Pycnogonida found on fouling panels from the East and West coast of America

by

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Introduction. — Throug the courtesy of Dr. James A. Bruce, Marine Biologist of the U.S. Naval Oceanographic Office, Washington, D.C., the author received a small collection of Pycnogonida, mostly from fouling panels of wood and asbestos shetting. These panels were either submerged beside piers or in bays, or on steel frames resting on the bottom, sometimes anchored in deeper waters.

The present paper deals with a number of species found in the Pacific, on the coasts of Chile and Ecuador (almost *terra incognita* as far as Pycnogonida are concerned), and furthermore in the western Atlantic (Puerto Rico, Bahamas, and Maine).

No new species are represented, but the range of several species is extended, a new synonymy is proposed, and the hitherto unknown male sex of one species is described.

The material treated in this paper has been, by kind permission of Dr. Bruce, deposited in the Zoölogisch Museum, Amsterdam.

The following species are present:
Achelia besnardi Sawaya, 1951, from the Bahamas (range extension).
Achelia sp. (a juvenile, from Chile).
Tanystylum intermedium Cole, 1904 (from Chile; is new to the coast of South America; synonymized with *T. intermedioides* Hedgpeth, 1961).
Tanystylum i. isthmiacum Stock, 1955 (from Ecuador; range extension, first record of the male).
Phoxichilidium femoratum (Rathke, 1799), from Maine, U.S.A.
Anoplodactylus erectus Cole, 1904, from Chile (range extension).
Endeis mollis (Carpenter, 1904), from Puerto Rico.

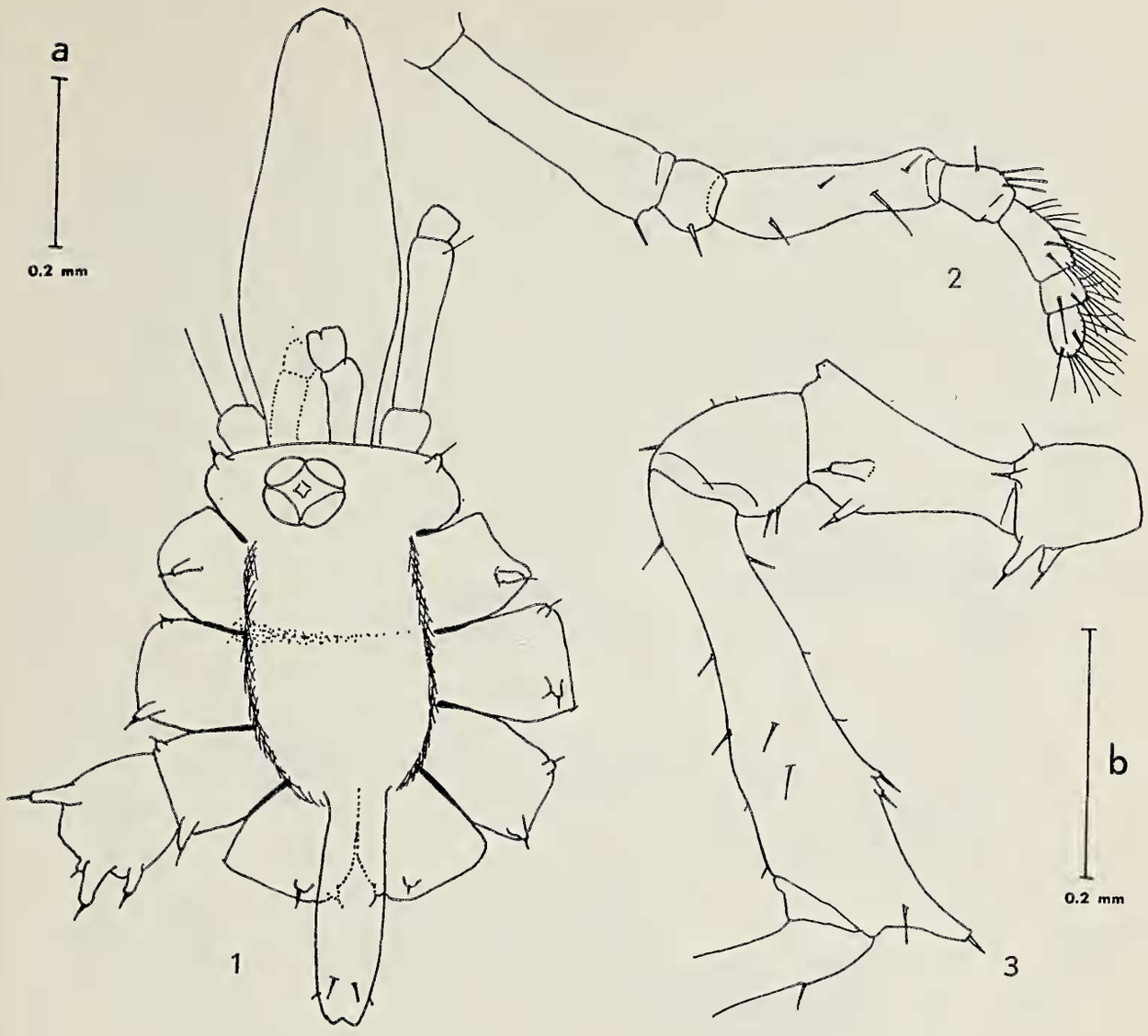
Achelia besnardi Sawaya, 1951 (figs. 1-9)

A. besnardi Sawaya, 1951: 271-274, pls. I-II.
A. sawayai Marcus, 1940 forma *besnardi*. - Stock, 1955: 246-247.
A. (Pigrolavatus) besnardi. - Fry & Hedgpeth, 1969: 105, figs. 152, 153, 155.

Material. - 1 ♂, 1 ♀. Bahamas, 23°40′ N 77° W; NSRLD Array, from fouiing panels or anchor chain (panels set at 50 and 100 ft., anchored in water of 4200 ft.); April 1971.

Remarks. - As I noted before, this appears to be a slenderer form of *Achelia sawayai* Marcus, 1940. In general, Sawaya's figures of this species (or form) are very satisfactory, although I have never observed specimens with the lateral processes so clearly separated as in his type-specimen. The palp (fig. 2) has a richer setal armature than indicated in Sawaya's figure. The male oviger (fig. 6) has a reversed spiniform process near the base of segment 7. Segment 8 bears 1 compound spine, segments 9 and 10 each 2 such spines; the compound spines have 2 or 3 lateral teeth. The female oviger (fig. 4) is of the usual shape; compound spines occur on segments 7 to 10, 2 spines on each segment. The trunk of the female is only slightly less spinose than that of the male. The legs of the female bear, however, less frequent and lower spiniferous tubercles on coxae 1 and 2 than in male.

I am unaware on which basis Fry & Hedgpeth (1969: 102) record this species from the former Belgian Congo (perhaps Fage's record of *A. sawayai* from that locality was confused with *A. besnardi* ?), nor is it clear to me why these authors record *A. besnardi* (in a distribution map, fig. 155) from as far South as 45° S on the coast of Argentine. Unless they used unpublished records, the southermost locality published



Figs. 1—3. *Achelia besnardi* Sawaya, 1951, ♂.
1, trunk, dorsal (scale a); 2, palp (b); 3. proximal part of 3rd leg (a).

for *A. besnardi* is from 22° S on the Brazilean coast. Other records are from the Virgin Islands (Stock, 1955) and the Bahamas (present paper). So, I am inclined to consider this species a member of the (tropical) Central American group (although one member of that group, *A. sawayai,* is also known from Zaire and the Malagasy Republic), instead of a member of the southern South American group with which Fry & Hedgpeth classify this form.

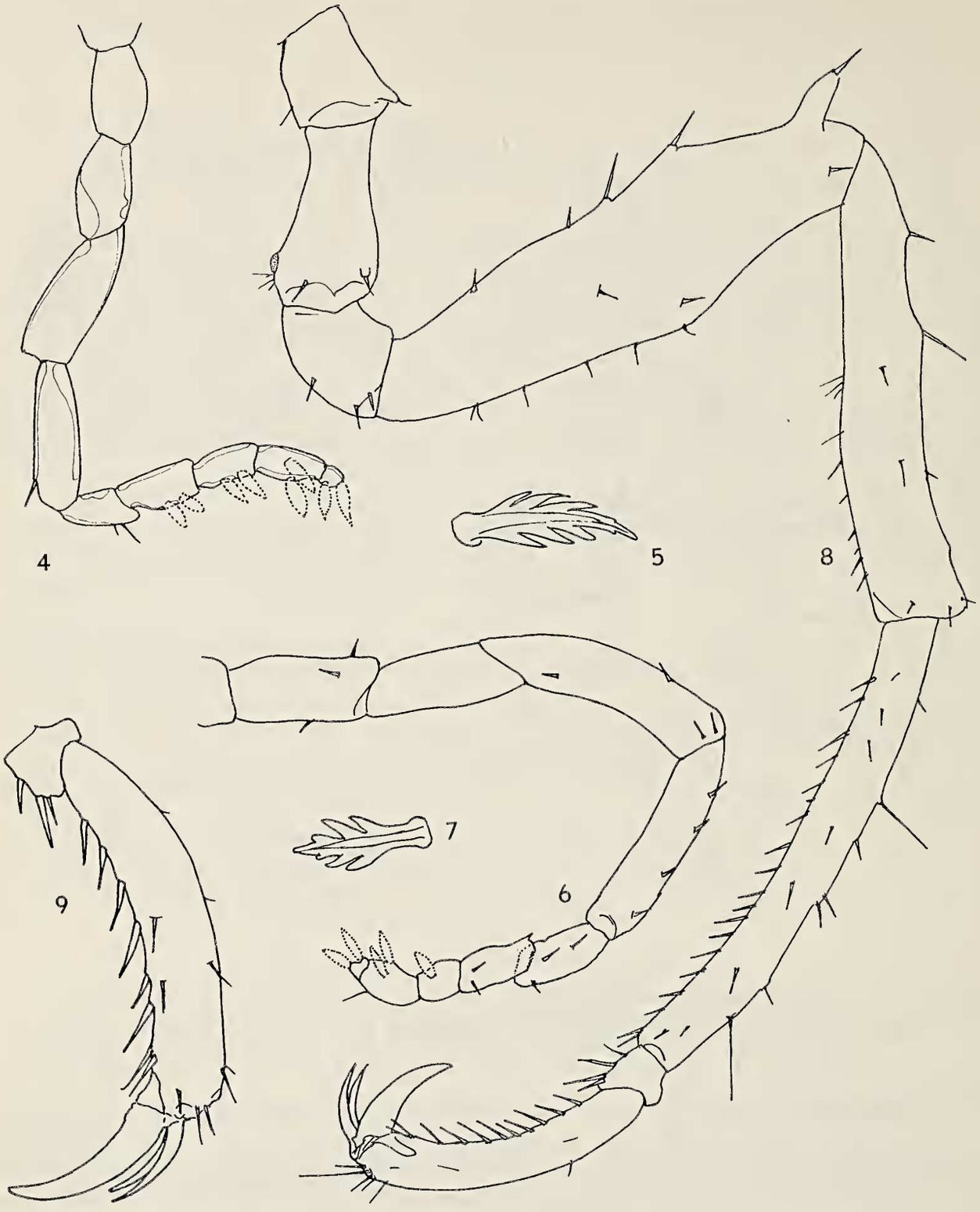
Achelia sp.

Material. - 1 juv. Punta Arenas, Chile (panel 1139); depth 15-20 ft.; salinity 30.6 ‰; 28.VIII.1970.

Tanystylum intermedium Cole, 1904 (figs. 10-15).

T. intermedium Cole, 1904: 278-280, pl. XXI figs. 7-9, pl. XXII figs. 1-7, pl. XXIII figs. 1-3; Hall, 1913: 131; Hilton, 1915a: 68; Hilton, 1915b: 204; Hilton, 1920: 93; Hilton, 1939a: 32; Hilton, 1939b: 72 Hedgpeth, 1941: 255, pl. 11; Hilton, 1942: 69.
T. intermedioides Hedgpeth, 1961: 14-16, fig. 10.

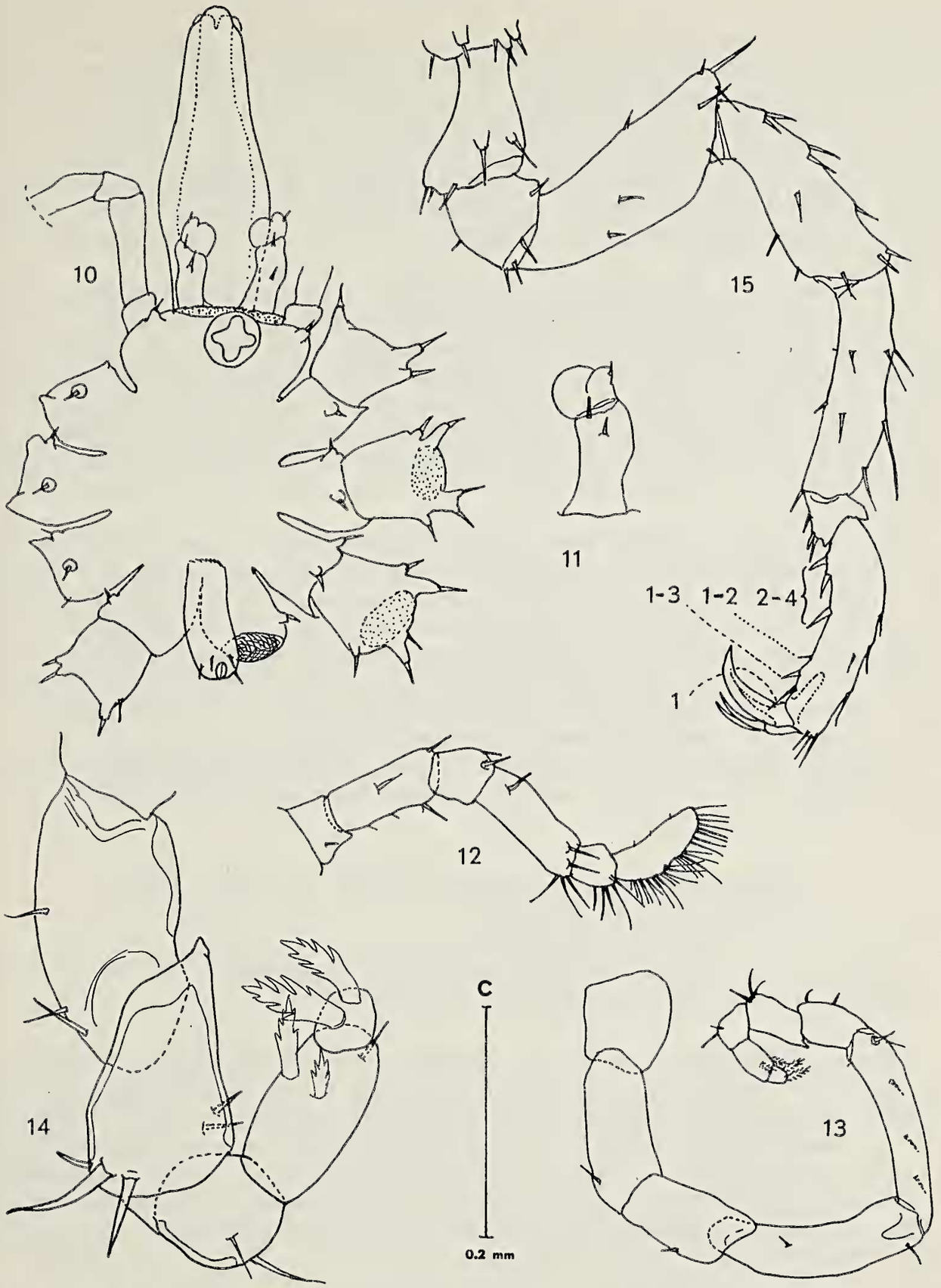
Material. - 1 ♂ ovig. Antofagasta, Chile (panel 1129), 23°40′ S 70°23′ W; from



Figs. 4—9. *Achelia besnardi* Sawaya, 1951.
4, oviger, ♀ (scale b); 5, compound spine from oviger segment 9, ♀ (free-hand sketch); 6, oviger, ♂ (b); 7, terminal compound spine from oviger segment 10, ♂ (free-hand sketch); 8, leg 3, ♀ (a); 9, distal segments of leg 3, ♂ (b).

panels suspended from piers in harbours and bays; depth 15-20 ft.; temp. 18.8° C; salinity 34.9 ‰; 28.VIII.1970.

Remarks. - The present specimen has been collected near the type-locality of *Tanystylum intermedioides* Hedgpeth, 1961, which was found in very shallow water (0-0.5 m) at 23°06′30″ S 70°28′ W. In its morphology, the present specimen bridges almost completely the gap between *T. intermedium,* a species from southern and central California, and its "southern hemisphere counterpart" (Hedgpeth, 1961: 16) *T. intermedioides.*



Figs. 10—15. *Tanystylum intermedium* Cole, 1904, ♂.
10, trunk, dorsal (scale a); 11, chelifore, drawn *in situ* (c) 12, palp (b); 13, oviger (b); 14, distal oviger segments (c); 15, fourth leg, the figures in the propodus indicate the range of variability in propodal armature (a).

So, the palp is 6-segmented (the long terminal segment is not subdivided) as in *intermedioides* [1]), and not 7-segmented (terminal segment subdivided into 2 subequal

[1]) Hedgpeth (1961: 14) attributes only 5 segments to the palp, but apparently overlooked the small basal segment; his figure 10 b of the palp of *intermedium* is not correct since the short 3rd segment is omitted.

articles) as in *intermedium*. The oviger, on the contrary, is like that of typical *intermedium:* the 9th and 10th segments each bear 2 compound, leaf-like spines. It must be noted, that Hedgpeth's description of the oviger of *intermedioides* is partially incorrect, in that it locates the "backward projecting spine or spur at the base of the sixth joint", whereas in reality it is on the 7th segment. Furthermore, the distal portion of the oviger of the specimen of *intermedioides* figured in Hedgpeth's paper appears to be mutilated (the homologon of segment 9 appears to be broken into 2 parts, considered autonomous articles by Hedgpeth, one of the distal spines appears to be lacking).

It is supposed that the number of palp segments is variable in this species, as it is in several other Ammotheidae (*Trygaeus communis, Tanystylum orbiculare* . . . .), which may explain the presence or absence of a suture in the distal palp segment. The shape of the oviger spines, used by Hedgpeth as discriminating feature, may show differently when these delicate structures are studied under different angles. It is interesting to note that Hedgpeth attributes simple (= non-denticulated) terminal oviger spines to *intermedioides,* and leaf-like (denticulated) spines to *intermedium,* whereas Cole (1904: 279) considers the oviger spines of the latter species "short, slender, simple".

The present material differs from both Cole's and Hedgpeth's description in having irregularly implanted spines of unequal size on the propodal sole, instead of a "regular row of about 10 short spines" (Cole) or a "row of fine evenly spaced spines" (Hedgpeth). The various legs of the present specimen show considerable mutual differences in the armature of the propodal sole, although the pattern of the armature is rather constant. From proximal to distal (fig. 15) one finds a group of stronger spines (2 to 4 in number), then a group of fine spinules (1 to 2 in number), then a group of stronger spines again (1 to 3), and finally a setiform element at the base of the claw.

Taking all this together, I have decided to lump all these slightly different "forms" into one species, for which the name *Tanystylum intermedium* Cole, 1904 should be used.

Tanystylum isthmiacum isthmiacum Stock, 1955 (figs. 16-21).

T. isthmiacum Stock, 1955: 247-249, fig. 17.

T. i. isthmiacum. - Stock, 1966: 390, fig. 2 i-j.

Material. - 1 ♂. Salinas, Ecuador (panel 1101); depth probably 15-20 ft.; panel suspended on a line attached to the pier; 12.XI.1969.

Remarks. - *Tanystylum i. isthmiacum* was only known from a single female, found on the Pacific coast of Panamá. The present male shows all the essentials of the species, although the intersegmental fold between trunk segments 1 and 2 is absent in this specimen. The male oviger is of some importance, since it shows that *isthmiacum* belongs to the group of species in which the 7th oviger segment is expanded laterodistally. By this feature, *isthmiacum* resembles species like *T. oculospinum* Hilton, 1942 (see Child & Hedgpeth, 1971), *T. tubirostrum* Stock, 1954, and *T. hummelincki* Stock, 1954.

Phoxichilidium femoratum (Rathke, 1799)

Refs.: see Hedgpeth, 1948: 216.

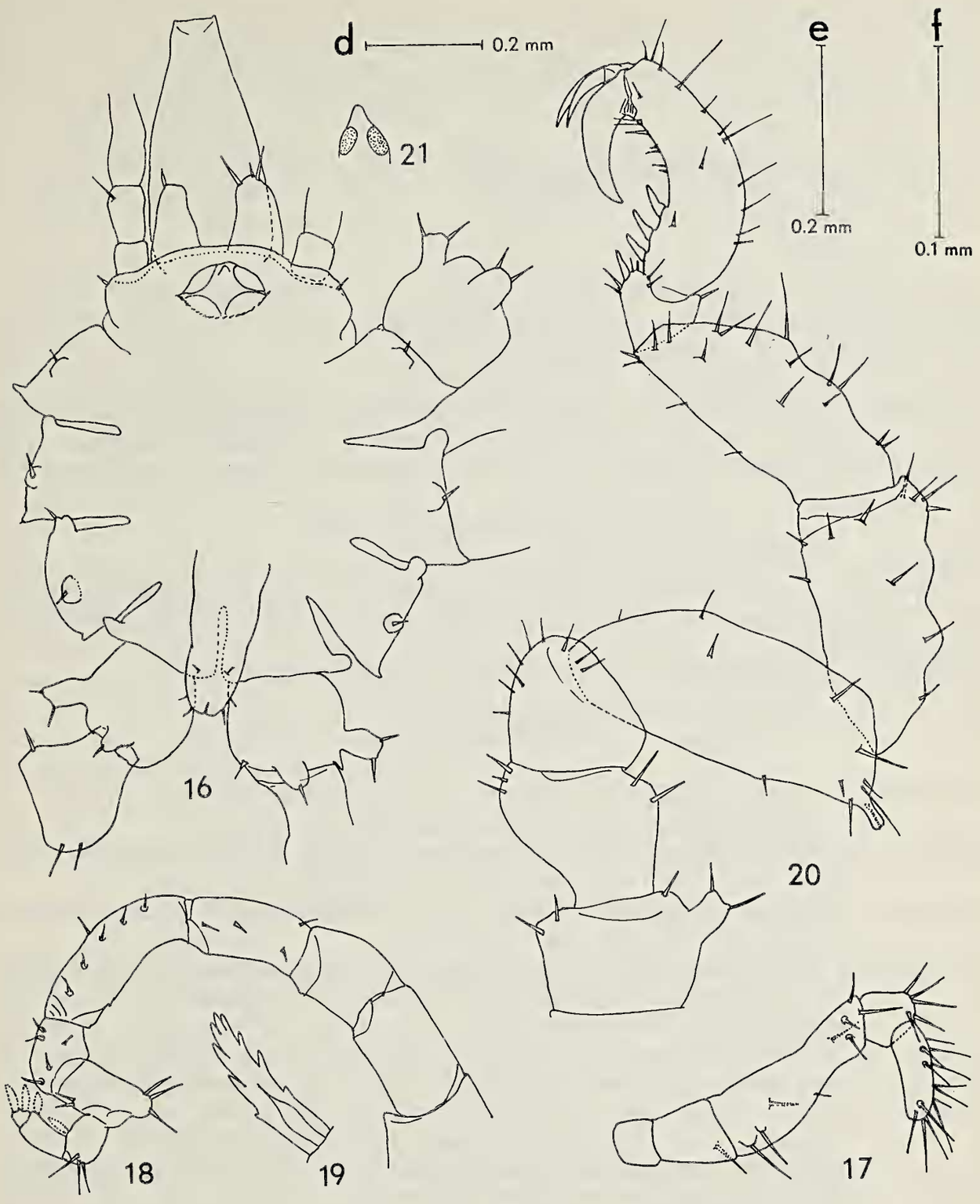
Material. - 9 specimens. Searsport, Maine, U.S.A. (panel S-6); depth 18 ft.; temperature 9° C; salinity 26.0 ‰; 6.XI.1962.

Remark. - A common species on both sides of the northern Atlantic.

Anoplodactylus erectus Cole, 1904 (figs. 22—23)

A. erectus. - Stock, 1955: 239—243, figs. 13—14 (refs.); Child, 1970: 288—289.

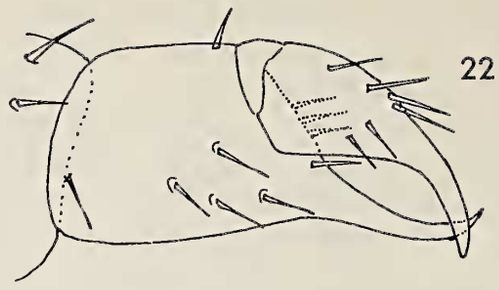
Material. - 2 ♀. Valparaiso, Chile (panels 1132 and 1134); depth 15—20 ft.; temperature 12° C; salinity 35.0 ‰; 28.VIII.1970.



Figs. 16—21. *Tanystylum i. isthmiacum* Stock, 1955, ♂.
16, trunk, dorsal (scale d); 17, palp (e); 18, oviger, under cover glass pressure (d); 19, terminal compound spine of oviger segment 10 (f); 20, leg 3 (d); 21, ocular tubercle from the left (free-hand sketch).

1 ♂. Punta Arenas, Chile (panel 1139); depth 15—20 ft.; salinity 30.6 ‰; 28.VIII.1970.

Remarks. - Te chela (fig. 22) has a slightly more pronounced "spiny cushion" at the base of the movable finger, and the propodus (fig. 23) is slightly less slender than in North American material, but otherwise the northern and southern hemisphere specimens are very similar. The similarities concern the tuberculation of the crurigers, the structure of the oviger, the shape of the cement gland, the male sexual spurs, the presence of a short propodal lamina, etc.



Figs. 22—23. *Anoplodactylus erectus* Cole, 1904, ♂.
22, chela (scale b); 23, distal leg segments (a).

Previously recorded from the Pacific coast of North and Central America, from Panamá to British Colombia, from Hawaii, and from the Tuamotu Archipelago. The present records extend the range of the species to the Pacific coast of South America.

Endeis mollis (Carpenter, 1904)

E. mollis. - Bourdillon, 1954 : 4 (refs.).

Material. - 1 ♂. Vieques Sound, Puerto Rico (panel 1155); depth of panels 50—100 ft., but material might have come from anchor chain from deeper waters; temperature 26° C; 8.III.1970.

Remark. - A circum-tropical species from relatively shallow waters.

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POLYGONIA C-ALBUM L. IN WEST-NEDERLAND (LEP., NYMPHALIDAE). De bloeitijd van deze fraaie dagvlinder ligt al ongeveer 30 jaar achter ons. Waarnemingen in het westen van het land zijn weer schaars geworden. Vermeldenswaard zijn daarom de volgende: op 4 en 9 augustus 1974 telkens één exemplaar te Ouddorp (W. Grinwis), op 30 juli 1974 één op bloeiende Buddleia te Haamstede (J. P. C. Boot). — Lpk.

MERKWAARDIGE VOEDSELPLANT VOOR CUCULLIA VERBASCI L. (LEP., NOCTUIDAE). In de zomer van 1972 vond ik te Eijs (L.) bij het zoeken naar bladmijnen op *Inula conyza* DC. (Donderkruid) tot mijn verrassing op deze planten een groot aantal rupsen van diverse grootte van *Cucullia verbasci* L. Thuis kweekte ik ze verder met *Verbascum thapsus* L. (Koningskaars) uit de tuin.

De rupsen groeiden gestaag, maar toen mijn Koningskaars vrijwel opgegeten was, wilde ik ze weer verder kweken met *Inula*. Nu moest ik echter tot mijn teleurstelling vaststellen, dat deze plant niet meer gegeten werd, zelfs niet toen enkele dagen geen ander voedsel meer gegeven werd. De kweek leverde dan ook slechts drie vlinders op! Zou het vaker gebeuren, dat vlinders eieren leggen op een verkeerde plant?

G. R. Langohr, Pleistraat 20, Simpelveld.

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