

New Records of Bresiliid Shrimp  
from Australia, South Africa,  
Caribbean, and Gulf of Mexico  
(Decapoda: Natantia: Caridea)

BRIAN KENSLEY

SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY • NUMBER 394

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## ABSTRACT

Kensley, Brian. New Records of Bresiliid Shrimp from Australia, South Africa, Caribbean, and Gulf of Mexico (Decapoda: Natantia: Caridea). *Smithsonian Contributions to Zoology*, number 394, 31 pages, 22 figures, 1 table, 1983.—New records and taxa of bresiliid shrimp are presented. The type-material of six species of *Discias* has been examined, and revised diagnoses provided. *Discias mvitae* Bruce is synonymized with *D. exul* Kemp. *Discias brownae* from New South Wales, Australia, is described as new, and distinguished from *D. exul*, the species it most closely resembles. New records of *Discias serratirostris* from the Gulf of Mexico, the Florida Keys, and Belize are provided. *Pseudocheles chacei* from Florida and Belize is described as new and distinguished from the very similar *P. enigma* Chace and Brown from the Great Barrier Reef of Australia. *Tridiscias transkei* is described as a new genus and species of bresiliid, from the continental shelf off the east coast of South Africa. The genus differs most significantly from *Discias* in possessing strong supraorbital spines and exopods only on the first three pairs of pereopods.

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# New Records of Bresiliid Shrimp from Australia, South Africa, Caribbean, and Gulf of Mexico (Decapoda: Natantia: Caridea)

*Brian Kensley*

## Introduction

For many caridean shrimps the taxonomic position in a family is clear-cut; for others, particularly some recently discovered forms, there is considerable uncertainty, and the validity of some families has been questioned. This uncertainty is best demonstrated by the Bresiliidae-Disciadidae complex. Several interpretations, initially involving three, but eventually five, genera (e.g., Thompson, 1966; Forest, 1977; Chace and Brown, 1978), have been presented. However, the current situation is most clearly presented in Williams and Chace (1982), where the five genera are placed in the Bresiliidae.

New bresiliid material from Australia, South Africa, the Florida Keys, and the western Caribbean has been accumulated over the past few years and can now be described and incorporated into the presently accepted definitions of the family and genera. This paper also provides the opportunity to correct some statements about the genus *Discias* that have lurked in the literature for some time.

**ABBREVIATIONS AND TERMS.**—The following abbreviations are used within the text and all measurements are expressed in millimeters.

|      |                                                                                                                                |
|------|--------------------------------------------------------------------------------------------------------------------------------|
| AM   | Australian Museum, Sydney, Australia                                                                                           |
| BMNH | British Museum (Natural History), London                                                                                       |
| CL   | carapace length                                                                                                                |
| NSW  | New South Wales                                                                                                                |
| RF   | rostral formula                                                                                                                |
| SAM  | South African Museum, Cape Town                                                                                                |
| SIFP | Smithsonian Institution, Marine Station, Fort Pierce, Florida                                                                  |
| USNM | United States National Museum collections in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. |

**ACKNOWLEDGMENTS.**—I am grateful to the following individuals and institutions for the loan and/or gift of material: Miss Joan Ellis, Department of Crustacea, British Museum (Natural History); James Lowry and Roger Springthorpe, Australian Museum; Richard Heard, Gulf Coast Research Laboratory, Mississippi; David Camp, Florida Department of Natural Resources; the Director and Trustees of the South African Museum; Gordon Hendler, Smithsonian Oceanographic Sorting Center, Washington, D.C.

Marilyn Schotte of the Department of Invertebrate Zoology, Smithsonian Institution, assisted me with the collecting of material in Florida and Belize, and drew some of the whole animal figures.

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tution's Investigations of Marine Shallow-Water Ecosystems, who also identified some of the host sponges. Travel to Florida was supported by N.O.A.A. contract number NA82AAA00962.

I am grateful to Diane Brown, Australian Museum, Sydney, for drawing my attention to the new species of *Discias*, and for sharing her collecting notes and ideas. Billy Booth, late of the Smithsonian Institution, allowed me to examine specimens of an undescribed species of *Discias* and shared some of his ideas on the taxonomy of the group.

My sincere thanks are due to Fenner A. Chace, Jr. and Raymond B. Manning of the Smithsonian Institution, and Austin B. Williams of the N.O.A.A. Systematics Laboratory, for reading and commenting on the manuscript of this paper.

This paper is Contribution No. 131 of the Investigations of Marine Shallow-Water Ecosystems in Belize, of the Smithsonian Institution, partly supported by the Exxon Corporation.

#### Family BRESILIIDAE

#### Genus *Discias* Rathbun, 1902

DIAGNOSIS.—Rostrum short, dorsoventrally flattened. Carapace lacking supraorbital and branchiostegal spines. Mandible with or without palp; incisor process and triangular molar process

widely separated. Exopods on maxilliped 3 and pereopods 1–5. Pereopod 1 often shorter but more robust than pereopod 2, with well-developed specialized chela having disc-like dactylus. Pereopods 1 and 2 with ischium and merus fused. Pereopod 5 with dactylus and propodus twisted, flexed in nearly opposite direction from those of pereopods 3 and 4.

REMARKS.—In an attempt to resolve some of the problems of identification that have arisen in the descriptions and keys to the species of *Discias*, all available type-material has been examined and figured as thought necessary. For this reason, the type-species, *D. serrifer* Rathbun, is fully figured. For the other previously described species, a diagnosis is provided, and most appendages figured.

The first pereopod of *Discias* shows a remarkable modification, with a disc-like dactylus that slots into the fixed finger of the propodus. It has been proposed that the “razor-like cutting edge” is used to burrow through tissues of the host sponge (Bruce, 1970:317). (Several species of *Discias* have been collected in association with sponges). Scanning electron microscopy of the cutting edge of this dactylus, and also that of *Tridiscias*, reveals a single row of V-shaped structures (Figure 1). It is difficult to imagine such a structure being capable of cutting through some

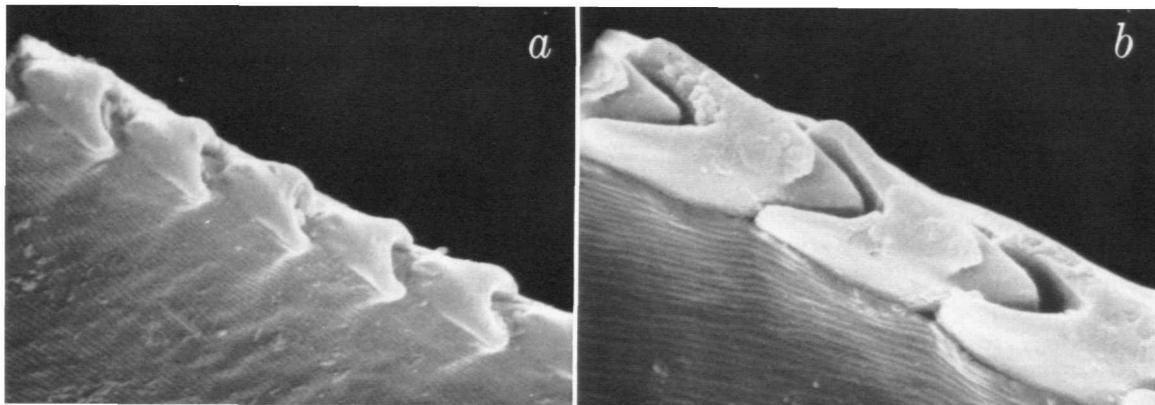


FIGURE 1.—*a*, *Discias brownae*, cutting edge of pereopod 1 dactylus,  $\times 10,000$ ; *b*, *Tridiscias transkei*, cutting edge of pereopod 1 dactylus,  $\times 10,000$ .

of the tough fibers of the sponges in which the shrimps have been taken. An alternative explanation for this modified chela may be that it is used as a scraper. The spongocoel of the type of tubular sponges inhabited by *Discias* generally contains water nutrient-rich from the waste-pro-

ducts of the sponge. This water encourages the growth of diatoms and bacteria in the mucus that lines the spongocoel (K. Rützler, personal communication). Perhaps this mucus is scraped up by the specialized first chela and forms a food source for the shrimp.

### Key to the Species of *Discias*

1. Outer uropodal ramus with lateral margin serrate ..... 2  
Outer uropodal ramus with lateral margin entire ..... 3
2. Middorsal spine present on abdominal segment 2; antennal scale lacking distolateral tooth ..... ***D. serrifer***  
Middorsal spine absent from abdominal segment 2; antennal scale with distolateral tooth ..... ***Discias* sp.**  
(east coast USA)
3. Mandibular palp absent ..... ***D. musicus***  
Mandibular palp present ..... 4
4. Lateral rostral margins entire; rostrum apically rounded ... ***D. atlanticus***  
Lateral rostral margins serrate; rostrum apically acute ..... 5
5. Mandibular palp uniarticulate ..... ***D. serratirostris***  
Mandibular palp biarticulate ..... 6
6. Telsonic apex with 4 pairs of spines (outermost pair perhaps distolateral spines); distal mandibular palp segment no broader than proximal segment ..... ***D. exul***  
Telsonic apex with 3 pairs of spines; distal mandibular palp segment distinctly broader than proximal segment .... ***D. brownae***, new species

### *Discias serrifer* Rathbun, 1902

FIGURES 2, 3

*Discias serrifer* Rathbun, 1902:290, figs. 1-4.—Kemp, 1920:143.—Balss, 1922:330, fig. 1.—Lebour, 1949:1107-1110.—Holthuis, 1955:38; 1981:791-792.—Bruce, 1970:315; 1975:301, 303; 1976:119, 129.—Forest, 1977:873-876, figs. 4, 8, 9.—Wilson and Gore, 1979:315.

**MATERIAL EXAMINED.**—USNM 24836, syntypes, 2 ovigerous ♀, CL both 3.1 mm, Tagus Cove, Albemarle Island, Galapagos Islands, 16 Mar 1895. USNM 111015, 1 ovigerous ♀, CL 2.5 mm, Cartago Bay, Albemarle Island, 16 m (32 fm), Galapagos Islands, 25 Jan 1934.

**DIAGNOSIS.**—Rostrum lanceolate, apically acute, margins serrate. Carapace faintly pitted. Middorsal spine present on posterior margin of abdominal segment 2. Telson with 4 pairs of spines on posterior margin. Antennal scale lack-

ing distolateral tooth. Mandibular palp 2-segmented, proximal segment longer but narrower than distal. Outer uropodal ramus, outer margin serrate.

**REMARKS.**—Although one of the specimens of USNM 24836 has a red "type" label, Rathbun did not designate a holotype in her 1902 paper. This syntype lacks legs, and the mouthparts have been removed.

**PREVIOUS RECORDS.**—Galapagos Islands, 16 m (Rathbun, 1902), Juan Fernandez Islands, 30-40 m (Balss, 1922).

### *Discias atlanticus* Gurney, 1939

FIGURES 4, 5

*Discias atlanticus* Gurney, 1939:388, figs. 1-13.—Monod, 1939:557.—Gurney and Lebour, 1941:95, figs. 2t-z, a', 3a-z.—Lebour, 1949:1107-1110.—Holthuis, 1951:35, fig.

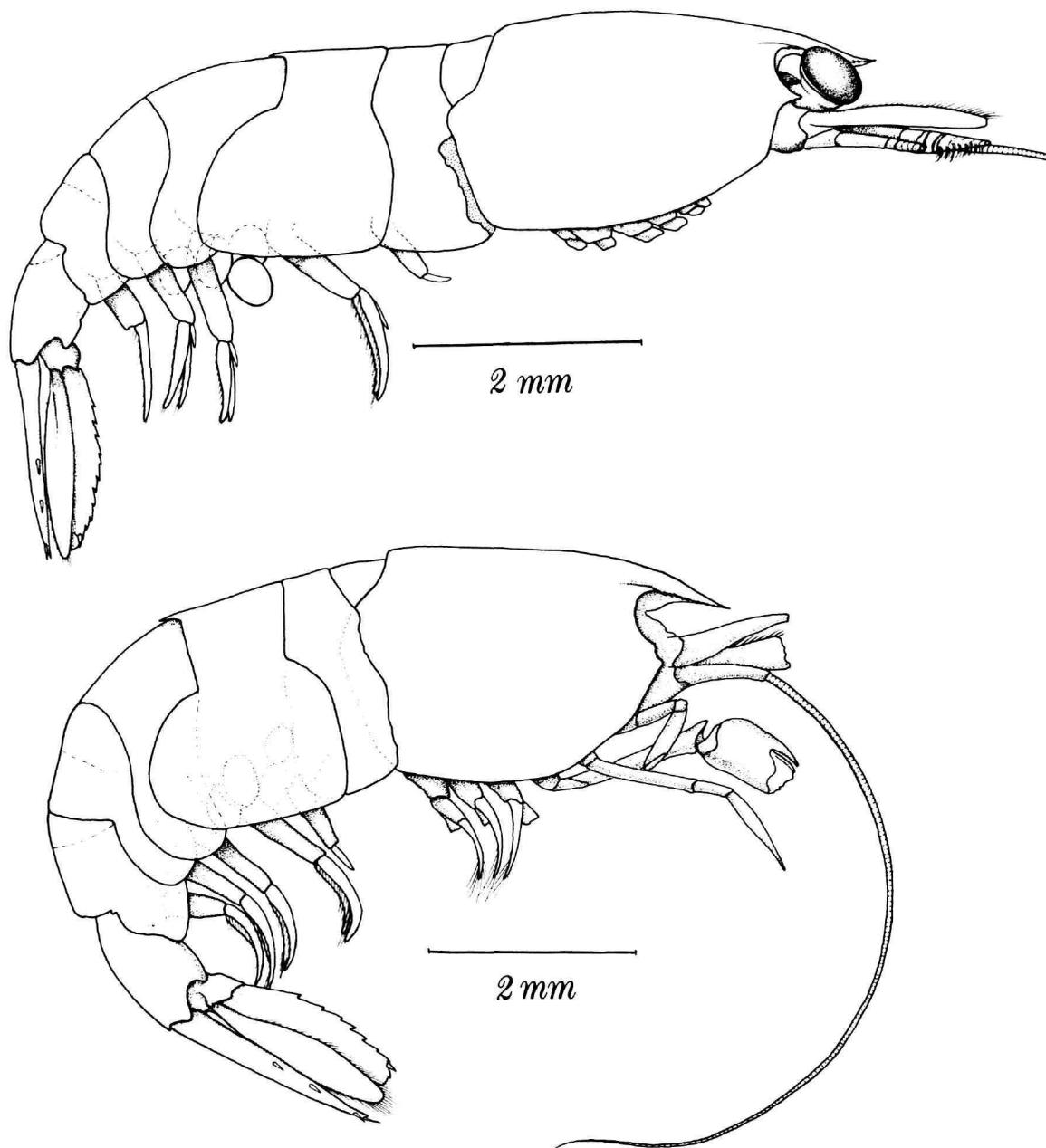
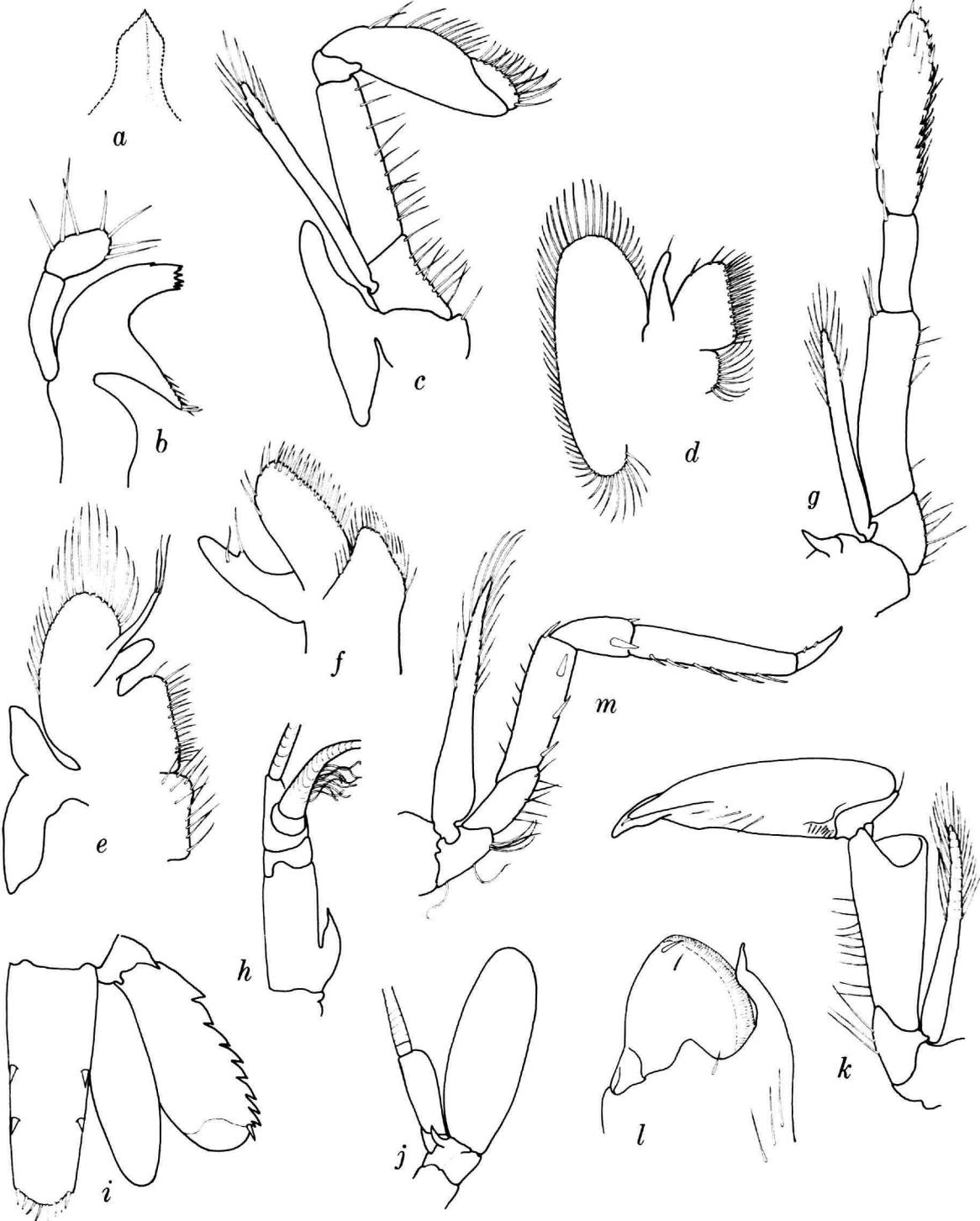


FIGURE 2.—*Discias serrifer*, syntypes, USNM 24836, in lateral view.

FIGURE 3.—*Discias serrifer*, syntype: *a*, rostrum in dorsal view; *b*, mandible; *c*, maxilliped 2; *d*, maxilla 2; *e*, maxilliped 1; *f*, maxilla 1; *g*, maxilliped 3; *h*, antennular peduncle; *i*, telson and right uropod; *j*, antennal peduncle; *k*, pereopod 1; *l*, chela of pereopod 1; *m*, pereopod 5.



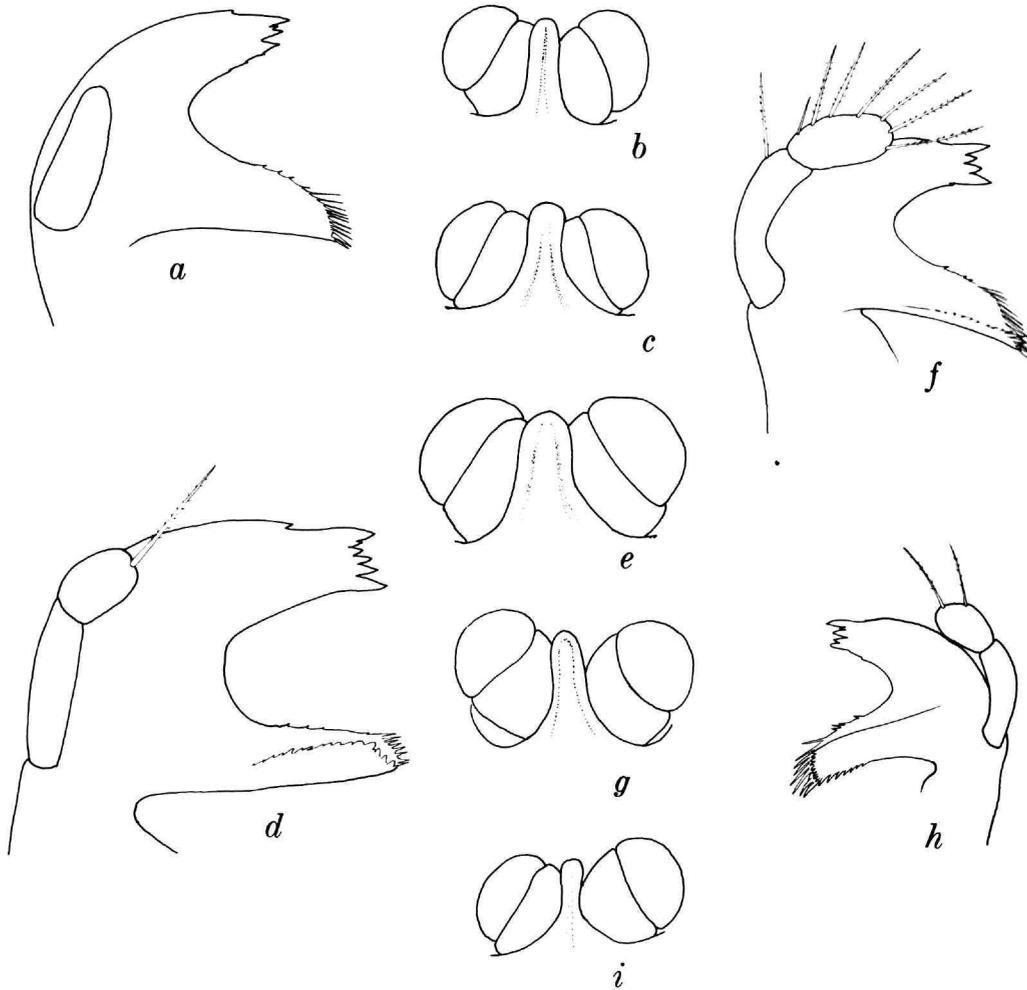
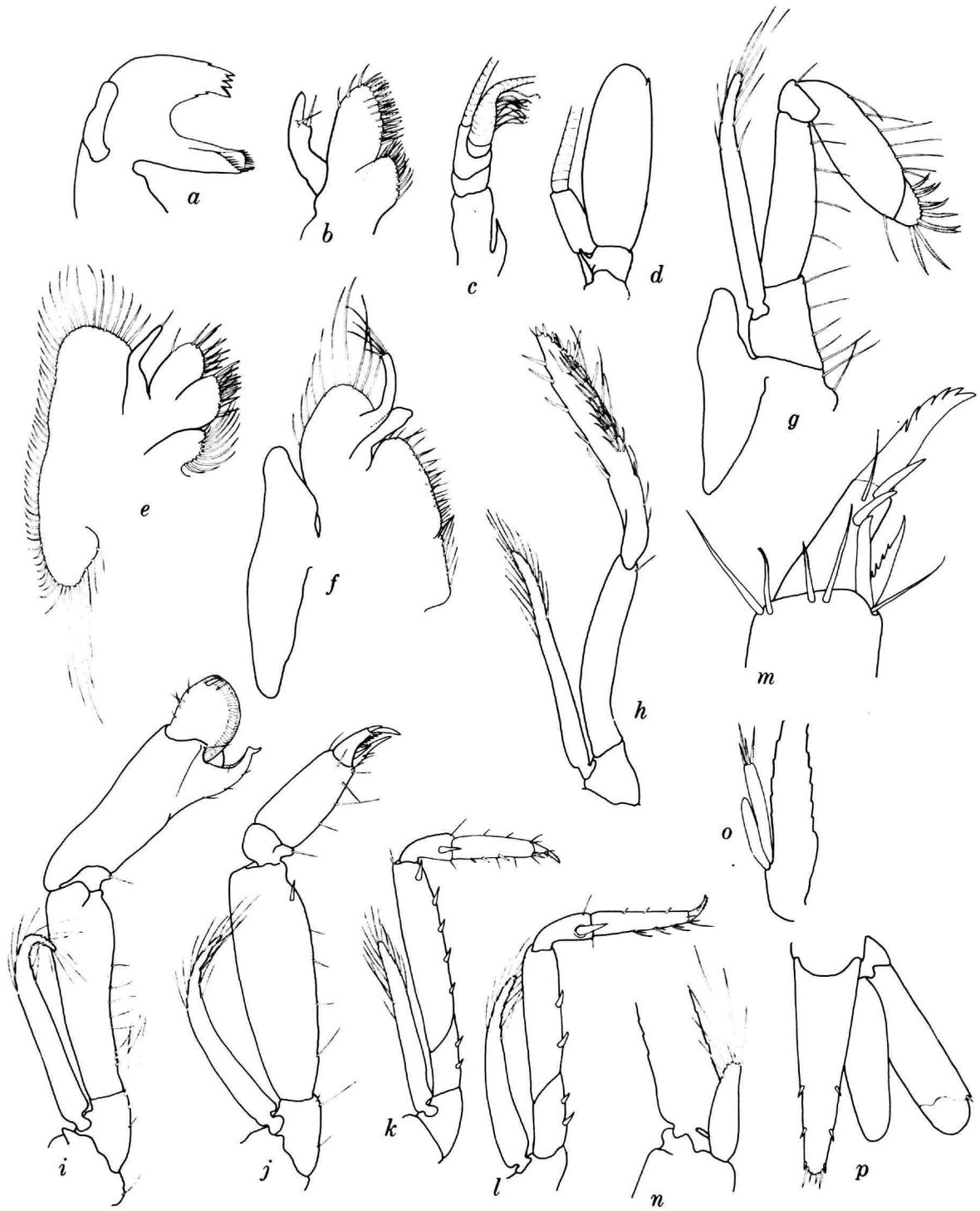


FIGURE 4.—*Discias atlanticus*: *a, b*, mandible and rostrum, specimen from Florida; *c*, rostrum of syntype from Bermuda; *d, e*, mandible and rostrum of specimen from Lizard Island; *f, g*, mandible and rostrum of specimen from Georgia; *h, i*, mandible and rostrum of specimen from Gulf of Mexico.

FIGURE 5.—*Discias atlanticus*, syntype: *a*, mandible; *b*, maxilla 1; *c*, antennular peduncle; *d*, antennal peduncle; *e*, maxilla 2; *f*, maxilliped 1; *g*, maxilliped 2; *h*, maxilliped 3; *i*, pereopod 1; *j*, pereopod 2; *k*, pereopod 4; *l*, pereopod 5; *m*, dactylus of pereopod 4; *n*, pleopod 1, male; *o*, appendix interna and appendix masculina, pleopod 2, male; *p*, telson and right uropod.



4; 1981:791-792.—Williamson, 1970:4, 44-45, figs. 1-2.—Bruce, 1970:315; 1975:301, figs. 1-3; 1976:119, 129.—Chace, 1972:16-17.—Forest, 1977:872-876, fig. 3.—Gore and Wilson, 1978:109, fig. 1.—Wilson and Gore, 1979:311, 315.

**MATERIAL EXAMINED.**—USNM 77877, syntype, 1 ♂, CL 2.6 mm, The Reach, Bermuda, Jul 1938, "shallow water." USNM 190704, 1 ovigerous ♀, CL 3.3 mm, off Savannah, Georgia, 31°-51'30"N, 79°30'00"W, 66 m. SIFP 89-3368, 1 ♂, CL 2.2 mm, 1 ♀, 2.3 mm, off Fort Pierce, Florida, 27°33.5'N, 80°03'W, 33 m, 21 Sep 1977. SIFP 89-3802, 1 ♀, French Reef, Florida Keys. Hourglass sta L, EJ-66-371, 2 ♀, CL 2.0 and 2.5 mm, Gulf of Mexico, 26°24'N, 83°22'W, 55 m, Sep 1966. Hourglass sta D(2), EJ-67-184, 1 ♂, CL 2.1 mm, Gulf of Mexico, 27°37'N, 83°58'W, 55 m, May 1967. AM-P21940, 1 ovigerous ♀, CL 3.0 mm, Yonge Reef, off Lizard Island, Great Barrier Reef, Queensland, Australia, 10-15 m, 8 Nov 1975.

**DIAGNOSIS.**—Rostrum longer than basal width, anteriorly rounded, dorsally with faint medial rounded ridge, margins entire. Abdominal segment 2 lacking middorsal spine on posterior margin. Telson with 3 pairs of spines on posterior margin. Antennal scale with distolateral tooth. Mandibular incisor process distally truncate-toothed. Dactyli of pereopods 3-5 with dentate ungui. Outer uropodal ramus with lateral margin entire.

**REMARKS.**—This species demonstrates an unusually broad tropical-subtropical distribution, if, in fact, a single species is involved. Forest (1977:874) suggests that Holthuis' *D. atlanticus* from Gabon and the Cape Verde Islands, having a biarticulate mandibular palp, is not the same species as *D. atlanticus* Gurney from Bermuda.

The mandibular palp structure in this species has given rise to some uncertainty. The Bermuda male syntype examined (Figure 4c) as well as the female syntype figured by Gurney (1939, fig. 5), have a single-articled palp, as does the male (SIFP-89-3368) from Fort Pierce, Florida (Figure 4a,b), whereas the material from the Gulf of Mexico (Figure 4h,i), the coast of Georgia (Figure 4f,g), the specimen from Lizard Island (Figure 4d,e) and the eastern Atlantic material figured by

Holthuis (1951, fig 4) possess a biarticulate mandibular palp. Holthuis (1951:36-37) also noted several other differences between the Bermuda and eastern Atlantic specimens. A high degree of suspicion must continue to be exercised regarding the identity of "*D. atlanticus*" from all these scattered localities. There may well be a single species, in which some specimens (e.g., those from Bermuda and Fort Pierce) have a uniaarticulate mandibular palp due to damage or immaturity. If this is the case, the distribution approaches that of very few shallow-water decapods, e.g., *Stenopus hispidus*, *Axiopsis serratifrons*, *Thor amboinensis*, *Brachycarpus biunguiculatus*. Given the degree of variation in relative rostral proportions, however, the Indo-West Pacific material should perhaps be referred to as "*D. cf atlanticus*."

**PREVIOUS RECORDS.**—Gabon (Holthuis, 1951); Cape Verde Islands (Holthuis, 1951); Bermuda (Gurney, 1939); Florida (Gore and Wilson, 1978); Guadeloupe (Monod, 1939); off Kenya, western Indian Ocean (Bruce, 1975); and Red Sea (Williamson, 1970).

### *Discias brownae*, new species

FIGURES 6-9

**MATERIAL EXAMINED.**—AM-P33772, holotype, 1 ♂, CL 3.2 mm, Green Point, Port Jackson, NSW, 33°50'S, 151°19'E, 9.8 m, coll. A. Kuitert, 24 Jun 1978. AM-P33773, allotype, 1 ovigerous ♀, CL 4.0 mm, east of North Head, Port Jackson, NSW, 33°49'S, 151°18'E, 32.9 m, coll. Australian Museum Shelf Benthic Survey, 23 May 1972. AM-P24444, paratypes, 1 ♂, CL 3.2 mm, 1 ♀, CL 2.5 mm; AM-P24447, paratypes, 1 ♂, CL 2.9 mm, 1 ♀, CL 3.1 mm; AM-P24448, paratype, 1 ♂, CL 2.6 mm; AM-P24450, paratype, 1 ♂, CL 2.6 mm; AM-P24451, paratypes, 2 ♀, CL 2.8 and 3.3 mm; AM-P24453, paratype, 1 ♂, CL 2.9 mm; east of North Head, Port Jackson, NSW, 33°49'S, 151°18'E, 19.8 m, from sponge *Teichonella labyrinthica* Ridley, coll. Australian Museum Shelf Benthic Survey, 19 Feb 1973. AM-P24449, 1 damaged specimen, east of North Head, Port Jackson, NSW, 33°49'S, 151°18'E, 19.8 m, from sponge *Polymastia cratica*, coll. Australian Museum Shelf Benthic survey, 19 Feb 1973. AM-P24452,

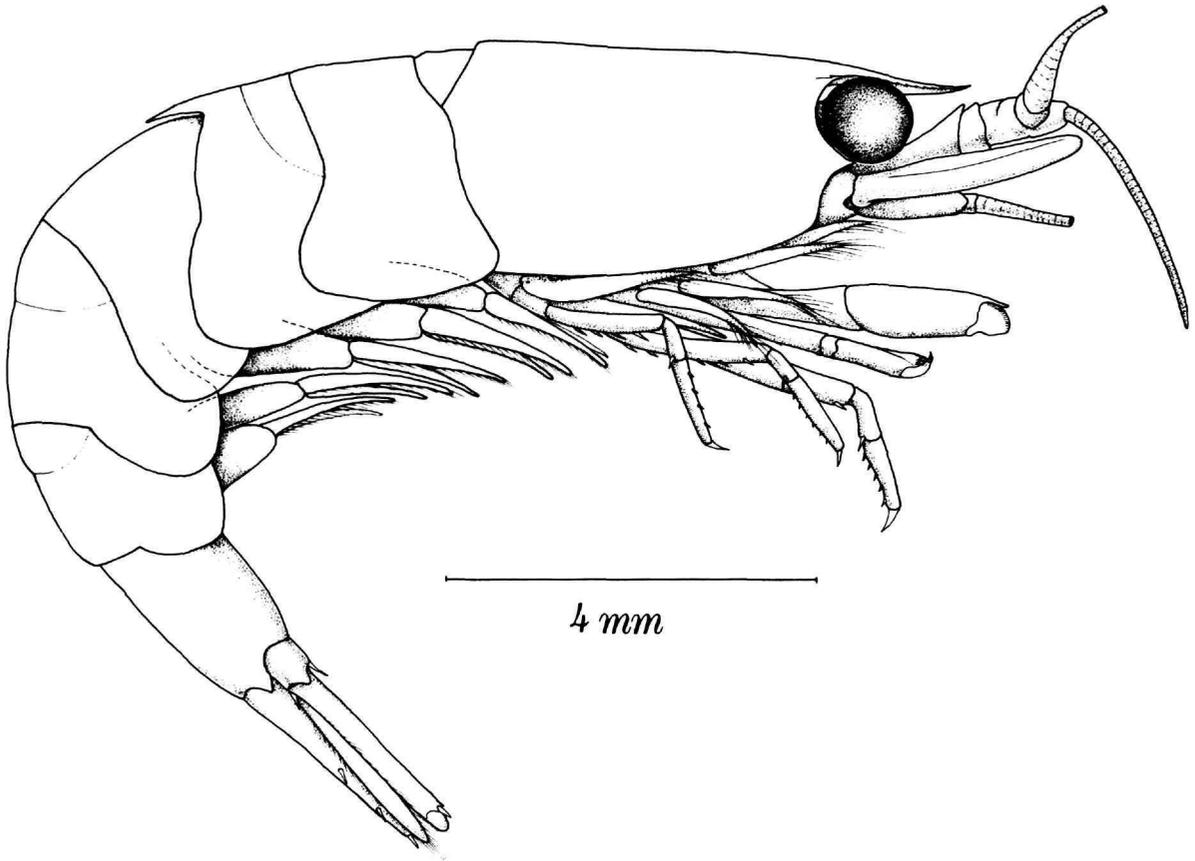


FIGURE 6.—*Discias brownae*, adult male in lateral view.

paratypes, 4 ♂, CL 2.4, 2.6, 2.9, and 2.9 mm, 2 ♀, CL 2.2 and 2.7 mm; AM-P24454, paratype, 1 ♀, CL 2.9 mm, east of North Head, Port Jackson, NSW, 33°49'S, 151° 18'E, 32.9 m, coll. Australian Museum Shelf Benthic Survey, 23 May 1972. AM-P24455, paratype, 1 ♀, CL 4.1 mm, Long Reef, NSW, 33°44'S, 151°19'E, 32 m, coll. Australian Museum Shelf Benthic Survey, 28 May 1972. USNM 189096, paratypes, 4 ♂, CL 2.8, 2.9, 3.0, and 3.1 mm, 3 ♀, CL 2.9, 3.0, and 3.2 mm, Green Point, Port Jackson, NSW, 33°50'S, 151°17'E, 9.8 m, coll. A Kuiter, 24 Jun 1978.

DIAGNOSIS.—Rostrum lanceolate, apically acute, lateral margins serrate. Carapace shallowly

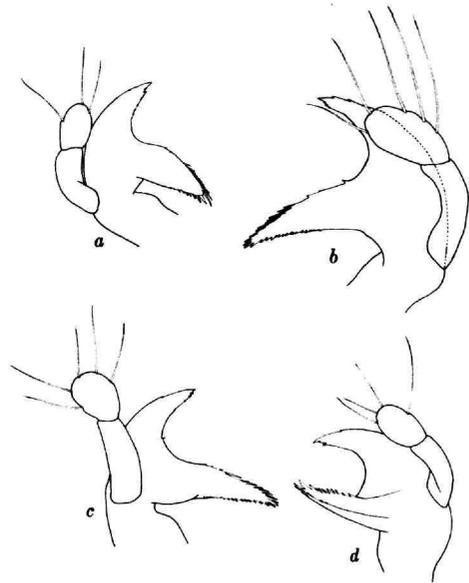


FIGURE 7.—*Discias brownae*, mandibles: a, AM-P24448; b, AM-P24451; c, AM-P24444; d, AM-P24453.

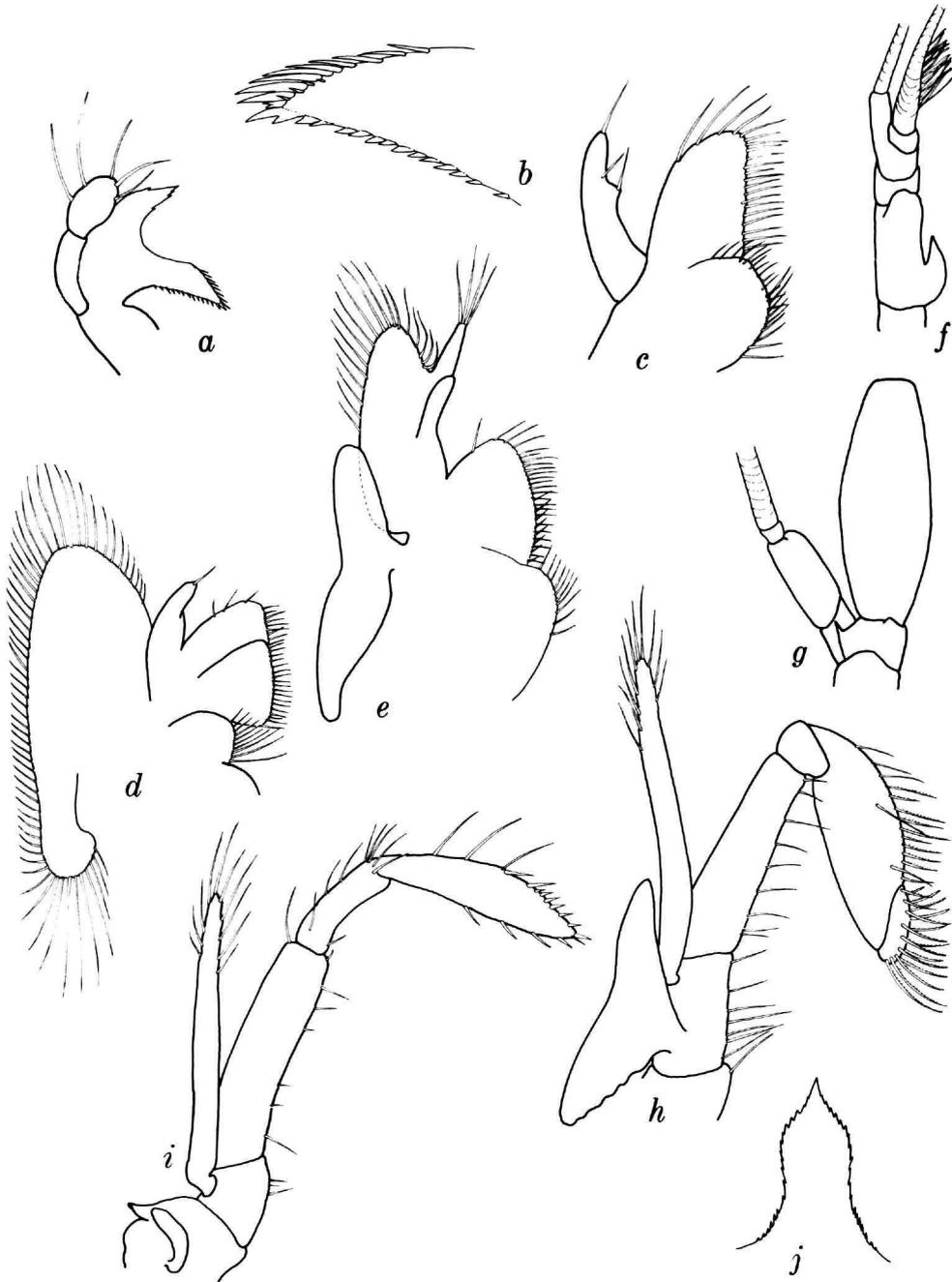


FIGURE 8.—*Discias brownae*: *a*, mandible; *b*, tip of mandibular molar process; *c*, maxilla 1; *d*, maxilla 2; *e*, maxilliped 1; *f*, antennular peduncle; *g*, antennal peduncle; *h*, maxilliped 2; *i*, maxilliped 3; *j*, rostrum in dorsal view.

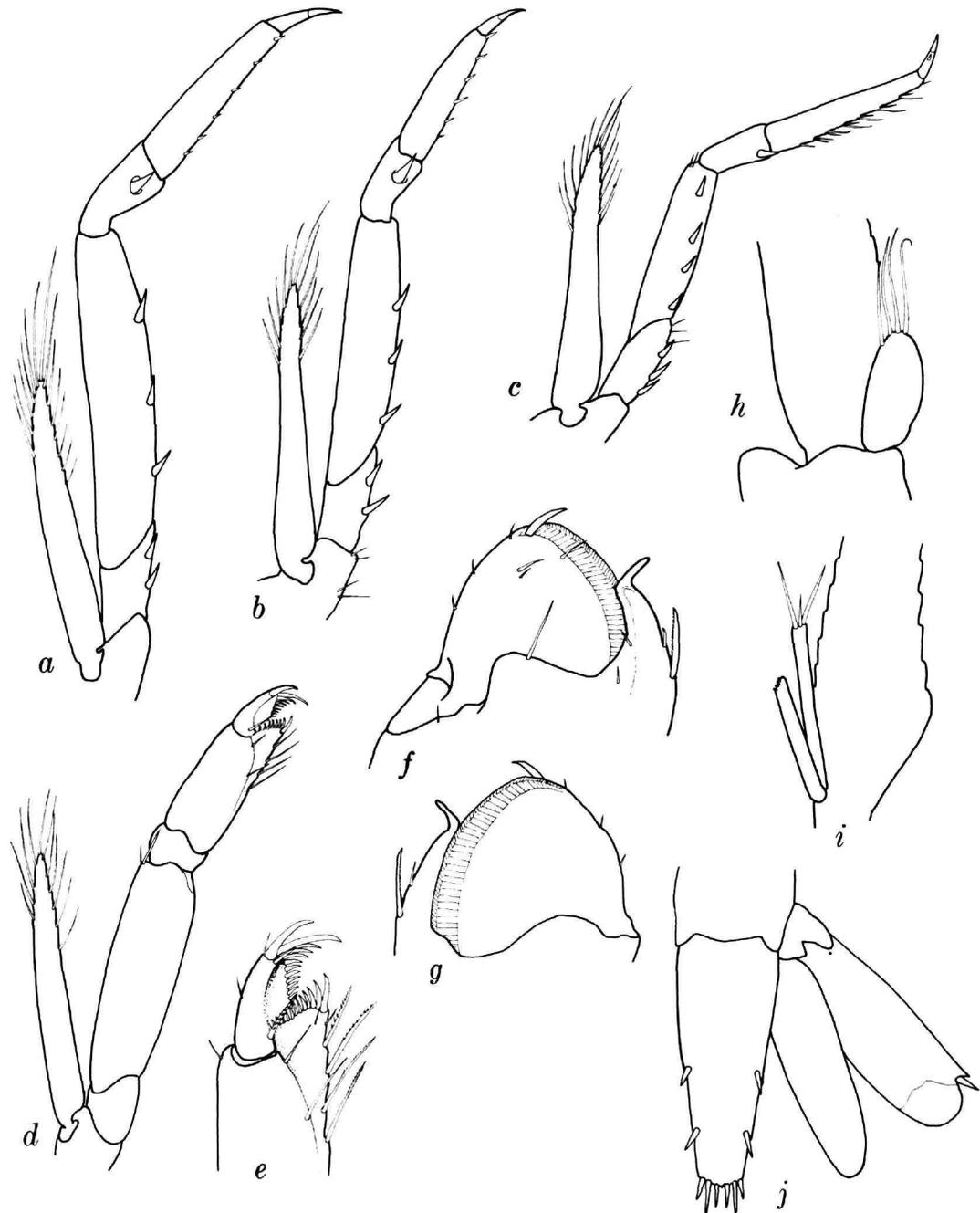


FIGURE 9.—*Discias brownae*: a, pereopod 3; b, pereopod 4; c, pereopod 5; d, pereopod 2; e, chela of pereopod 2; f, g, chela of pereopod 1; h, pleopod 1, male, endopod; i, appendix interna and appendix masculina, pleopod 2, male; j, telson and right uropod.

pitted. Middorsal spine present on posterior margin of abdominal segment 2. Telson with 3 pairs of spines on posterior margin. Antennal scale lacking distolateral tooth. Mandibular palp 2-segmented, distal setose segment markedly wider than proximal segment. Outer uropodal ramus with lateral margin entire.

**DESCRIPTION.**—Carapace and abdominal integument shallowly pitted. Carapace with strong marginal antennal spine; anteroventral corner rounded. Rostrum dorsoventrally flattened, apically acute, with middorsal narrowly rounded ridge just extending onto carapace, widest at about midlength, margins with 18-20 fine serrations extending onto supraorbital margin. Pleura of pleonites 1 and 2 ventrally almost straight, anterior and posterior corner rounded; pleura 3-5 evenly rounded; abdominal segment 2 with strong middorsal spine on posterior margin; abdominal segment 3 not hooded; abdominal segment 6 about one-fifth longer than segment 5. Telson tapering to almost truncate posterior margin; with 2 pairs strong dorsolateral spines; posterior margin with 3 pairs of spines and minute median point.

Basal antennular peduncle segment with strong apically acute stylocerite having outer margin convex; distal margin produced dorsally into rounded lobe; peduncle reaching almost to apex of scaphocerite; segment 2 about one-third length of basal segment; segment 3 produced distomesially into lobe; dorsolateral flagellum with swollen proximal section of about 12 articles bearing clusters of aesthetascs.

Scaphocerite about  $2\frac{1}{2}$  times longer than wide, widest at midlength, distal margin truncate, lacking distolateral tooth; peduncle segment 2 with small spine on mesial margin.

Mandibular palp 2-segmented, distal segment oval, broader than proximal segment, with 5 setae; incisor process triangular, with 1-3 tiny spines on dorsal edge, 3 on ventral edge; molar process produced-triangular, with 9 relatively elongate spines and few small spines on distodorsal margin, about 15 shorter spines on distoventral margin.

Maxilla 1 with proximal endite rounded, distal

endite more elongate, distally rounded; both endites bearing numerous setae-spines; palp with slight indication of bifurcation, bearing 3 setae.

Maxilla 2 with proximal endite truncate, smaller than and not extending mesially as far as 2 distal endites; latter both broad, with numerous setae-spines on mesial margin; palp moderately elongate, with single terminal seta; scaphognathite extending well beyond palp, broader distally, entire free margin bearing plumose setae.

Maxilliped 1 with broadly bilobed setose endite; palp digitiform, nonsetose; exopod bearing 4 distal setae, extending beyond broadly rounded setose caridean lobe; epipod bilobed.

Maxilliped 2 pediform, distal segment narrow, set obliquely on broad penultimate segment, both distal segments bearing fringed spines; antepenultimate segment short, third segment subequal to penultimate segment in length; exopod extending well beyond antepenultimate segment; epipod bilobed.

Maxilliped 3 5-segmented, distal segment of endopod widening to about two-thirds of length, then tapering to apex, bearing about 13 marginal spines; penultimate segment half length of terminal segment; latter subequal in length to antepenultimate segment; basal segment with spine-like process and small curved epipod; exopod extending beyond base of third endopodal segment.

Pereopod 1, dactylus subcircular, with strong distal spine near start of hyaline "cutting" margin; fixed finger of propodus with retrorsed immobile spine apically, and strong serrated spine on outer margin.

Pereopod 2 reaching to about midlength of propodus of pereopod 1; dactylus somewhat flattened and hollowed, bearing 2 large distal spines plus row of 12 smaller marginal spines; propodus with distal lobe forming fixed finger bearing row of 12 curved spines; carpus short, about one-sixth length of ischiomerus; exopod reaching to carpus.

Pereopods 3 and 4 similar, 3 slightly longer than 4; unguis about half length of dactylus; propodus about  $2\frac{1}{2}$  times length of dactylus, with 6 small spines on posterior margin; carpus slightly more than half propodal length, with strong ar-

articulated spine on outer surface; merus subequal in length to three distal segments together, bearing 3 strong spines on posterior margin; ischium about one-fifth of merus (measured along anterior margin), with 2 strong posterior spines; exopod reaching to distal half of merus.

Pereopod 5 with 3 distal segments showing progressive twisting, dactylus flexed through 180°, with small spine on (new) dorsal surface, unguis entire, propodus almost 4 times length of dactylus, with 7 groups of slender fringed spines on posterior margin; carpus with single posterodistal spine; merus with 4 spines, proximal spine posterior, following 3 spines becoming progressively lateral; ischium with 3 posterior spines; exopod reaching to distal end of merus.

Pleopod 1 in male, endopod oval, with 4 distal plumose setae. Pleopod 2 in male, endopod bearing narrowly elongate appendix masculina with 3 distal setae; appendix interna three-fourths length of appendix masculina, narrowly elongate, with 4 terminal hooks.

Outer uropodal ramus with fixed spine on entire lateral margin at about one-eighth of total length from apex, longer articulated spine internal to fixed spine; inner uropodal ramus barely extending beyond telsonic apex; uropodal basis lacking spines.

REMARKS.—*Discias brownae* may be separated from the 5 previously described species, and especially from *D. exul*, which it most closely resembles, on the following features: (1) It lacks the serrate outer uropodal ramus of *D. serrifer*. (2) It has a lanceolate rather than a distally rounded rostrum as in *D. atlanticus*. (3) *D. musicus* lacks a spine on abdominal segment 2, as well as a mandibular palp, both of which are present in this species. (4) The mandibular palp is uniarticulate in *D. serratirostris*. (5) The distal mandibular palp segment in *D. brownae* is slightly shorter but broader than the proximal segment; in *D. exul* the distal segment is markedly shorter, but of the same width as the proximal segment. The posterior telsonic margin is truncate (not rounded as in *D. exul*), and bears 3 pairs of spines (4 pairs, including distolateral pair, in *D. exul*). The caridean lobe of maxilliped 1 is more rounded in *D.*

*exul* than in *D. brownae*. Oviparous females of *D. brownae* (CL 4.0 mm) are larger than those of *D. exul* (CL 2.4–3.2 mm).

ETYMOLOGY.—The species is named for Diane Brown of the Australian Museum, who drew my attention to the specimens and provided collecting data.

### *Discias exul* Kemp, 1920

FIGURES 10, 11

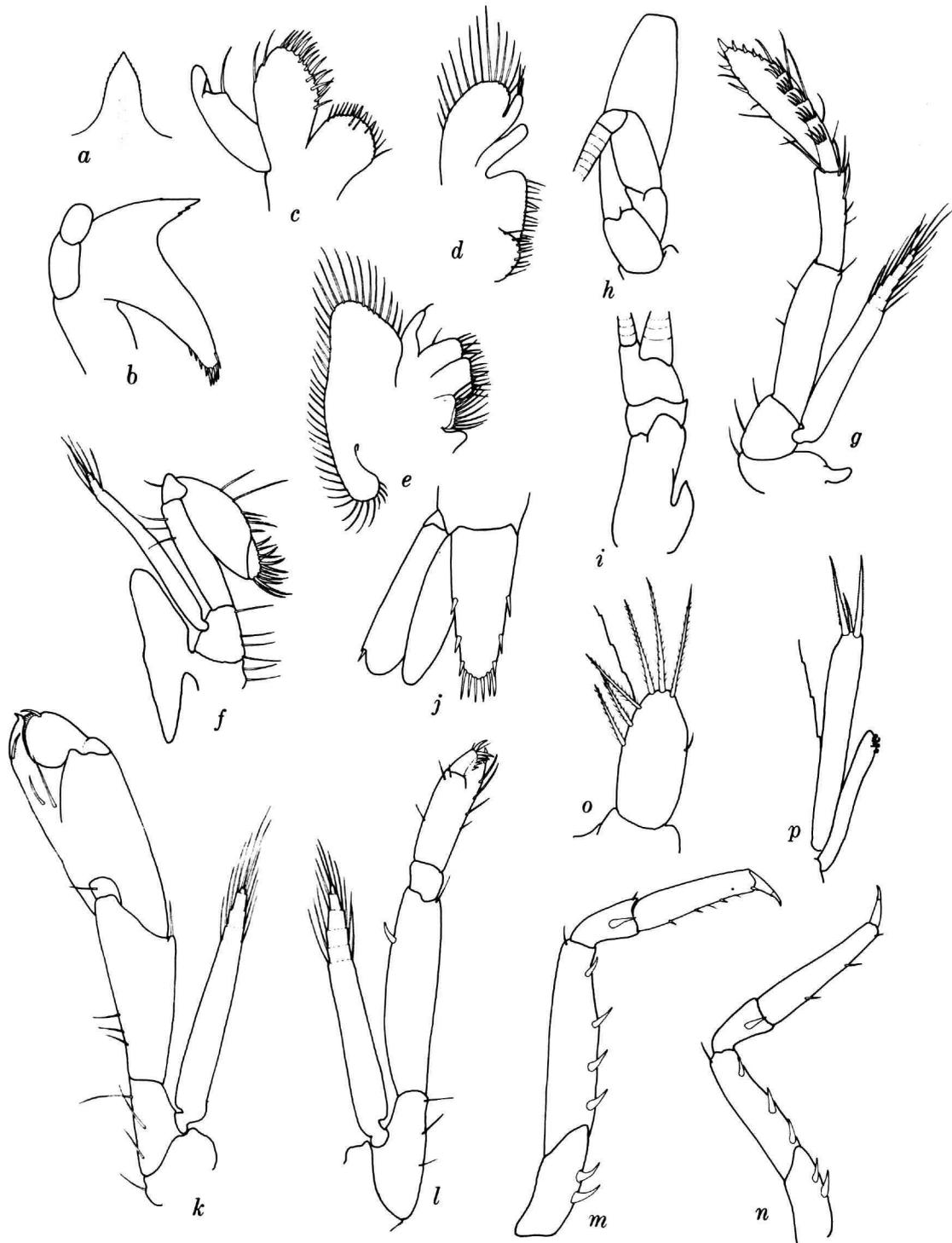
*Discias exul* Kemp, 1920:138, figs. 1–3.—Gurney, 1939:390–391.—Lebour, 1949:1107–1110.—Holthuis, 1955:39, fig. 17; 1981:788–792.—Bruce, 1970:315, fig. 1; 1975:301, 303; 1976:120, 129.—Forest, 1977:873–875.—Wilson and Gore, 1979:313–314.

*Discias mvitae* Bruce, 1976:119, figs. 1–5.—Forest, 1977:874.—Wilson and Gore, 1979:313–315.—Holthuis, 1981:791–792.—Kensley, 1981:23. [New synonym.]

MATERIAL EXAMINED.—BMNH 1922.7.18.1, syntype, 1 ♂, CL 1.7 mm, Port Blair, Andaman Islands, “low water,” 1 Mar 1915, on yellow sponge. AM-P16866, 1 ovigerous ♀, CL 2.6 mm, 1 ♂, CL 1.6 mm, Heron Island, Great Barrier Reef, Australia, coll. A.J. Bruce. SAM-A18814, 1 ovigerous ♀, CL 2.4 mm, 1 ♂, CL 1.9 mm; USNM 189090, 1 ♂, CL 2.1 mm; Sodwana Bay, Zululand, South Africa, 27° 31'S, 32° 41'E, 16 m, coll. A.E. Louw, 25 Jul 1976. BMNH 1974.16, holotype (of *D. mvitae*), CL 2.2 mm, Fort Jesus, Mombasa, Kenya, 4°04'S, 39°01.5'E, 20 m, from sponge *Acanus ternatus* Ridley.

DIAGNOSIS.—Rostrum lanceolate, apically acute, margins serrate. Carapace faintly pitted. Middorsal spine present on posterior margin of abdominal segment 2. Telson with 4 pairs of distal spines, outermost pair probably part of distolateral series. Antennal scale lacking distolateral tooth. Mandibular palp 2-segmented, distal segment half or less than half length of, and no broader than proximal segment; incisor process acutely triangular, margins serrate. Outer uropodal ramus, lateral margin entire.

REMARKS.—Examination of the type material of *D. exul* and *D. mvitae*, plus the material from South Africa and Australia, shows that all the specimens have an identical telsonic and rostral



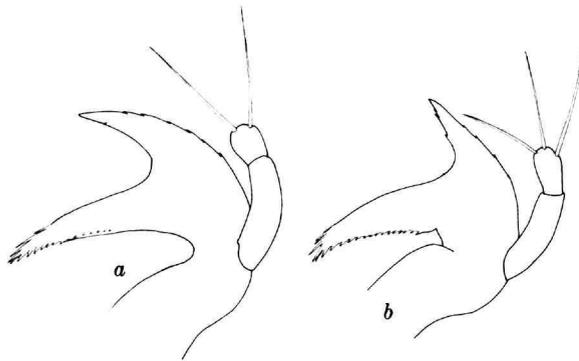


FIGURE 11.—*Discias exul*, mandibles: *a*, specimen from Heron Island; *b*, specimen from Zululand.

shape and spination, and all have a middorsal spine on abdominal segment 2. This latter feature has given rise to some confusion, as in the key to the species of *Discias* (Bruce, 1976:129). From this key, it would seem that the middorsal spine is present only in *D. mvitae*; in fact, it is absent only in two species, *D. atlanticus* and *D. musicus*.

Bruce (1976) separated *D. mvitae* from *D. exul* on several features in addition to the presence/absence of the abdominal spine. The pitting of the carapace and abdomen is variable, which may be seen in the Zululand specimens. The setation of the distal mandibular palp segment too, is variable, as has also been noted for *D. atlanticus*. Spination of the chela of pereopod 2, said to be denser in *D. mvitae* than in *D. exul*, is a feature dependent on the maturity of the specimen, and, therefore, unreliable for separation of species. Given the above weak case for separation, and the strong similarities in rostral and appendage features (especially in the mandible), *D. mvitae* is regarded as synonymous with *D. exul*.

PREVIOUS RECORDS.—Andaman Islands (Kemp, 1920); Mombasa, Kenya, 1–20 m (Bruce,

FIGURE 10.—*Discias exul*, syntype: *a*, rostrum in dorsal view; *b*, mandible; *c*, maxilla 1; *d*, maxilliped 1; *e*, maxilla 2; *f*, maxilliped 2; *g*, maxilliped 3; *h*, antennal peduncle; *i*, antennular peduncle; *j*, telson and left uropod; *k*, pereopod 1; *l*, pereopod 2; *m*, pereopod 4; *n*, pereopod 5; *o*, endopod of pleopod 1, male; *p*, appendix interna and appendix masculina, pleopod 2, male.

1976); Zululand, South Africa, 16 m (Kensley, 1981); Heron Island, Great Barrier Reef, Australia (Bruce, 1970).

### *Discias musicus* Holthuis, 1981

FIGURE 12

*Discias musicus* Holthuis, 1953:52 [nomen nudum]; 1981:787, figs. 1, 2.  
*Discias* sp.—Cloud, 1959:436.

MATERIAL EXAMINED.—USNM 94774, holotype, 1 ♂, CL 2.2 mm, lagoon west of Saipan, Mariana Islands, coll. P.E. Cloud, 10 Apr 1949.

DIAGNOSIS.—Anterior margin of rostrum rounded, with faint apical tooth and median longitudinal carina, margins entire. Abdominal segment 2 lacking spine on posterior margin. Telson with 3 pairs of spines on posterior margin. Antennal scale lacking distolateral tooth. Mandible lacking palp; incisor process with 2 teeth; molar process apically acute. Maxilliped 1, exopod reduced. Outer uropodal ramus, outer margin entire.

PREVIOUS RECORDS.—Saipan, Mariana Islands, barrier reef flat (Holthuis, 1981).

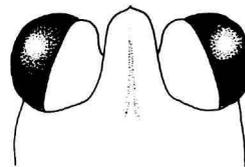


FIGURE 12.—*Discias musicus*, holotype, rostrum and eyes in dorsal view.

### *Discias serratiostris* Lebour, 1949

FIGURES 13, 14

*Discias serratiostris* Lebour, 1949:1107, figs. 1–2.—Bruce, 1970:315; 1975:301, 304; 1976:119, 129.—Chace, 1972:16.—Forest, 1977:873–876.—Wilson and Gore, 1979:311, fig. 1.—Holthuis, 1981:788, 791–792.

MATERIAL EXAMINED.—BMNH 1957.11.6.7, holotype, 1 ovigerous ♀, CL 2.4 mm, Castle Roads, Bermuda, 30 m (100 ft), 11 Mar 1947. USNM 172319, 1 ovigerous ♀, CL 2.1 mm, Fort Pierce Inlet, Florida, 26.5 m, 22 Jun 1977. USNM

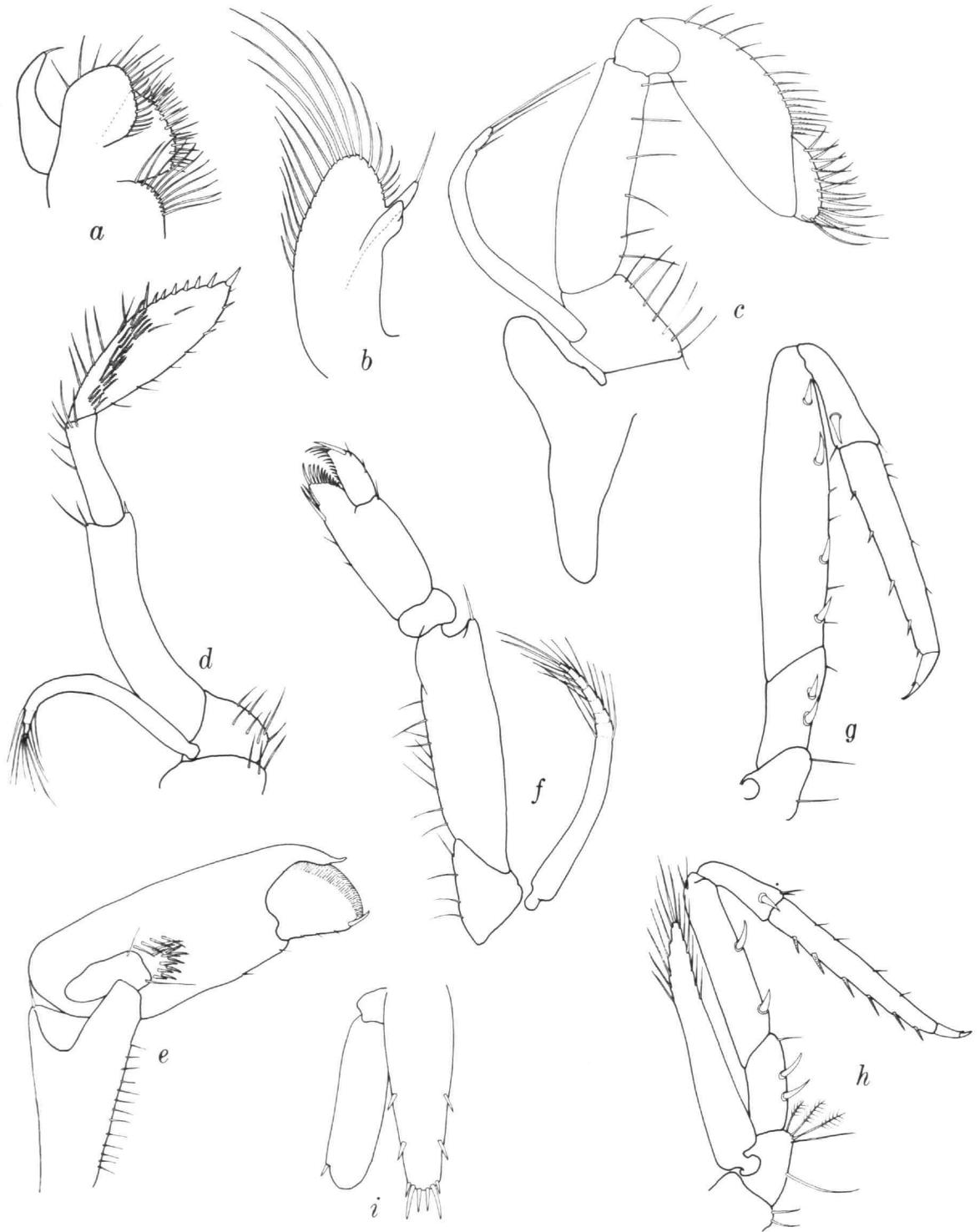




FIGURE 14.—*Discias serratirostris*, USNM 172319: *a*, rostrum in dorsal view; *b*, mandible; *c*, maxilla 1; *d*, maxilla 2; *e*, maxilliped 1; *f*, antennular peduncle; *g*, antennal peduncle.

189088, 1 ovigerous ♀, CL 2.0 mm, 1 ♂, CL 1.6 mm, Looe Key, Florida, 6 m, coll. B. Kensley and M. Schotte, 27 Jan 1983. USNM 189089, 1 ♂, CL 1.5 mm, Carrie Bow Cay, Belize, 15 m, coll. B. Kensley, 10 Dec 1982. Hourglass sta L, EJ-67-

174, 1 ♂, CL 1.8 mm, Gulf of Mexico, 27°37'N, 83°58'W, 55 m, May 1967. Hourglass sta D(1), EJ-67-342, 1 ovigerous ♀, CL 2.0 mm, Gulf of Mexico, 27°37'N, 83°58'W, 55 m, Oct 1967. Hourglass sta D(2), EJ-67-363, 1 ♂, CL 1.8 mm, Gulf of Mexico, 27°37'N, 83°58'W, 55 m, Oct 1967.

FIGURE 13.—*Discias serratirostris*, holotype: *a*, maxilla 1; *b*, part of maxilliped 1; *c*, maxilliped 2; *d*, maxilliped 3; *e*, chela of pereopod 1; *f*, pereopod 2; *g*, pereopod 4; *h*, pereopod 5; *i*, telson and left outer uropodal ramus.

DIAGNOSIS.—Rostrum lanceolate, apically acute, margins serrate. Middorsal spine present on posterior margin of abdominal segment 2.

Telson with 3 pairs of spines on posterior margin. Antennal scale lacking distolateral tooth. Mandibular palp of single elongate segment. Outer uropodal ramus, lateral margin entire.

**COLOR NOTES.**—The specimen from Belize was taken from the washings of a collection of sponges growing on top of a ridge on the outer barrier reef slope. When alive, the entire animal was a bright purple color.

The two specimens from Looe Key, Florida, from a vertical wall of a buttress in the spur and groove zone, had a yellow-orange abdomen and ventral cephalothorax, while the dorsal half of the carapace was dark green.

**REMARKS.**—Lebour (1949, fig. 1.3) described and figured the mandible of *D. serratirostris* as having a 3-segmented palp. Although the holotype was examined, the mandibles had both been removed and could not be found. Mandibles of specimens from Florida (Figure 14*b*) and from the Gulf of Mexico (not illustrated), however, show a mandibular palp lacking in distinct segmentation, but with 4 or 5 distal setae.

**PREVIOUS RECORDS.**—Bermuda, 30 m (Lebour, 1949); Florida, 6–27 m (Wilson and Gore, 1979).

### Genus *Tridiscias*, new genus

**DIAGNOSIS.**—Carapace with acutely triangular entire rostrum. Strong supraorbital spine, smaller antennal and branchiostegal spine present. All abdominal segments dorsally rounded. Eye large, well pigmented. Stylocerite reduced. Mandible with triangular, entire, acute incisor; triangular spinose molar; biarticulate palp. Maxilliped 1 with elongate lash on exopod. Maxilliped 2, terminal segment inserted obliquely on penultimate segment. Pereopods 1–3 bearing exopods. Pereopod 1 stout, dactylus flattened, expanded and blade-like, fitting between bilobed distal process of propodus. Pereopod 2 stout, not as robust as pereopod 1, fingers of chela hollowed along cutting edges. Pereopods 3–5 ambulatory, with elongate propodal spine lying along spinose posterior margin of dactylus. Pleopod 1 in male with endopod short, flattened, distally truncate. Telson with 5

TABLE 1.—Diagnostic distinctions between *Discias* and *Tridiscias*.

| Character                              | <i>Discias</i> | <i>Tridiscias</i> |
|----------------------------------------|----------------|-------------------|
| Supraorbital spine                     | Absent         | Present           |
| Branchiostegal spine                   | Absent         | Present           |
| Mandibular incisor                     | Toothed        | Entire            |
| Pereopodal exopods                     | 1–5            | 1–3               |
| Pereopods 3–5, dactyli excluding ungui | Entire         | Spinose           |
| Pereopod 5, dactylus curvature         | Anterior       | Posterior         |
| Telson                                 |                |                   |
| Lateral spines                         | 2–3 pairs      | 5 pairs           |
| Posterior spines                       | 3 pairs        | 5 pairs           |

pairs of lateral spines, posterior margin broadly triangular, with 5 pairs of spines.

**TYPE-SPECIES.**—*Tridiscias transkei*, new species, by monotypy.

**ETYMOLOGY.**—The prefix “tri” refers to the tridentate anterior carapace, while the “discias” stem refers to the similarity to the genus *Discias*.

**REMARKS.**—On first glance, a number of similarities between *Discias* and *Tridiscias* are readily apparent, especially the highly modified chela of pereopod 1, the mandibular structure, the lash on maxilliped 1, the obliquely inserted terminal segment of maxilliped 2, and the identical branchial formula. From the most recent key to the genera of the Bresilliidae (Williams and Chace, 1982:146), the present genus appears synonymous with *Discias*. Several very obvious differences (Table 1), however, demand separation from *Discias*.

### *Tridiscias transkei*, new species

FIGURES 15–17

**MATERIAL EXAMINED.**—Holotype: SAM-A18812, 1 ♂, CL 1.8 mm; paratypes: SAM-A18813, 2 ♂, CL 1.2 and 1.5 mm, 2 ♀, CL 2.0 and 2.1 mm; USNM 189091, 2 ♂, CL 1.7 and 2.0 mm, 1 ♀, CL 1.9 mm, R/V *Meiring Naude* sta 250, off Transkei, South Africa, 31°59'S, 29°22.5'E, 150–200 m, Jun 1979.

**DESCRIPTION.**—Rostrum narrowly triangular in

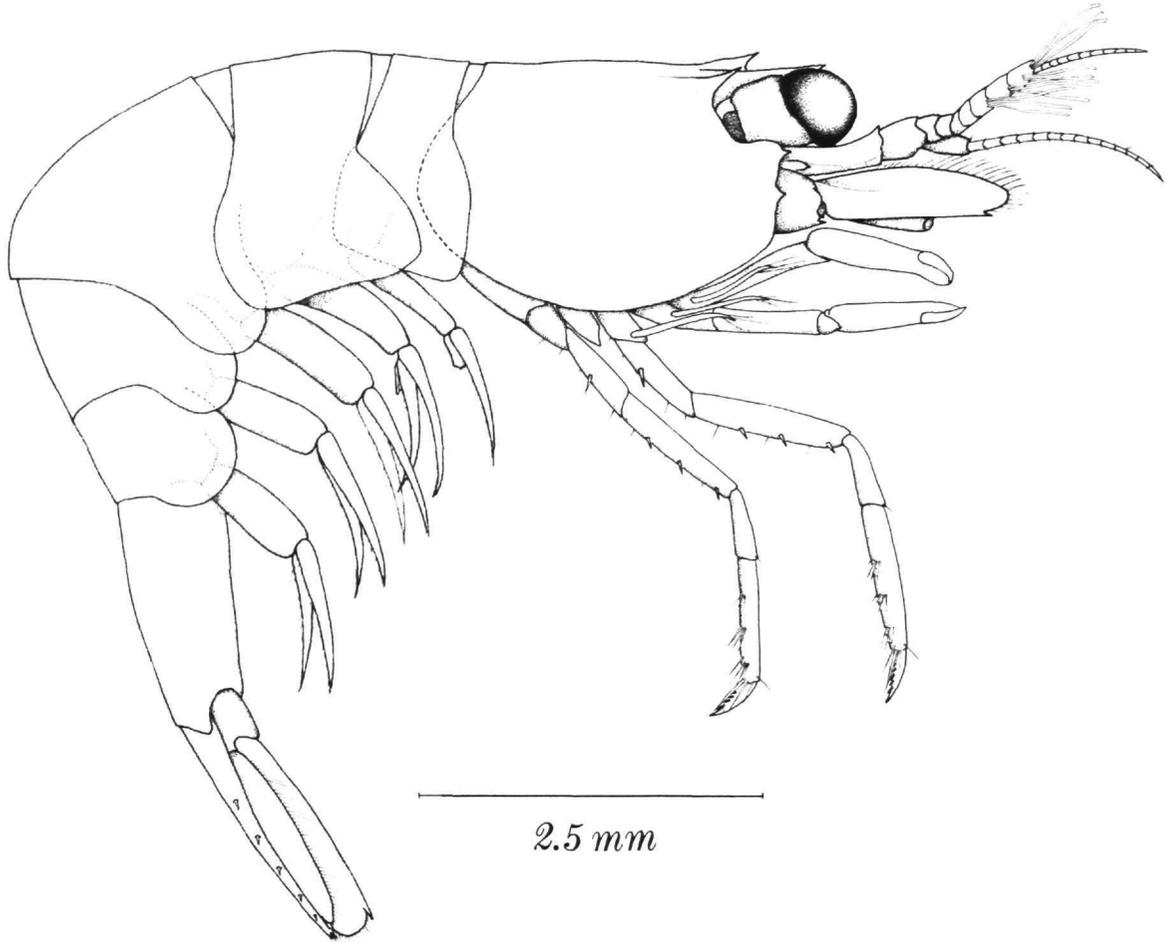


FIGURE 15.—*Tridascia transkei*, adult in lateral view.

dorsal view, anteriorly depressed, basally rhomboidal in cross-section, apically acute, reaching to about midpoint of cornea, flanked by strong, broadly triangular, upwardly directed supraorbital spine. Carapace with antennal and branchiostegal spines present. Carapace and abdominal segments dorsally rounded. Pleura of first and second abdominal segments ventrally straight, of abdominal segments 3–5 evenly rounded. Telson almost reaching to distal end of outer uropodal ramus, with 5 pairs of mobile lateral spines; apex

obtusely triangular, with 5 pairs of spines, outermost spine shortest, next spine longest, 3 inner spines half length of longest spine.

Eye not quite reaching end of first antennular peduncle segment. Antennular peduncle with first segment longer than 2 distal segments together, reduced stylocerite apically spinose; second segment with small distolateral spine; upper flagellum with 5 proximal articles broad, oval in cross-section, bearing clusters of aesthetascs, distal 10 articles narrow, rounded; lower flagellum slen-

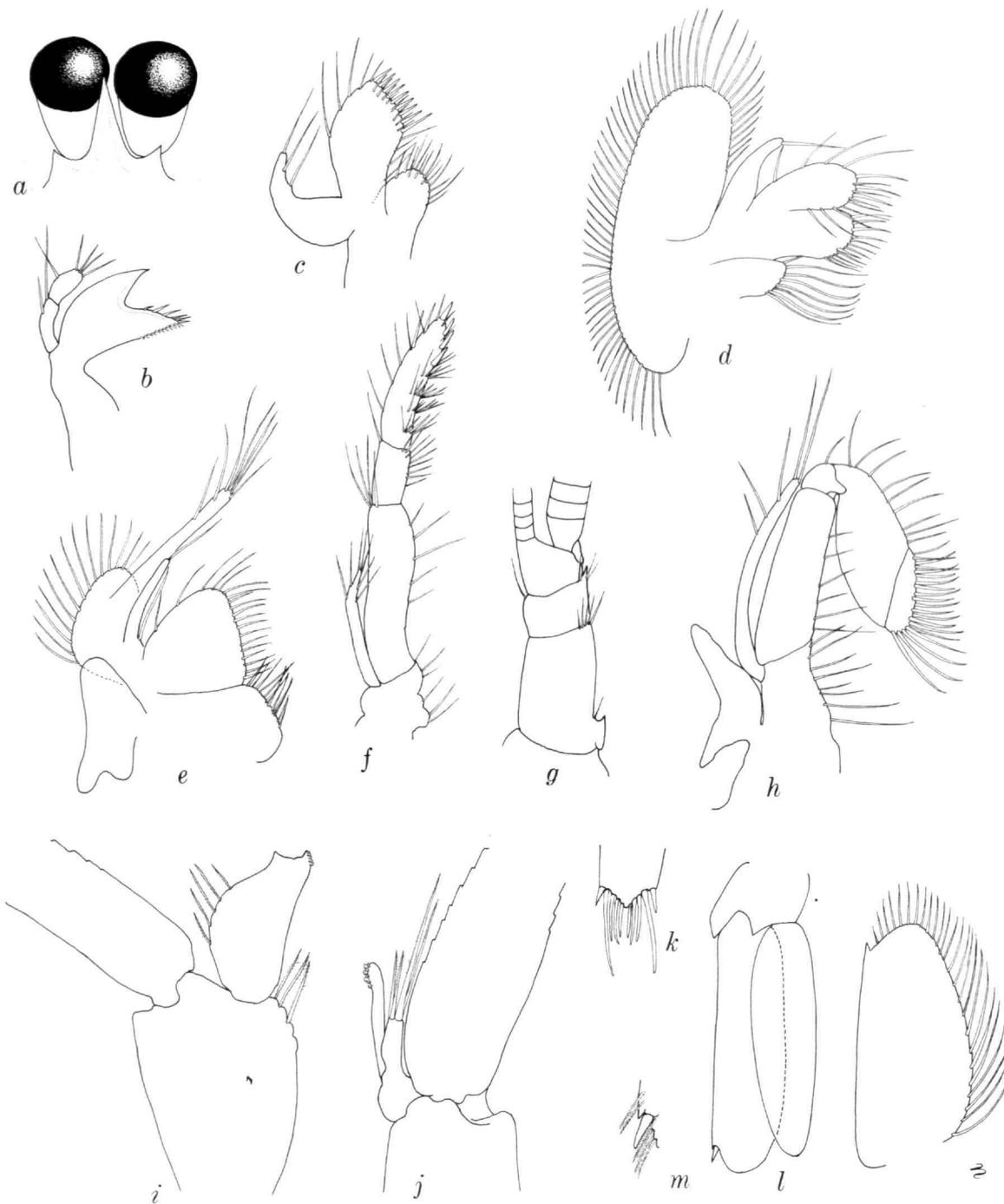


FIGURE 16.—*Tridiscias transkei*: *a*, rostrum and eyes in dorsal view; *b*, mandible; *c*, maxilla 1; *d*, maxilla 2; *e*, maxilliped 1; *f*, maxilliped 3; *g*, antennular peduncle; *h*, maxilliped 2; *i*, endopod of pleopod 1, male; *j*, appendix interna and appendix masculina, pleopod 2, male; *k*, apex of telson; *l*, *m*, uropod, with distolateral tooth and spine further enlarged; *n*, scaphocerite.

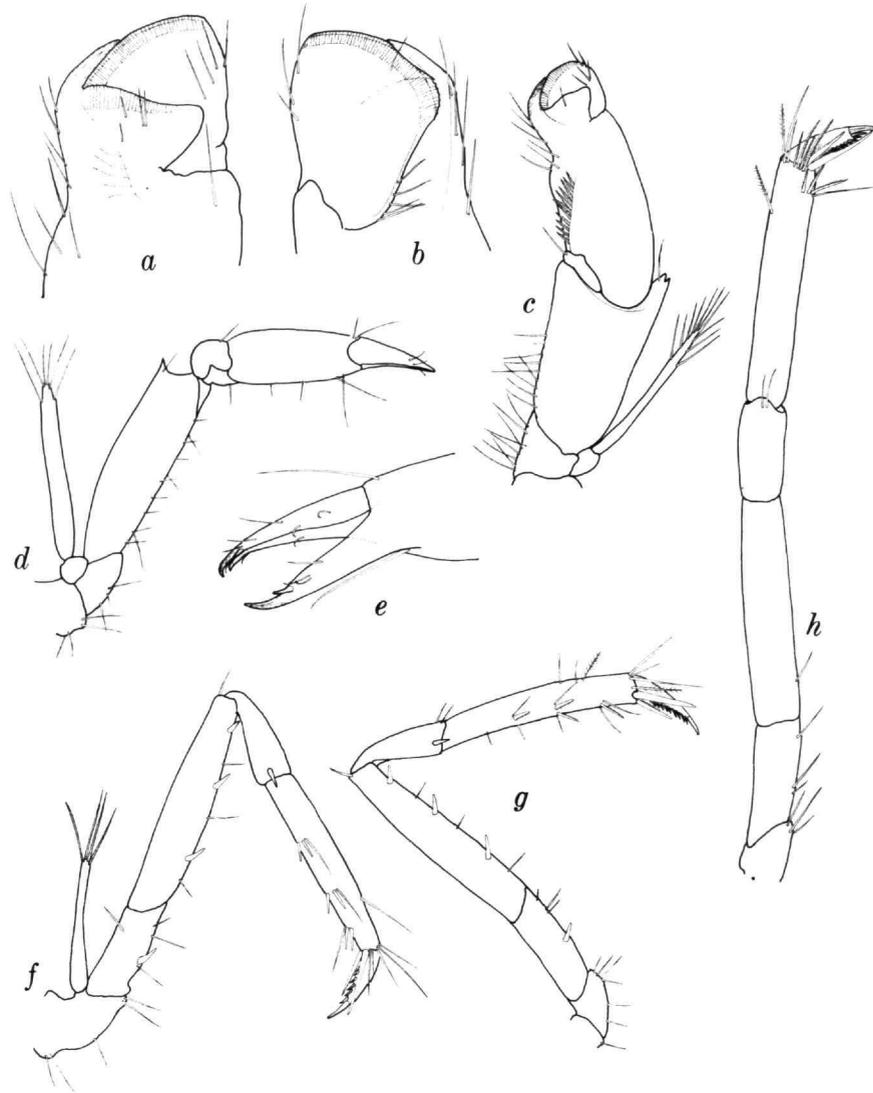


FIGURE 17.—*Tridiscias transkei*: a, b, chela of pereopod 1; c, pereopod 1; d, pereopod 2; e, pereopod 2 chela; f, pereopod 3; g, pereopod 4; h, pereopod 5.

der, whip-like, slightly longer than upper flagellum. Antennal scaphocerite reaching beyond antennular peduncle, outer margin straight, ending in short spine; medial and distal margins carrying elongate plumose setae.

Mandibular palp 2-segmented, distal segment somewhat expanded, bearing 5 elongate setae; incisor process acutely triangular, margins entire;

molar triangular, with 6 articulated spines on upper margin, lower margin with 10-12 smaller spines. Maxilla 1 with tapering palp carrying 3 elongate setae; upper ramus broad, truncate, medial margin bearing setae and spines; lower ramus rounded, with setae. Maxilla 2 with tapering palp tipped with single seta; basal endite of 2 oval-rounded setose lobes; coxal endite a single lobe

bearing relatively elongate setae; scaphognathite well developed, elliptical, with plumose setae. Maxilliped 1, palp narrow, with single terminal seta; basal endite with straight setose medial margin; coxal endite medially setose; exopod with several distal setae; epipod roughly trilobed. Maxilliped 2, dactylus broad, with densely setose margin; propodus broad and elongate; exopod with 5 distal setae; epipod bilobed. Maxilliped 3, exopod reaching just beyond midpoint of antepenultimate segment of endopod; latter robust, penultimate segment slightly less than half length of terminal segment; latter parallel-sided, with several stout spines distally, medial margin with 4 groups of stiff fringed setae. Exopods present on pereopods 1–3 only. Single pleurobranch on pereopods 1–5. First pereopods similar, subequal, almost reaching to end of scaphocerite; dactylus compressed, broad, with gently convex distal margin forming laminar cutting edge, inner margin gently sinuous; fixed finger of propodus bipartite, with grooved spine-like outer part and broad inner part bearing a laminar cutting edge; propodal palm with row of stiff dentate setae ventrally; carpus very short, compressed merus and ischium fused, stout, broadening distally to form cup-shaped depression to accommodate rounded proximal part of propodus and carpus, with outer distal margin produced into short lobe bearing 2 spines. Second pereopods subequal, reaching anteriorly as far as first pereopods; chela with slender finger and thumb about two-thirds length of palm, hollowed on cutting margins, with 2 or 3 distal spines; carpus short, about one-third length of propodus, fitting into cup-shaped depression at distal end of ischiomerus; latter slightly more than 3 times longer than wide, with spinose process at outer distal angle. Pereopods 3–5 similar, pereopod 5 slightly less robust, with strong terminal spine and row of several smaller ventral spines; propodus 6 times longer than wide, with 33 groups of serrated setae ventrally and several more elongate simple setae and 2 stout fringed spines at articulation of dactylus; carpus proximally narrow, widening distally, half length of propodus; merus slightly longer than propodus,

with 3 stout ventral spines; ischium half length of merus, with single stout ventral spine.

Pleopod 1 of male, endopod short, flattened, distally with 2 processes, inner process bearing 5 coupling hooks. Pleopod 2 of male, appendix interna rod-shaped, longer than appendix masculina, with several distal coupling hooks; appendix masculina distally truncate, bearing 2 stout elongate fringed setae and 2 shorter fringed setae. Outer uropodal ramus with straight lateral margin ending in tiny subterminal spine with strong articulate spine medial to it; distal margin broadly rounded; inner uropodal ramus only slightly shorter than outer, distally rounded-tapering.

ETYMOLOGY.—The species was collected off the coast of Transkei, Republic of South Africa, hence the specific name.

#### Genus *Pseudocheles* Chace and Brown, 1978

##### *Pseudocheles chacei*, new species

FIGURES 18–22

MATERIAL EXAMINED.—USNM 189094, holotype, 1 ♂, CL 2.8 mm, RF 7/1, Looe Key, Florida, 6 m, coll. B. Kensley and M. Schotte, 27 Jan 1983. USNM 189095, paratypes, 3 ♂, CL 1.9, 1.9, and 1.6 mm, RF 6/1, 6/1, and 7/1; 3 juvenile ♂, CL 1.2, 1.2, and 1.4 mm, RF all 6/1; 1 ovigerous ♀, CL 2.2 mm, RF 7/1; 1 juvenile ♀, CL 1.1 mm, RF 7/1; Looe Key, Florida, 6 m, coll. B. Kensley and M. Schotte, 27 Jan 1983.

Paratypes from the above-mentioned Looe Key locality: 1 ♂, CL 2.0 mm, RF 6/0; 1 juvenile ♀, CL 1.4 mm, RF 5/1, deposited at the British Museum (Natural History); 1 ♂, CL 2.0 mm, RF 6/1, 1 juvenile ♀, CL 1.3 mm, RF 6/1, deposited at the Rijksmuseum van Natuurlijke Historie, Leiden.

USNM 189092, paratype, 1 ovigerous ♀, CL 2.2 mm, RF 8/1; Carrie Bow Cay, Belize, 15.2 m, coll. G. Hendler, 19 Apr 1981.

USNM 189093, paratype, 1 ♀, CL 2.2 mm, RF 8/1; Carrie Bow Cay, Belize, 28 m, coll. B. Kensley, 6 Dec 1982.

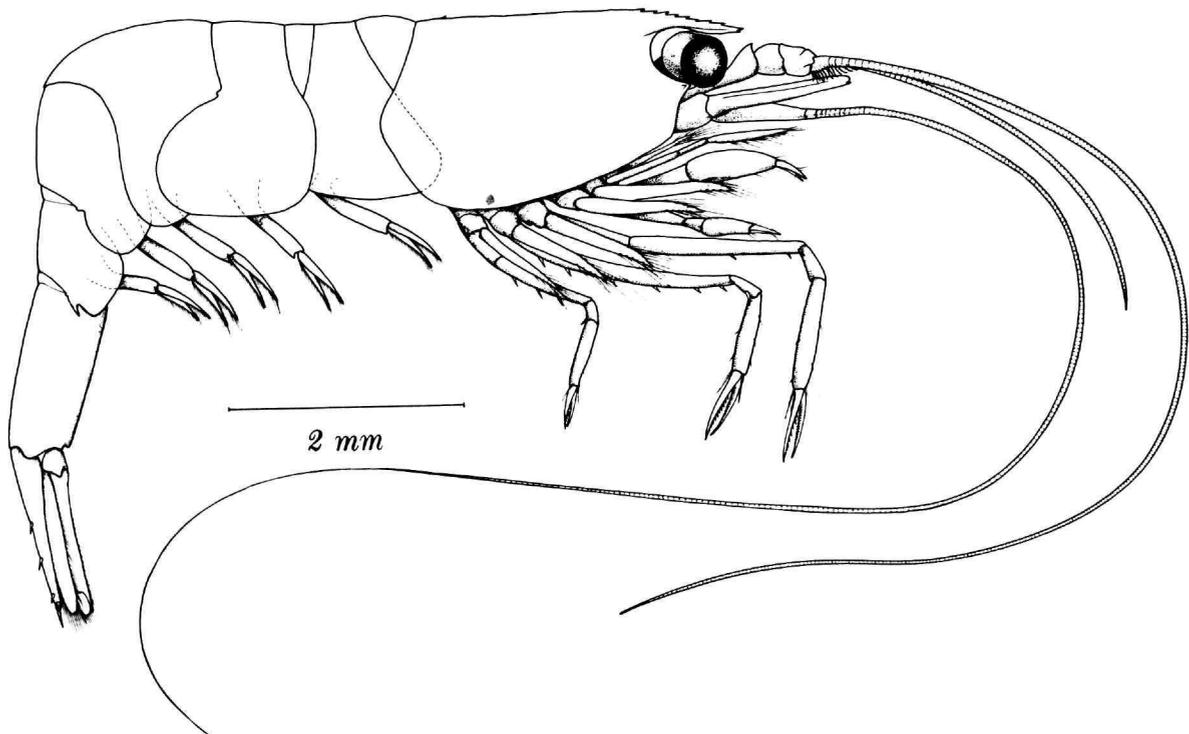


FIGURE 18.—*Pseudocheles chacei*, adult in lateral view.

**DESCRIPTION (adult).**—Rostrum compressed, narrow, reaching almost to distal margin of basal antennular peduncle segment; rostral formula 6-8/0-1 (6/1 in 3 specimens, 7/1 in 3 specimens); 1 or 2 postorbital dorsal teeth, not set off from rostral series; ventral tooth subterminal; tiny mid-dorsal denticle at about posterior seventh of carapace, often difficult to detect, being somewhat sunken to level of carapace. Carapace with rounded antennal lobe bearing tiny submarginal denticle. Abdominal segments dorsally rounded, segment 3 forming dorsal cap over segment 4. Pleura of segments 1 and 2 ventrally broadly rounded, 3 and 4 subcircular, 5 ventrally rounded, with strong spine on free posterior margin; segment 5 half length of 6. Telson slightly shorter than dorsal length of segment 6, with even posterior taper, 3 pairs of dorsolateral spines at about midlength, posterior third, and overlap-

ping outermost pair of spines on posterior margin; latter triangular, stepped for insertion of 3 pairs of spines, outermost and innermost pair stout, elongate, middle pair short.

Eye with well-pigmented cornea, slightly shorter than stalk.

Antennular peduncle reaching to distal third of antennal scale; stylocerite proximally broad, tapering abruptly to acute tip, reaching to about distal third of basal peduncle segment; latter about  $2\frac{1}{2}$  times length of segment 2, twice length of segment 3; dorsolateral flagellum about 5 times carapace length, ventromesial flagellum slightly less than twice carapace length.

Antennal scale about 3 times longer than wide, distal spine on lateral margin small, not overreaching low convex distal margin; flagellum about 7 times carapace length.

Mandibles similar, palp 2-segmented, proximal

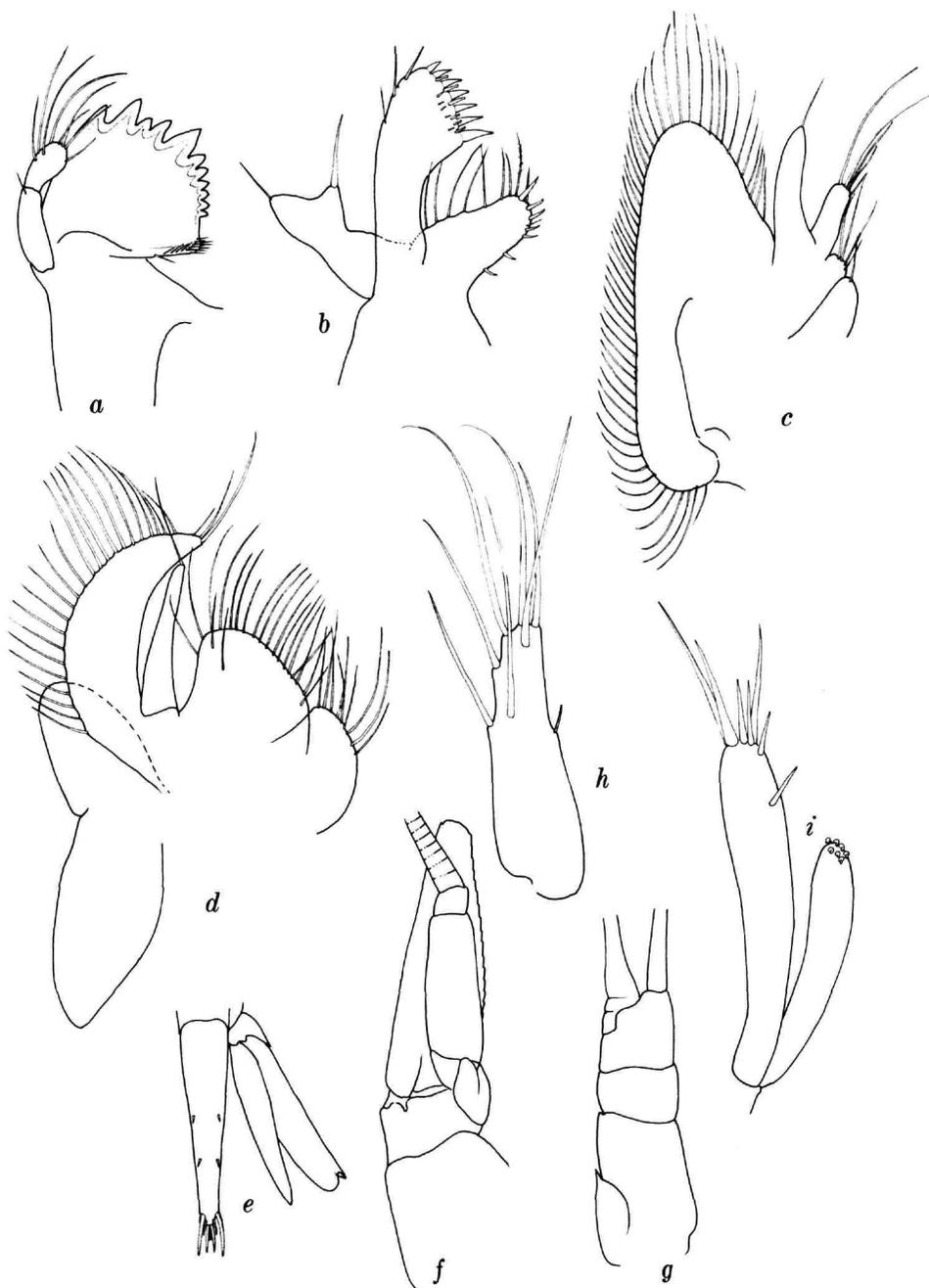


FIGURE 19.—*Pseudocheles chacei*: a, mandible; b, maxilla 1; c, maxilla 2; d, maxilliped 1; e, telson and right uropod; f, antennal peduncle; g, antennular peduncle; h, endopod of pleopod 1, male; i, appendix interna and appendix masculina of pleopod 2, male.

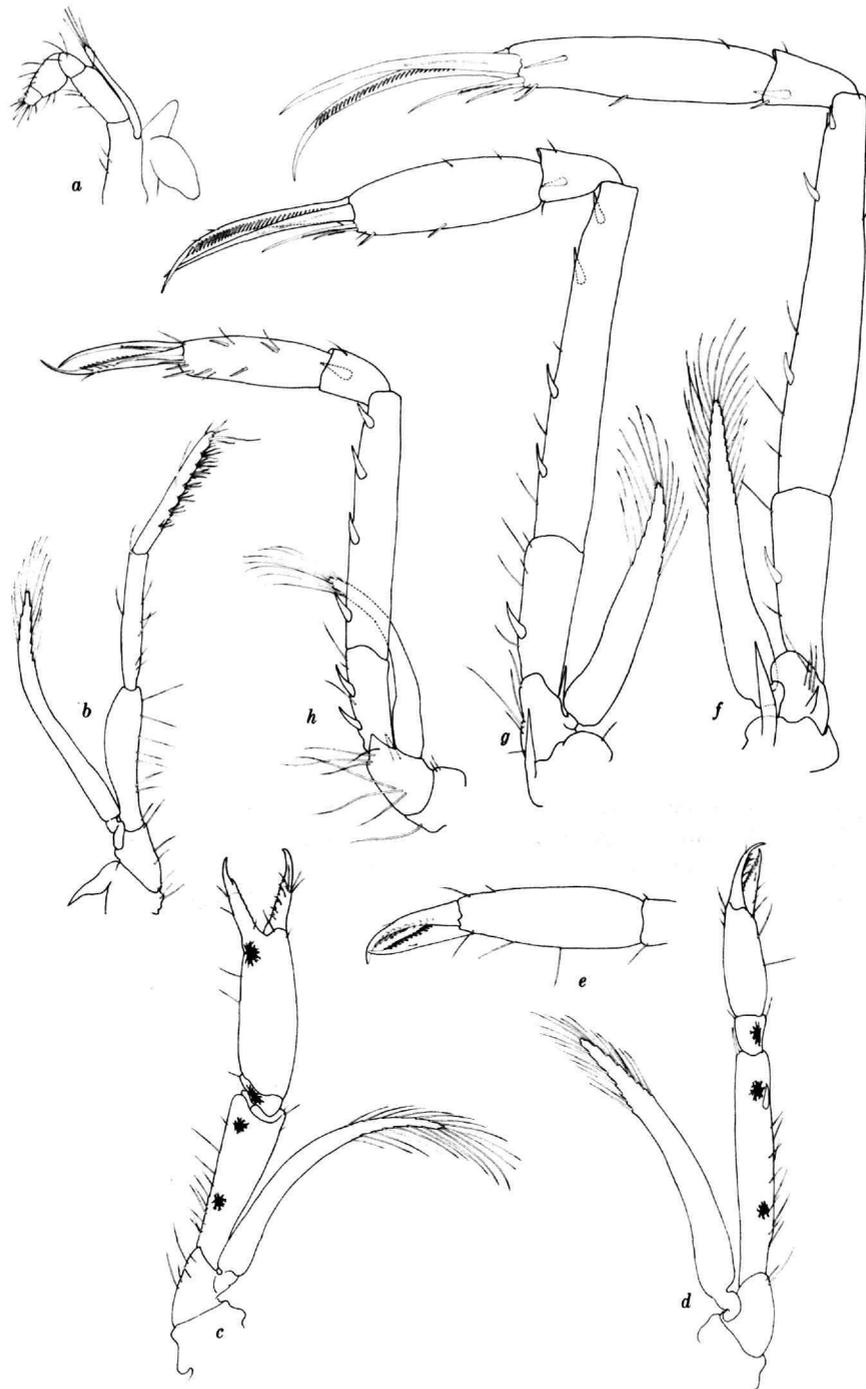


FIGURE 20.—*Pseudocheles chacei*: a, maxilliped 2; b, maxilliped 3; c, pereopod 1; d, pereopod 2; e, chela of pereopod 2; f, pereopod 3; g, pereopod 4; h, pereopod 5.

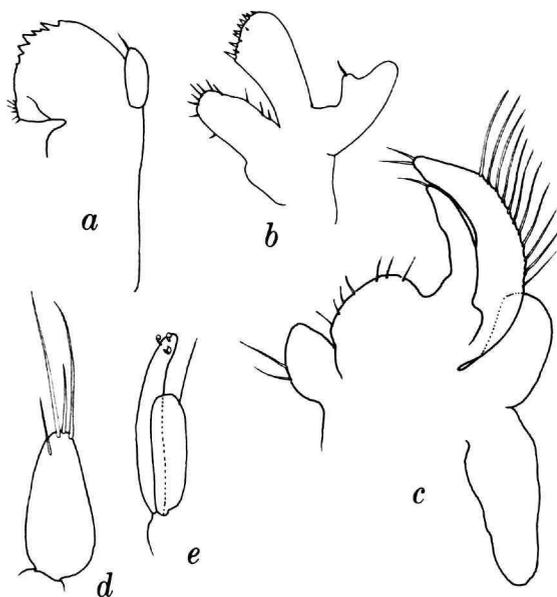


FIGURE 21.—*Pseudochelone chacei*, juvenile specimen: *a*, mandible; *b*, maxilla 1; *c*, maxilliped 1; *d*, endopod of pleopod 1, male; *e*, appendix interna and appendix masculina of pleopod 2, male.

segment  $1\frac{1}{2}$  times length of setose distal segment; incisor broad, with 11 marginal teeth of varying size; molar small, lobe-like, indistinctly separated from incisor, bearing slender spines.

Maxilla 1, proximal endite distally rounded, slightly narrowed, bearing 9 setae on anterior margin, 6 or 7 spines on posterior and distal margin, increasing in length distally; distal endite with 7 stout spines on mesial margin and several shorter scattered blunt marginal and submarginal spines; palp bifurcate, with elongate spine on proximal branch, and terminal setae on distal branch.

Maxilla 2, 2 proximal endites low, rounded, bearing few setae; distal endite strap-shaped, with 2 elongate and 3 shorter distal setae; palp with single distal seta; scaphognathite short, broad, not overreaching palp.

Maxilliped 1, endites rounded, setose; palp slender, with single terminal seta; exopod crescent-shaped, distally overlapping palp; epipod broadly bilobed.

Maxilliped 2 pediform, distal segment bearing 4 spines and several setae; exopod slender, reaching to midlength of antepenultimate segment; epipod broadly bilobed.

Maxilliped 3 slender, 5-segmented, reaching anteriorly to base of antennal flagellum, distal segment bearing 7 distinct clumps of serrate spines, plus several serrate spines and setae subterminally; exopod reaching almost to distal margin of penultimate segment.

Pereopod 1 reaching to base of antennal flagellum; fingers relatively slender, slightly less than half length of palm, distally curved, dactyl with row of 6 very short curved spines and several setae on flexor margin; fixed finger with short closely applied spine near base of unguis, flexor margin faintly serrate; carpus very short, recessed into distal meral hollow; ischiomerus with longitudinal carina; exopod reaching to midlength of propodal palm.

Pereopod 2 subequal in length, but more slender than pereopod 1; fingers somewhat more than half length of palm, both cutting edges bearing row of spines; dactyl overreaching tip of fixed finger; carpus about one-third length of propodal palm, slightly longer than wide; ischiomerus with single stout articulated spine at distal three-fourths; exopod reaching to proximal propodus.

Pereopods 3–5 decreasing in length posteriorly.

Pereopod 3 longest leg, overreaching antennal peduncle by length of propodus plus chela; dactylus subequal to propodus in length, with row of spines along proximal three-fourths; propodus with several distal spines, one almost as long as dactylus, with fringing on proximal half, seeming to form chela with dactylus; carpus one-third length of propodus, widening distally, with single spine on posterodistal angle, stout articulated spine on mesial surface; merus narrowing distally,  $1\frac{1}{2}$  times longer than propodus, with 3 stout spines on flexor margin; ischium about half length of merus, with single stout spine on flexor margin; basis with spinose process on mesial surface; elongate coxal spine reaching to distal edge of basis; exopod reaching to proximal fourth of merus.

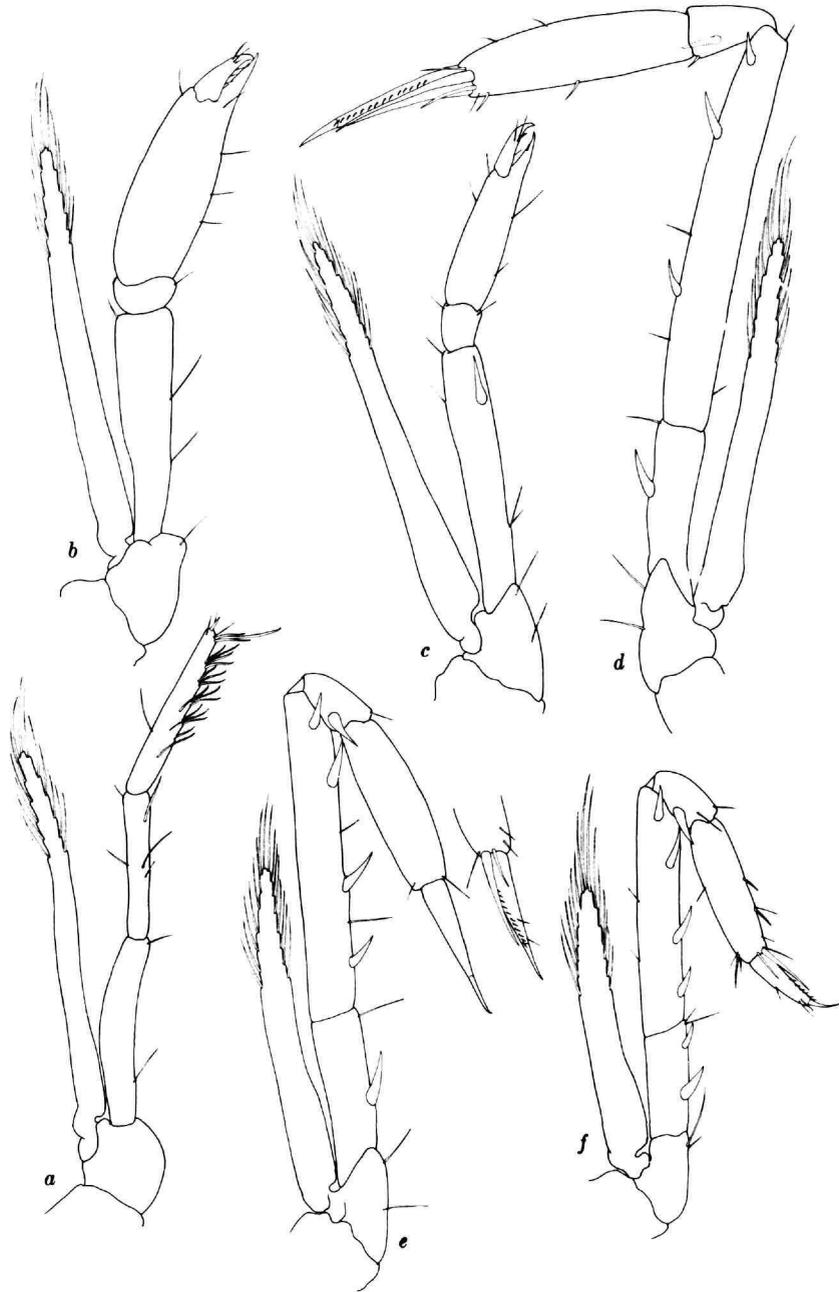


FIGURE 22.—*Pseudocheles chacei*, juvenile specimen: *a*, maxilliped 3; *b*, pereopod 1; *c*, pereopod 2; *d*, pereopod 3; *e*, pereopod 4; *f*, pereopod 5.

Pereopod 4 overreaching antennal peduncle by chela and distal fourth of propodus; dactylus slightly longer than propodus, with row of spines along proximal three-fourths of cutting edge, slightly longer than fringed propodal spine, forming apparent chela; 2 shorter fringed spines on distal propodal margin; carpus two-fifths length of propodus, with stout spine on mesial surface; merus almost twice length of propodus, with 4 stout spines on flexor margin; ischium four-ninths length of merus, with single stout spine; basis and coxa each with styliform spinose process; exopod reaching to proximal fourth of merus.

Pereopod 5 reaching midlength of third antennal peduncle segment; dactylus subequal to propodus in length, with row of spines along proximal two-thirds; distal propodal spine forming chela slightly shorter than dactylus, fringed for half length; carpus half length of propodus, with stout spine on mesial surface; merus  $1\frac{3}{4}$  length of propodus, with 4 stout spines on flexor margin; ischium two-fifths length of merus, with 2 stout marginal spines; basis with spiniform process; exopod reaching almost to midlength of merus.

Pleopod 1 ♂, endopod distally narrowed, about 3 times longer than wide, with 7 elongate setae in distal half.

Pleopod 2 ♂, appendix interna two-thirds length of appendix masculina, with 7 distal coupling hooks; appendix masculina with 7 distal spines of varying lengths.

Uropod, rami subequal in length, just reaching triangular endpiece of telson; outer ramus wider than inner, with movable spine mesial to distolateral tooth.

Eggs oval,  $0.5 \times 0.3$  mm.

**SUPPLEMENTARY DESCRIPTION** (immature).—Juveniles agree well with adults, except for the following differences: rostrum relatively more elongate than in adult, reaching to base of third antennular peduncle segment. In 4 of the juvenile specimens, a postrostral spine can just be detected. In the larger juveniles (CL 1.1–1.3 mm) and in the adults, there is no trace of this spine. Abdominal segment 5 about one-third length of segment 6.

Mandible with palp of single short segment, bearing single terminal seta; incisor with fewer weakly developed teeth than in adult. Maxilla 1, spines on distal endite short, nonsclerotized, setae on proximal endite short, spines not developed. Maxilliped 1 less setose than in adult, nonsetose distal portion of exopod longer (perhaps indicating whip). Pleopod 1 of ♂, endopod oval, with only 4 distal setae. Pleopod 2 of ♂, appendix masculina shorter than appendix interna, nonsetose. Pereopods 1–5 proportionally shorter than in adult. Pereopod 1, dactylus lacking spines on cutting edge, fingers about one-third length of propodal palm. Pereopod 2, fingers lacking spines on cutting edges. Pereopods 3–5, propodal spine forming chela much shorter than in adult; dactylus with fewer spines.

**COLOR NOTES.**—Animal almost completely transparent, except for gut, when alive. Single red chromatophores present at following positions: on ventral eyestalk; dorsum of proventriculus, on propodus, carpus, and ischiomerus of pereopod 1; on carpus and ischiomerus of pereopod 2; on coxae of pereopods 1–5; on outer base of pleopods 1–5; on sternum of abdominal segments 1–5.

**REMARKS.**—The genus *Pseudocheles* was described in 1978, based on three female specimens from Lizard Island, Great Barrier Reef, Australia (Chace and Brown, 1978). The present species is the second in the genus to be recorded and differs from the type-species in very few easily detected features: (1) The antennal spine overlaps the suborbital lobe in *P. enigma* but is minute and submarginal in *P. chacei*. (2) The large tooth on abdominal pleuron 5 seen in *P. chacei* is absent in *P. enigma*. (3) The exopod of maxilliped 1 is proportionally much broader in the Australian species.

In addition to these features, there are several subtle differences in setation and spination, which may be discerned by direct comparison of the figures of the two species.

Overall, the two species are remarkably similar in structure, given the enormous distance between the Great Barrier Reef and the Caribbean Sea. Once the microhabitats of these animals is known

(and for which the pseudochelate condition is undoubtedly an adaptation) one could predict that species may be found between the two present known localities.

ETYMOLOGY.—The species is named for Fenner

A. Chace, Jr., of the Smithsonian Institution, who first recognized the unusual generic features of *Pseudocheles*, who has made an invaluable contribution to carcinology, and who has been my most valued and encouraging mentor and colleague.

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