

# ON THE CONSIDERABLE INFLUX OF WARM WATER MOLLUSCS THAT HAVE INVADDED NORTHERN NEW ZEALAND WATERS WITHIN RECENT YEARS

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*Abstract.* The purpose of this paper is to bring together the numerous scattered records of tropical and subtropical molluscs that have invaded northern New Zealand waters within recent years and to attempt their evaluation individually as accidental, temporary, intermittent or permanent additions to the fauna. Seventy-six species of these new arrivals are discussed, but excluded are the considerable number of species of Australian or Indo-Pacific origin that are now so well established here that they have become an integral part of the fauna.

In evaluating the status of new additions to the fauna one must constantly bear in mind the unnatural factors that can operate, the main one being the role of shipping. A case in point was the recent finding of a living species of the Cypraeidae on the understructure of the "Penrod 74" floating oil rig upon its arrival at Whangarei Heads, after the long sea voyage from Singapore, and some months later, the finding of another species of this family still living while the rig was operating at a site off the Taranaki coast.

That shipping can operate in an opposite way, that is against the trend of ocean currents, is clearly evidenced in the abundant presence of two common otherwise endemic New Zealand molluscs in southern Tasmania. One is the chiton *Amaurochiton glaucus*, already well established there in 1901, and the other is *Maoricolpus roseus*, unknown in Tasmania prior to 1925. Since 1969 *roseus* has been trawled in quantity off Cape Moreton southern Queensland (Garrard 1972 : 322).

Another possible explanation of the spate of new arrivals to our shores is in the fleets of fast ocean-going foreign fishing vessels that could carry larvae in their constantly wet fishing nets and tackle.

Despite doubtful cases there is abundant evidence that natural causes are the main factors at work in this apparent spate of new arrivals to our shores. That the same trend was apparently operative in the New Zealand Pleistocene and earlier is shown by certain fossil records, *Limaria*, *Agnewia* and *Anadara*, to name a few.

Natural causes contributing to greatly accelerated influx of warm water molluscs and other invertebrates to our shores could be accounted for by a small increase in water temperature coupled with possible fluctuations in surface water currents, which would enable an increasing number of warm water species to colonise Northland waters.

It would appear that some molluscs arriving here in their larval stage in massive strength manage to grow to adults but are unable to reproduce because of lower temperatures than their normal requirement. A case in point is *Hydatina physis* that persists here as an intermittent series of short lived invasions.

The past 8-10 years have been the most productive and the summer of 1972 the peak in this spate of warm water new arrivals.

## SYSTEMATIC

### CLASS GASTROPODA

#### Family STOMATELLIDAE

##### ***Stomatia phymotis*** Helbling, 1779

1779. *Stomatia phymotis* Helbling, Abh. Privatges. Böhm. 4 : 124.

1974. *Stomatia phymotis*: Powell, Rec. Auckland Inst. Mus. 11 : 204.

RANGE. Tropical Western Pacific; uncommon.

*New Zealand Record*. Te Araroa, East Cape, one empty shell in rock pool (Powell 1974).

*Remarks*. More evidence required before admitting this species to the New Zealand fauna.

##### ***Roya kermadecensis*** Iredale, 1912

1912. *Roya kermadecensis* Iredale, Proc. Malac. Soc. Lond. 10 : 218.

1934. *Roya* sp. Powell, Trans. R.Soc. N.Z. 64 : 155.

RANGE. Sunday Island (Raoul I), Kermadec Islands (Type locality), and Northland, New Zealand.

*New Zealand Records*. Tom Bowling Bay, Northland (Powell 1934); Goat Island Beach, Leigh, Hauraki Gulf, leg. A. W. B. Powell, ca. 1945; Poor Knights Is, 50 m, leg. N. Gardner, May, 1974.

*Remarks*. The above New Zealand records are based upon seven empty but well preserved shells. There is a New South Wales species, *Roya nutata* (Hedley, 1908), that appears to be closely related.

#### Family PLANAXIDAE

##### ***Hinea brasiliana*** (Lamarck, 1822)

1822. *Buccinum brasilianum* Lamarck, Hist. Anim. s. Vert. 7 : 272.

1913. *Planaxis (Hinea) brazilianus*: Suter, Man. N.Z. Moll: 194.

1952. *Hinea brasiliana*: Powell, Rec. Auckland Inst. Mus. 4 (3) : 174.

1971. *Hinea brasiliana*: Powell, Rec. Auckland Inst. Mus. 8 : 209.



RANGE. Australia (Type locality, 'Brasil' = Sydney, New South Wales); Lord Howe Island; Kermadec Islands and Northland, New Zealand.

*New Zealand Records.* Bay of Islands (Suter 1913); Great Barrier I. *leg* Webster, *ca.* 1908; Rangiahia Peninsula, Doubtless Bay, *leg.* W. Spencer, Dec. 1968.

*Remarks.* The species is now firmly established at Rangiahia Peninsula.

### Family EULIMIDAE

#### ***Eulima perspicua*** (Oliver, 1915)

1915. *Subularia perspicua* Oliver, Trans. N.Z. Inst. 47 : 533.

1940. *Eulima perspicua*: Powell, Trans. R. Soc. N.Z. 70 (3) : 234.

RANGE. Kermadec Islands, dredged (Type locality) and Northland, New Zealand.

*New Zealand Records.* Maro Tiri, Chicken Is; Tryphena, Great Barrier I, 5-6 fathoms (9.14-10.97 m) (Powell 1940).

*Remarks.* The species may be more widely distributed than the records indicate.

#### ***Balcis (Pictobalcis) articulata*** (Sowerby, 1834)

1834. *Eulima articulata* Sowerby, Proc. Zool. Soc. Lond. : 8.

1955. *Pictobalcis articulata*: Laceron, Aust. Zool. 12 (2) : 98, pl. 3, fig. 12.

1971. *Balcis (Pictobalcis) articulata*: Powell, Rec. Auckland Inst. Mus. 8 : 213, fig. 5.

RANGE. Eastern Australia (Type locality probably Moreton Bay); New South Wales and Northland, New Zealand.

*New Zealand Records.* Cape Maria van Diemen; Bay of Islands, a number, including 3 living (Poirieria 1972, 6 (5) : 100); between Bland Bay and Whangamumu (Powell 1971).

*Remarks.* The finding of living specimens and a number of well preserved ones over a period of years shows that the species is now firmly established in Northland waters.

### Family HIPPONICIDAE

#### ***Hipponix cf foliaceus*** Quoy & Gaimard, 1834

1834. *Hipponix foliacea* Quoy & Gaimard, Voy. Astrol. Zool. 3 : 439.

1974. *Hipponix foliaceus*: Gardner, Poirieria 7(5) : 92.

RANGE. Guam (Type locality); New South Wales; ? northern New Zealand.

*New Zealand Record*. Poor Knights Is, western side of Tawhiti Rahi, 25 fathoms (45.72 m), 65 fairly well preserved examples accumulated in shell and bryozoan debris at base of steep cliff (Gardner 1974).

*Remarks*. *Hipponix* almost certainly lives at the above locality but at present its specific identification is tentative.

### Family CAPULIDAE

#### **Capulus (Krebsia) liberatus** Pease, 1868

1868. *Capulus liberatus* Pease, Am. J. Conch. 3 : 287, pl. 24, fig. 2.

1964. *Tenpetasus liberatus*: Powell, Rec. Auckland Inst. Mus. 6 (1) : 12.

RANGE. Tropical and subtropical Indo-Pacific; Mauritius; Western Australia; New Hebrides; New Caledonia; Norfolk Island and Northland, New Zealand.

*New Zealand Record*. Bay of Islands, in beach drift at western end of Moturoa I, leg. H. C. Robinson, 1960.

*Remarks*. The species is most abundant at Norfolk Island. There have been no further New Zealand records.

### Family CYPRAEIDAE

#### **Erosaria cernica tomlini** Schilder, 1930

1930. *Erosaria cernica tomlini* Schilder, Proc. Malac. Soc. Lond. 19 : 51.

1965. *Erosaria cernica tomlini*: Powell, Rec. Auckland Inst. Mus. 6 (2) : 164, pl. 23, figs. 15-19.

1971. *Erosaria cernica tomlini*: Cernohorsky, Rec. Auckland Inst. Mus. 8 : 121.

RANGE. Tropical and subtropical Pacific; Bonin and Ryuku Islands; Hawaiian Islands; Lifu, Loyalty Islands (Type locality); eastern Australia; Lord Howe Island; Kermadec Islands and Northland, New Zealand.

*New Zealand Records*. Cape Maria van Diemen (Island), one very worn and bleached shell, leg. F. Young, 1933; off Deep Water Cove, 23-25 fathoms (42.06-45.72 m); Poor Knights Is, living in sand amongst rubble and boulders at entrance to large cave, 20-30 m (Powell 1965).

*Remarks*. More than twenty living examples are known to have been found by skin divers at Poor Knights Islands.

#### **Lyncina vitellus** (Linnaeus, 1758)

1758. *Cypraea vitellus* Linnaeus, Syst. Nat. ed. 10 : 721.

1967. *Lyncina vitellus*: Powell, Rec. Auckland Inst. Mus. 6 (3) : 185.

1974. *Lyncina vitellus*: Powell, Rec. Auckland Inst. Mus. 11 : 205.



RANGE. Indo-Pacific, from Red Sea to Hawaiian Islands, Polynesia and Northland, New Zealand.

*New Zealand Records.* Poor Knights Is, at 90 feet (27.43 m), one alive and three well preserved shells; near Whangaroa, several fragments; Tutukaka, one fresh adult; Goat Island Bay, Leigh, two fresh adults at 15 feet (3.57 m) (Grange 1973 : 3).

*Remarks.* Evidently the species can grow to adult size in Northland waters but there is no evidence as yet that it breeds here.

Two other species of tropical Indo-Pacific cowries, *Erosaria erosa* (Linnaeus, 1758) and *Erosaria caputserpentis* (Linnaeus, 1758) have been found living in New Zealand waters associated with the "Penrod 74" floating oil rig which was built in Singapore, then towed to Whangarei Heads. There, Mr W. Palmer and associates found *erosa* on underwater structures of the rig. Six months later, after the rig had been towed to a new location off the Taranaki coast, five *caputserpentis* were found by Mr T. Hook enclosed in underwater drilling equipment (Hook 1975).

#### Family OVULIDAE

##### **Volva (Phenacovolva) longirostrata** (Sowerby, 1828)

1828. *Ovulum longirostratum* Sowerby, Zool. J. 4 (14): 160.

1971. *Volva (Phenacovolva) longirostrata*: Powell, Rec. Auckland Inst. Mus. 8 : 214, fig. 6.

1971. *Volva (Phenacovolva) longirostrata*: Cernohorsky, Rec. Auckland Inst. Mus. 8 : 126.

RANGE. Indo-Pacific (Type locality unknown); China Seas to northern New Zealand.

*New Zealand Record.* Poor Knights Is, a number at 150 feet (46 m), living on gorgonians (Powell 1971).

##### **Pedicularia pacifica** Pease, 1865

1865. *Pedicularia pacifica* Pease, Proc. Zool. Soc. Lond. : 516.

1903. *Pedicularia stylasteris* Hedley, Mem. Aust. Mus. 4 : 342.

1937. *Pedicularia maoria*: Powell, Discovery Rep. 15 : 208.

1971. *Pedicularia pacifica*: Cernohorsky, Rec. Auckland Inst. Mus. 8 : 116.

RANGE. Tropical Pacific; Gilbert Islands (Type locality); New South Wales and Northland, New Zealand, 100-260 m.

*New Zealand Records.* Off Three Kings Is, 260 m (Type of *maoria*); 30 miles (48 km) north of Three Kings Is, 200 m, over a dozen living on small branch of red coral (Poirieria 1972, 6 (5) : 86); Off Doubtless Bay, 110 m, on red coral, leg. W. Palmer, Dec. 1973.

Family CARINARIIDAE

**Cardiapoda placenta** (Lesson, 1830)

1830. *Pterotrachea placenta* Lesson, Voy. "Coquille" Zool. 2 (1) : 253.  
 1974. *Cardiapoda placenta*: Powell, Rec. Auckland Inst. Mus. 11 : 202.

RANGE. Atlantic and Pacific Oceans, pelagic; probably most tropical and subtropical waters.

*New Zealand Record*. Off Cape Brett, Northland from surface tow-netting, leg. N. Boustead, 1970-71.

*Remarks*. The shell is minute (ca. 2 mm) attached to a much larger semitransparent animal and hence easily overlooked.

Family NATICIDAE

**Natica (Notocochlis) migratoria** (Powell, 1927)

1927. *Cochlis migratoria* Powell, Trans. N.Z. Inst. 57 : 560.  
 1930. *Cochlis vafer* Finlay, Trans. N.Z. Inst. 61 : 232.

RANGE. New South Wales, Australia (*vafer*) and Northland, New Zealand. (*migratoria*).

*New Zealand Records*. Te Hapua, Parengarenga Harbour, low tide, living half buried under fine sand (Type locality); Awanui Heads (Powell 1927); off Deep Water Cove, Bay of Islands, in shallow water dredgings (Poirieria 1973, 7 (2) : 31).

*Remarks*. The species is established over a wide area in Parengarenga Harbour.

**Conuber conica** (Lamarck, 1822)

1822. *Natica conica* Lamarck, Anim. sans Vert. 6(2) : 198.  
 1952. *Conuber conica*: Powell, Rec. Auckland Inst. Mus. 4 (3) : 174.  
 1964. *Conuber conica*: Powell, Rec. Auckland Inst. Mus. 6 (1) : 12.

RANGE. Western Australia, Queensland, New South Wales, Victoria, Tasmania, South Australia and doubtfully Northland, New Zealand.

*New Zealand Records*. Tauranga Bay, Whangaroa, two half-grown fresh empty shells. Takau Bay, Northland, several well preserved empty shells, all immature (Powell 1952, 1964).

*Remarks*. Requires more evidence before admitting this species as a member of the New Zealand fauna.



**Polinices (Mammilla) melanostomoides** (Quoy & Gaimard, 1833)

1833. *Natica melanostomoides* Quoy & Gaimard, Voy. Astrolabe 2 : 229.  
 1971. *Polinices (Mammilla) melanostomoides*: Cernohorsky, Rec. Auckland Inst. Mus. 8 : 199, figs, 66, 67.  
 1974. *Polinices melanostomoides*: Powell, Rec. Auckland Inst. Mus. 11 : 201.

RANGE. New Guinea and New Ireland (Type locality); Fiji and northern Northland, New Zealand.

*New Zealand Records.* Te Hapua, Parengarenga Harbour, Northland, one empty shell on mud-flat, leg. K. Hipkins, February, 1972; entrance to Te Kao Channel, Parengarenga Harbour, one empty shell on mud-flat, leg. K. Hipkins, April, 1972; Rarawa Beach, Northland, one empty shell.

**Polinices (Mammilla) mammatus** (Röding, 1798)

1798. *Albula mammata* Röding, Mus. Bolten (2) : 21.  
 1937. *Mammilla mammata*: Powell, Shellfish of N.Z. : 73.

RANGE. Queensland, Australia and westward into Indian Ocean.

*New Zealand Record.* Takau Bay, Northland, one rather worn empty shell (Powell 1937).

*Remarks.* There have been no further New Zealand records.

**Polinices (Mammilla) simiae** (Deshayes, 1838)

1834. *Natica simiae* Deshayes, Hist. Nat. Anim. s. Vert. 8 : 652.  
 1964. *Mammilla simiae*: Powell, Rec. Auckland Inst. Mus. 6 (1) : 14.

RANGE. Tropical Pacific, Hawaiian Islands; Kermadec Islands; Queensland; New South Wales and northern New Zealand.

*New Zealand Records.* Cape Maria van Diemen, one fresh shell (Poirieria 1965, 2 (4) : 68); Day's Point, Kerikeri Inlet, Bay of Islands, one alive (Poirieria 1968, 4 (5) : 75); Deep Water Cove, Bay of Islands, one well preserved (Poirieria 1973, 7 (2) : 31); Oruawharo, Great Barrier I; Goat Island Beach, Leigh, Hauraki Gulf; Waihou Bay near East Cape, fresh examples (Powell 1964).

**Polinices (Polinices) tawhitirahia** Powell, 1965

1965. *Polinices tawhitirahia* Powell, Rec. Auckland Inst. Mus. 6 (2) : 163.  
 1967. *Polinices tawhitirahia*: Powell, Rec. Auckland Inst. Mus. 6 (3) : 185.

RANGE. Poor Knights Islands and adjacent mainland, 2-37 m; Norfolk Island, 45-50 fathoms (82.30-91.44 m).

*New Zealand Records.* Poor Knights Is, off Tawhiti Rahi, in sand and rubble at foot of cliff, 120 feet (36.58 m) (Type locality), three living and a number of fresh shells, leg. Mr W. Palmer and associates (Powell 1965, 1967); Bay of Islands, one alive in shallow water; Step I, Cavalli Is, several fresh shells (Poirieria 1973, 6 (6) : 115).

## Family CASSIDAE

**Semicassis bisulcata sophia** (Brazier, 1872)

1872. *Cassis sophia* Brazier, Proc. Zool. Soc. Lond. : 617.

1968. *Phalium* (*Semicassis*) *bisulcatum sophia*: Abbott, Indo-Pacific Moll. 2 (9) : 131 pl. 8, fig. 12; pl. 15, figs. 1-8.

RANGE. Southern Queensland and New South Wales; Kermadec Islands and Northland, New Zealand.

*New Zealand Record*. Tutukaka, Northland east coast, one large well preserved example (Poirieria 1975, 8 (2) : 26).

*Remarks*. This shell, which I have not seen, is the only New Zealand record.

**Xenophalium thomsoni** (Brazier, 1875)

1875. *Cassis* (*Casmaria*) *thomsoni* Brazier, Proc. Linn. Soc. N.S.W. 1 : 8.

1964. *Xenophalium* (*Xenogalea*) *thomsoni*: Powell, Rec. Auckland Inst. Mus. 6 (1) : 13, pl. 3, figs. 4, 5.

RANGE. New South Wales (Type locality) to Bass Strait, Australia and northern New Zealand.

*New Zealand Records*. Great Exhibition Bay, one fresh example (Poirieria 1965, 2 (4) : 67); 30 miles (48 km) north of Mangonui, trawled and from crayfish pots, several shells; Whangaroa, 20-39 fathoms (36.58-71.32 m), several in crayfish pots; Great Barrier I, in crayfish pots; Marsden Point, Whangarei Heads, one beach shell (Powell 1964); off Aldermen Is, 180-310 fathoms (329.18-548.64 m), living; off Cuvier I, Bay of Plenty, living (Powell 1964).

*Remarks*. The species seems to be firmly established in northern New Zealand waters, although still uncommon.

**Xenophalium royanum** (Iredale, 1914)

1914. *Cassidea royana* Iredale, Proc. Malac. Soc. 11 (3) : 180.

1928. *Xenophalium royanum*: Powell, Trans. N.Z. Inst. 59 : 641, pl. 74, f. 11.

1967. *Xenophalium royanum*: Powell, Rec. Auckland Inst. Mus. 6 (3) : 187.

RANGE. New South Wales; Kermadec Islands (Type locality) and Northland, New Zealand.

*New Zealand Records*. Off Whangaroa, many well preserved shells from crayfish pots; off Cavalli Is, 20 fathoms (36.58 m) in crayfish pots; Poor Knights Is, 150 feet (45.7 m), a number of fresh shells and one alive, *leg.* Whangarei skin divers.

*Remarks*. The species is now well established in Northland east coast waters. Skin divers operating off the Poor Knights state that *royanum* apparently feeds upon the giant heart-urchin *Brissus gigas* Fell, 1947.



**Casmaria ponderosa perryi** (Iredale, 1912)

1912. *Cassidea perryi* Iredale, Proc. Malac. Soc. Lond. 10 : 227.

1967. *Casmaria perryi*: Powell, Rec. Auckland Inst. Mus. 6 (3) : 186.

RANGE. Southeast Australia; Kermadec Islands (Type locality); Easter Island and northern New Zealand.

*New Zealand Records.* Oruawharu, Great Barrier I, one fresh adult and one juvenile from rocks just below low water (Powell 1967); off Deep Water Cove, Bay of Islands, one dead shell dredged in shallow water (Powell 1967).

*Remarks.* Possibly established, but rare.

## Family TONNIDAE

**Tonna cumingii** (Reeve, 1849)

1849. *Dolium cumingii* Reeve, Conch. Iconica 5 : pl. 8, figs. 13b, 13c.

1931. *Parvitonna perselecta* Iredale, Rec. Aust. Mus. 18 : 216, pl. 23, fig. 17.

1938. *Tonna maoria* Powell, Rec. Auckland Inst. Mus. 2 (3) : 166, pl. 40, figs. 5, 6.

1971. *Tonna cumingii*: Powell, Rec. Auckland Inst. Mus. 8 : 215.

RANGE. Japan; China; Philippines; Indonesia; eastern Australia and Northland, New Zealand.

*New Zealand Records.* Houhora Heads, Northland, a well preserved empty shell (Type of *maoria* Powell, 1938); Tokerau Beach, Doubtless Bay, Northland, three well preserved empty shells (Powell 1971).

*Remarks.* There is no evidence that the species breeds in Northland waters.

**Tonna luteostoma** (Kuster, 1857)

1857. *Dolium luteostomum* Kuster, Conch. Cab. 3 : 66, pl. 38, fig. 2.

1971. *Tonna luteostoma*: Powell, Rec. Auckland Inst. Mus. 8 : 216, figs. 8, 9.

RANGE. Japan and ?New Zealand.

*New Zealand Records.* Beach south of Parengarenga Harbour, Northland, two empty shells in good condition, leg. A. E. Brookes, ca. 1925 (Powell 1971).

*Remarks.* No further evidence of this species in New Zealand waters.

**Tonna dolium** (Linnaeus, 1758)

1758. *Buccinum dolium* Linnaeus, Syst. Nat. ed. 10 : 735.

1952. *Tonna dolium*: Powell, Rec. Auckland Inst. Mus. 4 (3) : 177, pl. 35, fig. 5.

1964. *Tonna maculata* (Lamarck, 1822) = *dolium* Linnaeus., 1758, Powell, Rec. Auckland Inst. Mus. 6 (1) : 15.

RANGE. Indo-Pacific; Indian Ocean; Indonesia: Japan; Philippines; Fiji and Northland, New Zealand.

*New Zealand Records.* South of Parengarenga Harbour, two adult empty shells (Powell 1964); Tokerau Beach, Doubtless Bay, three empty shells; off Whangaroa in crayfish pots; Mount Maunganui, Bay of Plenty, three adult empty shells (Powell 1952); trawled off Manukau Heads, one living (Powell 1964).

*Remarks.* The species is evidently established in northern New Zealand waters.

***Tonna melanostoma* (Jay, 1839)**

1839. *Dolium melanostoma* Jay, Catal. of Shells ed. 3 : 125, pl. 8, 9.

1967. *Tonna melanostoma*: Powell, Rec. Auckland Inst. Mus. 6 (3) : 190, pl. 36, figs. 6, 7.

RANGE. Hawaiian Islands to Tonga, Society Islands, Melanesia and Northland, New Zealand.

*New Zealand Records.* Spirits Bay, one empty shell; off Cavalli Is, one living example, 86 mm in height; Doubtless Bay, trawled, evidently living (Powell 1967).

***Tonna olearium* (Linnaeus, 1758)**

1758. *Buccinum olearium* Linnaeus, Syst. Nat. ed. 10 : 734.

1927. *Tonna tetracotula* (not of Hedley, 1919) : Powell, Trans. N.Z. Inst. 57 : 559, pl. 32.

1967. *Tonna olearium*: Powell, Rec. Auckland Inst. Mus. 6 (3) : 191.

RANGE. Japan; Indonesia; Philippines and northern New Zealand.

*New Zealand Records.* Outer Hauraki Gulf or Bay of Plenty, one trawled alive, leg. Powell, 1927; Doubtless Bay, five trawled shells (Poirieria 1967, 4 (2) : 24).

*Remarks.* The true *tetracotula* Hedley, 1919 is not uncommon, being often trawled off eastern Northland and the Bay of Plenty.

***Tonna perdix* (Linnaeus, 1758)**

1758. *Buccinum perdix* Linnaeus, Syst. Nat. ed. 10 : 734.

1974. *Tonna perdix*: Powell, Rec. Auckland Inst. Mus. 11 : 204.

RANGE. Tropical Indo-Pacific and possibly Northland, New Zealand.

*New Zealand Records.* Beaches between Bay of Islands and North Cape, two small shells, one with portion of animal attached and several fragments cast ashore over past few years (Powell 1974).

*Remarks.* Insufficient evidence so far for including this species in the New Zealand fauna.

***Malea pomum* (Linnaeus, 1758)**

1758. *Buccinum pomum* Linnaeus, Syst. Nat. ed. 10 : 735.

1974. *Malea pomum*: Powell, Rec. Auckland Inst. Mus. 11 : 204.

RANGE. Tropical Indo-Pacific and possibly New Zealand.



*New Zealand Record*. Great Exhibition Bay, Northland, one small well preserved shell, found by Mr Hunt Seelye, 1973 (Powell 1974).

**Eudolium pyriforme** (Sowerby, 1914)

1914. *Dolium pyriforme* Sowerby, Ann. Mag. Nat. Hist. 14 : 37.  
 1974. *Eudolium cf. pyriforme*: Powell, Rec. Auckland Inst. Mus. 11 : 201.  
 1976. *Eudolium pyriforme*: Cernohorsky, Auck. Mus. Conch. Sec. Bull. No. 1 (N.S.) : 1-2.

RANGE. Subtropical Pacific; Japan; Hawaiian Islands; New South Wales, Australia and northern New Zealand, 90-366 m.

*New Zealand Records*. Doubtless Bay, Northland, one large empty shell in good condition from a crayfish pot; another said to have been taken alive, from same area (Powell 1974); Cable Bay, Mangonui, one shell of record size, 106 mm in height; Tokomaru Reef, off Gisborne, 120 fathoms (219.5 m), one living (Cernohorsky 1976).

Family CYMATIIDAE

**Charonia tritonis** (Linnaeus, 1758)

1758. *Murex tritonis* Linnaeus, Syst. Nat. ed. 10: 754.  
 1964. *Charonia tritonis* Powell, Rec. Auckland Inst. Mus. 6(1) : 14.  
 1967. *Charonia tritonis* Powell, Rec. Auckland Inst. Mus. 6(3) : 187.  
 1970. *Charonia tritonis*: Beu, Trans. R. Soc. N.Z. Biol. Sci. 11(16) : 208.

RANGE. Indo-Pacific, East Africa to Polynesia; Hawaiian Islands; northern Australia, on sandy substrate in moderately deep water and possibly New Zealand.

*New Zealand Records*. Wainui Bay, Bay of Islands County, one near adult shell in fairly fresh condition (Powell 1964); Rosalie Bay, Great Barrier I, one adult shell (Powell 1967); unconfirmed reports of live examples taken in crayfish pots near Houhora (Beu 1970).

*Remarks*. Even if the larvae reach New Zealand at times and they grow into adults, they are unlikely to reproduce in local waters.

**Charonia lampas rubicunda** (Perry, 1811)

1811. *Septa rubicunda* Perry, Conchology, London : pl. 14, fig. 4.  
 1952. *Charonia rubicunda*: Powell, Rec. Auckland Inst. Mus. 4(3) : 175.  
 1970. *Charonia lampas rubicunda*: Beu, Trans. R. Soc. N.Z. Biol. Sci. 11(16) : 215.

RANGE. Southern Queensland; New South Wales; Victoria; South Australia; southern Western Australia and northern New Zealand.

*Remarks*. Prior to 1924, *rubicunda* was apparently an unknown subspecies in New Zealand but it has now become quite common in Northland, Manukau Harbour and the Bay of Plenty. However it seems to prefer a shallow water station.

**Turritriton labiosus** (Wood, 1828)

1828. *Murex labiosus* Wood, Index Test. Suppl.: 15, pl. 5, fig. 18.  
 1864. *Triton strangei* Adams & Angas, Proc. Zool. Soc. Lond. : 73.  
 1933. *Cabestana labiosa*: Powell, Trans. N.Z. Inst. 63 : 159, pl. 23, fig. 9.

RANGE. Tropical and subtropical Atlantic and Pacific; North Carolina to Brazil; Japan; Philippines; Fiji; eastern Australia; Kermadec Islands and Northland, New Zealand.

*New Zealand Records.* Tom Bowling Bay, Northland, one fresh empty shell (Powell 1933); Great Barrier I and Whangarei Heads, a few well preserved shells in local collections.

## Family BURSIDAE

**Bursa bubo lissostoma** E. A. Smith, 1914

1914. *Bursa (Tutufa) rubeta* var. *lissostoma* E. A. Smith, J. of Conch. 24 : 230, pl. 4, fig. 3.  
 1967. *Tutufa bufo* (Röding 1798) : Powell, Rec. Auckland Inst. Mus. 6(3) : 189, pl. 36, fig. 8.  
 1974. *Bursa bubo lissostoma*: Powell, Rec. Auckland Inst. Mus. 11 : 205.

RANGE. Tropical Indo-Pacific; Japan; Solomon Islands; Melanesia; New South Wales; Kermadec Islands and Northland, New Zealand.

*New Zealand Records.* Off Spirits Bay, one fresh shell in crayfish pot (Poirieria 1971, 6(2) : 23); entrance to Te Kao Channel, Parengarenga Harbour, one living adult (Powell 1974); Doubtless Bay and North Cape areas, a number of well preserved adults from crayfish pots or cast ashore on beaches; off Cape Karekare, one live adult; Poor Knights Islands, 150 feet (45.72 m), one living adult female (Powell 1967); Rosalie Bay, Great Barrier I, one adult shell in crayfish pot (Poirieria 1968, 4(4) : 58).

*Remarks.* Upon the above evidence this subspecies can be considered firmly established in Northland waters.

**Bursa verrucosa** (Sowerby, 1825)

1825. *Ranella verrucosa* Sowerby, Cat. Coll. Tankerville, Append. : 18.  
 1965. *Annaperenna verrucosa*: Powell, Rec. Auckland Inst. Mus. 6(2) : 162, pl. 22, figs. 5, 6.  
 1967. *Annaperenna verrucosa*: Powell, Rec. Auckland Inst. Mus. 6(3) : 190.

RANGE. Lord Howe Island; Norfolk Island (probable Type locality); Sydney Harbour, New South Wales (dredge spoil); Kermadec Islands and northern New Zealand.

*New Zealand Records.* Poor Knights Is, 50-150 feet (15-45.72 m), a number of fresh and living adults; off Club Rock, S.W. of White I, Bay of Plenty, 150 feet (45.72 m), living adults (Powell 1965, 1967).

*Remarks.* The species seems to be firmly established in our Northland off-shore waters on rocky ground.



## Family MURICIDAE

**Chicoreus ramosus** (Linnaeus, 1758)

1758. *Murex ramosus* Linnaeus, Syst. Nat. ed. 10 : 747.  
 1908. *Murex ramosus*: Moss, Beautiful shells of N.Z. : 16.  
 1924. *Murex ramosus*: Bucknill, Sea shells of N.Z. : 67.  
 1964. *Chicoreus ramosus*: Powell, Rec. Auckland Inst. Mus. 6(1) : 15.

RANGE. Tropical Indo-Pacific.

*New Zealand Records.* Tauranga Harbour, Waikareao Estuary, two adults, one said to have been taken alive by Mrs T. M. Humphreys in 1903 (Moss 1908; Bucknill 1924); Takou Bay, Northland, one bleached adult, leg. Mr C. H. Robinson, ca. 1936; another from same locality, small but well preserved, leg. Mrs I. Worthy, ca. 1920 (Powell 1964).

*Remarks.* There is no evidence that the species reproduces in New Zealand waters.

**Rapana venosa** (Valenciennes, 1846)

1846. *Purpura venosa* Valenciennes, Voy. "Venus" : pl. 7, fig. 1.  
 1861. *Rapana thomasi* Crosse, J. de Conchyl. 9 : 176, 268.  
 1974. *Rapana venosa*: Powell, Rec. Auckland Inst. Mus. 11 : 204.

RANGE. Japan, Korea and North China.

*New Zealand Records.* 12 miles (19.1 km) west of Cape Maria van Diemen, in crayfish pots ca. 48 fathoms (87.78 m), one adult shell in 1971 and another in same area in 1972, both inhabited by hermit crabs (Powell 1974); off Three Kings Is in crayfish pot, one large empty shell (Poirieria 1971, 5(6) : 117).

*Remarks.* There is a possibility that the above occurrences are not natural ones but are from discarded refuse from ocean going Asiatic fishing vessels. The species is an esteemed Japanese delicacy.

**Trophon (Emozamia) licinus** (Hedley & Petterd, 1906)

1906. *Murex licinus* Hedley & Petterd, Rec. Aust. Mus. 6(3) : 219, pl. 37.  
 1929. *Emozamia licina*: Iredale, Rec. Aust. Mus. 17(4) : 185.  
 1954. *Emozamia licina*: Powell, Rec. Auckland Inst. Mus. 4(4) : 238, pl. 39, figs. 5-7.

RANGE. New South Wales; off Sydney, 250 fathoms (457.20 m) (Type locality) and northern New Zealand.

*New Zealand Records.* N.N.E. of Mayor I, Bay of Plenty, 46-82 fathoms (84.12-149.96 m), one living; another well preserved one, precise locality unknown, from an Auckland trawler (Powell 1954).

**Morula (Neothais) chaidea** (Duclos, 1832)

1832. *Purpura chaidea* Duclos, Ann. Sci. Nat. 26(101) : 106.

1974. *Morula (Neothais) chaidea*: Powell, Rec. Auckland Inst. Mus. 11 : 202.

RANGE. New Caledonia; Lord Howe Island; Norfolk Island; Kermadec Islands; New South Wales and northern New Zealand.

*New Zealand Records.* Cape Brett, Bay of Islands, one living adult; Merita Bay, Rangiawhia Peninsula, Northland, living, half grown (Powell 1974); recently the species has shown a great increase in numbers found on intertidal rocks in the Bay of Islands and vicinity (Poirieria 1975, 8(1) : 2).

*Remarks.* An allied species, *Morula (Neothais) smithi* (Brazier, 1889), with a similar overseas range to that of *chaidea* has long been known to occur living in Northland waters, but is still uncommon, and the same applies to the somewhat related *Agnewia tritoniformis* (Blainville, 1833).

## Family MAGILIDAE

**Latiaxis wormaldi** Powell, 1971

1971. *Latiaxis wormaldi* Powell, Rec. Auckland Inst. Mus. 8 : 220, figs. 15, 16.

*New Zealand Record.* E.S.E. of Poor Knights Is, 329 m, living, only known specimen, the Holotype (Auckland Museum Coll.).

*Remarks.* The species appears to be closely related to *Latiaxis marumai* Habe & Kosuge, 1970 from Japan.

**Latiaxis lischkeanus** (Dunker, 1882)

1882. *Rapana lischkeana* Dunker, Index Moll. Mar. Japan.

1947. *Tolema peregrina* Powell, Rec. Auckland Inst. Mus. 3(3) : 171, pl. 19, fig. 3.

1955. *Tolema australis* Laseron, Proc. R. Zool. Soc. N.S.W. : 73.

RANGE. Japan (*lischkeanus*); New South Wales (*australis*) and northern New Zealand (*peregrina*).

*New Zealand Records.* Hauraki Gulf entrance, 20-25 fathoms (36.58-45.72 m); near Kawau I, Hauraki Gulf, 20 fathoms (36.58 m), two living adults; trawled off Kaipara Heads (Poirieria 1963 1(5) : 80); off Aldermen Is, 180-310 fathoms (329.18-601.67 m); trawled between Plate I and Motiti I, Bay of Plenty, 20-30 fathoms (36.58-54.86 m); off Mayor I, Bay of Plenty, 70 fathoms (128.02 m), all above living adults (Powell 1947; Poirieria 1971, 6(2) : 42).

*Remarks.* The above records show that the species is now well established in northern New Zealand waters.



***Liniaxis sertata* (Hedley, 1903)**

1903. *Purpura sertata* Hedley, Mem. Aust. Mus. 4(6) : 382, figs. 95, 96.

1967. *Liniaxis sertata*: Powell, Rec. Auckland Inst. Mus. 6(3) : 193.

RANGE. New South Wales, off Port Kembla, 63-75 fathoms (115.21-137.16 m) (Type locality) and Northland, New Zealand.

*New Zealand Records*. Kopu Wairoa, Spirits Bay, Northland, one worn shell; North West Reef between Little Barrier I and Taranga, Hen I, 30 fathoms (54.86 m), three living adults on Antipatharian coral "sea-tree" (Powell 1967).

## Family BUCCINIDAE

***Ratifusus adjunctus* Iredale, 1929**

1929. *Ratifusus adjunctus* Iredale, Rec. Aust. Mus. 17(4) : 183.

1971. *Ratifusus adjunctus*: Powell, Rec. Auckland Inst. Mus. 8 : 222, fig. 23.

RANGE. New South Wales, off Montagu Island, 50-60 fathoms (91-110 m) (Type locality) and northern New Zealand.

*New Zealand Record*. E.S.E. of Poor Knights Is, 329 m, one adult attached to a piece of waterlogged wood (Powell 1971).

## Family NASSARIIDAE

***Nassarius (Alectrion) glans particeps* (Hedley, 1915)**

1915. *Arcularia particeps* Hedley, Proc. Linn. Soc. N.S.W. 39(4) : 738.

1972. *Nassarius particeps*: Powell, Rec. Auckland Inst. Mus. 4(3) : 182.

RANGE. New South Wales, Australia, Port Jackson (Type locality) and Northland, New Zealand.

*New Zealand Records*. Cavalli Islands, one dead shell, leg. W. La Roche, ca. 1924; only one other since, Matapouri, Northland, also dead.

***Nassarius (Alectrion) spiratus* (A. Adams, 1852)**

1852. *Nassa spirata* A. Adams, Proc. Zool. Soc. Lond. for 1851 : 106.

1952. *Nassarius spiratus*: Powell, Rec. Auckland Inst. Mus. 4(3) : 182.

1972. *Nassarius (Alectrion) spiratus*: Cernohorsky, Rec. Auckland Inst. Mus. 9 : 183, figs. 140, 148.

RANGE. Swan River, Western Australia (Type locality); New South Wales; Lord Howe Island; Norfolk Island; Kermadec Islands and Northland, New Zealand.

*New Zealand Records*. Tom Bowling Bay; Paua, Parengarenga Harbour to Bay of Islands, numerous living colonies, one such in shallow water consisted of over 200 adults (Poirieria 1975, 7(6) : 114); Matauri Bay; Cavalli Is; Whangaroa; Takau Bay; Matapouri Bay; Kaitoke and Arid I, Great Barrier I (Powell 1952).

*Remarks*. The species has shown a spectacular increase over the past year.

Family FASCIOLARIIDAE

**Fasciolaria (Pleuroploca) filamentosa** (Röding, 1798)

1798. *Fusus filamentosus* Röding, Mus. Bolten 2 : 118.

1974. *Fasciolaria (Pleuroploca) filamentosa*: Powell, Rec. Auckland Inst. Mus. 11 : 202.

RANGE. Tropical Indo-Pacific.

*New Zealand Record*. Near North Cape, one half grown shell from a crayfish pot (Powell 1974).

**Fusinus genticus** (Iredale, 1936)

1936. *Colus genticus* Iredale, Rec. Aust. Mus. 19 : 316.

1967. *Fusinus genticus*: Powell, Rec. Auckland Inst. Mus. 6(3) : 194.

1974. *Fusinus genticus*: Powell, Rec. Auckland Inst. Mus. 11 : 205.

RANGE. New South Wales, Sydney Harbour in dredge spoil (Type locality) and Northland, New Zealand.

*New Zealand Records*. Great Exhibition Bay, one fresh adult and others from crayfish pots (Poirieria 1971, 6(1) : 1); Eastern Beach, Houhora, one fresh (Poirieria 1970, 5(5) : 81); Cavalli Is and vicinity of Doubtless Bay from crayfish pots, adult shells in good condition, *leg.* Mr S. E. Turner; Poor Knights Is, 120 feet (36.58 m), one very large living specimen 156 mm in height, *leg.* Mr W. Palmer, 1973 (Powell 1974).

*Remarks*. Apparently *genticus* is known in Australia only by the broken juvenile holotype (Poirieria 1973, 7(2) : 31). Since the species occurs in numbers in Northland waters and has been taken alive at the Poor Knights, it may well be that Northland is its stronghold and that the Sydney shell found its way there by chance means.

**Fusinus novaehollandiae** (Reeve, 1848)

1848. *Fusus novaehollandiae* Reeve, Conch. Iconica : pl. 18, fig. 70.

1968. *Fusinus novaehollandiae*: Ponder, Rec. Dominion Mus. 6(8) : 121.

RANGE. Continental shelf of eastern Australia and Tasmania.

*New Zealand Records*. Ohope Beach, Bay of Plenty, one well preserved shell (Ponder 1968); Opoutere Beach, Coromandel, one very worn shell, (Ponder 1968).

**Latirus gibbulus** (Gmelin, 1791)

1791. *Murex gibbulus* Gmelin, Syst. Nat. ed. 13 : 3557.

1965. *Latirus gibbulus*: Powell, Rec. Auckland Inst. Mus. 6(2) : 165, pl. 23, fig. 12.



RANGE. Tropical Pacific, Fiji and westward of there.

*New Zealand Record.* Mimiwhangata Beach, east coast north of Whangarei, after a storm, 1963, leg. Mrs B. C. le Clerc.

*Remarks.* There have been no further New Zealand records of this species which is very doubtfully living here.

#### Family TURRIDAE

##### **Lophiotoma abbreviata** (Reeve, 1843)

1843. *Pleurotoma abbreviata* Reeve, *Conch Iconica* 1 : pl. 10, fig. 86.

1974. *Lophiotoma abbreviata*: Powell, *Rec. Auckland Inst. Mus.* 11 : 205.

RANGE. Tropical Indo-Pacific; Mauritius to Fiji, a shallow water species found in sandy lagoons and under coral on reefs.

*New Zealand Record.* Deep Water Cove, Bay of Islands, one well preserved empty shell dredged in shallow water.

*Remarks.* Further evidence is required before admitting this species to the New Zealand fauna.

#### Family CONIDAE

##### **Conus kermadecensis** Iredale, 1912

1912. *Conus kermadecensis* Iredale, *Proc. Malac. Soc. Lond.* 10 : 227.

1972. *Conus kermadecensis*: Powell, *Rec. Auckland Inst. Mus.* 9 : 250, fig. 1.

RANGE. Kermadec Islands (Type locality) and Northland, New Zealand.

*New Zealand Records.* Parengarenga Harbour, one adult living on low-tidal sand-bank at entrance to Te Kao Channel, leg. Mrs M. E. Armiger, January, 1972; also five more at same locality, leg. Master Andrew Wilson, March, 1972; Whangaroa Heads area, several living obtained by diving (Poirieria 1975, 7(6) : 114); Poor Knights, several obtained by skin-divers.

#### Family TEREBRIDAE

##### **Terebra circumcincta** Deshayes, 1857

1857. *Terebra circumcincta* Deshayes, *J. de Conchyl.* 6 : 77, pl. 3, fig. 9.

1971. *Terebra circumcincta*: Powell, *Rec. Auckland Inst. Mus.* 8 : 225, fig. 26.

1974. *Terebra circumcincta*: Powell, *Rec. Auckland Inst. Mus.* 11 : 206.

RANGE. Queensland (Type locality 'Red Sea' probably erroneous) and Northland, New Zealand.

*New Zealand Records.* Bay of Islands, dredged in shallow water, two living adults, leg. Mr & Mrs M. Hancock (Powell 1971); a small number of living adults have since been dredged in the same area, leg. Mr G. Clifford (Powell 1974).

Family ARCHITECTONICIDAE

**Claraxis cf. illustris** Iredale, 1936

1936. *Claraxis illustris* Iredale, Rec. Aust. Mus. 19(5) : 327.

1971. *Claraxis cf. illustris*: Powell, Rec. Auckland Inst. Mus. 8 : 212, figs.2-4.

RANGE. New South Wales, 45 fathoms (82.30 m) (Type locality) and northern New Zealand.

*New Zealand Records*. Off Mayor Island, Bay of Plenty, 82 m; between Mokohinau and Hen I, 55 fathoms (100.58 m).

Family EPITONIIDAE

**Epitonium (Gyroscala) perplexum** (Pease, 1867)

1867. *Scalaria perplexa* Pease, Am. J. Conch. 3(4) : 288.

1965. *Pomiscala perplexa*: Powell, Rec. Auckland Inst. Mus. 6(2) : 161.

RANGE. Hawaiian Islands (Type locality); Western Australia to Queensland; Kermadec Islands and Northland, New Zealand.

*New Zealand Record*. Paxton Point, Great Exhibition Bay, Northland, a few well preserved empty shells (Powell 1965).

Family JANTHINIDAE

**Recluzia rollandiana** Petit de la Saussaye, 1853

1840. *Janthina lutea* Bennett, Narr. Whaling Voy. 2 : 298 (indeterminate?)

1853. *Recluzia rollandiana* Petit de la Saussaye, J. de Conchyl. 4(1) : 119.

1924. *Recluzia lutea*: Powell, N.Z.J. Sci. Tech. 55 : 285.

RANGE. Tropical Pacific, Kermadec Islands and occasionally drifting to northern New Zealand.

*New Zealand Records*. Tryphena, Great Barrier I (Powell 1924); Mangawai and Whangamata.

Family ACTEONIDAE

**Acteon variegatus** (Bruguère 1789)

1789. *Bulimus variegatus* Bruguère, Meth., Vers. (1) : 336.

1972. *Acteon variegatus*: Cernohorsky, Marine shells of the Pacific 2 : 204, pl. 58, fig. 5.

RANGE. Tropical Pacific; and northern New Zealand.

*New Zealand Record*. Poor Knights Is, 40 m, one living adult (Poirieria 1975, 7(6) : 110).



## Family HYDATINIDAE

**Hydatina physis** (Linnaeus, 1758)

1758. *Bulla physis* Linnaeus, Syst. Nat., ed. 10 : 727.  
 1924. *Hydatina physis*: Powell, N.Z. J. Sci. Tech. 6(5-6) : 284.  
 1964. *Hydatina physis*: Powell, Rec. Auckland Inst. Mus. 6(1) : 18.

RANGE. Indo-Pacific; Hawaiian Islands; Japan; Queensland; Norfolk Island; New South Wales and Northland, New Zealand.

*New Zealand Records.* Tryphena and Port Fitzroy, Great Barrier I, living adults (Powell 1924); Takou Bay, Northland, about 25 living adults; Whangaroa and Houhora Harbours on mud-flats, May, 1961; Parengarenga Harbour, several colonies reported within recent years (Powell 1964).

*Remarks.* Temporary colonies resulting from chance spat-falls; individuals grow to maturity but evidently cannot reproduce under local conditions.

**Hydatina albocincta** (Van der Hoeven, 1839)

1839. *Bulla albocincta* Van der Hoeven, Tijdschr. nat. phys. 6(4) : 245, pl. 10.  
 1971. *Hydatina albocincta*: Powell, Rec. Auckland Inst. Mus. 8 : 227.

RANGE. Japan; China; Formosa; Philippines; Queensland and Northland, New Zealand.

*New Zealand Records.* Tutukaka, Northland, one fresh adult (Powell 1971); north end of Doubtless Bay, Northland, one fresh adult (Poirieria 1974, 7(5) : 99).

## Family PHILINIDAE

**Philine angasi** Crosse & Fischer, 1865

1865. *Philine angasi* Crosse & Fischer, J. de Conchyl. 13 : 38.  
 1934. *Philine angasi*: Powell, Trans. N.Z. Inst. 64 : 160.

RANGE. South Australia to New South Wales and northern New Zealand.

*New Zealand Records.* Parengarenga Harbour; Mansion House Bay, Kawau I (Powell 1934); Cheltenham, Auckland; Firth of Thames and Manukau Harbour.

## Family BULLIDAE

**Bulla vernicosa** Gould, 1859

1859. *Bulla vernicosa* Gould, Proc. Boston Soc. Nat. Hist. 7 : 138.  
 1913. *Bullaria adamsi*: (non Menke 1850). Suter, Man. N.Z. Moll. : 534.  
 1965. *Bulla (Quibulla) subtropicalis* Powell, Rec. Auckland Inst. Mus. 6(2) : 167, pl. 22, figs. 8, 9.

RANGE. Japan; Ryukyu Islands (Type locality); Fiji; Norfolk Island; Kermadec Islands; eastern Australia and Northland, New Zealand.

*New Zealand Records.* Cape Maria van Diemen to Whangarei Heads; well preserved shells frequently wash ashore.

### Family ATYIDAE

#### **Atys naucum** (Linnaeus, 1758)

1758. *Bulla naucum* Linnaeus, Syst. Nat. ed. 10 : 726.

1965. *Atys naucum*: Powell, Rec. Auckland Inst. Mus. 6(2) : 168.

RANGE. Throughout the tropical Indo-Pacific.

*New Zealand Records.* Snell's Beach, Warkworth, two not fully adult empty shells, leg. Mr. J. R. Penniket (Powell 1965); several more from the same locality (Poirieria 1970, 5(5) : 81).

#### **Limulatys reliquus** Iredale, 1936

1836. *Limulatys reliquus* Iredale, Rec. Aust. Mus. 19(5) : 328.

1964. *Limulatys reliquus*: Powell, Rec. Auckland. Inst. Mus. 6(1) : 18, pl. 3, fig. 6.

RANGE. New South Wales, Sydney Harbour dredgings (Type locality).

*New Zealand Records.* East of Stephenson I, Whangaroa, 16-17 fathoms (29.26-31.09 m), two well preserved shells (Powell 1964); Great Exhibition Bay, one fresh shell (Poirieria 1973, 7(1) : 19).

### Family APLYSIIDAE

#### **Dolabrifera brazieri** Sowerby, 1870

1870. *Dolabrifera brazieri* Sowerby, Proc. Zool. Soc. Lond. : 250.

1967. *Dolabrifera brazieri*: Powell, Rec. Auckland Inst. Mus. 6(3) : 195.

RANGE. New South Wales, Botany Bay (Type locality) and Northland, New Zealand.

*New Zealand Record.* Taiharuru, Pataua, Whangarei Heads, three living in low tidal gutters among rocks, leg. Mrs I. Worthy (Powell 1967).

### Family UMBRACULIDAE

#### **Umbraculum sinicum** (Gmelin, 1791)

1791. *Patella sinica* Gmelin, Syst. Nat., ed. 13, 1 : 3705.

1913. *Umbraculum umbellum* (Martyn) Suter, Man. N.Z. Moll. : 549.

1923. *Umbraculum botanicum* Hedley, Proc. Linn. Soc. N.S.W. 48 : 315, pl. 32.

1924. *Umbraculum botanicum*: Powell, N.Z. J. Sci. Tech. 5(5-6) : 286.



RANGE. Indo-Pacific, East Africa to Hawaii; Australia; Kermadec Islands and Northland, New Zealand.

*New Zealand Records.* Northland east coast; off Te Hapua, Parengarenga Harbour, leg. R. Willan, April, 1976; Bay of Islands, leg. J. C. Anderson; vicinity of Hen and Chicken Is, 25-30 fathoms (45.72-54.86 m) (Powell 1924).

### Family GYMNODORIDAE

#### **Nembrotha kubaryana** Bergh, 1877

1877. *Nembrotha kubaryana* Bergh, Malacol. Unters. Semper, Sec. 2(11) : 454.

1971. *Nembrotha kubaryana*: Miller in Doak, Beneath N.Z. Seas, pl. 36, fig. A.

RANGE. Palau Islands (Type locality) and Northland, New Zealand.

*New Zealand Record.* Poor Knights Is.

#### **Nembrotha morosa** Bergh, 1877

1877. *Nembrotha morosa* Bergh, Malacol. Unters. Semper, Sec. 2(11) : 457.

1971. *Nembrotha morosa*: Miller in Doak, Beneath N.Z. Seas : pl. 36, fig. B.

RANGE. Philippines Sea (Type locality) and Northland, New Zealand.

*New Zealand Record.* Poor Knights Is.

### Family GLAUCIDAE

#### **Glaucus atlanticus** Forster, 1777

1777. *Glaucus atlanticus* Forster, Voy. round the World . . . sloop Resolution . . . : 49.

1937. *Glaucilla atlantica*: Powell, Rec. Auckland Inst. Mus. 2(2) : 124.

1974. *Glaucus atlanticus*: Miller, Zool. J. Linn. Soc. : 54.

RANGE. Atlantic, Pacific and Northern New Zealand; pelagic.

*New Zealand Records.* Mairangi Bay, Auckland, leg. Powell, October, 1934 (Powell 1937); Muriwai Beach, Auckland west coast, October, 1971; Matai Bay, Cape Karekare, Northland, leg. D. M. Hole, (Poirieria 1975, 7(6) : 115).

## CLASS BIVALVIA

### Family MYTILIDAE

#### **Septifer bilocularis** (Linnaeus, 1758)

1758. *Mytilus bilocularis* Linnaeus, Syst. Nat. ed. 10 : 705.

1954. *Septifer* cf. *bilocularis*: Powell, Rec. Auckland Inst. Mus. 4(4) : 235.

RANGE. Tropical Indo-Pacific and Northland, New Zealand.

*New Zealand Records.* Off Mayor I, Bay of Plenty, 45 fathoms (82.30 m), juvenile from stomach of fish (*Dactylopagrus macropterus* Forster); Poor Knights Is in sublittoral shell-sand, several valves (Poirieria 1966, 3(4-5) : 70); same locality at 40-45 m, numerous odd valves up to 10 mm in length, *leg.* N. Gardner, 1974.

#### Family PTERIIDAE

##### **Pteria levitata** (Iredale, 1939)

1939. *Austropteria levitata* Iredale, Moll. Great Barrier Reef Exped. Brit. Mus. (Nat. Hist.): 331, pl. 5, fig. 12.

RANGE. Queensland, dredged at Port Curtis, living on Alcyonarian (Type locality) and Poor Knights Islands, New Zealand.

*New Zealand Record.* Poor Knights I, 150 feet (45.72 m), on Alcyonarians. A new addition to the New Zealand fauna.

*Remarks.* Another member of this family, a widely distributed rather small tropical Pacific pearl oyster, *Pinctada fucata* (Gould, 1850) (= *martensii* Dunker, 1872) was found alive, attached to a coconut, washed ashore on Urupukupuka Island, Bay of Islands (Poirieria 1973, 6(6) : 115). This record of course has no faunal significance.

#### Family OSTREIDAE

##### **Crassostrea gigas** (Thunberg, 1793)

1793. *Ostrea gigas* Thunberg, K. Vet. Ac. Nya. Handl. 14 : 140.

1971. *Crassostrea gigas*: Dinamani, N.Z. J. Mar. Frewshw. Res. 5(2) : 352-357.

RANGE. Natural: Japan (Type locality), Korea and vicinity. Introduced and cultivated: Pacific coast of North America; eastern coast of United States; Hawaii; Okinawa; New South Wales and Tasmania.

*New Zealand Records.* Mahurangi oyster farm, first observed in January, 1961. Since accidentally distributed along with *glomerata* oyster seed to oyster farms in Kaipara Harbour, Bay of Islands and Ohiwa Harbour, Bay of Plenty (Dinamani 1971).

*Remarks.* Dinamani (1971) considers that the 2-3 weeks normal larval life of this oyster is insufficient to enable a 1,200 mile (1,900 km) successful drift across the Tasman and suggests chance means as the only alternative.

##### **Lopha cristagalli** (Linnaeus, 1758)

1758. *Mytilus crista galli* Linnaeus, Syst. Nat. ed. 10 : 704.

RANGE. Tropical Indo-Pacific.



*Remarks.* Ten examples, some fully adult, attached to a length of rope, were hauled up off Parengarenga Heads. They probably originated from some foreign trawler operating off the New Zealand coast (Poirieria 1971, 5(6) : 104). This record cannot be accepted as a natural addition to the New Zealand fauna.

### Family LIMIDAE

#### **Limaria orientalis** (Adams & Reeve, 1850)

1850. *Lima orientalis* Adams & Reeve, Zool. Samarang 7 : 75.  
 1926. *Lima marwicki* Powell, Rec. Canterbury Mus. 3(1) : 48.  
 1974. *Limaria orientalis*: Powell, Rec. Auckland Inst. Mus. 11 : 203.  
 1976. *Limaria (Promantellum) orientalis*: Grange, Veliger 17(1) : 13.  
 1976. *Limaria orientalis*: Climo, Conch. Sec. Auck. Inst. Mus. Bull. No. 1 (N.S.) : 14.

RANGE. Japan; Philippines (Type locality); New South Wales; Victoria; South Australia and New Zealand.

*New Zealand Records.* Not known Recent in New Zealand prior to January, 1972 but now very abundant in northern North I., Russell, Bay of Islands, common off shore (Poirieria 1975, 8(1) : 17); Goat Island Beach, Leigh (site of first New Zealand Recent record); Wenderholm, near Waiwera, in tidal rock pools; Colville Passage, 10-12 fathoms (18.29-21.95 m); outer coast of Coromandel Peninsula down to Mercury Bay; Auckland east coast beaches, cast ashore in considerable numbers, especially at Cheltenham and Takapuna, during gales in early April, 1976.

*Remarks.* The recent invasion is probably analogous to several short-lived ones in the geological past, for *orientalis* seems to be inseparable from *marwicki* Powell, 1926 from the upper Pleistocene of Castlecliff, Wanganui, and a damaged valve from the Miocene of Target Gully, Oamaru seems to be the same species also.

### Family TELLINIDAE

#### **Tellina (Arcopaginula) inflata** Gmelin, 1791

1791. *Tellina inflata* Gmelin, Syst. Nat., ed. 13, 1 : 3230.

RANGE. Tropical Western Pacific.

*New Zealand Record.* Off Mahia Peninsula, 150 fathoms (274.32 m), trawled alive (Poirieria 1971, 6(2) : 26).

*Remarks.* I have not seen this specimen.

### Family SEMELIDAE

#### **Theora (Endopleura) lubrica** Gould, 1861

1861. *Theora lubrica* Gould, Proc. Boston Soc. Nat. Hist. 8 : 24.  
 1974. *Theora (Endopleura) lubrica*: Powell, Rec. Auckland Inst. Mus. 11 : 203.  
 1976. *Theora (Endopleura) lubrica*: Climo, Conch. Sec. Auckland Inst. Mus. Bull. No. 1 (N.S.) : 11-16.

RANGE. *Japan* (Type locality); Botany Bay, New South Wales, Australia (based upon *Neaera fragilis* A. Adams, 1855, a probable synonym of *Theora lubrica*); and numerous New Zealand records down to as far south as Marlborough Sounds (Climo 1976).

*New Zealand Records.* Not known in New Zealand prior to 1972. North I: Owhanga Bay, Whangaroa Harbour, 12 m, February, 1974 (Climo 1976); Bay of Islands in shallow water soft mud; Tutukaka in low tidal mud, *leg.* R. C. Willan, 1972; Auckland Harbour, Shoal Bay near Harbour Bridge and extending up harbour to Island Bay, abundant in low tidal mud, 1972, but less abundant subsequently. South I: Pelorus Sound, Marlborough, August, 1975, dredged alive in abundance in 34 and 48-50 m (Climo 1976).

*Remarks.* This massive invasion that probably took place during the summer of 1972 covered such a wide area that a natural cause by means of larval drift is more plausible than one involving shipping.

#### Family POROMYIDAE

##### **Poromya laevis** E. A. Smith, 1885

1885. *Poromya laevis* E. A. Smith, "Challenger" Zool. 13 : 55, pl. 11, figs. 3, 3b.

1966. *Poromya laevis*: Crozier, Trans. R. Soc. N.Z. Zool. 8(5) : 45.

RANGE. North Australia, east of Cape York, 155 fathoms (283 m) (Type locality).

*New Zealand Record.* North of Three Kings Is, 440 fathoms (804.67 m) Crozier 1966).

#### Family MYOCHAMIDAE

##### **Myochama tasmanica** (Tenison-Woods, 1877)

1877. *Gouldia tasmanica* Tenison-Woods, Proc. R. Soc. Tasmania : 160.

1974. *Myochama tasmanica*: Powell, Rec. Auckland Inst. Mus. 11 : 197, figs. 1-8.

RANGE. Southern Tasmania (Type locality); New South Wales and far north of New Zealand.

*New Zealand Records.* Parengarenga Harbour, Northland, 3-4 fathoms (5.48-7.31 m attached to exterior of living and the interior of dead *Tawera spissa* and *Paphies australis*.

#### Family VERTICORDIIDAE

##### **Spinosipella ericia** (Hedley, 1911)

1911. *Verticordia ericea* Hedley, Biol. Res. "Endeavour" Pt. 1 : 96.

1966. *Spinosipella ericia*: Crozier, Trans. R. Soc. N.Z. Zool. 8(5) : 45.



RANGE. South Australia (Type locality), New South Wales and Queensland; also off Cape Vidal, Zululand, 80-100 fathoms (146.30-182.88 m) and off Madagascar, 400 m (Crozier 1966).

*New Zealand Record*. Off Three Kings Is, 440 fathoms (804.67 m) (Crozier 1966).

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