an opportunity of consulting, but I suspect it may have been confounded with the *Nereis lamelligera*, a species which is said to attain even a superior size, and which is readily distinguished by its heart-shaped acutely pointed branchial processes.

2. PHYLL. PULCHRA.

Phyll. corpore maculis fuscis seriatim notato; lamellis branchialibus subreniformibus.

Nereis maculata? Fabric., Faun. Groenl. 298.

Hab. Mare Britannicum.

DESC. *Body* slender, 4 inches long, depressed, tapered a little towards each extremity, capable of extension, yellowish, with a longitudinal dorsal row of dark brown spots, and the sides spotted with the same colour. *Ventral surface* whitish, with a median row of

small, rather distant spots, and a row of large ones on each side at the base of the feet. *Head* blackish in front, yellow behind, bluntly pointed. *Eyes* two, black. *Mouth* surrounded in a stellate manner with four conical white *tentacula*, and provided with a large retractile proboscis. On each side of the head there are other four white conical *filaments* or *tentacula*, of which the two anterior are the shortest. On each side of every segment is an oval or rather kidney-shaped *lamellar process* with a brown spot in its centre, and supported on a very short spotted stalk. Beneath these are the *feet*, each foot consisting of two papillary processes, the anterior bearing a tuft of fine retractile hairs, the posterior simple and conical. The *anal segment* has neither feet nor branchial process, but is terminated by two conical filaments.

Obs. This is quite distinct from the *Nereis lineata* of Montagu, and also from the *N. lamelligera* of Sowerby. It inhabits the sea shore, and was found burrowing amongst fine sand.

I have placed these species, without any hesitation, in the genus *Phyllodoce*, as I understand it to include such Linnean *Nereides* as have a leaf-like process placed over and above the feet. This is mentioned, as, in the characters of the genus given by Lamarck, and borrowed I presume from Savigny, there are several particulars which were not observed in our species, and which I am confident were not to be found. There is, indeed, some slight difference in our description of the parts about the mouth in the two species, but neither will correspond with Lamarck's characters, and the difference is too trivial to constitute any generic distinction. We have, in conformity with the language of Lamarck, called the leaf-like processes branchial, but is there any good reason for supposing them to be so? or do their assigned functions rest merely on a vague and undefined analogy?

In my last paper three species of worms referred to the genus *PLANARIA* were described; and to them I have now to add four other species which appear as yet to have escaped notice, and which belong to the same group.

1. PLAN. OCTOCULATA.

Plan. mollis, linearis, castanea, anticè oculis octo, maculâque rubrâ.

Hab. In littore sub lapidibus.

DESC. *Body* 1—2½ inches long, slender, soft, flattened, contractile, chesnut-brown above, whitish on the ventral surface. *Mouth* and *anus* terminal; no proboscis; intestine straight. *Eyes* 8, four placed in a line on each side of the head; and a little behind them is a reddish spot on the back. The body in some individuals appears filled with numerous whitish egg-like bodies, which are probably the ova of the animal.

2. PLAN. QUADRIOCULATA.

Plan. mollis, linearis, flava; oculis quatuor, remotis.

Hab. In littore sub lapidibus.

DESC. *Body* 1½ inch long, soft, flattened, contractile, narrowed towards the tail, of a yellowish maculated colour with a dirty greenish intestinal line down the middle. *Mouth* rounded. *Eyes* 4, placed in a square form, and rather distant.

Obs. The maculated appearance proceeds from white oviform bodies.

3. PLAN. BIOCULATA.

Plan. linearis, mollis, olivacea; oculis duobus.

Hab. Ad radices confervarum.

DESC. *Body* 4—6 inches long, slender, soft, compressed, narrowed towards the tail, of an uniform dull green or bottle-green colour, with paler longitudinal and transverse striæ, and sometimes irregularly marked with a few whitish dots. *Head* somewhat truncate, with two lateral rather prominent black eyes. About two lines behind the oral extremity there is in most a dark red spot.

4. PLAN. FILIFORMIS.

Plan. albida, gracilis, unicolor, sine oculis, maculisve.

Hab. Ad littora sub lapidibus.

DESC. *Body* slender, filiform, soft, very contractile, and capable of being extended to the length of 6 inches, when it appears like a sewing thread, of an uniform whitish or yellowish-white colour. *Mouth* and

anus terminal; and the former is often thrust out into a needle-like point.

In examining these animals it is necessary to compress the anterior parts between two plates of glass, in order to exhibit the eyes with distinctness. The last species has been described, I believe, by Fabricius in his *Fauna Groenlandica*, but I have not the work to refer to, and cannot remember the specific name.

[*To be continued.*]

ART. VII. *Observations on the Animals hitherto found in the shells of the genus Argonauta.* By W. J. BRODERIP, Esq., B.A., F.R.S., F.L.S., Sec. G.S., &c.

Is it not strange that it should now be a question whether the animal usually found in the shell popularly called the Paper Nautilus, is the lawful owner of its fairy boat?

From the time of Aristotle the delicacy of the bark and the habits of the sailor have afforded a subject to every observer; and we have, in addition to the descriptions, a succession of figures by Aldrovandus and others, which, though most of them afford proofs of a very lively imagination on the part of the designers, are still evidently figures of a cephalopod, which would, in the age of Linnæus, have been ranged under the genus *Sepia*, if it had been taken swimming at large and free from any shell. It is curious to observe how assertion upon assertion at last accumulates into something that is taken for positive proof, till at last we have descriptions apparently the result of actual observation. Speaking of the *Argonauta Argo*, Mr. Wood, in his *Zoography*, gives a very lively account of these creatures and their habits. "In the Mediterranean Sea, and in the Indian Ocean," says Mr. Wood, "these shell-fish are not uncommon. In calm weather they may be observed floating on the surface in a very beautiful manner, some spreading their little sails, while others are rowing with their feet. To accomplish this singular purpose, the Nautilus is supplied with eight arms, two of which are furnished at their extremity, with an oval membrane that serves for a sail, while the other six, hanging over