

REMARKS: This structure is not common although fragmentary markings suggestive of it were not uncommon. As with many other of the described trace fossils it was often picked out by light-coloured silt. It may have been produced by hemisessile or vagile worm-like organisms that systematically culled sediment over a short distance about a central dwelling shaft. Some ethological similarity to *Phycodes*, with which it was commonly found, can be noted.

Ichnogenus HELMINTHOIDA Schafhautl 1851

DIAGNOSIS: Numerous, smooth, closely spaced, parallel and equidistant concentric shallow furrows (or low ridges).

Helminthoida sp.

MATERIAL: Low ridges on surfaces of two small slabs of silty sandstone.

LOCALITY: X22, grid reference N42/130430, Mill Bay: X23, grid reference N42/411570, Bucklands Beach.

DESCRIPTION: Two specimens very closely similar to *Helminthoida* (= *Helminthoides* and *Helminthoidea*) as described and figured by Häntzschel, 1962: W200, fig. 122) have been collected by P. F. Balance from the Waitemata beds near Mill Bay and near Bucklands Beach. No examples are known from Whangaparaoa Peninsula. Both specimens occur in silty sandstones and lie on parting surfaces that are parallel to bedding (tops and bottoms are not discernible) and consist of a low, smoothly rounded "cord" c. 1mm across that is continuous and unbranched and meanders back and forth in closely spaced sub-parallel loops (Pl. 8, Figs. 1, 2).

REMARKS: Many origins have been contemplated for this oft recorded ichnogenus, e.g., stringers of eggs, body impressions of worms, feeding trails and/or burrows of worms and gastropods (see Lessertisseur, 1955: 50). Similarities can be noted between *Helminthoida* and certain modern trails photographed on the deep-sea floor and believed to have been made by enteropneusts (see Bourne and Heezen, 1965, fig. 2) but the latter are much larger. There is no evidence as to whether *Helminthoida* was produced by an infaunal or epifaunal organism.

Cullen (1967) has recorded a trace fossil from mid-Tertiary deposits near Castle Point closely resembling the above described *Helminthoida* and has also drawn attention to the striking similarity between it and the modern enteropneust faecal casts described and figured by Bourne and Heezen (1965).

Additional Forms

In addition to the trace fossils described above, there are numerous examples in which, though they are of a fragmentary and indistinct nature, orderly structures repeatedly occur. While detailed descriptions of these are not warranted, some are vaguely comparable with a number of ichnogenera illustrated and/or described by Häntzschel (1962) and by Lessertisseur (1955). These include the following: *Bifasciculus*, *Gyrochorte* (= *Gyrochorda*), *Lorenzina*, *Palaeophycus*, "*Spongia*", *Stellascolites*, *Zoophycos*.

Most of these ichnogenera are to be interpreted as feeding structures of one sort or another, e.g., *Lorenzina*, previously described as a medusoid (Scyphomedusae) (see Harrington and Moore, 1956: F43) is today generally regarded as a feeding burrow (see Häntzschel, 1962: W202; also Seilacher, 1962). The ichnofossil "*Spongia*" has been compared with the modern Porifera genus *Spongia* Linné (see e.g., Katto, 1960: 324) but is more likely the feeding burrow system of some worm or crustacean (Häntzschel, 1962: W218).

DISCUSSION

The trace fossil assemblage (ichnocoenosis) of the Waitemata beds of Whangaparaoa Peninsula, with also that of the Takapuna section described by