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## RECENT AND RELICT MOLLUSCAN FAUNAS FROM OFF CAPE FAREWELL

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### SUMMARY

A benthic sample from north-west of Cape Farewell in 126 m contains two distinct groups of molluscs, a recent group and a relict group.

### INTRODUCTION

During benthic sampling on the New Zealand continental shelf the material described below was collected at N.Z.O.I. Sta. B 686, approximately 20 miles north-west of Cape Farewell (40°16'S, 172°32.3'E) at 126 m. When the material was collected it was noticed that two distinct molluscan faunas had been sampled; one of living or recently dead specimens dominated by epifaunal bivalves and gastropods, the other, apparently relict, composed entirely of stained, eroded and sometimes encrusted, dead infaunal bivalves. No sediment sample was obtained but small amounts of fairly coarse gritty sand with a little mud were present in some of the dead gastropods. The sample consisted chiefly of molluscs, sponges, ascidians, encrusting bryozoans and pebbles.

### THE RECENT FAUNA

#### Brachyura

*Merocryptus lambrifrons* (Milne-Edwards): 1 gravid female.

*Petalomera wilsoni* (Fulton and Grant): 2 males, 3 females.

*Chlorinoides filholi* Milne-Edwards: 1 gravid female.

*Eurynome bituberculata* Griffin: 2 males, 2 females.

#### Asteroidea

*Astropecten primigenius* Mortensen: 1 specimen.

#### Ophiuroidea

*Ophiomyxa brevirima* H. L. Clark: 6 specimens.

*Pectinura gracilis* Mortensen: 5 specimens.

*Ophiactis profundus* var. *novaezealandiae* Mortensen: 1 specimen.

## Gastropoda

- Emarginula striatula* (Quoy and Gaimard): 4 dead.  
*Tugali elegans* Gray: 2 live, 1 dead.  
*Astraea heliotropum* (Martyn): 3 live, 2 dead, fragments  
*Xenophora neozelandica* Suter: 4 dead.  
*Ranella olearium* (Linnaeus): 1 dead.  
*Poirieria zelandica* (Quoy and Gaimard): 1 live.  
*Penion dilatata* (Quoy and Gaimard): 2 live, 1 dead.  
*Austrofusus glans* (Roeding): 1 fragment.  
*Eucominia nassoides* (Reeve): 1 dead.  
*Coluzea spiralis* (A. Adams): 1 dead.  
*Glaphyrina vulpicolor* (Sowerby): 1 dead.  
*Baryspira mucronata* (Sowerby): 1 live.

## Scaphopoda

- Dentalium zelandicum* (Sowerby): 8 live, 22 dead.

## Bivalvia

- Barbatia novaezealandiae* Smith: 5 live, 7 valves.  
*Glycymeris laticostata* (Quoy and Gaimard): 1 valve.  
*Glycymeris modesta* (Angas): 1 valve.  
*Pecten novaezealandiae* Reeve: 2 valves, fragments.  
*Chlamys dieffenbachi* (Reeve): 37 live, 36 valves, fragments  
*Chlamys gemmulata* (Reeve): 4 valves.  
*Pallium convexum* (Quoy and Gaimard): 25 live, 48 valves, fragments.  
*Lima zelandica* Sowerby: 35 live, 59 valves, fragments.  
*Ostrea sinuata* Lamarck: 2 valves.  
*Venericardia purpurata* (Deshayes): 8 live, 31 valves, fragments  
*Nemocardium pulchellum* (Gray): 1 live, 3 valves, fragments.  
*Notocallista multistriata* (Sowerby): 1 valve.  
*Tawera spissa* (Deshayes): 5 valves, fragments.

In this material the infaunal molluscs, for example, *Dentalium*, *Glycymeris*, *Venericardia*, *Nemocardium*, *Notocallista*, and *Tawera*, are poorly represented by only 17 live specimens. The epifaunal bivalves *Barbatia*, *Chlamys*, and *Lima*, with 103 live specimens, are clearly the dominant group sampled and gastropods are well represented with 12 species. This association is probably typical of the fauna developed in coarse sandy sediments over much of the New Zealand shelf. The substrata, unfavourable for the development of a rich infauna, support large epifaunal populations. Associated with the general epifaunal habitat are various brachyurans and echinoderms.

## THE RELICT FAUNA

## Bivalvia

- Dosinia anus* (Philippi): 13 valves, 3 fragments.  
*Dosinula zelandica* (Gray): 5 valves.  
*Tawera* aff. *spissa* (Deshayes): 76 valves

*Gari stangeri* (Gray): 8 valves.

*Longimacra elongata* (Quoy and Gaimard): 5 valves.

*Spisula aequilateralis* (Deshayes): 1 valve.

*Amphidesma subtriangulatum* (Wood): 4 valves.

*Amphidesma australe* (Gmelin): 30 valves.

*Myadora striata* (Quoy and Gaimard): 1 valve.

Most of these species occur typically in shallow coastal situations on sandy substrates (Fleming 1953: 261; Powell 1961) although *Amphidesma australe* is usually regarded as an indicator of a more sheltered environment. The appearance of these stained and sometimes bored specimens clearly separates them from the recent fauna and their relatively large size and general lack of abrasion suggest that they have not been transported from any nearshore locality where the species may be living at present.

#### DISCUSSION

The relict assemblage correlates closely with some faunas from the Rapanui and Brunswick formations (Hawera Series) in the Wanganui Pleistocene (Fleming 1953), though the lowest recorded age of several of the species is Waitotaran to Recent.

A stand of sea level approximately 100–120 m below the present sea level is suggested by the present known environmental requirements of the relict assemblage, and the presence of pebbles in the superficial sediment supports the view that a former nearshore environment has been sampled.

Te Punga (1954) has described a beach deposit dominated by *Chione stutchburyi* (Gray) from Awahuri, near Palmerston North, suggesting deposition since the Last Interglacial and at a sea level approximately 100 m below that at present. Correlation between the two samples is not possible until precise datings are available for each and relative tectonic movement between the two localities is known. Fleming (1963) has recorded a moa bone of probable Pleistocene origin from 91 m off Kapiti Island. Te Punga (1953) has given a reconstruction of land bridges across Cook Strait during the Last Glaciation, and Fleming (1962) has illustrated the probable coastal outline in this period, close to the edge of the present continental shelf. The relict molluscan assemblage described above provides some evidence that shallow coastal environments have been present north-west of Cape Farewell, possibly in the same period.

Other samples in the New Zealand Oceanographic Institute, from similar depths, have not revealed any further material of this nature. However, sediment data (McDougall and Gibb, in press) suggest that an area of sediment coarser than the surrounding substrate extends for some distance to the south-west of the sampling locality. Sedimentation in this area may have been slight leaving the relict material exposed. Alternatively, more recent current action may have removed an overlay of finer sediments and exposed the material to encrusting organisms.

## REFERENCES

- FLEMING, C. A. 1953: The Geology of the Wanganui Subdivision. *Bull. N.Z. Geol. Surv. n.s. 52*. 362 pp. 34 pls, 4 maps.
- 1962: New Zealand biogeography—A paleontologist's approach. *Tuatara 10* (7): 53-108.
- 1963: A moa-bone from the sea-floor in Cook Strait. *Rec. Dom. Mus. 4* (16): 231-3.
- MCDUGALL, J. C. and GIBB, J. G. In press: Tasman Sediments. *N.Z. Oceanogr. Inst. Chart. Coastal Series 1*:200,000.
- POWELL, A. W. B. 1961: Shells of New Zealand. 4th ed. (reprinted 1967) Whitcombe and Tombs, Christchurch. 203 pp. 36 pls.
- TE PUNGA, M. T. 1953: A Late Pleistocene land bridge across Cook Strait, New Zealand. *N.Z. Jl Sci. Technol. B 35* (2): 161-92.
- 1954: Fossiliferous Late-Pleistocene beds in a well at Awahuri, near Palmerston North. *Ibid. B 36*: 82-92.