

CRABS OF THE FAMILY HOMOLODROMIIDAE, IV.
 REDISCOVERY AND REDESCRIPTION OF
HOMOLODROMIA BOUVIERI DOFLEIN, 1904
 (DECAPODA: DROMIACEA) FROM OFF
 MOZAMBIQUE

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ABSTRACT

The dromiacean crab species *Homolodromia bouvieri*, originally described from a small, damaged male from deep waters off the coast of Kenya, is redescribed, based on a male from off the coast of Mozambique, Africa. The specimen is the third known for the species and is significantly larger than the 2 previously known specimens, from off Kenya and Natal. Comparisons are made between *H. bouvieri* and the other two species in the genus, *H. paradoxa* and *H. robertsi*, known from the western Atlantic and eastern Pacific, respectively.

Among the many interesting crustaceans collected by the German vessel *Valdivia* during her 1898–1899 Tiefsee-Expedition were one new genus and three new species of the Dromiacea (Doflein, 1904). One of the new species, *Homolodromia bouvieri* Doflein, 1904, was represented in the collections by a single male of 18-mm carapace length collected at *Valdivia* Station 247, in a depth of 863 m, off the coast of Kenya (03°38.8'S, 40°16.0'E) (Doflein, 1904). The specimen was in very poor condition, apparently having just completed a molt, and was soft, with several diagnostic features poorly developed. A second specimen, also a male but slightly larger (carapace length including rostrum 22.7 mm), was reported by Kensley (1977) from off Natal, South Africa (Kensley, 1977: 178, figs. 11, 12); that specimen was in better condition, allowing Kensley (1977) to illustrate several important morphological features. There are no other records of this species in the literature.

While at the Smithsonian Institution in July 1989, I discovered a third specimen of *H. bouvieri* Doflein among the lots collected by the International Indian Ocean Expedition in 1964. This third specimen, another male, is considerably larger than the other two known specimens (carapace length including rostrum 32.9 mm, without rostrum 29.4 mm) and was collected from off southern Mozambique, in the Mozambique Channel, a locality intermediate between the other two collecting sites. The species is re-described below.

MATERIALS AND METHODS

Material Examined.—1 ♂, USNM 243546, International Indian Ocean Expedition, *Anton Bruun* Cruise 8, Station 399B, 22°30'S, 36°07'E, 850–960 m, between Ponta São Sebastião and Ponta da Barra Falsa, Central Inhambane Province, southern Mozambique, Africa, 1 October 1964, SOS (Smithsonian Oceanographic Sorting Center) Ref. 167. Holotype ♂, Zoologische Museum (Museum für Naturkunde der Humboldt-Universität zu Berlin) 13643, *Valdivia* Station 247, 863 m, Deutschen Tiefsee-Expedition, 03°38.8'S, 40°16.0'E, 1899.

Drawings were made using a Wild M5APO dissecting stereoscope with camera lucida.

DESCRIPTION

Size.—Measurements are given in Table 1.

Carapace (Figs. 1a, 2a, b).—Densely setose, each seta distally plumose or pappose. Lateral borders rounded, with no clear distinction between dorsal and lateral/ventral surfaces, with posterolateral borders slightly inflated (as per characters of the family). Rostral horns and postocular (anterolateral) teeth large, well developed, lacking spines. Cervical groove weakly developed.

Eyes (Fig. 2a, b).—Small, pigmentation of cornea very light.

Chelipeds (Figs. 1a, b, 2c, d).—Dactylus markedly elevated just distal to articulation with propodus, dorsal border strongly arched. Dorsal border ridgelike, highest toward base, concave on inner and outer face below ridge. Outer face with simple setae in clumps ventral to dorsal ridge, within concavity. Distal border of dactylus very broad, expanded well beyond width of dor-

Table 1. *Homolodromia bouvieri* Doflein, 1904, selected measurements (in mm) from specimen collected off Mozambique (USNM 243546).

Carapace:			
Length (excluding rostrum)			29.4
Width			26.3
Depth (top of carapace to sternum)			19.2
Rostral length			3.9
Distance between tips of rostral horns			3.9
Distance between tips of anterolateral teeth			19.8
		Right	Left
Chelae:			
Propodus length		21.8	22.0
Propodus height		6.7	6.9
Dactylus length		7.7	8.2
Ambulatory pereiopods:			
		Pereiopod 2 (right)	Pereiopod 3 (left)
Dactylus length		23.0	22.0
Propodus length		27.6	27.9
Carpus length		15.2	14.8
Merus length		31.4	30.1
Prehensile pereiopods:			
		Pereiopod 4 (left)	Pereiopod 5 (left)
Dactylus length		3.8	3.9
Propodus length		14.9	12.7
Carpus length		9.6	10.1
Merus length		16.6	17.6
Telson:	length	14.8	width 9.1
Pleopod 1 length:		—	12.3
Pleopod 2 length:		—	15.2

sal ridge (Fig. 2d). Dorsum of dactylus with shallow, triangular depression bearing numerous simple setae. Propodus more than twice length of dactylus, with longitudinal rows of small granules and plumose setae. Distal border of immovable finger slightly bifid, but not allowing dactylus to extend beyond (ventral to) finger.

Pereiopods 2 and 3 (Figs. 1, 2e).—Long, delicate, with covering of short plumose setae. Dactylus (Fig. 2e) bearing 5 or 6 small teeth along ventral border and scattered short simple setae. Setation of dorsodistal border longer, each seta apparently thicker here. Note dactylus and propodus missing on left pereiopod 2 and right pereiopod 3 in photograph (Fig. 1). No spines along borders of merus (e.g., as seen in *H. robertsi*; see Garth, 1973; Báez and Martin, 1989).

Pereiopods 4 and 5 (Fig. 2f, g).—Prehensile (as per family); propodus extended to create opposing "thumb" against which dactylus closes (as per genus). Extension of propodus of pereiopod 4 (Fig. 2f) with 4 stout, sclerotized spines; that of pereiopod 5 bearing only two such spines, dactylus closing between them. Both with scattered plumose, pappose, and simple setae, and with stout

spines at dorsodistal end of propodus just proximal to articulation with dactylus.

Male Pleopods 1 and 2 (Fig. 3a, b).—As figured by Kensley (1977: 179).

Additional Pleopods (Fig. 3c).—Somites 3 through 6 with small, nodulelike pleopodal remnants articulating with somite; those of somite 6 (uropods) slightly larger (Fig. 3c, arrow).

Telson (Figs. 1b, 3c).—Densely covered on dorsal surface with plumose setae.

DISCUSSION

Comparison of the Mozambique specimen with the holotype of *H. bouvieri* (Zoologische Museum 13643) is made difficult by the poor condition of the holotype. Doflein (1904: 4) made the following comments regarding the condition of the holotype: "The sculpturing of the cephalothorax is not clearly distinguishable on my specimen, as the cephalothorax is very soft, so that in some places it is folded and squashed as a result of the handling during capture and preservation. The softness of the cephalothorax of *Homolodromia bouvieri* may be characteristic like that of other deep sea



Fig. 1. *Homolodromia bouvieri* Doflein, 1904, specimen from Mozambique Channel, Africa. *a*, dorsal view; *b*, ventral view. Length of carapace in *a* is 29.4 mm.

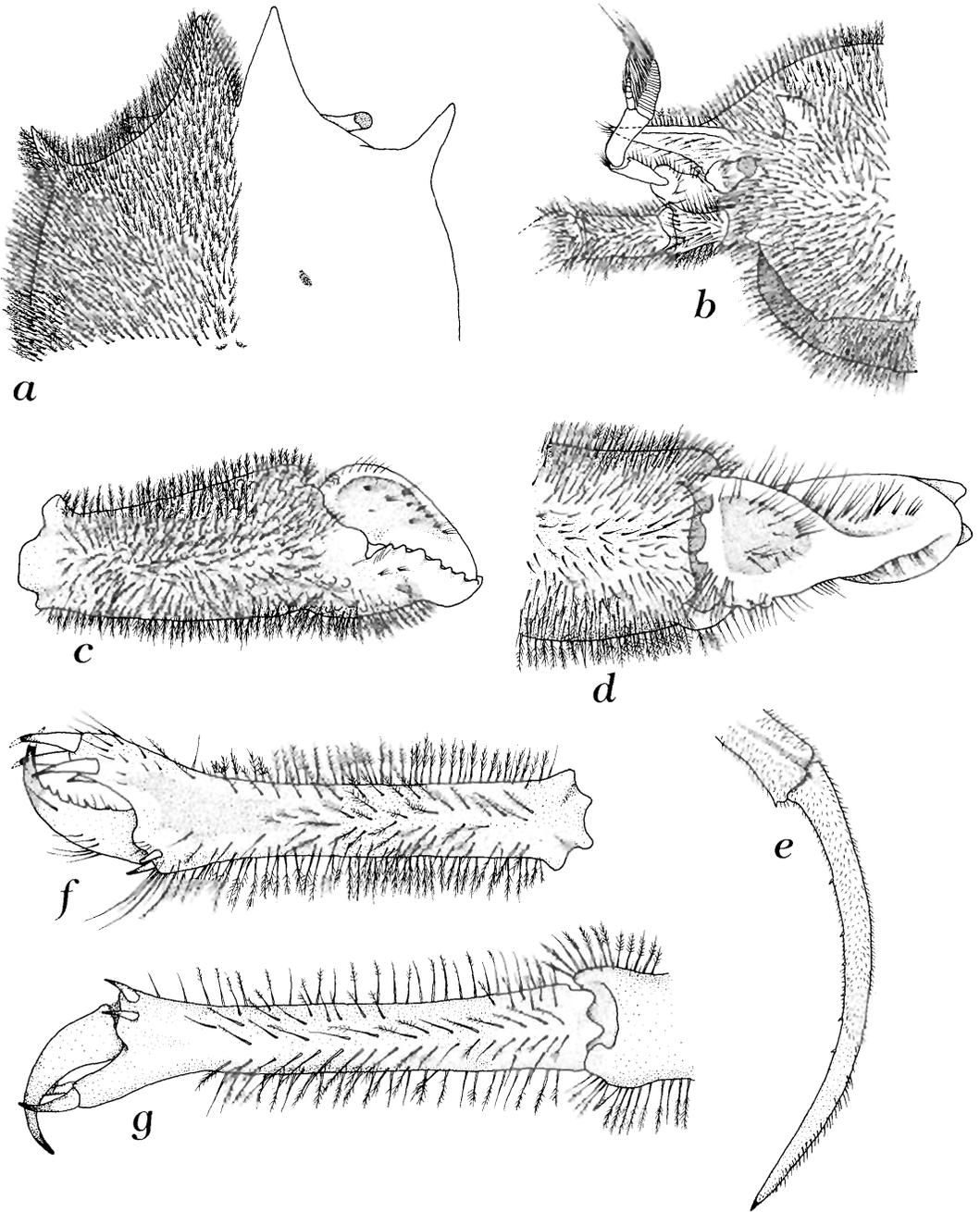


Fig. 2. *Homolodromia bouvieri* Doflein, 1904, carapace and selected appendages. *a*, anterior half of carapace and eyestalk, setae not illustrated for right side; *b*, lateral view of frontal region of carapace, left side; *c*, right chela, outer view; *d*, distal end of right cheliped propodus and dactylus, dorsal view, outer face toward bottom of page; *e*, dactylus of pereopod 2, left side; *f*, propodus and dactylus of pereopod 4; *g*, propodus and dactylus of pereopod 5. Not drawn to scale.

crabs, or it may be that this specimen had just molted; I believe the latter, as the appendages are also quite soft, especially the claws, being so soft that use of these by the

animal does not seem possible. In addition, the lack of sculpturing of the cephalothorax as a result of softness makes features difficult to assess; yet I was successful in estab-

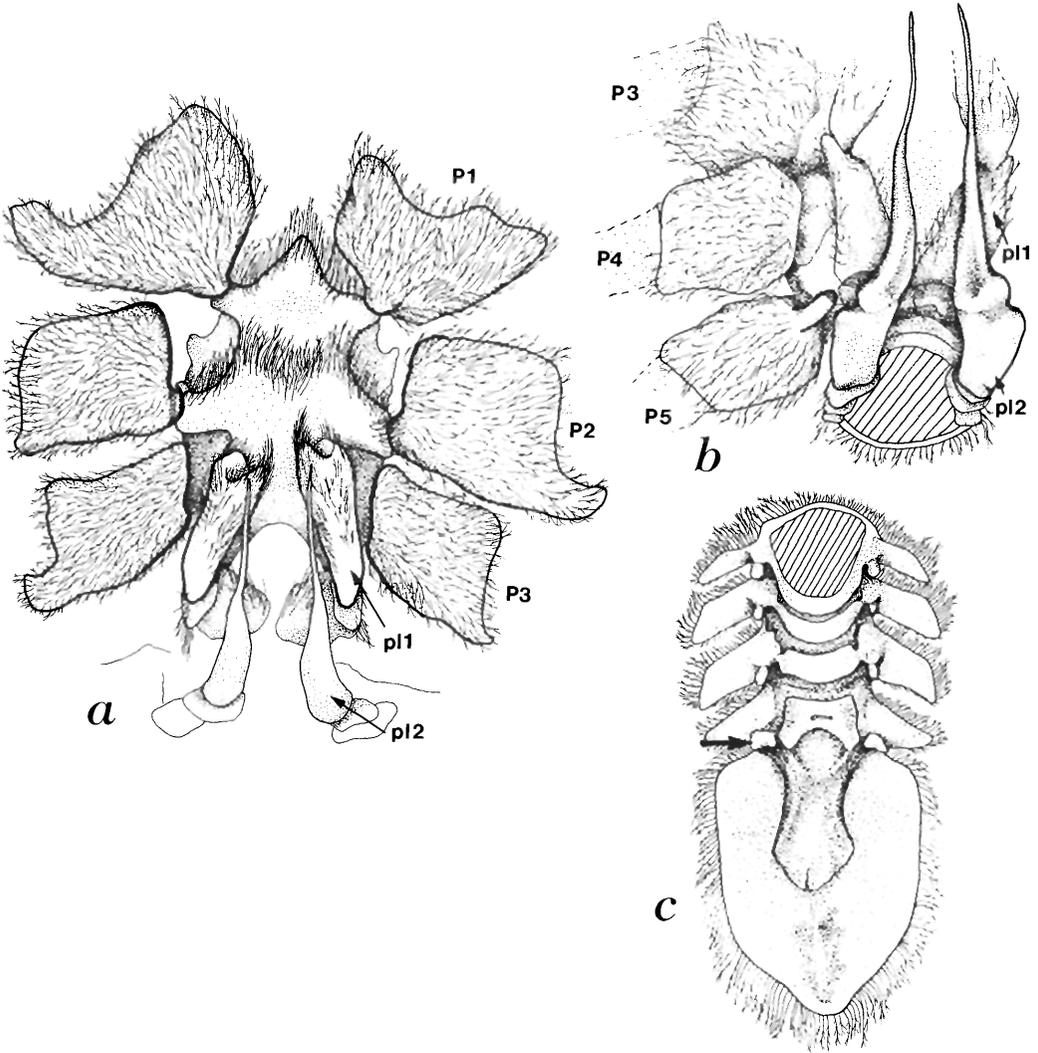


Fig. 3. *Homolodromia bouvieri* Doflein, 1904, sternum and abdomen. *a*, sternum showing coxa of pereopods 1 through 3 (P1-3) and first and second male pleopods (pl1, pl2), anterior of crab toward top of page; *b*, similar ventral view with animal rotated further to show coxal segments of pereopods 3 through 5 (P3-5) and more of pleopod 2 (pl2), with abdomen removed at level of somite 3 (diagonal lines) (note genital orifice at tip of extension from coxa of P5); *c*, ventral view of abdominal somites 3 through 6, slightly distorted because of curvature of anterior somites upward toward viewer, plus telson, with pleopods evident and with posterior pleopods (uropods) indicated (arrow). Rotated 180° from orientation in *a* and *b*. Diagonal lines represent area where somites 1 and 2 were separated during dissection.

lishing the relationship with the genus *Homolodromia*." (Translation from German by R. Wetzer.)

The soft condition of the holotype makes measurements very difficult as well. Doflein (1904) recorded a cephalothorax length of 18 mm and a cephalothorax width of 10 mm; my measurements of these same features were 12.6 mm (13.4 if the rostrum is included) for length and 11.6 mm for width.

The discrepancy is probably a result of the plasticity of the carapace of the holotype.

The most distinctive character of *H. bouvieri* is the strongly curved and distally expanded dactylus of the cheliped. This feature clearly distinguishes *H. bouvieri* from the other two known species in the genus, *H. paradoxa* A. Milne Edwards, 1880, and *H. robertsi* Garth, 1973, known from the western Atlantic and off Chile and Peru,

respectively (see also Báez and Martin, 1989). The tips of the chelae of the holotype are badly damaged, and no details can be discerned from the specimen. Comparison of the Mozambique specimen is actually easier with Doflein's (1904) figures [fig. 1 (epistomial region); pl. 5, figs. 1-3 (photographs of entire specimen); pl. 38, figs. 10-13 (mouthparts); pl. 43, fig. 3 (second antenna)] than with the holotypic specimen, the condition of which has only worsened since Doflein's study. In Doflein's photograph of the ventral surface (pl. 5, fig. 2), the distinctive arching of the dorsal border of the dactylus of the right chela is clearly seen, as is the velvety covering of short, plumose setae on the carapace, abdomen, telson, and all exposed appendages. This dense plumose setation is also seen in *H. robertsi* (see Báez and Martin, 1989) to a lesser extent, whereas only simple setae occur on the carapace of *H. paradoxa* (personal observation of the holotype). The postocular (anterolateral) teeth on the carapace of the holotype are smaller in comparison to the rostral horns than is the case for the Mozambique specimen. Additionally, these teeth appear in Doflein's fig. 1 (1904: 5) to be more curved medially than in the Mozambique specimen. It is difficult to ascertain if this difference is attributable to the holotype being a recently molted specimen or to ontogenetic differences. I did not find these teeth in the holotype to be quite so inwardly curved as suggested in Doflein's illustration, but again the softness of the holotype could cause different interpretations of structure by different workers.

The Natal specimen (South African Museum A15297, *Meiring Naude* station 22) described briefly by Kensley (1977) agrees in almost all respects with the Mozambique male, despite the fact that the latter is close to 1.5 times the size of the former. The only significant difference between Kensley's illustrations (1977: 179) (I did not examine the Natal specimen) and the Mozambique specimen is that, in the Natal specimen, the chela dactylus apparently does extend slightly beyond the bifid finger of the propodus.

Homolodromia bouvieri is easily separat-

ed from *H. paradoxa* in that the latter has a "normal" homolodromiid chela (without an expanded and highly arched dactylus), a slightly more spinose carapace that bears only simple setae (and no plumose setae), and relatively larger and more pigmented eyestalks. *Homolodromia bouvieri* differs from *H. robertsi* in the nature of the chela and in the fact that *H. robertsi* has numerous spines on the carapace and on the ventral and dorsal borders of all pereopods.

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