Some Australasian Mollusca in the British Museum (Natural History)

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DURING a visit to Britain, the writer examined in October, 1948, a number of New Zealand and Australian mollusca in the collection of the British Museum (Natural History), Cromwell Road, London. Particular attention was paid to the types of species of doubtful status which had never been figured, or which had not been adequately described or figured. Thanks are due to the Keeper of Zoology, Mr. H. W. Parker, and to the Assistant Keeper of Zoology, in charge of Mollusca, Dr W. J. Rees, for the opportunity to work in the shell room, and for arranging to have certain specimens photographed. I am also grateful to the Director and to Mons G. Mermod, Conservateur de Malacologie, Muséum d'Histoire Naturelle, Geneva, for photographs and other information concerning the type of *Pecten medius* Lamarck. Mr. B. C. Cotton, South Australian Museum, kindly commented on the photograph of *Leda fastidiosa* Adams.

NUCULIDAE

Nucula nitidula A. Adams, 1856. Pl. 15, figs. 1, 2; pl. 19, figs. 1, 2.
Nucula nitidula A. Ad., *Proc. Zool. Soc.*, 1856, 51.
Nucula castanea A. Ad., *Proc. Zool. Soc.*, 1856, 53.

The original descriptions of *N. nitidula* and *N. castanea* were presented in Latin with abbreviated English summaries. No differentiating characters were given, and the descriptions include no clear points of difference. The locality given for both species is "New Zealand." Hutton (*Man. N.Z. Mollusca*, 1880, 164) applied *nitidula* to a form he recognised as ranging from Auckland to Stewart Island, but merely translated Adams' description of *castanea*, copying the locality, "New Zealand (Cuming)" and thus implying that he had not recognised the species. Smith (*Challenger Lamellibranchiata*, p. 225) and Hedley (*Trans. N.Z. Inst.*, 38, 70) identified *nitidula* but not *castanea*.

Suter (*Man. N.Z. Moll.*, 1913, 832) applied *castanea* to shells from 10 fathoms off Taumaki Island, and from Dusky Sound in 30 fathoms, and supplied a detailed description. He differentiated *castanea* from *nitidula* by "the much darker colour, the rounded, not angular, posterior end, and the much more distinctly limited escutcheon and lunule." Suter's figures (*Atlas*, pl. 51, figs. 1 and 3) are rough pencil sketches. *N. nitidula* has been recorded widely from Recent localities, and as a Tertiary (chiefly Pliocene) fossil, but *N. castanea* is seldom mentioned, although King (*Trans. N.Z. Inst.*, 63, 337–338) listed *castanea* (alone) from the Wairarapa Pliocene. Powell (*Shellfish of N.Z.*, 1937, 54) followed Suter in listing both species, extending the distribution of *castanea* to cover the three mainland molluscan provinces. Both were listed from Stewart Island (Powell, *Rec. Auckl.*

Inst. Mus., 2, 212, 1939) but the Aupourian province (northern North Island) was deleted from the range of *castanea* in a later list (*Shellfish of N.Z*, 2nd ed., 1946, 55).

The type of *Nucula nitidula* A. Ad. is a closed individual gummed to a slab, labelled "type, New Zealand. M.C." (Museum Cumingianum). It is 6·5 mm. in length, and shows radial sculpture where worn. Plate 19, fig. 2, is based on a camera lucida drawing of the right valve. At my request, the valves were separated and removed from the slab for photography (Pl. 15, figs. 1, 2). The type agrees well with the common New Zealand shell.

The syntypes of *Nucula castanea* are a closed individual and a separate right and left valve gummed to a slab labelled, "type, New Zealand. M.C." Plate 19, fig. 1, is based on a camera lucida drawing of the left valve, 7 mm. long, and Plate 15, figs. 4, 5, and are photographs of the separated valves. Compared with the type of *nitidula*, the types of *castanea* are higher, more oval, have a somewhat weaker groove from the posterior re-entrant to the beak, and are a little more hump-backed at the antero-dorsal margin. Otherwise they agree well.

I have been unable to find any systematic difference between shells like the type of *nitidula* and shells like the type of *castanea*, and conclude that the latter must be synonymised on the basis of page priority. *N. nitidula* ranges throughout New Zealand, from the intertidal zone to depths of more than 100 fathoms and different populations show some variation in their mean shape, that is, in obliquity, outline of anterior dorsal margin or of posterior margin. Some of such variation is within populations, some between populations from different areas. Some of Suter's Taumaki and Dusky Sound shells have rounded posterior margins, but others are identical with normal *nitidula* from northern localities. Delineation of geographic subspecies is not practical at present.

NUCULANIDAE

Nuculana (?Trepidoleda) fastidiosa (A. Adams). Pl. 15, fig. 5.
Leda fastidiosa A. Ad., *Proc. Zool. Soc.*, 1856, 49.

The type specimen is a closed individual from the Cuming Collection labelled "New Zealand." Hedley (*Trans. N.Z. Inst.*, 38, 70, 1906) remarks that A. Adams' name "is a danger signal for untrustworthy work," and many Cuming Collection specimens are wrongly localised. Hutton (*P. Linn. Soc., N.S.W.*, 9, 527, 1884) removed *Leda fastidiosa* from the New Zealand list, but Hedley applied the name to a form dredged in 110 fathoms off Great Barrier Island which is described below as new.

The type specimen is 13 mm. long, 7 mm. high, and its inflation 6 mm. There is no defined lunule, but the escutcheon is well defined, sunken, and sculptured by strong growth lines. The sculpture consists of close-set concentric riblets, obsolete on the umbones, and strongest towards the front. There is no posterior re-entrant in growth lines or sculpture such as defines the rostrum in many species of the subgenus *Saccella*. No New Zealand species has these characters: possibly *fastidiosa* is Australian, but none of the described species seems to match the type in shape, size and sculpture. I am grateful to Mr. B. C. Cotton for the suggestion that *fastidiosa* may be a member of the

genus *Trepidoleda* Iredale, related to *Leda narthica* Hedley (Gulf of Carpentaria). It differs in having a sharper beak and in being sculptured.

Nuculana (Saccella) hedleyi n.sp.

Leda fastidiosa A. Ad.: Hedley, *Trans. N.Z. Inst.*, 38, 70, pl. 1, figs. 1, 2; Suter, *Man. N.Z. Moll*, 836, pl. 54, f. 18, a (not of Adams).

This species has been described by Suter under the name of *Leda fastidiosa* A. Ad., from which it differs in its outline and sculpture. The posterior dorsal margins of the valves are convex, forming a median dorsal keel visible in lateral view. The sculpture is variable. From the common *N. (S.) bellula* A. Ad., *hedleyi* differs in its outline, shorter, more upturned rostrum, and variable subobsolete sculpture.

Holotype (complete individual) and paratypes: New Zealand Geological Survey (Suter Collection).

Dimensions: Length 8 mm., height 5 mm.; inflation (1 valve) 2 mm. (holotype).

Locality: Known only from the type locality off Great Barrier Island in 110 fathoms, where it occurs together with *N. bellula.*

PECTINIDAE

Examination of recent scallops from many parts of the world and study of New Zealand fossil forms has shown that the genus *Notovola* Finlay, proposed for *Pecten novaezelandiae* Reeve, and used for the reception of the Australian *meridionalis* Tate, *fumatus* Reeve, and *albus* Reeve, has no phylogenetic unity (cf. Fleming, *J. de Conch.*, 90 (4), 1951). *P. novaezealandiae* has fossil relations (*tainui* Fin., *toi* Fleming) linking it with the Mediterranean *jacobaeus* L., which students of the Pectinidae agree to be closely akin to *maximus* L., the type of *Pecten*. *P. maximus* is a rather aberrant species appearing late in the Pliocene of Europe. Several of the Australasian forms included in *Notovola* (*fumatus, marwicki*) are close relatives of the Red Sea *erythraensis,* a member of the *benedictus* group of Mediterranean Tertiary scallops. It is thus clear that subgeneric groups in *Pecten* would cut across geographic groupings, and that it is best to revert to *Pecten* for the Australian and New Zealand species.

Pecten novaezelandiae novaezelandiae Reeve. Pl. 15, fig. 6.

Pecten novaezelandiae Rve, *Conch Icon*, 8, pl. II, fig. 44, 1853

Cox (*Proc. Malac. Soc.*, 18, 203, 1929) reinstated *P. medius* Lk. for the New Zealand scallop, noting that the name was not preoccupied (as Iredale thought, *P. Linn. Soc., N.S.W.*, 44, 193) by *P. medius* (Gmelin) of Bosc which was described as an *Ostrea* and is a *Chlamys.* Lamarck described *P. medius* without locality, referring doubtfully to figures representing *erythraensis* in Chemnitz (*Conch. Cab.*). Deshayes (*Encyc Meth. Vers.*, 3, 715, 1832) supplied the locality New Zealand, but Reeve (*Conch. Ic.*, pl. II, fig. 44) figured, as *medius,* a Cuming Collection shell allegedly from West Indies, at the same time naming the New Zealand shell *P. novaezelandiae.*

Hedley accepted Deshayes' application of *medius* to the New Zealand shell, inferring that Lamarck's type had been examined This, of course, is the critical point, and to confirm the identity of *P. medius,* I applied to the Director, Museum d'Histoire Naturelle, Geneva, for information on specimens so labelled in Lamarck's Col-

lection. I am indebted to Mons. G. Mermod, Conservateur de Malacologie, for the following notes. "La Collection Lamarck, dans notre Musée, possède en effét un exemplaire de *Pecten medius* Lk. accompagné d'une étiquette de la main de Lamarck. Cette coquille mesure 60½ mm. de large, 53½ mm. de hauteur et 13 mm. d'épaisseur. Lamarck ne mentionne pas les dimension de son exemplaire, mais il n'en possèdait qu'un seul (d'après indications manuscrites de Lamarck, dans notre ouvrage, ayant appartenu à Lamarck)." This specimen (Plate 17, figs. 1–4) is here nominated lectotype of *Pecten medius* Lamarck. It is a small shell with about 13 rounded ribs, on the right valve, those near the front and rear showing secondary grooving. The left valve is distinctive: its ribs are almost as broad as the interspaces and regularly subdivided by secondary threads.

In a large series of New Zealand shells, the number of ribs is generally greater than in the type of *medius*. The interspaces of the right valve and ribs of the left are never so broad in relation to (respectively) the ribs of the right valve and interspaces of the left. Flatly-rounded smooth left valve ribs, considerably narrower than the interspaces, are diagnostic of the New Zealand shell; subdivided left valve ribs are unknown.

Pecten medius Lk. is, therefore, not applicable to New Zealand scallops. *P. medius* is, however, closely similar to a young specimen of *P. maximus* L. from the English Channel in which the secondary ribbing corresponds very precisely, and I have no doubt that Lamarck's type is a specimen of the European *maximus*.

Three syntype specimens of *Pecten novaezelandiae* Reeve, gummed to a tablet, showed only the left valves. Comparison with Reeve's figure (*Conch. Ic.*, Pl. 8, No. 36) showed that the figured specimen is the largest of the three, and to confirm it, a slip of paper labelled "No. 36" was found inside the closed shell. Under normal circumstances, one would select the figured specimen as lectotype of *novaezelandiae*, but it is, unfortunately, a typical example of the Tasmanian scallop which Tate later named *P. meridionalis*. The specimen was removed from the slab, compared with *meridionalis* from d'Entrecasteaux Channel and later photographed (Pl. 16, fig. 1). It has 18 ribs with wide interspaces; smooth and flat-topped at first, with strong intercostal concentric lamellae, becoming rounder and subdivided by 2–5 secondary grooves towards the margin, where concentric sculpture becomes obsolete. The left valve and colour are also the same as in authentic *meridionalis*. A second, smaller specimen on the slab is also *meridionalis*.

Fortunately, a third specimen on the type slab of *novaezelandiae* is a pale example of the New Zealand scallop, and is here designated the lectotype, since it is clear that Reeve's *description* (*Conch. Ic.*, VIII) does not apply to the specimen *figured*. Reeve's description is quoted in full because *Conchologica Iconica* is not readily available. The statements italicised are considered to apply to the lectotype rather than to the figured syntype.

"The New Zealand Pecten. Shell somewhat elongately orbicular, equilateral, inequivalve; valves *very minutely* concentrically striated; left valve flat, rather concave near the umbo, a little immersed in the right valve, neatly rayed *with fourteen rather narrow* convex ribs,

whitish, stained with fawn-red; right valve expandedly convex, rayed with *fifteen rather broader ribs, white;* ears unequal, bent a little forwards towards the left valve.

"Hab. New Zealand; Hart.

"A beautifully symmetrical neatly-ribbed species, of a *delicate subtransparent white*, stained on the left valve with rich fawn-red."

The lectotype is figured as Plate 15, fig. 6. It may be objected that there is no guarantee that this specimen was one of the original syntypes; in that case the specimen is a neotype, conforming with Reeve's description and with his intention of naming the New Zealand Pecten. The specimen figured by Reeve does not conform with either Reeve's description or his intention.

Reeve's figured specimen of *Pecten medius* Lamarck (*Conch. Ic.*, Pl. II, No. 44) is apparently one of two full-grown individuals mounted on a slab labelled West Indies (Mus. Cuming). It is impossible to be certain which shell is the original of the figure. In my judgment they are New Zealand specimens. I could find no systematic difference from authentic New Zealand examples and have never seen shells from other localities which compare so closely. I conclude that the locality "West Indies" is incorrect. Presumably the specimens were acquired by the British Museum in 1866, when the bulk of the Cuming Collection was purchased (E. A. Smith, *Hist. Coll. Nat. Hist. Mus.*, 2, 9: Mollusca). Smith records that many labels were displaced when the Collection was mounted on tablets by Mrs. Gray, but, in the present instance, the error occurred before 1852 (see also below under *P. modestus*).

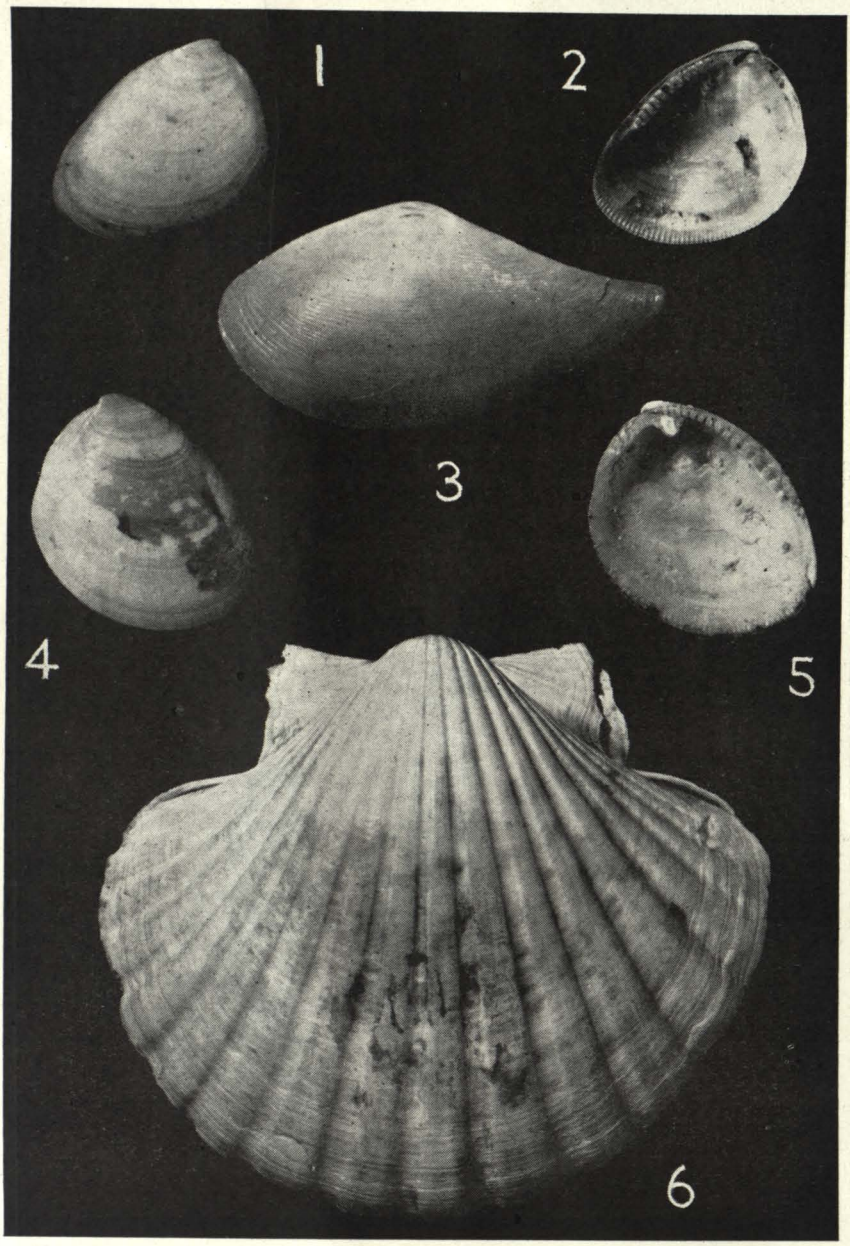
Shells labelled *P. laticostatus* Gray, 1835, include seven of the northern subspecies, *P. n. novaezelandiae,* but another collected by Dieffenbach (probably at Chatham Island) has the characters of the southern form, named below.

Although pale in colour, the lectotype of *P. novaezelandiae* has the shell form of northern New Zealand scallops, and this permits the naming of a regional subspecies in southern New Zealand and the Chatham Islands.

Localities for P. n novaezelandiae: North Auckland; Hauraki Gulf (beach to 38 fathoms); Mercury Bay; Waihi Beach; Opotiki; three miles west of Waitarere Beach, 25 fathoms (specimen with intercostal lamellae); Wellington Harbour, N.W. Corner, 40–50 ft.; Picton; Grove Reach, Queen Charlotte Sound.

Pecten novaezelandiae rakiura subsp. nov.

Southern populations of *P. novaezelandiae* differ from the nominate form in having squarer ribs with deeper interspaces, and in the presence of strong concentric intercostal lamellae, which are usually confined to anterior and posterior interspaces and to the ventral margin of the disc. In addition, many southern shells have fine radial grooves subdividing the ribs, and the pigmentation of the right valve, strongest in Auckland specimens, is reduced or absent. Most North Island left valves are initially concave, but flatten marginally. Most southern left valves are gently concave to the margins. The ribs on the left valve of northern shells are lower and have flatter tops than those of southern shells. Most of the characters noted vary indepen-



Figs. 1, 2—*Nucula nitidula* A. Adams. Holotype. × 4. Fig. 3—*Nuculana fastidiosa* (A. Adams). Holotype, × 4½. Figs. 4, 5—*Nucula castanea* A. Adams. Lectotype, × 4. Fig. 6—*Pecten novaezelandiae novaezelandiae* Reeve. Lectotype, × 1. *Brit. Mus. Nat. Hist. official photo. Crown copyright reserved.*

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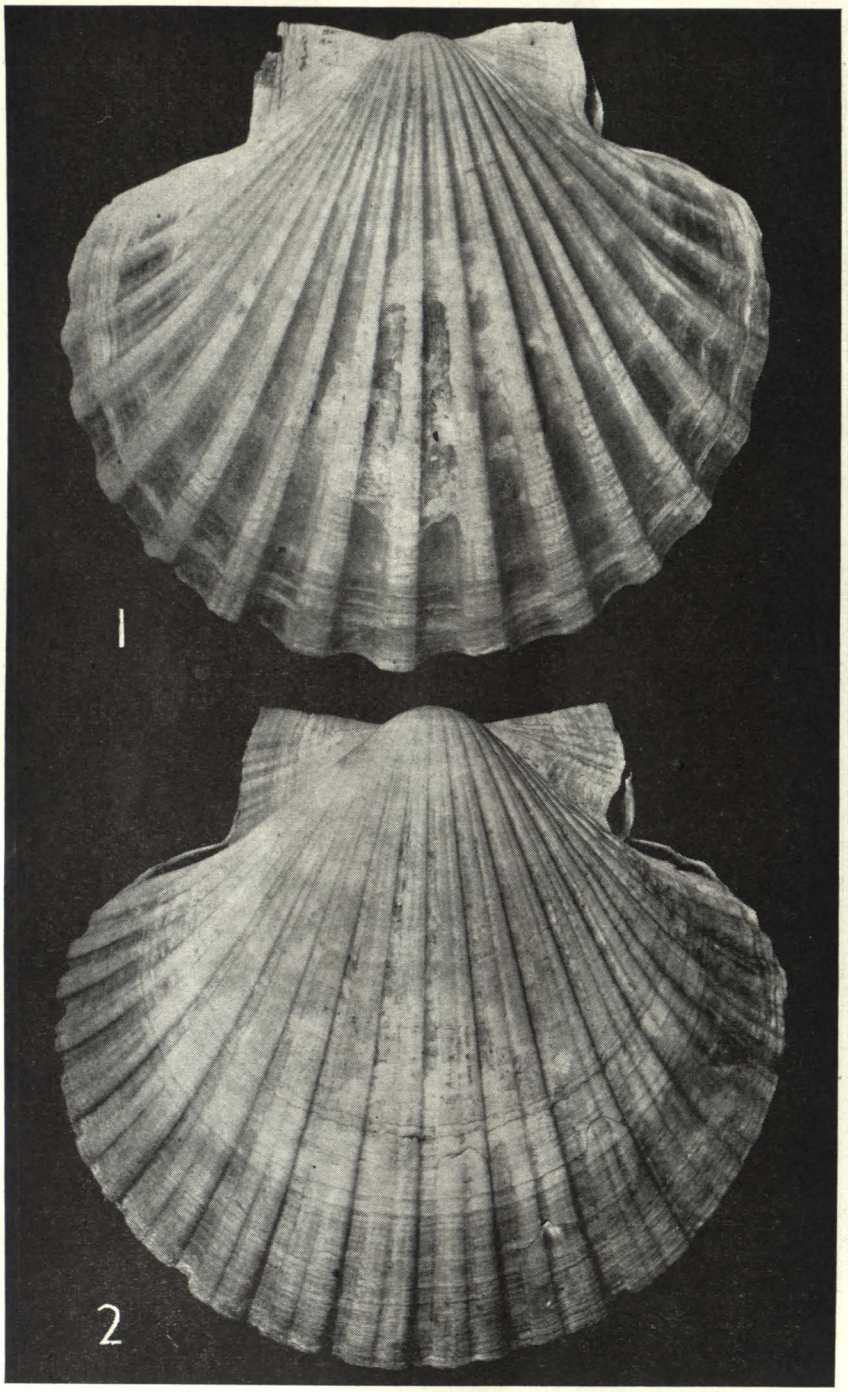

FIG. 1—*Pecten meridionalis* Tate. Reeve's figured syntype of *Pecten novaezelandiae* Reeve. (*Conch. Icon.*, Pl. 8, No. 36). × 1. FIG. 2—*Pecten modestus* Reeve. Syntype, × 1.

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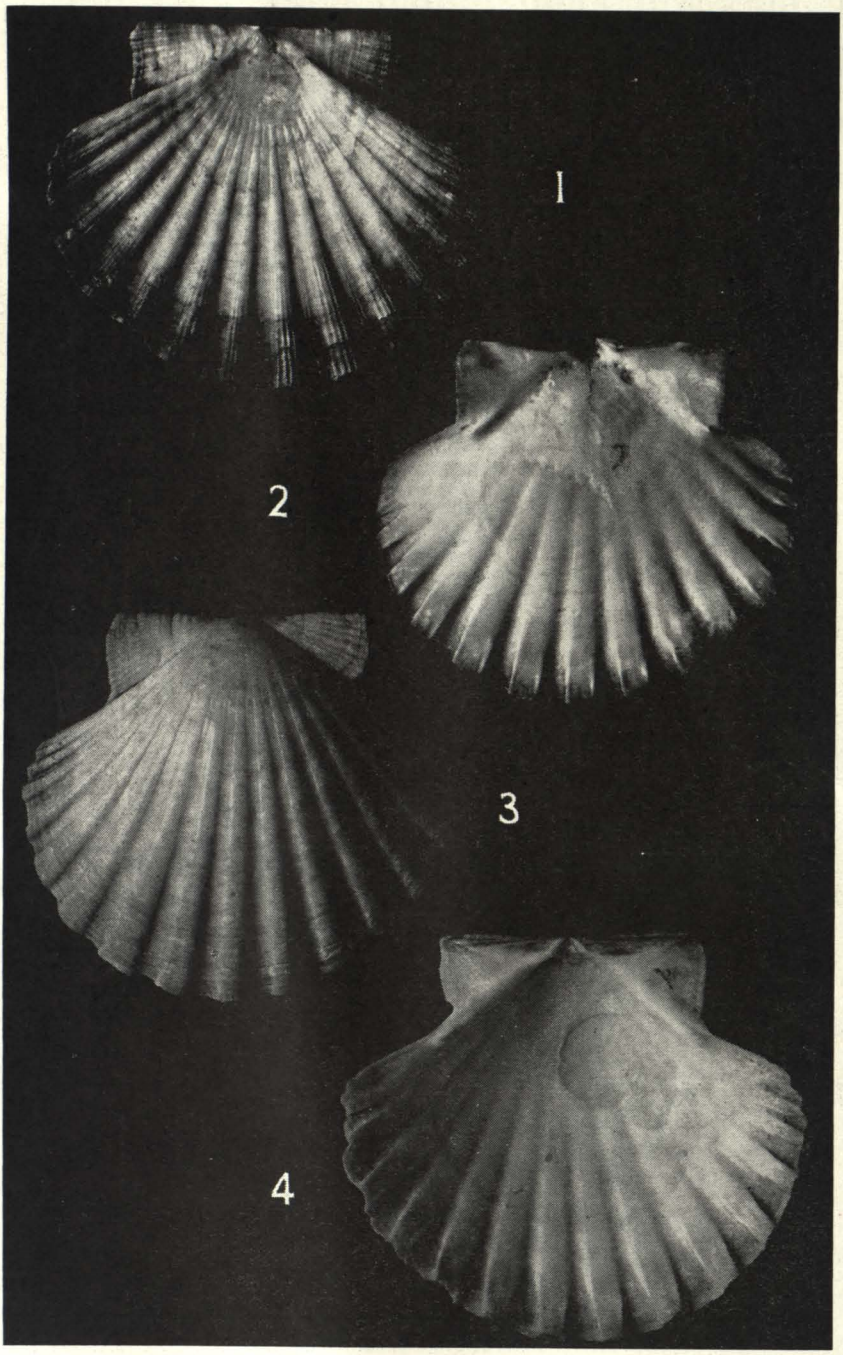

Exterior and interior views of left (Figs. 1, 2) and right (Figs. 3, 4) valves of lectotype of *Pecten medius* Lamarck. × 15/16.

Photo. Mus. d'Hist. Nat., Geneva,

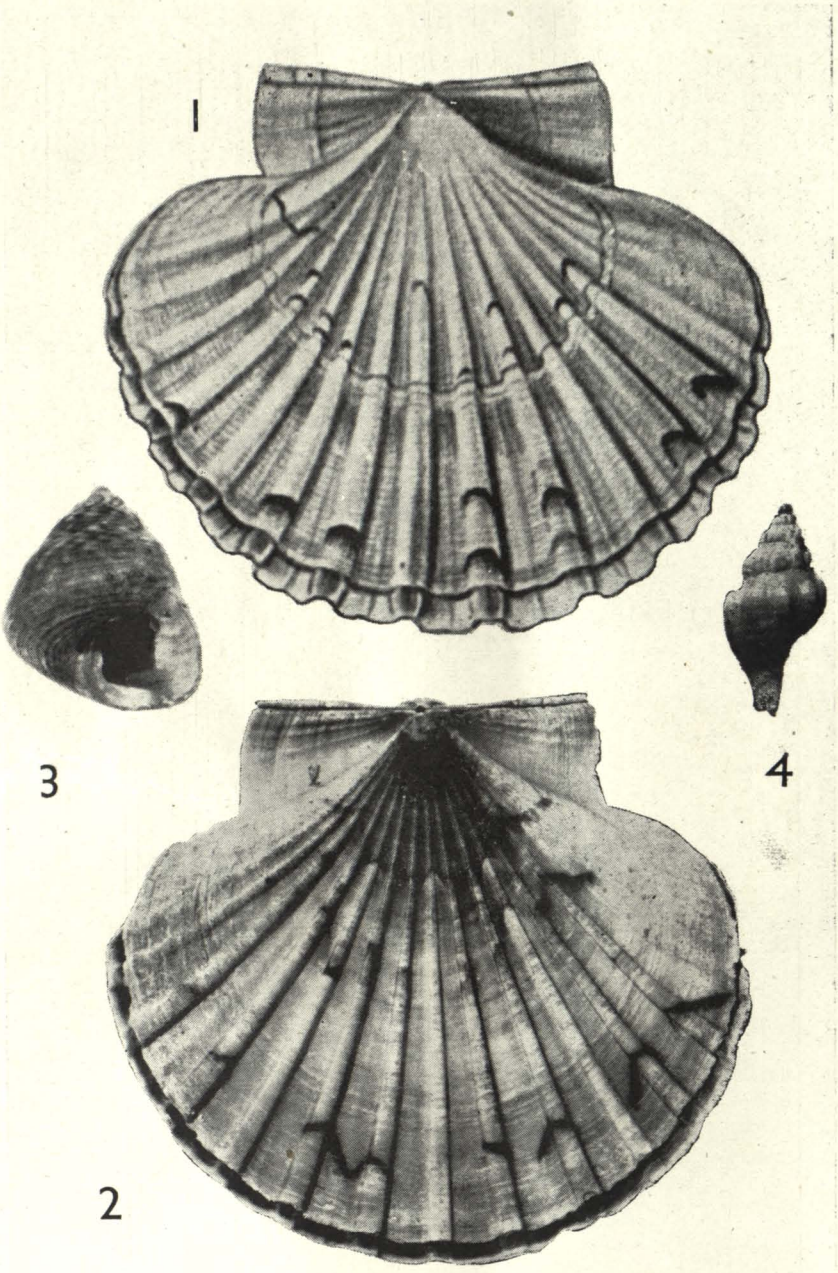

FIG. 1—*Pecten modestus* Reeve. After Reeve, *Conch. Icon.*, Pl. 11, No. 41. FIG. 2—*Pecten modestus* Reeve. Lectotype. × 1. FIG. 3—*Micrelenchus sanguineus sanguineus* (Gray). Holotype, × 4. FIG. 4—*Axymene traversi aucklandica* (Smith). Lectotype, × 2.8.

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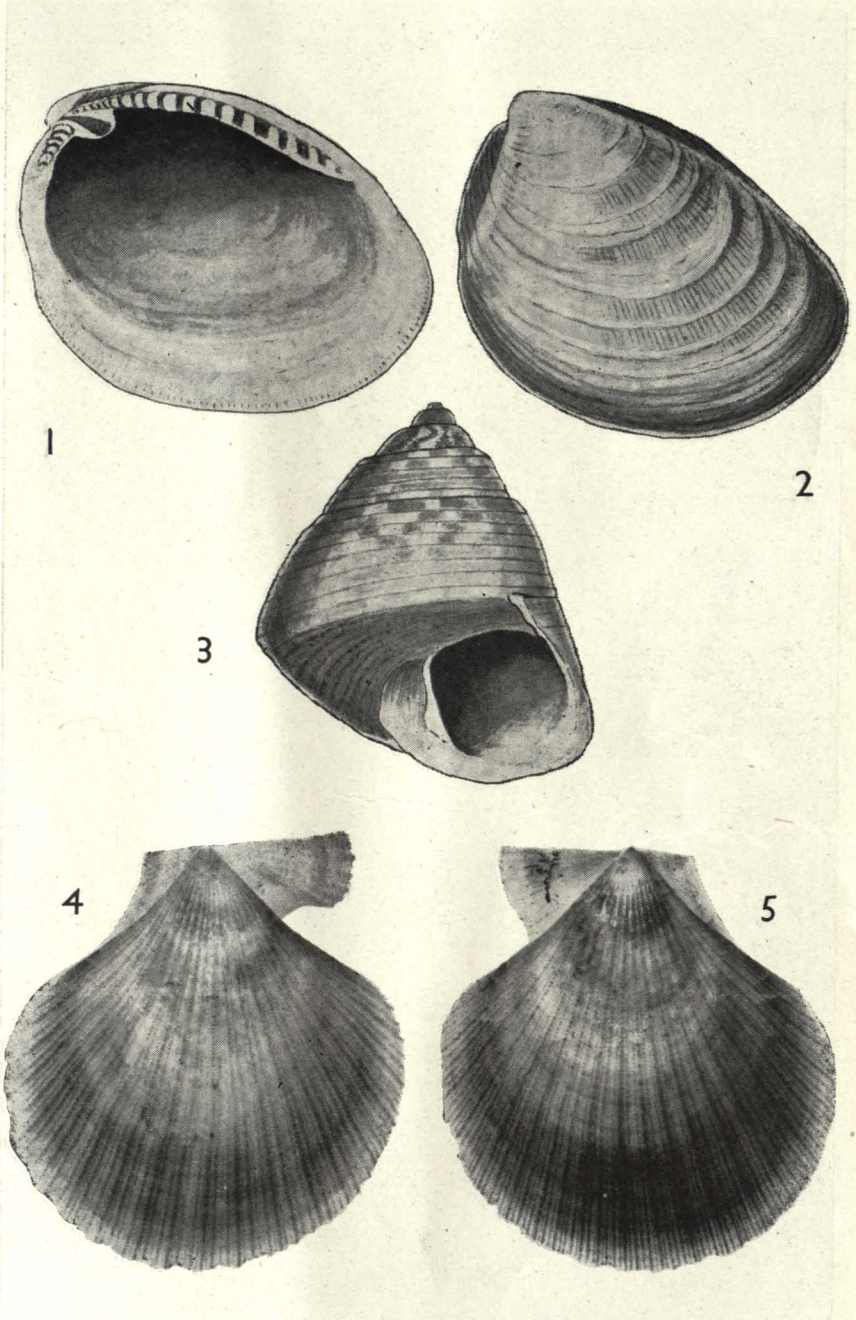
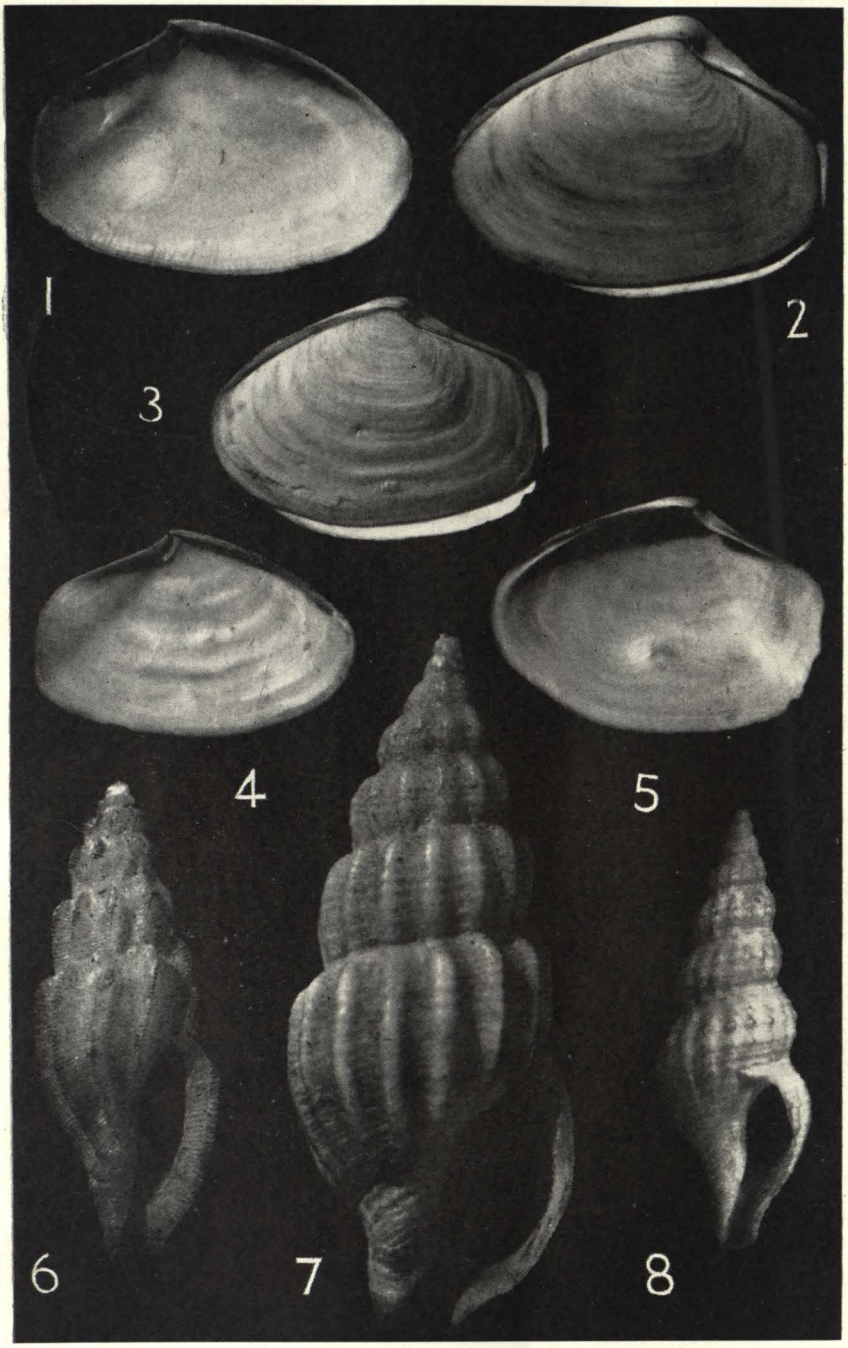


FIG. 1—*Nucula castanea* A. Adams. Based on camera lucida drawing of syntype. FIG. 2—*Nucula nitidula* A. Adams. Based on camera lucida drawing of holotype. FIG. 3—*Micrelenchus sanguineus sanguineus* (Gray). Based on camera lucida drawing of holotype. FIGS. 4, 5—*Chlamys gemmulata gemmulata* (Reeve). Lectotype.



FIGS. 1, 2—*Hunkydora australica australica* (Reeve). Holotype, × 3. FIGS. 3–5—*Hunkydora australica novozelandica* (Reeve). Lectotype, × 2. FIG. 6—*"Mangelia" goodingi* (Smith). Holotype, × 8. FIG. 7—*Neoguraleus finlayi* Powell. Holotypes of *Pleurotoma* (*Mangilia*) *sinclairi* Smith, *non* Gillies. ×. Powell. Holotype of *Pleurotoma* (*Mangilia*) *sinclairi* Smith, *non* Gillies. FIG. 8—*Neoguraleus amoenus* (Smith). Holotype, × 4. Magnifications slightly below figures given.

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dently, so that individual shells from the north have concave left valves, traces of concentric lamellae, reduced pigment, secondary radial grooves, or squarish ribs, and individual southern specimens lack one or more of these features. There is inadequate material from intermediate localities to show whether there is a cline from north to south.

At present, it appears that the northern limit of populations referable to *P. n. rakiura* is in South Westland on the west and in South Canterbury on the east.

Length 107 mm.; height 91 5 mm.; inflation 23 mm. (holotype).

Length 137 mm.; height 111 mm.; inflation 33 mm. (largest paratype).

Localities: Chatham Islands; 2–8 fathoms, Port Pegasus; Bravo Island (type), Stewart Island; Wet Jacket Arm, Dusky Sound; Otago's Retreat, Preservation Inlet, off Cook's Saddle, Molyneux Bay, 25–27 fathoms (Nora Niven Station 13, 1907, Canterbury Museum).

Fossil Occurrences: G.S. 4996, north side of Rotokakahi River, Whangape Survey District. G.S. 3748, stream cutting south of Whitianga-Coroglen Road, 1¼ miles from Whitianga Wharf, Otama Survey District.

Some beach-worn shells from the shores of Cook Strait (Ohau River to Waitotara and Tahuna Beach, Nelson) have the intercostal lamellae and square ribs of *rakiura,* and strong grooves subdividing the ribs. In these characters they differ from most living shells from Wellington, Waitarere and Picton, and may be derived from buried Pleistocene deposits.

Shells from these Pleistocene deposits in the North Island are closer to *rakiura* than to *novaezelandiae.* This does not necessarily mean a northward movement during the Pleistocene since the diagnostic characters of *rakiura* are shared by the Castlecliffian *P. tainui* Fin. which ranged through the North Island.

Pecten modestus Reeve. Pl. 16, fig. 2; pl. 18, figs. 1, 2.

P bifidus Menke, *Moll. N. Holl.,* 1843, 35 (*non* Muenster, 1836).
P. modestus Rve., *Conch. Icon.,* 8, pl. II, fig. 41, 1853.
P. preissiana Iredale, *Proc. Royal Zool. Soc. N.S.W.,* 1947–48, 18, 1949.

Three specimens ranging up to 97 mm. long, on a tablet labelled "Moreton Bay, M.C., *Conch. Ic.,* XI, fig. 41," are syntypes of *modestus.* The intermediate specimen is close to the size of the figure, and has a similar, but not identical colour pattern. It also differs in the weakness of the intercostal secondary riblets on the left valve: these are drawn conspicuously on the figure. In designating this specimen lectotype (*J. de Conch.,* 90 (4), 1951), I concluded that it was the figured specimen, attributing discrepancies to artist's licence; this is questionable, and the figured specimen is probably lost, but the designation may stand, as the specimen agrees well with Reeve's description and is one of his syntypes.

Reeve states that the ribs of *modestus* are "chatacterised by a single groove running down the middle," which his figure shows.

The two larger syntypes are typical specimens of the distinctive West Australian shell, with bicostate ribs on the right valve, and, as noted elsewhere, in the largest specimen, hidden within the closed

valves, I found a label reading, "Swan River, Dr. Bacon." They closely resemble other shells from Western Australia.

Gray gave, but never published, a manuscript name to material collected by John Gould, and Iredale has recently described the Western Australian shell as *Notovola preissiana,* noting that *P. bifidus* Menke, 1843 (not of Muenster, 1836) is a synonym. However, as Cox notes (*Proc. Malac. Soc.,* 18. 203, 1929), *Pecten modestus* Reeve is not invalidated by *Pecten modestus* (Gmelin), since the latter is a *Chlamys.*

Pecten fumatus Reeve, 1852

Pecten albus Tate, 1887.

Pecten meridionalis Tate, 1887. Pl. 16, fig. 1.

The types of *fumatus* are inflated shells with smoothly rounded ribs, with concentric lamellae, on the right valve, strictly confined to anterior and posterior margins.

Iredale (*P. Linn. Soc. N.S.W.,* 44, 193, 1924) believed that "all the southern shells tend to show" (intercostal) "striation while the northern ones are smooth." The northern form is *fumatus* Reeve, which is related to a far-flung group of forms consisting of *sinensis* Sow. (China), *puncticulatus* Dunker (Japan), *erythraensis* Sow. (Red Sea), and the fossil Mediterranean *benedictus* Lam. (and its allies), and the fossil New Zealand *marwicki* Fin. (cf. Fleming, *J. de Conch.*). Consistent application of the polytypic species concept would entail treating all these as regional (or temporal) subspecies.

In South-eastern Australia and South Australia, the scallops tend to have squarer ribs than the *fumatus* group, and intercostal lamellae, and Tate's name *albus,* based on a South Australian shell, has been used by Iredale and by Cotton and Godfrey (*Moll. S. Aust.,* 1, 92, 1938). Material available to me is insufficient, and its localisation too unreliable, to state whether a further geographic form intervenes between *fumatus* and *albus.* Evidence as to the geographic range of the named forms is at present conflicting. Iredale (*Linn. Soc N.S W.*, 44, 194) considered shells from deep water off Twofold Bay to be near the Tasmanian *meridionalis.* In the British Museum, there is material of *fumatus,* contrasting strongly with *meridionalis,* labelled as "Dredged in George Bay, Tasmania (J. H. Ponsonby, Esq., registered, 93.3.2.425)." Presumably this is off St. Helens, on the east coast of Tasmania, but if authentic, it means that there are two forms in Tasmania To add to the difficulty of defining distribution areas, specimens labelled "Northern Territory, Australia," in the Dominion Museum, Wellington (presented Mr. Cornwall, February, 1949), are close to *meridionalis.* Iredale (*Gt. Barrier Reef Exped., Brit. Mus.,* Vol. 5 (6), 365, 1939) considered the northern limit of the genus to be Keppel Bay, Queensland.

P. meridionalis and *P. fumatus* are members of different groups of *Pecten* which have had a long history of separation, and a complex history of distribution changes during late geologic time (cf. Fleming, *J. de Conch.*, 90 (4), 1951). Such a history would account for an irregular mosaic distribution pattern in Eastern Australia.

Chlamys gemmulata gemmulata (Reeve) Plate 19, figs. 4, 5

Reeve's figured specimen (*Conch. Icon.*, 8, fig. 111) is the smallest of three on a tablet labelled "Moreton Bay," and "New Zealand."

It is here designated lectotype. The figure exaggerates the strength of the ribs.

As Iredale has noted (*Gt. Barrier Reef Exped., Brit. Mus.*, 5 (6), 354), *gemmulata* is the common New Zealand shell which has long been known as *Chlamys radiata* (Hutton, 1873). Stewart Island topotypes of *radiata* can be distinguished from northern shells and from the type of *gemmulata*, so that *radiata* may be maintained trinomially. *C. g. gemmulata* is closest to shells from Hauraki Gulf in 15 to 25 fathoms, but I cannot separate Cook Strait, Chatham Island, and Otago Heads specimens

Chlamys gemmulata radiata (Hutton, 1873).

Stewart Island *gemmulata* are somewhat less inflated than northern shells, are chiefly dark purple in colour, and are more finely sculptured, so that Hutton's name may be used for them. Dead shells from Preservation Inlet are similar in sculpture and inflation The subspecies is a weak one.

Chlamys gemmulata consociata E. A Smith, 1915.

Chlamys consociata Smith *Terra Nova Exped., Zool.*, 2 (4), 89, 1915

This shell, described from material dredged in 70 and 100 fathoms north of New Zealand, is doubtfully distinct from *gemmulata*. The type (70 fathoms) has coarser ribbing on the right valve than has the type of *gemmulata* at the same stage, and there is strong tendency for a pair of secondary riblets to margin each primary rib. The sculpture of the left valve is also coarser than that of the type of *gemmulatus*. Powell (*T. Roy. Soc. N.Z.*, 70, 207, 1940) retained *consociata* and did not record *gemmulata* (or *radiata*) from the Aupourian Province (Northern Auckland), so that Smith's name may be used subspecifically until more extensive comparisons are made.

CARDITIDAE

Venericardia purpurata (Deshayes, 1854).

Cardita purpurata Desh., *P.Z.S.*, 1852: 100, 1854.
Cardita difficilis Desh., *P.Z.S.*, 1852: 103, 1854.
Cardita quoyi Desh., *P.Z.S.*, 1852: 103, 1854.

The types of Deshayes' three species are from the Cuming Collection. The name *difficilis* was used by Suter (*Man. N.Z. Moll.*, 905, 1913) for New Zealand *Venericardia* with sharp ribs, subequal interstices, lunule almost circular, interior white, these characters contrasting with *V. australis* Lk. (i.e. *purpurata*) which Suter characterised as having rounded ribs, narrower interstices, cordate lunule and purple-stained interior. Finlay (*Trans. N.Z. Inst.*, 57, 460, 1926) considered *difficilis* a bathymetric subspecies of *purpurata* with narrower and sharper ribs and stronger prickles than the shallow water *purpurata*, and the two forms have been thus listed by Powell (*Shellfish N.Z.*, 57)

The types of *purpurata*, *difficilis*, and *quoyi* are similar in preservation and appear to be beach shells, not dredged. The last, erroneously localised as from Australia, was synonymised with *australis* (= *purpurata*) by Hedley (1911). The three syntypes of *difficilis* have the narrower, more spiny ribs and wide interstices referred to by Suter, but in all specimens the ribs broaden and become rounder towards

the margin where they resemble those of *purpurata*. The types of *purpurata* have flatly rounded, slightly imbricate ribs like shells washed up on sandy beaches.

In a large series of *Venericardia* from different New Zealand localities and depths, a broad division can be made into shells with narrow spiny ribs and shells with broad slightly imbricate ribs, but both forms locally occur together, and some narrow-ribbed shells become round-ribbed towards the margins. The differences may be related to the effect of substratum and current action during growth. In any case, the two phenotypes do not occur in distribution areas that can be simply defined in geographic or bathymetric terms, and there seems no point in maintaining their systematic separation.

Tellinidae

Tellinella charlottae (E. A. Smith).

Tellina (Tellinella) charlottae Smith, *Challenger Rep.*, 13, 100, 1885.

Suter (*Manual*, p. 947) had not recognised this species, although there are specimens in his collection labelled *T. eugonia* Suter. Finlay (*Trans. N.Z. Inst.*, 57, 466, 1926) misidentified shells of *Tellina urinatoria* Suter as *charlottae* and named it the type of a new genus *Maoritellina*. Marwick (*N.Z.G.S. Pall Bull.*, 13, 74, 1931) noted that Smith's description and figure were of a shell like a small *T. eugonia*. Fleming (*Trans. Roy. Soc. N.Z.*, 77, 80, 1948) identified a shell from Dagg's Sound as *charlottae*, noting its close affinity with *eugonia*.

The type of *charlottae* proves to be an immature individual of the shell which has been listed in the Recent fauna as *T. ferrari* Marwick (Powell, *Rec. Auck. Inst. Mus.*, 1, 94, 1931; *Shellfish N.Z.*, 208, 1937). It has somewhat less than four sharp concentric ridges per millimeter towards the margin of a shell 14 mm. in height. Recent and Pliocene specimens, at least, must therefore bear the name *Tellinella charlottae* (Smith), and it is doubtful whether the Miocene *T. ferrari* Marwick can be separated on the basis of constant differences.

Localities for *T. charlottae* include: Tryphena, Great Barrier (6 fathoms); off Channel Island (25 fathoms); Stewart Island (15 fathoms).

Maoritellina Finlay, 1926, is here synonymised with *Tellinella* Mörch, because the two New Zealand species are considered to be too close to the widespread *T. virgata* L. and its allies to justify even subgeneric separation.

Tellinella eugonia (Suter).

Tellina eugonia Suter, *Man. N.Z. Moll.*, 949, 1913, *nom. nov.* for *T. angulata* Hutton (not of Gmelin).

All Suter's Recent records of *eugonia* that can be checked are based on specimens of *charlottae* (Smith), and Powell (*Rec. Auck. Inst. Mus.*, 1, 94, 1931) deleted *eugonia* from the Recent fauna. However, three Recent specimens of this type of shell are so close to Pliocene topotypes of *eugonia* that they cannot be separated.

Localities: Off Castlepoint, 28 fathoms; off Cape Farewell, 27 fathoms; Daggs Sound, 58 fathoms (previously recorded as *charlottae*, *Trans. Roy. Soc. N.Z.*, 77, 80). *T. eugonia* inhabits silt and mud and

T. charlottae a coarser, sandy substratum, but there is no intergradation, and the two have been separate throughout post-Miocene time.

MYOCHAMIDAE

Genus HUNKYDORA Fleming, 1948

Orthotype *Thracia transenna* Suter (= *T. novozelandica* Reeve). Recent, New Zealand.

Hunkydora australica australica (Reeve). Pl. 20, figs. 1, 2.

Thracia australica Reeve, *Conch. Icon.*, 12, plate 3, fig. 13.

Myodora australica (Reeve), E. A. Smith, *Challenger Lamellibranchiata*, 67, 1885.

Myodora australica (Reeve) Hedley, *Checklist Marine Fauna*, N.S.W., M 13, 1918.

Hunkydora australica novozelandica (Reeve). Plate 20, figs. 3–5.

Thracia novozelandica Reeve, *Conch. Icon.*, 12, plate 3, fig. 19.

Thracia novae zelandiae Reeve, 1859: von Martens, *Crit. List Moll. N.Z.*, 41, 1873.

Thracia novae zelandiae Reeve Hutton, *Cat. Marine Moll. N.Z.*, 61, 1873; *Man. N.Z. Moll.*, 136, 1880.

Myodora australica (Reeve): E. A. Smith, *Challenger Lamellibranchiata*, 67, 1885.

Thracia transenna Suter, *Man. N.Z. Moll.*, 1023, 1913; Atlas, plate 55, fig. 9, a.

Eximiothracia transenna (Suter): Finlay, *Trans. N.Z. Inst.*, 57, 474, 1926; Powell, *Shellf. N.Z.*, 61, 1937.

Hunkydora transenna (Suter). Fleming, *Trans. Roy. Soc. N.Z.*, 77, 80, plate 4, fig. 8, plate 7, figs. 8, 9, 1948.

The holotype of Reeve's *Thracia australica* is a complete individual, labelled "Moreton Bay, M.C.," about 17 mm. in length. The lectotype of *T. novozelandica* (Reeve's figured specimen) is also a complete shell, 23 mm. long, labelled "New Zealand." On the same slab a smaller shell is not even congeneric and may be ignored. Reeve considered that *novozelandica* might be a variety of *australica* and correctly stated their affinity with *Myodora*. Hutton (1873) indicated that he had not seen the species. E. A. Smith (1885) synonymised the two, questioned the locality "New Zealand," and recorded *australica* from Port Jackson. Probably because of Smith's scepticism of the New Zealand locality, *T. novozelandica* was dropped from the New Zealand list. Suter (1913) redescribed the species as new under the name of *Thracia transenna*, but failed to indicate its hinge characters and affinities. Finlay (1926) used *Eximiothracia* for *transenna*, apparently without seeing specimens. Fleming described and figured the characteristic resilifer of *transenna*, naming it type of a new genus *Hunkydora*, related to *Myodora*.

Reeve's holotype of *novozelandica* is certainly conspecific with *transenna*, but the only other known specimens as large as the Cuming Collection shell are Pliocene fossils, one of which is 30 mm. long (Fleming, *Trans. Roy. Soc. N.Z.*, 77, pl. 7, figs. 6, 8). Suter's largest paratype is a right valve 17.5 mm. in length. The available New Zealand series shows some variation in shape, but most specimens are relatively longer and have a less inflated beak in the right valve than the type of *australica*. Few molluscs ranging both sides of the Tasman Sea are identical, so two subspecies may be provisionally listed.

GASTEROPODA

SCISSURELLIDAE

Schizotrochus mantelli (Woodward).

The type could not be found. Many mid-century types have been gummed to wooden tablets, without protection, and some have suffered as a consequence. Until such time as the type is located, a specimen in the Geological Survey collection, figured by Fleming (*Trans. Roy. Soc. N Z.*, 77, pl. 8, fig. 3) may be designated neotype.

TROCHIDAE

Micrelenchus sanguineus sanguineus (Gray, 1843). Plate 18, fig. 3; plate 20, fig. 3.

Trochus (Gibbium) sanguineus Gray, Dieffenbach's *Travels in N.Z.*, 2, 238, 1843.

Cantharidus sanguineus (Gray) · Suter, *Man N.Z. Moll.*, 128, 1913, plate 33, fig. 8

Cantharidus pupillus ("Hutton"); Suter, *Man. N.Z. Moll.*, 126, 1913, plate 33, fig. 7.

Cantharidus oliveri Iredale, *Trans. N.Z. Inst.*, 47, 438, *nom. nov* for *C. pupillus* "Hutton" of Suter, 1913.

Micrelenchus oliveri (Iredale): Finlay, *Trans. N.Z. Inst.*, 57, 370, 1926.

Micrelenchus oliveri (Iredale): Powell, *Rec. Auck. Inst. Mus.*, 3. 138, pl. 11, fig. 8, 1946

The type is a small turbinate, imperforate shell 7 mm. high, with quite a pronounced peripheral angle. The spiral ribs, seven on the antipenultimate and eight on the penultimate whorl, are flat topped, with narrow interspaces, only faintly if at all moniliform. Eight primary spirals, made somewhat moniliform by the intersection of growth lines, ornament the base; fine secondary threads occupy the interstices between the outer four spirals. The specimen is gummed to a tablet in a tilted position, and as the photograph shows a tilted shell, it is supplemented by a drawing based on a camera lucida sketch of the type.

It is difficult to match the type of *sanguineus* exactly among the large series of New Zealand shells examined. It is clearly one of the group which has been known as *oliveri* Iredale, and not closely related to the shell illustrated as *sanguineus* by the writer (*Trans. Roy. Soc. N.Z.*, 77, pl. 7, fig. 13) nor to the several named subspecies (*caelata, elongata, mortenseni, morioria*). It is very close in shape and colouration to specimens of the rather variable North Island *oliveri* except that none of the latter seen have such a regular alternation of primary and secondary threads on the base. One or more interstitial basal threads may, however, be present on the base of *oliveri,* and there appears no escape from the use of the name *sanguineus* for *"oliveri."* I am grateful to Mr. A. W. B. Powell, Auckland War Memorial Museum, for confirming my determination of *sanguineus* after examining the illustrations of the type.

The name *sanguineus* was used by Suter for specimens of *"oliveri"* and the name *pupillus* "Hutton" for others; these must all now be called *sanguineus*, with two subspecies, *M. s. sanguineus* (Northern New Zealand) and *M. s cryptus* Powell (East Coast, South Island). Specimens from off Taumaki Island, South Westland, are closer to *sanguineus* than to *cryptus*,

The group of benthic forms previously ranked as subspecies of *sanguineus* may stand as subspecies of *Micrelenchus caelatus* (Hutton), the name next in seniority. Suter's *Cantharidus sanguineus elongatus* is based on two specimens from Lyall Bay, only one of which (here designated lectotype) agrees with Suter's dimensions and rough figure (*Atlas*, pl. 38, fig. 14). In their variable, generally tall, shape, large number of spirals, rounded periphery and in colour pattern, they agree with Tahunanui shells (*Trans. Roy. Soc. N.Z.*, 77, pl. 7, fig. 13) and the name is thus available for the Cook Strait population.

The nomenclatural changes may be summarised as a list (references in brackets are to Powell's checklist in *Shellfish N.Z.* (ed. 2), 1947).

Micrelenchus sanguineus sanguineus (Gray, 1843) [376].
Micrelenchus sanguineus cryptus Powell [376.1].
Micrelenchus caelatus caelatus (Hutton) [369].
Micrelenchus caelatus elongatus (Suter) [368 and 370].
Micrelenchus caelatus bakeri Fleming.
Micrelenchus caelatus morioria Powell [372].
Micrelenchus caelatus mortenseni (Odhner) [371].

BUCCINULIDAE

Aeneator valedicta (Watson).

Examination of the type confirms Finlay's allocation of this species to the genus *Aeneator*.

NASSARIIDAE

Nassarius ephamillus (Watson, 1882).

Nassa (Tritia) ephamilla Watson, *J. Linn. Soc.*, 16, 370, 1882.
Nassa dissimilis Watson, *Chall. Rep.*, 15, 175, 1886.

N. dissimilis should never have been separated from *N. ephamilla*. The type of *dissimilis* is a chalky decorticated specimen, obviously closely related to the syntypes of *ephamilla* and probably just a weaker sculptured individual of the same population Both localities are in very deep water east of the North Island.

Axymene traversi aucklandica (E. A. Smith, 1902). Plate 18, fig. 4.

Euthria aucklandica Smith, *"Southern Cross" Moll.*, 203, 1902.
Trophon (Kalydon) aucklandicus (Smith): Suter, *Manual*, 411, 1913.
?Buccinulum pertinax (v. Mart.): Finlay, *Trans. N.Z. Inst.*, 57, 422, 1926.
Xymene aucklandica (Smith). Powell, *Shellf. N.Z.*, 79, 1937.

E. A. Smith's original figures (*"Southern Cross" Mollusca*, pl. 24, figs. 12, 13) are good enough to show that *aucklandica* is certainly not a *Buccinulum* as Finlay (1926) inferred. The lectotype (Smith's figured specimen) has the nuclear and sculptural characters of an *Axymene* quite closely related to *corticata* (Hutton), but with a wider spire angle, and more gently sloping shoulder. There are about nine axial folds per whorl, and about 10 spiral cords on the body whorl.

Fusus convexus Hutton, 1873, and *Trophon erectus* Suter, 1909, may also be ranked as regional subspecies of *traversi* Hutton, 1873, which has place priority over *corticata*.

Suter's types of *Trophon ambiguus pumila* from 15 fathoms, Stewart Island, include the original of the figure published in the *Atlas* (pl. 45, fig. 23) which is here designated lectotype. Although the

apex is eroded, *pumila* is a *Zeatrophon,* judged by its size, sculpture and general form, and has little resemblance to *Axymene robustus* Fin. and its congeners.

TURRIDAE

Neoguraleus sinclairi Gillies, 1882.

Gillies (*Trans. N.Z Inst.*, 14, 170, 1882) published the results of his comparison of the Sinclair Collection with the British Museum collection under page references to Hutton's *Manual of the New Zealand Mollusca* (1880). The name *Drillia sinclairi* Smith was introduced as follows:

"Page 45. *Defranchia luteo-fasciata*—Substitute *Drillia sinclairi,* Smith, manuscript. *D. luteo-fasciata* is a very small West Indian shell described by Reeve."

As noted by Powell (*Bull. Auck. Inst. Mus.,* 2, 135, 1942), Gillies in effect renamed the shells identified and described by Hutton as *luteo-fasciata.* His quotation from Hutton's Manual (and not from *Journ. de Conch.*, 1878) means that any of Hutton's specimens so identified, from "Stewart Island to Auckland. Chatham Islands," may be selected as type of Gillies' *sinclairi.* Unfortunately, there are now no specimens labelled *Defranchia luteo-fasciata* by Hutton in the Dominion, Canterbury or Otago Museums; later curators have conscientiously relabelled any material which may have been so designated. In the Dominion Museum, however, there are two specimens which had been labelled *Defranchia letournouxiana* Crosse. This specific name, in the combination *Daphnella (Mangelia) letournouxiana* Crosse, was used by Hutton in his *Catalogue of the Marine Mollusca of New Zealand* (1873, p 12) for the shells later classed as *Defranchia luteo-fasciata* (*Man. N.Z. Moll.*, 45, 1880). These specimens, from Stewart Island, rank as plesiotypes of Hutton's *Daphnella letournouxiana* Crosse (of 1873) and of his *Defranchia luteofasciata* Reeve (of 1880). The better-preserved specimen is selected as lectotype of Gillies' *Drillia sinclairi,* 1882. It is an adult shell with the colour pattern and sculpture of the Moeraki specimen figured by Powell, with 13 ribs on the penultimate whorl. Its selection as lectotype preserves the association of Gillies' name with the type of a shell to which it has usually been applied.

Neoguraleus finlayi Powell, 1942. Plate 20, fig. 7.

Pleurotoma (Mangilia?) sinclairi E. A. Smith, *Ann. Mag Nat Hist*, (5), 14, 320, 1884.

Clathurella sinclairi (Smith): Murdoch, *Trans N.Z. Inst*, 32, 218, pl. 20, fig. 7, 1900.

Neoguraleus finlayi Powell. *Bull. Auck Inst Mus*, 2, 137, pl. 6, fig 8 (Dunedin).

The type of Smith's *Pleurotoma (Mangilia?) sinclairi,* 1884, is a Cuming specimen, here figured. It is not the same as *Drillia sinclairi* Gillies, 1882, as now restricted, but is the species described as *sinclairi* by Murdoch (from a Recent specimen, not a fossil, as stated by Powell) and as *finlayi* by Powell. Smith's specific name is preoccupied in *Neoguraleus* by *Drillia sinclairi* Gillies, 1882, so Powell's name stands.

Neoguraleus amoenus (E. A. Smith). Plate 20, fig 8.

Drillia? amoena Smith, *Ann. Mag. Nat. Hist.*, (5), 14, 318

Suter (*Atlas,* pl. 22, fig. 5) published a rough sketch of the type

of *amoena,* under the name of *Mangilia protensa* Hutton, but no adequate figure of this species has previously been available.

"Mangelia" goodingi (E. A. Smith, 1884). Plate 20, fig. 6.

Pleurotoma (*Mangilia*) *goodingi* E. A. Smith, *Ann. Mag. Nat. Hist.*, (5), 14, 320

Powell (*Bull. Auck. Inst. Mus.*, 2, 135, 1942) could not recognise this previously unfigured species, and considered it probably exotic. The type, here figured, supports this decision, for it is unlike any known New Zealand shell, and must be removed from the faunal list.

The protoconch is eroded, but the general appearance, varied outer lip, absence of parietal tubercle, and sculpture of strong axials, persistent on to the column, crossed by numerous fine spiral threads, are characters in common with many species of *Mangelia* and of the Australian genus *Anacithara* Hedley, but this type of shell is widely distributed in warm seas.