

ART. XXIII.—*A List of Recent and Fossil Bryozoa collected in various Parts of New Zealand.*

By A. HAMILTON.

[Read before the Otago Institute, 12th October, 1897.]

IN 1880, when living at Petane, near Napier, I commenced a correspondence with Miss E. C. Jelly, who was then residing at Bristol, on the subject of our New Zealand *Bryozoa*, and from that time until quite recently I have been forwarding parcels of recent and fossil species from different parts of New Zealand. Miss Jelly has long been known as an enthusiastic student of the *Bryozoa*, and as one whose intimate acquaintance with the literature of the subject gives authority to the excellent synonymic catalogue of the recent marine *Bryozoa*, published by her in 1889.

Through Miss Jelly the specimens I collected have been passed on to the principal authorities on the various groups, and several of the new species have been described in English scientific publications, and others are still awaiting description. Many species still living have been obtained as fossils from the upper beds of the Wanganui series typically exposed at Petane and Napier; and many of these are also found in the Tertiary beds of Australia. Whenever deep-sea dredgings are undertaken in the deeper waters of the New Zealand coast we may expect a considerable addition to the rarer genera. The localities from which the specimens have been forwarded are:—

1. *Napier*.—The species under this heading are either from the littoral of the harbour, from the old dead shells thrown up by storm on the beach, or from adjacent parts of the Hawke's Bay coast. The fossil species are from the Napier limestone, a local formation included in the lower beds of the Wanganui series of the geological survey.

2. *Wanganui*.—Some of the species under this head are from the typical locality, Shakespeare's Cliff, Wanganui, others from the corresponding blue clays and sands on the Hawke's Bay side of the Island.

3. *Wellington*.—These are all recent species, collected at various times on the shores of Cook Strait.

4. *Dunedin*.—These are also littoral species collected at various times.

5. *Foveaux Strait*.—The oyster-beds of the strait between Stewart Island and the South Island of New Zealand afford a very large number of excellent specimens of *Bryozoa*, and by examining the oyster-shells and a little dredging many species have been obtained.

6. *Dusky Sound*.—I am indebted to Mr. R. Henry for a quantity of dead shells of *Pinna novæ-zealandiæ*, collected by him at Resolution Island, Dusky Sound, and on these and on some gigantic worm-tubes are a host of specimens in perfect condition, which makes one long for a dredging expedition in the West Coast Sounds.

The second list represents the result of Mr. Waters's examination of a collection of fossil *Bryozoa* sent Home to Miss Jelly by me from localities near Petane, together with some collected by Captain Hutton at Wanganui. The paper, with figures and full descriptive notes of the species, was published in the "Quarterly Journal of the Geological Society."*

I take this opportunity of rectifying a slight misunderstanding about the exact localities, which is only of importance to our local geologists. The description of the localities says, "They are from Petane and Waipukurau, both representing a well-known horizon, and also some from Waikato (*sic*); and Trig's Station, Tanner's Run," &c. In a footnote Mr. Waters says, "This (Waikato) is written 'Whakati,' but I have not been able to find out that there is such a place, whereas *Bryozoa* of this age are known from Waikato Heads." I regret that the labels were thought to be in error, and that the name was changed to a place a hundred miles or so away, simply because Mr. Waters could not find out that there was such a place, as it is the proper name of the locality—a rocky headland just to the north of the Tongio Creek and Lagoon, a few miles north of Napier. Possibly it should be Whakaati, but this is another matter.

Again, the locality given as Trig's Station, Tanner's Run, should be as it was written—trig. station (trigonometrical station or peg) on Tanner's Run at Petane, a locality from which a great number of specimens were obtained, but which were generally in very poor condition.† Mr. Waters is entitled to our hearty thanks for the attention he has given to these specimens, as the task of determining fossil *Polyzoa* is a tedious one, demanding a prolonged examination of generally very unsatisfactory specimens. I hope he will publish the list of *Cyclostomata* of the collection as he promised in the paper quoted. In order to bring this list into line with the other I have prefixed the reference numbers of Miss Jelly's catalogue to each species, and in a few cases have altered the nomenclature to correspond. Of the seventy-eight species mentioned in the second list, sixty are known to be living at the present time, and twenty-eight are also found fossil in Australia.

* Waters, Tertiary *Bryozoa* of N.Z., in Quar. Jour. Geo. Soc., vol. 43, 1887, p. 40.

† Tommy Gully (Petane) = Tommy's Gully, is a local name for a valley opening on to the Tongio Road.

LIST OF SPECIES.

		Napier.	Wanganui.	Wellington.	Dunedin.	Foveaux Strait.	Dusky Sound.
<i>Cheilostomata.</i>							
272.	<i>Catenicella</i>	<i>ventricosa, Busk</i>	..	..	X	..	..
251.	"	<i>hastata, Busk</i>	..	..	X	..	..
240.	"	<i>cribraria, Busk</i>	..	..	X	..	..
259.	"	<i>perforata, Busk</i>	..	..	X	..	..
233.	"	<i>alata, Wyv. Thom.</i>	..	..	X	..	..
239.	"	<i>cornuta, Busk</i>	..	..	X	..	..
236.	"	<i>carinata, Busk</i>	..	..	X	..	..
267.	"	<i>scutella, Hutton</i>	..	..	X	..	..
241.	"	<i>crystallina, Wyv. Thom.</i>	..	..	X	..	..
219.	<i>Calpidium</i>	<i>ponderosum, Goldst.</i>	..	..	X	..	..
224.	<i>Canda</i>	<i>arachnoides, Lamx.</i>	..	..	X	..	..
608.	<i>Eucratea</i>	<i>chelata, Linn.</i>	..	..	X	..	..
	32.	<i>Cetea dilatata, Busk</i>	..	..	..	..	..
	29.	" <i>anguina, Linn.</i>	..	..	X	..	..
	36.	" <i>recta, Hincks</i>	..	..	X	..	..
437.	<i>Cellularia</i>	<i>cuspidata, Busk</i>	..	..	X	..	..
1099.	<i>Menipea</i>	<i>crystallina, Gray</i>	..	..	X	..	..
1105.	"	<i>fuegensis, Busk</i>	..	..	X	..	..
1111.	"	<i>patagonica, Busk</i>	..	..	X	..	..
1524.	<i>Scrupocellaria</i>	<i>scrupea, Busk</i>	..	..	X	..	X
210.	<i>Cabarea</i>	<i>lyallii, Busk</i>	..	..	X	..	..
215.	"	<i>rostrata, Busk</i>	..	..	X	..	..
202.	"	<i>boryii, Audouin</i>	..	..	X	..	..
101.	<i>Beania</i>	<i>bilaminata, Hincks</i>	..	..	X	..	..
106.	"	<i>elongata, Hincks</i>	..	..	X	..	..
108a.	"	<i>hirtissima, Heller, var. robusta, Hincks</i>	..	..	X	..	..
111.	"	<i>intermedia, Hincks</i>	..	..	X	..	..
115.	"	<i>spinigera, McGill</i>	..	..	X	..	..
112.	"	<i>magellanica, Busk</i>	..	..	X	..	..
116.	"	<i>(Amathia?) swainsoni, Hutton</i>	..	..	X	..	..
33.	<i>Bicellaria</i>	<i>tuba, Busk</i>	..	..	X	..	..
181.	<i>Bugula</i>	<i>neritina, Linn.</i>	..	..	X	..	..
168.	"	<i>dentata, Lamx.</i>	..	..	X	..	..
285.	<i>Cellaria</i>	<i>malvinensis, Busk</i>	..	..	X	..	..
294.	"	<i>setigera, Desm.</i>	..	..	X	..	..
296.	"	<i>tenuirostris, Busk</i>	..	..	X	..	..
1643.	<i>Tubucellaria</i>	<i>hirsuta, Lamx.</i>	..	..	X	..	..
1644.	"	<i>opuntoides, Pallas</i>	..	..	X	..	..
667.	<i>Flustra</i>	<i>episcopalis, Busk</i>	..	..	X	..	..
673.	"	<i>indivisa, Busk</i>	..	..	X	..	..
673a.	"	<i>var. cyathiformis, McGill</i>	..	..	X	..	..
220.	<i>Calwellia</i>	<i>bicornis, Wyv. Thom.</i>	..	..	X	..	..
223.	"	<i>sinclairii, Busk</i>	..	..	X	..	..
558.	<i>Dimetopia</i>	<i>spicata, Busk</i>	..	..	X	..	..
556.	"	<i>cornuta, Busk</i>	..	..	X	..	..
1014.	<i>Membranipora</i>	<i>membranacea, Linn.</i>	..	..	X	..	..
1033.	"	<i>pilosa, Linn.</i>	..	..	X	..	..
1033g.	"	<i>forma foliacea, Hincks</i>	..	..	X	..	..

LIST OF SPECIES—continued.

		Napier.	Wanganui.	Wellington.	Dunedin.	Foveaux Strait.	Dusky Sound.
<i>Cheilostomata</i> —continued.							
1072.	<i>Membranipora trifolium</i> , S. Wood	..	..	..	..	X	..
1048.	" <i>roborata</i> , Hincks	..	..	..	..	X	..
1063.	" <i>spinosa</i> , Q. and G...	..	X	..	..	..	..
1081.	" <i>valdemunita</i> , Hincks	..	X	..	..	..	..
1060.	" <i>solidula</i> , Alder and H.	..	X	..	X	..	..
992.	" <i>hians</i> , Hincks	..	X	..	..	..	..
992a.	" " <i>var. occultata</i> , Waters	..	..	..	X	..	..
931.	" <i>acuta</i> , Hincks	..	X	..	..	..	..
1017.	" <i>monostachys</i> , Busk	..	X	..	..	..	..
1047.	" <i>reticulum</i> , Linn.	..	X	..	..	..	..
1051.	" <i>rubida</i> , Hincks	..	X	..	..	..	..
1055.	" <i>serrata</i> , McGill	..	..	X	..	X	..
937.	" <i>annulus</i> , Manzoni	..	X	..	..	..	..
1183.	<i>Monoporella crassatina</i> , Waters	..	..	X	X	X	..
1182.	" <i>capensis</i> , Busk	..	X	..	..	..	..
1585.	<i>Steganoporella neo-zealandica</i> , Busk	..	X	X	..	X	..
1584.	" <i>magnilabris</i> , Busk	..	X	X	..	..	..
1133.	<i>Micropora lepida</i> , Hincks	..	X	X	..	..	..
1135.	" <i>perforata</i> , McGill	..	..	X	..	..	..
1144.	<i>Microporella ciliata</i> , Pallas	..	X	X	..	..	..
1144c.	" " <i>var. vibraiculifera</i> , Hincks	..	X	X	..	..	X
1147b.	" <i>decorata</i> , Reuss, <i>var. angustipora</i> , Hincks	..	X	..	..	..	..
1145.	" <i>coscinophora</i> , Reuss, <i>var. mucronata</i> , McGill	..	..	..	..	..	X
1161c.	" <i>malusii</i> , Audouin, <i>var. disjuncta</i> , Hincks	X	X	..	..	..	..
445.	<i>Chorizopora brongiartii</i> , Audouin	..	..	..	X	..	..
1217.	<i>Mucronella præstans</i> , Hincks	..	X	X	..	..	..
1199a.	" <i>diaphana</i> , McGill, <i>var. armata</i> , Hincks	..	X	..	..	..	..
1229.	" <i>tricuspis</i> , Hincks	..	X	..	..	X	..
1212.	" <i>peachii</i> , Johnston	..	X	X	..	..	..
1212.	" " <i>var. octodentata</i> , Hincks	..	..	..	..	X	..
1190a.	" <i>biincisa</i> , Waters, <i>var. bicuspis</i> , Hincks	..	X	..	..	..	..
"	" <i>firmata</i> , Waters	..	..	X	X	..	..
1555.	<i>Smittia napierii</i> , Waters	..	..	X	X	..	..
1578.	" <i>unispinosa</i> , Waters	..	..	X	X	..	..
1575.	" <i>trispinosa</i> , Johnston	..	..	..	..	X	..
1547.	" <i>landsborovii</i> , Johnston	..	..	X	..	..	..
1285.	<i>Porella marsupium</i> , McGill	..	..	X	..	..	..
809.	<i>Lepralia cincta</i> , Hincks	..	..	X	..	..	..
823a.	" <i>flexuosa</i> , Hutton	..	..	..	..	X	..
826.	" <i>foraminigera</i> , Hutton	..	..	X	X	..	X
848.	" <i>poissonii</i> , Audouin	..	..	X	..	..	X
854.	" <i>rectilineata</i> , Hincks	..	..	..	..	..	..
845.	" <i>pallasiana</i> , Moll.	..	..	X	X	..	..

LIST OF SPECIES—continued.

			Napier.	Wanganui.	Wellington.	Dunedin.	Foveaux Strait.	Dusky Sound.
<i>Cheilostomata</i> —continued.								
1328.	<i>Retepora</i>	<i>cellulosa</i> , Linn.	..	..	..	..	..	..
1324.	"	<i>avicularis</i> , McGill	..	..	..	..	..	..
1327.	"	<i>fissa</i> , McGill	..	..	..	..	..	..
1092.	<i>Membraniporella</i>	<i>nitida</i> , Johnston	..	X	..	..	..	..
473.	<i>Cribrilina</i>	<i>figularis</i> , Johnston	..	..	..	..	X	..
483.	"	<i>monoceros</i> , Busk	..	X	X	..	X	X
715.	<i>Haswellia</i>	<i>auriculata</i> , Busk	..	..	X	..	..	..
725.	<i>Hippothoa</i>	<i>flagellum</i> , Manzoni	..	X	..	..	..	..
723.	"	<i>divaricata</i> , Lamx.	..	..	X	..	X	..
1398.	<i>Schizoporella</i>	<i>biserialis</i> , Hincks	..	X	..	..	..	..
1405.	"	<i>cinctipora</i> , Hincks	..	X	X	..	X	..
1395.	"	<i>auriculata</i> , Hassall	..	..	..	..	..	X
1403.	"	<i>cecilii</i> , Audouin	..	X	..	..	..	..
1406.	"	<i>circinata</i> , McGill	..	X	X	..	X	..
1411.	"	<i>cribrilifera</i> , Hincks	..	X	X	X	..	..
1431.	"	<i>hyalina</i> , Linn.	..	X	X	..	..	..
1431a.	"	" <i>var. cornuta</i> , Busk	..	X	X	..	..	..
1431c.	"	" <i>var. tuberculata</i> , Hincks	..	..	X	..	..	..
1469.	"	<i>ridleyi</i> , McGill	..	X	X	..	..	..
	"	<i>scoptillans</i> , Hincks	..	..	..	..	X	X
1408.	"	<i>conservata</i> , Waters	..	..	..	..	..	X
1476a.	"	<i>sinuosa</i> , Busk, <i>var. armata</i> , Hincks	..	X	..	..	..	X
1378.	<i>Rhynchopora</i>	<i>bispinosa</i> , Johnston	..	X	X	..	X	X
299.	<i>Cellepora</i>	<i>agglutinans</i> , Hutton	..	X	..	X	X	..
355.	"	<i>granum</i> , Waters	..	X	X	..	..	..
356.	"	<i>hastigera</i> , Busk	..	..	X	..	..	..
417.	"	<i>tridenticulata</i> , Busk	..	..	X	..	..	..
	<i>Adeonellopsis</i>	<i>parvipunctata</i> , McGill	..	..	..	X	..	..
<i>Cyclostomata</i> .								
501.	<i>Crisia</i>	<i>edwardsiana</i> , d'Orb.	..	X	X	..	..	X
773.	<i>Idmonea</i>	<i>ramosa</i> , d'Orb.	..	..	..	..	X	X
757.	"	<i>contorta</i> , Busk	..	X	X	..	..	..
757.	"	<i>marionensis</i> , Busk	..	X	..	..	..	..
771.	"	<i>radians</i> , Lamk.	..	..	X	..	..	X
770.	"	<i>parasitica</i> , Busk	..	..	X	..	..	..
775.	"	<i>serpens</i> , Linn.	..	..	X	..	X	..
769.	"	<i>milneana</i> , d'Orb.	..	X	X	X	X	..
458.?	"	<i>cancellata</i> , Goldstein	..	X	..	..	..	..
585.	<i>Entalophora</i>	<i>rariopora</i> , d'Orb	..	..	..	..	..	X
582.	"	<i>intricaria</i> , Busk	..	..	X	..	..	..
580.	"	<i>haastiana</i> , Stoliczka	..	..	X	..	..	..
583.	"	<i>parasitica</i> , Busk	..	X	..	..	..	..
	"	<i>proboscidea</i> , Waters	..	..	..	..	..	X
448.	<i>Cinctipora</i>	<i>elegans</i> , Hutton	..	..	X	X	..	X
552.	<i>Diastopora</i>	<i>sarniensis</i> , Norman	..	X	X	..	X	X
553.	"	<i>suborbicularis</i> , Hincks	..	..	X	..	X	..

LIST OF SPECIES—continued.

	Napier.	Wanganui.	Wellington.	Dunedin.	Foveaux Strait	Dusky Sound.
<i>Cyclostomata</i> —continued.						
644. <i>Filisparsa irregularis</i> , Menegh.	x	..	..	..
1604. <i>Stomatopora granulata</i> , M.-Edw.	x	..	..	..	..
1608. " <i>major</i> , Johnston
754. <i>Hornera foliacea</i> , McGill.	x	..	x
743. " <i>striata</i> , Stoliczka	x	..
735. " <i>frondiculata</i> , Lamx.	x
1645. <i>Tubulipora biduplicata</i> , Waters	x	x
1682. <i>Supercystis digitata</i> , d'Orb.	x	..	x	x
881. <i>Lichenopora holdsworthii</i> , Busk	x	..
887. " <i>novæ-zealandiæ</i> , Busk	x	..	..	..	..
875. " <i>clypeiformis</i> , d'Orb.	x	x	..	x	..
880. " <i>hispida</i> , Fleming	x	x	..	..	..
889. " <i>pristis</i> , McGill	x	..
" <i>wanganuiensis</i> , Waters	x	x	..	..	..
719. <i>Heteropora pelliculata</i> , Waters	x	..
<i>Ctenostomata</i> .						
697. <i>Flustrella binderi</i> , Harvey	x	..	x	x	..
<i>Amathia swainsoni</i> , Hutton	x	..	..

LIST OF TERTIARY CHEILOSTOMATOUS BRYOZOA FROM NEW ZEALAND, BY ARTHUR W. WATERS.*

NOTE.—a or z indicates that the form is known living in Australia or New Zealand; 1 = Curdie's Creek; 2 = Mount Gambier; 3 = Bairnsdale; 4 = Muddy Creek; 5 = Aldinga; 6 = Murray Cliffs.

	Living.	Napier.	Waipukurau.	Petane.	Trig. Station.	Shakespeare's Cliff.	Australian (fossil).
285. <i>Cellaria malvinensis</i> , Busk ..	x ^z	..	x	..	..	x	1, 2, 3, 4, 6
1017. <i>Membranipora monostachys</i> , Busk ..	x ^z	x	..	..	..	..	..
1002. " <i>lineata</i> , Linn. ..	x ^z	..	..	..	..	x	..
" <i>lacroixii</i> , Audouin, var. <i>grandis</i> , Waters ..	..	x	x	..	..	..	..
978. " <i>dumerilii</i> , Audouin ..	x	..	x	..	..	..	..
" <i>nobilis</i> , Reuss ..	..	x	..	x	..	..	..
1060. " <i>solidula</i> , Alder and H. ..	x ^z	..	x	..	..	x	..
937. " <i>annulus</i> , Manzoni ..	x	x	x	x	..	..	2
956. " <i>cervicornis</i> , Busk ..	x ^a	x	..	..	..	..	2
1063. " <i>spinosa</i> , Q. and G. ..	x ^{az}	x	..	..	..	..	..
985. " <i>flemingii</i> , Busk ..	x	x	..	..	..	..	5
1072. " <i>trifolium</i> , S. Wood ..	x	x	..	..	..	..	..

* Quar. Jour. Geol. Soc., vol. 43, 1887, p. 40, pl. vi.-viii.

LIST OF TERTIARY CHEILOSTOMATOUS BRYOZOA, ETC.—continued.

	Living.	Napier.	Waipukurau.	Petane.	Trig. Station.	Shakespeare's Clif.	Australian (fossil).
992a. <i>Membranipora hians</i> , <i>Hincks</i> , var. <i>occultata</i> , <i>Waters</i>	x ^z	x	..	..	..	..	..
1182. <i>Monoporella capensis</i> , <i>Busk</i>	..	x	x	..	..	x	..
" " var. <i>dentata</i> , <i>W.</i>	..	x	x	..	..	..	..
1183. " <i>crassatina</i> , <i>Waters</i>	x ^z	x	x	..	..	..	2, 5, 6
1184. " <i>disjuncta</i> , <i>Manzona</i>	x ^z	x	..	..	..	..	..
" <i>waipukurauensis</i> , <i>Waters</i>	..	x	x	..	x	..	..
1585. <i>Steganoporella neo-zelanica</i> , <i>Busk</i>	x ^z	x	x	x	..	..	..
1133. <i>Micropora lepida</i> , <i>Hincks</i>	x ^z	x	..	..	..	..	..
1128. " <i>elongata</i> , <i>Hincks</i>	x ^z	x	x	..	x	..	..
1092. <i>Membraniporella nitida</i> , <i>Johnston</i> , var.	x ^z	x	x	..	..	..	..
483. <i>Cribrilina monoceros</i> , <i>Busk</i>	x ^a	x	x	..	..	..	3
473. " <i>figularis</i> , <i>Johnston</i>	x	..	x	..	..	..	6
485. " <i>radiata</i> , <i>Moll.</i> , var. <i>endlicheri</i> , <i>Reuss</i>	x ^z	..	..	..	..	..	..
1144. <i>Microporella ciliata</i> , <i>Pallas</i>	x ^{az}	x	x	..	x	..	2
1161. " <i>malusii</i> , <i>Audouin</i>	x ^{az}	x	..	x	..	..	..
1160. " <i>macropora</i> , <i>Stoliczka</i>	x ^a	..	x	..	..	..	..
1147b. " <i>decorata</i> , var. <i>angustipora</i> , <i>Hincks</i>	x ^z	x	x	x	x	..	..
1217. <i>Mucronella præstans</i> , <i>Hincks</i>	x ^z	..	x	..	..	..	1, 2
1212. " <i>peachii</i> , <i>Johnston</i>	x ^z	x	..	..	..	..	..
1212b. " " var. <i>octodentata</i> , <i>Hincks</i>	x ^z	x	x	..	x	..	..
1167. " <i>alvareziana</i> , <i>d'Orb.</i>	x	..	x	..	x	..	..
1229. " <i>tricuspis</i> , <i>Hincks</i>	x ^{az}	..	..	x	..	..	..
" " var. <i>waipukurauensis</i> , <i>W.</i>	..	..	x	..	..	..	..
1214. " <i>porosa</i> , <i>Hincks</i> , var. <i>minima</i> , <i>W.</i>	..	..	..	x	..	..	..
" " <i>liversidgei</i> , <i>Ten.-Woods</i>	..	..	x	..	..	..	2
" " <i>firmata</i> , <i>Waters</i>	..	..	x	..	..	..	..
1190. " <i>biincisa</i> , <i>Waters</i>	x ^z	..	x	..	..	..	..
1562. <i>Smittia reticulata</i> , <i>J. McGill</i>	x ^{az}	..	..	..	..	..	2, 3, 6
1547. " <i>landsborovii</i> , <i>Johnston</i>	..	x ^a	..	x	..	..	6
1556. " <i>nitida</i> , <i>Verrill</i>	..	x ^a	x	x	..	..	3, 6
1555. " <i>napierii</i> , <i>Waters</i>	..	x ^a	x	x	..	x	..
1298. <i>Porina magnirostris</i> , <i>McGill</i>	..	x ^a	..	x	..	..	2, 6
715. <i>Haswellia auriculata</i> , <i>Busk</i>	..	..	x	..	..	..	..
842. <i>Lepralia mucronata</i> , <i>Smith</i>	..	x ^a	x	..	..	..	1, 2, 3, 4, 6
848. " <i>poissonii</i> , <i>Audouin</i>	..	x ^z	x	x	x	..	x
854. " <i>rectilineata</i> , <i>Hincks</i>	..	x ^z	x	x	..	..	x
829a. " <i>imbellis</i> , <i>Busk</i>	..	..	x	x	x	..	..
846. " <i>pertusa</i> , <i>Esper.</i>	..	x	x	..	..	..	4
817. " <i>depressa</i> , <i>Busk</i>	..	x	x	..	..	..	6
" " <i>semiluna</i> , <i>Reuss</i> , var. <i>simplex</i> , <i>W.</i>	..	x	..	..	..	..	..
826. " <i>foraminigera</i> , <i>Hincks</i>	..	x ^z	..	x	..	..	..
" " <i>bistata</i> , <i>Waters</i>	..	..	..	x	..	..	..
530. <i>Cyclicopora longipora</i> , <i>McGill</i>	..	x ^a	..	x	..	x	..

LIST OF TERTIARY CHEILOSTOMATOUS BRYOZOA, ETC.—continued.

	Living.	Napier.	Waipukurau.	Petane.	Trig. Station.	Shakespeare's Cliff.	Australian (fossil).
1285. <i>Porella marsupium</i> , McGill ..	X	..	X	..	..	..	..
1285a. " " var. <i>porifera</i> , <i>Hincks</i>	X	X	X	..	..	..	..
1277. " <i>concinna</i> , Busk ..	X	..	..	..	X	..	2
725. <i>Hippothoa flagellum</i> , Manzoni ..	X ^z	X	..	..	..	..	..
1406. <i>Schizoporella circinata</i> , McGill ..	X ^z	..	X	..	..	..	..
1395. " <i>auriculata</i> , Hassall ..	X ^a	X	..	..	..	..	2, 3
1469. " <i>ridleyi</i> , McGill ..	X ^a	X	X	..	..	..	..
1453. " <i>marsupifera</i> , Busk ..	X ^z	..	X	..	..	..	..
1397. " <i>biaperta</i> , Mich. ..	X ^z	..	X	..	..	..	..
1411. " <i>cribrilifera</i> , Hincks ..	X ^z	..	..	X	..	X	..
" <i>clavula</i> , Manzoni ..	..	..	X	..	..	..	..
1408. " <i>conservata</i> , Waters ..	X ^a	X	..	..	..	..	1, 2
" <i>obliqua</i> (?), McGill ..	X ^a	..	X	..	..	..	..
1405a. " <i>cinctipora</i> , Hincks, var. <i>personata</i> , W.	X ^z	..	X	X	..	..	..
1487. " <i>tuberosa</i> , Reuss, var. <i>angustata</i> , W.	..	..	X	..	..	..	..
1431. " <i>hyalina</i> , Linn. ..	X ^a	..	X	..	X	X	..
300. <i>Cellepora albirostris</i> , Smitt. ..	X ^a	X	..	..	..	X	6
417. " <i>tridenticulata</i> , Busk ..	X ^a	..	X	..	..	..	5, 6
328. " <i>coronopus</i> , S. Wood ..	X	X	..	..	..	..	2, 5
331. " <i>costata</i> , McGill ..	X ^a	X	..	..	..	..	..
" <i>decepta</i> , Waters ..	..	X	..	..	..	..	..
1380. <i>Rhyncopora longirostris</i> , Hincks ..	X ^a	X	..	..	..	..	..
<i>Lunulites petaloides</i> , d'Orb. ..	X	X	..	..	..	X	2, 4
<i>Cyclostomata.*</i>							
553. <i>Diastopora suborbicularis</i> , Hincks ..	X	X	X	X	..	..	..
585. <i>Entalophora raripora</i> , d'Orb. ..	X	X	X	X	..	..	..
735. <i>Hornera frondiculata</i> , Lamx. ..	..	..	X	..	X	..	..
880. <i>Lichenopora hispida</i> , Fleming ..	..	..	X	X	..	..	..

* I find a few of our New Zealand fossil Cyclostomata mentioned in a paper by Mr. Waters "On North Italian Bryozoa," part ii., in the Quar. Jour. Geol. Soc. for 1892 (vol. 48, p. 153).