The Marine Mollusca of the Chatham Islands.

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In this paper 19 new species and 5 new subspecies are described, and records are given of 78 species not previously known, from the Chathams.†

A summary of the Chatham Island Recent molluscan fauna, including descriptions of some new species, was published by Finlay in 1928. This was based upon the collections made by the Otago Institute party at the Chathams in the summer of 1924, but included also the Chatham Island references cited by Suter (1913) in his Manual of the New Zealand Mollusca.

The present paper is descriptive of material gathered personally by both shore collecting and shallow-water dredging during a stay of three weeks at Chatham Island during February of this year. Adverse weather prevented landing at any of the other islands of the group, and on only one occasion was it possible to use the dredge. Further dredging should add considerably to the off shore fauna, but I think that the littoral fauna is now fairly completely known. Certainly it has been explored sufficiently to now utilise negative evidence with tolerable safety; meaning that the absence of records of *Struthiolaria, Nerita, Amaurochiton, Turbo smaragdus* and other common mainland littoral species, can be given a definite significance, without fear that their apparent absence may be due to casual investigation.

Finlay recorded a total of 202 species (three of them non-marine) which included a number of Suter's records, the presence of which has not been confirmed by further field work. As most of these records appear in the "Manual" with but the bare locality reference "Chatham Islands," no collector or authority being cited, it seems desirable to suspend from the faunal list these at present unsubstantiated records, until more intensive collecting demonstrates the wisdom of either reinstating or permanently rejecting some, if not all, of them. The species I propose to place on this suspense list number 24, and they are listed following the revised faunal list given below.

In this revised list 256 species are recorded from the Chathams, and the number of endemic forms is now found to be 47. The approximate equality in numbers of the marine species that definitely show either Northern or Southern origin, as noted by

†These new records are indicated by blanks in the column of asterisks, preceding the names in the faunal list, which follows.

Finlay (1928, p. 285) remains about the same. Of the 80 species that either occupy restricted areas on the mainland or, in the case of endemics, are most closely allied to such mainland species, there are 43 showing southern influence and 38 northern influence. Two noteworthy additions are the second known Recent species of *Pachymelon* and a subspecies of a Tasmanian *Condylocardia*. A number of species of small land snails were collected, but these will be dealt with in another paper. In the faunal list, (E) indicates that the species is endemic, N. that it is of northern origin, and S. southern origin; an asterisk before a name that the species was collected by the Otago Institute party (recorded by Finlay, 1928), two asterisks that the species was listed by Finlay upon the authority cited after the name, and in most cases has been confirmed, and a cross that it was collected either by myself or by Mr. C. A. Fleming, who accompanied me for part of the trip.

The number following the cross refers to the list of stations given below.

1 = Waitangi, in shell-sand. 2 = Waitangi, living on or under stones, at low tide. 3= Waitangi, living on seaweeds. 4 = Waitangi, cast up on beach. 5 = 10 fathoms off Owenga. 6 = On tidal rocks or cast up on beach at Owenga. 7 = Port Hutt, cast up on beach. 8 = Tioriori, cast up on beach. 9 = Wharekauri, living on or under stones. 10 = Wharekauri, in shell-sand. 11 = Kaingaroa, in stomachs of blue-cod. 12 = Maunganui, cast up on beach. 13 = Te Whanga lagoon. 14 = Waitangi West. 15 = Generally distributed.

Revised List of Chatham Island Recent Marine Mollusca.

PELECYPODA.

+	1	*	*Nucula nitidula* A. Adams 1856	
+	1		*Nucula hartvigiana* Pfeiffer 1864	
+	1	*	*Nucula dunedinensis* Finlay 1928	S
+	6	*	*Barbatia novaezelandiæ* Smith 1915	
+	1		*Acar sandersonæ* Powell 1933	N
+	6	*	*Glycymeris laticostata* (Q. & G. 1835)	
+	5		*Glycymeris modesta* (Angas 1879)	
+	5		*Austrosarepta* cf. *harrisonæ* (Powell 1927)	S
+	5		*Cosa filholi* (Bernard 1897)	
+	1		*Cosa costata* (Bernard 1896)	
		**	*Hochstetteria meleagrina* Bernard 1896 (Auth. Professor H. B. Kirk)	
+	6	*	*Ostrea sinuata* Lamarck 1819	
		*	*Lopha glomerata* (Gould 1850)	N
+	5		*Perrierina insulana* n. sp.	(E) S
+	6	*	*Notovola novaezelandiæ* (Reeve 1852)	
+	6	*	*Chlamys celator* Finlay 1928	S
+	6	*	*Chlamys suprasilis* Finlay 1928	S
+	6	*	*Chlamys radiatus* (Hutton 1873)	
+	11	*	*Chlamys dichrous* Suter 1909	S

+	11	*	*Pallium (Mesopeplum) convexum* (Q. & G. 1835)	
		*	*Limatula maoria* Finlay 1926	
+	12	*	*Monia zelandica* (Gray 1843)	
+	6	*	*Mytilus planulatus* Lamarck 1819	
+	2	*	*Mytilus (Aulacomya) maoriana* Iredale 1915	
+	4	*	*Volsella arcolatus* (Gould 1850)	
+	13	*	*Volsella fluviatilis* (Hutton 1878)	(E)
+	1	*	*Trichomusculus barbatus* (Reeve 1858)	
+	4	*	*Modiolaria impacta* (Hermann 1782)	
+	8	*	*Gaimardia forsteriana* Finlay 1926	S
+	1	*	*Costokidderia costata* (Odhner 1924)	S
+	14	*	*Cardita aoteana* Finlay 1926	
+	6	*	*Venericardia purpurata* (Deshayes 1854)	
+	5		*Pleuromeris marshalli* (Marwick 1924)	S
+	1	*	*Condylocardia crassicosta* Bernard 1896	
+	1		*Condylocardia concentrica* Bernard 1897	
+	5		*Condylocardia torquata* Marwick 1928	(E)
+	1		*Condylocardia pectinata chathamensis* n. subsp.	(E) N
+	1		*Benthocardiella obliquata chathamensis* n. subsp.	(E) N
+	6	*	*Divaricella cumingi* (Ad. & Ang. 1863)	
+	6	*	*Diplodonta (Zemysia) zelandica* (Gray 1835)	
+	1	*	*Diplodonta (Zemysina) striatula* (Finlay 1926)	
+	1	*	*Melliteryx parva* (Deshayes 1856)	
+	1	*	*Myllitella pinguis* Marwick 1928	(E)
+	5	*	*Notolepton sanguineum* (Hutton 1883)	
+	5	*	*Notolepton* cf. *antipodum* (Filhol 1880)	
+	1	*	*Mysella unidentata* (Odhner 1924)	
+	2	*	*Rochefortula reniformis* (Suter 1908)	
+	1	*	*Chironia suborbicularis* (Montagu 1804)	
+	6	*	*Kellya hinemoa* Finlay 1928	
		*	*Kellya rossiana vexata* Finlay 1928	(E) S
+	5		*Arthritica bifurca* (Webster 1908)	
+	5		*Pachykellya concentrica* Powell 1927	S
+	5	*	*Cyamiomactra problematica* Bernard 1897	S
+	6	*	*Dosinia (Phacosoma) maoriana* Oliver 1923	
		*	*Tawera marionæ* Finlay 1928	S
+	7	*	*Tawera spissa* (Desh. 1835 = **mesodesma* Q. & G.) ..	
+	13	*	*Chione (Austrovenus) stutchburyi* (Gray 1828)	
+	6	*	*Protothaca (Tuangia) crassicosta* (Desh. 1835)	
+	6	*	*Paphirus largillierti* (Phil. 1847)	
+	4	*	*Notirus reflexus* (Gray 1843)	
+	4	**	*Macomona liliana* (Iredale 1915) (specimen in Otago University Museum)	
+	15	*	*Zearcopagia disculus* (Desh. 1855)	
+	6	*	*Gari lineolata* (Gray 1835)	
+	6		*Gari stangeri* (Gray 1843)	
+	5		*Ascitellina urinatoria* (Suter 1913)	S
+	6	*	*Soletellina* sp. cf. *siliqua* Reeve 1857	
+	13		*Mactra rudis* Hutton 1873	
+	6	*	*Longimactra elongata* (Q. & G. 1835)	
+	5	*	*Scalpomactra scalpellum* (Reeve 1854)	
+	12	*	*Amphidesma (Taria) subtrianguiata* (Wood 1828)	
+	6	**	*Paphies australis* (Gmelin 1791) (recorded in Suter's Manual)	
		*	*Notocorbula haastiana* (Hutton 1878)	
+	6	*	*Notocorbula zelandica* (Q. & G. 1835)	
+	4	*	*Hiatella australis* (Lamarck 1818)	
+	6	*	*Panope zelandica* (Q. & G. 1835)	
+	4		*Anchomasa similis* (Gray 1835)	
+	7		*Offadesma angasi* (Cr. & Fisch. 1864)	
+	6	*	*Cleidothaerus maorianus* Finlay 1926	

GASTEROPODA.

+	5	*	*Scissurella prendrevillei* n. sp. (= *Scissurella* n. sp. Finlay 1928)	(E) S
+	5		*Schismope laqueus* Finlay 1926	S
+	1		*Scissurona rosea* (Hedley 1904)	N
+	5		*Sinezona brevis* (Hedley 1904)	
		*	*Sinezona* cf. *subantarctica* (Hedley 1916)	S
+	1		*Sinezona levigata* (Iredale 1908)	
+	5		*Sinezona pauperata* n. sp.	(E)
+	1	*	*Incisura lytteltonensis* (Smith 1894)	
+	1	*	*Tugali suteri* (Thiele 1916)	(E) N
		*	*Tugali* cf. *elegans* (Gray 1843)	
		*	*Montfortula chathamensis* Finlay 1928	(E) N
+	14	*	*Emarginula striatula valentior* Finlay 1928	S
+	6	*	*Monodilepas skinneri* Finlay 1928	(E) S
+	15	*	*Haliotis iris* Martyn 1784	
+	15	*	*Haliotis australis* Gmelin 1791	
+	15	*	*Haliotis virginea* Gmelin 1791	
		*	*Trochus (Coelotrochus) huttoni* Cossman 1918	
+	15	*	*Trochus (Thorista) viridis* (Gmelin 1791)	
+	15	*	*Thoristella chathamensis* (Hutton 1873)	S
+	2	*	*Melagraphia aethiops* (Gmelin 1791)	
+	2	*	*Zediloma arida* Finlay 1926	
+	2	**	*Zediloma digna* Finlay 1926 (recorded in Suter's Manual as *nigerrima* Gmel.)	
+	15	*	*Cantharidus opalus cannoni* n. subsp.	(E)
		*	*Micrelenchus sanguineus* (Gray 1843)	
+	5		*Micrelenchus sanguineus morioria* n. subsp.	(E) S
		*	*Micrelenchus tenebrosus* (A. Ad. 1853)	
		*	*Micrelenchus tenebrosus huttoni* (Smith 1876)	
+	15	*	*Micrelenchus dilatatus* (Sowerby 1870)	
+	15	*	*Maurea tigris* (Martyn 1784)	(N)
		*	*Maurea cunninghami pagoda* (Oliver 1926)	
+	6	*	*Maurea (Mucrinops) punctulata* (Martyn 1784)	(N)
+	2	*	*Herpetopoma bella* (Hutton 1873)	
+	15	*	*Margarella fulminata* (Hutton 1873)	(E) S
		*	*Zethalia zelandica* (A. Adams 1873)	
+	5	*	*Antisolarium egenum* (Gould 1849)	
+	1	*	*Liotella polypleura* (Hedley 1904)	
+	5		*Munditia owengaensis* n. sp.	(E) N
+	1		*Zalipais lissa* (Suter 1908)	
+	5		*Brookula (Aequispirella) finlayi* n. sp.	N
+	1		*Dolicrossea vesca* Finlay 1926	N
+	1		*Orbitestella hinemoa* Mestayer 1919	S
+	1		*Orbitestella toreuma* Powell 1930	N
+	15	*	*Modelia granosa* (Martyn 1784)	
+	1		*Argalista fluctuata* (Hutton 1883)	
+	6	*	*Astraea heliotropium* (Martyn 1784)	
+	15	*	*Cookia sulcata* (Martyn 1784)	
+	15	*	*Radiacmea inconspicua rubiginosa* (Hutton 1873)	(E)
+	4	**	*Notoacmea (Conacmea) parviconoidea* (Suter 1907) (recorded in Suter's Manual)	
+	15	*	*Cellana chathamensis* (Pilsbry 1891)	(E) S
+	15	*	*Melarhaphe oliveri* Finlay 1930	
+	15	*	*Melarhaphe cincta* (Q. & G. 1833)	
+	1		*Macquariella* n. sp.	S
+	1		*Zelaxitas micra* (Finlay 1924)	S
+	15	*	*Risellopsis varia* (Hutton 1873)	
+	15	*	*Risellopsis varia carinata* Kesteven 1902	

+	1	*	*Haurakia hamiltoni* (Suter 1898)		
+	1		*Notosetia neozelanica* (Suter 1898)	S	
+	1		*Notosetia infecta* (Suter 1908)	N	
+	1		*Notosetia verecunda* (Suter 1908)	S	
+	5		*Notosetia lampra* (Suter 1908)	N	
+	5		*Notosetia lubrica* (Suter 1898)	S	
+	1		*Notosetia atomaria* n. sp.	(E)	
+	5		*Notosetia exaltata* n. sp.	(E)	
+	2	*	*Estea minor* (Suter 1898)		
+	2	*	*Estea rekohuana* n. sp. (= E. n. sp. aff. *minor* Finlay 1928)	(E)	
+	1	*	*Estea guesti* n. sp. (= ?E. n. sp. aff. *zosterophila* Finlay 1928)	(E)	
+	1	*	*Estea porrecta* n. sp. (= ?E. sp. cf. *subfusca* Finlay 1928)	(E)	
+	5		*Estea morioria* n. sp.	(E)	
+	5		*Estea* cf. *insulana* Marwick 1928	(E)	
+	5		*Estea gracilispira* n. sp.	(E)	
+	5		*Estea impressa* (Hutton 1885)		
+	5		*Linemera maclurgi* n. sp.	S	
+	5		*Larochella alta* Powell 1927	N	
+	1	*	*Merelina plaga* Finlay 1926	S	
+	1		*Merelina waitangiensis* n. sp.	(E)	N
+	5		*Anabathron foliatum* (Suter 1908)	S	
+	2		*Scrobs hedleyi* (Suter 1908)		
+	2	*	*Austronoba martini* Finlay 1933	(E)	N
+	1		*Subonoba fumata* (Suter 1898)		
+	1	*	*Subonoba morioria* n. sp. (= ?S. cf. *fumata* Finlay 1928)	(E)	
+	1	*	*Subonoba* cf. *paucicostata* Powell 1931 (= ?S. n. sp. Finlay 1928)	S	
+	2		*Subonoba inornata* n. sp.	(E)	
+	2	*	*Dardanula olivacea* (Hutton 1882)		
+	1		*Dardanula limbata* (Hutton 1883)		
+	5		*Dardanula roseola* (Iredale 1915)		
+	3		*Skenella pfefferi* Suter 1909		
+	1	*	*Rissoina chathamensis* (Hutton 1873)		
		*	*Zegalerus crater* Finlay 1926		
+	15	*	*Sigapatella novaezelandiæ* (Lesson 1830)		
+	15	*	*Zeacumantus subcarinatus* (Sowerby 1855)		
+	1	*	*Lyroseila chathamensis* (Suter 1908)		
+	5		*Notosinister (Teretriphora) huttoni* (Suter 1908)	S	
+	15	*	*Maoricolpus roseus* (Q. & G. 1834)		
+	2		*Caecum digitulum* Hedley 1904		
+	4	*	*Vermicularia sipho* (Lamarck 1818)		
+	4	*	*Novastoa zelandica* (Q. & G. 1834)		
		*	*Magilina* sp.	(E)	
		*	*Siliquaria weldii* Ten-Woods 1876		
+	1	*	*Trichosirius inornatus chathamensis* Finlay 1928	(E)	
+	4	*	*Cabestana spengleri* (Perry 1811)	N	
+	6		*Cabestana waterhousei segregata* Powell 1933	N	
+	6	*	*Argobuccinum tumidum* (Dunker 1862)		
+	10	*	*Xenophalium (Xenogalea) powelli* (Finlay 1928)	N	
+	6	*	*Tanea zelandica* (Q. & G. 1832)		
+	1	*	*Uberella vitrea* (Hutton 1873)	S	
		*	*Triviella (Ellatrivia) memorata* Finlay 1926	N	
		*	*Janthina violacea* Bolten 1798		
+	1	*	*Janthina exigua* Lamarck 1822		
+	1		*"Odostomia" cryptodon* Suter 1908 } = ? 2 sp. *Odostomia*		
+	1		*Evalea sabulosa* (Suter 1908) } Finlay 1928		
+	5	*	*Gumina dolichostoma* (Suter 1908)	N	
+	1	*	*Pyrgulina rugata* (Hutton 1886)		
+	1		N. gen. and sp. aff. *Pyrgulina*	(E)	

+	2	*	*"Turbonilla" campbellica* Odhner 1924 (= *? T. zelandica* Finlay 1928)	S
+	1		N. gen. and sp. aff. *Turbonilla*	
+	5	*	*Chemnitzia* n. sp. (= ? *Turbonilla* n. sp. Finlay 1928) ..	
+	5		*Graphis blanda* (Finlay 1924)	
+	1	*	*Eulima archeyi* Finlay 1928	(E) N
+	2	*	*Marginella (Serrata) aoteana* Powell 1932 (= *M. allporti* (?) Finlay 1928)	N
+	2		*Marginella (Serrata) cairoma* Brookes 1924	
+	1		*Marginella (Glabella) pygmaea* Sowerby 1846†	
+	6		*Pachymelon (Palomelon) wilsonæ* n. sp.	(E)
+	1	*	*Buccinulum waitangiensis* n. sp. (= *lineum* Finlay 1928) ..	(E) N
		*	*Buccinulum pallidum* Finlay 1928	
+	15	*	*Buccinulum (Evarnula) characteristica* (Finlay 1928) ..	(E)
+	15	*	*Buccinulum (Evarnula) marwicki* (Finlay 1928)	S
+	15	*	*Buccinulum (Euthrena) bicinctum* (Hutton 1873‡)	(E)
+	6	*	*Austrofusus chathamensis* Finlay 1928	
+	6	*	*Austrofusus glans agrestior* Finlay 1927	S
+	15	*	*Cominella maculosa* (Martyn 1784)	
+	15	*	*Cominella (Acominia) adspersa nimia* Finlay 1928	(E) N
+	6	*	*Cominella (Cominista) glandiformis* (Reeve 1847)	
+	6	*	*Cominella (Eucominia) iredalei* (Finlay 1928)	(E) S
+	6		*Cominella (Eucominia) ellisoni consobrina* n. subsp.	(E)
+	15	*	*Austromitra rubiginosa* (Hutton 1873)	
+	1	*	*Zemitrella finlayi* n. sp. (= ? *Z. chaova*, Finlay 1928) ..	(E)
		*	*Paxula* n. sp. aff. *leptalea* (Suter 1908)	(S)
+	15	*	*Paxula subantarctica* (Suter 1908)	S
+	15	*	*Paxula allani* Finlay 1928	(E)
+	1	*	*Macrozafra subabnormis saxatilis* (Murdoch 1905)	N
+	6		*Poirieria zelandica* (Q. & G. 1833)	
+	6	*	*Zeatrophon ambiguus* (Philippi 1844)	
		*	*Xymene plebejus* (Hutton 1873)	
+	15	*	*Axymene traversi* (Hutton 1873)	(E)
+	2	*	*Lepsia haustrum* (Martyn 1784)	
+	6	*	*Neothais scalaris* (Menke 1829)	N
+	6	*	*Lepsithais youngi* Finlay 1928	(E) S
+	6	*	*Lepsiella scobina* (Q. & G. 1833)	
+	1	*	*Guraleus* cf. *sinclairi* (Smith 1884)	
+	5	*	*Nepotilla (Zenepos) totolirata* (Suter 1908)	
		*	*Cavolina telemus* (Linn. 1758)	
+	1		*Retusa cookiana* (Suter 1909)	
+	1		*Cylichnina striata* (Hutton 1873)	S
+	5		*Philine* cf. *constricta* Murd. and Suter 1906	
		*	*Tethys brunnea* (Hutton 1875)	N
		*	*Tethys* n. sp. (?) aff. *tryoni* (Meinertzhagen 1880) ..	N
		**	*Bouvieria aurantiacus* (Risso 1818) (Suter, fide Schauinsland)	N
+	6		*Bouvieria ornatus* (Cheeseman 1878)	N
+	2		*Ctenodoris flabellifera* (Cheeseman 1881)	N
		**	*Fiona pinnata* (Eschscholtz 1831) (Suter, fide Schauinsland)	
+	1	*	*Marinula chathamensis* Finlay 1928	(E)
+	2	*	*Leuconopsis obsoleta* (Hutton 1878)	
+	15	*	*Siphonaria zelandica* Q. & G. 1833	
+	15		*Siphonaria cookiana* Suter 1909	N
+	2	*	*Gadinia nivea* Hutton 1878	
+	2	**	*Onchidella nigricans* (Q. & G. 1832) (recorded in Suter's Manual)	

†Recorded, Powell 1932, Trans. N.Z. Inst. vol. 62, p. 205.

‡Intergrades with the uniformly dull shells that were identified as *strebeli* by Finlay (1928, p. 253).

AMPHINEURA.

+	2 **	*Plaxiphora (Maorichiton) schauinslandi* Thiele 1909 (recorded in Suter's Manual as *glauca)*	(E)
+	15	*Plaxiphora (Diaphoroplax) biramosa* (Q. & G. 1835) ..	
+	15 **	*Notoplax violacea* (Q. & G. 1835) (recorded in Suter's Manual)	
+	15	*Cryptoconchus porosus* (Burrow 1815)	
+	15 **	*Ischnochiton maorianus* Iredale 1914 (recorded in Suter's Manual)	
+	15 **	*Sypharochiton pelliserpentis* (Q. & G. 1835) (recorded in Suter's Manual)	
+	15 **	*Onithochiton neglectus* Rochebrune 1881 (recorded in Suter's Manual	

SCAPHOPODA.

	*	*Fissidentalium zelandicum* (Sowerby 1860)	

CEPHALOPODA.

+	4 *	*Spirula spirula* (Linn. 1758)	N
	*	*Argonauta argo* Linn. 1758	N
+	15	*Argonauta nodosa* Solander 1786	N
+	4	*Polypus maorum* (Hutton 1880)	

SUSPENSE LIST OF CHATHAM ISLAND MOLLUSCA.

Being unsubstantiated records that have not been confirmed by subsequent investigation.

Acmaea stella corticata Hutton 1880.
Acmaea fragilis (Chemnitz 1790).
Helcioniscus denticulatus (Martyn 1784).
Helcioniscus radians earlii (Reeve 1855)
Helcioniscus radians flavus (Hutton 1873)
Helcioniscus redimiculum (Reeve 1854).
Helcioniscus strigilis (Hombron & Jacquinot 1841).
Monodonta excavata Ad. & Ang. 1864.
Epitonium zelebori (Dunker 1866).
Septa rubicunda Perry 1811.
Lamellaria ophione Gray 1850 (specimen in Otago University Museum).
Ancilla australis (Sowerby 1830).
Architectonica lutea (Lamarck 1822).
Drillia novaezelandiæ (Reeve 1843).
Bathytoma cheesemani (Hutton 1878).
Mangilia dictyota (Hutton 1885).
Onchidella patelloides (Q. & G. 1832).
Onchidella flavescens Wissel 1904.
Chiton sinclairi Gray 1843.
Plaxiphora caelata (Reeve 1847).
Cytherea oblonga (Hanley 1828).
Dosinia greyi Zittel 1864.
Dosinia subrosea (Gray 1853).
Myadora boltoni Smith 1880.

(Records with one exception from Suter's Manual of the N.Z. Mollusca, 1913.)

CHATHAM ISLAND RECORDS PREVIOUSLY REJECTED.

By (1) Iredale 1915 and (2) Finlay 1928.

(1) *Acanthopleura granulata* (Gmelin 1790).
(1) *Onithochiton semisculptus* Pilsbry 1893.
(2) *Trochus oppressus* (Hutton 1878).
(2) *Cantharidus conicus* (Gray 1827).
(2) *Calliostoma spectabile* (A. Adams 1855).
(2) *Acmaea octoradiata* (Hutton 1873).
(1) *Helcioniscus antipodum* (Smith 1874).
(1) *Helcioniscus radians affinis* (Reeve 1855).
(2) *Trophon paivæ* Crosse 1864.
(2) *Trophon inferus* (Hutton 1873).
(2) *Dentalium opacum* Sowerby 1828.

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Also I record my indebtedness to the Wanganui Museum authorities for the loan of type specimens from the Suter collection.

SYSTEMATIC.

The types of all the new species and representatives of nearly all the new records that appear in this paper are preserved in the Auckland Museum.

PELECYPODA.

PERRIERINIDÆ.

Genus PERRIERINA Bernard 1897.

Perrierina insulana n. sp. Pl. 34, fig. 1.

Shell minute, thin and fragile, ovate, equivalve and inequilateral. Beaks fairly prominent, with a moderately large rounded prodissoconch which is marked off from the post-embryonic part of the shell by a slightly raised thin rim. Sculpture of exceedingly fine and closely spaced concentric growth striae. Under a low power lens the surface appears to be smooth and glossy. Hinge plate narrow and long, typical. Right valve with two divergent cardinals, which are situated in front of the narrow oblique resilium. In addition there are four anterior and five posterior lamellae set obliquely on the distal parts of the hinge-plate. Left valve with three anterior cardinals, and the corresponding lamellae. Central cardinal rectangular, outer two narrow and slightly divergent. Valve margins smooth except for a few weak crenulations on the posterior section of the ventral edge. Colour creamy buff tinged with light brown towards the beaks. The hinge plate and prodissoconch are stained reddish-brown, and there is a faint open pattern of a few zigzag lines, in light brown over the whole shell.

Length, 1.85 mm.; height, 1.55 mm.; thickness (one valve), 0.4 mm.

Habitat: Off Owenga Beach, in 10 fathoms, in clean shell-sand.

This species is the Recent descendant of Marwick's *P. ovata* from the Pliocene of Titirangi, Chatham Island. From the fossil species the Recent one differs constantly in outline, being more evenly ovate. In *ovata* the posterior end is broadly rounded and slightly subangled above and below.

Condylocardiidæ.

Genus Condylocardia Bernard 1896.

Condylocardia pectinata chathamensis n. subsp. Pl. 33, fig. 8.

Shell minute, ovate-trigonal, equivalve, and almost equilateral; radially sculptured with 14 low rounded ribs, having very narrow, almost linear interspaces. The concentric lines of growth cut into these radials, and being rather close together, produce upon them transversely ovate-granules which are most prominent towards the ventral margin. Prodissoconch small, smooth, slightly convex, not prominent but clearly marked off from the rest of the shell. Ligament short, external and situated immediately below the prodissoconch. Resilium broadly triangular and situated in a sunken pit beneath the umbo. There are two cardinals and two laterals in each valve, and they are arranged as follows: In the left valve there is first a socket, then the posterior lateral, followed by a socket and a well defined cardinal which borders the resilium. Following the resilium is a socket and another well defined cardinal and finally another socket and then a lateral. In the right valve there is a posterior lateral, then a socket, followed by an elongated, ill defined cardinal, a socket and then the resilium. Immediately following the resilium is a small, well defined cardinal, a socket, and finally the anterior lateral, followed by a socket. This may be expressed by the following formula:—

L. 01 . 01 r 01 . 01 = 2 laterals + 2 cardinals.

R. 10 . 10 r 10 . 10 = 2 laterals + 2 cardinals.

(r = resilium. 0 = a socket, and . divides the laterals from the cardinals.)

Muscle scars subcircular and about equal in size. Margins of valves strongly crenulate. Colour creamy white.

Length, 1.5 mm.; height, 1.35 mm.; thickness (two valves), 1.1 mm. (Holotype).

Habitat: Waitangi Beach, in shell-sand.

It is rather remarkable that the Chatham shells are so unlike the known New Zealand species, yet so near to the Tasmanian *pectinata* that at first sight the two seem to be identical. True *pectinata* differs from the Chatham shell only in having the

anterior end a trifle more produced. There is much variation in shape in Tasmanian topotypes, and most of them are far more equilateral than is shown in Tate and May's figures. This difference, however, is so slight when series of topotypes are compared that one cannot consider the status of the Chatham shells as more than subspecific.

Condylocardia torquata Marwick 1928.

Habitat: Off Owenga Beach, in 10 fathoms.

Previously recorded from the Chathams, only as a Pliocene fossil.

None of the Recent specimens are quite the size of the solitary Pliocene holotype, but nevertheless the Recent examples are very close to the fossil species in all details, with the exception of the hinge. The anterior cardinal of the left valve of the holotype (described as the right valve by Marwick) is far more prominent and massive than in the Recent examples. However, as the holotype is a fully mature shell probably verging upon senility, this extra development of the cardinal in the holotype may not be of specific importance.

However, the range of Recent specimens, representing both valves of the species, furnishes more complete details of the hinge, which are as follows: Right valve with two cardinals, an obliquely-triangular one in front of the ligament-pit and a very narrow rudimentary one behind, almost on the shell margin. Left valve with two cardinals, a narrowly triangular one in front of the ligament-pit and a thin vertical one bordering the front edge of the ligament-pit. Laterals are represented by thickened anterior and posterior valve edges in the left valve, which fit into distinct grooves in the right valve.

The hinge characteristics are best explained by the following formula:—

L. 1 . 0 r 1 0 1 . 1 = 2 laterals + 2 cardinals.

R. 0 . 1 r 0 1 0 . 0 = 2 lateral sockets + 2 cardinals.

This Chatham Island species is nearest allied to the New South Wales *C. ovata* Hedley 1906 (P.L.S.N.S.W., vol. 30, p. 539).

Genus BENTHOCARDIELLA Powell 1930.

Benthocardiella obliquata chathamensis n. subsp. Pl. 34, fig. 2.

Shell very close to *B. obliquata* Powell 1930, but differing from that species in having a less conspicuous prodissoconch, the rim of which is evenly developed all round without a projecting posterior knob. The outline of the Chatham species is almost identical with that of the North Island *obliquata* except that in the former there is a tendency for full grown shells to be more regularly ovate, the beaks being set not quite so far behind, and the anterior dorsal slope is higher, more convexly

arcuate and less rapidly descending. The hinge characters are the same as in *obliquata.*

Although the two forms seem very closely allied, the difference in the prodissoconchs is very pronounced and so constant that I have no hesitation in declaring the Chatham Island shells a distinct subspecies.

Length, 1.15 mm.; height, 0.90 mm. (Holotype).

Length, 1.11 mm.; height, 0.85 mm.; thickness (two valves), 0.57 mm. (Paratype).

Length, 0.98 mm.; height, 0.75 mm.; thickness (two valves), 0.5 mm. (Paratype).

Habitat: Waitangi Beach, in shell-sand; off Owenga in 10 fathoms in clean shell-sand. (Common.)

ERYCINIDÆ.

Genus NOTOLEPTON Finlay 1926.

Notolepton cf. **antipodum** (Filhol 1880).

Habitat: Off Owenga Beach, in 10 fathoms.

Finlay (1926, p. 463) considers that *K. sanguinea* (Hutton) is very possibly a synonym of *antipodum.* However, specimens referrable to both species occur at the Chathams. The *sanguinea* can be separated from the cf. *antipodum,* not only by the presence of the pink tinged umbo, but also on shell characters, the sculpture being coarser and the outline a trifle less circular. The type of *antipodum* is from Campbell Island, so I have not been able to compare the Chatham shells with actual topotypes. *Sanguinea* was recorded from the Chathams by Finlay (1928, p. 274), but not *antipodum.*

LIMOPSIDÆ.

Genus AUSTROSAREPTA Hedley 1899.

Austrosarepta cf. **harrisonæ** (Powell 1927).

Habitat: Off Owenga Beach, in 10 fathoms. (One valve.)

Iredale (1924, p. 186) has advocated the revival of Hedley's genus as distinct from the Antarctic and Subantarctic *Lissarca,* with which it had been synonymised. Apart from the New South Wales genotype, *Austrosarepta* may be used for the two New Zealand species, *Lissarca harrisonæ* Powell 1927 and *L. pileopsis* Powell 1927.

The main difference between the two genera lies in the form of the resilium, that of *Lissarca* being narrow and oblique, while that of *Austrosarepta* is broadly triangular. Also there is in *Austrosarepta,* on each side of the resilium, a long vertically striated ligamental area, and this was not seen in any of the Subantarctic *Lissarcas* that I have examined.

VENERIDAE.

Genus CHIONE Megerle 1811.

Subgenus AUSTROVENUS Finlay 1926.

Chione (Austrovenus) stutchburyi (Gray 1828).

This species is very abundant in the Te Whanga Lagoon, Chatham Island, but normal, large, heavy shells occur only near the outlet at Te Awapatiki. In the areas remote from the entrance, where the salinity is low and the tidal influence practically nil, only small, thin-shelled specimens occur. Finlay 1928 (p. 278) has remarked upon these stunted thin shells, but had not seen specimens of them nor of the normal form.

In another paper (1932, p. 67) I have remarked that in specimens of *stutchburyi* from northern parts of the North Island there is a slight tendency towards greater inflation and less elongation posteriorly than in Southern specimens. By Southern I mean from localities around Wellington and southward to Stewart Island.

It is of interest in tracing the origin of the Chatham Island fauna to note that the type from the Chathams is of the elongated Southern form.

MACTRIDÆ.

Genus MACTRA Linn. 1767.

Mactra rudis Hutton 1873.

Habitat: Muriwhenua, Te Whanga Lagoon. Broken specimens were seen on the shores, but no whole specimens were collected.

Previously recorded from the Chathams, only as a Pliocene fossil.

SANGUINOLARIIDÆ.

Genus GARI Schumacher 1817.

Gari stangeri (Gray 1843).

Habitat: Owenga Beach (dead shells).

Previously recorded from the Chathams, only as a Pliocene fossil.

PHOLADIDÆ.

Genus ANCHOMASA Leach 1852.

Anchomasa similis (Gray 1835).

Habitat: Waitangi. Boring into soft rock below low tide.

Previously recorded from the Chathams, only as a Pliocene fossil.

GASTEROPODA.

SCISSURELLIDÆ.

Genus SCISSURELLA D'Orbigny 1823.

Scissurella prendrevillei n. sp. Pl. 33, fig. 6.

Shell small, depressed turbinate, umbilicate, white, moderately solid. Whorls 3½, including a delicately radially ribbed protoconch of 1½ whorls, which is marked off from the adult whorls by a prominent varix. Spire low, early whorls not showing above the level of the shoulder of the body-whorl. Fasciole girdle sunken, with sharp raised edges, and it is well defined for fully two-thirds of a whorl behind the apertural slit, which is 2.5 mm. in length in the holotype. The body-whorl is evenly convex, and the fasciole is situated not at the widest part, but between the periphery and the suture. The fasciole also defines the outer limit of a broad and almost flat shoulder. The sculpture is of numerous thin axials, persistent over the whorls from suture to umbilicus, and these are crossed by numerous fine spiral threads. The axials number about 17 on the penultimate whorl and 20 on the body-whorl, the spirals, three on the shoulder and fourteen on the body-whorl and base. Umbilicus deep, about one tenth major diameter and bordered by one of a series of four spirals, which are considerably stronger than the rest. Aperture subquadrate. Peristome simple, continuous except for the slit. Columella oblique, rather straight.

Height, 0.8 mm.; diameter, 1.07 mm. (Holotype).

Habitat: Off Owenga Beach, in 10 fathoms.

No doubt this is the *Scissurella* n. sp. of Finlay (1928, p. 234), which was not then described, as there was only a single specimen available.

Genus SINEZONA Finlay 1926.

Sinezona pauperata n. sp. Pl. 33, figs. 4 and 5.

Shell minute, turbinate, rather thin. There is a moderately large umbilical depression, partially filled with callus, but no true umbilicus. Whorls 3, including a delicately radially ribbed protoconch of one flattened whorl. Post-nuclear sculpture of numerous closely-spaced axial riblets, which are crossed on the periphery by four equispaced spiral threads. There is a moderately large oval foramen with its edges slightly raised, but no fasciole. Aperture obliquely-ovate. Peristome continuous. Spire very little raised, less than half height of aperture. Colour white.

Height, 0.4 mm.; diameter, 0.5 mm. (holotype).

Habitat: Owenga Beach, in 10 fathoms.

This species is well characterised by its minute size, faint peripheral spirals, compact whorling and absence of a fasciole.

TROCHIDÆ.

Genus CANTHARIDUS Montfort 1810.

Cantharidus opalus cannoni n. subsp. Pl. 36, figs. 15 and 16.

Habitat: Abundant all round the Chathams on D'Urvillea.

The subspecies differs from the typical species in being proportionately much broader and in the spire being concave and the body-whorl inflated.

Finlay (1928, p. 238) noted the distinctive characters of his Chatham specimens, but owing to an insufficient range of specimens he hesitated to give them a name.

After examining a large series of specimens from the Chathams, North Auckland, Bay of Plenty, Cook Strait, West Nelson and Stewart Island, I find that the Chatham specimens are constantly the wide form, and all the others are invariably the narrow form.

Suter's *C. opalus biangulatus* Suter 1908 from Cook Strait is not comparable with the Chatham Island broad form, the disproportionate body-whorl being abnormal, as is clearly shown by the straight and narrowly conical spire whorls, which are identical with those of the typical species.

Height, 42 mm.; diameter, 33.5 mm. (holotype from Kaingaroa).

Height, 43.5 mm.; diameter, 28 mm. (typical *opalus*, Whangarei Heads).

Genus MICRELENCHUS Finlay 1926.

Micrelenchus sanguineus morioria n. subsp. Pl. 36, figs. 10 and 11.

Spire bluntly conical, same height as aperture, sides convex. Body-whorl large, rounded but broadly subangled at periphery. Sculpture consisting of flattened spiral cinguli with interspaces about equal to the width of the cinguli. These spirals number five on the early whorls, six on the penultimate and fourteen on the body-whorl and base. There is no umbilical chink. The ground colour is pale pink and the cinguli are picked out in scarlet.

Height, 7 mm.; diameter, 6 mm. (holotype).

Habitat: Off Owenga Beach, in 10 fathoms. Also common in the Pliocene at Titirangi, Chatham Island.

This species belongs to the *sanguinea* series, but has the coloration of *rufozona*. From typical *sanguinea* it is distinguished by its more rounded body-whorl and different coloration. It is nearest to the Auckland Island *M. sanguinea mortenseni* (Odhner 1924), which is of similar shape and coloration, but has all the cinguli distinctly granulate.

LIOTIIDÆ.

Genus LIOTELLA Iredale 1915.

Liotella polypleura (Hedley 1904).

Habitat: Off Owenga Beach, in 10 fathoms; Waitangi, in shell-sand.

A Chatham Island shell was recorded by Finlay (1928, p. 239) as n. sp. aff. *polypleura,* but after examining a series of specimens I am unable to separate Chatham examples from topotypes. Hedley described his species as having 16 riblets on the last whorl, but the majority of topotypes have from 17 to 19 riblets.

Genus MUNDITIA Finlay 1926.

Munditia owengaensis n. sp. Pl. 33, figs. 9 and 10.

Shell small, white, shining, discoidal, almost flat above and widely umbilicate below. Whorls 2½, very rapidly increasing. Protoconch of one and a-quarter smooth flattened whorls. Sculpture consisting of numerous, prominently raised radial ribs, which are continuous over the whorls right from the upper suture to within the umbilicus. These radials number fourteen on the body-whorl, and they are bluntly rounded above and below, but quite thin and sharp over the peripheral area, which has four distinct widely and evenly spaced linear, raised cords. The uppermost and lowest of these form subangles with the dorsal surface and base respectively. Aperture large, circular. Peristome smooth, continuous, strengthened on the outside by one of the radials. Umbilicus wide and deep, about one fourth the major diameter of the base.

Height, 0.6 mm.; diameter, 1.1 mm. (Holotype).

Habitat: Off Owenga Beach, in 10 fathoms, in clean shell-sand.

The previously known New Zealand species of *Munditia* are *tryphenensis* (Powell 1926), *serrata* (Suter 1908) and *suteri* (Mestayer 1919), but the Chatham Island species is not closely allied to any of them.

Genus BROOKULA Iredale 1912.

Subgenus AEQUISPIRELLA Finlay 1924.

Brookula (Aequispirella) finlayi n. sp. Pl. 33, fig. 1.

Shell minute, elevated-turbinate, thin, narrowly perforate, white, translucent, shining. Whorls 4½, including a bluntly rounded but moderately elevated smooth globose protoconch of 1¼ whorls. Spire tall, 1½ times height of aperture. Sculpture consisting of numerous narrow but prominent axial ribs with the interspaces four to six times the width of the ribs. These interspaces are crossed by less conspicuous sculpture of fine spiral threads. There are 21 axials on the penultimate and 27 on the body-whorl. The number of axials in *corulum,* averaged from

four topotypes, is 28 for the penultimate and 32.5 for the body-whorl. The spirals number six on the early spire whorls and about ten on the penultimate. On the base the axials become weaker, finishing abruptly before reaching the umbilicus, and the spirals are more numerous and closely spaced, they, likewise, terminating just before reaching the umbilical cavity. Umbilicus narrow but deep. Aperture circular, peristome continuous, thin and sharp.

Height, 1.3 mm.; diameter, 0.95 mm. (Holotype).

Habitat: Off Owenga Beach, in 10 fathoms, in clean shell-sand (type) ; Waitangi, in shell-sand.

This species is closely allied to the Pliocene-Recent *corulum*, but differs in having more narrowly conical apical whorls and fewer axial ribs. *Finlayi* is not restricted to the Chathams, for it is rather common in shell-sand from Tom Bowling Bay, northernmost New Zealand. However, *corulum* also occurs Recent, for I have it from 10-12 fathoms off Wanganui, but not from further north, where it seems to be represented by an obtuse-spired closely allied new species which I have from 20 fathoms, off the Little Barrier Island.

PATELLIDÆ.

Genus CELLANA H. Adams 1869.

Cellana chathamensis (Pilsbry 1891). Pl. 36, figs. 1-4.

1891. *Acmaea chathamensis* Pilsbry. Manual of Conchology, Vol. 13, p. 56.

I found only one species of the *Patellidæ* at the Chathams, and it must bear the above name. Pilsbry's species was described as an *Acmaea*, but it is undoubtedly the young of the shells which have been recorded as *strigilis* and *redimiculum* (Suter 1913). The figure of Pilsbry's species does not coincide with the dimensions he cites, being proportionately wider, but actual specimens agree with these measurements exactly. The species is given to extreme variation in colour pattern, those from light coloured tuffaceous rocks having a pale whitish or yellowish ground, with a sparse and irregular dark-brown radiate pattern, while those from lava flows have the radiate pattern as such a dense network that the light coloured ground shows only when the shell is held up to the light, the general effect being uniformly dark. Every conceivable intermediate form occurs, but no shell that I have seen can be ascribed to *radians*.

The Chatham shells are undoubtedly a distinct species, being nearest allied to the South Island *redimiculum*, but differing in having weaker radials, the young shells being almost smooth, and in the colour pattern being most frequently of simple radials, seldom blotched or anastomosing. A series covering growth stages and colour variants is given. The largest figured specimen measures 55 mm. x 45 mm., and the smallest 21 mm. x 15.75 mm.

Finlay (1926, p. 338) is undoubtedly wrong in ascribing *redimiculum* to the genus *Nacella*. Actual live specimens of this species and of *chathamensis* that I have examined, have the unmistakable *Cellana* features of the gill cordon interrupted by the head and no epipodial processes on the sides of the foot. *Nacella* undoubtedly occurs in the Subantarctic of New Zealand, but should be restricted at present to *N. macquariensis* Finlay 1926 (= *delesserti* of Hedley 1916) and *N. kerguelenensis* Smith. Shells of this genus can be readily distinguished by the peculiar bronze irridescence.

LITORINDÆ.

Genus MACQUARIELLA Finlay 1926.

Macquariella n. sp. Pl. 33, fig. 7.

Habitat: Waitangi, Chatham Islands, in shell-sand.

This species I am describing from Auckland Island specimens in a paper on Subantarctic Mollusca which should appear in part 5, vol. 20, of the Proceedings of the Malacological Society, London.

The Auckland Island specimens are rather worn and are described as being uniformly reddish-brown. However, the better preserved Chatham material shows that there is a zone of paler colour over the lower part of the base. The Chatham shells vary slightly, some having higher spires than in the few available Auckland Island specimens, so I figure one of the Chatham Island extreme forms, for comparison with the figure of the holotype, when it appears.

Genus ZELAXITAS Finlay 1926.

Zelaxitas micra (Finlay 1924).

Habitat: Waitangi, Chatham Islands, in shell-sand.

I have not been able to compare the Chatham shells with topotypes, but they match the description and figure in all respects. Not previously recorded from the Chatham Islands.

RISSOIDÆ.

Genus NOTOSETIA Iredale 1915.

Notosetia neozelanica (Suter 1898). Pl. 34, fig. 10.

Habitat: Waitangi, in shell-sand (one specimen). Not previously recorded from the Chathams.

A lectotype of Suter's species has been selected from the syntypes, 23 in number, and is here figured. The dimensions of the figured lectotype are: Height, 2.15 mm.; diameter, 1.5 mm. Profile of outer-lip inclined forwards above.

Notosetia infecta (Suter 1908). Pl. 34, fig. 5.

Habitat: Waitangi, in shell-sand. Not previously recorded from the Chathams.

A lectotype of Suter's species has been selected from his 29 syntypes, and is here figured. The dimensions of the figured lectotype are: Height, 1.75 mm.; diameter, 1.1 mm. Profile of outer lip straight with axis of whorls.

Notosetia verecunda (Suter 1908). Pl. 34, fig. 11.

Habitat: Waitangi, in shell-sand. Not previously recorded from the Chathams.

A lectotype of this species has been selected from Suter's 14 syntypes, and it is here figured. Its dimensions are: Height, 1.90 mm.; diameter, 1.25 mm.

Notosetia lampra (Suter 1908). Pl. 34, fig. 7.

Habitat: Off Owenga Beach, in 10 fathoms. Not previously recorded from the Chathams.

A Chatham Island specimen is figured and its dimensions are: Height, 1.10 mm.; diameter, 0.65 mm. The holotype is a larger shell, but it is slightly abnormal in coiling. Paratypes are more the size of Chatham specimens and cannot be separated from them.

This species was referred to *Estea* by Iredale (1915, p. 454), but it does not belong there, for the shell is very thin in build and the peristome is neither thickened within nor expanded.

Notosetia lubrica (Suter 1898).

Habitat: Off Owenga Beach, in 10 fathoms. Not previously recorded from the Chathams.

A new figure of the holotype is given (Pl. 34, fig. 3), as Suter's figure shows the spire tapered too much. Also the correct dimensions are: Height, 1.75 mm.; diameter, 0.85 mm., not diameter 0.6 mm., as described by Suter.

Notosetia atomaria n. sp. Pl. 34, fig. 9.

Shell minute, globular, thin, translucent, smooth and polished. Coloured uniformly light brown. Whorls four, including small depressed protoconch of one smooth whorl. Apart from a few faint axial growth lines there is no true sculpture. Spire broadly conical, a little less than height of aperture. Aperture circular. Peristome oblique in profile, inclined forwards above, discontinuous, but connected across parietal wall by a thin callus. There is a small crescentic umbilical chink. Outer lip thin and sharp.

Height, 1.20 mm.; diameter, 1.05 mm. (holotype).

Habitat: Waitangi, in shell-sand.

This species is allied to *subflavescens* Iredale (= *atomus* Suter) from 50 fathoms, off the Bounty Islands. However, *subflavescens* differs from *atomaria* in being more ovate in outline, and in having the umbilical chink almost obsolete.

A lectotype of *Rissoa atomus* has been selected from Suter's five syntypes, and is here figured (Pl. 34, fig. 8). The dimensions of the figured lectotype are: Height, 1.25 mm.; diameter, 0.95 mm.

Notosetia exaltata n. sp. Pl. 34, fig. 6.

Shell minute, elongate-conic, moderately solid. Coloured uniformly light-brown. Whorls 5, including low dome-shaped protoconch. Protoconch and the whole of the post-nuclear whorls smooth and polished. Spire elevated, conic, $1\frac{1}{2}$ times height of aperture. Suture false-margined, due to the base of the previous whorl showing through, giving the appearance of a narrow sub-sutural band of darker brown. Aperture ovate-pyriform, comparatively small. Peristome discontinuous but united by an almost straight and upright columella, and a thin parietal callus, oblique in profile and inclined forwards above. There is a small crescentic umbilical chink. Outer lip thin and sharp, slightly adpressed at the suture.

Height, 1.55 mm.; diameter, 0.9 mm. (holotype).

Habitat: Off Owenga Beach, in 10 fathoms, in clean shell-sand.

This species belongs to the *micans* group.

Genus Estea Iredale 1915.

Estea rekohuana n. sp. Pl. 35, fig. 9.

Shell small, ovate, solid. Whorls $4\frac{3}{4}$, including low dome-shaped protoconch of $1\frac{3}{4}$ whorls, which is faintly sculptured with closely spaced spiral striae. The surface of the post-nuclear whorls is smooth, but not polished, and apart from faint, slightly oblique axial growth lines, there is no true sculpture. Spire elevated, bluntly conical, one and a-half times height of aperture. Colour reddish-brown, except for a narrow whitish band immediately below the suture, and the peristome and interior of the aperture, which is more yellowish than reddish-brown. Aperture very large, almost circular. Peristome continuous, much thickened within and clearly marked off from the base by a heavy callus. There is no umbilical chink.

Height, 2.2 mm.; diameter, 1.2 mm. (holotype).

Habitat: Waitangi (holotype) and Waitangi West, on under sides of stones.

This species is intermediate in size between *Estea minor* (Suter) and *Estea subfusca* (Hutton). Also, it has a relatively larger aperture than in either species, and a distinctive outline,

the whorls being less convex than in *minor* and the body-whorl more obese than in *subfusca*. A figure of a lectotype of Suter's *Rissoa annulata* var. *minor* is given (Pl. 35, fig. 4).

Estea guesti n. sp. Pl. 35, fig. 5.

Shell small, but large for the genus, elongate-conic, solid. Whorls 6, including a low dome-shaped protoconch, of 1½ whorls, which is faintly sculptured with closely spaced spiral striae. Surface of post-nuclear whorls smooth and polished. Spire tall, almost twice height of aperture. Outline of body-whorl bulging and subangled at the periphery, outline of spire whorls almost straight. Aperture comparatively small, almost circular. Peristome continuous, much thickened within and clearly marked off from the base by a heavy callus. There is no umbilical chink. Ground colour pinkish buff to light brown, protoconch reddish-brown, upper spire whorls tinged by a very faint greyish zone spread over the lower part of the whorls and faintly persistent on the body whorl at the periphery, in front of the aperture, where the middle of this zone is more distintcly marked by a narrow line of darker grey, which proceeds from the suture. All the available specimens are dead shells, so the colour pattern should be more definite in fresh specimens. Aperture, with a narrow diffused ring of chocolate, just within.

Height, 2.8 mm.; diameter, 1.5 mm. (holotype).

Habitat: Waitangi, in shell-sand.

Compared with *zosterophila*, the Chatham species is much larger, has a subangulate body-whorl and a proportionately smaller aperture. It also resembles *subfusca*, so a figure of that species (Pl. 35, fig. 7) is given for comparison with the above new species, as well as with *rekohuana* and *porrecta*, also described herein.

Estea morioria n. sp. Pl. 35, fig. 6.

Shell minute, elongate-cylindrical, rather thin. Protoconch and spire whorls light-brown, fading to white on the body-whorl and within the aperture. Surface of post-nuclear whorls sculptured with fine, indistinct, closely spaced spiral striations, which are crossed by equally fine and closely spaced retractively-arcuate axial striations. Whorls 5, including a bluntly rounded protoconch of 1½ microscopically finely striated whorls. Spire tall, twice the height of aperture, cylindrical, sides almost straight. Aperture almost circular. Peristome continuous, much thickened inside and slightly expanded. Profile of outer lip parallel with axis of whorls. There is no umbilical chink.

Height, 2.5 mm. (estimated), 1.9 mm. (actual); diameter, 0.85 mm. (estimated), 0.8 mm. (actual). (Holotype.)

No perfect examples were found; the holotype has the outer lip missing, but the details of this are supplied by a paratype which has the body-whorl and aperture perfect, but no spire.

Habitat: Off Owenga Beach, in 10 fathoms, in clean shell-sand.

This species is a miniature of the Foveaux Strait *micronema* Suter, but it differs further in being much more cylindrical in outline.

Estea cf. **insulana** Marwick 1928.

Habitat: Off Owenga Beach, in 10 fathoms. One specimen of 4½ whorls, without the adult lip.

Previously recorded from the Chathams, only as a Pliocene fossil.

Estea porrecta n. sp. Pl. 35, fig. 8.

Shell small but moderately large for the genus, elongate, subcylindrical, solid and smooth. Whorls 6, including a low dome-shaped protoconch of 1½ whorls (surface worn). Spire tall, two and a-half times height of aperture. Outline of whorls lightly convex, spire very gradually tapered. Aperture oblique-oval, very small. Peristome continuous, much thickened within the aperture and clearly marked off from the base by a heavy callus. There is no umbilical chink. Colour uniformly yellowish-brown, probably darker in fresh specimens.

Height, 2.7 mm.; diameter, 1.0 mm. (holotype).

Habitat: Waitangi, in shell-sand.

This species is nearest to *E. micronema* Suter in shape, but it differs in having a considerably smaller aperture and no sculpture.

Estea gracilispira n. sp. Pl. 34, fig. 4.

Shell minute, elongate-oval, semi-transparent, white, polished, thin and fragile. Whorls 4½, including low dome-shaped smooth protoconch, which is not clearly marked off from the post-nuclear whorls. Apart from very faint obliquely retractive growth striae there is no sculpture, the surface of all whorls being smooth and glossy. The suture is false-margined by the base of the preceding whorl showing through. Spire tall, 1½ times height of aperture. Aperture almost circular. Peristome continuous, dilated slightly over the basal and columellar portions and adnate across parietal wall as a distinct connecting callus. In profile the outer lip is straight with the axis of the whorls. There is no true umbilical chink, but there is a slight cavity owing to the overhanging nature of the columellar lip.

Height, 1.25 mm.; diameter, 0.60 mm. (holotype).

Habitat: Off Owenga Beach, in 10 fathoms, in clean shell-sand.

In its thin, semi-transparent shell this species appears to be a *Notosetia,* but the aperture is definitely of the *Estea* type.

Genus LINEMERA Finlay 1924.

Linemera maclurgi n. sp. Pl. 33, fig. 2.

Shell small, elongate-ovate, moderately solid, white. Whorls 5, including a prominent protoconch of two globose, smooth whorls. Post-nuclear sculpture of prominent axials, crossed by less prominent spirals. The points of intersection are raised into rounded gemmules. There are seventeen axials on the penultimate and nineteen on the body-whorl, and the interspaces are a little wider than the width of the axials. The spiral cords are few, only two on the spire whorls, with a third developing from the lower suture on the body-whorl, and two more on the base. Spire tall, about one and two-thirds height of aperture. Aperture ovate. Peristome continuous, not variced. There is a long crescentic umbilical chink, and this is bordered by the lower of the two basal spirals.

Height, 1.8 mm.; diameter, 1.05 mm.

Habitat: Off Owenga Beach, in 10 fathoms, in clean shell-sand (holotype) ; Waitangi, in shell-sand.*

The previously described species all differ in having a greater number of spiral cords. The species is named after Mr. Tom MacClurg, whose launch was used for the dredging.

Genus MERELINA Iredale 1915.

Merelina waitangiensis n. sp. Pl. 33, fig. 3.

Shell nearest to *superba* Powell 1927, but differing from that species in having more numerous spiral ridges and fewer axials, which causes the enclosed rectangular interspaces to be more than twice as long as high. Penultimate whorl with thirteen axials. Spire whorls with four to five spirals, body-whorl with nine. In *superba* there are from three to five spiral ridges on spire whorls and eight on the body-whorl. Post-nuclear whorls 5, protoconch damaged. Spire tall, more than three times height of aperture. Colour uniformly buff.

Height, 4.3 mm. (actual), 4.4 mm. (estimated) ; diameter, 1.7 mm. (holotype).

Habitat: Waitangi, in shell-sand.

Genus SUBONOBA Iredale 1915.

Subonoba inornata n. sp. Pl. 35, fig. 3.

Shell minute, subcylindrical, thin, coloured uniformly pale buff. Surface dull, smooth except for weak spiral lirae. Whorls $4\frac{1}{2}$, including bluntly rounded protoconch of $1\frac{1}{2}$ smooth whorls. Spire tall, about $1\frac{1}{2}$ times height of aperture. Post-nuclear whorls faintly angled at the upper third. Sculpture consisting of low,

*I have since found this species in a dredging from 170 fathoms, off the Bounty Islands.

indistinct spiral lirae, five on the penultimate and eight on the body-whorl and base. The width of the interspaces is about equal to that of the lirae. On the base the three spirals are grouped above, leaving the lower half smooth. Aperture large, oblique, ovate-pyriform. Peristome continuous. Outer-lip dilated oblique in profile with a shallow sinus above, and inclined forwards basally.

Height, 1.92 mm.; diameter, 0.9 mm. (holotype).

Habitat: Waitangi, on seaweeds.

This species is closely related to *Subonoba parvula* Powell 1931, but it differs in being larger and distinctly shouldered, and in having fewer spiral lirae. Both these species are difficult to place generically. Except for the absence of axial sculpture there is a strong resemblance to *Austronoba candidissima* (Webster), and a superficial likeness to *Striatestea bountyensis* Powell 1927, but in the latter the aperture is straight with the axis of the whorls, and the protoconch more narrowly conical. Although the aperture in *parvula* and *inornata* is more pyriform than in typical members of *Subonoba,* the shells are not dissimilar in other respects and may be provisionally located here until more is known concerning the anatomy of our Rissoids.

Subonoba cf. **paucicostata** Powell 1931.

Habitat: Waitangi, in shell-sand. The type is from off the Bounty Islands, in 50 fathoms.

Chatham shells have a slightly smaller body-whorl and there is an incipient sixth spiral ridge, which appears near the upper suture of the body-whorl, but there is insufficient material to determine if these differences are constant.

Not previously recorded from the Chathams.

Subonoba morioria n. sp. Pl. 35, fig. 2.

Shell small, ovate, thin, fragile, white and translucent. Whorls $4\frac{1}{2}$, including a bluntly rounded protoconch of $1\frac{1}{2}$ smooth whorls. Spire tall, about $1\frac{1}{4}$ times height of aperture. The sculpture consists of numerous fine and closely spaced spiral lirae, 9 on the penultimate whorl, and 14 on the body-whorl and base. The interspaces are mostly about half the width of the lirae, but those near to the upper suture are wider and equal to the width of the lirae. Aperture ovate, peristome continuous. Outer-lip with a shallow sinus above and inclined forwards slightly below.

Height, 1.9 mm.; diameter, 1.0 mm. (holotype).

Habitat: Waitangi Beach, in shell-sand.

This species has the same number of penultimate spirals as in *foveauxiana,* but is nearer to *fumata* in shape. From *fumata,* which also occurs commonly at the Chathams, *morioria* differs in having stronger spirals, a more inflated body-whorl and a shorter spire.

A lectotype of *S. foveauxiana* has been selected from Suter's two syntypes and a figure of it is given for comparison with the Chatham Island species. (Pl. 35, fig. 1.)

CYMATIIDÆ.

Genus CABESTANA Bolten 1798.

Cabestana waterhousei segregata Powell 1933.

Habitat: Owenga Beach (one badly worn specimen). Not previously recorded from the Chathams.

PYRAMIDELLIDÆ.

"Turbonilla" campbellica Odhner 1924. Waitangi, under stones.

Chemnitzia n. sp. Off Owenga, in 10 fathoms.

New genus and species aff. **Turbonilla.** Waitangi, in shell-sand.

New genus and species aff. **Pyrgulina.** Waitangi, in shell-sand.

Evalea sabulosa (Suter 1908). Waitangi, in shell-sand.

"Odostomia" cryptodon Suter 1908. Waitangi, in shell-sand.

Graphis blanda (Finlay 1924). Off Owenga, in 10 fathoms.

For the above identifications I am indebted to Mr. C. R. Laws, who has written a monograph of the N.Z. Pyramidellid Molluscs, in which will appear the new genera and species here listed.

The above species are all new additions to the Chatham Island faunal list.

VOLUTIDÆ.

Genus PACHYMELON Marwick 1926*

Subgenus PALOMELON Finlay 1926.

Pachymelon (Palomelon) wilsonæ n. sp. Pl. 36, fig. 18.

Shell large, solid, fusiform. Spire half height of aperture. Nucleus damaged. Post-embryonic whorls 5, spire whorls sub-angled at the middle, body-whorl moderately inflated, contracting gradually to a feeble fasciole. Sculpture consisting of narrow axial ribs, extending from suture to suture on the spire whorls, and to just below the periphery on the body-whorl. These axials are thickened slightly in the middle, where they cross the subangle. On the last half-whorl they become sub-obsolete. There are 14 axials on the penultimate whorl and 12 on the ante-penultimate. Aperture elongate, with a moderately wide but very shallow basal notch. Columella straight, with four strong oblique plaits, uppermost strongest, lower three becoming weaker in descending order. Inner-lip spread as a thin glaze in one wide sweep over the body-whorl. Colour pinkish-buff, maculated with three zones

**Pachymelon*, proposed as a subgenus of *Waihaoia* by Marwick, has been given generic status by Finlay in Laws (1932, p. 200).

of irregular zigzag markings of dark reddish-brown. Upper band below suture, middle band at periphery, and lower one bordering the fasciole.

Height, 112 mm. (estimated), 109 mm. (actual); diameter, 47 mm. (Holotype).

Habitat: Owenga Beach. (One well preserved dead shell and a fragment among debris cast up on the beach.)

The holotype was found by Miss B. M. Wilson, of Whare-kauri. This makes a very important addition to the New Zealand Recent fauna, as it is the second known member of its subgenus. Watson's *Cymbolia lutea*, the type of *Palomelon*, is a unique species dredged by the "Challenger" Expedition in 275 fathoms, 250 nautical miles west of New Plymouth.† Compared with *lutea*, the Chatham shell is much larger and more stoutly built, with stronger axials and a shorter spire.

Buccinulidæ.

Genus Buccinulum Swainson 1837.

Buccinulum waitangiensis n. sp. Pl. 36, figs. 12 and 13.

This species has been recorded from the Chathams as *lineum*, by both Finlay and myself, but the collecting of a series of specimens at Waitangi, where it is common, demonstrates that the specific identity with the northern species can no longer be maintained.

From *lineum*, the Chatham species differs in shape, being proportionately wider, owing to the body-whorl being considerably inflated, and the colour lines, although variable in number, are always fewer than in *lineum*.

The holotype has three lines on the spire whorls, a further three round about the periphery of the body-whorl, and two towards the neck of the anterior canal. An extreme paratype has one line on spire whorls, three on body-whorl, and a fourth near canal neck. In *lineum* the colour lines are far more constant, four appearing on spire whorls and ten on body-whorl. However, quite apart from the colour pattern, the shape of the Chatham species is quite constant and very distinct from that of true *lineum*, specimens of which are figured for comparison. (Pl. 36, fig. 14.)

Height, 42 mm. (estimated), 41 mm. (actual); diameter, 21 mm. (holotype).

Height, 41 mm.; diameter, 19.5 mm. *(lineum).*

Habitat: Waitangi Beach.

†See Marwick (1926, p. 282).

Genus COMINELLA H. and A. Adams 1853.

Subgenus EUCOMINIA Finlay 1926.

Cominella (Eucominia) ellisoni consobrina n. subsp. Pl. 36, fig. 8.

Four dead shells collected together with some hundreds of *C. iredalei* from the beach near Owenga, are definitely not the latter species, but are much nearer to the Pliocene *ellisoni* in shape, but not in sculpture. Furthermore, one of a series of shells from Titirangi, the type locality for *ellisoni*, differs from that species in having the characteristics of the Recent subspecies, which I here propose as new. Obviously this subspecies is between the common Pliocene *ellisoni* and the common Recent *iredalei*, but although a large number of specimens were collected, no connecting intermediates were found either at Owenga or at Titirangi. The three Owenga specimens are very worn and bleached, so there is just a possibility that they may have been weathered out from some unknown submerged outcrop of the Titirangi formation. However, this is unlikely, as many of the *iredalei* specimens exhibit the same degree of weathering as in the *consobrina* specimens.

Post-embryonic whorls, six. Sculpture of prominent axials and spirals. There are 17 axials on the penultimate, on the holotype and two paratypes, and 15 in the Titirangi specimen. A deep subsutural fold cuts across the axials, leaving a nodulous band at the suture, as in *iredalei*. Spiral sculpture strong, as in *ellisoni*, about six from subsutural groove to lower suture. Spire tall, a little more than height of aperture. In *iredalei* the spire is constantly lower than the aperture.

Height, 62 mm. (estimated), 60.5 mm. (actual); diameter, 29 mm. (holotype).

Height, 53 mm.; diameter, 31 mm. *(iredalei)*.

Height, 60 mm.; diameter, 31 mm. *(ellisoni)*.

Habitat: Owenga Beach; Titirangi (Pliocene).

The Titirangi specimen was collected by Mr. C. A. Fleming, who accompanied me.

PYRENIDÆ.

Genus ZEMITRELLA Finlay 1926.

Zemitrella finlayi n. sp. Pl. 36, fig. 6.

Shell small, elongate-oval. Whorls 5, including typical protoconch of two smooth papillate whorls. Spire tall, conical, one and a fourth times height of aperture. Body-whorl narrow, almost cylindrical. The only sculpture consists of eight closely spaced spiral striae at the anterior end of the body-whorl. Colour yellowish-brown, with a very narrow white line below the periphery and a spiral series of widely spaced dots just below, while on the sculptured anterior end there is a further series of

white dots. In some of the paratypes there is in addition a peripheral series of white dots on the body-whorl, and in a few others all three white zones are more or less connected axially by zigzag white lines. Base of pillar with a very weak oblique plait, which is most distinct in half-grown shells.

This species differs from *chaova* in having a less inflated body-whorl and fewer spirals on the anterior end.

Height, 4.0 mm.; diameter, 1.7 mm. (Holotype).

Habitat: Waitangi, in shell-sand.

The holotype of Suter's *Paxula leptalea,* from 50 fathoms, off the Bounty Islands, is also figured (Pl. 36, fig. 5), as Finlay (1928, p. 256) has recorded *Paxula* n. sp. aff. *leptalea,* from the Chathams.

PHILINIDÆ.

Genus PHILINE Ascanius 1772.

Philine cf. **constricta** Murdoch and Suter 1906.

Habitat: Off Owenga, in 10 fathoms. The single live specimen was crushed by the dredge, so its identification is a little uncertain. Not previously recorded from the Chathams.

CEPHALOPODA.

ARGONAUTIDÆ.

Genus ARGONAUTA Linn. 1758.

Argonauta nodosa Solander 1786.

Finlay recorded *A. argo* Linn. from the Chathams, but all the specimens I have seen are referrable to *nodosa.* Suter, in his Atlas, Pl. 72, has confused matters by figuring true *nodosa* as *argo,* although in his synonymy of *argo* he includes Kirk's *A. bulleri* from Portland Island, which, as shown by Kirk's figure, Pl. 4, is a true *argo,* having the ribs free from tubercles on the sides.

Now apart from *argo* there are two distinctive Argonauts found in New Zealand, both of which attain a large size and are similarly tubercular in sculpture. They differ in that one, *nodosa,* has "ears" or projections between the whorl and the normal sweep of the lip, while in the other, which seems to be Shaw's *tuberculata,* the lip swings out direct from the whorl in an even curve. These differences are constant in series and in all growth stages of both species.

Formerly *nodosa* and *tuberculata* were considered to be synonymous, but it seems likely from early figures that *tuberculata* represents the evenly arcuate lipped shell and *nodosa* the eared one. Unfortunately I have not been able to refer to Shaw's original figure of *tuberculata,* but W. Wood, 1825, in his "Catalogue of Shells," figures a *tuberculata* without "ears," and Tryon, 1879, Manual of Conchology, figures a *nodosa* with definite "ears."

Even if the names *tuberculata* and *nodosa* prove to be both applicable to the one type of shell, the former name must fall as a synonym of *nodosa,* which was published in the "Portland Catalogue" in 1786, four years prior to Shaw's species.

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Fig. 1. *Brookula (Aequispirella) finlayi* n. sp. (Holotype).
Fig. 2. *Linemera maclurgi* n. sp. (Holotype).
Fig. 3. *Merelina waitangiensis* n. sp. (Holotype).
Fig. 4. *Sinezona pauperata* n. sp. (Holotype).
Fig. 5. *Sinezona pauperata* n. sp. (Paratype).
Fig. 6. *Scissurella prendrevillei* n. sp. (Holotype).
Fig. 7. *Macquariella* n. sp.
Fig. 8. *Condylocardia pectinata chathamensis* n. subsp. (Holotype).
Figs. 9 and 10. *Munditia owengaensis* n. sp. (Holotype).

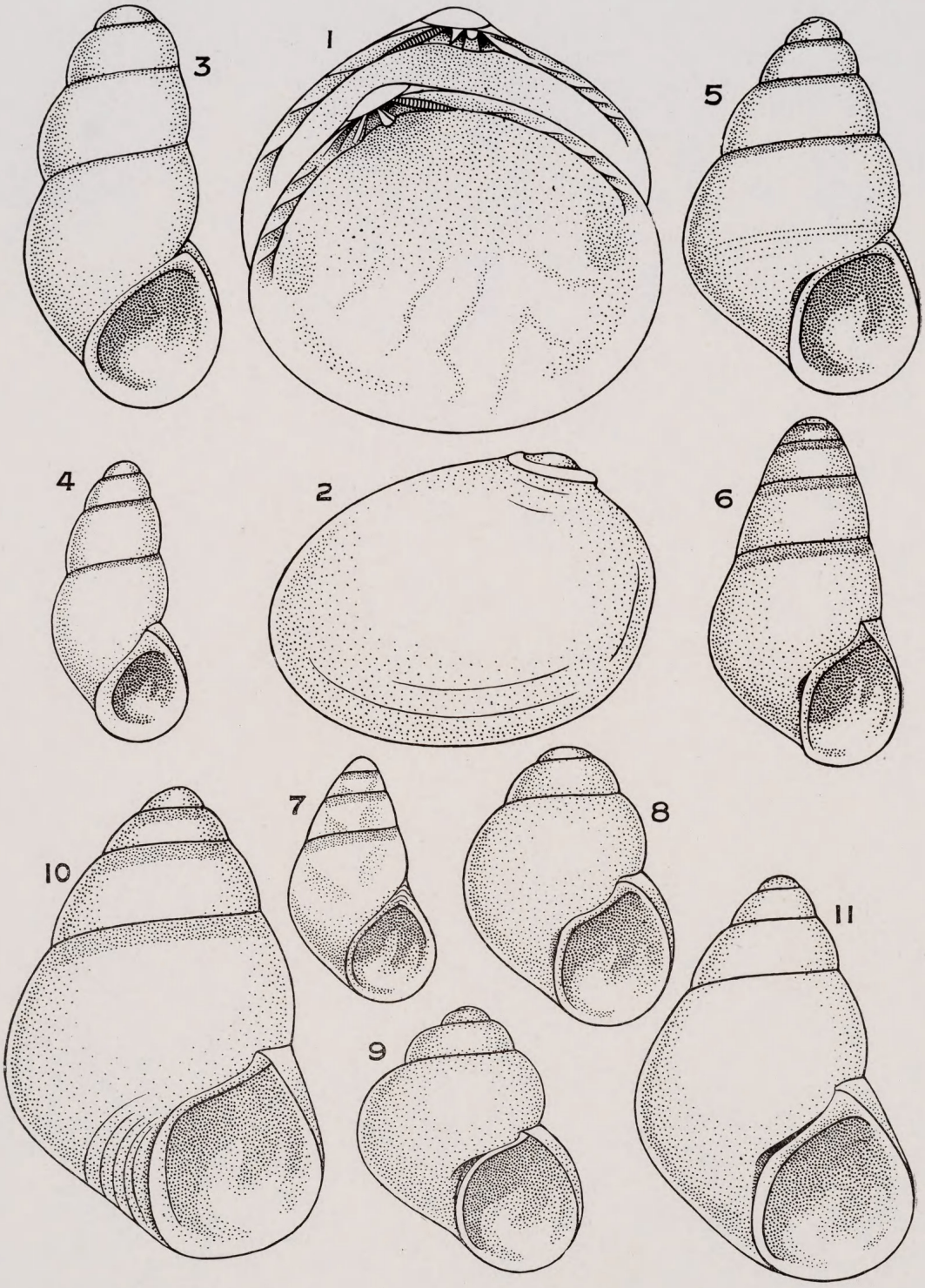


Fig. 1. *Perrierina insulana* n. sp. (Holotype).
Fig. 2. *Benthocardiella obliquata chathamensis* n. subsp. (Holotype).
Fig. 3. *Notosetia lubrica* (Suter) (Holotype).
Fig. 4. *Estea gracilispira* n. sp. (Holotype).
Fig. 5. *Notosetia infecta* (Suter) (Lectotype).
Fig. 6. *Notosetia exaltata* n. sp. (Holotype).
Fig. 7. *Notosetia lampra* (Suter) 10 fathoms off Owenga.
Fig. 8. *Notosetia subflavescens* (Iredale) (=*R. atomus* Suter) (Lectotype).
Fig. 9. *Notosetia atomaria* n. sp. (Holotype).
Fig. 10. *Notosetia neozelanica* (Suter) (Lectotype).
Fig. 11. *Notosetia verecunda* (Suter) (Lectotype).

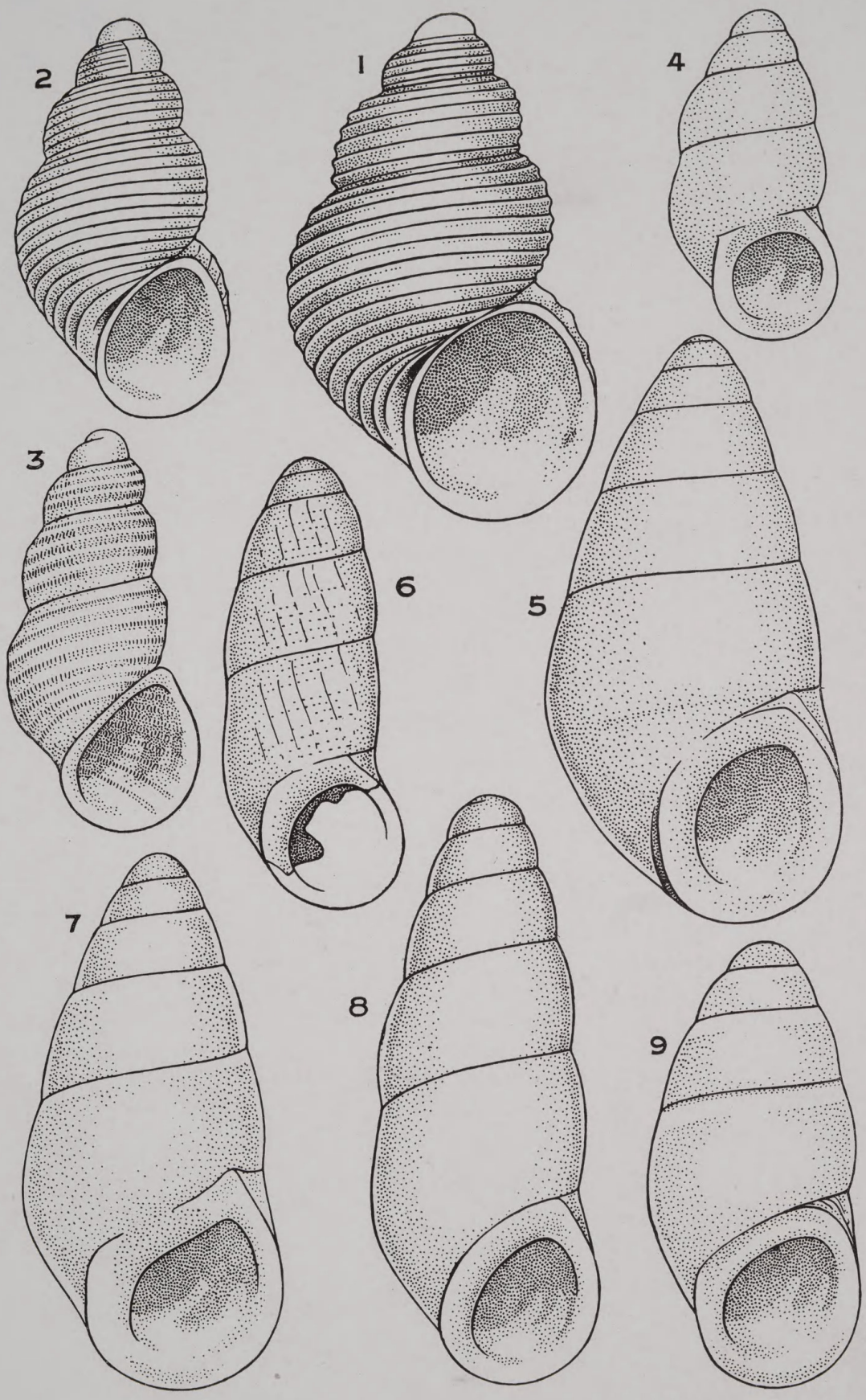
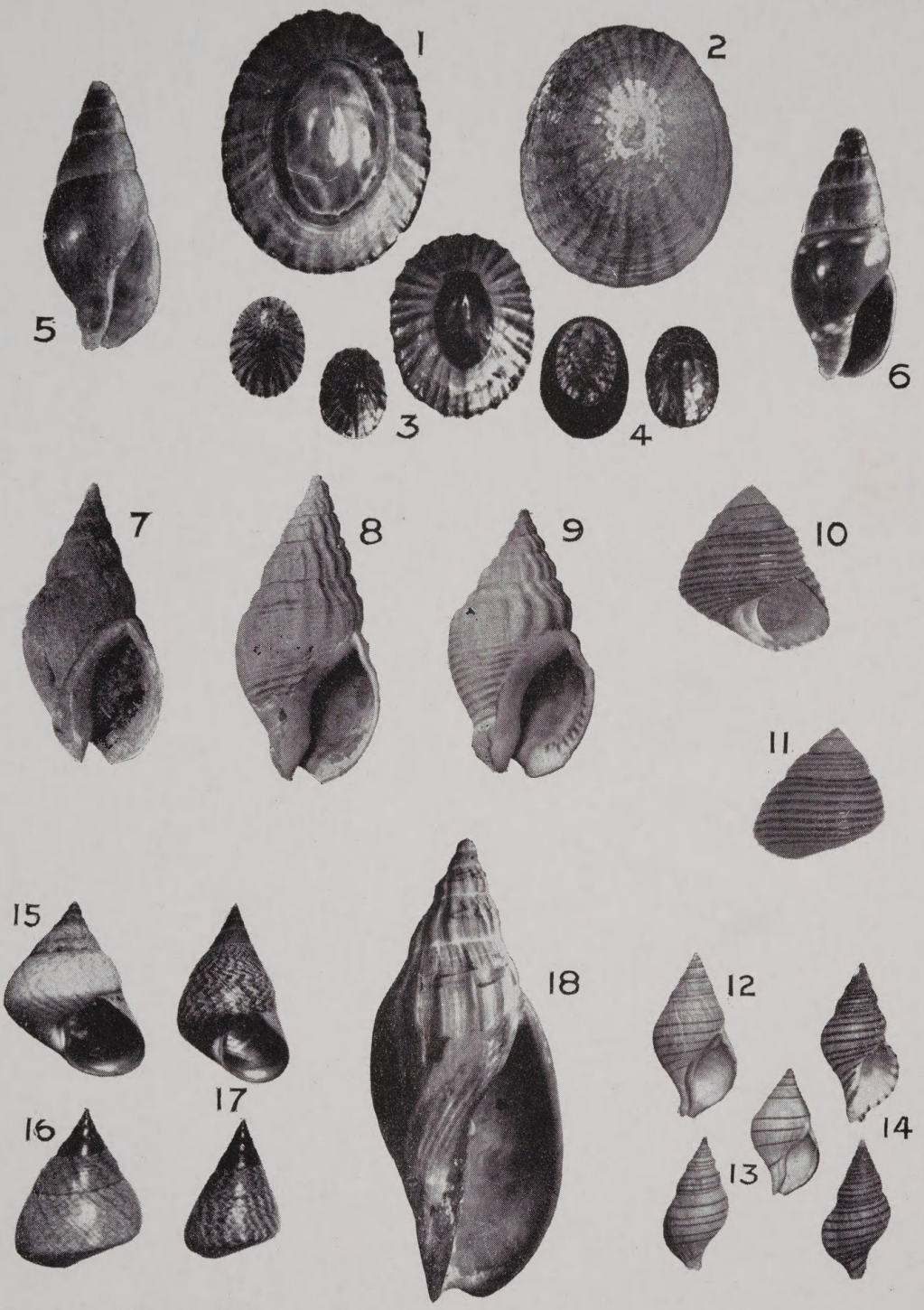


Fig. 1. *Subonoba foveauxiana* (Suter) (Lectotype).
Fig. 2. *Subonoba morioria* n. sp. (Holotype).
Fig. 3. *Subonoba inornata* n. sp. (Holotype).
Fig. 4. *Estea minor* (Suter) (Lectotype).
Fig. 5. *Estea guesti* n. sp. (Holotype).
Fig. 6. *Estea morioria* n. sp. (Holotype).
Fig. 7. *Estea subfusca* (Hutton) (Topotype).
Fig. 8. *Estea porrecta* n. sp. (Holotype).
Fig. 9. *Estea rekohuana* n. sp. (Holotype).



Figs. 1-4. *Cellana chathamensis* (Pilsbry).
Fig. 5. *Paxula leptalea* (Suter) (Holotype).
Fig. 6. *Zemitrella finlayi* n. sp. (Holotype.)
Fig. 7. *Cominella (Eucominia) ellisoni* (Marwick) (Topotype).
Fig. 8. *Cominella (Eucominia) ellisoni consobrina* n. subsp. (Holotype).
Fig. 9. *Cominella (Eucominia) iredalei* (Finlay) (Topotype).
Fig. 10. *Micrelenchus sanguineus morioria* n. subsp. (Holotype).
Fig. 11. *Micrelenchus sanguineus morioria* n. subsp. (Paratype).
Fig. 12. *Buccinulum waitangiensis* n. sp. (Holotype).
Figs. 13. *Buccinulum waitangiensis* n. sp. (Paratypes).
Figs. 14. *Buccinulum lineum* (Martyn) Rangitoto Id., Auckland.
Fig. 15. *Cantharidus opalus cannoni* n. subsp. (Holotype).
Fig. 16. *Cantharidus opalus cannoni* n. subsp. (Paratype).
Fig. 17. *Cantharidus opalus* (Martyn) Mount Maunganui, Bay of Plenty.
Fig. 18. *Pachymelon (Palomelon) wilsonae* n. sp. (Holotype).