ART. III. *Illustrations in British Zoology.* By GEORGE JOHNSTON, M.D., Fellow of the Royal College of Surgeons of Edinburgh.

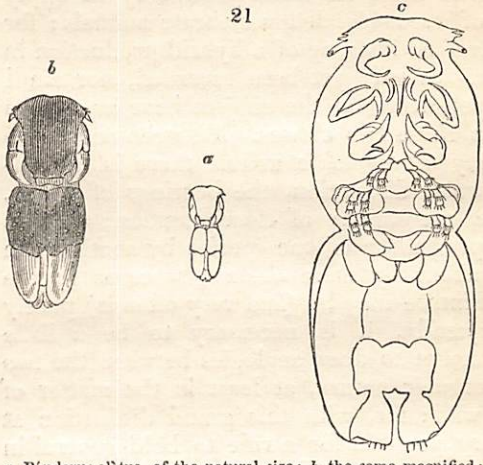
Echthrogaleus coleoptratus.

33. PA'NDARUS ALA'TUS (*fig.* 21.).

Pandarus ailé *Milne Edwards* in Dict. des Sc. Nat., xxviii. 80. tab. 8.

DESCRIPTION. — Body oblong, half an inch in length, two tenths of an inch in breadth; convex and smooth dorsally; the ventral surface flat, and of a dead white colour. Cephalothorax * roundish; with a very narrow membranous border, composed of a large middle; three small somewhat triangular pieces on each side, and a small square piece behind, sinuated on the lower edge; the middle piece chestnut brown, scored with irregular faint lines, minutely emarginate in front, with a small depression immediately behind this, and an impressed medial line on its hinder part; the front dilated and rounded, having the outer angles terminated by a small three-jointed antenna pointed backwards; the apical joint very minute. Inferior surface of the cephalothorax concave, with three pairs of jointed legs †: the first pair with a strongly curved and very sharp claw, placed anteriorly to the spiniform rostrum, at the sides of which is a pair of jointed small filiform palpi ‡; the second pair of legs, situated more towards the margins, longer, more slender, with a bifid obtuse claw, and, at their base, another pair of stouter acutely pointed palpi; the third pair swollen at the base, terminated with a single acute claw. Behind it there are three pairs of fins §, each

21



a, Pándarus alàtus, of the natural size; *b*, the same magnified; *c*, a view of the ventral surface, highly magnified.

* The *test* of Latreille, *shell* of Leach, *bouclier céphalique* of M. Edwards, *carapace* of Desmarest.

† *Pattes-machoires* of Edwards.

‡ What we have called palpi are the *machoires rudimentaires* of Edwards. The posterior palpi are *legs* in the nomenclature of Leach and others: and this seems correct.

§ *Pattes thoraciques* of Edwards, *legs* of Leach.

consisting of a stalk terminated with two small jointed processes sparingly ciliated at the apex; the stalks of the two posterior connected with a broad movable lamina. Abdomen * oval, longer and narrower than the cephalothorax; the upper half covered with two square movable elytra of a chestnut colour, very faintly scored and marked with pale scattered dots; the inner basal angles also pale, the posterior margin oblique; uncovered portion pale. Underneath, we find four foliaceous processes attached above; and near the anal extremity there is a small square organ †, to which are appended two foliaceous lamellæ, uneven on the posterior margin, and scarcely ciliated.

I took the specimen now figured from an individual of the Beaumaris shark of Pennant ‡; which was taken, in Sept. 1834, in Berwick Bay. It is a male; and the female, which I have not seen, differs from it in having two filiform styles or tubes, nearly twice as long as the body, appended to the tail. It appears to be parasitical on several species of fish; and generally attaches itself to the sides of the branchial covers, adhering tenaciously by thrusting the claws of the first and third pairs of feet through the skin.

The student who is anxious to see how ingeniously the few and simple organs of this creature can be analysed and resolved into parts corresponding with the complex organs of the crab and lobster, must consult the interesting memoir of Milne Edwards, above referred to; and who is the only naturalist who has noticed the species. I must acknowledge that the analogies seem not a little imaginary; and the nomenclature derived from them is at least faulty, in so far that it gives, or is apt to give, erroneous ideas relative to function. The *feet-jaws* are not subservient to manducation in any way. The animal is suctorial, and requires no jaws; and these organs are used solely to obtain fixedness of place: while the *thoracic feet*, again, are not organs to walk or creep on, but are only calculated for swimming; which, we can conceive, it may often have occasion to do.

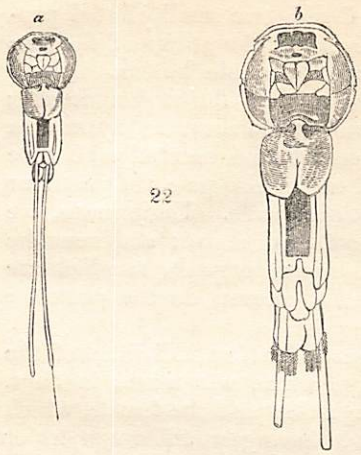
34. Pa'ndarus la'mnæ (*fig.* 22.). *Dimensura producta.*

Description. — Cephalothorax round, with a narrow membranous border, which, in drying, tears up like a fringe; convex dorsally; pale, with a brown blotch in front; com-

* The *thorax* of M. Edwards; of which the *carapace* is the first, the part covered by the scales or elytra the second, and the naked portion the third, segment or ring.

† The *abdomen* of M. Edwards, the *tail* of Leach.

‡ Lámna monénsis of Cuvier, according to Mr. Yarrell.



Pándarus lámnæ: *a*, the animal of the natural size; *b*, the same magnified.

posed of a large square central piece, faintly scored, and vaulted at each posterior angle, of three somewhat triangular pieces on each side, and a square piece behind, divided by some obscure transverse lines. Front slightly sinuated in the middle; the antennæ extremely minute. Underneath, the disposition of the mouth, legs, and fin processes seems to be exactly like that of the preceding; but, immediately under the antennæ, there are two small wart-like tubercles, which become pure white when dry. Abdomen shortly pedunculate, linear-oblong; the upper third covered with a pair of oval elytra of a uniform pale colour, smooth; the suture slightly waved. The central piece of the abdomen blackish, separated by a furrow from the lateral pale pieces, which run beyond it posteriorly and are rounded; the intermediate sinus occupied by three foliaceous processes, two above and one under them; and under this, again, the filiform tubes originate, which are nearly twice as long as the body. Underneath, we find, above, four small foliaceous processes arranged transversely; and, below them, two large ones, each of these consisting of two leaflets; and at each side of the filiform appendages there is a small leaflet, and two large oblong ones terminate the tail, each fringed with four ciliated spines.

I took three specimens of this Pándarus from a Beaumaris shark, captured, in Sept. 1834, in Berwick Bay, a few days subsequent to the capture of the individual from which P. alàtus was procured. It might have been conjectured to be the female of that species, had not the figure of Edwards been at hand to prevent the mistake; and, as it will not agree with the description of any species in Desmarest's work on the Crustàcea, I am led to consider it as a novel addition to the list of parasitical entomostracous insects.

Berwick upon Tweed, Dec. 12. 1834.

[*The Migration of Fishes.* — It is suggested, in I. 372., that the migration of fishes is, possibly, in some cases, induced by the annoyance they experience from parasitic animals. On the remarks offered in the place cited, the late Rev. L.

Guilding had thus noted: — Hostile parasites may doubtless take an active part in influencing the migration of fishes. In the West Indies, the parasitic Crustàcea are exceedingly numerous; and must form most distressing companions to the creatures which support them, on their bodies, without the power of removal. — While the *Echinèis* (itself a parasite) clings by its occipital apparatus to the roving shark, his own skin affords a resting-place for parasitic crabs; and many of our eatable species of fish are rarely taken without one or more of these troublesome attendants. — *L. Guilding. St. Vincent, May* 1. 1830.]

ART. IV. *A List of Species of Diurnal Lepidóptera known to occur in Switzerland, with Notices of the Localities in which they have been observed.* By P. J. BROWN, Esq.

I HAVE not been unmindful of the wish of your excellent correspondent, Mr. Bree, expressed to me when in England last spring [1834, and in VII. 524.], that I should furnish you with a list of the Swiss papilios; but unforeseen impediments have hitherto prevented my compliance with his desire. My return to this country was retarded until the busiest plant-drying, fly-catching period of the year. When the less inviting appearance of the fields sent me home to the brain-cudgeling occupation of extricating from their chaos the "rudis indigestaque moles" on one side, and the "confusa sine ordine moles*" on the other, which had been accumulating during brighter days, I endeavoured to acquit myself of the task to the best of my power; but was unwilling to forward the result of my enquiry without first submitting it to some one well qualified to detect its omissions: of the two most competent persons, one has, in the meantime, been removed by death; and the other, having been confined to his room by illness, was unable during a month to reply to my queries. It has appeared to me that the most satisfactory method would be to take as a guide the list published, in 1817 and 1818, by the late Professor Meisner, in his *Naturwissenschaftlicher Anzeiger;* inserting in their proper places such few additional species as I have been able to learn have been since discovered. I do not present this as an *exact translation* of the professor's list, but

* Having borrowed a few words from Ovid which are not in Johnson, I must comply with the orders on your wrappers, by explaining them: they mean two huge messes of hodge podge, and precious messes they are in general. The word mole *is* in Johnson, but his moles are quite different things from Ovid's.

as containing in a slightly condensed form those of his observations which appear to be interesting; and noticing all the varieties which are still occasionally met with, neglecting such only as may have presented themselves in a solitary individual. This list being essentially that of Meisner, the whole must be considered as his, except such species or notices as are included in parentheses.

The names are *invariably those of Ochsenheimer;* and as that author has made observations, in the same work, on a few of the species in this list, they are incorporated with the new matter, always with acknowledgment. I thought at first of rearranging the species, to adapt them to works better known in England; but, more especially as Ochsenheimer is *usually* cited by Mr. Stephens in his *Systematic Catalogue*, I have since determined to leave the list as I found it. Mr. Bree's term, "Swiss papilios," makes me presume that the list demanded was merely that of the "Diúrna," and to them I have accordingly confined myself; in fact, I scarcely know how I could have completed it satisfactorily for the Lepidóptera in general. Meisner's catalogue breaks off abruptly, with an unaccomplished "to be continued," at the genus Euprepìa; and I cannot learn that any other extensive list is extant. It is, however, to be hoped, that something of the kind will soon be given to the public, a circular having been addressed to the members of the Helvetic Society of Natural Sciences, requesting them to furnish the most ample zoological lists, with observations, for the purpose of preparing a Fauna Helvetica. The Alpine "Noctúrna" are, certainly, and will long remain, very imperfectly known; much, however, may be expected from the perseverance of the zealous and successful M. Anderegg of Gampsen, near Brieg, in the Valais (that El Dorado for a naturalist); but whether or not his two new species, *N*óctua helvetìna and *N.* cataleùca, published by Boisduval in the second volume of the *Annales* of the French Entomological Society, will stand their ground, is somewhat questionable.

SWISS DIU'RNA AT PRESENT KNOWN.

MELITÆ`A.

1. Cýnthi*a*. Grimsel, Gemmi, St. Bernard, &c.; August.
2. Mérop*e*. Similar places in the High Alps; August. Considered by many a variety of A'rtemi*s*.
3. A'rtemi*s*. Moist meadows; spring; common.
4. Cínxi*a*. Meadows and hills; spring; not rare.
5. Dídym*a*. Meadows and hills; June to Aug.; common.

(Trívi*a*. In the Valais in July; rare.)