Family Xanthidae Dana, 1851

cf. *Atergatis-Atergatopsis*

Material. Two specimens, DM-PQPD3263 and 3264 (Figs 3.2–3)

Material. This is a small broad species (carapace width c. 22 mm), with granular chelipeds of equal size, and characteristically white-tipped fixed fingers and dactyli. It is dorsally smooth and strongly convex, not demarcated into regions and with undemarcated lateral lobes. There are a few small marginal tubercles.

Occurrence. This group of genera are all subtropical/tropical in distribution.

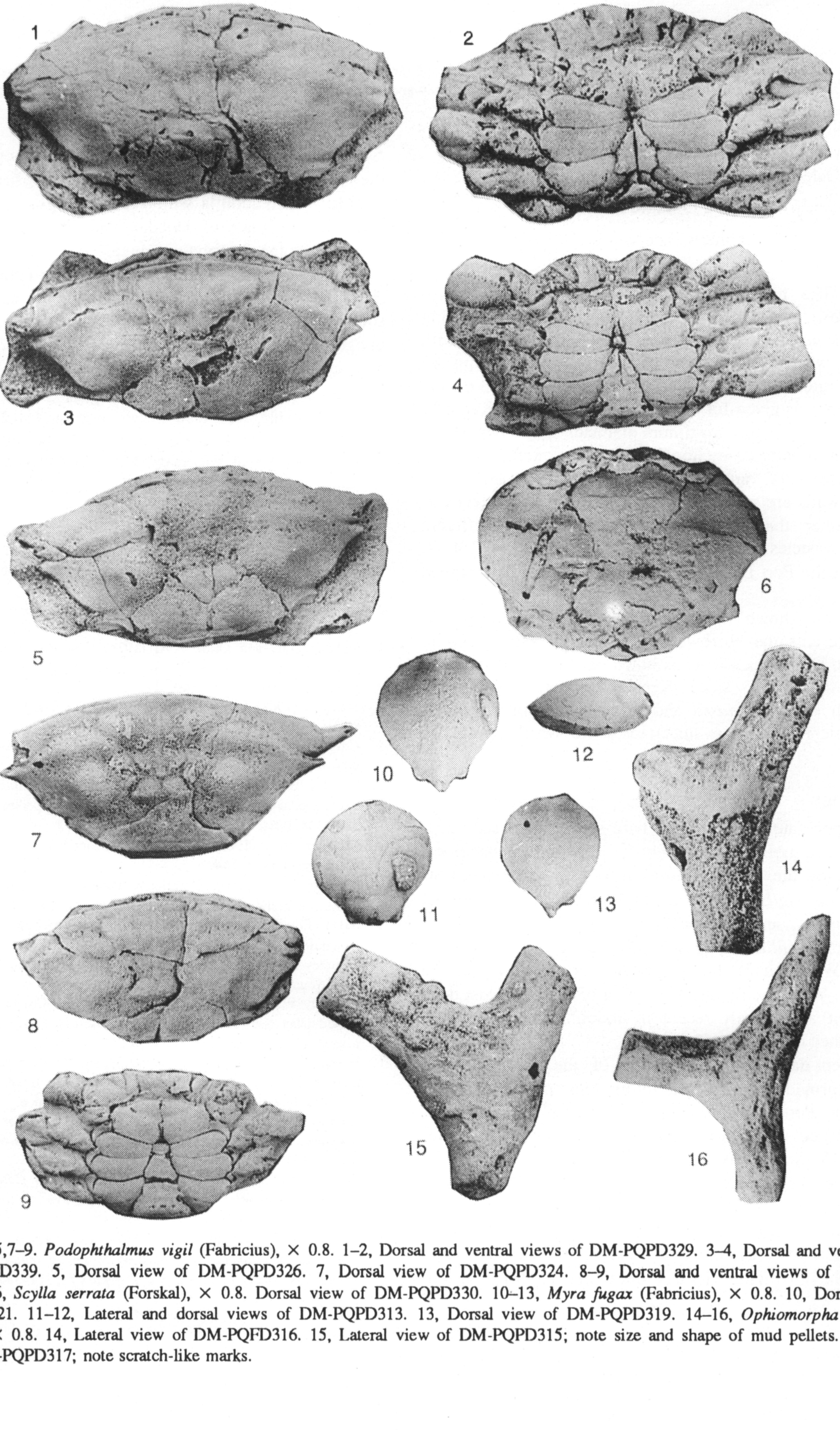

Fig. 2. 1–5,7–9. ***Podophthalmus vigil*** (Fabricius), × 0.8. 1–2, Dorsal and ventral views of DM-PQPD329. 3–4, Dorsal and ventral views of DM-PQPD339. 5, Dorsal view of DM-PQPD326. 7, Dorsal view of DM-PQPD324. 8–9, Dorsal and ventral views of DM-PQPD-PQPD328. 6, ***Scylla serrata*** (Forskal), × 0.8. Dorsal view of DM-PQPD330. 10–13, ***Myra fugax*** (Fabricius), × 0.8. 10, Dorsal view of DM-PQPD321. 11–12, Lateral and dorsal views of DM-PQPD313. 13, Dorsal view of DM-PQPD319. 14–16, ***Ophiomorpha*** cf. ***nodosa*** Lundgren, × 0.8. 14, Lateral view of DM-PQFD316. 15, Lateral view of DM-PQPD315; note size and shape of mud pellets. 16, Lateral view of DM-PQPD317; note scratch-like marks.

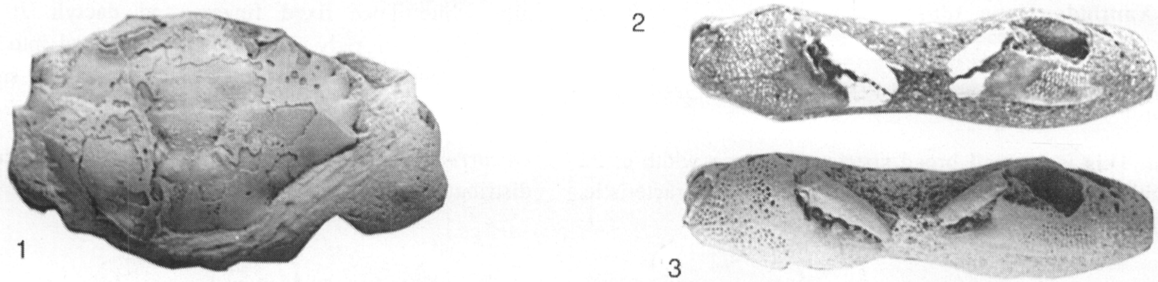

Fig. 3. 1, *Charybdis* cf. *hoplites* var. *longicollis* Leene, × 0.8. Dorsal view of DM-PQPD3262. 2–3, Xanthid crab, × 1.2. Anterior view of DM-PQPD3263 (2) uncoated to show white-tipped fixed finger and dactylus, and (3) coated with ammonium chloride to show granulated surface of chelipeds.

Superfamily Thalassinoidea Latreille, 1831
Ichnogenus Ophiomorpha *Lundgren, 1891*

Ophiomorpha cf. *nodosa* Lundgren, 1891.

Material. Several specimens, including DM-PQPD315–317 (Figs 2.14–16).

Discussion. The present material closely resembles *Ophiomorpha nodosa*,[11,12] with some individuals (Fig. 2.14) showing a mammillate surface, resulting from lining of the burrow with mud pellets, whereas the surface of others (Fig. 2.16) appears to display scratch marks. However, the present material differs from the diagnosis given for *Ophiomorpha nodosa* by Kennedy and Macdougall[11] in that maximum diameter of the burrows is 16.5 mm, burrow cross-section is elliptical (minor diameter/major diameter 0.94), and the single mud pellets used to line the burrow walls are relatively large (6–10 mm diameter) and rounded (rather than elliptical). This suggests a different (?new) ichnospecies may be involved. Earlier records of *O. nodosa* from the Port Durnford Formation[3] should be assigned here.

It has been shown[13–15] convincingly that *Ophiomorpha nodosa* represents the burrows of callianassid and upogebiid mud-prawns, and these also constituted part of the Port Durnford fauna. However, since Kensley[6] reports four living species each of *Callianassa* and *Upogebia* from the same zoogeographic region, it is uncertain as to which species is involved.

Palaeoecology

The decapod fauna documented here supplements sedimentological[3] and molluscan evidence[2] for the depositional environment of the Port Durnford lagoon. The presence of *Podophthalmus vigil* and the xanthid crab indicates normal marine salinities, and the occurrence of *Myra fugax* and *Charybdis* cf. *hoplites* suggests affinities with the warmer water Indo-West Pacific faunas to the north. Therefore, the tropical Indo-West Pacific decapod fauna of the east coast does not represent a relatively recent incursion[6] but already was well established in the early Pleistocene.

The present-day depth distribution of the Port Durnford Decapoda[6] provides ambiguous information regarding water depths in the Port Durnford lagoon. However, the overwhelming abundance of *Scylla serrata* favours depths shallower than about 15 m. This is of some significance regarding the sea-level rise responsible for Port Durnford sedimentation. Maud[4] postulated a +30-m rise in sea level to account for deposition of the Port Durnford Formation, whereas Davies[5] correlated it with both his +45-m and +30-m transgressive events. On the other hand, Hobday and Orme[3] regarded an 8-m rise in sea level sufficient to deposit the lagoonal sediments of the Port Durnford Formation. Since the base of the Port Durnford Formation is within a few metres of present-day sea level, the estimate of Hobday and Orme[3] is perhaps better favoured by the decapod evidence.

Although burrows of *Ophiomorpha* are considered diagnostic of nearshore, littoral and shallow neritic environments,[13–15] southern African callianassids range to depths of 180 m and upogebiids to 80 m.[6] The burrows, therefore, do not offer a precise depth for the Port Durnford lagoon.

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