

ART. XI.—*Descriptions of new Crustaceans.* By GEO. M. THOMSON, F.L.S.

[Read before the Otago Institute, 31st October, 1882.]

Plates XII and XIII.

Fam. ÆGIDÆ.

Sub-fam. CIROLANINÆ.

Genus *Pseudæga*, n. gen.

Eyes rather small. External antennæ hardly separated from one another. Inner antennæ tolerably elongated. Legs all adapted for walking. Epimeræ well-developed, and produced acutely backwards. Abdomen distinctly 5-jointed; last segment large. Caudal appendages reaching its extremity.

1. *Pseudæga punctata*, n. sp. Pl. xii., figs. 11–13.

The body is somewhat oval in outline, concave above, and nearly flat on the under-surface. The head is nearly square, and is inserted into the first thoracic segment, which considerably exceeds the other subequal segments in length. The abdominal segments are very distinct; the 4th and 5th are overlapped at the sides by the preceding segments. The last segment is triangular, with somewhat rounded edges, which are fringed with long hairs, and ends in a sharp point. The eyes are placed in the lower and outer angles of the head, and are nearly hidden by an upward-toothed projection of the 2nd joint of the external antennæ. These organs are very close together at the base, and the point of their flagellum just reaches the suture between the 4th and 5th thoracic segments. The internal antennæ are much more slender, but the peduncle reaches the extremity of the peduncle of the outer pair, while the flagellum reaches to about the middle of the 2nd thoracic segment.

The legs increase in length posteriorly, the 7th pair being considerably the longest. The caudal appendages reach the extremity of the abdomen, and are fringed with long hairs; the inner branch is very broad, and has a long acute tooth on its outer margin; the outer branch is nearly linear.

All the legs and the margins of the epimeræ are furnished with roughish hairs, but the upper part of the body is smooth. The general colour is grey, owing to the integument being covered with minute black stellate markings. Length .5 inch.

Loc. Washed up on the Ocean Beach, near Dunedin.

I advance this genus and species provisionally, as I cannot satisfactorily place it in any of the existing genera. A revision of the Isopoda is very much wanted.

Fam. IDOTEIDÆ.

Genus *Edotia*, Guérin-Ménéville.1. *Edotia dilatata*, n. sp. Pl. xii., figs. 9, 10.

Female.—Body somewhat flattened and much dilated in the middle, the second, third and fourth segments being progressively broader and bluntly angled at the sides, fifth suddenly narrowing to less than half the width of the fourth; epimera completely amalgamated with the thoracic segments. Post-abdomen 2-jointed, the 1st joint very short, 2nd greatly elongated; distal extremity somewhat excavate.

Head subquadrate, with the anterior margin nearly straight, posterior slightly rounded. Antennules (internal antennæ) very short, 4-jointed, basal joint stout. Antennæ (external antennæ) reaching to the second thoracic segment, flagellum 13–14-jointed. Legs slender, subequal, dactyla of all the feet double-clawed (terminal and sub-terminal claws subequal). Opercular plates elongated, narrow; distal portions sub-quadrate, their extremities terminating in a point on the inner line, rounded outwardly. The whole body is of a light chestnut-brown colour, and the surface is quite smooth; the abdomen bears numerous minute black dots. Length about 1 inch. The whole under-surface was occupied by an ovigerous pouch.

This is a remarkable species intermediate in many respects between *Edotia* and *Idotea*, though apparently on the whole nearest to the former. It differs however from the characters of the genus in which I have placed it, in wanting the characteristic oblique line across the basal opercular plates. From *Idotea* it differs most conspicuously in having the epimera anchylosed with the sides of the thoracic segments. The ova in the ovigerous pouch were not sufficiently developed to furnish any characters.

A single specimen was sent to me from Auckland by T. F. Cheeseman, Esq.

Fam. ORCHESTIDÆ.

Genus *Allorchestes*.*Allorchestes recens*, n. sp. Pl. xiii., figs. 2–5.

Body tolerably compressed and slender, quite smooth; coxal plates of the first three thoracic segments about as deep as their respective segments; those of the rest of pereion shallower. Eyes rather small, nearly circular. Superior antennæ reaching to or slightly beyond the extremity of the peduncle of the inferior; peduncle about as long as the 5–7-jointed flagellum. Inferior antennæ about one-fourth as long as the body; peduncle about equal with the 8–10-jointed flagellum. In both antennæ a few very short stiff setæ are found at the extremity of each joint. The maxillipedes have an extremely short and pointed dactylos; most of the joints have numerous short stiff setæ at their extremities and inner

margins. The first gnathopoda of the male have the joints rather short and dilated on their lower margins; the propodos is about as broad as long, rounded on both margins, and with the palm nearly transverse. In the female the same is more slender, and the joints longer in proportion to their breadth; the propodos sub-quadrate, with the palm quite transverse; and only the carpos has the rounded dilatation. The second gnathopoda of the male have a large, broadly-ovate propodos, narrowing to the extremity. It bears a double row of stiff spine-like teeth along the palm, which extends very obliquely more than half-way along the inferior margin. In the female, on the other hand, this limb is so much reduced anteriorly as to suggest a close approximation to *Orchestia*; the meros, carpos, and propodos have their inferior margins dilated into rounded plates; while the latter bears a minute dactylos, extending only about half-way across it, and not quite at its extremity. The pereopoda increase in length posteriorly, the last pair being considerably the longest. Length $\frac{3}{8}$ inch.

Loc. Numerous specimens of this species were sent me from Wellington by Mr. J. C. Gully, who obtained them in a small stream into which several drains ran.

Genus *Corophium*, Latr.

Latr. Gen. Crust., i., p. 58.

Brit. Mus. Cat. Amphip. Crust., p. 279.

1. *COROPHIUM EXCAVATUM*, n. sp. Pl. xii., figs. 1-8.

Cephalon laterally produced between the bases of the antennæ into small obtuse lobes, on which the small rounded eyes are placed; seen from above the front margin is nearly straight, and is only pointed (not rostrate) between the bases of the anterior antennæ. Antennæ subequal in length, more than one-third as long as the body: anterior pair slender; 1st and 2nd joints of peduncle long, subequal; 3rd joint very short; flagellum 10-jointed, as long as base: inferior pair very stout, pediform; flagellum very short, 6-jointed: both pairs of antennæ sparingly furnished with setæ. First pair of gnathopoda rather small; ischium and meros very short, the former with a long tuft of setæ; carpus elongated, thickly fringed with hairs on its inferior margin; propodos rather shorter than carpus, slightly distended proximally, furnished with a tuft of setæ on its upper margin and another at the hinge of the dactylos, palm transverse, with a fringe of fine setæ; dactylos slightly curved, impinging closely on the palm. Second pair of gnathopoda longer than first, joints rather slender; meros produced into a scoop-like process, fringed on each margin with long setæ, and into which the carpus lies closely when the limb is folded; carpus elongated, rather widest at its distal end, densely fringed with long setæ along its inferior margin; propodos as long as carpus, sides nearly parallel, produced

posteriorly into a tooth, which makes the palm nearly transverse, sparingly setose towards the extremity; dactylos arcuate, nearly twice as long as the palm. First and second pairs of pereopoda rather short, simple, and nearly destitute of spines or setæ; third pair shortest of all, joints densely fringed with long setæ, and the propodos strongly spined on its inferior margin; fourth pair twice as long as third, dactylos directed backwards; fifth pair longer still, being nearly equal in length to the whole body, the basa of these three last pairs are much dilated and setose on their margins. Three posterior pairs of pleopoda ending subequally, ante-penultimate and penultimate pairs with strong curved spines on their basal joints and rami; ultimate pair very small and feebly developed, with a few setæ, but no spines, internal ramus very minute. Telson short and rounded at its extremity. Colour a dirty-grey, similar to that of the sandy-mud of the creek in which it occurred. Length $\frac{1}{4}$ inch.

Hab. Brighton Creek (salt water), near Dunedin.

This species is very distinct from any hitherto described, the form of the meros of the 2nd gnathopod being quite remarkable; a tendency towards a similar development of structure occurs apparently in *C. longicornis*, which is, however, a very different species in many respects.

Fam. OXYCEPHALIDÆ.

Genus *Oxycephalus*, Edw.

Milne-Edwards, Ann. des Sc. Nat., t. xx., 1830, p. 396.

C. Claus, Die Gattungen und Arten der Platysceliden, 1879, p. 44.

Body elongated, slender, cephalon produced into a triangular beak, from the base of the under-surface of which the anterior antennæ project. These have the peduncle greatly dilated in the male, and thickly furnished with olfactory setæ; flagellum 2- or 3-jointed. The posterior antennæ are 5-jointed in the male, and lie behind the snout under the inflated portion of the head, all the joints being folded close against one another; in the female they are wanting. The mandibles are small, and furnished with a slender 3-jointed palp in the male. The maxillæ are totally wanting. The maxillipedes are also greatly reduced in size, and their squamiform plates are smoothly rounded. The gnathopoda have complex chelæ, the carpus being produced into a long narrow point, which meets the dactylos; those of the first pair are shorter than the second. The first two pairs of pereopoda have the joints very slender, in the third and fourth the basa are broadly dilated, while the fifth pair are very much smaller, but have all the joints present. The three posterior pairs of pleopoda are double-branched, the branches being broadly lanceolate. The triangular telson seems to be ankylosed to the preceding segment.

Spence Bate, in the British Museum Catalogue of the Amphipodous Crustacea, has overlooked the remarkable sexual differences which characterize the Oxycephalidæ, not only in this genus, but also in *Rhabdosoma*, in which he describes the male of *R. armatum* as a separate species, *R. whitei*. The distinctive characters have been clearly brought out by Dr. Claus in a paper on "Die Gattungen und Arten der Platysceliden," which however is not readily accessible to New Zealand students. In this paper, Dr. Claus describes *Oxycephalus piscator*, Edw., at considerable length, and unites *O. tuberculatus*, Sp. Bate, and *O. oceanicus*, Guérin-Méneville, to it—the latter being a young male. He also gives brief descriptions of six new species, from all of which the following species is quite distinct, though apparently nearest *O. latirostris*, a Lagos species. The brevity of the descriptions however, and the want of illustrations, render this resemblance somewhat doubtful.

1. OXYCEPHALUS EDWARDSII, n. sp. Plate xii., figs. 14–21; pl. xiii., fig. 1.

Male.—The head is widely dilated and produced into a long sharp snout. This snout is more or less sharply ridged on the upper surface, and nearly flat on the under-side, the margins being sharply bent inwards. The sides of the head are nearly completely occupied with the eyes, which resemble those of *Phronima*. The sides of the head are not in close contact below, but form a long groove in which the posterior antennæ lie folded. The anterior antennæ are placed in front of the head just under the base of the beak; they depend nearly vertically, and have their concave side turned outwards. The peduncle has two short basal joints, and then a long, very stout, curved joint, the whole inner (convex) surface of which is thickly coated with olfactory setæ. The flagellum, which projects nearly at right angles from the extremity of the peduncle, is very small and 3-jointed.

The posterior antennæ are placed almost behind the head, and their joints lie folded closely together in the groove under the cephalon, in a zigzag manner; when extended, they are two or three times as long as the head and snout. Dr. Claus calls these organs 5-jointed; they have 4 long, subequal joints, which are extremely slender, but a little dilated at their ends, with a minute terminal hook-like claw, which appears only to be present in mature males. The mandibles are much reduced in size, and project down, behind the insertion of the antennæ, as small tooth-like organs furnished with a slender 3-jointed palp. These and the very much reduced maxillipedes are the only mouth-organs present; and the latter are of very simple structure, consisting each of an oval smooth plate, without any trace of hairs or teeth. The gnathopoda are relatively small, and the first pair are only about half the size of the second. In both pairs the basos is elongated, and the carpus produced on its inferior margin into a

long spine, against which the dactylos impinges. In the first pair the carpus is short and stout, its inner surface, as well as that of the propodos, is furnished with a considerable number of short stiff setæ or spines. In the second pair both carpus and propodos are elongated, and their finely-serrated palms are almost destitute of setæ. The 1st and 2nd pereopoda are long, slender, and sparingly furnished with hairs. The 3rd pair have the basa finely-serrated on the lower front margin, while posteriorly they are dilated into an oblong plate; they are quite naked. In the 4th pair, the basa are dilated into very broadly pear-shaped plates, while the remainder of the limb is finely fringed with pectinate setæ on the front margin. The last pair are small, and have the basa slenderly pear-shaped. The basa of these three pairs act as protective shields to the side of the body, and the remaining joints of the limb when at rest lie folded up under them. The three anterior pairs of pleopoda or swimmerets, have an oblong basal joint, with two finely-setose branches. The three posterior pairs are also double-branched, but are of very unequal length. The first pair have the peduncle more than twice as long as the branches, both of which are movable, and the inner one of which extends to the extremity of the telson. The second pair only extend to the end of the peduncle of the first, and have the outer joint alone movable. The third pair, which are placed at the extremity of the last body-segment are also short, reaching to the end of the telson, and having the outer joint alone movable. In all the pairs the branches are finely-serrated on the margins, and the movable outer one is always smaller than the inner. The telson is elongated, and sharply pointed; its separation from the last joint of the abdomen can be made out on the ventral surface somewhat imperfectly, but from above it seems to be completely ankylosed. The abdominal segments are all produced into a sharp spine posteriorly.

Female.—The sexual differences are very considerable in these animals, showing themselves almost exclusively in the cephalon and its appendages.

The head is much more inflated than in the male, being nearly globular, so that the beak is more prominently shown; the sides of the head appear to be completely fused together below, so that there is no groove for the antennæ as in the male. The anterior antennæ are much simpler than in the male: the first joint is tolerably long, the second very short, while the third is also straight and very much more slender than the male, while only a few olfactory setæ are developed on its outer margin; the flagellum is 2-jointed, but the last joint in mature specimens appears to be sometimes divided into two. The posterior antennæ are quite absent, as are also the mandibular palps. The length of the body is from 1 to $1\frac{1}{4}$ inch. The animal is absolutely transparent and glass-like.

Hab. I found numerous individuals washed up on the Ocean Beach near Dunedin on two different occasions. They appear to come ashore in fine clear calm weather.

EXPLANATION OF PLATES XII. AND XIII., Figs. 1-5.

PLATE XII.

- Figs. 1-8. *Corophium excavatum*.
 1. Adult; 2. mandible; 3, second gnathopod; 4. third pereopod; 5, 6 and 7. ante-penult., penult., and ultimate pleopoda; 8. telson.
- Figs. 9-10. *Edotia dilatata*.
 9. Adult female; 10. opercular plate.
- Figs. 11-13. *Pseudoga punctata*.
 11. Dorsal view; 12. lateral view; 13. head, seen from the front.
- Figs. 14-21. *Oxycephalus edwardsii*.
 14. Adult male; 15. anterior antenna, female; 16. anterior antenna, young male; 17. posterior antenna, young male; 18. mandible-palp; 19. first gnathopoda; 20. second gnathopod; 21. crystalline cones of the lateral eyes.

PLATE XIII.

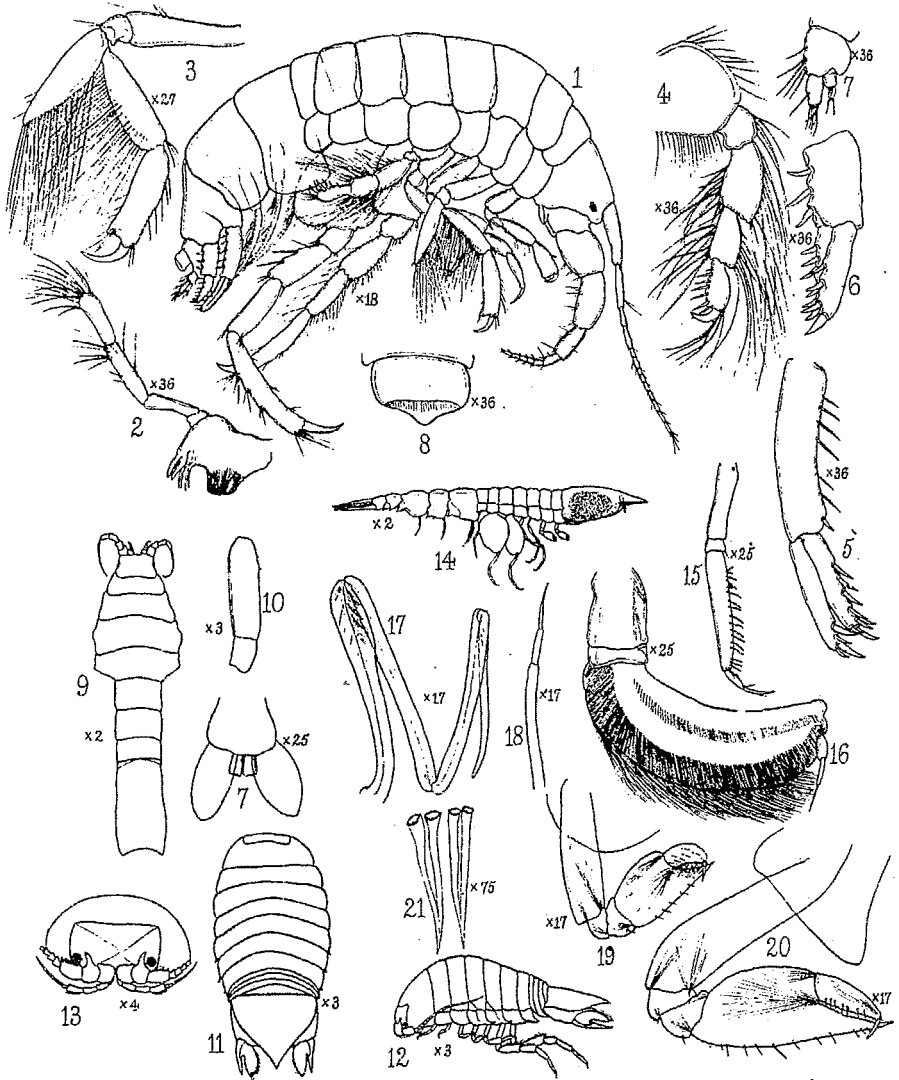
- Fig. 1. *Oxycephalus edwardsii*.
 Posterior portion of abdomen, showing telson and three posterior pairs of pleopoda; also the structure of the extremity of the intestine.
- Figs. 2-5. *Allorchestes recens*.
 2 and 3. female and male anterior gnathopoda; 4 and 5. female and male posterior gnathopoda.

ART. XII.—*On a new Species of Daphnia*. By Geo. M. Thomson, F.L.S.
 [Read before the Otago Institute, 7th May, 1883.]

Plate XIII., figs. 6-9.

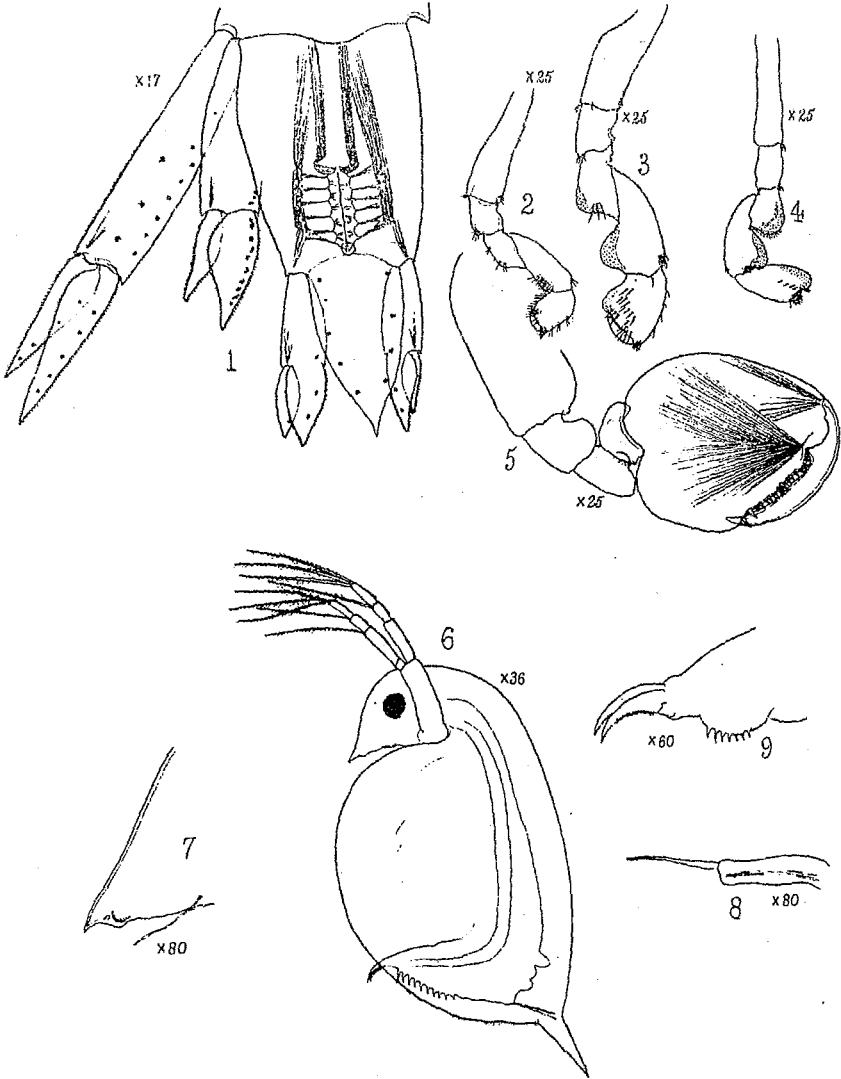
LAST year Mr. Chas. Chilton sent me down specimens of a new *Daphnia* from South Canterbury, differing markedly from the form common about Dunedin, and which was described by me as *D. obtusata* in Trans. N.Z. Inst. vol. xi., p. 261.

It is singular that these two species of *Daphnia* and one of *Chydorus* should be the only representatives of the Cladocera hitherto found in New Zealand. While the general poverty of our fresh-water fauna may no doubt hold good in this case as in so many others, it is yet probable that a search in other parts of our islands will result in the discovery of other forms.



CRUSTACEA

G. Thomson, del.



CRUSTACEA.

G. Thomson, del.

The species described now is very similar in general form to the common European *D. pulex*, and perhaps is only a variety of it. It differs however in several structural points, and is therefore raised provisionally to specific rank under the name *D. similis*.

The following is a brief description of the animal: Valves oval in form, not quite twice as long as broad, and produced posteriorly into a sharp stout spine, which is about one-seventh of the length of the carapace in the male, and about one-sixth in the female. The whole lower margins of the valves, as well as the spine, are fringed with short pectinate hairs.

The head in the male is nearly perpendicular in front, and ends in a blunt beak, which bears the anterior antennæ near its extremity: these are 1-jointed, and bear a single filament, which is flexible and serrated at its extremity. The whole length of these organs is nearly equal to the breadth of the head. In the female the front of the head protrudes considerably, and the beak is very acute. The anterior antennæ are represented by two very minute tubercles, destitute of setæ, which are situated on the underside, close to the extremity. These organs appear to be in a more rudimentary condition in our species than in any other hitherto described. The posterior antennæ are of normal form in both sexes, but are relatively shorter than the same organ in *D. pulex*, being only a little more than half as long as the carapace. All the joints are furnished with minute hairs.

The posterior portion of the body is dorsally produced into four rounded lobes, the upper one of which is the longest, while the lower bears two long setose spines or filaments. The abdomen in the male is much rounded at the anal orifice, and bears at that part on each side about 7 curved teeth, which are somewhat distant from the 2 curved terminal hooks. In the female the abdomen is slightly rounded on the lower margin, and bears 10-12 curved teeth close up to the terminal hooks.

My specimens included one male, $\frac{1}{2}$ th of an inch in length, and several females, the largest of which were about $\frac{1}{4}$ th of an inch long. When living, their colour, according to Mr. Chilton, was brick-red.

DESCRIPTION OF PLATE XIII., Figs. 6-9.

Figs. 6-9. *Daphnia similis*.

6. Adult female; 7. rostrum of same; 8. anterior antenna, male; 9. extremity of abdomen, male.
