

dominant Foraminifera are *Cibicides* and *Amphistegina*, and they constitute between 35 and 70 per cent of the total Foraminifera. Branchiopods occur at N28/867 and 869, with the latter containing several specimens of *Liothyrella*. Gastropods are not as abundant as bivalves, and their shells are usually heavy and almost unbroken. They include *Emarginula* and *Tugali* especially at N28/867; rare scattered *Maurea* and common *Opella*; minor scattered turritellids, naticids, *Cylichnania*, and *Vaginella*; rare widely scattered *Serpulorbis*, *Stephopoma*, *Balcis badenia*, *Sigapatella*, *Archierato*, *Baryspira*, conids, and *Gemmula*. Scaphopods are heavy-shelled *Dentalium solidum* and *D. cf. zelandicum*. Bivalves are abundant, heavy-shelled, often disarticulated, and occasionally broken. In addition to those listed in Table III *Ledella*, *Barbatia*, *Cucullaea*, *Chlamys*, *Serripecten*, *Lima*, *Kuia*, and tellinids are locally quite common. Annelids and *Balanus* are common throughout. Heavy echinoderms are also quite abundant and include numerous cidaroid radioles, *Brissoopsis*, and *Schizaster*. Rare otoliths are recorded at N28/869.

Faunal associations are not common in the Hollands Member, with the exception of worm tubes associated with heavy-shelled bivalves (e.g., *Glycymeris*), and polyzoans and smaller molluscs associated in very small lenses and patches of finer-grained sediment. *Modiolus* occurs in pockets within or overlying fine-grained calcite bands near the base of the member. This accounts for their relative abundance in N28/865. There is approximately 35 per cent of the shell material broken (dominantly bivalve) within this member.

Waipukua Member

The Waipukua Member has been subdivided into upper (N28/871) and lower (N28/870) localities. Both localities have essentially similar rich polyzoan and foraminiferal faunas, but the lower locality is characterised by bivalves, especially pectinids, while the upper locality has a progressively more abundant gastropod fauna towards its top. The relative abundance of genera from both localities is combined in Table III.

Corals form a very minor part of the fauna and include *Flabellum*, *Tethyocyathus*, and *Melithaea*. Polyzoans are extremely abundant and include massive colonies of "*Celleporaria*", *Retepora*, *Idmonea*, and *Entalophora*. Large Foraminifera form an important part of the fauna and include *Miogypsina*, *Heterostegina*, *Amphistegina*, and the *Cibicides temperata* group. Thirty per cent of the Foraminifera are planktonic. Gastropods are very rare especially towards the base of the member. They include *Crosseola*, *Zeacolpus*, *Taniella*, and *Cylichnania*. Scaphopods are heavy-shelled, e.g., *Dentalium solidum*. Bivalves are the dominant molluscs and in addition to those in Table III include *Cucullaea*, *Glycymeris*, *Lentipecten*, *Chlamys*, *Ostrea*, *Pinna*, *Pitar*, and *Kidderia*. The last three only occur near the top of N28/871.

In the Waipukua Member the fossils are generally randomly scattered and show no definite associations. However, many of the pectinid and ostreid valves are still articulated and show attachment areas of polyzoans and annelids. The glycymerids are also often articulated and show occasional worm-bored surfaces. The articulated *Pinna* valves are orientated perpendicular to the bedding, in their typical growth attitude. Broken shell material, other than fragmented slender polyzoans, is rare in this member.

Pakaurangi Member

The Pakaurangi Member has been subdivided into seven faunal localities. N28/873 and 879 represent the upwards sequence north of Pakaurangi Point, while N28/874–878 represent the same succession east-south-east of Waipukua Bay. The relative abundance of genera is given in Tables I and III.

Corals such as *Distichopora*, *Caryophyllia*, *Notocyathus*, and *Flabellum* are quite numerous in the basal portion of the Pakaurangi Member (N28/873–875).