

# BEAUFORTIA

INSTITUTE OF TAXONOMIC ZOOLOGY (ZOOLOGICAL MUSEUM)  
UNIVERSITY OF AMSTERDAM

Vol. 41, no. 20

October 22, 1990

**BOGIDIELLA STOCKI, A NEW SPECIES FROM THE SINAI PENINSULA**  
(AMPHIPODA, BOGIDIELLIDAE)  
(CONTRIBUTION TO THE KNOWLEDGE OF THE AMPHIPODA 193)

GORDAN S. KARAMAN

*Biological Institute, P.O. Box 40, 81000 Titograd, Yugoslavia*

## ABSTRACT

*The new species of the family Bogidiellidae (Amphipoda Gammaridea), Bogidiella stocki, n. sp., is described and figured from the subterranean waters of Beer Gideih (Sinai peninsula), and its taxonomical status is discussed.*

## INTRODUCTION

The subterranean fauna of Amphipoda from Sinai Peninsula is poorly known. Ruffo described (1982) a new species *Metacrangonyx sinaicus* from Beer Gideih.

Rather more to the northeast, from the region of Dead Sea, several species were described: *Bogidiella hebraea* Ruffo, 1963, *Bogidiella copia* G. Karaman, 1988, *Hebraegidiella bromleyana* G. Karaman, 1988 and *Metacrangonyx ortali*, G. Karaman, 1988.

On the other side, several species have been described from the NE. part of Africa: *Bogidiella nubica*, Ruffo, 1984 from Sudan; *Afridiella somala* (Ruffo, 1970) from Sudan; *Afridiella pectinicauda* Ruffo 1982 from Somalia; *Afridiella messanae* Diviacco & Rufo, 1985 from Somalia and *Maghrebidiella maroccana* Diviacco & Ruffo, 1985 from Morocco.

During our study of the subterranean fauna of Amphipoda from Israel and adjacent regions, collected by the scientists from the Hebrew University of Jerusalem, we

discovered, among other taxa, a new species of the family Bogidiellidae, described in this paper.

## DESCRIPTIVE PART

***Bogidiella stocki*, n. sp.** Figs. 1-5

Material examined: Sinai Peninsula: Beer Gideih (Wadi Watir, cca 50 km SW. of Elat), Dec. 12, 1981, 2 spec. accompanied by other Amphipoda (leg. R. Ortal).

Description: Female(?) 2.1 mm without oostegys: Body slender, body segments dorsally covered by single slender hairs (fig. 1E, F).

Head with short subrounded lateral cephalic lobes and developed ventroanterior sinus, eyes absent (Fig. 1E).

Antenna 1 not reaching half of body (ratio 0.8:2.1), peduncular segments 1-3 progressively shorter (fig. 2A), first peduncular segment with 2 ventral spines, ped. segments 2-

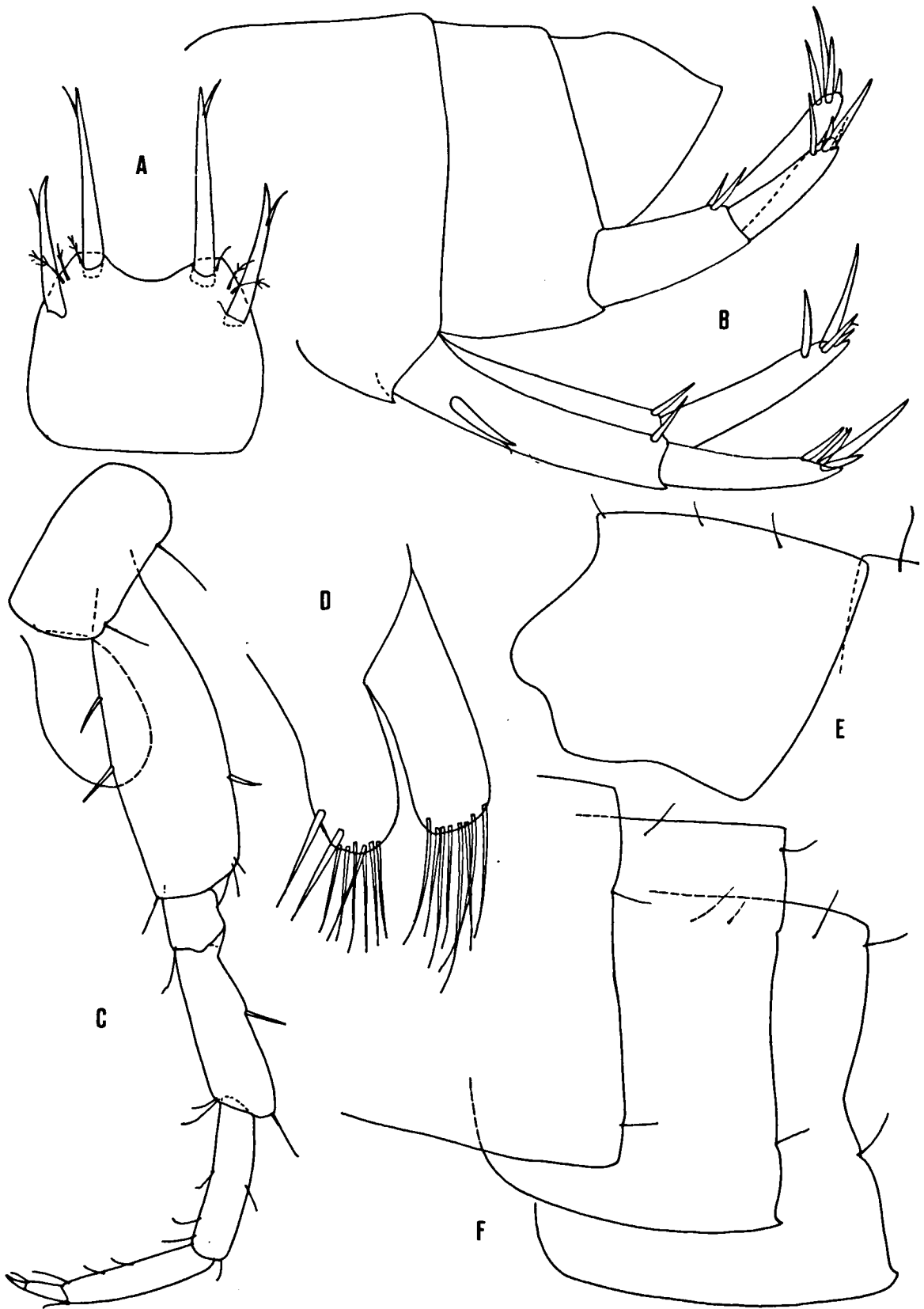


Fig. 1. *Bogidiella stocki*, n. sp., Beer Gideih, female (?) 2.1 mm: A = telson; B = urosome with uropods 1-2; C = pereopod 4; D = maxilla 2; E = head; F = epimeral plates 1-3.



Fig. 2. *Bogidiella stocki*, n. sp., Beer Gideih, female (?) 2.1 mm: A - antenna 1; B - antenna 2; C - right mandible; D - left incisor; E - left lacinia mobilis; F - left molar; G - coxae 1-4; H - coxa 5; I - coxa 6; J - coxa 7; K - maxilla 1.

3 with single setae only; main flagellum longer than peduncle, consisting of 8 articles (most of them bearing one aesthetasc as long as or longer than article itself); accessory flagellum 3-segmented, slightly longer than third peduncular segment (fig. 2A).

Antenna 2: peduncular segment 3 with 1 slender ventral spine (fig. 2B), peduncular segment 4 longer than 5, both with setae only (fig. 2B); flagellum slightly longer than last peduncular segment, consisting of 5 articles; antennal gland cone not reaching tip of third peduncular segment (fig. 2B).

Labrum shallow, entire (fig. 4F). Labium broader than long, outer lobes with acute disto-internal corner (fig. 4G), inner lobes small but well developed.

Mandibles with narrow, conical triturate molar, provide with one distolateral seta (left and right setae are nearly subequally long) (fig. 2C, F). Left mandible: incisor with 5 subequal teeth, lacinia mobilis with 4 teeth accompanied by 3 rakers (fig. 2D, E).

Right mandible: incisor with 4 unequal teeth (fig. 2C), lacinia mobilis consisting of one strong tooth and one row of 6 shorter unequal teeth, accompanied by 2 rakers (fig. 2C). Mandibular palp 3-segmented, palp segments 2-3 subequally long, segment 2 with 2 setae, segment 3 with 4 distal setae (the longest setae are longer than segment itself) (fig. 2C).

Maxilla 1: inner plate with 3 setae (fig. 2K), outer plate with 7 spines (3 spines without lateral teeth, 4 spines with 1-2 lateral teeth each); palp short, 2-segmented, not reaching tip of spines of outer plate, bearing 3 distal strong setae (fig. 2K).

Maxilla 2: outer plate with cca 8 distal setae, inner plate with 7 distal setae and 2 stronger facial setae (fig. 1D).

Maxilliped: inner plate short, with 2 distal bifurcate spines accompanied by 3 setae (fig. 5A), outer plate short, bearing distally 3 spines and single setae (fig. 5A), distoinferior margin of outer plate with 3 teeth; palp strong, 4-segmented, segment 4 unguiform, with short distal nail and bearing ventrally 2 subdistal setae (fig. 5A).

Coxae 1-4 shallow, much broader than long (= high) (fig. 2G), coxa 1 with 2-3 distoanterior setae and without distoposterior seta (fig. 3A, C), coxae 2-4 with ventroanterior seta and ventroposterior seta (fig. 2G); coxa 5 nearly as long as coxa 4 (fig. 2H), coxae 5-7 with posterior narrowed lobe bearing one long distal spine (fig. 2H, I, J).

Gnathopods 1-2 moderately long (fig. 3A, D). Gnathopod 1: larger than gnathopod 2, its segment 2 dilated and provided along posterior margin with 2 long median and 2 short distal setae (fig. 3A), along anterior margin with 2 short distal setae only; segment 5 short, with long narrow distoposterior lobe bearing 2 distal setae (fig. 3A); segment 6 ovoid, almost twice as long as broad, palm very oblique, slightly exceeding half of posterior margin of segment 6 (fig. 3B), finely serrate only in the corner near corner spine (fig. 3B), palm provided with row of slender bifurcate spines and single setae, on outer face palm defined by one short corner spine, on inner face appear 2 long strong facial spines (1 + 1) (fig. 3B); dactyl slender, with 2 teeth along inner margin and with one seta at outer margin.

Gnathopod 2: segment 2 remarkably narrower than that of gnathopod 1, bearing along posterior margin 2 long median and 1 short distal setae (fig. 3D), along anterior margin with 2 short distal setae; segment 5 triangular unlobed posteriorly (fig. 3D); segment 6 remarkably smaller than that of gnathopod 1, narrow, twice as long as broad (fig. 3E), with parallel lateral margins and bearing 2 groups of setae along posterior margin; palm oblique nearly 1/3 of posterior margin of segment 6, finely serrate only near corner spines (fig. 3E, F) and with row of facial slender bifurcate spines; palm defined on outer face by one short corner spine (fig. 3F), on inner face by 2 unequal spines (fig. 3G); dactyl along inner margin with 2 teeth.

Pereopod 3 missing. Pereopod 4: segment 2 poorly dilated, along posterior margin with 1 median spine, along anterior margin with 2 median spines (fig. 1C); segments 3-6 linear; dactyl not exceeding half of segment 6, nail

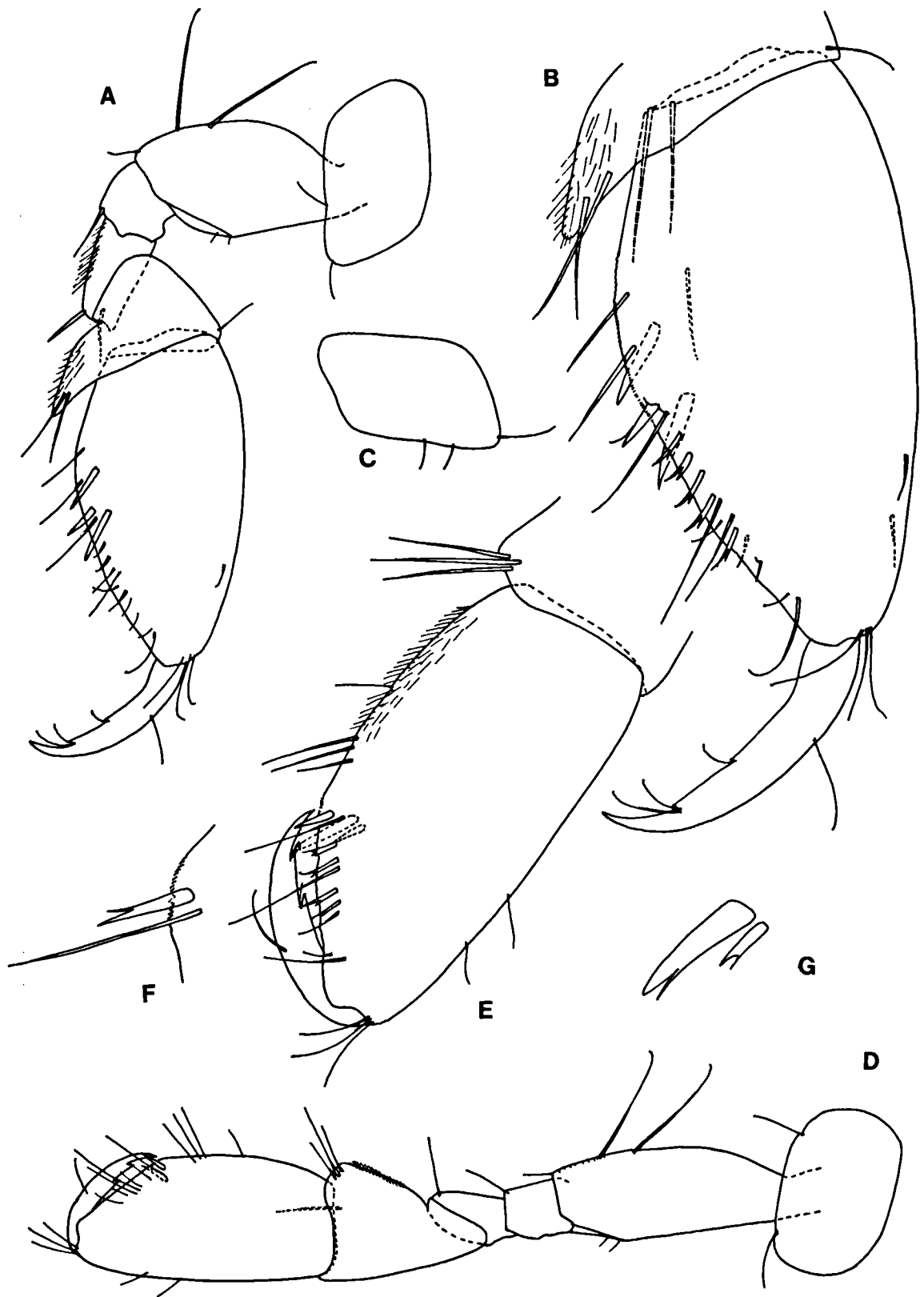


Fig. 3. *Bogidiella stocki*, n. sp., Beer Gideih, female (?) 2.1 mm: A-B = gnathopod 1; C = another coxa 1; D-E = gnathopod 2; F = outer corner spine on segment 6 of gnathopod 2; G = inner subcorner spines on segment 6 of gnathopod 2.

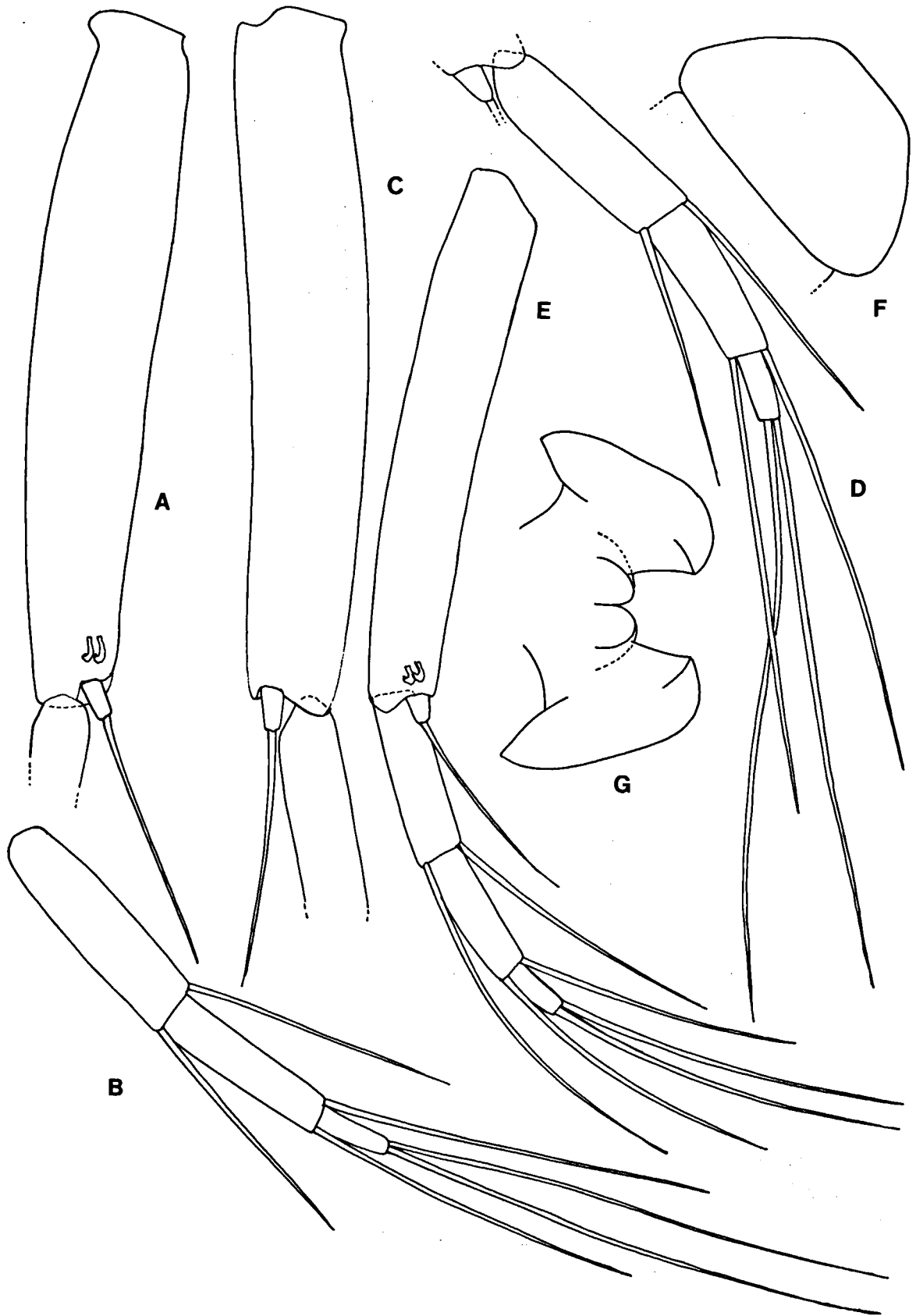


Fig. 4. *Bogidiella stocki*, n. sp., Beer Gideih, female (?) 2.1 mm: A-B = pleopod 1; C-d = pleopod 2; E = pleopod 3; F = labrum; G = labium.

shorter than pedestal. Hertzog's organ on segment 2 of pereopod 4 absent.

Pereopods 5-7 missing.

Pleopods 1-3 unmodified, peduncle of pleopod 3 smaller than that of pleopods 1-2 (fig. 4A, C, E); all pleopods with 2 retinacula each; outer ramus 3-segmented, segments with 2 plumose setae each (fig. 4A-E); inner ramus very small, with strong distal seta.

Epimeral plates 2-3 with pointed ventroposterior corner and scarcely convex posterior margin bearing 1-2 lateral setae (fig. 1F), epimeral plate 1 angular only.

Uropods 1-2 unmodified. Uropod 1: peduncle with one strong basifacial spine and 2 distal spines (fig. 1B); inner ramus slightly longer than outer one, both rami with 4 unequal distal spines each.

Uropod 2: inner ramus remarkably longer than outer, both rami with 4 unequal distal spines each (fig. 1B).

Uropod 3 missing.

Telson broader than long, with slightly concave distal margin (fig. 1A), bearing 2 long distal and 2 shorter subdistal spines; one pair of short plumose setae present subapically on each side of telson.

Coxal gills present on pereonites 4-6.

*Male*: unknown.

*Variability*: second specimen (paratype, female (?) 2.0 mm) generally agree with holotype, but accessory flagellum slightly longer than third peduncular segment and consisting of only 2 unequal segments (fig. 5E, F). Corner and subcorner spines of palm of gnathopods 1-2 like those of holotype (fig. 5G). Pereopods 3-4 similar to each other, segment 2 of both pereopods with marginal setae only and with 1-2 spines along posterior margin (fig. 5C).

Uropod 3 with short peduncle and 2 long subequal 1-segmented rami bearing lateral and distal spines (fig. 5B).

*Holotype*: female (?) 2.1 mm. Holotype preserved in KARAMAN'S Collection in Titograd (Yugoslavia).

*Loc. typ.*: Beer Gideih, Sinai Desert.

*Distribution*: known only from type-locality.

*Etymology*. This species is dedicated to prof.

dr. J. H. Stock from the University of Amsterdam, for his numerous contributions to the knowledge of the subterranean Amphipoda.

*Remarks*. The new species, *Bogidiella stocki*, n. sp. is very close to *Bogidiella hebraea* Ruffo, 1963, known from the springs of Ein Hakikar (S. of Dead Sea), but differs by the different number of spines on the telson, by the presence of an inner ramus on pleopods 1-2 and by the presence of 2 posterior long setae on segment 2 of gnathopods 1-2.

But *B. hebraea* differs remarkably from *B. stocki* by the absence of a distal seta on the inner ramus of pleopod 2, by the absence of an inner ramus on pleopod 3, by the presence of 2 setae on the inner plate of maxilla 1 and by the slightly longer telson. Recently, G. Karaman (1988) described among other taxa, 2 members of the *Bogidiella*-complex of genera from the Dead Sea region: *Bogidiella copia* G. Karaman, 1988 and *Hebraegidiella bromleyana* G. Karaman, 1988. Both these species differ from *B. stocki* in the different shape of the mouthparts as well as by various other taxonomic characters.

Three setae on the inner plate of maxilla 1 also occur in some *Bogidiella* species known from Greece: *Bogidiella longiflagellum* S. Karaman, 1959 (known also in Macedonia) and *B. cerberus* Bou & Ruffo, 1979; but both species differ from *B. stocki* in the presence of only one long median seta on the posterior margin of segment 2 in gnathopods 1-2, by the different shape of segment 6 of gnathopods 1-2, and by the shallow telson without distal excavation and provided with only 2 distal spines. Ruffo (1984) described a new species *Bogidiella nubica*, from Sudan (Red Sea Hills, Ghor Komosar), but this species differs from *B. stocki* in the different shape of the mouthparts and by the absence of an inner ramus on pleopods 1-3. Diviacco & Ruffo (1985) described two new species of the family *Bogidiellidae* from Africa: *Afridiella messanai*, and *Maghrebidiella maroccana*. Both species differ remarkably from *B. stocki* in the different shape of the mouthparts, gnathopods 1-2, as well as by the absence of the inner ramus on pleopods 1-3 (*A. messanai*) and by the different shape of the telson (*M. maroccana*).

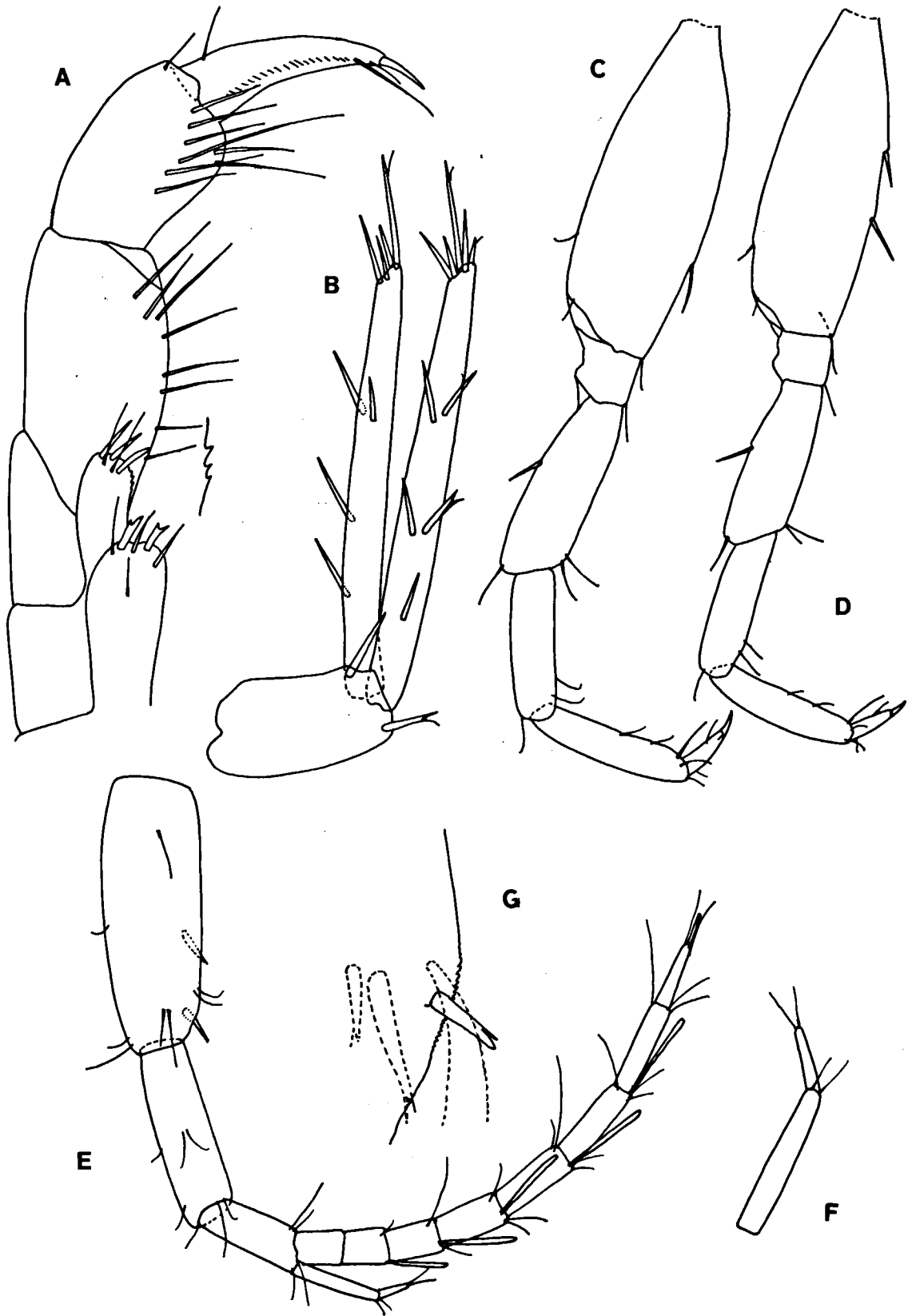


Fig. 5. *Bogidiella stocki*, n. sp., Beer Gideih, female (?) 2.0 mm: A = maxilliped; B = uropod 3; C-D = pereopods 3-4; E = antenna 1; F = accessory flagellum; G = corner spines on segment 6 of gnathopod 2.



By discovery of some new species of the family *Bogidiellidae* from Crete and Cyprus and adjacent regions, G. Karaman (in press) pointed out the presence of a very rich fauna of this family in the Mediterranean Sea Basin, Africa and the Near East.

The absence of a distinct male of *B. stocki*, n. sp. makes impossible the placement of this species within the known subgenera of *Bogidiella*.

#### ACKNOWLEDGEMENTS

I am indebted to prof. dr. Reuven Ortal from the Institute of Life Science of Hebrew University in Jerusalem for the loan of material used in this study.

#### REFERENCES

- DIVIACCO, G. & S. RUFFO, 1985. Nuovi *Bogidiellidi* delle acque sotterranee africane (Crustacea Amphipoda). *Monitore zoologico italiano*, n.s. suppl. 20 (7): 135-148.
- HERTZOG, L., 1933. *Bogidiella albertimagni* sp. nov., ein neuer Grundwasseramphipode aus der Rheinebene bei Strassburg. *Zool. Anzeiger*, 102 (9-10): 225-227.
- KARAMAN, G., 1988. *Metacrangonyx ortali*, n. sp., a new subterranean member of the family Crangonyctidae from Dead Sea region (Contribution to the Knowledge of the Amphipoda 178) *Studia Marina, Kotor*, 20: 33-49.
- KARAMAN, G., 1988. New genera and species of the subterranean family *Bogidiellidae* from the Near East (Contribution to the Knowledge of the Amphipoda 179). *Studia Marina, Kotor*, 19: 31-51.
- KARAMAN, S., 1959. Über eine neue Art und Unterart der Gattung *Bogidiella* (Crust. Amphipoda) aus Jugoslawien. *Acta zool. Acad. Sc. Hungaricae*, 4 (3-4): 339-348.
- RUFFO, S., 1963. Studi sui Crostacei Anfipodi LVII. Una nuova specie di *Bogidiella* (Crust. Amphipoda) della depressione del Mar Morto. *Bull. Research Council Israel*, 11B (4): 188-195.
- , 1970. Studi sui Crostacei Anfipodi LXIV. *Bogidiella somala* n. sp. delle acque sotterranee della Somalia (Crust. Amphipoda). *Monitore Zoologico Italiano*, 3 (6): 159-171.
- , 1982a. Une nouvelle espèce de *Metacrangonyx Chevreux* (Amphipoda: Gammaridae) du desert du Sinai. *Israel Journal of Zoology*, 31: 151-156.
- , 1982b. Studi sui Crostacei Anfipodi 92. Nuovi anfipodi di acque sotterranee della Somalia. *Monitore Zoologico Italiano*, n.s. suppl. 17, 3: 97-113.
- , 1984. *Bogidiella nubica* n. sp. from interstitial waters of the Sudan (Crustacea: Amphipoda). *Hydrobiologia* 110: 131-134.

Received: November 9, 1989