

*HYALOPONTIUS BOXSHALLI*, NEW SPECIES  
(COPEPODA: SIPHONOSTOMATOIDA), FROM A  
DEEP-SEA HYDROTHERMAL VENT AT  
THE GALAPAGOS RIFT

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*Abstract.*—*Hyalopontius boxshalli*, a new species of megapontiid copepod (Siphonostomatoida) from a depth of 2451 m at the Galapagos Rift, is characterized in the male by the exopod of leg 1 having the armature I-1; O-1; II,2,3, the third segment of the exopod of leg 3 with II,I,5, and the distal seta on the lateral margin of the free segment of leg 5 being one-half the length of the segment.

Among many thousands of copepods recovered by deep-sea submersibles from depths of 2000 m or more in the eastern Pacific (see Humes 1987, in press) two large male siphonostomatoids were found, both belonging to a new species of the genus *Hyalopontius* Sars, 1909. Seven members of this genus have been described from plankton in the northeastern Atlantic (Sars 1909; Hulsemann 1965; Boxshall 1979). One species, *Hyalopontius pleurospinus* (Heptner, 1968) is known from 3860-7100 m in the Kurile-Kamchatka Trench (Heptner 1968).

Siphonostomatoida Thorell, 1859  
Megapontiidae Heptner, 1968  
*Hyalopontius* Sars, 1909

*Hyalopontius boxshalli*, new species  
Figs. 1-5

*Type material.*—2 ♂, in 2451 m at Galapagos Rift, 00°48.0'N, 86°13.0'W, 7 Dec 1979, DSRV *Alvin* dive no. 990 (Hollis, Jones, and Tuttle). Holotype (USNM 234119) and 1 paratype (dissected) (USNM 235272) deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

*Male.*—Body (Fig. 1a) elongate, 5.7 times

longer than wide. Length (not including setae on caudal rami) 4.81 mm (4.75-4.86 mm) and greatest width 0.84 mm (0.84-0.85 mm), based on 2 specimens in lactic acid. Epimera of segments bearing legs 1-4 pointed (Fig. 1b). Ratio of length to width of prosome 3.05:1. Ratio of length of prosome to that of urosome 1.30:1.

Segment bearing leg 5 (Fig. 1c) 330 × 363 μm, a little wider than long. Genital segment 330 × 286 μm. Four postgenital segments from anterior to posterior 495 × 215, 363 × 203, 209 × 198, and 308 × 258 μm.

Caudal ramus (Fig. 1d) 330 × 110 μm, ratio 3:1, bearing 6 smooth setae, 2 lateral and subterminal (220 μm and 726 μm), 3 inner and slightly dorsal (from outer to inner 1000, 902, and 803 μm), and dorsal seta 638 μm.

Body surface mostly without ornamentation. Minute punctae over dorsal surface of rostrum (Fig. 1a). Anal segment with very small spinules over surface of anal operculum (Fig. 1c) and ventral transverse row of minute spinules near insertions of both caudal rami (Fig. 1d).

Rostrum (Fig. 1e) projecting in lateral view with slightly pointed apex. First antenna (Fig. 2a) 1650 μm long not including setae. Lengths of its 11 segments (measured along their posterior nonsetiferous mar-

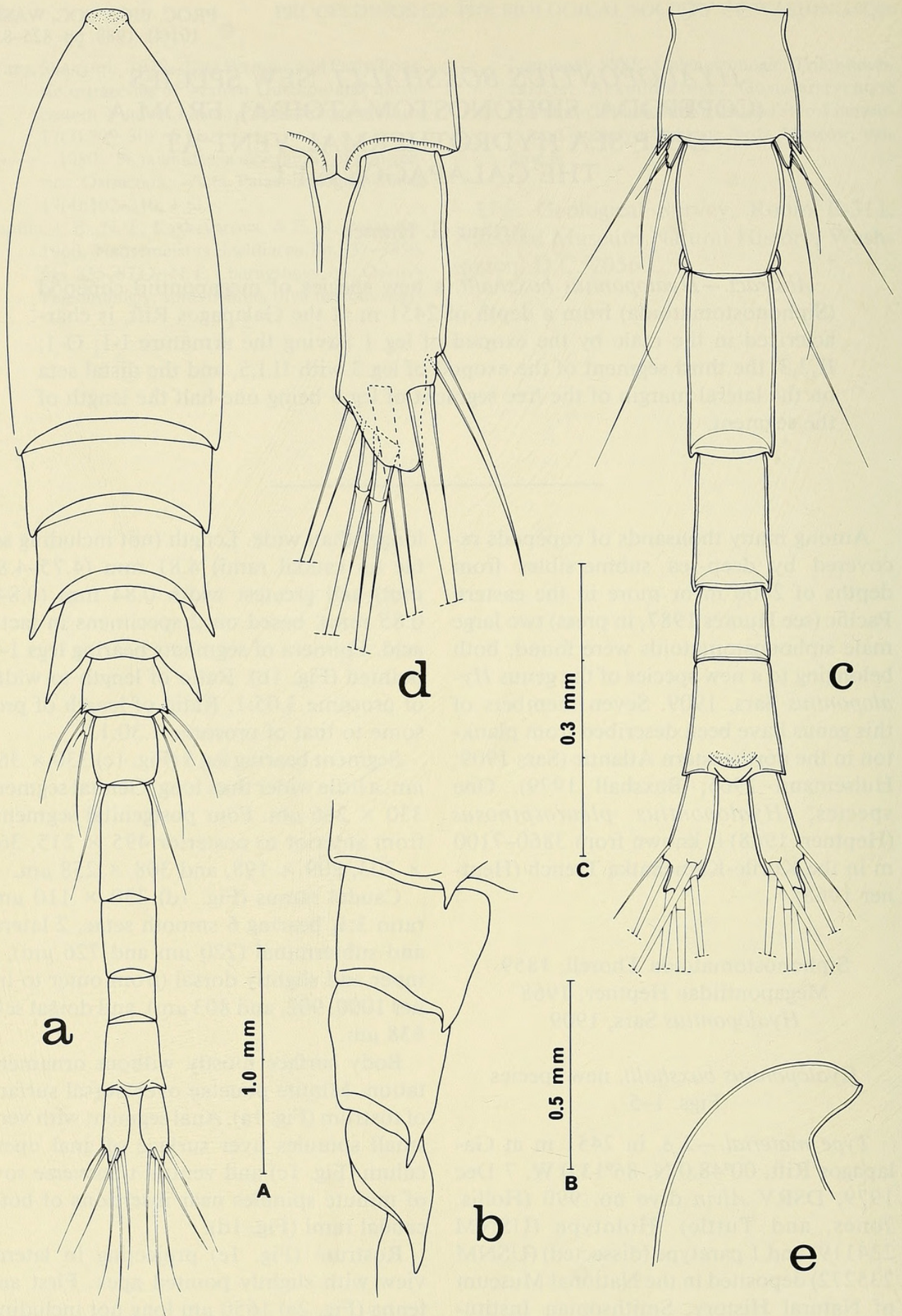


Fig. 1. *Hyalopontius boxshalli*, male: a, Dorsal (scale A); b, Outline of epimera of segments bearing legs 1-4, lateral (B); c, Urosome, dorsal (B); d, Caudal ramus, ventral (C); e, Rostrum, lateral (B).

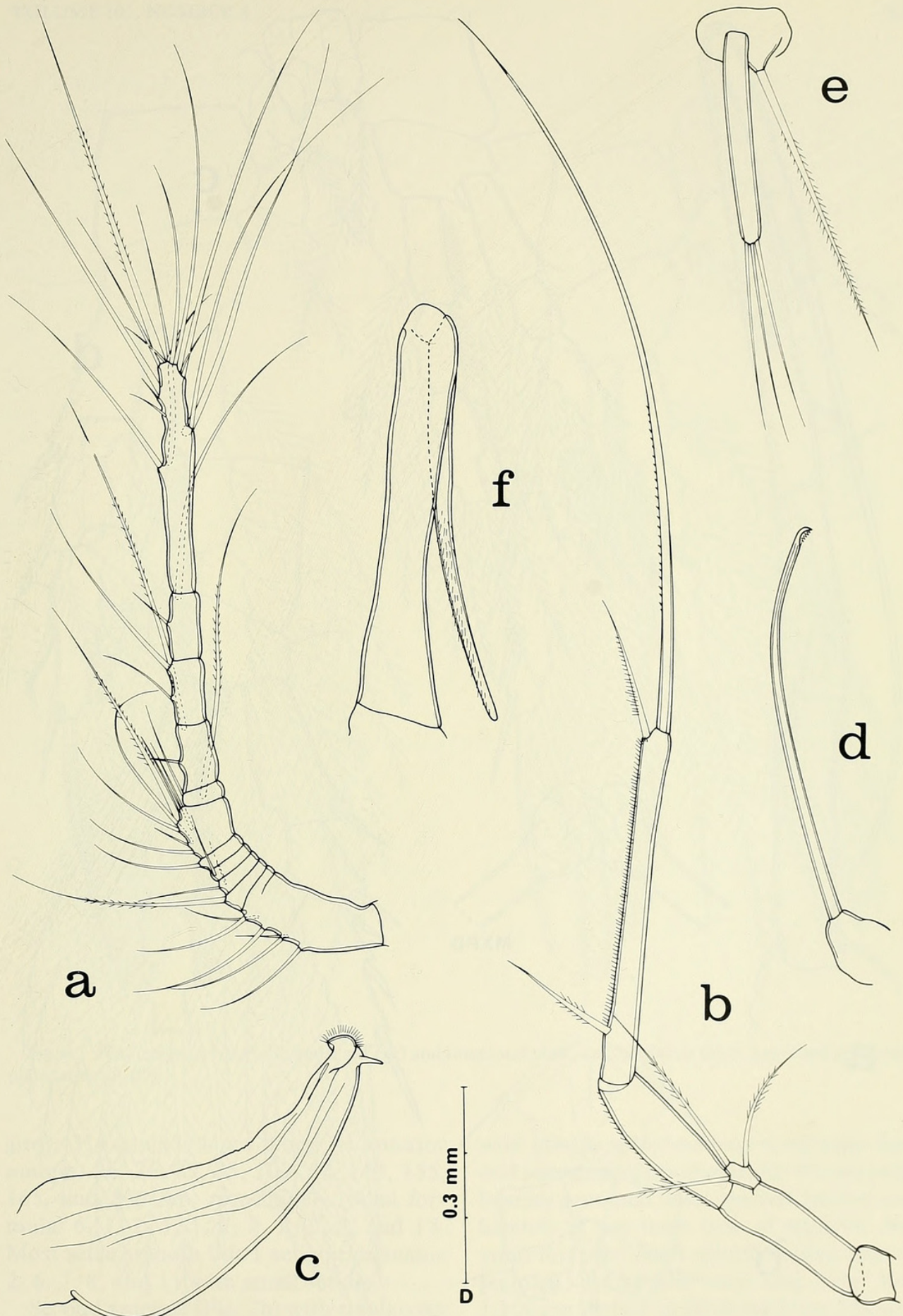


Fig. 2. *Hyalopontius boxshalli*, male: a, First antenna, anterodorsal (scale B); b, Second antenna, outer (D); c, Oral cone, lateral (D); d, Mandible, anterior (D); e, First maxilla, anterior (C); f, Second maxilla, anterior (C).

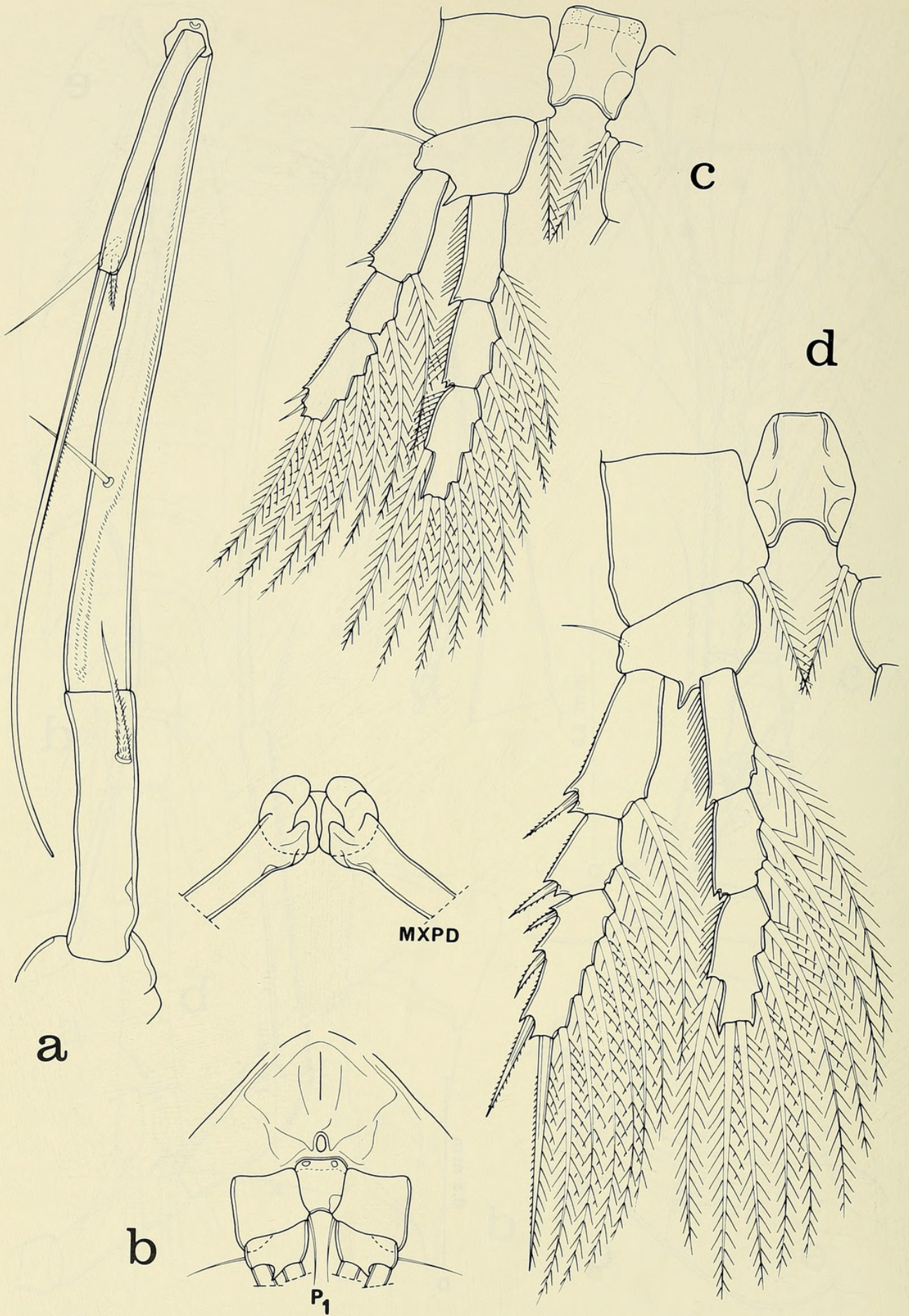


Fig. 3. *Hyalopontius boxshalli*, male: a, Maxilliped, anterior (scale D); b, Area between maxillipeds and first pair of legs, ventral (B); c, Leg 1 and intercoxal plate, anterior (D); d, Leg 2 and intercoxal plate, anterior (D).

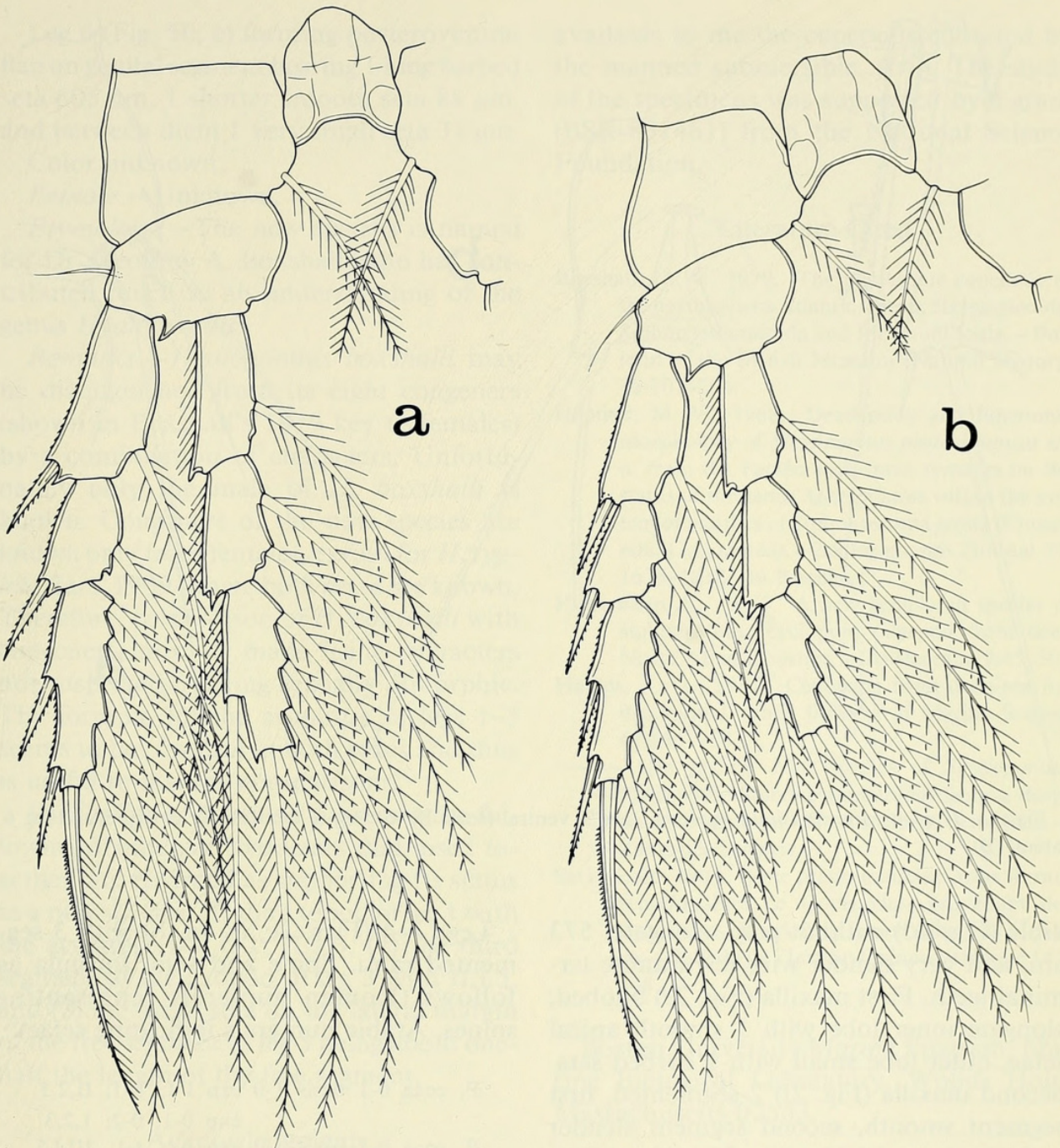


Fig. 4. *Hyalopontius boxshalli*, male: a, Leg 3 and intercoxal plate, anterior (scale D); b, Leg 4 and intercoxal plate, anterior (D).

gins): 319  $\mu\text{m}$  (374  $\mu\text{m}$  along its anterior margin) 26, 26, 29, 35, 100, 55, 143, 155, 165, and 505  $\mu\text{m}$ , respectively. Setal formula: 6, 1, 2, 1, 1, 7, 2, 2, 2, 2, and 15. Most setae smooth but 1 seta on segments 2, 6, 7, 8, and 11 with small setules.

Second antenna (Fig. 2b) with small coxa and elongate basis bearing exopod  $55 \times 39 \mu\text{m}$  carrying 3 long minutely feathered setae. Endopod 2-segmented. First segment

with minute spinules along inner edge. Second segment greatly elongated, 495  $\mu\text{m}$  long, bearing proximal inner sparsely barbed seta located 67  $\mu\text{m}$  from base of segment. Beyond this seta small spinules along edge of segment. Terminally very long outer seta 1,100  $\mu\text{m}$  barbed on proximal inner half and shorter inner seta 200  $\mu\text{m}$  with moderately long inner setules.

Oral cone (Fig. 2c) 575  $\mu\text{m}$  long. Man-

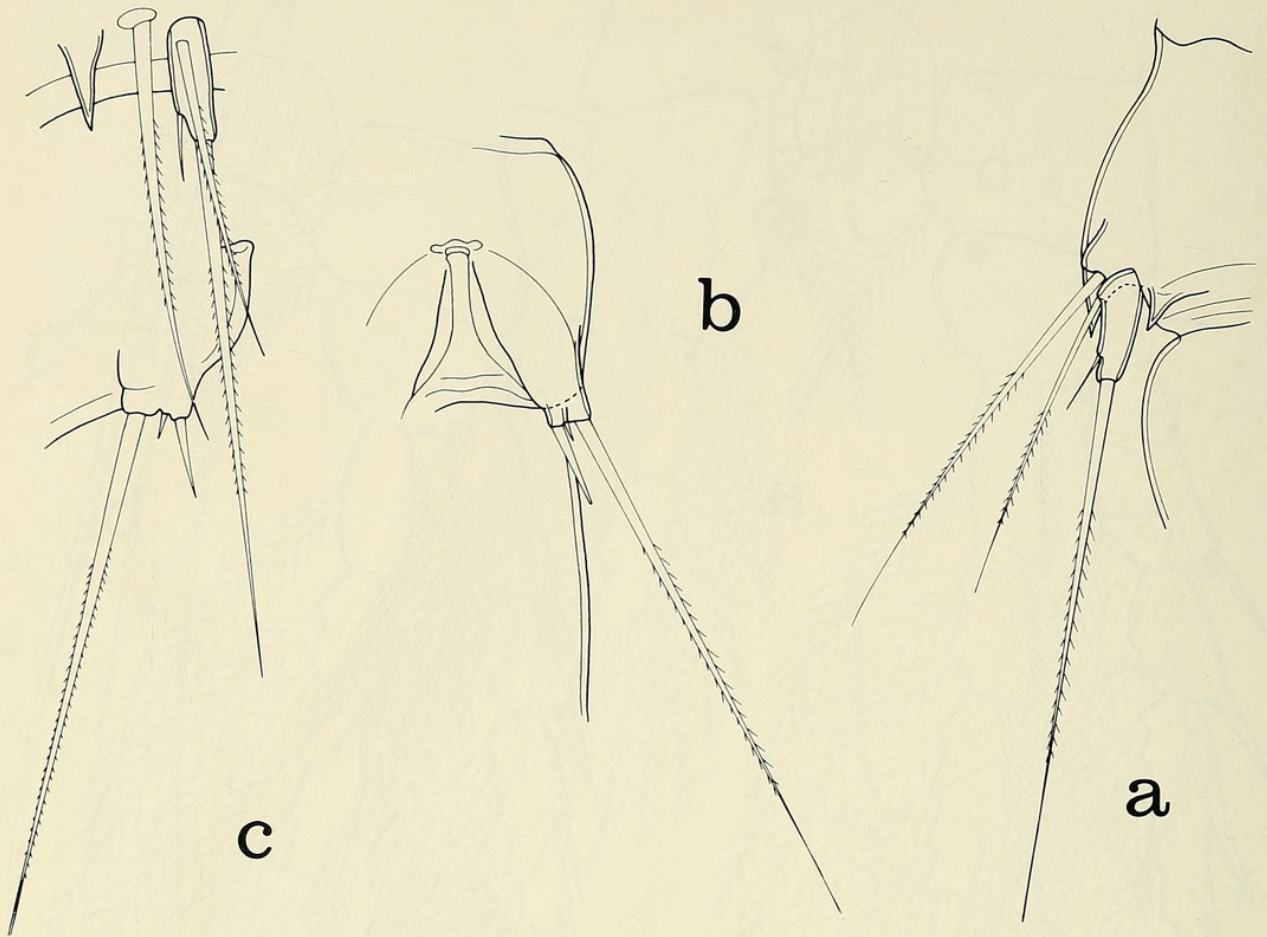


Fig. 5. *Hyalopontius boxshalli*, male: a, Leg 5, ventral (scale B); b, Leg 6, ventral (B); c, Leg 5 and leg 6, lateral (B).

dible (Fig. 2d) without palp, elongate, 573  $\mu\text{m}$ , and very slender with few minute terminal teeth. First maxilla (Fig. 2e) bilobed; elongate inner lobe with 3 smooth apical setae, outer lobe small with 1 barbed seta. Second maxilla (Fig. 2f) 2-segmented, first segment smooth, second segment slender and spinulose with blunt tip. Maxilliped (Fig. 3a) elongate, 3-segmented. First segment 385  $\mu\text{m}$ , with spinulose distal seta. Second segment 990  $\mu\text{m}$ , with smooth inner seta and ornamented with 2 rows of small spinules along posterior surface. Third segment 374  $\mu\text{m}$ , smooth, with 2 subterminal setae, longer seta smooth and shorter seta spinulose, and 1 long terminal claw 850  $\mu\text{m}$  with inner row of small spinules proximally.

Ventral surface of body between maxillipeds and first pair of legs (Fig. 3b) slightly protuberant.

Legs 1–4 (Figs. 3c, d, 4a, b) with 3-segmented rami. Spine and setal formula as follows (Roman numerals representing spines, Arabic numerals indicating setae):

$P_1$	coxa	0-1	basis	1-0	exp	I-1; 0-1; II,2,3
					enp	0-1; 0-2; 1,2,3
$P_2$	coxa	0-1	basis	1-0	exp	I-1; I-1; III,I,5
					enp	0-1; 0-2; 1,2,3
$P_3$	coxa	0-1	basis	1-0	exp	I-1; I-1; II,I,5
					enp	0-1; 0-2; 1,2,3
$P_4$	coxa	0-1	basis	1-0	exp	I-1; I-1; II,I,5
					enp	0-1; 0-2; 1,2,2

Leg 5 (Fig. 5a, c) situated ventrally, with free segment  $117 \times 52 \mu\text{m}$ , bearing 3 setae, proximal outer seta 385  $\mu\text{m}$  and minutely barbed, distal lateral seta 60  $\mu\text{m}$  and smooth, and apical seta 605  $\mu\text{m}$  and minutely barbed. Seta on body adjacent to free segment 460  $\mu\text{m}$  and minutely barbed.

Leg 6 (Fig. 5b, c) forming posteroventral flap on genital segment bearing 1 long barbed seta 605  $\mu\text{m}$ , 1 shorter smooth seta 88  $\mu\text{m}$ , and between them 1 very small seta 31  $\mu\text{m}$ .

Color unknown.

*Female*.—Unknown.

*Etymology*.—The new species is named for Dr. Geoffrey A. Boxshall, who has contributed much to an understanding of the genus *Hyalopontius*.

*Remarks*.—*Hyalopontius boxshalli* may be distinguished from its eight congeners (shown in Boxshall's 1979 key to females) by a combination of characters. Unfortunately only the male of *H. boxshalli* is known. Congeners of the new species are known only from females, except for *H. typicus* Sars, 1909, where both sexes are known. Therefore, comparison of *H. boxshalli* with congeners must be made using characters not suspected of being sexually dimorphic. The formula for the armature of legs 1–5 seems to be constant in both sexes and thus is useful in making comparisons.

*Hyalopontius boxshalli* possesses the following distinctive characters that, used together, are regarded as supporting its status as a new species: (1) the exopod of leg 1 with the armature I-1; 0-1; II,2,3, (2) the third segment of the exopod of leg 3 with II,I,5, and (3) the distal seta on the lateral margin of the free segment of leg 5 being about one-half the length of the free segment.

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