

3/14/58.

With the Compliments of
Dr. J. Gardiner - Thanks
for reprints

(Reprinted from Nature, Vol. 181, pp. 1552-1553, May 31, 1958)

A New Subterranean Crustacean from the West Indies

RECENTLY I had to establish a new order Spelaeogriphacea in the division Peracarida for a small cavernicolous crustacean from Table Mountain, South Africa¹. Now Dr. L. B. Holthuis, of the Leyden Museum, has sent me for study three specimens of another interesting new subterranean 'shrimp' which he collected on February 10, 1957, in Devil's Hole, near Simon's Bay, St. Martin, Lesser Antilles. This is a wide sink-hole, about 5 m. deep, in a limestone slope some 300 m. from the sea. From the hole itself a few short, blind passages run inwards; the specimens were caught in a tiny pool of mesohaline brackish water in one of these passages. A film of limestone particles covered most of the surface of the pool and a limestone sediment made the water turbid when stirred. Two days later, from the same pool, only some amphipods and nematodes were obtained.

The largest specimen, the holotype, is 9 mm. in length and the slender, rather vermiform body is flattened dorso-ventrally. The carapace is firmly fused dorsally with the tergites of the four anterior thoracic somites, and does not overlap the fifth (first free) somite (Fig. 1). On either side of the minute median apex the anterior margin is slightly oblique and concave; in front of each concavity is a short, broad ocular scale without trace of pigment or visual elements (Fig. 1, *oc*). Behind the carapace the body is fully segmented; it is widest across abdominal somite 3, and abdominal somites 4 and 5 are longest and equal. The telson is almost as wide as long and the posterior margin is armed with two lateral groups,

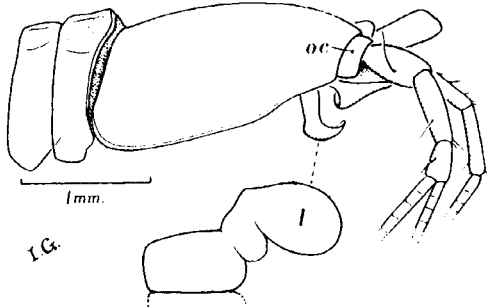


Fig. 1. *Rhopalonurus holthuisi* n.g. and sp. paratype. Anterior part of body, lateral aspect; scale - 1 mm. *l.*, Lappet of lower lip; *oc.*, ocular scale

each of three stout spines, and a strong median spine flanked by a pair of smaller spines (the latter group is visible in Fig. 2). The anus is an elongated slit on the ventral surface of the telson.

The antennules are much more robust, and rather longer, than the antennæ; the antennular flagella are only slightly unequal, the shorter about as long as the carapace; the antennal scale is minute and the two distal segments of the peduncle are long and slender. The upper lip, shown almost in profile in Fig. 1, is broadly triangular with rounded apex; each half of the lower lip has a large, oval, forwardly directed lappet (Fig. 1, *l*, in profile and in ventral aspect at higher magnification). The mouthparts, though similar to those of certain Mysidacea, have some unusual features. The minute third segment of the mandibular palp bears seven long spines; the incisor process is strong but the molar process is a small round knob; between the two is a strong triangular lobe and a short spine row. The maxillula is large and robust with a very long stout spine on the major endite and no reflexed palp (endopod). The pediform maxilliped has, in addition to the large backwardly directed epipodite, a small oval ~~one~~ (respiratory?) *exopod*. Gills absent.

Each of the thoracic appendages 2-8 has a large natatory exopod, rather similar to those of the Mysidacea, and no epipodite. The three anterior pairs have their endopods directed forwards, much more robust than, and obviously differing in function

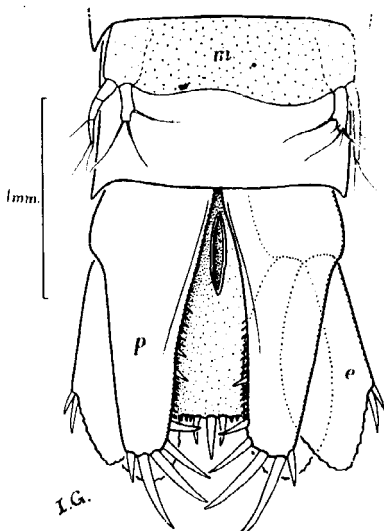


Fig. 2. *Rhopalonurus holthuisi* n.g. and sp. holotype. Posterior part of body, ventral aspect; scale = 1 mm. *m*, Membrane uniting bases of pleopods 5; *e*, exopod; *p*, prolongation of base of uropod

from, those of the four posterior pairs which are slender ambulatories. They probably assist in the capture of food. The five pairs of pleopods are similar in size and form, each comprising a short protopodite, a one-segmented endopod and a three-segmented exopod. The protopodites of the third, fourth and fifth pairs respectively are united by a broad thin membranous flap (Fig. 2, *m*). The uropod is undoubtedly the most distinctive character of this species. The protopodite is broad so that its base occupies almost half of the posterior ventral margin of the sixth abdominal somite (Fig. 2) and, in addition, it has a stout backward prolongation (*p*) armed with five strong curved apical and subapical spines. The leaf-like exopod (*e*) and endopod are of equal length; in dorsal aspect their long marginal setae (omitted in Fig. 2) conceal the spines of the prolongation *p*. Because of the unusual form of the uropod, I propose to call this small crustacean *Rhopalonurus holthuisi* gen. et sp. nov.

The holotype appears to be a female with four pairs of developing oostegites arising from the coxae of thoracic limbs 4-7, so I assume that there must be a peracaridan brood-pouch. But the combination of characters found in *Rhopalonurus* is such that it cannot be placed in any of the known orders of the Peracarida as at present defined. It seems to be most nearly related to the Mysidacea but it is certainly not a mysid. The Tanaidacea have lappets on the lower lip, though they are very much smaller. The curious backward prolongation of the protopodite of the uropod, the broad telson and the number of free thoracic somites suggest affinities with the Stomatopoda, but these resemblances to mantis shrimps are probably superficial. The membranous flaps uniting the three posterior pairs of pleopods recall those of the thoracic swimming appendages of Copepoda. I hope to publish a fully illustrated description of *Rhopalonurus* in due course and shall then discuss its affinities in detail.

ISABELLA GORDON

British Museum (Natural History),
Cromwell Road, London, S.W.7.

¹ *Bull. Brit. Mus. (Nat. Hist.), Zool.*, 5 (2), 29 (1957).