

ART. XXII.—Contributions to New Zealand Malacology.

By Professor F. W. HUTTON.

[Read before the Philosophical Institute of Canterbury, 4th November, 1880.]

Plate VI.

PLACOSTYLUS BOVINUS. The odontophore has 120–130 teeth in each transverse row; these rows are slightly curved forwards at the margins. The central teeth have sharp acute points; the laterals are blunt and rounded, with a slight cusp outside.

PARYPHANTA GILLIESII, *Smith*, in the *Annals of Natural History*, Series 5, Vol. VI., p. 159. From Nelson. The shell is thin and flexible.

NANINA. For a description of the animal of this genus see Strickland, "Proceedings of the Zoological Society of London, 1848," p. 142.

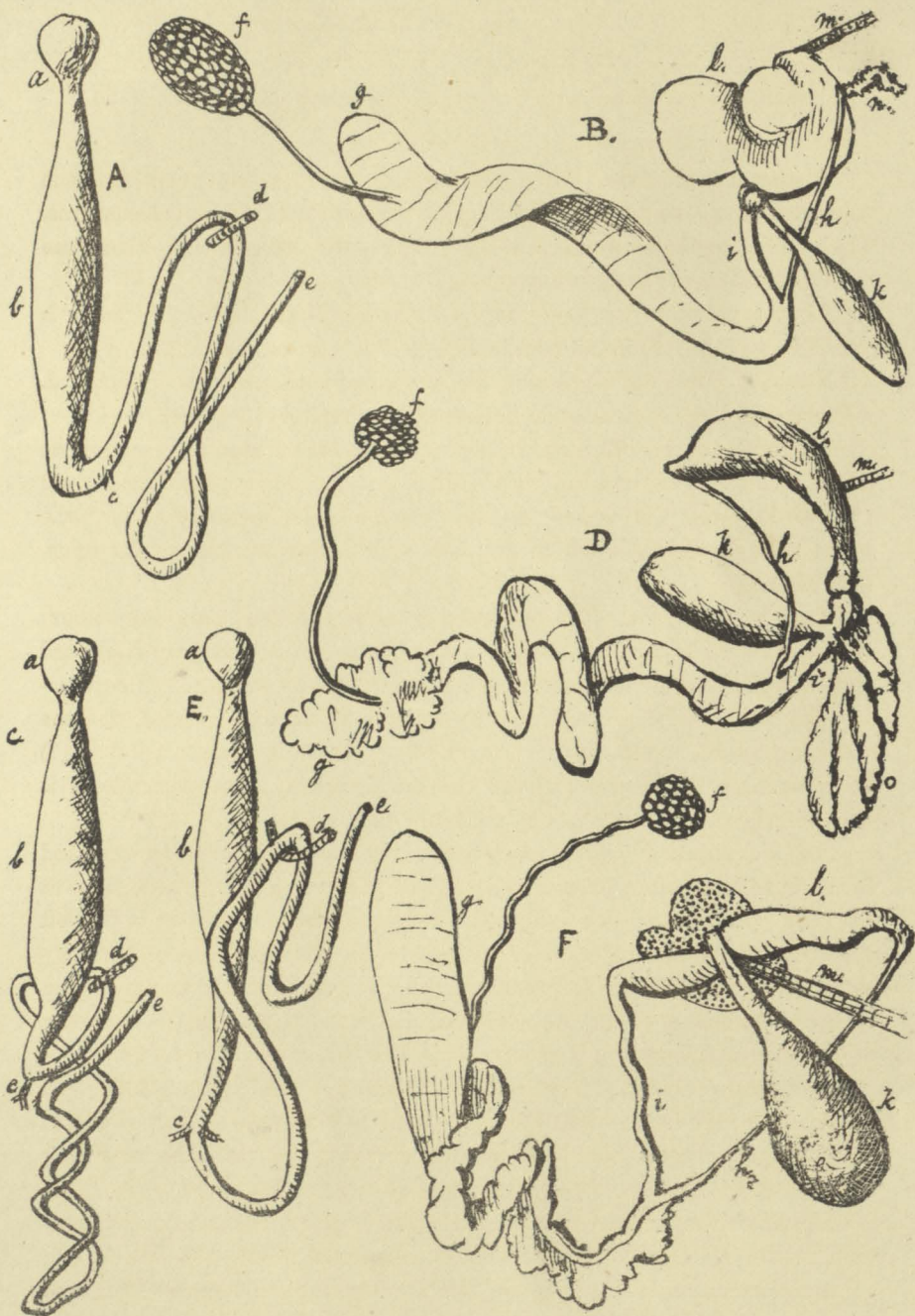
LIMAX MOLESTUS. *Alimentary canal.* The intestine turns forward and to the right before receiving the hepatic duct, and turns to the right again, and backward, round the aorta. It then passes to the posterior end of the body, makes a single bend to the left, and passes straight to the anus. (Pl. VI. f.a.)

Reproductive organs. The ovo-testis is large, oval, and purple in colour; it lays over the liver and intestine in an oblique position sloping backward and to the left. The albumen gland is moderate and smooth. The penis-sac lies to the right of the buccal mass; it is broad and inflated, and the retractor muscle is attached to the middle. There is a white prostate (?) gland opening into the penis with the vas deferens. The spermatheca is narrow, with a long neck. (Pl. VI., f.b.)

MILAX ANTIPODUM. *Alimentary canal.* The intestine turns forward and to the right soon after leaving the stomach, receiving the hepatic duct at the bend; it then turns to the left, over the aorta, and crosses to the left side below the stomach. It then passes to the posterior end of the body cavity by two spiral curves, made with the sun, and passes forward again by two more curves in the opposite direction until it reaches the first turn of the duodenum, whence it passes straight to the anus. (Pl. VI., f.c.)

Reproductive organs. The ovotestis is small, round, pale purple, and hidden under the liver. The albumen gland is rather large, with crenated margins. The penis sac is long and narrow; the retractor muscle is attached to the middle. The spermatheca is oval, with a short neck. There is no prostate, but a large two-lobed accessory gland opens into the common genital opening by numerous small convoluted tubes. (Pl. VI., f.d.)

ARION INCOMMODUS. *Alimentary canal.* The intestine passes backward from the stomach and then, some distance from the hepatic ducts, turns



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To illustrate Paper by Professor Hutton.

forward and to the right. It then passes diagonally over the stomach to the left, and then diagonally to the right round the aorta. It then proceeds backward for a short distance, as far as the pylorus, and turns sharply to the right and forward to the anus. (Pl. VI., f.e.)

Reproductive organs. The ovotestis is small, round, and dark purple. It lies on the liver behind the last turn of the intestine. The albumen gland is very large, with a smooth outline. The spermatheca is pinkish, oval, and with a long neck. The oviduct swells out before opening into the common genital orifice. The penis sac is long and narrow, and lies just under the pulmonary chamber, the retractor muscle is attached at the anterior end. There is no prostate gland.

ONCHIDELLA NIGRICANS. The lingual teeth are arranged in transverse rows which form an acute angle in the middle, pointing forwards. They are acute, and very numerous, more than 200 in a transverse row. Adams gives it as a character of the family that the teeth are in straight transverse rows.

AURICULA QUOYI, Adams. Described by Sowerby in the "Conchologia Iconica," fig. 39, and stated to come from New Zealand. I very much doubt the correctness of the locality.

TRALIA COSTELLARIS. This is figured by Sowerby in the "Conchologia Iconica," fig. 42.

OPHICARDELUS AUSTRALIS. This is figured by Sowerby in the "Conchologia Iconica," fig. 34.

SIPHONARIA OBLIQUATA. Lingual teeth about 80 in a transverse row.

SIPHONARIA SIPHO. Lingual teeth about 60 in a transverse row. Animal yellowish ochre, spotted with dark purple; foot yellow.

GADINIA NIVEA. Lingual teeth arranged in transverse rows which form an obtuse angle in the middle, very minute, about 100 in a transverse row. Absent from the median line.

DEFRANCHIA LUTEO-FASCIATA. Animal yellowish white with a narrow black longitudinal line on the back of the head, between the eyes; some scattered dead-white spots on the body and siphon. Tentacles thick, approximated; the eyes at their outer bases. Siphon curved. Foot expanded in front, nicked on each side. No operculum.

Not uncommon on seaweed in Port Lyttleton.

NEPTUNEA NODOSA. Quoy figures the animal with a long recurved siphon. This should put it into the *Buccinidae*. It will probably form a new genus.

EUTHRIA LINEATA, variety D. Animal pale yellow ochre. Eyes half-way up the tentacles. Siphon short. Foot emarginate in front. The animal resembles that of *Neptunea*.

EUTHRIA LINEATA, variety C. Animal like the last, but white.

POLYTROPA STRIATA. Animal white. Siphon short, open below. Foot expanded anteriorly.

TURBO SMARAGDUS. Animal a dark rich brownish black; tentacles and filaments lighter in the young. Filaments three on each side.

ROTELLA. The animal of this genus is described by Gray in the "Annals of Natural History," Series 2, Vol. 12, p. 179; and by Adams in the same periodical, Series 3, Vol. 6, pp. 109 and 288.

ANTHORA TIARATA. Body white; head purplish brown, with a broad white longitudinal median band widening backward; head lobes purplish brown, margined with white; proboscis purplish brown, tipped with a white band, within which is a very dark band; foot sooty brown, speckled with white; the posterior upper surface, behind the operculum, white, with two rows of oblique black lines; tentacles light purple; eye peduncles white or purplish; side lappets transparent white, with opaque white spots. Filaments four on each side, retractile into sheaths; behind and below each filament is a second shorter one. Tentacles and filaments fringed with small retractile papillæ, which are larger on the filaments. Sides of the foot raised into a sharp margin.

DILOMA ÆTHIOPS. Foot black, margined with black and white transverse lines, inside of which is a band of yellow dotted with black. Proboscis black, margined with yellow; head black, the inner head-lobes margined with yellow below; lower surface of eye peduncles yellow; tentacles longitudinally striped above with black and white. Filaments three on each side, bluish. Body and sole of foot white. Mantle margined with green.

ZIZYPHINUS PUNCTULATUS. Foot rich brown, speckled with white, the sides deepening into dark brown, generally with some white spots; a row of about six small white spots on each side of the anterior portion of the foot; side lobes the same as the foot. Top of the head rich brown; proboscis dark rich brown, tipped with white. Eye peduncles rich brown; tentacles pale brown. Side filaments four on each side, rich brown. Foot with a raised margin on each side behind the operculum, emarginate in front.

CANTHARIDUS PUPILLUS. Foot black, or dark brown variegated with white. Head white with a black mark on the vertex, or black. Tentacles white, or purple, or purple margined with white, or with three purplish longitudinal stripes. Proboscis black, margined with yellow. Filaments three on each side, white, or purplish; both they and the tentacles fringed. Foot fringed in front; a pectinated side lobe between the tentacles and the anterior filaments. Shell umbilicated or not umbilicated.

This very variable species is abundant on seaweed in Lyttelton harbour. It may perhaps be divided into three varieties; but they run one into the other.

A. Ribs of shell narrower than the grooves; five above the periphery.

Foot black; tentacles black.

B. Ribs of shell narrower than the grooves; seven above the periphery.

Foot black; tentacles margined with white.

C. Ribs of shell broader than the grooves; five or six above the periphery. Foot variegated.

PARMOPHORUS UNGUIS. Mantle ample, covering the whole foot and head, expanded on each side, with a simple margin, fissured in front. Tentacles two; eyes at their outer bases. A row of short cirri on each side of the neck and foot. Gills two, symmetrical, outside the shell, under the mantle; a round white renal organ at their apices. The whole body dark blue-black; mantle paler below; sole of the foot white. Habits nocturnal.

PATELLA INCONSPICUA. Animal yellowish white; head dark purple; tentacles with the outer half purple, very broad at the base and tapering.

DORIS LONGULA? Body oval, depressed; mantle large, expanded all round, with a smooth margin, finely granular; rhinophores conical, short, thick, and ringed; branchiæ six, each double; length 1·5 inch; breadth ·8 inch. Foot bright orange, showing the dark-coloured liver through it; mantle orange-yellow, freckled with small round white spots which form a more or less reticulated pattern; branchiæ yellow-orange; rhinophores orange.

This description applies to two specimens that I found in Lyttleton harbour, and which I think must be *D. longula*. The specimens are now in the Canterbury Museum.

PHIDIANA LONGICAUDA. Although Quoy describes the tentacles as clavate, he figures them as tapering. The generic position therefore of the animal must remain uncertain until it is re-discovered.

MONTAGUA CORFEI, sp. nov.

Last September Mr. C. C. Corfe of Christ's College brought me two living specimens of a beautiful little Nudibranch which he had collected at Governor's Bay in Port Cooper. As the species has not yet been described I have much pleasure in dedicating it to its discoverer. It belongs to the genus *Montagua* of Gray.

Tentacles approximated, tapering, standing erect at some distance behind the oral tentacles; a minute eye at their outer bases. Oral tentacles distant, tapering, half as long again as the tentacles. Body prolonged posteriorly into a long tapering tail. Branchiæ in four or five rows on each side of the back; crowded, linear, pointed, unequal. Foot grooved along the centre, the margin thin; contracted anteriorly and then produced on each side into a curved tapering fold directed backward.

Foot, back, tentacles, and oral tentacles translucent white; a dead white

longitudinal line down the centre of the tail. Head pale pink. Branchiæ bright red, tipped with dead white.

Length about an inch, of which the tail is more than one-fourth.

CHAMOSTRÆA. The animal is described by Hancock in the "Annals of Natural History," series 2, vol. II., p. 106; and by Deshayes in the "Proceedings of the Zoological Society," 1853, p. 67.

MACTRA ÆQUILATERALIS. When alive the young shell is rosy purple, but the colour fades after death.

MESODESMA SPISSA. The siphons are divergent and thick; the branchial is much thicker than the anal, and fringed. The anal siphon is tapering.

ARTEMIS AUSTRALIS. The siphons are more than half the length of the animal, and slightly curved dorsally; the anal siphon is narrower and tapering.

CHIONE STUCHBURYI. The siphons are united throughout the whole length.

MYTILUS ATER. This appears to be the same as *M. crassus*, T. Woods, from Tasmania.

EXPLANATION OF PLATE VI.

A. <i>Limax molestus</i> .	Alimentary canal.
B. " "	Reproductive organs.
C. <i>Milax antipodum</i> .	Alimentary canal.
D. " "	Reproductive organs.
E. <i>Arion incommodus</i> .	Alimentary canal.
F. " "	Reproductive organs.
a. Buccal mass.	h. Vas deferens.
b. Stomach.	i. Oviduct.
c. Hepatic ducts.	k. Spermatheca.
d. Aorta.	l. Penis sac.
e. Anus.	m. Retractor muscle of penis.
f. Ovotestis.	n. Prostate gland.
g. Albumen gland.	o. Accessory gland.

ART. XXIII.—Recent Additions to and Notes on New Zealand Crustacea.

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

[Read before the Otago Institute, 11th May, 1880.]

Plates VII. and VIII.

THE following notes and descriptions of new species have been made during the past two years, and supplement the papers read by me before this