XLIX.—*Supplement to a Memoir on the Thalassinæ**.

By Dr. STRAHL†.

AMONGST the reasons cited by De Haan ('Fauna Japonica,' p. 160) in favour of the union of the *Astacoidea* and the *Thalassinidea*, the relation of the simple branchia to the fifth pair of feet plays a not unimportant part. He states that although the *Astacoidea* possess this single branchia, which is wanting in all *Thalassinidea*, the genus *Astacus* itself belongs by its species to both sections, and effects the union. Subsequently, however, Erichson divided the genus *Astacus*, employing for this purpose especially the characters of the branchiæ; so that, by this division into new genera, the separation of the *Astacoidea* and *Thalassinidea* might appear to be again established. The genera *Cambarus* and *Cheraps*, which are destitute of the branchia on the fifth pair of feet, and were therefore removed from the genus *Astacus*, nevertheless approach more closely to *Astacus* and its allies than to the *Thalassinidea*. *Cheraps* even gives up another character of the *Astacoidea*, namely, the appendages on the first segment of the abdomen in the male sex, which are likewise wanting in the genera *Astacoides* and *Engæus*, and makes another step towards the *Thalassinidea*; nevertheless its relationship to *Astacus* and its allies is greater than to the *Thalassinidea*. The common characters of the genera grouping themselves immediately about *Astacus*, besides the perfectly developed antennal scale (*armiger* and *squama*), are, that the first three pairs of feet are didactyle, and the external lamina of the caudal fin transversely divided; the forehead bears a rostrum projecting over the eyes, beneath which the latter are concealed whenever the appearance of danger causes them to require protection. Here belong the genera, *Homarus*, *Nephrops*, *Paranephrops*, *Astacus*, *Astacoides*, *Engæus*, *Cambarus*, and *Cheraps*. I propose to group these together as *Astacina*.

Glaucothoë and *Axius* are not to be placed here, although they are stated to possess the antennal scale; at any rate, they have fewer didactyle feet, and the outer lamina of the caudal fin is entire. In describing *Axius plectrorhynchus*, I have pointed out the difficulty which existed in determining whether this species does or does not possess a moveable scale. It now appears to me doubtful whether *Axius* and *Glaucothoë* have a moveable scale, because the existence of this belongs to the general character of the *Astacina*, from which both these genera depart in several respects; and, indeed, they cannot even be referred to a common

* See 'Annals,' May 1862, p. 383.

† Translated by W. S. Dallas, F.L.S., from the 'Monatsber. der Akad. der Wiss. zu Berlin,' February 1862, p. 133.

group, but must decidedly be separated, as I will immediately show. Hitherto I have been unable to examine *Axius sthynchus* and *Glaucothoë Peronii* in connexion with the existence or absence of the moveable scale. Should it prove that these species possess only the armiger, *Axius* and *Calocaris* would probably have to be united; for the latter has certainly no scale (see the figure in Bell's 'British Crustacea,' p. 233), and the other differences are not sufficient to support the division into two separate genera.

That *Gebia* possesses no antennal scale is perfectly correct, although Dana thinks that his *G. pugettensis* might possess a scale. In *G. barbata*, described by me as new, the same structure, however, occurs; and I have pointed out that, great as the illusion may be, there is nothing but a fringe on the second joint, which, moreover, also occurs in *G. littoralis*. I have even seen a specimen of *G. barbata*, of which the left external antenna exhibited the fringe uninjured, while on the right side the hairs of the fringe were rubbed off, so that no one could be misled into the assumption of a scale. In the same way probably the fringe of *G. hirtifrons*, White, as figured by Dana, has been destroyed, and the fringe belongs to the general generic character. Consequently *Gebia* is throughout destitute of all trace of a scale, and *G. hirtifrons* does not constitute the type of a series of *Gebiæ* unfurnished with fringes.

The new genus *Trypæa* is represented by Dana as allied to *Callianassa*. The structure of the external maxillipeds and of the five pairs of feet, and the configuration of the abdomen, especially in regard to the appendages, certainly agree in the two genera; but the eye-peduncles are different. In *Trypæa*, according to Dana's own drawing, these are cylindrical with a terminal cornea; but he expresses an opinion that they may be incorrect, as he could not make another comparison with nature. However, a further distinction is furnished by the structure of the outer antenna: as far as we can judge from Dana's figure, this has neither squama nor armiger. Consequently the gap between *Callianassa* and *Trypæa* would be greater than is stated by Dana. A second species, *T. porcellana*, has been described by Kinahan ('Journ. Roy. Soc. Dubl.' i. p. 130, pl. 4. fig. 2), but this is probably only a *Callianassa*; for, to judge from the figure, the flagella of the inner antennæ are rather long, and certainly longer than their third joint, which is in opposition to Dana's diagnosis; moreover he says of the eyes that they are sessile, but from the figure it is clear that they present the peculiar structure of *Callianassa*. The character of the external antennæ cannot be determined with certainty from the figure.

It is true that all *Thalassinidea* have no branchiæ on the fifth

pair of feet, and that the outer lamina of the caudal fin is entire ; nevertheless, even here two perfectly different forms occur, for which the characteristic, distinguishing points of organization have yet to be ascertained. In many the first two pairs of feet are cheliferous, namely, *Axius*, *Calocaris*, *Callianassa*, *Trypæa*, *Scytoleptus*, *Callianidea*, and *Callisea* ; the others, *Glaucothoë*, *Calliadne*, *Laomedia*, *Gebia*, and *Thalassina*, have only the first pair of feet cheliferous, and these in the last two genera are even subcheliform. Taking into consideration the character of the outer antenna, *Calocaris*, *Callianassa*, and *Thalassina* may be united, as possessing only the armiger ; *Axius* and *Glaucothoë* also probably belong here. There then remain *Scytoleptus*, *Laomedia*, *Calliadne*, *Trypæa*, *Gebia*, *Callianidea*, and *Callisea*, which possess neither squama nor armiger.

Neither the characters of the cheliferous feet nor those of the external antennæ, however, unite the genera most nearly allied in their external conformation ; but the relation of the pedunculated eyes to the forehead and its process furnishes a more accordant division. In *Axius*, *Calocaris*, *Gebia*, *Scytoleptus*, *Laomedia*, and *Calliadne*, the forehead projects beyond the eyes ; and the latter can be concealed under it, as in the *Astacina*. We name this group *Gebiina*. The others, namely, *Glaucothoë*, *Callianassa*, *Thalassina*, *Trypæa*, *Callianidea*, and *Callisea*, have no such projecting forehead, and their eyes lie free in front of it. This latter group we may name *Thalassinina*.

The *Astacida*, consequently, split up into *Astacina*, *Gebiina*, and *Thalassinina*.

L.—On some new Coleoptera from Lizard Island, North-eastern Australia. By FRANCIS P. PASCOE, F.L.S. &c.

LIZARD ISLAND is one of the group forming the Great Barrier Reef on the north-east coast of Australia, in (about) 14° S. lat., 145° E. long. ; but it is so small that its name is only to be found on the larger maps. Calculating in a rough way, it may be about 200 miles south and a little east of Cape York, the northern extremity of the continent.

The collection which is the subject of this paper was formed by Mr. Macgillivray, and is a small one, so far as the number of species is concerned ; but if, as is probable, it was obtained during the casual stay of his ship for water or wood (perhaps only a few hours), the 700 specimens (mostly Coleoptera) which it contains indicate a greater amount of insect life than could have been anticipated. Of course a collection so formed cannot justify us in drawing any very definite conclusions ; but it is

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