Art. XXX.—*Additions to the Crustacean Fauna of New Zealand.*

By George M. Thomson, F.L.S.

[*Read before the Otago Institute, 22nd November*, 1881.]

Plates XVII. and XVIII.

Stomapoda.

Genus **Squilla**, Fabricius.

1. *S. tridentata*, n. sp.

Carapace quite smooth, broadening posteriorly; its front transverse and unarmed, as are its smooth lower margins. Rostral plate triangular, about as long as broad, sub-acute. Large prehensile limbs, with the terminal joint as long as the hand and furnished with *three spines;* palm of the hand finely serrate. Terminal segment of the abdomen with a very short central ridge terminating in a spine, and two lateral ridges similarly spined but very imperfectly developed; posterior border with six short spines, the two central ones being articulated and moveable.

Colour yellowish, with a few minute black dots on the carapace and frontal organs. Length, 0·75 inch.

Hab. Only one specimen was obtained by the dredge in Port Pegasus, and apparently—to judge by its small size—it was a very young one. In general appearance and in the majority of its characters this agrees with *S. indefensa*, T. W. Kirk; but that species has *nine* teeth on the fingers of the large prehensile limb, and this feature seems to be very characteristic of species, and very persistent.

Isopoda Aberrantia.

Fam. ANTHURIDÆ.

Genus **Paranthura**, Bate and Westwood.

(Brit. Sessile-eyed Crust., vol. 2, p. 163).

Body long and slender. Head distinct from the first segment of the pereion. Antennæ short, subequal. First pair of legs large and subchelate, six succeeding pairs subequal. All the segments of the pleon distinct, and carrying six pairs of pleopoda. Middle tail-piece ovate, obtuse.

1. *P. costana*, Bate and Westwood (*l.c.*, p. 165, figured).

Cylindrical; segments of the pereion subequal in length. Hand of the first pair of legs very large, smooth, and bearing a small tubercle on its inner and under surface. The middle tail-piece is smooth and rounded at the extremity. All six pairs of pleopoda two-branched; last pair with the outer branch one-jointed and foliaceous, inner branch two-jointed and placed horizontally.

Colour pale-yellowish, covered with small black spots. Length about 0·25 inch.

Hab. One specimen of this interesting Crustacean was obtained among some seaweed washed up on the beach near the mouth of the Taieri river. It differs from the figure (given in Brit. Sess.-eyed Crust.) in having more slender limbs with the exception of the first pair; otherwise it agrees perfectly. This species has hitherto only been recorded from the English and French coasts, and from the Mediterranean.

Amphipoda Normalia.

Sub-fam. Lysianassides.

Genus **Anonyx**, Kröyer.

Superior antennæ short, the peduncle very large at the base, and furnished with a secondary appendage. Mandibles with a smooth incisive margin, and no secondary plate, and having an appendage. First pair of gnathopoda subchelate; second pair long, slender, feeble, rudimentary, subchelate. Telson single, squamiform, entire or cleft.

(The characters on which this genus is separated from *Lysianassa* are very insufficient, being mainly subchelate nature of the first pair of gnathopoda, and secondly the cleft telson. The first species following is an *Anonyx* in all respects, except that its telson is entire, which is the case also with *A. plautus*, Kröyer, an European species.)

1. *A. corpulentus*, n. sp.

Pl. XVII., *fig.* 1.

Cephalon rounded in front, hiding the antennæ. Pereion greatly distended, so as to give the animal a very corpulent appearance; coxæ very deep. Eyes not appreciable. Superior antennæ short and very thick; basal joint cylindrical, hardly longer than it is thick, two following very short; secondary appendage minute, 2-jointed; flabellum slightly longer than peduncle, tapering, 4-jointed, first joint as long as or longer than the next three, setose below. Inferior antennæ slender, subequal with the superior; second and third joints of peduncle long, and subequal with the 6–7-jointed flagellum. Gnathopoda small; first pair densely fringed below with simple hairs; propodos narrowing to the extremity, lower margin without a distinct palm; dactylos curved; second pair very slender, with tufted setæ on the lower margin, propodos about three times as long as broad, with a small curved dactylos. Four anterior pairs of pereiopoda subequal, slender, naked, with narrow basa; fifth pair short, setose, and with the basa dilated into wide, rounded, squamiform plates. Three posterior pairs of pleopoda terminating subequally, naked. Telson short, entire, rounded. Length 0·23 inch. Colour yellowish.

Hab. Dredged in Paterson Inlet, in 8 fathoms.

2. *A. exiguus*, Stimpson.

Pl. XVIII., fig. 2.

This species is most imperfectly described in the Brit. Mus. Cat., p. 75, so that it is not easy to identify, as even the figure—unless accompanied by drawings of separate parts—is not complete enough in its detail. The following is all the description given:—"Pleon having the third segment tumid posteriorly, and curved down towards the fourth; the posterior margin deeply concave; the infero-posterior angle produced and directed upwards; fourth segment having a deep dorsal sinus. Pereiopoda having the dactylos long and slender; basos of the three posterior margins deeply serrated along the posterior margin."

To which I add the following as descriptive of specimens obtained by me:—Eyes very inconspicuous. Superior antennæ with a 5-jointed flagellum; secondary appendage 3-jointed, half as long as the flagellum. Inferior antennæ twice as long as superior. Mandibles with rows of strong teeth on the cutting edge. First gnathopoda having the carpus and propodos subequal, the latter slightly ciliated, and with a well-defined palm. Second gnathopoda having the propodos shorter than the carpus, oval, densely ciliated, destitute of a palm, and having a very small dactylos. Third pereiopoda the shortest; fifth pair with broad basa. Length, 0·25 inch.

Hab. Dredged in Paterson Inlet, in 8 fathoms.

The type specimens were obtained by Stimpson "on sandy bottoms in 8–15 fathoms" off the east coast of North America.

Sub-fam. Phoxides.

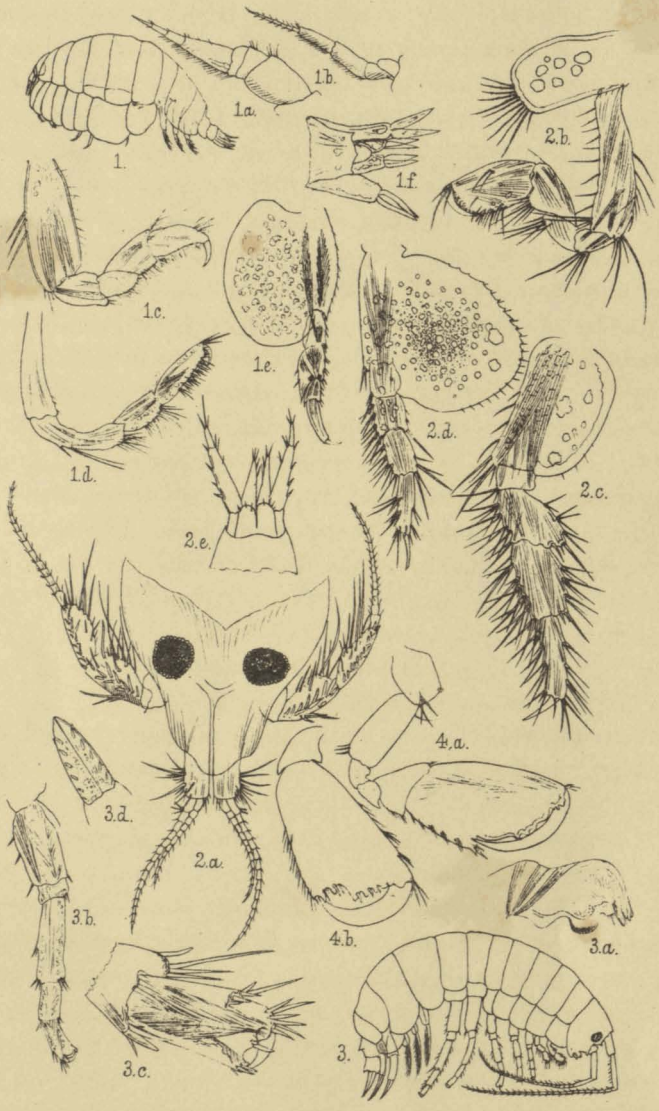
Genus **Phoxus**, Kröyer.

Superior antennæ with a secondary appendage, inferior pair as long as the superior. Mandibles with an appendage. Maxillipeds subpediform. Both pairs of gnathopoda subchelate. Coxæ deeper thon the respective segments. Posterior pair of pereiopoda shorter than the preceding. Telson double.*

1. *P. batei*, W. A. Haswell (Proc. Linn. Soc. N.S.W., vol. iv., p. 259).

Cephalon produced into a long obtuse hood, extending almost to the end of the peduncle of the superior antennæ. Eyes ovate-reniform, black, conspicuous. Antennæ short: flagellum of superior pair longer than the base; secondary appendage about two-thirds as long as flagellum: inferior pair rather exceeding the superior; peduncle much exceeding the flagellum, joints flattened, bearing numerous short obtuse spines on their upper surface, and long setæ on their outer margins. Gnathopoda subequal and

* In the generic character given in the Brit. Mus. Cat., p. 97, it is said:—"Eyes not appreciable," a footnote pointing out that the diagnosis is doubtful. In some of my specimens the eyes had lost most or all of their pigment, but in others they were very black.



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similar; propodos subquadrate, about twice as long as broad, palm nearly transverse, slightly oblique, with a double row of numerous, close-set, short spines, and its point of impingement defined by a tuft of long spines and setæ. Coxæ of both pairs of gnathopoda and of the first two pairs of pereiopoda fringed with 10-12 simple hairs on their inferior margins. All the pereiopoda more or less fringed with intermingled spines and setæ; fourth pair the longest; third and fourth pairs with the basa slightly dilated; fifth pair short, with the basa dilated into large squamiform plates, which are serrated on their posterior margins. Pleopoda terminating subequally, their bases longer than the rami, and furnished with rows of short spines; posterior pair with the rami unequal, the outer branch being 3-jointed, the inner simple, narrow, and acute. Telson deeply 2-cleft, the divisions rounded at their extremity, and with about three short subapical spines.

Length about ·35 inch. Colour yellowish; carapace of a thick, somewhat horny consistence.

Hab. Dredged in Paterson Inlet, 7 fathoms.

This species was first described by Mr. Haswell, who obtained it by the dredge in Port Jackson; the figure given of it in the journal quoted above is, however, not very satisfactory. In the original description the only points of difference between the Australian form and ours are immaterial; the flagellum of the appendage to the superior antennæ being 6-jointed. The species is quite distinct from any other described, its nearest ally being the European *P. holbölli*, Kröyer, from which it differs in several respects.

Genus **Polycheria**, W. A. Haswell.

(Linn. Soc. N.S.W. Proc., vol. iv., p. 345).

"Pereion broad; pleon compressed, more or less carinate. Antennæ subequal; superior pair without an appendage. Mandibles without an appendage. Maxillipedes with well-developed squamiform process. Gnathopoda small, subchelate. Pereiopoda all prehensile, with narrow basa. Posterior pleopoda biramous with equal rami. Telson double."

Before Mr. Haswell's description was published, I had obtained a species of this genus, and by a remarkable coincidence drew out a generic description, giving it the name *Polychelia*, from its many claws. Mr. Haswell says of this very distinct genus, "*genus incertæ sedis.*" In the present confused arrangement of the genera of the sub-class Gammarides, it is certainly most difficult to assign it a correct position. It appears to me, however, to be most near *Dexamine*.

1. *P. obtusa*, n. sp.

Pl. XVII., fig. 3.

Body tumid, not compressed. Eyes large and prominent. Superior antennæ about two-thirds as long as the body; first joint of peduncle short and stout, second slender and twice as long, third not distinguishable from

the first joint of the flagellum, which is multi-articulate, twice as long as peduncle, with long setæ on its lower margin. Inferior antennæ rather shorter than superior; first joint of peduncle very short, second and third long and slender, flagellum slightly longer than peduncle, sparingly setose. Gnathopoda similar, second pair rather the longest, with numerous setæ; propodos oblong, with a narrow base, furnished with four or five rows of setæ on the back; dactylos slender, curved. Pereiopoda slender, subequal, sparingly spinose; ischium very short; meros as long as carpus and propodos together; latter with a transverse palm, which has a long tooth in the middle, and two or three shorter ones at the point of impingement of the curved dactylos. Telson acute, each division bearing six short spines on its outer margin, and a small tooth near its extremity.

Colour yellowish. Length 0·3 inch.

Hab. Dredged in Paterson Inlet, in about 10 fathoms.

This species is very near *P. tenuipes*, Haswell, an Australian form, but differs in having over twenty joints in the flagella of both pairs of antennæ, in the length of the inferior antennæ, and in the spinous palms of the pereiopoda. It is questionable whether such characters are sufficient to establish the specific rank of the differing forms, but the relative values of varying parts is not yet well understood in the Amphipoda, nor are sexual differences and those due to the age of the specimens duly taken into consideration.

Sub-fam. Gammarides.

Genus **Leucothoë**, Leach.

Body long, compressed. Antennæ simple, subequal. Maxillipeds subpediform, unguiculate. Mandibles having an appendage. Four anterior pairs of coxæ as deep as their respective segments. First pair of gnathopoda having the carpus inferiorily produced to the extremity of the propodos; propodos slender; dactylos short: second pair having the carpus inferiorly produced to half the length of the propodos; propodos ovate; dactylos long. Pereiopoda subequal, slender. Posterior pair of pleopoda having two long lanceolate rami. Telson single, squamiform.

1. *L. traillii*, n. sp.

Pl. XVIII., fig. 1.

Body rather slender. Cephalon slightly produced between the bases of the superior antennæ. Eyes rounded, large. Superior antennæ one-fourth the length of the body; first joint of the peduncle stout; second subequal with it, but slender; third very short, flagellum few-jointed (about 4?) shorter than the basal joint of the peduncle. Inferior antennæ arising at some distance behind and below the superior, subequal with them, but more slender; peduncle slightly exceeding that of the superior; flagellum about

5-jointed, shorter than the last joint of the peduncle. Mandibular appendage very slender, 3-jointed. First gnathopoda with the basal joints slender; meros very small; proximal end of the carpus flattened into a circular disc, distal end tapering to an acute point, produced to about two-thirds the length of the propodos, which is elongated and without any distinct palm; dactylos curved, about one-third as long as the propodos, finely serrated on its inner margin. Second gnathopoda with the carpus produced to two-thirds the length of the propodos, ending in a curved spine and bearing numerous hairs; propodos large, oval, its lower margin with numerous dentations, a tuft of hairs at its upper extremity; dactylos curved, half as long as the propodos. Pereiopoda slender; three last pairs with wide basa, which are crenated on their posterior margins. Three posterior pairs of pleopoda with narrow-lanceolate, nearly smooth rami. Telson narrow, tapering to a sub-acute, entire apex. Integument rather thin, semi-transparent. Length 0·35 inch.

Hab. Two specimens were obtained, one from Port Pegasus (5 fathoms), and a smaller one in Paterson Inlet (in about 10 fathoms).

I have named this species after Mr. Charles Traill, of Cooper Island, Paterson Inlet, a gentleman who has aided much in the investigation of the Fauna and Flora of Stewart Island.

Genus **Moera**, Leach.

Long and slender. Superior antennæ appendiculate, much longer than the inferior. Inferior antennæ a little posterior to the superior, having the peduncle much longer than the flagellum, and not reaching to the extremity of the peduncle of the superior. Oral appendages receding. Mandibles having an appendage. Four anterior coxæ not so deep as their respective segments; three posterior not much shorter than the preceding. Gnathopoda unequal; second pair much the larger. Pereiopoda slender, subequal. Posterior pair of pleopoda biramous, subfoliaceous. Telson double.

1. *M. quadrimanus,* Sp. Bate (Brit. Mus. Cat., p. 194).

"Slender; coxæ narrow. Superior antennæ half as long as the body; base a little longer than the flagellum; first and second joints long, subequal, third very short; flagellum pubescent; setæ longer than articuli, and hardly divaricate; secondary appendage rather longer than half the flagellum. Inferior antennæ shorter; base shorter than base of superior pair; flagellum very short. First pair of gnathopoda quite small; propodos oblong, hirsute below, narrower at base; propodos of second pair equal, very large, subquadrate; apex transverse, defined by a spiniform acute immoveable tooth; palm tri-dentate, teeth prominent; dactylos hardly longer than palm. Two posterior pairs of pereiopoda subequal, the fifth a little the shorter, the joints at their posterior apices densely hirsute; other setæ short."

This species was obtained by Dana from coral-reefs at the Fijis, and described as above.

Numerous specimens of a form almost identical with Dana's species were obtained by me in Paterson Inlet with the dredge. They differ in having the palm of the second pair of gnathopoda rather oblique and furnished with irregular dentations (see pl. XVII., fig. 4A), and in the fifth pair of pereiopoda being rather longer than the fourth. The length varied from ½ to ⅔ of an inch, and all were of a uniform yellowish-white colour.

Another form of the same—apparently variable—species was obtained under stones, between tide-marks, from the same locality. Besides being of slightly larger size, it was of a dirty green colour, and had the teeth of the palm of the second gnathopod more sharply defined, in this respect resembling the typical form (see pl. XVII., fig. 4B).

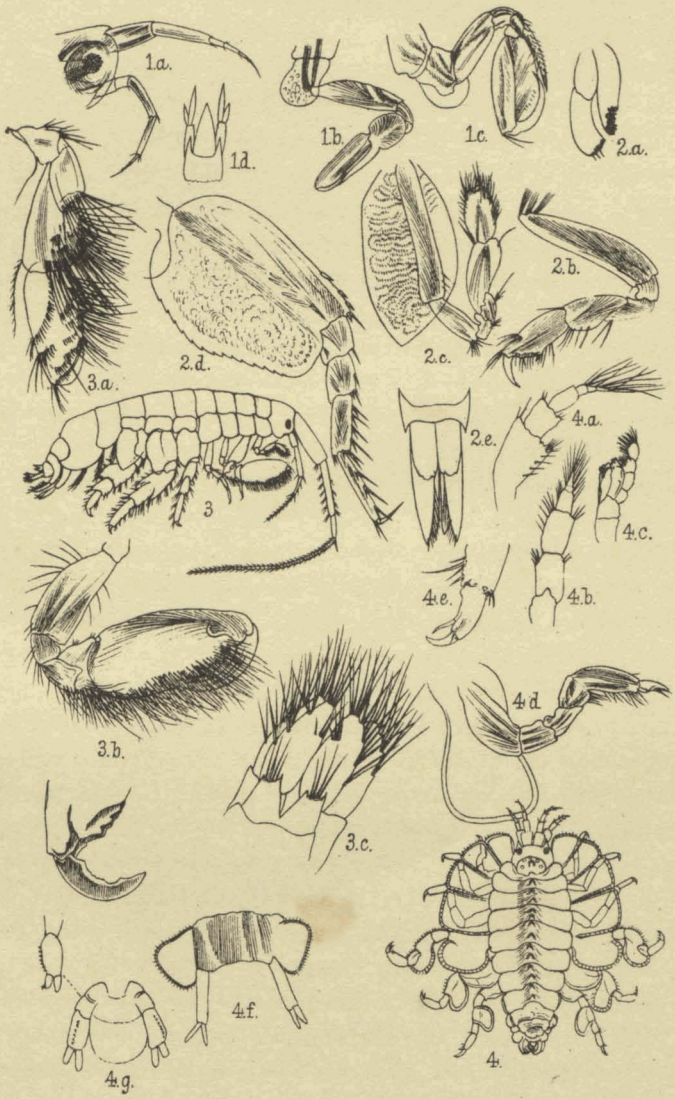
A third form, with a more sharply defined palm still than the last, and with longer spines and numerous hairs on the propoda of the second gnathopoda, was taken by the dredge in Port Pegasus from a depth of 5 fathoms.

(Originally described by Dana from Fiji specimens).

2. *M. petriei*, n.sp.

Pl. XVIII., fig. 3.

Coxæ not so deep as their respective segments. Fourth segment of pleon produced into two acute spines on its postero-dorsal margin, and having its postero-inferior angles also acutely pointed. Eyes oblong, black. *Superior antennæ as long as the body*; peduncle having its first joint as long as the second, but twice as broad, third short; secondary appendage shorter than last joint of peduncle, about 6-jointed; flagellum subequal with peduncle, very many-jointed (about 50–60), joints at first more than twice as long as broad, all setose. Inferior antennæ less than half as long as superior; flagellum about 14-jointed, half as long as the peduncle. First pair of gnathopoda having the carpus and propodos subequal, the latter oblong, with an ill-defined oblique convex palm and a slender curved dactylos; dense rows of hairs occur on the extremity of the meros, and transversely on the lower side of the carpus and margins of the propodos, while the latter also bears numerous oblique or transverse rows of short spine-like hairs. Second pair of gnathopoda very large; basos deeply hollowed out in front, so as to form a groove for the propodos; ischium, meros, and carpos very short, the latter about three times as broad as long; propodos large, ovate, distally produced into a large curved tooth on each side of the articulation of the dactylos, terminal half of the lower surface with a deep groove to receive the dactylos, whole lower surface very densely fringed with two rows of long simple hairs; dactylos strong, arcuate, sinuously toothed on its inner margin, blunt. First and second pairs of pereiopoda slender, three



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posterior pairs broader and more hirsute; third pair shortest. Posterior pleopoda having the rami subequal and densely fringed with hairs at their extremity. Telson having each division slightly hollowed out at the apex, with the inner edge acutely toothed, and two setæ springing from the hollow.

The integument is of a remarkably horny consistence.

Colour yellowish. Length 0·5 inch.

Hab. Only two specimens of this very distinct species were taken in the dredge in Port Pegasus. I have named it in honour of my fellow-worker and companion on the cruise, Mr. D. Petrie.

Fam. COROPHIIDÆ.

Genus **Iphigenia**, n. gen.

Pl. XVIII., fig. 4.

Body much depressed and flattened. Antennæ short and thick, subequal. Coxæ of the first four segments of the pereion very large, those of the succeeding segments small. Basa of the three pairs of posterior pereiopoda dilated. Gnathopoda simple, unguiculate. Three posterior pairs of pleopoda very small, curved inwards, with minute simple rami. Telson single, entire.

The very remarkable Crustacean (Amphipod) for which this genus has been formed, appears on first inspection to be an Isopod. It is only after closer examination that it is seen to be allied to *Icillius*, Dana, one of the most anomalous forms of the Corophiides. From this genus it is, however, at once distinguished by the very large coxæ of the four anterior segments of the pereion, and by its short, thick, subequal antennæ.

1. *I. typica*, n. sp.

Segments of the pereion and part of the pleon slightly ridged on the dorsal median line, and produced upwards into tubercles. Cephalon produced forward laterally into acute lobes in the angles of which the eyes are placed. Coxæ of first four segments of the pereion quadrangular, much deeper than their respective segments, apparently projecting horizontally. Antennæ hardly more than one-sixth as long as body: superior pair with the basal joint broad, flagellum very short, about 4-jointed, and furnished with long setæ; inferior pair terminated by a short 5-jointed flagellum, and bearing numerous short setæ. Gnathopoda subequal; propodos without a palm, dactylos simply unguiculate, and bearing a curved spine on its inner margin. First and second pereiopoda similar to the gnathopoda. Basa of the third pair very broad, of the succeeding pairs narrower. Pleon narrowing posteriorly. Three last pairs of pleopoda with thick, styliform rami; ultimate pair with a row of tooth-like spines on its upper surface. Telson about as broad as long, nearly semicircular, quite entire.

Length 0·12 inch.

Hab. Two specimens were obtained by the dredge in Otago Harbour.

EXPLANATION OF PLATES XVII. AND XVIII.

PLATE XVII.

Fig. 1. *Anonyx corpulentus* × 7; *a*, sup. antenna × 20; *b*, inf. antenna × 20; *c*, 1st gnathopod × 20; *d*, 2nd gnathopod × 20; *e*, 5th pereiopod × 20; *f*, telson and posterior pleopoda × 20.

Fig. 2. *Phoxus batei*, *a*, head and antennæ, seen from above, × 26; *b*, 2nd gnathopod × 20; *c*, 3rd pereiopod × 20; *d*, 5th pereiopod × 20; *e*, telson and posterior pleopoda × 20.

Fig. 3. *Polycheria obtusa* × 13; *a*, mandible × 50; *b*, 2nd pereiopod × 20; *c*, extremity of 4th pereiopod, showing prehensile fingers, × 75; *d*, telson and posterior pleopoda × 20.

Fig. 4. *Moera quadrimanus*, *a*, hand of second gnathopod × 13, taken from dredged specimens; *b*, same taken from littoral specimen.

PLATE XVIII.

Fig. 1. *Leucothoe traillii*, *a*, cephalon and antennæ × 20; *b*, 1st gnathopod × 20; *c*, 2nd gnathopod × 20; *d*, telson × 20.

Fig. 2. *Anonyx exiguus*, *a*, mandibles × 75; *b*, 1st gnathopod × 44; *c*, 2nd gnathopod × 44; *d*, 5th pereiopod × 44; *e*, telson and posterior pleopoda × 75.

Fig. 3. *Moera petrici* × 5; *a*, 1st gnathopod × 20; *b*, 2nd gnathopod × 13, with dactylos separate; *c*, telson and posterior pair of pleopoda × 20.

Fig. 4. *Iphigenia typica* × 13: *a*, superior antennæ; *b*, inf. ant.; *c*, maxillipeds; *d*, 1st gnathopod; *e*, dactylos of same; *f*, penult. pleopoda; *g*, telson and last pair of pleopoda;—all these parts × 44, except *e* × 75.

ART. XXXI.—*On the* Notornis.

By WALTER L. BULLER, C.M.G., Sc.D., F.R.S.

[*Read before the Wellington Philosophical Society, 3rd September*, 1881.]

THE capture of a specimen of the rare *Notornis mantelli* in the South Island, is an event of sufficient importance to warrant a special memoir in our "Transactions," and I have therefore much pleasure, at the request of our president, in bringing before you this evening all the information I have been able to collect on the subject.

I may here mention—and I do so with regret—that the specimen which I am about to describe is no longer in the colony, having been despatched by the Waitangi about three weeks ago for sale in England.