

EXPLANATION OF PLATE XIV.

(Structure of *Catagma*.)

- Fig. 1.* Transverse sections of simple spicules of the skeletal fibre. ($\times 435$.)
- Figs. 2-5.* Various curved simple spicules, seen longitudinally. ($\times 435$.)
- Fig. 6.* Quadriradiate spicule showing three arms lying in the plane of the section, and a circular cut surface from which the fourth arm has been removed. ($\times 315$.)
- Fig. 7.* Triradiate form with a part cut away at *a*. ($\times 315$.)
- Fig. 8.* Quadriradiate spicule, not fully exposed, but suggestive of a *Stelletta* spicule. ($\times 315$.)
- Fig. 9.* Transverse sections of multiradiate spicules, exhibited at the place where the fibre curves at right angles out of the plane of the section. *aa*, edge of the fibre where cut across at the bend. ($\times 315$.)
- Fig. 10.* Irregular form of spicule, terminating abruptly against the edge of the fibre *aa*. ($\times 315$.)
- Fig. 11.* Irregular quadriradiate spicule. ($\times 435$.)
- Fig. 12.* Quadriradiate spicule with bifurcated rays. ($\times 315$.)
- Fig. 13.* Simple quadriradiate spicule, resembling in form one of the spicules of *Pachastrella abyssii*. ($\times 315$.)
- Fig. 14.* Triradiate arms showing a cut surface at *a*. ($\times 315$.)
- Fig. 15.* Curved terminal part of a spicule, ending abruptly against the edge (*aa*) of its fibre, through which it probably originally projected. ($\times 315$.)
- Fig. 16.* Large, irregular quadriradiate. *aa*, edge of fibre in which it lies imbedded. ($\times 140$.)
- Fig. 17.* Simple quadriradiate, showing all four arms. ($\times 315$.)
- Fig. 18.* An irregular form of quadriradiate, one arm closely resembling one of the curved simple spicules. ($\times 435$.)
- Fig. 19.* Quinqueradiate spicule. ($\times 435$.)
- Fig. 20.* Fibre (*aaa*) near the exterior of the sponge, with included multiradiates, some having the shaft directed inwards and the rays outward. ($\times 435$.)
- Fig. 21.* Edge of a fibre showing an echinating quadriradiate seated close to the surface of the fibre, with one ray projecting outside it into the bordering granular deposit. ($\times 140$.)
- Fig. 22.* Usual position of the echinating multiradiate in the fibre. *aa*, surface; *bb*, centre of the fibre; *cc*, transverse sections of similar multiradiates; *d*, projecting ray of echinating spicule; *ee*, simple spicules lying longitudinally in the fibre and crossing the echinating ray transversely. ($\times 435$.)

XXXIX.—On two new Species of Amphipodous Crustaceans.
By the Rev. T. R. R. STEBBING, M.A.

[Plate XV.]

Amphilocheus Sabrinæ, n. sp.

The upper antennæ have the three joints of the peduncle short, subequal in length, the first two stout, the third very slight. The flagellum, of six articulations, is tapering, its first



articulation being about as thick as the preceding joint of the peduncle. The second, third, fourth, and last articulations carry long pairs of olfactory filaments.

The fourth and fifth joints of the peduncle in the lower antennæ are long and slender, each being equal in length to the entire peduncle of the upper antennæ. The flagellum is of six articulations.

The eyes are of moderate dimensions, with a rounded oval form. The rostrum is bent down between the upper antennæ. The maxillipeds have a long four-jointed palp, the fourth joint being bright, sharp, and unguiform.

Between the first and second gnathopods it is difficult to detect any difference whatever, except in regard to the coxæ, those of the first pair being minute and almost obscured by the overlapping of their neighbours. The coxæ of the second pair are themselves of no great size, and are in their turn overlapped to a great extent by the large coxæ of the third pair of legs. In the first gnathopods the thigh is moderately long and slender, the knee small, the metacarpus but little longer than the knee, overlapping the wrist throughout almost its whole extent, and having its truncate distal extremity capped with three setæ. The wrist is longer than the hand, along which it is produced almost as far as the ill-defined palm; it bears some four or five spines along the margin. The hand is elongate, narrower at the junction with the wrist than at the commencement of the palm, which is bordered with four pairs of spines. All these spines, at about a third of their length from their origin, are abruptly narrow; the distal half is pectinate on both sides. On the margin of wrist and hand away from the palm there are two or three minute spines. The finger is curved, thin, and sharp, with a small denticle at the base of the nail.

The more or less triangular coxa of the second gnathopods has a single indent at its lower angle. The rest of the limb seems in all its details to resemble the first gnathopod. This remarkable similarity of the two pairs of limbs would suggest the inference that the specimen examined was a female, but that the development of the olfactory filaments on the upper antennæ rather points to its being of the other sex.

The third and fourth feet have the coxæ largely developed, with their lower edges serrated. The hinder margin of the fourth and largest coxa is produced backwards in a sort of lobe. The thighs of these pairs of feet are long, with spines along the front edge. In the three following pairs of feet the coxæ are small, the thighs large, ovate, very transparent, the metacarpus posteriorly decurrent; the wrist and hand,

judging from the last leg, in which alone these parts remained, are thin and small, with a few spines on the anterior margin, the finger thin and curved, with a small hair at the root of the nail.

The first three pleon-segments are rather longer than the segments of the pereion. The first uropods have the peduncle long, and the branches about the same length as the peduncle. In the second uropods the peduncle is a good deal shorter, with branches to correspond; in the third the peduncle, which has minute close-set hairs on its upper edge, is as long as in the first, but the branches are shorter than in either of the other pairs. The telson is triangular, elongate, slightly concave above. There is a minute angle on either side, just before the sharp apex is reached.

The solitary specimen obtained was dredged off Tenby in a few fathoms depth. Its length is a twelfth of an inch.

Amphilocheus concinna.

(*Callimerus acudigitata.*)

Dredging at Tenby having yielded me three specimens of *Amphilocheus concinna* of various sizes and in more or less good condition, a careful examination of them enables me to add some details as to the structure of this species. The flagellum of the lower antennæ varies from three to five articulations. In the smallest specimen the tooth-like process, which in the others is so conspicuous a termination to the upper margin of the hand in each gnathopod, is scarcely at all developed; the palm is fringed with a row of short, very fine and even hairs, but without perceptible denticulation; the long produced process of the wrist in the second gnathopods ends in two short cilia, being otherwise quite smooth. In the larger specimens, however, this process ends in three good-sized cilia, besides having two or three on each of its lateral margins. The shorter process of the first gnathopods has several cilia at and about the distal end. In the hands of both gnathopods the palms are not only denticulate, but have a short fine hair in each denticulation; while the fingers, instead of having the inner margins smooth as in the female previously described ('Annals,' Dec. 1876), have them fringed with fine hairs, the row terminating at the base of the nail in a small but well-marked spine-like process.

The telson is lanceolate and boat-shaped. In all three specimens the last uropods were unfortunately missing; but the character of these may, I think, be safely taken from the description and figure of *Callimerus acudigitata*, given in this Magazine for December 1876, and again referred to in the number for January 1878. What in establishing that genus

I supposed to be the first gnathopod, I now, from examination of the new specimens of *Amphilochus concinna*, cannot doubt to be the palp of the maxilliped. Under this new light the other differences between *Callimerus* and *Amphilochus* seem to lose their value, and the genus and species must be cancelled. It is true that the supposed *Callimerus acudigitata* has the finger of the second gnathopod remarkably produced, and in that respect resembles *Amphilochus odontonyx* of A. Boeck, though it is without the spined upper antennæ of that species; but the prolonged finger may easily be a casual variation in an organ which undoubtedly varies in relative length according to the size and age of the individual owning it. The maxilliped-palp of *Amphilochus concinna* has the last articulation unguiform. In the specimen examined this articulation was, perhaps by accident, more stumpy in one palp than in the other, its companion. The three preceding articulations are unusually stout, those which were mistaken in the supposed *Callimerus* for hand and wrist being about equal in length, the preceding one having a greater length, though about the same thickness.

One other remark may be added. When the first gnathopod of *Amphilochus concinna* is turned through a certain angle, it wears almost exactly the appearance of the corresponding limb figured by Messrs. Bate and Westwood for *Amphilochus manudens*. Now Axel Boeck, in his 'Amphipoda Borealia et Arctica' (Prodromus), assigns hands identical in shape, though differing in size, to both gnathopods of this species. But there he differs from the founder of the species; and as the type is no longer to be found, it would be interesting to know what ought in justice, or in scientific etiquette, to be done in regard to the names. If we may assume, as Boeck appears to have done, that the first gnathopod of *A. manudens* was seen from a point of view which led to an inaccurate description of it, then my species *A. concinna* may be pretty certainly regarded as only a synonym. To Boeck's description of the nail of each gnathopod as smooth and destitute of teeth and spines must be added the note that this applies to the female only, and not to the male.

Podoceropsis intermedia, n. sp.

The first joint of the upper antennæ is thick, much shorter than the head; the second joint is a good deal longer than the first, but not half its thickness; it has five long cilia on the lower margin. The third joint is about the length of the first. There are ten articulations to the flagellum; the secondary flagellum in the specimen described was but a single

articulation. The lower antennæ are set very far back, with the first two joints short, the third equalling their combined length; the fourth considerably longer, much thinner, distally thickest, curved and slightly ciliated; the fifth joint the longest, thin, straight, and ciliated; the flagellum of ten articulations. The peduncle in the lower antennæ nearly or quite equals in length peduncle and flagellum together of the upper.

The head is produced into a sharp point, between the upper and lower antennæ; this angle is occupied by the oblique oval eyes. The mandibles are armed with two strong spine-like teeth, followed by four spines. The palp is long, composed of a short basal joint and two others much longer, subequal to one another, the last truncate and ciliated at the end. The palp of the maxillipeds ends in an unguiform joint, the penultimate joint being short, distally thickened, and the antepenultimate oval, very long, ciliated round the lower margin.

Owing to the extreme transparency of the animal, especially after mounting, the lines of demarcation of the coxæ were difficult to make out with certainty. The coxa of the second segment, however, is very conspicuously larger than any of the others, which are all small and shallow. The first gnathopods have the thighs slender, a little curved and distally widened, the knee small, the metacarpus a little larger and produced into a point, the wrist somewhat longer than the hand and as long as the thigh, for most of its length parallel-sided, the lower margin carrying six tufts of cilia springing from slight indentations; the hand has the upper margin curved, with cilia at intervals, the lower margin also curved and deeply indented, carrying four large spines interspaced with long cilia; the palm is microscopically crenulate. The finger is nearly as long as the hand, thick throughout nearly its whole length, but tipped with a small nail. The second gnathopods resemble the first as far as the wrist; but this joint is much broader without being quite so long; it has both margins curved, the lower tufted; the hand is much longer and centrally a good deal broader than the wrist, with the upper margin curved, the lower straight and tufted with cilia; the palm is sinuous, with a rounded central process, and near the lower angle a movable tooth-like spine. The massive finger closes down just within the straight lower margin, and is in shape like that of the first gnathopods. In the third and fourth legs the hand is thin, not longer than the metacarpus, the nail short. In the last three pairs the thighs are somewhat broader than in the preceding limbs, and are narrowed

distally. In the last legs the hand is long and thin, the nail much shorter.

The first three segments of the pleon are infero-posteriorly rounded, with edges smooth, except that the first has one small indent; the pleopoda of these segments have bulky peduncles with small rami. Of the uropoda the first pair have long peduncles, carrying two spines on the upper margin and one distally below; the outer branch ends in two small spines, the inner and longer branch in one long spine attended by two little ones. The second uropods are similar, except that the peduncle is shorter and without spines; the third have the peduncle still shorter, and short rami, which except in length resemble those of the other pairs.

The telson is tubular, its upper surface a little concave, with a pair of slightly curved spines standing apart on the distal end.

It seems to come within the unhappily named subfamily of *Microdeutopinae* (Boeck), which includes genera that have the second gnathopods larger than the first, as well as those that have the first larger than the second. It comes near to the genera *Gammaropsis* (Lilljeborg) = *Eurystheus* (Sp. Bate), and *Podocerospis* (A. Boeck) = *Nænia* (Sp. Bate); and in this latter I venture to include it, although it has a secondary flagellum, contrary to a generic character assigned by Boeck to *Podocerospis*, and the antennæ are not subequal, as required by one of Mr. Spence Bate's generic characters of *Nænia*. But the relative lengths of antennæ vary with age, sex, and size of specimen in many cases, and the absence of a secondary flagellum cannot be depended on. This latter is given as one of the generic distinctions between *Dryope* (Bate) and *Unciola* (Say); but, after all, *Dryope crenatipalmata*, which is plentiful at Tenby, undoubtedly possesses the secondary appendage in question; and Fritz Müller, in his 'Facts for Darwin' (translation by Dallas, p. 11), names several genera in which he has found it, though its presence in them had been previously undetected.

The inconvenience of the needless multiplication of genera is illustrated by the present species, which has claims on more than one, and ought perhaps on the present system to carry its peculiar second coxæ into a new genus of its own, so making a third in a trio which might far better be grouped under a single generic name. I venture to hope that whoever next rearranges the Amphipoda will group together *Microdeutopus* (Costa), *Aora* (Kröyer), *Autonoë* (Bruzelius), *Simpsonia* (Bate) into one genus, and *Gammaropsis* and *Podocerospis* into another.

EXPLANATION OF PLATE XV.

- Fig. 1. Amphilochus Sabrinae.* 1 *a*, antennæ; 1 *b*, maxillipeds; 1 *c*, telson; 1 *d*, first gnathopod; 1 *e*, spines of wrist and hand, much magnified; 1 *f*, coxal plate of second gnathopod; 1 *g*, second gnathopod.
- Fig. 2. Palps of maxillipeds of Amphilochus concinna.* 2 *a*, second gnathopod of a small specimen; 2 *b*, second gnathopod of large specimen; 2 *c*, telson of ditto; 2 *d*, telson of small specimen.
- Fig. 3. Podoceropsis intermedia.* 3 *a*, mandible; 3 *b*, maxilliped; 3 *c*, end of pleon, much magnified; 3 *d*, first gnathopod, with enlarged view of palm; 3 *e*, second gnathopod; 3 *f*, enlarged view of palm and finger of ditto.

XL.—*Descriptions of Longicorn Coleoptera.*

By FRANCIS P. PASCOE, F.L.S. &c.

CERAMBYCIDÆ.

Helymæus signaticollis.
— *pedestris.*

Temnosternus apicalis.

LAMIIDÆ.

Myagrus, n. g.

— *Hynesii.*

Neanthes, n. g., for *Monochamus*
curialis.

Meton fasciatus.

Agelasta mediifusca.

Peribasis princeps.

Euthyastus myrrhatus.

Pycnopsis variolosa.

— *miliaris.*

— *rubricata.*

Ceroplesis aspersa.

Alara variolosa.

Xynenon larvatus.

Mispila auguralis.

Hoplistocerus eximius.

Hydraschema virgatum.

Helymæus signaticollis.

H. rufo-fulvus, supra confertissime punctatus; antennis, prothoracis medio, pedibusque (femorum basi excepta) nigris; tertia parte apicali elytrorum chalybeata. Long. 8 lin.

Hab. Yemen (Arabia).

In coloration quite different from its congeners; antennæ much shorter than the body, the eighth to the tenth joints broadly triangular, the last subovate, pointed; head entirely fulvous; prothorax very closely punctured, black except at the sides; scutellum with a raised amber-coloured border; elytra finely punctate, two slightly raised longitudinal lines on each, the posterior third a dark steel-blue; legs black, except the base of the femora; posterior tibiæ slightly curved; body beneath fulvous:

Helymæus pedestris.

H. confertissime punctatus, haud nitidus; capite, prothorace, antennis (articulis duobus basalibus exceptis), scutello, tarsisque