ART. XXXIII.—*Additions to the List of New Zealand Worms.*

By Prof. F. W. HUTTON, of the Otago University.

[*Read before the Otago Institute, 14th October*, 1879.]

TURBELLARIA.

Geoplana moseleyi, sp. nov.

SHAPE of the body, as in *G. traversii*. Mouth situated behind the middle; generative orifice half way between it and the posterior extremity. Eyes numerous round the anterior end, forming a line which expands into two patches on each side. Upper surface dark grey, speckled with white, bounded on the sides by a lateral stripe of brown; a broad dorsal stripe, orange, margined with brown, the brown separated from the orange by an interrupted narrow black line; lower surface brownish white.

Dunedin, in the bush, under dead trees.

The body is covered externally with very delicate cilia, which require a ½ objective to see.

Genus *Rhynchodemus*, Leidy.

Body much elongated. Eyes two. Mouth cylindrical, elongate. External longitudinal muscles feebly developed. Ovaries simple, near the anterior extremity of the body. Lateral organs distinct.

R. testaceus, sp. nov.

Body elongate, depressed, tapering to an acute point at either end; broadest part behind the centre; upper surface convex, finely transversely striated; lower surface flat, without any ambulacral line. Eyes none. Mouth about two-thirds of the whole length from the anterior end; generative orifice half way between it and the posterior end. Upper surface cherry-red to brick-red; margin and ventral surface yellow. Length sometimes three inches.

Dunedin and Wellington, under stones, or in the ground.

I have not been able to detect either eyes or cilia on this species. I refer it provisionally only to *Rhynchodemus*, in the absence of full information about the genera of land Planarians.

NEMERTIDEA.

Genus *Borlasia*, Oken.

Body long, sub-cylindrical or flattened, obtuse at the extremities; head simple, no eyes; proboscis terminal, with a longitudinal pit on each side; mouth inferior, longitudinal, not terminal; reproductive orifice in a tubercle on the side of the mouth.

B. novæ-zealandiæ, Quoy and Gaimard, Voy. Astrolabe, Zoology, IV., p. 290, pl. 24, f. 15–19.

Length about three inches, flat, pointed posteriorly, the head widened, heart-shaped, united to the body by a short neck, on which there are many

striæ of an intense reddish brown. The mouth is a long slit, very delicate, without any lateral pits. Body reddish brown above, darker on the middle line; below yellow with indications of the intestinal canal, on each side of which there is a vascular system represented by two vessels with lateral ramifications. (Q. and G.)

Bay of Islands.

GEPHYREA.

Genus *Phascolosoma*, Müller.

Skin papillose; proboscis with cylindrical tentacles.

P. annulata, sp. nov.

Body papillose, cylindrical, tapering posteriorly; pale brown, the tubercles darker. Proboscis nearly as long as the body, and tapering gradually into it; posteriorly papillose, and coloured like the body; anteriorly smooth, white, with some brown blotches; the anterior end encircled by about twelve narrow, brown, raised rings. Mouth with a ring of short blunt oral tentacles. Length, about 1 inch; breadth, ·2 inches.

Dunedin, and Cape Campbell (Mr. Robson).

Sipunculus lutulentus, sp. nov.

Body cylindrical, narrowed posteriorly and ending in a pyriform swelling; cylindrical portion of the body smooth, faintly reticulated anteriorly, but only transversely striated posteriorly; the posterior pyriform portion rougher, especially the caudal apex. Proboscis short, roughened, thinner than the body. Colour, pale brown. Length, nearly six inches; of proboscis, three-quarters of an inch. Breadth of anterior portion of body, ·4 inch; of proboscis, ·25 inch.

Cape Campbell (Mr. C. H. Robson).

ART. XXXIV.—*Descriptions of new Star-fishes from New Zealand.* By Prof. A. E. VERRILL. From the Trans. Connecticut Acad., 1867. Communicated by Prof. HUTTON.

[*Read before the Otago Institute, 14th October*, 1879.]

THE following interesting species of New Zealand Star-fishes were sent from Peru by Mr. F. H. Bradley, to whom they were given for our Museum by Henry Edwards, Esq. They afford a partial illustration of the little-known *Echinoderm* fauna of the Southern Ocean. They contrast strongly with those of the Northern Hemisphere.

Cœlasterias, Verrill.

Large star-fishes with 4 rows of ambulacral suckers, and large swollen rays (eleven in the tpyical species) which are free to near the base, and are

united beneath by a group of inter-radial plates. Inter-ambulacral plates united directly to the first row of ventral plates, and these to a second row of larger plates without the intervention of open spaces like those seen in *Asterias*. Dorsal surface with large, strong, imbricated, irregularly arranged ossicles or plates, bearing short, very numerous spines.

This species is more closely allied to *Asterias* (*Asteracanthion*) than to *Heliaster*, and approaches still nearer to *Stichaster*, but appears very distinct from either. The excessive development of the abactinial system over the ambulacral is its most remarkable characteristic. In this respect it contrasts strongly with the next genus. The form and general aspect is that of *Solaster*.

Cœlasterias australis, Verrill.

Rays eleven, in the only specimen seen, large, inflated, rounded, tapering rapidly to the end. Disk of moderate size, swollen; radius of disk to length of rays, measuring from the centre, as 2 : 6. The triangular inter-radial space beneath is occupied by a cluster of irregular stout plates, mostly without spines. Ambulacral grooves relatively narrow and shallow, the pores small and crowded, in four well-marked rows. The inter-ambulacral plates usually bear alternately one and two spines, which are long and rather slender towards the mouth, but short, thick, and obtuse towards the end of the ray, and much crowded in indistinct rows. The next row of plates is united directly to these, and the plates are small, longest lengthwise of the ray, and each bears a short, thick, spine but little larger than the preceding, and forming a regular, rather open row. Exterior to these is another ventral row of large, strong, imbricated, prominent plates, each bearing at its summit two very thick, short, obtuse spines, much larger than the inter-ambulacral ones, and arranged in a single row, and on their external side each plate usually supports two or more short, rounded, much smaller spines, the largest of which usually form a regular row. The plates of the first lateral row are much elongated transversely to the ray, imbricated and strong, and so united to the ventral as to leave large openings between; each bears about twelve small, short, rounded, clavate spines, which are placed along the plates in single or double rows transverse to the ray. The plates of the median dorsal row have a similar form, and bear a similar transverse row of spines, which are somewhat larger. Between these and the first row of lateral plates the plates are irregular in form and arrangement, but short and imbricated, with unequal openings between, forming about five indistinct rows, all covered with groups of short subglobular spines, giving an even appearance to the surface, but with large vacant spaces between. Madreporic plate, small, of fine texture, situated a little nearer to the centre of the disk than its edge. Minor pedicellariæ few,

at the bases of the spines and on the spaces between, longer than broad, obtuse, somewhat compressed, constricted near the base. A few major pedicellariæ, scattered on the dorsal surface, and on the inter-radial surface beneath, are much larger and stouter, with enlarged bases and obtuse tips.

Greatest diameter, 11 inches; disk, 4; width of rays at base, 1·25. Auckland, New Zealand.—H. Edwards.

Coscinasterias, Verrill.

Star-fishes with many rays, which are elongated, slender, and united only at the base, without inter-radial plate beneath. Disk small. Ambulacra broad, highly developed, suckers very numerous, in four rows. Spines prominent, arranged in longitudinal rows on the rays. Dorsal surface with large scattered pedicellariæ. Madreporic plate large, irregular, often with several accessory ones placed irregularly on various parts of the disk. Dorsal plates (ossicles) arranged much as in *Asterias*.

The excessive development of the rays and ambulacral system, compared with the disk or central cavity, is the most characteristic feature of this genus. The *Asterias aster*, Gray, probably belongs to this genus, but is too imperfectly described for identification.

COSCINASTERIAS MURICATA, Verrill.

Rays nine to eleven, slender tapering, rounded above, flat below owing to the width of the ambulacra, narrowed at the base, five to seven times as long as the radius of the disk, which is small. Ambulacral furrows shallow and broad, with very numerous small suckers, crowded in four rows. Inter-ambulacral plates thin, somewhat imbricated, connected with the lateral plates by a row of small, stout ossicles, which alternate with small rounded pores. Each inter-ambulacral plate usually bears a long, slender, tapering spine; these are arranged in a single close row. External to these is a row of distant, longer, and stouter cylindrical spines, arising singly from the connecting ossicles between the inter-ambulacral and ventral plates. The latter are strong and imbricated, each usually bearing two longer and stouter blunt spines, which form a crowded double row, along the sides of the arm. Ossicles of the upper surface very stout, bearing strong, acute spines, which are arranged in about five open rows, the median and two external alone reaching the base of the ray; those of the median row are somewhat larger, and all are surrounded by close wreaths of minute pedicellariæ. On the disk they are smaller and loosely scattered, often obtuse. The major pedicellariæ are numerous, scattered over the whole dorsal surface, and between the ventral spines, and also form a row within the edge of the ambulacral furrow. They vary considerably in size and form upon different parts. Most of those on the dorsal surface are stout, oval, compressed, pointed, nearly twice as long as wide, about ·05 inch long, while with them are

others of similar form not half as large. Those in the ambulacral furrows are even longer, but more acutely pointed. The madreporic plates are variable in number and size as well as in position. One appears to be always in its normal position and near the edge of the disk, while the accessory ones are introduced at various points around the disk, but at about the same distance from the margin. Sometimes, when there are but two and the rays are in even numbers, they are directly opposite and in the same transverse plane. A specimen with eleven rays has two contiguous ones and another separated by four rays, each being composed of several pieces united. One specimen has but one large convex madreporic plate.

The largest specimen is 7·5 inches in diameter across the rays, with a disk 1·25 inch in diameter; rays, ·5 inch broad; inter-ambulacral spines, ·15 inch long.

Auckland, New Zealand.—H. EDWARDS.

ASTERINA (ASTERISEUS) REGULARIS, Verrill.

Pentagonal, depressed, with the inter-radial spaces evenly concave, and the rays short, bread and acute; greatest radius to least as 15 : 10. Ambulacral pores large; inter-ambulacral plates each with two slender acute spines, forming a single row. Those near the mouth larger, obtuse, and flattened. Ventral plates of the first row stout and prominent, each bearing a conical, acute spine, twice as large as the preceding. Exterior to these the ventral or inter-radial plates are flattened or imbricated, diminishing in size as they recede from the centre, each bearing an acute conical spine; these diminish in size like the plates, the larger ones being about as thick as the inter-ambulacral spines, but shorter; near the margin these spines become very small and crowded, many of the plates bearing two. Plates of the upper surface rather large, increasing towards the centre, regularly imbricated, the free margin evenly rounded and thin, bearing near the end a cluster of five to nine very small, nearly equal spines; towards the centre the plates become less regular in form and unequal in size, the larger ones often bearing twelve or fourteen spines in a transverse cluster. Madreporic plate large and prominent, at about one-third of the distance from the centre to the margin. The large dorsal pores are in groups on the sides and within the bases of the rays, arranged in about four rows, which run parallel with the median line of the rays, with from six to twelve pores in a row. A few irregularly arranged pores between adjacent rays connect these groups.

Colour, when dried, dark olive green above, yellow below. From centre to end of ray, 1·5 inches; to edge of disk, ·8.

Auckland, New Zealand.—H. EDWARDS.

ASTROPECTEN EDWARDSII, Verrill.

Rays five, long, regularly tapering, acute, about four-and-a-half times as long as the radius of the disc. Ambulacra broad, inter-ambulacral plates

angular, imbricated, each bearing a cluster of three or four slender spines on the inner edge, and two or three smaller ones on the outer angle, not forming regular rows. Ventral plates densely covered with minute rough spines, each having also a central series of sharp spines, the inner ones very small, increasing outwardly to the external, marginal ones, which are strong, sharp, and slightly curved upward, ¼ inch long. The lower marginal plates are opposite the upper, and project considerably beyond them. The latter are elevated and narrow, twenty-eight on each side of a ray, the two at the angle between the rays much higher and larger, covered like the rest with rough rounded granules, and each surmounted by a stout, blunt tubercle. All the others, except the next two, bear a similar, much smaller tubercle, decreasing regularly in size to the end of the ray. The two next the basal one of each ray are thinner than the rest, and without a tubercle. Paxillæ largest along the centre of the rays, presenting a crowded even surface.

Length of ray from centre 2·6 inches, radius of disc ·6, width of ray at base ·7, of median space ·4.

Auckland, New Zealand.—H. Edwards.

Ophiarachna maculata, Verrill.*

A large yellowish brown species, with stout arms, finely spotted with darker on the upper surface.

Radius of disk to that of arms as 1 : 9 or 10.

Disk large and thick, the inter-radial regions swollen and a smaller lobe bordering each side of the arms at base; upper surface and inter-radial spaces below covered throughout with small, closely crowded, rounded, or slightly polygonal granules; radial shields not visible; at the base of each arm a few naked, imbricated, unequal scales. Mouth-shields broad cordate, broader than long, the inner end obtusely rounded, the sides slightly incurved, the broad outer end emarginate. The accessory plates outside the mouth-shields either two and nearly equal, or three and unequal, in the same specimen; when there are two they form together a narrow, slightly oblong ellipse, much narrower than the mouth-shields; when there are three, the middle one has a broad, rounded triangular form, and the two lateral pieces are small, unequal, and irregular in size and form. Mouth-papillæ seven or eight on each side of the mouth, the inner one elongated, irregularly oval, somewhat pointed; the next much larger than the others, broader than long, somewhat quadrilateral and irregular, the outer edge narrower and flattened; the third a little longer than the first, irregular in form, somewhat pointed at each end; the three or four following are a little smaller, and about equal in size and similar in form, rather oblong, some-

* From the Pro. Boston Soc. of Nat. Hist., Vol. XII., April 7th, 1869, p. 388.

There are many other interesting animals living in this pond, but I must defer noticing them till another opportunity. I would, however, mention that *Lepidurus* (*Apus*) *kirkii* was very plentiful during August and the early part of September, but it has now disappeared, and a large reddish-brown *Hydra* has made its appearance and affords me much amusement in observing its curious method of increase.

Art. XXXIX.—*List of Marine* Mollusca *found in the neighbourhood of Wellington.* By T. W. Kirk, Assistant in the Colonial Museum.

[*Read before the Wellington Philosophical Society, 21st February,* 1880.]

In the author's preface to the new Manual of New Zealand Mollusca, just published by the Colonial Museum and Geological Survey Department, the following passage occurs:—"Much still remains to be done towards working out the geographical distribution of the species; and lists would be particularly valuable from Napier, Taranaki, *Wellington*, Nelson, Hokitika, and Banks Peninsula."

Since reading the above-quoted passage, I have carefully examined the large collections contained in the Colonial Museum, and also the private cabinets of Mr. E. Butts, junr., Mr. H. B. Kirk, and Mr. Herbert, to all of whom my sincere thanks are due.

The results of this examination will be found in the following catalogue, which contains in all the names of 262 species and varieties, as follows:—

Cephalopoda—7	Gasteropoda—163
Scaphopoda—2	Lamellibranchiata—84

Brachiopoda—6

This number will probably, ere long, be greatly increased, as no attempt worthy of the name has yet been made to dredge this part of the coast.

Where a species which has no Wellington representative in the Colonial Museum occurs in a private cabinet, the initials of the collector are appended.

For the purposes of this paper, I shall consider the neighbourhood of Wellington to include not only the Harbour, but also that piece of coast between Pencarrow Head and Porirua Harbour.

It was my intention to have appended notes on the relative abundance of the various species, as also on observed phenomena connected with the growth of individual forms; but these must be reserved for a future occasion.

Cephalopoda.

Octopus maorum, *Hutton.*	Sepioteuthis bilineata, *Q. and G.*
Argonauta tuberculata, *Shaw.*	Sepia apama, *Gray* (broken shells).
Onychoteuthis bartlingii, *Lesueur.*	Spirula peronii, *Lam.*
Ommastrephes sloanii, *Gray.*	

GASTEROPODA.

Onchidella nigricans, *Q. and G.*
Amphibola avellana, *Chem.*
Siphonaria australis, *Quoy.*
,, sipho, *Sow.*
,, obliquata, *Sow.*
Gadinia nivea, *Hutton.*
Acus kirki, *Hutton.*
Pleurotoma albula, *Hutton.*
Drillia novæ-zealandiæ, *Reeve.*
Daphnella cancellata, *Hutton.*
Defranchia luteo-fasciata, *Reeve.*
Murex zealandicus, *Quoy.*
,, angasi, *Crosse.*
,, octogonus, *Quoy.*
Trophon ambiguus, *H. and J.*
,, stangeri, *Gray.*
,, incisus, *Gould.*
,, inferus, *Hutton.*
,, paivæ, *Crosse.*
Fusus spiralis, *Adams.*
Neptunea zealandica, *Quoy.*
,, caudata, *Q. and G.*
,, dilatata, *Quoy.*
,, nodosa, *Martyn.*
,, ,, var. *B.*
,, ,, ,, *C.*
,, traversi, *Hutton* (small).
Euthria lineata, *Chem.*
,, ,, var. *C.*
,, littorinoides, *Reeve.*
,, martensiana, *Hutton.*
Cominella maculata, *Martyn.*
,, testudinea, *Chem.*
,, nassoides, *Reeve.*
,, lineolata, *Lam.*
,, funerea, *Gould.*
Purpura haustrum, *Martyn.*
Polytropa textiliosa, *Lam.*
,, succincta, *Lam.*
,, striata, *Martyn.*
,, quoyi, *Reeve.*
,, scobina, *Q. and G.*
Ancillaria australis, *Sow.*
Coriocella ophione, *Gray.*
Mitra rubiginosa, *Hutton.*
Voluta pacifica, *Lam.*
,, ,, var.
,, gracilis, *Swainson.* (*E.B.*)
Marginella albescens, *Hutton.*
Erato lactea, *Hutton.*
Triton spengleri, *Chem.*
Ranella leucostoma, *Lam.*
,, vexillum, *Sow.*
Cassis pyrum, *Lam.*
Trivia australis, *Lam.*
,, coccinella, *Lam.*
Struthiolaria papulosa, *Martyn.*
,, ,, *var. B.*
,, ,, ,, *C.*
,, australis, *Gml.*
,, inermis, *Sow.*
Trichotropis inornata, *Hutton.*
Scalaria wellingtonensis, *sp. nov.*
Philippia lutea, *Lam.*
Ianthina communis, *Lam.*
,, iricolor, *Reeves.*
,, exigua, *Lam.*
Natica zealandica, *Quoy.*
Chemnitzia zealandica, *Hutton.*
Obeliscus roseus, *Hutton.*
Odostomia lactea, *Angas.*
Eulima chathamensis, *Hutton.*
Cerithidea bicarinata, *Gray.*
,, nigra, *Q. and G.*
Bittium terebelloides, *v. Martens.*
Littorina cincta, *Quoy.*
,, cærulescens, *Lam.*
Fossarina varius, *Hutton.*
Rissoina plicata, *Hutton.*
,, purpurea, *Hutton.*
Barleeia rosea, *Hutton.*
,, nana, *Hutton.*
,, impolita, *Hutton.*
Turritella rosea, *Quoy.*
,, fulminata, *Hutton.*
Cladopoda zealandica, *Quoy.*
Siliquaria australis, *Quoy.*
Trochita scutum, *Lesson.*
,, novæ-zealandiæ, *Lesson.*
Crypta costata, *Deshayes.*
,, monoxyla, *Lesson.*
,, unguiformis, *Lam.*
Hipponyx australis, *Lam.* (*E.B.*)
Acmæa pileopsis, *Q. and G.*
,, fragilis, *Chem.*
Nerita atrata, *Lam.*
Turbo smaragdus, *Martyn.*
,, ,, *var. B.*
,, granosus, *Martyn.*
Calcar cookii, *Lam.*
,, imperialis, *Lam.*
Rotella zealandica, *H. and J.*
Anthora tuberculata, *Gray.*
,, chathamensis, *Hutton.*
,, tiarata, *Q. and G.*
Euchelus bellus, *Hutton.*

Gasteropoda.—*Continued.*

Diloma æthiops, *Gml.*
,, nigerrima, *Chem.*
,, gaimardi, *Philippi.*
,, hectori, *Hutton.* (*H.B.K.*)
Trochocochlea subrostrata, *Gray.*
Zizyphinus punctulatus, *Martyn.*
,, granatum, *Chem.*
,, selectus, *Chem.*
,, cunninghami, *Gray.*
Cantharidus iris, *Gml.*
,, zealandicus, *Adams.*
,, purpuratus, *Martyn.*
,, huttoni, *Smith.*
Bankivia varians, *Beck.*
Monilea egena, *Gould.*
Gibbula sanguinea, *Gray.*
,, simulata, *Hutton.*
,, inconspicua, *Hutton.*
Margarita fulminata, *Hutton.*
Haliotis iris, *Martyn.*
,, rugoso-plicata, *Chem.*
,, gibba, *Philippi.*
Emarginula striatula, *Quoy.*
Tugali parmophoidea, *Q. and G.*
Parmophorus unguis, *Lin.*
Patella inconspicua, *Gray.*
,, reevei, *Hutton.*
,, affinis, *Reeve.*
,, radians, *Gml.*
,, flava, *Hutton.*
Patella tramoserica, *Martyn.*
,, stellularia, *Quoy.*
,, stellifera, *Chem.*
,, rubiginosa, *Hutton.*
Chiton pellis-serpentis, *Quoy.*
,, sinclairi, *Gray.*
,, concentricus, *Reeve.*
,, glaucus, *Gray.*
Lepidopleurus longicymbus, *De Blainville.*
Tonicia undulata, *Quoy.*
,, rubiginosa, *Hutton.*
Chætopleura nobilis, *Gray.*
Plaxiphora biramosa, *Q. and G.*
Acanthochites zealandicus, *Q. and G.*
,, porphyreticus, *Reeve.*
,, ovatus, *Hutton.*
Cryptoconchus porosus, *Burrow.*
Cylichna striata, *Hutton.*
Bulla quoyi, *Gray.*
Haminea obesa, *Low.*
Philine *sp.*
Aplysia brunnea, *Hutton.*
,, venosa, *Hutton.*
Aplysia tryoni, *Meinertzhagen.*
Pleurobranchæa novæ-zealandiæ, *Cheeseman.*
Doris wellingtonensis, *Abraham.*
Phidiana longicauda, *Quoy.*

Scaphopoda.

Dentalium huttoni, *sp. nov.*
Dentalium *sp.* (broken).

Lamellibranchiata.

Barnea similis, *Gray.*
Pholadidea spathulata, *Sow.*
Teredo antarctica, *Hutton.*
Saxicava australis, *Lam.*
Panopæa zealandica, *Quoy.*
Corbula zealandica, *Quoy.*
Anatina tasmanica, *Reeve.*
Lyonsia vitrea, *Hutton.*
Myodora striata, *Quoy.*
Chamostræa albida, *Lam.*
Mactra discors, *Gray.*
,, scalpellum, *Desh.*
,, æquilateris, *Desh.*
,, donaciformis, *Gray (?)*
Standella ovata, *Gray.*
,, elongata, *Q. and G.*
,, notata, *Hutton.*
Zenatia acinaces, *Q. and G.*
Vanganella taylori, *Gray.*
Raeta perspicua, *Hutton.*
Psammobia stangeri, *Gray.*
,, lineolata, *Gray.*
,, affinis, *Reeve.*
Soletellina nitida, *Gray.*
Tellina alba, *Q. and G.*
,, deltoidalis, *Desh.*
,, disculus, *Desh.*
,, subovata, *Sow.*
Mesodesma novæ-zealandiæ, *Chem.*
,, ovalis, *Desh.*
,, ventricosa, *Gray.*
,, spissa, *Reeve.*
Venus oblonga, *Hanley.*
,, creba, *Hutton.*
Chione lamellata, *Lam.*
,, yatei, *Gray.*

LAMELLIBRANCHIATA.—*Continued.*

Chione costata, *Quoy.*
,, mesodesma, *Quoy.*
,, stuchburyi, *Gray.*
Callista multistriata, *Sow.*
Artemis australis, *Gray.*
,, subrosea, *Gray.*
,, lambata, *Gould.*
,, grayi, *Zittel.* (*H.B.K.*).
Tapes intermedia, *Quoy.*
Venerupis reflexa, *Gray.*
,, paupercula, *Desh.* (*?*)
Cardium striatulum, *Sow.*
Lucina divaricata, *Lam.*
Diplodonta globularis, *Lam.*
Kellia cycladiformis, *Desh.*
Pythina stowei, *Hutton.*
Solemya parkinsoni, *Smith.*
Crassatella bellula, *Adams.*
Cardita australis, *Lam.*
Barbatia decussata, *Sow.*
,, pusilla, *Sow.*
Pectunculus laticostatus, *Quoy.*
,, striatularis, *Lam.*
Nucula nitidula, *A. Adams.*
,, strangei, *A. Adams.*
,, sulcata, *A. Adams.*
Leda concinna, *A. Adams.*
Solenella australis, *Q. and G.*
Mytilus magellanicus, *Lam.*
,, latus, *Chem.*
,, edulis, *L. Reeve.*
,, ater, *Frauenfeld.*
Crenella impacta, *Hermann.*
Modiola areolata, *Gould.*
,, fluviatilis, *Hutton.*
Lithodomus truncatus, *Gray.* (*H.B.K.*)
Pinna zealandiæ, *Gray.*
Pecten zealandiæ, *Gray.*
,, gemmulatus, *Reeve.*
,, radiatus, *Hutton.*
,, vellicatus, *Hutton.*
Vola laticostatus, *Gray.*
Lima japonica, *A. Adams.*
,, angulata, *Sow.*
Anomia stowei, *Hutton.* (*H.B.K.*)
,, alectus, *Gray.* (*H.B.K.*)
Planunanomia zealandica, *Gray.*
,, ione, *Gray.* (*H.B.K.*)
Ostrea edulis, *L. Reeve.*
,, discoidea, *Gould.*

BRACHIOPODA.

Waldheimia lenticularis, *Desh.*
Terebratella cruenta, *Dillwyn.*
,, rubicunda, *Solander.*
Magas evansii, *Davidson.*
Bouchardia cumingii, *Davidson.*
Rhynchonella nigricans, *Sow.*

ART. XL.—*Descriptions of new Marine Shells.* By T. W. KIRK, Assistant in the Colonial Museum.

[*Read before the Wellington Philosophical Society, 21st February,* 1880.]

Dentalium huttoni.

Shell white, lustrous; small, curved, rapidly tapering, ribbed, ribs unequal, about eighteen at the anterior end, but diminishing in number towards the apex.

Length, ·63 inch; breadth, ·1 at anterior end.

Three specimens from the stomach of a trumpeter (*Latris hecateia*).

Named after Professor Hutton, to whose exertions students of Conchology in this country are so greatly indebted.

Dentalium ecostatum.

Shell white; nearly straight, smooth, gradually tapering; faintly, distantly, transversely striated.

Length, ·6 inch; breadth, ·07 at anterior end.

Waikanae.

Dentalium, sp.

A broken shell, in the collection of Mr. Herbert, Wellington, would appear to add a fifth species of *Dentalium* to our "List;" but as only about half the specimen remains, and that the apical portion, its identification is somewhat difficult.

The shell is white, ribbed, ribs equal, about nineteen in number.

Island Bay, Wellington.

Scalaria wellingtonensis.

Shell white, lustrous; acuminate, imperforate; whorls nine, rounded; varices numerous, thin, about seventeen on the body-whorl; interstices smooth; aperture sub-rotund.

Length, ·4 inch.

Wellington.

Cylichna zealandica.

Shell white; strong, smooth, faintly longitudinally striated. Aperture produced above the spire.

Length, ·35 inch.

Waikanae.

Art. XLI.—*Notice of the Occurrence of* Vitrina milligani *in New Zealand.*

By T. W. Kirk, Assistant in the Colonial Museum.

[*Read before the Wellington Philosophical Society, 21st February*, 1880.]

Up to the present time only two species of *Vitrina* have been recorded as indigenous to New Zealand.* I have now to notice the discovery of a third; a large, highly polished, and really beautiful species.

Vitrina milligani, Pfr.

Shell depressly-ovate, rather solid, polished, very glossy, translucent, olive-black; spire convex; whorls three, second convex, last depressly-rounded; aperture more oblique than diagonal, lunately rounded-oval, within coloured as without; peristome simple; right margin dilated forwards, anterior regularly and columellar slightly arched. (Petterd).

Diameter, greatest, ·9 inch; least, ·6; height, ·4; aperture, ·6 inch long, ·4 broad.—South Karori (T. W. K.)

* See Manual of New Zealand Mollusca, p. 12.

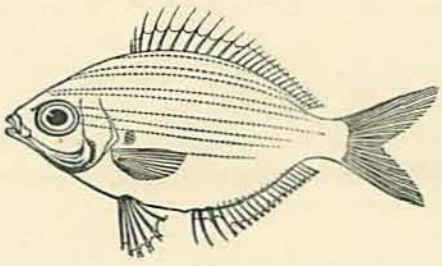
Art. XLII.—*Additions to the List of New Zealand Fishes.*

By. T. W. Kirk, Assistant in the Colonial Museum.

[*Read before the Wellington Philosophical Society, 10th January*, 1880.]

In October last I received notice that a Turtle had been found at Island Bay, near Wellington, but, on reaching the spot, was greatly disappointed to find that the person who discovered it had not been sufficiently careful to secure his prize, which had consequently been washed away by the next tide; however, I was recompensed by finding specimens of three fish, mentioned below, none of which had previously been obtained on the New Zealand coast, though they are all found in Australia.

Atypus strigatus, Günth.
Günth. II., p. 64.



The genus *Atypus* was created by Dr. Günther specially for the reception of this beautiful little fish, which he mentions very minutely. The following is his description:—

B. 7. D. $\frac{11}{15-16}$. L. lat. 70–75; L. trans. $\frac{11}{28}$.

"The general form of the body is that of a species of *Therapon;* it is compressed, oblong, its greatest height below the fifth dorsal spine being one-third of the total length. The upper profile descends obliquely downwards to the end of the snout, in a very slightly curved line. The length of the head is four-and-a-half in the total length; the extent of the snout is less than the diameter of the eye, or the space between the orbits, which is slightly convex. The cleft of the mouth is small, the upper maxillary reaching to the anterior margin of the orbit. The præoperculum is nearly as wide as high, with the lower margin rounded and very slightly serrated. No pores are visible at or between the pieces of the mandibulæ. The eye is of moderate size. The præoperculum is rather deeply serrated round its margins, the denticulations being longest at the angle, which is a right one. The operculum is not armed. All the head is covered with very small scales. The dorsal fin begins in a vertical drawn from between the bases of the pectoral and ventral fins, and terminates at a distance from the caudal which equals that between the eye and the posterior margin of the operculum. The upper margin of the fin has no notch between the two portions, and its profile descends gradually from the fifth spine to the termination of the fin. The spines are of moderate strength, broader on one

side; the first is the shortest, about half the diameter of the eye; the following increase in length to the fifth, which is tallest, one-half the length of the head; the last is rather longer than one-half the fifth. The anterior rays do not exceed in length the last spine, the whole soft portion is covered with minute scales. The caudal is scaly at the base only, forked, each lobe being 4½ inches in the total length. The anal fin begins in a vertical from the last dorsal spine, and terminates a little behind the dorsal; the three spines are as long as the dorsal ones. * * * The pectorals are scaly at the base, pointed, one-sixth of the total length, and do not reach to the vertical from the vent. The ventrals are inserted behind the pectorals, and reach to the vent; their spine is not quite one-half the length of the head. The teeth of the jaws form a villiform band, with an outer series of stronger ones, which are very slightly flattened. There is a small patch of teeth on the head of the vomer."

Dr. Günther speaking of the specimens in the British Museum, says :— "The ground-colour is *now* greyish-yellow, and appears to have been red in life. The back and sides are banded with brown."

When fresh, the ground-colour of the New Zealand specimen was bright silver, the bands black—not brown, as stated by Dr. Günther; these colours have, however, become much lighter since the fish was placed in spirits.

Another and larger specimen, obtained at Port Jackson, Australia, is in the Colonial Museum; its colours are the same as those of the New Zealand specimen, but not quite so bright, probably from its having been longer preserved.

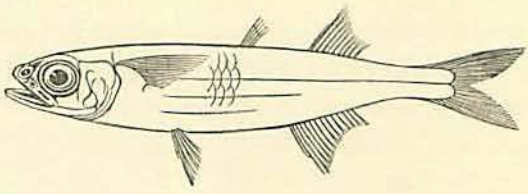
The food of this species appears to be composed almost entirely of *Diatoms*.

Atherina pinguis, Lacep.

Lacep. V., p. 372, pl. 11, fig. 1; Günth. III., p. 399.

D. 5–6|$\frac{1}{10}$. A. $\frac{1}{14-15}$.

"The origin of the spinous dorsal fin is at some distance behind the vertical from the vent, consequently the dorsal is much nearer to the anal than to the root of the ventral. * * * The height of the body is contained five times and two-thirds in the total length, the length of the head four times and two-thirds. The diameter of the eye is equal to the width of the inter-orbital space. Snout obtuse, short, with the cleft of the mouth oblique,



and the upper jaw overlapping the lower. Teeth distinct in the jaws on the vomer and the palatine bones. A silvery streak occupies the third series of scales and the adjoining quarter of the fourth." (Günth.)

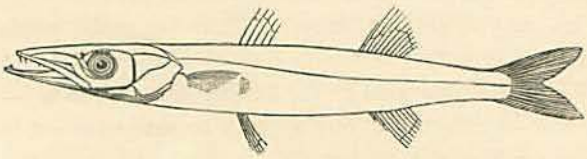
Colour: above dark brown, the extremity of each scale lined with black; under parts and sides below the silver line light brown; fins yellow, tinged with black.

Dr. Günther does not mention the presence of a large triangular scale covering the base of the ventrals.

Sphyræna obtusata.

Sphyræna obtusata, Cuv. and Val. VI., p. 350; Günth. II., p. 339.

"The height of the body is contained seven or eight times in the total length, the length of the head three and a third times; the diameter of the eye is more than one fifth of the length of the head. The first dorsal and the ventral fins commence in the vertical from the extremity of the pectorals. Præoperculum not rounded, with the angle slightly produced." (Günth.)



Colour: above dark brown; sides and under parts silvery; fins yellow.

Odax vittatus, Sol.

The colours of a specimen lately obtained in Wellington Harbour differ considerably from those of the specimen described by Professor Hutton.*

Upper surface dark brown, almost black, marbled with lighter. Lateral streak bright silver, interrupted in places by blotches of salmon colour. Dorsal fin red, with several irregular patches of dark green. Remaining fins green with red rays.

ART. XLIII.—*On the Occurrence of Giant Cuttlefish on the New Zealand Coast.*

By T. W. KIRK, Assistant in the Colonial Museum.

[*Read before the Wellington Philosophical Society, 10th October*, 1879.]

As far as I am aware, there is at present no record of the occurrence of cuttlefish of unusual size on the New Zealand coast. That the Maoris have traditions of the existence of such monsters is, however, beyond doubt. I have therefore great pleasure in laying before the Society all the particulars available relating to several specimens captured on various

* Trans. N.Z. Inst., VIII., p. 215.

parts of our coast, and hope to show that, even in the matter of "devil-fish," New Zealand can hold her own.

1. The first to which I will direct your attention was cast ashore at Waimarama, East Coast. For the following description I am indebted to Mr. F. H. Meinertzhagen, who also very kindly presented me with the beak.

Writing from Waimarama on 27th June last, Mr. Meinertzhagen says:—

"In answer to yours of the 9th, I will furnish you with all particulars of the large cuttlefish found here. I must first tell you that it was obtained in 1870 (September), during my absence in England; the beak was secured for me, which I forward to you by post, and which is quite at your disposal. I enclose also the measurements, made by a friend of mine on whom I could rely, and an extract from his letter written to me at the time, which letter, though quite unscientific, seems to me to give a vivid idea of the dead *Octopus*. 'The beast had eight tentacles, as thick as a man's leg at the roots; horrid suckers on the inside of them, from the size of an ounce bullet to that of a pea at the tip; two horrid goggle eyes; and a powerful beak between the roots of the arms. His head appeared to slip in and out of a sheath. Altogether he was a most repulsive-looking brute. All the natives turned out to see him; and the old men say it is a '*taniwha*'—a '*wheke*' of that size never having been seen by them. They say that a '*taniwha*' of this description attacked and swamped a canoe on its way to Otago; in fact, they do not hesitate to say that this is the identical animal that did the deed! They also say that these large "*whekes*" are very apt to seize a man and tear his inside out. No more sea-bathing for me!' Besides the above extract, I forward a little ink-sketch and measurements made by my friend."

The sketch represents an animal much the same shape as shown in the drawing now before you, but with only eight arms. Length from tip of tail to root of arms, 10 feet 5 inches. Circumference, 6 feet. Length of arms, 5 feet 6 inches.

2. The beak of number 2 was deposited in the Colonial Museum by Mr. A. Hamilton; the animal was captured at Cape Campbell by Mr. C. H. Robson, a member of this society, who very kindly furnished me with the following information. Writing on the 19th June, 1879, he says:—

"In reply to yours of the 12th, about the cuttlefish, I may state that, while stationed at Cape Campbell, I found several specimens of large size, all, however, more or less mutilated, except one, the beak of which I gave to Mr. Hamilton; it was alive, and quite perfect, the body being 7 feet long, eight sessile arms 8 feet long, and two tentacular arms 12 feet. I am, however, only writing from memory. Mr. Hamilton has the exact measurements, and I remember distinctly that the total length was close on 20 feet."

I am sorry to say that Mr. Hamilton has mislaid the notes and measurements, but those given above cannot be far out.

3. On 23rd of May last, the Ven. Archdeacon Stock very kindly sent me word that three boys, named Edward R. Stock, and Frank and Walter Morrah, had that morning discovered, at Lyall Bay, what they took to be a very large cuttlefish, with arms several feet long. I lost no time in proceeding to the spot, determined, if possible, to carry home the entire specimen; but judge my surprise when, on reaching the bay, I saw an animal of the size represented in the drawing now before you.* Victor Hugo's account of his "pieuvre" was brought vividly to my mind, and I could not help thinking that a man would stand but a poor chance if he once got within the grasp of such a monster.

My first step after spreading out the arms, was to make a rough sketch and very careful measurements. I then proceeded to extract the so-called skeleton, but found that some person or persons, who had visited the spot earlier than myself, had not been able to resist the temptation to try the temper of their knives upon its back, and had in consequence severed the cuttle-bone in various places. However, I was able, not only to procure all the pieces, but also the beak, tongue, and some of the suckers, only a few of which remained, the greater portion of them having been torn off, either in some fierce encounter, or during the rough weather which had prevailed for some days previously.

The length of body from tip of tail to anterior margin of the mantle was 9 feet 2 inches and 7 feet 3 inches in circumference; the head from anterior margin of mantle to roots of arms 1 foot 11 inches, making the total length of the body 11 feet 1 inch. The head measured 4 feet in circumference. The sessile arms measured 4 feet 3 inches in length, and 11 inches in circumference; each of these arms bore thirty-six suckers, arranged in two equal rows (as shown by the scars), and measuring from $\frac{1}{16}$ to $\frac{1}{4}$ of an inch in diameter; every sucker was strengthened by a bony ring armed with from forty to sixty sharp incurved teeth. The tentacular arms had been torn off at the length of 6 feet 2 inches, which was probably less than half their original length.

The fins were posterior, and were mere lateral expansions of the mantle, they did not extend over the back as in the case with *Onychoteuthis*, etc.; each measured 24 inches in length and 13 inches in width.

The cuttle bone, when first extracted, measured 6 feet 3 inches in length, and 11 inches in width, but has since shrunk considerably; it was broadly lanceolate, with a hollow conical apex $1\frac{1}{8}$ inch deep.

4. Another specimen, measuring 8 feet in length, was lately caught by a fishing party, near the Boulder Bank, at Nelson, concerning which I have

* The paper was illustrated by drawings showing the animal life-size.