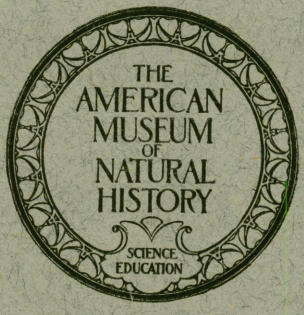
A Second Supplement to the American Land and Fresh-Water Isopod Crustacea

By Willard G. Van Name



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Article VIII.—A SECOND SUPPLEMENT TO THE AMERICAN LAND AND FRESH-WATER ISOPOD CRUSTACEA

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Figures 1 to 34

This second Supplement to "The American Land and Fresh-Water Isopod Crustacea"[1] is intended to cover additional species and the more important new information about previously included species that has been published since the first Supplement[2] to that work came out in 1940.

Advantage has been taken of the opportunity afforded by this article to describe several new species that have been recently received by The American Museum of Natural History. These are as follows:

Protrichoniscus bridgesi, new species
Porcellio gertschi, new species
Sphaeroniscus bonitanus, new species
Cubaris venezuelae, new species

As in the case of the first Supplement, this article is divided into three parts.

I.—Descriptions of species, new or lately described, or for other reasons not previously covered.

II.—Additional notes and references, corrections, etc., applying to other species.

III.—Additions to the bibliography, including several references previously omitted.

Besides the four species new to science listed above, the present Supplement adds the following species to the lists of American land and fresh-water forms given in the original work of 1936 and the first Supplement to it:

Ligidium lapetum Mulaik, 1942
Ligidium mucronatum Mulaik, 1942
Trichoniscus humus Mulaik, 1942
Patagoniscus araucanicus Verhoeff, 1939
Patagoniscus iheringi Verhoeff, 1939
Patagoniscus nordenskiöldi Verhoeff (see Verhoeff, 1939)
Patagoniscus pallidus Verhoeff (see Verhoeff, 1939)
Patagoniscus schwabei Verhoeff, 1939
Patagoniscus simrothi Verhoeff, 1939
Philoscia argentina Giambiagi, 1939
Philoscia (Araucoscia) chilenica (Verhoeff), 1939
Porcellio argentinus Giambiagi, 1939
Porcellio daguerrii Giambiagi, 1939
Porcellio quadrifrons Giambiagi, 1939
Porcellionides schwencki Moreira, 1927
Cubaris apachea Mulaik, 1942
Cubaris arizonica Mulaik, 1942
Cubaris chamberlini Mulaik, 1942
Cubaris tanneri Mulaik, 1942
Asellus militaris O. P. Hay, 1878
Caecidotea acuticarpa Mackin and Hubricht, 1940
Caecidotea adenta (Mackin and Hubricht), 1940
Caecidotea dimorpha Mackin and Hubricht, 1940
Caecidotea hobbsi (Maloney), 1939
Caecidotea oculata Mackin and Hubricht, 1940
Caecidotea packardi Mackin and Hubricht, 1940
Caecidotea spatulata Mackin and Hubricht, 1940
Caecidotea stiladactyla Mackin and Hubricht, 1940
Janiropsis exsul (Fritz Müller), 1892

An article of this kind must necessarily be largely a compilation, and I wish to express my realization of the extent to which its contents are the work of others and my obligations and thanks to those whose works have supplied reading matter and illustrations, or both. Credit is given more particularly in the notes, in the captions to the figures and in the references in the text. I also wish to express my obligation to those who have sent specimens for examination.

The available information about many of the species is very limited, and the number of species dealt with has made it necessary to omit lengthy quotations from descriptions given by other authors, but it is hoped that the numerous reproductions of their illustrations will make amends for this to a considerable extent.

[1] Van Name, 1936, Bull. Amer. Mus. Nat. Hist., LXXI, pp. i–vii, 1–535, Figs. 1–323.
[2] Van Name, 1940, Bull. Amer. Mus. Nat. Hist., LXXVII, pp. 109–142, Figs. 1–32.

PART I.—DESCRIPTIONS OF SPECIES, NEW OR LATELY DESCRIBED, OR FOR OTHER REASONS NOT PREVIOUSLY COVERED

SUBORDER ONISCOIDEA, LAND ISOPODS

Ligiidae

Ligidium lapetum Mulaik, 1942

Figure 1

Ligidium lapetum MULAIK, 1942, p. 4, Pl. v, figs. 61–66.

Length of male 6.3 mm., width 2.4 mm.; length of female 9.1 mm., width 3.5 mm. Head width three and one-half times the length. "Eyes small, upper edge extends but little higher than the upper edge of the antennal socket. Viewed dorsally, the eyes are contained in the head transversely to the mid-line about four times; the eye interspace is eighty per cent of the head width. The ends of the dorsal groove are removed from the eyes by about their dorso-ventral diameter. The rear margin of the eye is concave.

"The inner plate of the first pair of pleopods in the male is slightly produced at the tip and provided with several long apical bristles. The second endopod of the male is elongated and provided with an oval projection near the tip along the inner edge. The last male pleopod has the posterior corner elongated into a mucronate process directed dorso-caudally."

This species differs from *L. mucronatum* in the much smaller eyes, the very different pleopoda 2 of the male and in the much shorter telson. It differs from *L. gracile* by the placement of the eye nearer the rear margin of the head, in the details of the second male pleopod and in the distribution of the fine filaments of the first exopods.

LOCALITY.—Ten miles east of Hammond, California, at about 3500 feet elevation in the Sierra Nevada Mountains, under well rotted logs. Four specimens, including the type (male).

Ligidium mucronatum Mulaik, 1942

Figure 2

Ligidium mucronatum MULAIK, 1942, p. 3, Pl. IV, figs. 53–66, Pl. v, figs. 57–60.

The figures here reproduced from Mulaik's article show the general features of the head and body of this species, and make quotation of much of the description unnecessary. "The body surface is smooth. The head width is two and a half times the length; the frontal margin is very little sinuate. Viewed from above or in front the eye patch forms a continuous outline with the head. The transverse groove is deep and short, not reaching the eye by one-third the longer diameter of the latter. The frontal groove is very weakly defined and extends but a short distance from the dorsal edge of the eyes. The eyes are fairly large, composed of about eighty ocelli. The eye interspace is sixty per cent of the head width." Length of male 7.2 mm., of female 6 mm.

"The second pleopod of the male is abruptly constricted into an elongate mucronate tip."

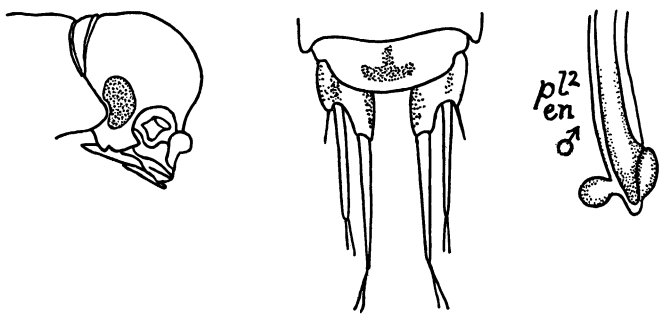

Fig. 1. *Ligidium lapetum* Mulaik, 1942. After Mulaik.

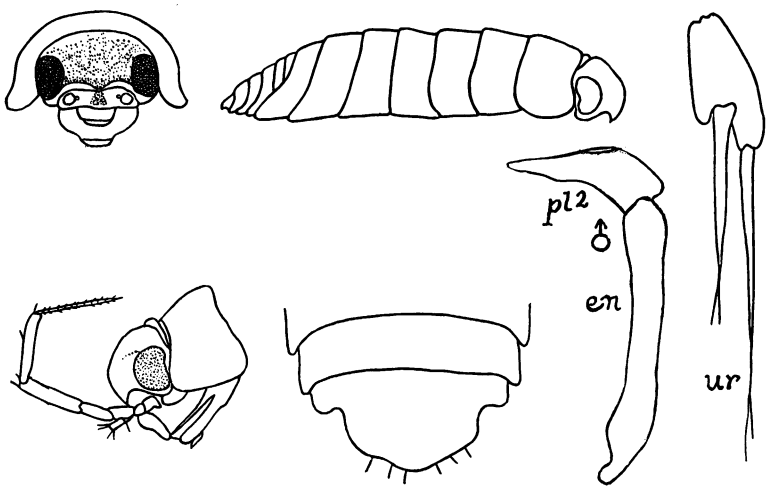

Fig. 2. *Ligidium mucronatum* Mulaik, 1942. After Mulaik.

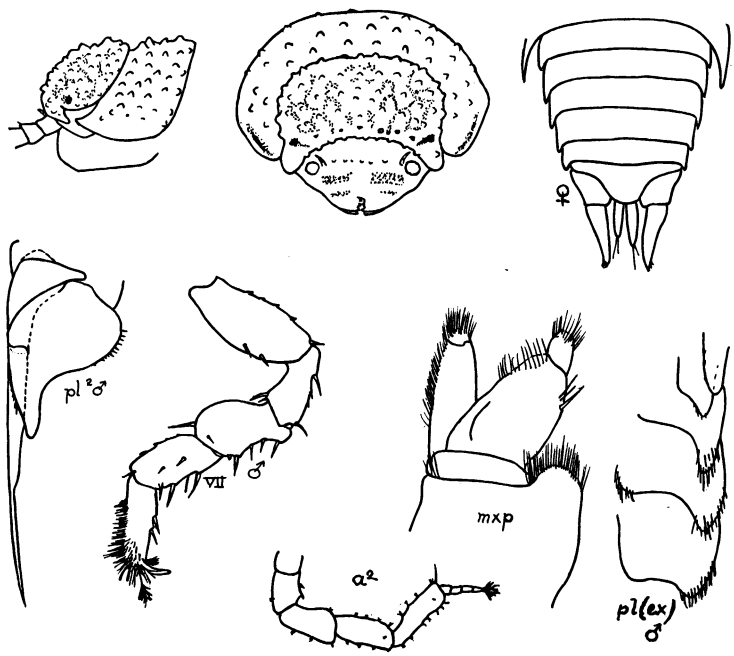

Fig. 3. *Trichoniscus humus* Mulaik, 1942. After Mulaik.

"The ground color is brown with numerous pale yellow blotches so distributed as to leave more or less irregular median and lateral longitudinal stripes. Legs are pale yellow with brown blotches. The front of the head is uniformly dark, the top mottled.

"The distinguishing features of this species are numerous. The most obvious are the rear of the telson outline, the mucronate tip of the second male pleopod, the much wider head and small size."

LOCALITIES.—Gonzales, Louisiana, one male (the type) and three females, also females from Roosevelt State Park, Louisiana.

Trichoniscidae

Trichoniscus humus Mulaik, 1942

Figure 3

Trichoniscus humus MULAIK, 1942, p. 5, Pl. IV, figs. 42–52.

Body rather narrow, length of female 4.7 mm., of males 4.2 mm. Numerous acute pointed tubercles are scattered over the head and body. Color pale salmon which fades into pale yellow in alcohol. Abdomen abruptly narrower than the thorax. Eyes small, black, of a single lens. Antennae fairly thick with four articles in the flagellum, at the tip of which is a tuft of fine bristles; the peduncle about one and one-half times the flagellum in length.

Legs provided with numerous stout spines. Their propodus bears a tuft of fine bristles at the extremity, which merge into a comb-like row extending proximally along two-thirds of the length of the dorsal surface of the segment.

"Distinguishable from *T. halophilus* by the details of leg VII, broader male pleopod 2, by the small antennal lobe, and the placement of the inner ramus of the uropods farther from the outer."

LOCALITY.—West of Eunice, Louisiana, in humus beneath well rotted logs. Eight specimens, including the type (male).

This is evidently a member of the subgenus *Miktoniscus* Kesselyak, 1930.

Protrichoniscus bridgesi, new species

Figures 4, 5

Body ovate in a dorsal view, the large and broadly ending epimera spreading out, especially on the anterior segments, so as to increase the width of the body outline.

Upper surface apparently smooth, but with some magnification it is seen to bear thinly scattered minute scabrous scale-like appendages which show a slight tendency to arrangement in transverse rows. They are present on the epimera also. There is a more definite row of small tubercles along and near the rear margin of the segments. Integument very thin and transparent, entirely unpigmented. The largest example (a female) is about 7.2 mm. long, but most of the others are much smaller, usually not over 6 mm. or less.

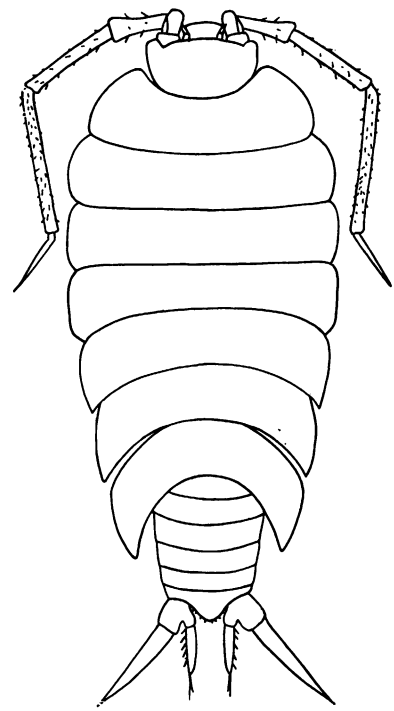

Fig. 4. *Protrichoniscus bridgesi*, new species.

Seen from the side, the rear corners of the epimera of segments I and II are widely rounded off, those of III, and especially IV, more sharply rounded, the more posterior ones practically acute. They are extended backward, beginning almost imperceptibly with segment III, and to a rapidly increasing extent in successive segments. The epimera are so wide, both antero-posteriorly as well as laterally, that those of successive segments overlap considerably in the ordinary condition of tension of the intersegmental muscles.

The head is only moderately wide, the front outline regularly convex in a dorsal view except for the lateral lobes which, though actually of fair size, are bent down so that they appear quite

small when seen from above. Forehead abrupt; the buccal mass extends very prominently forward of it. Eyes wanting. The small first antennae have the terminal joint rather elongate and having its outer aspect entirely covered with a hair-brush-like area of short hairs. Second antennae long (easily capable of reaching alongside segment IV when drawn back) and very slender. They have scattered spines on their surface which are so small and short that they suggest in appearance the thorns on a rose bush. The flagellum is short, much less than half as long as the segment that bears it, and consists of a single narrow smoothly tapering piece which under magnification can be seen to be formed of six coalesced articles. It is tipped with a short spine. The palp of the maxilliped has a small second article which bears the terminal tuft of hairs.

The thoracic legs are unusually long and slender but with rather scanty and weak spination.

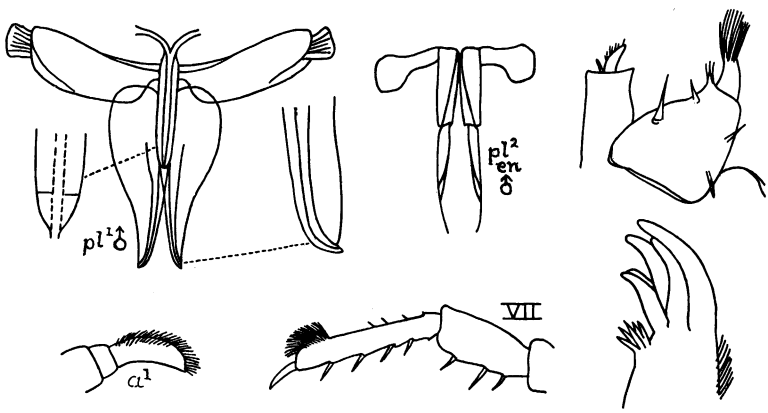

Fig. 5. *Protrichoniscus bridgesi*, new species, details.

The edges of the distal ends of the merus and carpus of the legs where they are free and projecting, owing to the smaller diameter of the next following segment of the leg, are conspicuously and quite regularly dentate with a row of small, not very acute teeth.

The dorsal aspect of the distal end of the propodus of leg VII, which is somewhat compressed laterally, bears a small hair-brush-like hirsute area. It occurs in both sexes. The other legs do not have it. No sexual modifications in the legs were noted.

Abdomen rather small, abruptly narrower than the thorax; the epimera of its segments are insignificantly developed and are appressed to the sides.

The male pleopoda have the same peculiarities on which Arcangeli (1932) founded the genus *Protrichoniscus*, though with minor differences from those of his type species.

The exopodites of pleopod 1 are remarkably large elongate triangular plates, which have the basal end rounded, the median margin rather straight and the lateral margin sinuously curved; they end in a narrow but not acute tip. In their usual posteriorly directed position their median edges partly overlap; their tips reach about two-thirds of the distance to the end of the abdomen. Their upper surface has a longitudinal furrow near the median border; at its distal end this furrow bends outward, ending in a minute notch. The median genital organ is about half as long as the exopodites, rather narrow, parallel-sided, with a short, slightly acuminate end. It is freely movable and does not, in the usual position of the parts, lie between but dorsal to (covered by) the exopodites. The two vasa deferentia unite at the base of the organ into a single duct which opens at its tip.

In spite of considerable search I failed to make out anything definite concerning the endopodites of the first pleopoda. Apparently they are small and very delicate structures covered by the broad basal parts of the exopodites.

The endopodites of the second pleopoda are long styloid organs composed of two segments, the terminal one the longer and very obliquely cut off at the end. The tip is extended into a slender curved needle-like seta about half the length of the segment that bears it. I failed to find any exopodites, as Arcangeli did also in his species of this group. He thought that the expanded lateral ends of the basal segment of the appendage included coalesced exopodites, which may be the correct explanation for their apparent absence.

Telson widely triangulate with incurved sides and a rounded tip, which bears a few short, thick, tooth-like spines on its margin.

LOCALITY.—A cave at Pujal, San Luis Potosi, Mexico, designated as "Cave No. 1" by the collector of the specimens, Mr. W.

Bridges, for whom the species is named. About twenty specimens were secured, but many of them were very young or more or less incomplete or fragmentary, and all were in a very fragile condition. Of those whose sex was determined, at least one-third were males. Type in The American Museum of Natural History (Cat. No. A.M.N.H. 9521).

supposed species of *Trichoniscus* reported from southern South America, and established also a family, Patagoniscidae, to separate the genus from the Trichoniscidae, in an article (his "Isopoden Aufsatz No. 62") which was appearing in Sweden ("in Schweden erscheinenden"). Whether this article had then, or has since, actually appeared in print I do not know. In it he described two species of *Patagoniscus* from Patagonia, *P. nordenskiöldi* and *P. pallidus*.

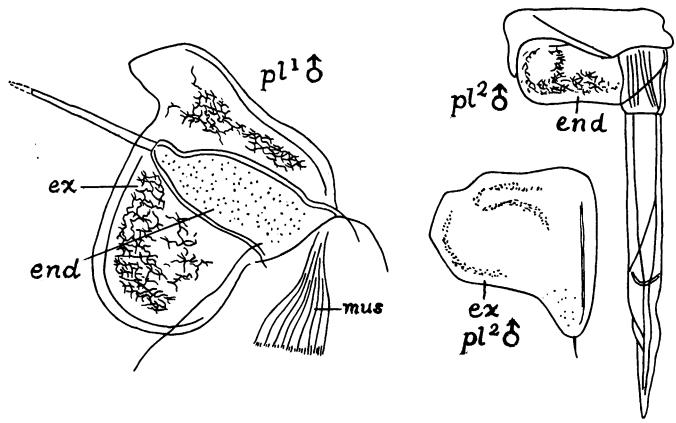

Fig. 6. *Patagoniscus araucanicus* Verhoeff, 1939. Details of male pleopoda. Adapted from Verhoeff.

PATAGONISCUS VERHOEFF, AND SPECIES

Figures 6, 7 and 8

Verhoeff (1939) states that he had already established this genus to receive the

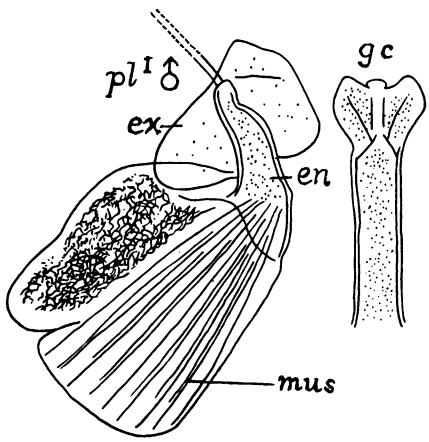

Fig. 7. *Patagoniscus simrothi* Verhoeff, 1939. Details of male pleopod 1 and genital cone. Adapted from Verhoeff.

Verhoeff states that the general appearance of *Patagoniscus* is about the same as that of *Trichoniscus*. The important differences are: the pleopoda 5 in both sexes are reduced to rudiments ("verkümmert"); the protopodite of pleopod 1 of the male is greatly developed and provided with an unusually strong musculature; the genital cone is free and club-shaped and divided by a constriction into two segments. The slender and much produced end of the endopodite of pleopod 2 of the male is contained in a deep furrow on the exopodite of pleopod 4.

He gives the following key to the South American species of *Patagoniscus*, excepting *Trichoniscus magellanicus* Dana (see p. 327 in this article) and *T. murrayi* Dollfus (see Van Name, 1936) which are too imperfectly known to be placed in the key, or their relationships to his new species determined. His 1939 article establishes

the following new species: *P. araucanicus* (also misprinted *araucanius*, for which page priority might be claimed), pp. 306, 309–311, Figs. 5–8; *P. simrothi*, pp. 307, 309, Fig. 4; *P. iheringi*, p. 307; *P. schwabei*, p. 308, Figs. 1–3.

KEY TO SOUTH AMERICAN SPECIES OF *Patagoniscus* VERHOEFF

(A few additional characters given elsewhere by Verhoeff are added.)

1.—Genital cone with a process serrate on each side instead of a median knob. Endopodite of pleopod 1 of male similar to that of *P. araucanicus* (see below). Ischiopodite of leg VII of male with a concavity below. Eyes with three ocelli..... ..... *P. nordenskiöldi* (Patagonia).

2.—Genital cone with median button or knob at the end.....3 and 4.

3.—Body white, only the ocelli of the eyes pigmented. Tip of exopodite of pleopod 1 of male rounded triangular, its endopodite as in *P. iheringi* (see below) but with the end of the basal segment directed outward. Ischiopodite of leg VII of male with straight outline below. Eyes with three ocelli..... *P. pallidus* (Patagonia).

4.—Body richly pigmented.....5 and 6.

5.—End of basal segment of endopodite of pleopod 1 of male with a narrow offset ("abgesetzten") tip.

a. Tip of exopodite of pleopod 1 of male widely rhombic, set off on the outside by a deep notch ("Bucht"). Ischiopodite of leg VII of the male with a straight outline below. Flagellum of antenna with seven or eight articles. Carpopodite of leg I of male with eight spines below; of these the seventh is the longest. A light colored species, 8 to 10 mm. long. One ocellus in eye..... *P. araucanicus* (Puerto Puyuhuapi, Chile).

b. Tip of exopodite of pleopod 1 of male triangular, not set off by a notch. Ischiopodite of leg VII with a straight outline below. Flagellum of antenna with only five articles. Carpopodite of leg I of male with six spines below, the fourth the longest. A dark colored species 3.5 to 5.5 mm. long; eyes with three ocelli..... *P. simrothi* (Calbuco, La Vega, also at San Vicente near Talcahuano, Chile. Common).

6.—No set-off ("abgesetzten") tip on the basal segment of endopodite of pleopod 1.

a. Side parts of the club of the genital cone entirely rounded off. Ischiopodite of leg VII of male slightly incurved below. Mesopodite without distinct incurving. Flagellum of antenna with five articles. Meropodite of leg I of male thickly hairy below and with only one or two spines. Legs and exopodite of pleopod 2 not pigmented; exopodite of pleopod 1 of the male with an incurved margin. Eyes with three ocelli..... *P. iheringi* (Chile).

b. Side parts of club of genital cone rounded-triangular. Ischiopodite of leg VII of male straight below, its meropodite slightly incurved below. Flagellum of antenna with seven articles. Legs and exopodites of pleopoda richly pigmented. Notch on exopodites of first pleopoda of male right-angled. Meropodite of leg I of male not hairy below but with five spines. Telson widely truncated behind. Eyes with one ocellus. Length 6 to 8.5 mm. Back glossy, black with yellowish-gray markings; epimera I to III rounded off; the others angular... *P. schwabei* (Puerto Puyuhuapi, Chile. Common).

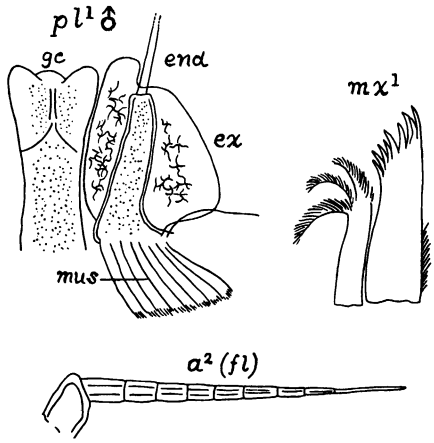

Fig. 8. *Patagoniscus schwabei* Verhoeff, 1939. Details of male pleopod 1 and genital cone, first maxilla and antennal flagellum. Adapted from Verhoeff.

Some further details can be found in Verhoeff's article. He also transfers to his family Patagoniscidae the genera *Claviger-oniscus* and *Cordioniscus* which are treated as subgenera of *Trichoniscus* in Van Name, 1936.

Oniscidae

Philoscia argentina Giambiagi, 1939

Figure 9

Philoscia argentina GIAMBIAGI, 1939, p. 641, Pls. VII, VIII.

Body oval, 11 mm. long by 4 mm. wide; color yellowish green with dark pigment distributed symmetrically in longitudinal bands; the borders of the body are more yellowish and the legs strongly yellow.

Anterior border of head slightly sinuous, posterior border curved, beginning behind the eyes. Eyes dark, developed as usual, concavities in the lateral outlines and an obtuse apex. It has a slight median longitudinal depression on its surface. The insertion of the inner branch of the uropoda is covered and concealed by the telson.

LOCALITIES.—Islands of the Delta of the Paraná (type locality, specimens in the Argentine Museum); also Paranacito, Province of Entre Rios, and Punta Lara, Province of Buenos Aires.

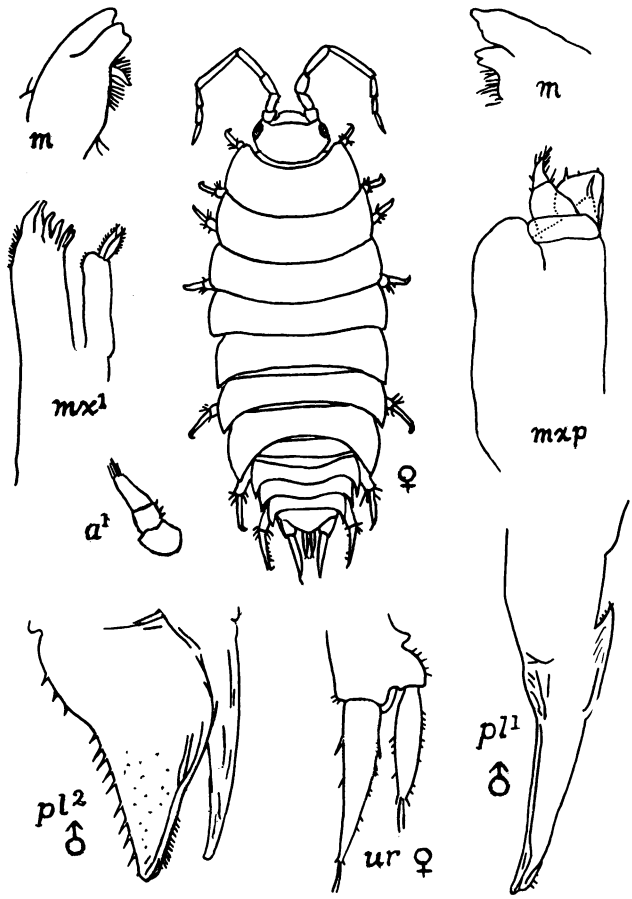

Fig. 9. *Philoscia argentina* Giambiagi, 1939. After Giambiagi.

antennae slender, when extended back they reach beyond the rear edge of the third thoracic segment; flagellum scarcely longer than the fifth segment, its middle article a little shorter than the other two, which are equal.

The abdomen is not abruptly narrowed but continues the oval contour of the body. The telson is short and wide with slight

ARAUCOSIA VERHOEFF, 1939

A group closely allied to *Philoscia* established and given full generic rank by Verhoeff, though perhaps with too little justification. The small thoracic epimera, less extended laterally than usual, appear to be

the most conspicuous character. Others which Verhoeff seems to rate as generic ones are that the first article of the antennal flagellum exceeds in length the second and third together, that a narrow frontal ridge ("Stirnleiste") is present; the thoracic segments I to IV rounded behind, IV to VII increasingly extended backward; the abdominal epimera small and appressed. Nothing unusual ("nichts ungewöhnliches") is shown by the pleopoda, whose exopodites, and also the genital cone, are of simple form and of the *Philoscia* type in the narrow sense of that genus. The type and only species is the following:

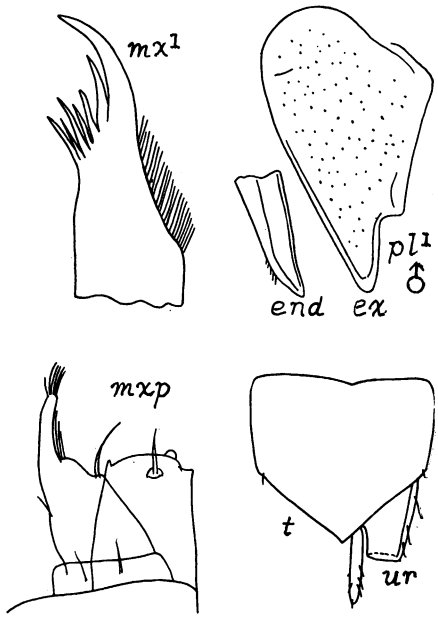

Fig. 10. *Philoscia (Araucoscia) chilenica* Verhoeff, 1939. Details. After Verhoeff.

Philoscia (Araucoscia) chilenica (Verhoeff), 1939

Figure 10

Araucoscia chilenica VERHOEFF, 1939, p. 313, Figs. 9–14.

Based on a single pair, the male 6 mm., the female 7 mm. long. Color brown above with grayish yellow markings. Among the specific characters given are that the eyes have but few ocelli, the flagellum is little

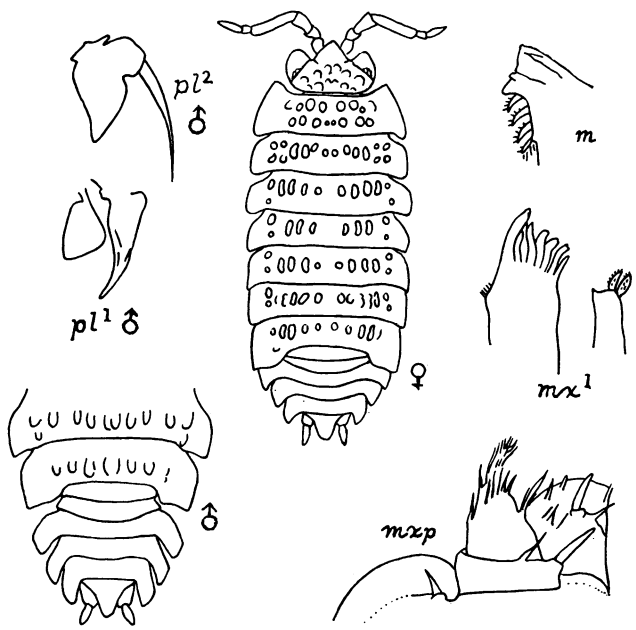

Fig. 11. *Porcellio argentinus* Giambiagi, 1939. After Giambiagi.

longer than the fifth segment of the antenna, the first thoracic legs are similar in both sexes, the seventh legs modified and beset with equally strong spines in both sexes.

LOCALITY.—Calbuco, Chile (S. Lat. 41° 46′ 30″), in the moss of a swamp near the sea.

LOCALITY.—Punta Lara, Province of Buenos Aires. Specimens in the Argentine Museum.

Porcellio daguerrii Giambiagi, 1939

Figure 12

Porcellio daguerrii GIAMBIAGI, 1939, p. 635, Pl. II.

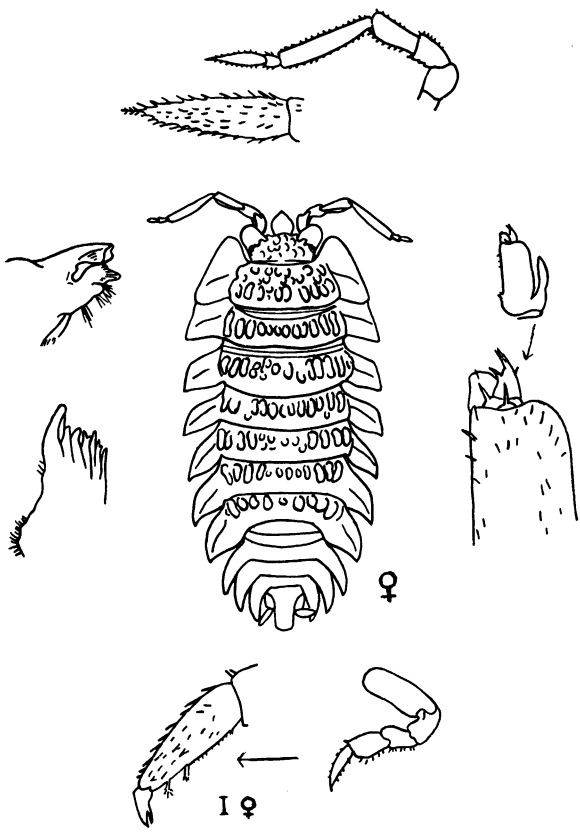

Fig. 12. *Porcellio daguerrii* Giambiagi, 1939. After Giambiagi.

Porcellio argentinus Giambiagi, 1939

Figure 11

Porcellio argentinus GIAMBIAGI, 1939, p. 634, Pl. I.

The illustrations show nearly everything that is contained in Giambiagi's description, so that it is not necessary to quote it. The specimens are greenish yellow in color, with dark markings irregularly distributed on the head and forming two longitudinal stripes on both sides of the body. Length 4 mm.

Body oval, convex, color yellowish with dark pigment distributed in longitudinal stripes. Length 7.5 mm., greatest width (at fourth segment of the thorax) 3.5 mm. Body scarcely capable of rolling up. It is notable for its wide, flattened, laterally extended epimera, which are separated from each other, especially from the third to the seventh segments. The other statements in Giambiagi's description are mostly sufficiently evident from the illustrations.

LOCALITY.—Islands of the Delta of the

Paraná River, Province of Buenos Aires, Argentina. Specimens in the Argentine Museum.

Porcellio gertschi, new species

Figure 13

The two small specimens available, a male slightly over 4 mm. long, and a female somewhat smaller, are in all probability not fully grown and do not afford material for a satisfactory study of the species, though it is apparently new and quite closely allied to *P. pubescens* Dollfus (see p. 326 of this article).

The anterior margin of the head (formed by the frontal line) has a slightly raised border. Just behind this border there is a slight median depression. On the lower or front part of the forehead there are four low tubercles of larger size than elsewhere.

The ground color of the upper surface is a brownish gray, which is variegated with light yellow (unpigmented) markings. On the upper surface of the head the light spots are small, rounded and numerous. The upper part of the epistome, also the three frontal lobes as seen from above, are dark, likewise the segments of the antennae, though with a light band at their distal ends.

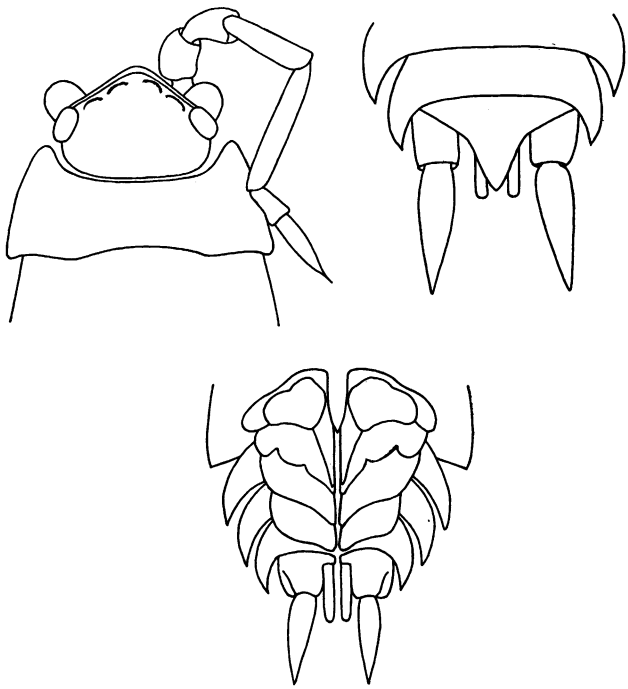

Fig. 13. *Porcellio gertschi*, new species.

It is a slender, more narrow bodied form, and both the median and lateral lobes of the head are proportionately larger and project more prominently; the median lobe is triangular with a very slightly rounded apex; it projects a little farther forward than the large rounded lateral lobes.

The upper surface of the head and body is covered with small, low, rounded, rather inconspicuous tubercles; an area along the rear margin of each segment is smooth.

The body outline as seen from above is narrowly oval; the abdomen, because of its well-developed epimera is not abruptly narrower than the rear end of the thorax.

On the upper surface of the body (especially on the thorax, although the pattern is continued less perfectly on the abdomen also) the light and dark markings are so arranged as to give the body a conspicuously longitudinally striped appearance, with six dark bands and seven lighter ones. The telson is dark but with three small light spots at its basal end.

The eyes are well pigmented, oval in outline and have at least eleven well-developed ocelli. The antennae are short and rather stout; their flagellum has the distal article nearly twice the length of the proximal one.

The thoracic segments have the lateral ends somewhat rounded; the rear borders of segments

I to IV are only very slightly sinuous, the rear corners hardly at all produced backward. In the more posterior segments they are produced backward to an increasing yet very moderate extent even in segments VI and VII.

Sexual modifications in the legs were not demonstrated other than somewhat greater stoutness in the anterior legs of the male. It is, however, possible that were older specimens available, distinct sexual differences might be found.

LOCALITY.—Valles at El Bañito, San Luis Potosi, Mexico, elevation 100 feet (2 specimens, the male, Cat. No. A.M.N.H. 9554, is the type). Collected by H. Hoogstraal, June 26, 1940. "Beaten from plants."

Isopods are not usually obtained by beating plants with an insect net. However, the small size and comparatively bright markings of this species may indicate that its usual habitat is of that kind, although other differences from species living on the ground under fallen leaves, decaying wood or in other shaded places were not observed. I have named this form after Dr. W. J. Gertsch of The American Museum of Natural History.

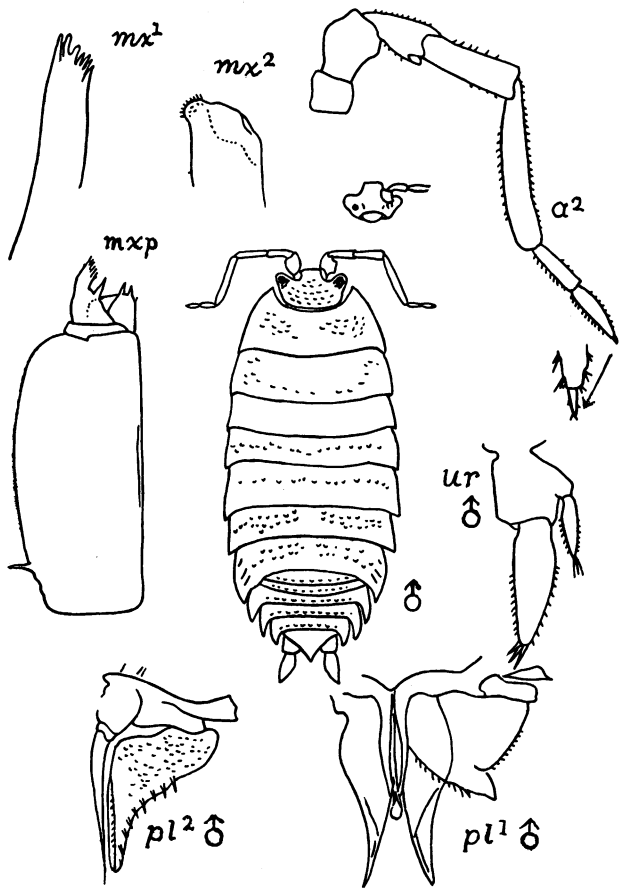

Fig. 14. *Porcellio quadrifrons* Giambiagi, 1939. After Giambiagi.

The abdominal epimera 3, 4 and 5 are quite acute, considerably produced and curved backward, their margins continuing the narrowly oval curve of the body outline.

The telson is large and triangular; its side outlines are not incurved but have an inward bend so that the basal part of the telson forms a much wider triangle than the main or posterior part. The male has the external branch of the uropoda a little longer and slenderer than in the female.

Porcellio quadrifrons Giambiagi, 1939

Figure 14

Porcellio quadrifrons GIAMBIAGI, 1939, p. 637, Pl. III.

A rather smooth species with a slightly indicated tuberculation, in regular transverse rows on the head, but more dispersed on the body. Length 9 mm., width 4 mm. Color brown with a row of dark spots on both sides of the body arranged longitudinally on the segments and their epimera, with yellow pigmentation on the lateral edges.

There is a well-developed median frontal lobe of nearly square outline, concave above; also narrow, rounded, lateral lobes projecting forward and diverging. No vertical ridge on the epistome. Other characters mentioned in the description are mostly sufficiently evident from the illustrations.

LOCALITY.—Quequén, Province of Buenos Aires, Argentina. Specimens in the Argentine Museum.

Porcellionides schwencki (Moreira), 1927

Figure 15

Metoponorthus schwencki MOREIRA, 1927, p. 145, figs. 4–6; MOREIRA, 1932, p. 430, Pl. III; GIAMBIAGI, 1939, p. 638, Pl. V.

This species was listed as a synonym of *P. pruinosus* in my work of 1936. Giambiagi, however, obtained specimens under fallen leaves in her garden at Buenos Aires which undoubtedly belong to Moreira's species from Brazil, and finds them distinct from *pruinosus*.

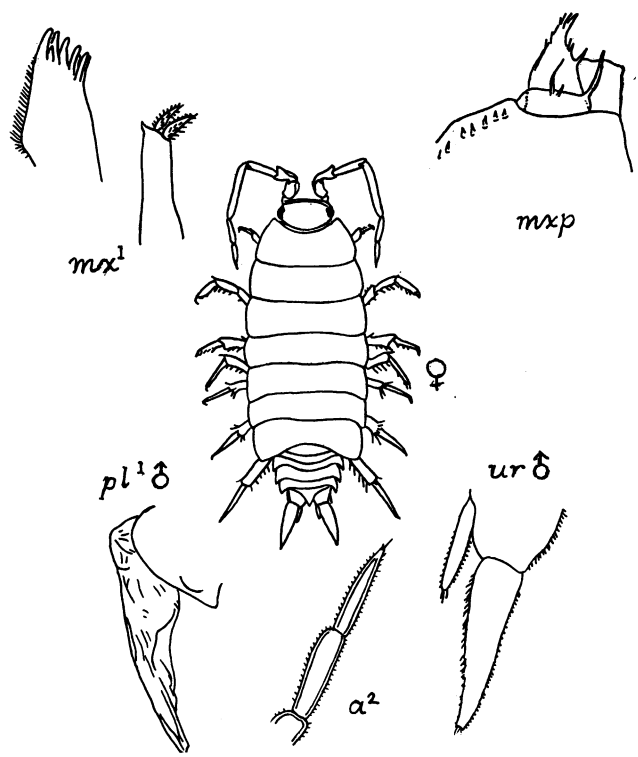

Fig. 15. *Porcellionides schwencki* (Moreira), 1927. After Giambiagi.

They differ in color, *P. schwencki* being handsomely marbled, while *pruinosus* is more uniform, with comparatively faint markings (though they are often more conspicuous in alcoholic specimens than in life). *P. schwencki* has the two articles of

the antennae of practically equal length; it has, according to one of Giambiagi's figures, only three penicilli on the inner mala of the mandible, and the inner branch of the uropoda slender and its end only extending a quarter of the length of the external branch, which is tapering, thick at its base, and as long as the first five abdominal segments. The telson is triangular with a slight inward curvature in the anterior part of its border; its point is acute.

Distinctness of this species from *pruinosus* may be accepted as established. Its distinctness from *P. sexfaciatus* (Koch), which may have become established in South America, seems less certain, but it appears to differ in the larger and stouter external branches of the uropoda.

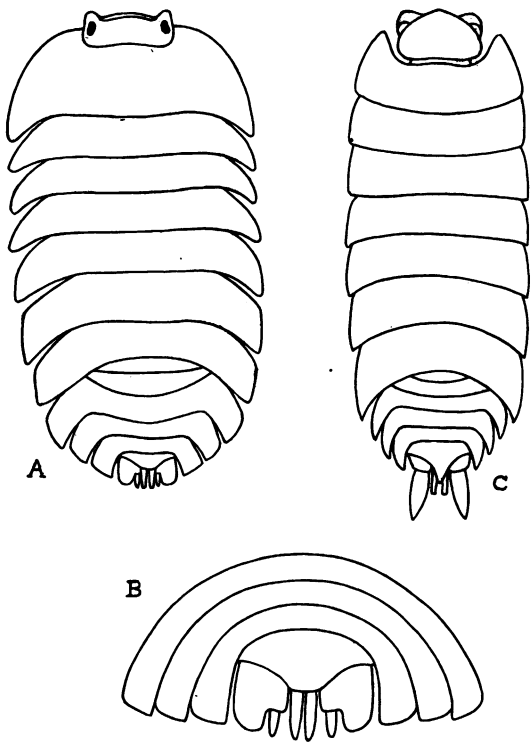

Fig. 16. A and B, *Sphaeroniscus bonitanus*, new species. C, *Porcellio pubescens* Dollfus, 1893.

Cubaridae

Sphaeroniscus bonitanus, new species

Figure 16A, B

Closely allied to *S. guianensis* Van Name, 1936, from British Guiana. Noticeable differences in the general form of the body, whose surface is very smooth and glossy, or in the frontal outline as seen either from one side or from in front, the antennae, etc., are not easy to observe. There are, however, slight differences in the thoracic epimera II, III and IV, which are somewhat narrower and more sharply rounded off in the present species, but this difference does not extend to the posterior thoracic or abdominal epimera. The eyes in the present species have twenty to twenty-four pigmented ocelli.

A much more easily noticed difference exists in the shape of the basal segment of the uropoda which is proportionately somewhat longer in this species than in *S. guianensis*, the posterior extension (the part behind or below the insertion of the exopodite) being narrower, more oblong and more parallel sided, and having the internal as well as the external corner of the posterior or distal end noticeably rounded off. In *S. guianensis* the internal corner is quite angular (cf. Fig. 175, p. 299, in Van Name, 1936).

But the color pattern of this species is its most striking character and was found nearly uniform in all the specimens at hand.

The ground color of the back in the alcoholic specimens is a yellowish white (unpigmented). The thoracic and abdominal segments each have a dark blackish brown transverse band along the rear border; on each epimeron there is an addi-

tional small oblique dark marking, and others on the median line and medio-lateral regions. The head, segment I of the thorax (except its antero-lateral corners) and the telson and uropoda are mostly unpigmented. The general effect of the large bands is a very conspicuous black and white cross striping, while the smaller markings described above indicate also a more or less interrupted and imperfect longitudinal striping.

LOCALITY.—Palo Bonito in the vicinity of San Estéban, Venezuela. Nine specimens are in The American Museum of Natural History, donated by Drs. G. Vivas-Berthier and E. Carabolo. The largest example, a female about 13 mm. long and 7 mm. in width (Cat. No. A.M.N.H. 9529) is the type.

lum having the distal article nearly three times the length of the proximal one.

The coxopodite sulcus on segment I is well developed and extends the entire length of the latter. It is semicircular in cross section, its inner side extends lower than the external one, so that the sulcus is visible both in a lateral and ventral view. The inner side of the notch in which the sulcus ends at the rear corner of the segment is more angular and more extended back than the outer.

Outer margin of segment I slightly rolled outward and separated from the outer face of the segment by a deep groove extending from the anterior edge to a short distance

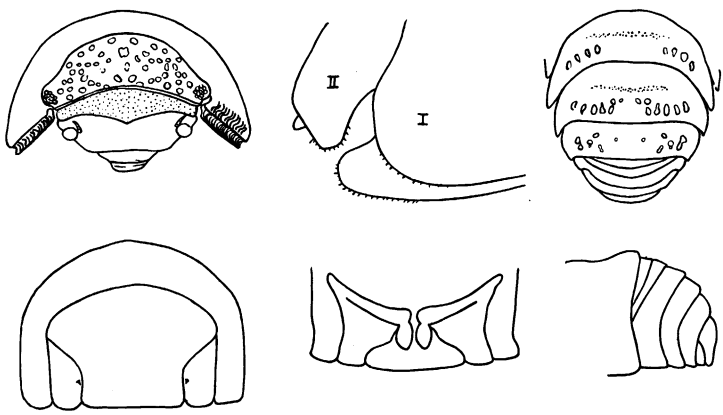

Fig. 17. *Cubaris apachea* Mulaik, 1942. After Mulaik.

Cubaris apachea Mulaik, 1942

Figure 17

Cubaris apacheus MULAIK, 1942, p. 8, Pl. 1, figs. 1–14.

A species belonging to group I as the genus is divided in Van Name, 1936. Nothing is said in the description regarding the character of the body surface, but Mulaik's figures of the head and of segments V, VI and VII show the presence of small tubercles. Size of larger specimens about 6 by 2 mm.

Head about one-third as long as wide, the anterior border convex as seen from above. Upper border of epistome arched, forming a narrow groove behind it. Eyes small with about eight ocelli. Second antennae stout and rather short, their flagel-

from the posterior edge. The second thoracic segment has an acute angled coxopodite process.

The posterior end of the telson is wide; the telson is but slightly constricted; the narrowest part is below the middle; the upper part is arched or domed outward so that in a view from above the margins of the telson and uropoda are concealed. Internal branches of the uropoda oval and very short, the outer branches very minute, inserted on the outer aspect of the basal segment a little removed from the inner margin.

DISTRIBUTION.—Reported by Mulaik from Brooks, Kerr and Zapata counties, Texas. Type locality, Alice, in Brooks County.

Cubaris arizonica Mulaik, 1942

Figure 18

Cubaris arizonicus MULAIK, 1942, p. 10, Pl. II, figs. 22–28, Pl. III, figs. 29–30.

A species belonging to group II *a* as the genus is divided in Van Name, 1936. Body highly arched, truncate in front; the end of the abdomen is highly arched and slightly oblique. Body surface rather smooth, finely granular under higher magnification. Exposed parts of thoracic segments slightly but not abruptly elevated above the parts fitting under the preceding segments. Largest specimens about 11 mm. long.

Telson with the end about two-thirds as wide as the base; the middle is moderately constricted. The inner branches of the uropoda are very short, not reaching the middle of the telson. "The outer branches are minute with about five bristles. These are set in the inner edge of the depression formed by a small lappet-like process of the uropodal base which extends over the telson."

DISTRIBUTION.—Type locality west of Robles, Arizona; other localities Nogales, Olberg and Rock Springs, all in Arizona.

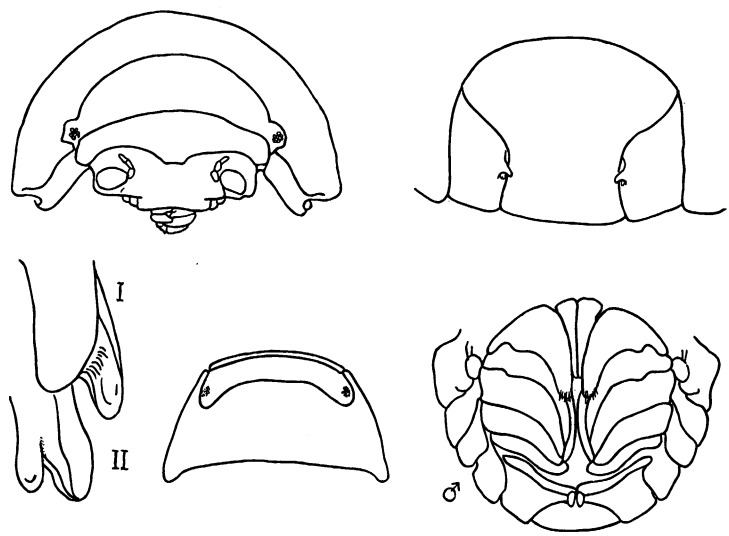

Fig. 18. *Cubaris arizonica* Mulaik, 1942. After Mulaik.

Head nearly four times as wide as long; its front viewed from above, almost straight, with a thin narrow groove behind the upturned border of the epistome. Eyes quite small, with about fourteen ocelli. Terminal article of antennal flagellum about two and one-half times the proximal one.

Coxopodite sulcus of segment I extending forward less than one-fourth of the lateral margin. This margin is somewhat thickened but not flared outward; it is separated from the main part of the segment by a deep groove which does not involve the rear border. The two sides of the notch at the rear angle of the segment do not differ greatly in size.

Cubaris chamberlini Mulaik, 1942

Figure 19

Cubaris chamberlini MULAIK, 1942, p. 9, Pl. II, figs. 15–21.

Based on a single male specimen measuring 7 by 3.5 mm. and described as very close to *C. apachea.*

Head three times as wide as long; eyes small, rather indistinct, with about six ocelli.

Body highly arched, ovate; epimera not flaring; basal parts of telson and uropods do not bulge so as to conceal the marginal parts in a view from above as they do in *C. apachea.*

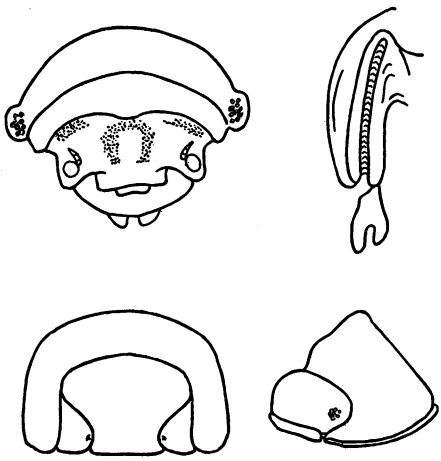

Fig. 19. *Cubaris chamberlini* Mulaik, 1942. After Mulaik.

Coxopodal sulcus of segment I extends the entire length of the lateral margin as in that species, but the posterior angle of the inner side of the cleft does not extend appreciably beyond that of the outer side. Viewed from the side, the sulcus cannot be seen as it can in *C. apachea*, nor is there any appreciable groove separating the external border from the rest of the segment. Differences in the shape of the telson and uropoda are apparent in the figures reproduced here.

LOCALITY.—Edinburg, Hidalgo County, Texas.

Cubaris tanneri Mulaik, 1942

Figure 20

Cubaris tanneri MULAIK, 1942, p. 11, Pl. III, figs. 31–39.

A species with strongly convex and rather smooth body, belonging to group II *c* as classified in Van Name, 1936, the coxopodite cleft of segment I being very small and scarcely at all continued forward on the margin; the two sides of the cleft are subequal. The coxopodite process of segment II is small, flattened and considerably removed from the posterior margin.

Viewed from above, the description says, the front of the head forms nearly a straight line though the figure shows it curved; the lateral parts of the edge project more than the middle. Eyes small and composed of about eight ocelli. Antennae rather slender. According to Mulaik's figure, the proximal article of the flagellum is almost half the length of the second.

Segment I very concave at the sides, and the lateral margins are flared outward, as are the others to a less degree. Segments all distinctly flexed backward on the sides. Legs weak and moderately spined.

Telson about as broad as long. External branch of uropod rather elongate and set in a depression on the internal margin and projecting over the edge of the telson. Internal branch narrow and elongate.

Color in alcohol reddish brown with inconspicuous paler markings.

LOCALITY.—Edinburg, Hidalgo County, Texas (one female specimen).

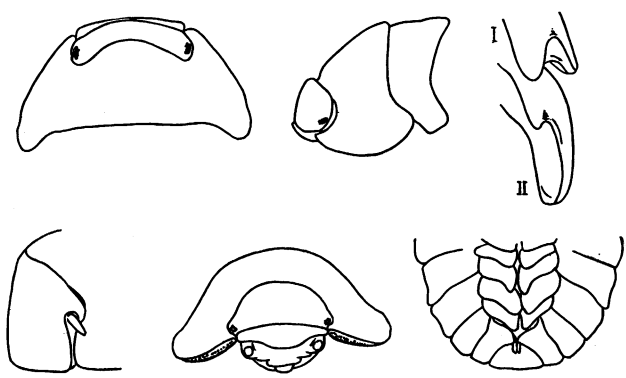

Fig. 20. *Cubaris tanneri* Mulaik, 1942. After Mulaik.

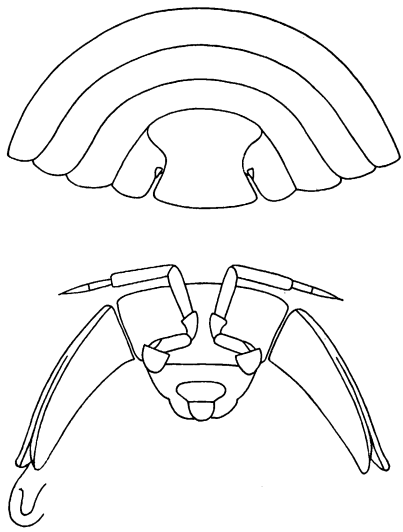

Fig. 21. *Cubaris venezuelae*, new species.

Cubaris venezuelae, new species

Figure 21

This belongs to the group of *C. gigas* Miers, from San Juan, Nicaragua, but I cannot refer it to that species or to the form from Fondacion, Colombia, which Pearse, 1915, identified with Miers' *gigas*—an identification which seems to me rather doubtful. (See Van Name, 1936, pp. 362, 363.)

The single specimen of the present species available is a male of quite large size, 17 mm. long by about 8 mm. wide, and is of a slate gray color above with scarcely perceptible light markings, the surface unusually smooth except for slight rugosity on the dorso-lateral regions. It agrees in most of its characters with specimens of the Colombian form received from Dr. Pearse, but there are several minor, yet definite, differences.

The inner lamella of the notch in the rear angle of thoracic segment I when seen from below is about as long as the outer (not shorter as in the Colombian species) and the coxopodite sulcus on the lower side of the margin of that segment extends farther forward, about two-thirds of the length of the margin of the segment. The small coxopodite processes of segment II are narrowly rounded at the end in both forms.

The body segments (especially noticeable in thoracic segments II and III) have their lateral ends a little less squarely truncated than in the Colombian form, and abdominal segments 4 and 5 have the lateral ends bent or flared out a little. The telson is also a trifle wider and shorter, with its constriction a little farther back (about the middle) than is the case in the Colombian form. In conformity with the shorter telson the basal segment of the uropoda is also a little shorter and wider.

The short telson and the curved, not straight, frontal margin as well as the widely separated localities are reasons against its identification with *C. gigas* Miers.

LOCALITY.—The type and only specimen (Cat. No. A.M.N.H. 9531) is from "Carret. Guarenas," Venezuela, under decaying wood. Received from Dr. G. Vivas-Berthier.

AQUATIC ISOPODS

SUBORDER ASELLOTA

Asellidae

It has been evident for a long time past that the characters on which the species, and sometimes even the genera of this family as they occur in America, have been distinguished are altogether unsatisfactory. I can do no better than to quote the statements of Mackin and Hubricht on this subject. They apply also to the genus *Caecidotea* which those authors fail to mention.

"It should be pointed out that specific determinations of some forms in the genera *Asellus* and *Mancasellus* are attended with much difficulty. This is due to the fact that in most descriptions up to date, stress has been laid on certain characters which are so broad that they are generic in character rather than specific, and conversely on characters so variable that at most only local races may be defined on them, or only growth stages. As an example of the former we cite the descriptions of mouth parts and of the latter, number of segments in the antennae, and relative length of uropods. . .

"Various European workers have used the characters of the male pleopoda to good advantage (Dudich, Tattersall, Racovitza). We find these more reliable than any other specific characters. For this reason descriptions are largely based on the males. In particular the tip of the second pleopoda endopodite presents definite char-

acters upon which determination may be based with a fair degree of confidence" (Mackin and Hubricht, 1940, p. 648).

In 1940, after the appearance of my 1940 Supplement, the above authors published "Descriptions of seven new species of Caecidotea" (which in opposition to the views of Chappuis, 1927, and Miller, 1933, they recognize as a natural group) and have recently been continuing their investigations of the other American members of the Asellidae with results that emphasize the unsatisfactory state of our knowledge of the genera and species of that family, and the unreliability of many of the published determinations of species and statements of their distribution. It is to be hoped that the further results of their studies may soon be published and made available.

Regarding the genus *Caecidotea* Mackin and Hubricht (1940) say, "Due to the fact that in the description of *Caecidotea stygia* Packard, 1871, the type species of the genus, characters were chosen that were very unfortunate from a taxonomic point of view, the identification of the various species in the genus has been very uncertain if not impossible. . . .Were it not for the identification of the type locality in Mammoth Cave, Kentucky, no one would ever have been able to certainly identify the species. An unfortunate emphasis has been placed on certain very variable characters, notably of the antennal segmentation, comparative length of the uropoda, body length compared with breadth, and others."

To describe intelligently the differences in the second pleopoda, the gnathopods, etc., by which the species are distinguishable, is very difficult, and most reliance must, as Mackin and Hubricht state, be placed on figures. I have reproduced in outline the figures those authors give of their new species in the résumé of the latter in this Supplement, but for lack of space must refer the reader to their original article for descriptive information other than a few statements regarding important characters, dimensions and distribution.

Asellus militaris O. P. Hay, 1878

Asellus militaris HAY, 1878, Bull. No. 2, Ill. State Lab. of Nat. Hist., p. 90; MACKIN, 1940, p. 17.

Described at considerable length by Hay, but as he gave no figures it was difficult to distinguish from related species. Type locality, a slow prairie stream at Abingdon, Knox County, Illinois.

It was included among the synonyms of *Asellus communis* by Richardson, 1905, and Van Name, 1936, but has been recognized as a valid species with a considerable distribution in the interior parts of the United States, by Mackin, 1940, who makes the following statements about it in his key to the Oklahoma species of Asellidae, "Endopodite of the uropods broadly lanceolate in form, pointed; the endopodite of the male second pleopod short, only slightly more than half as long as the exopodite and ending in a blunt lobe."

It is a large dark colored species with well developed eyes; the males reach 17 mm. and the females 11 mm. in length. Color brown with irregular yellowish spots on the dorso-lateral regions. It is an inhabitant of lowland temporary ponds.

Caecidotea acuticarpa
Mackin and Hubricht, 1940

Figure 22

Caecidotea acuticarpa MACKIN AND HUBRICHT, 1940, p. 394, figs. 5, 11, 18, 25, 32; MACKIN, 1940, p. 17.

A large species, sometimes reaching 20 mm. in length. No traces of eye spots, no pigment pattern. Both median and basal processes of the propodus of the male gnathopod are absent, the distal process only moderately developed and always definitely bi-dentate. The dactyl is without a basal process but with rather heavy spines internally. Carpus of characteristic form which suggested the specific name. It is long and arrowhead-shaped, the point projecting beyond the palm and serving to oppose the dactylus.

In the male genitalia it bears considerable resemblance to *C. adenta*. Uropoda cylindrical but slightly clubbed toward the end.

LOCALITIES.—Springs, wells and caves in the Arbuckle Uplift in Oklahoma, in the

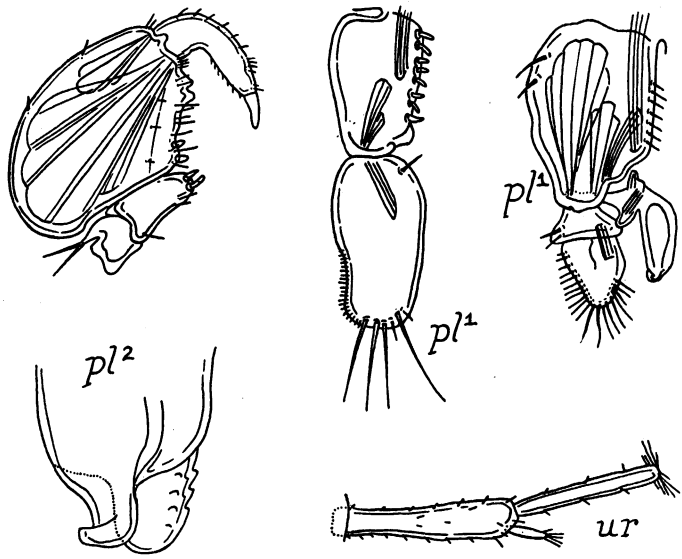

Fig. 22. *Caecidotea acuticarpa* Mackin and Hubricht, 1940. Details of male. Adapted from those authors.

following counties: Pontotoc (Byrd's Mill Spring, type locality), Johnston, Murray and Seminole. Cotypes in U. S. National Museum.

Caecidotea adenta
(Mackin and Hubricht), 1940

Figure 23

Asellus adenta MACKIN AND HUBRICHT, 1940, p. 396.

Caecidotea adenta MACKIN AND HUBRICHT, 1940, pp. 384, 396, etc., figs. 10, 13, 16, 19, 24; MACKIN, 1940, p. 17.

Eyes absent, body unpigmented, length about 12 mm.

Male gnathopoda with no process on the palm of the propodus, but there are three or four heavy spines. Dactyl without a basal process or thickening. Carpus with two or three hairy spines. Hand of female similar but smaller and with fewer spines.

For details of male pleopoda see figures.

LOCALITY.—Deep limestone sink cave fifteen miles south of Mountain View, Kiowa County, Oklahoma, on the northern edge of the Witchita Uplift. Cotypes in U. S. National Museum. This species is without close relatives in North America.

Caecidotea dimorpha
Mackin and Hubricht, 1940

Figure 24

Caecidotea dimorpha MACKIN AND HUBRICHT, 1940, p. 385, figs. 3, 9, 17, 23, 30 (also misprinted *Caecidoiea*).

Apparently a small species, the largest examples, though only 8 mm. long, seeming to be mature. Eye spots may be present or absent, according to the locality, which suggested the name *dimorpha*. No pigment pattern discernible on the few specimens obtained.

The male gnathopod has the median process of the palmar margin large and situated so far distally as to crowd the distal process. The latter is quite large and either bi- or tri-dentate. Basal process absent and replaced by a spine. Dactyl with a corrugated basal process; the margin of the distal half relatively smooth.

This species resembles *C. stiladactyla*, differing most definitely in the form of the male second pleopoda, especially that of the tip of the endopodite. Compare the figures of the two species.

LOCALITIES.—Seep one-half mile south of Greenville, Wayne County, Wisconsin

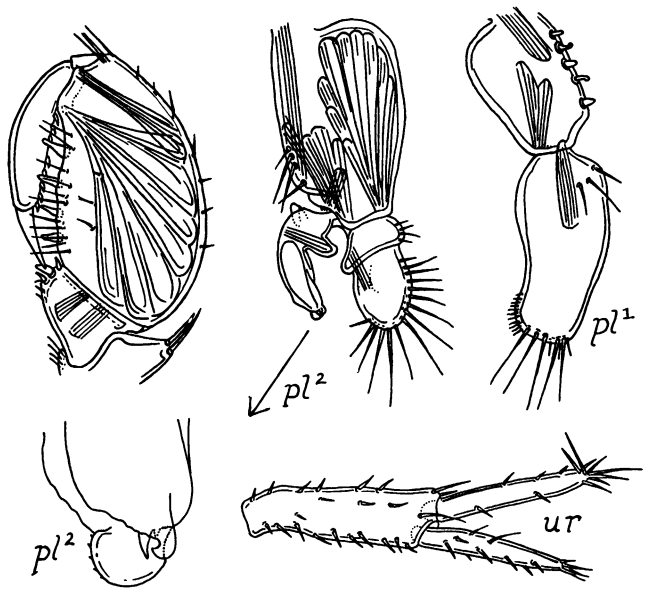

Fig. 23. *Caecidotea adenta* (Mackin and Hubricht), 1940. Details of male. Adapted from those authors.

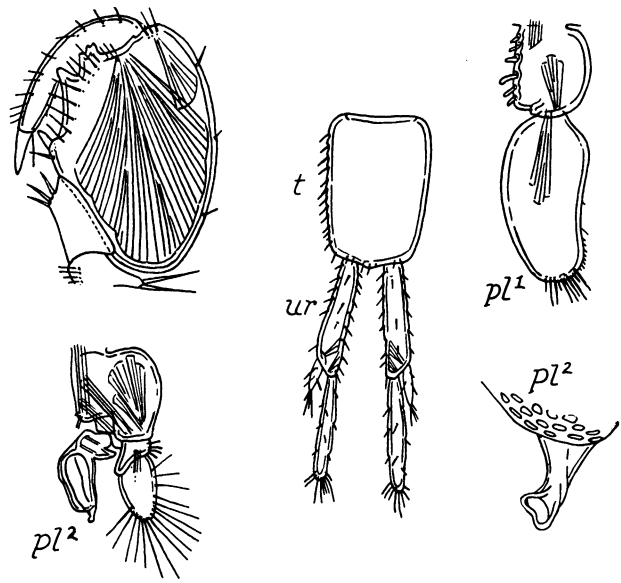

Fig. 24. *Caecidotea dimorpha* Mackin and Hubricht, 1940. Details of male. Adapted from those authors.

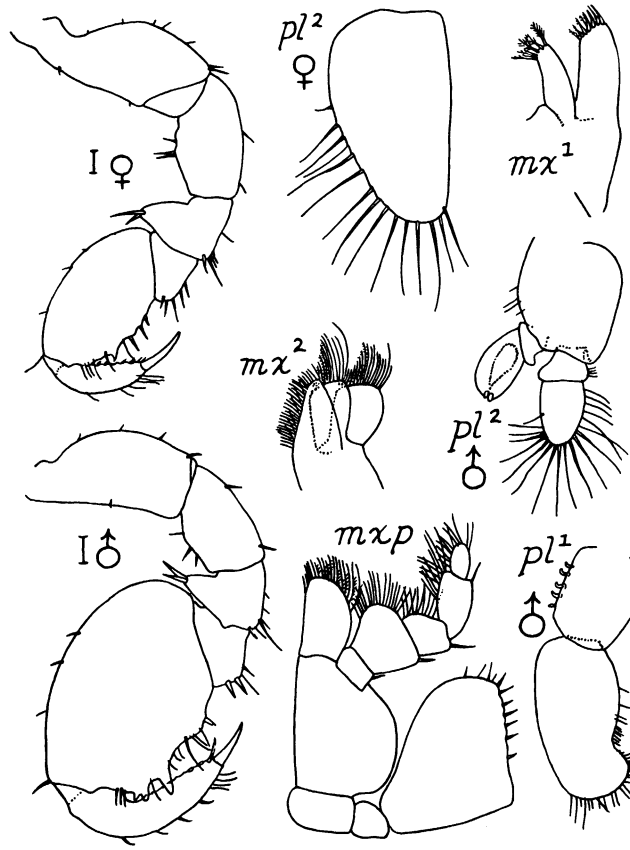

Fig. 25. *Caecidotea hobbsi* (Maloney), 1939. After Maloney.

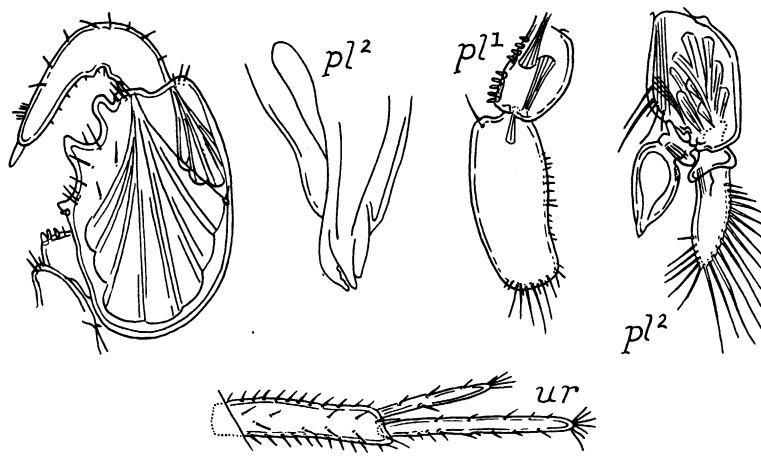

Fig. 26. *Caecidotea oculata* Mackin and Hubricht, 1940. Details of male. Adapted from those authors.

(type locality), specimens with eye spots; small spring on hillside one and one-half miles southwest of Olyphant, Jackson County, Arkansas, eyes absent. Cotypes in the U. S. National Museum.

Caecidotea hobbsi (Maloney), 1939

Figure 25

Asellus hobbsi Maloney, 1939, p. 457, Fig. 52.

Very closely related to *C. alabamensis* Stafford, from which it is described as differing chiefly in the articles of the palp of the maxillipeds, which are proportionally twice as wide in the present species as in *alabamensis*, and in the armament of the propodus of the male gnathopods, which in *alabamensis* have two triangular processes and three spines placed proximal to the processes, while in *hobbsi* although there are also two processes the distal one of them is bifurcate, and there are only two spines proximal to the processes.

Localities.—Type locality, Dudley Cave, Gainesville, Alachua County, Florida. Type in U. S. National Museum. Also four small specimens from crayfish burrows at Blountstown, Calhoun County, Florida.

This species is a *Caecidotea*, if that genus is recognized.

Caecidotea oculata

Mackin and Hubricht, 1940

Figure 26

Caecidotea oculata Mackin and Hubricht, 1940, p. 395, figs. 8, 12, 20, 28, 31; Mackin, 1940, p. 17.

As the name implies, this species possesses eyes, reduced, but in some specimens perhaps of value as organs of sight. It has a distinct pattern of brownish or reddish pigment. Body length of large males sometimes reaches 15 mm.

All three palmar processes of the propodus of the male gnathopods usually present, although in some small specimens the basal process may be absent.

The second male pleopoda are exceptional in form. The distal segment of the exopodite is twice as long as broad, and the endopodite is very thick and globose at the base but terminates in a sharp point composed of three closely applied acute processes.

Uropoda very short, cylindrical and tapering, the endopodite never more than twice the length of the exopodite.

Localities.—Springs at Rich Mountain Station, Polk County, Arkansas (type locality); also in rills and open streams in Latimer and Leflore counties, Oklahoma.

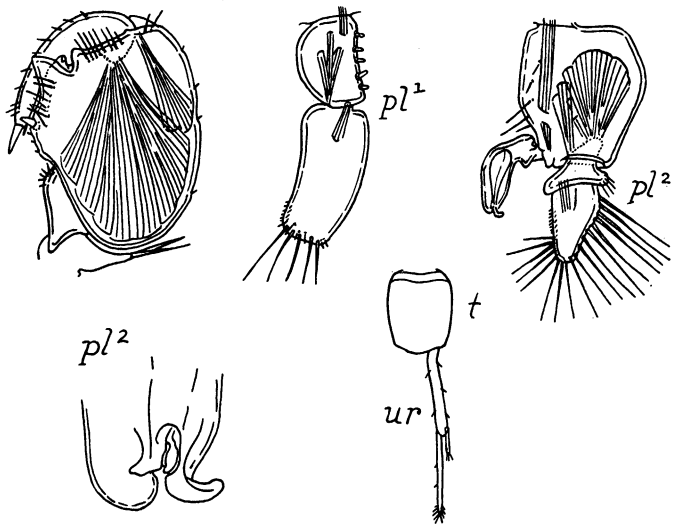

Fig. 27. *Caecidotea packardi* Mackin and Hubricht, 1940. Details of male. Adapted from those authors.

Apparently confined to the Ouachita Mountain Uplift. Cotypes in U. S. National Museum.

Caecidotea packardi
Mackin and Hubricht, 1940

Figure 27

Caecidotea packardi MACKIN AND HUBRICHT, 1940, p. 388, figs. 1, 2, 4, 29, 34.

A robust species attaining a length of 18 mm. in the largest specimen. No eye spots and no pigment pattern.

Median process of the propodus of the gnathopod of male very large, distal process small and unidentate; basal process absent.

A single, minute, blunt twisted process on the tip of the endopodite of the male second pleopoda is the most characteristic feature of the species. Uropoda very long and slender, though this is not a constant character. The uropoda are frequently lost and regenerated, but they are then shorter.

LOCALITIES.—Found in the streams in the karst caves of southern Illinois. The majority of specimens were collected on the under sides of flat stones where they were apparently feeding on bacteria. Type locality, Morrison's Cave, two miles south of Burksville, Monroe County. Cotypes in U. S. National Museum.

Caecidotea spatulata
Mackin and Hubricht, 1940

Figure 28

Caecidotea spatulata MACKIN AND HUBRICHT, 1940, p. 393, Figs. 7, 14, 15, 22, 33.

Vestigial eyes, with probably better development than in any other species of the genus, may be present or be completely absent. Back with a faint reddish brown pigment pattern. Maximum length of specimens about 14 mm.

Male gnathopoda of very distinctive form; the median process of the palm of the propodus is very near the proximal angle, the basal (proximal) process is absent, in its place a single heavy spine. Dactyl without a basal process but heavily corrugated on the internal margin.

The details of the male pleopoda are shown in the figures. Uropoda remarkable in being broad and flattened, widening distally, a characteristic feature of the species.

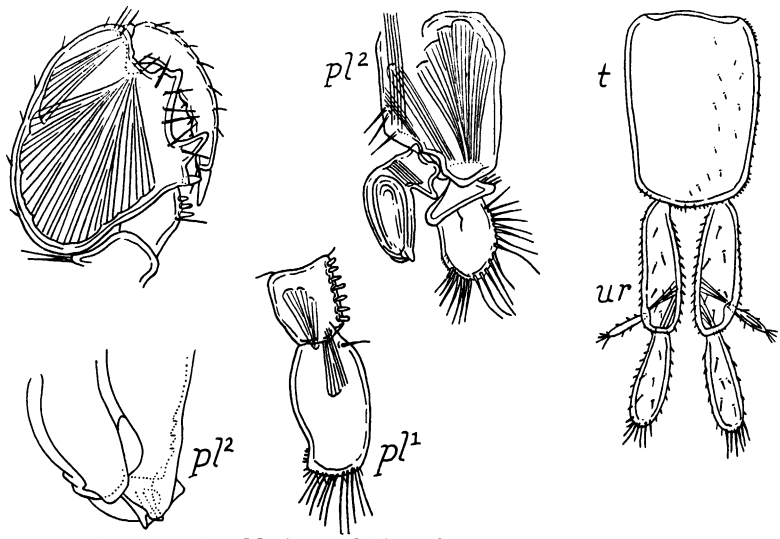

Fig. 28. *Caecidotea spatulata* Mackin and Hubricht, 1940. Details of male. Adapted from those authors.

LOCALITIES.—St. Clair County, Illinois, one mile south of Falling Spring (type locality); temporary ponds in St. Louis, at King's Highway and Natural Bridge Avenue, and near Hine, in Boone County, Missouri.

This species differs from all other known species of the genus in being an inhabitant of temporary pools, burrowing in the mud when they dry up. It is not so fragile and has shorter legs than most species. Cotypes in U. S. National Museum.

row distal segment of the first pair, and the bilobed flaring process on the tip of the endopodite of the second pair; this process is apparently capable of being telescoped inside the terminal part of the endopodite.

LOCALITIES.—A small spring three and one-half miles south of Jaspar, Newton County, Arkansas (type locality), and small seeps in Newton and Boone counties of the same state. Cotypes in U. S. National Museum.

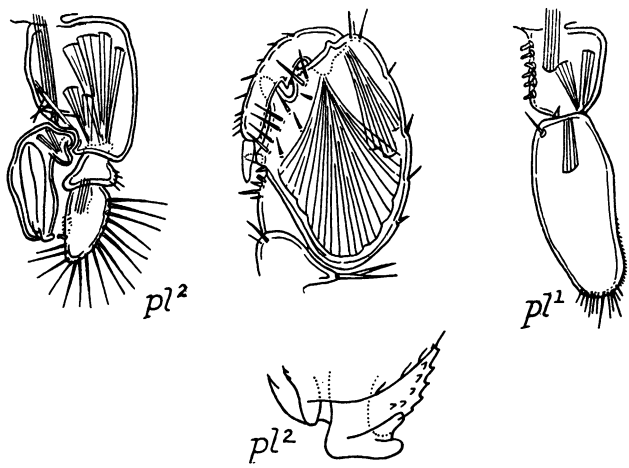

Fig. 29. *Caecidotea stiladactyla* Mackin and Hubricht, 1940. Details of male. Adapted from those authors.

Caecidotea stiladactyla
Mackin and Hubricht, 1940

Figure 29

Caecidotea stiladactyla MACKIN AND HUBRICHT, 1940, p. 386, Figs. 6, 21, 26, 27.

The available specimens do not exceed 11 mm. in length; no vestigial eyes or color pattern. The armature of the propodus of the male gnathopod consists of a small distal palmar process which may or may not be bi-dentate, a long, slightly curved median process and a basal spine, but no basal process. The dactyl is equipped with a large corrugated process at the base.

The chief distinctive features of the male pleopoda are the exceptionally long, nar-

Janiridae

Janiropsis exul (Fritz Müller), 1892

Figures 30, 31

Janira exul F. MÜLLER, 1892, Arch. Mus. Nac. Rio de Janeiro, VIII, p. 207, Pl. XIV. Description and figures reprinted with German translation *in* Fritz Müller, Werke, Briefe u. Leben, ed. by A. Moeller, Jena, 1915, p. 1270, Pl. LXXIV.

Dr. E. H. Cordero of Montevideo has kindly called my attention to the omission, both in my work of 1936 and in the first Supplement, of this fresh-water isopod found in a small nearly stagnant pool in the State of Santa Catharina, Brazil, and carefully described and figured by Müller in the article cited above.

It is a member, not of the Asellidae, but

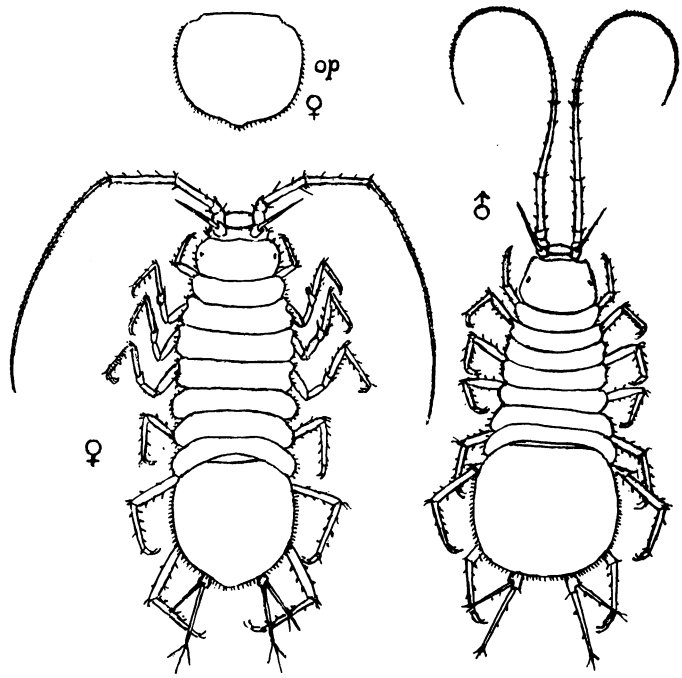

Fig. 30. *Janiropsis exul* (Fritz Müller), 1892. Female and male; *op.*, opercular plate (united first pleopoda) of abdomen of female. After Müller.

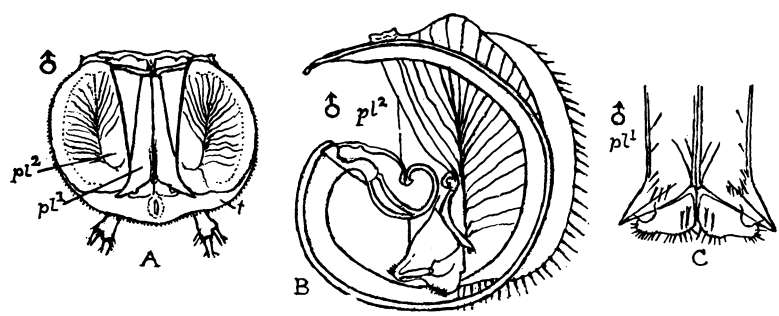

Fig. 31. *Janiropsis exul* (Fritz Müller), 1892. Details of male pleopoda. A, Ventral view of abdomen showing the leaf-like basal segments of the second pleopoda partly covered by the elongate median plate composed of the united first pleopoda. B, The left second pleopod, dorsal (posterior) view, showing the copulative processes. C, Terminal part of the first pleopoda, more enlarged.

of the allied, otherwise exclusively marine family Janiridae, and was placed by its describer in the genus *Janira*, as he states, to avoid establishing a new genus, although it fails to conform to that genus in several respects.

It is of very small size (females about 3 mm., males 2.5 mm. long); the front outline of the head slightly sinuous, eyes small and wide apart, all the legs ambulatory in both sexes and with the dactylus bi-unguiculate. The male differs from the female in having the posterior part of the body, especially the abdomen, wider than the anterior part. In the female and in the very young males, the ventral aspect of the abdomen and its appendages are entirely covered by a single large smooth operculum composed of the united first pleopoda; in the adult male there is an elongate median piece expanded at the posterior (distal) end, composed of the united first pleopoda and two large oval lateral leaf-like plates representing the basal segments of the second pleopoda. These bear on their dorsal aspect two copulative processes of which the posterior is short and triangular, and the anterior an extremely long, slender, tapering organ, ordinarily kept curled in a circle and covered by the leaf-like basal segment.

This species is more nearly in place in the genus *Janiropsis* Sars, 1899, to which I have transferred it provisionally, but it differs from that genus in not having the first leg of the male large, subchelate and prehensile, in having the body of the male conspicuously widened posteriorly, and in certain details of the pleopoda, notably in the relatively enormous development of the long anterior process of the second pleopoda of the male. The establishment of a new genus for it would evidently be justifiable, although I am not taking that step in the present article.

Part II.—Additional Notes and References, Corrections, Etc., Applying to Other Species

(Arranged alphabetically)

Alloniscus borellii Dollfus, 1897

Figure 32

New but brief description and illustrations in Giambiagi, 1939, p. 642, Pl. IX, based on specimens from Villa María, Córdoba, Argentina. Some of the figures are reproduced here.

Armadillidium vulgare (Latreille), 1804

Recorded by Mulaik, 1942, from points in Utah and California. The American Museum of Natural History has a specimen from Easter Island in the Pacific.

Asellus incisus Van Name, 1936

Reported from Oklahoma by Mackin, 1940, p. 17. He transfers it to the genus *Mancasellus*.

Cubaris flavobrunnea (Dollfus), 1896

A number of specimens in The American Museum of Natural History obtained at El Cermeno, Panama, by Dr. James Zetek indicate that this species should continue to be treated as distinct from *C. murina* though resembling it in most respects. The front outline of the head as seen from above is only very slightly straighter, but the telson is quite noticeably longer and narrower, especially in its upper part, and the body surface is conspicuously smooth and shiny, when dry, instead of finely granular. The ground color of the upper parts including the telson and uropoda is gray, finely but conspicuously mottled with yellow as indicated in Dollfus' figure. The largest specimens (females) are about 13.5 mm. long.

Cubaris microphthalma (Arcangeli), 1932

Mulaik, 1942, reports this species from localities in Tulare County, California, also from Jackson, California, in and beneath decaying logs.

Cylisticus convexus (De Geer), 1778

Specimens from Tacubaya, near Mexico City.

Livoneca symmetrica, Van Name, 1925

The American Museum has a male specimen apparently not adult, from Chano del Rio Quebrada Honda, 10 km. east of Zaraza, Venezuela, which was examined and referred to this species by Dr. E. H. Cordero. Though older and larger, it considerably resembles the immature specimen figured in Van Name, 1925, Zoologica, VI, p. 478, Fig. 18, as probably a young *L. guianensis.* Cordero doubts the distinctness of these two species (Cordero, 1937, p. 9).

Nagara cristata (Dollfus), 1889

Specimens from flowers of *Calathea violacea* growing at Barro Colorado Island, Canal Zone, were received from Dr. James Zetek.

Oniscus asellus Linnaeus, 1758

The American Museum of Natural History has specimens from Barahona Harbor, Santo Domingo, W. I.

Philoscia bonariensis Giambiagi, 1935

Figure 33

Additional descriptive matter and illustrations in Giambiagi, 1939, p. 640, Pl. VI, based on the type examples from Quequén, Argentina. Giambiagi's figure of the whole animal was reproduced in Van Name, 1940, p. 112; some of the details are reproduced in the present article. They appear to show, as Giambiagi states, a near relationship with *P. bermudensis* Dahl, which, however, has the eyes rudimentary.

Philoscia (Ischioscia) variegata Dollfus, 1893

The American Museum of Natural History has three small specimens of this or an allied form from Mt. Duida, Venezuela, altitude not given. They are too poor and incomplete for accurate identification.

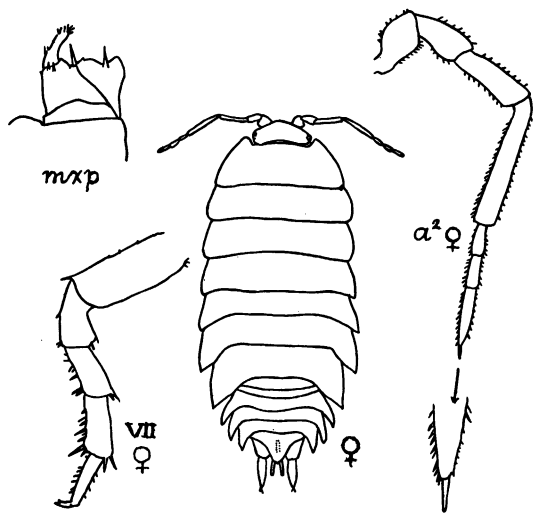

Fig. 32. *Alloniscus borellii* Dollfus, 1897. After Giambiagi, 1939.

Porcellio pubescens Dollfus, 1893

Figure 16C

Porcellio pubescens DOLLFUS, 1893*a*, p. 341, Pl. x, figs. 7*a*–7*c;* Van Name, 1936, p. 234, Fig. 131.

Though Dollfus' description of this species was very brief and his three figures quite crude, I cannot feel much doubt that a specimen received from Dr. G. Vivas-Berthier from El Valle, D. F., Venezuela, should be referred to it.

It is a female about 6 mm. long and agrees with his description and with his figures though with some minor discrepancies, especially that the proximal article of the antenna is proportionately a little

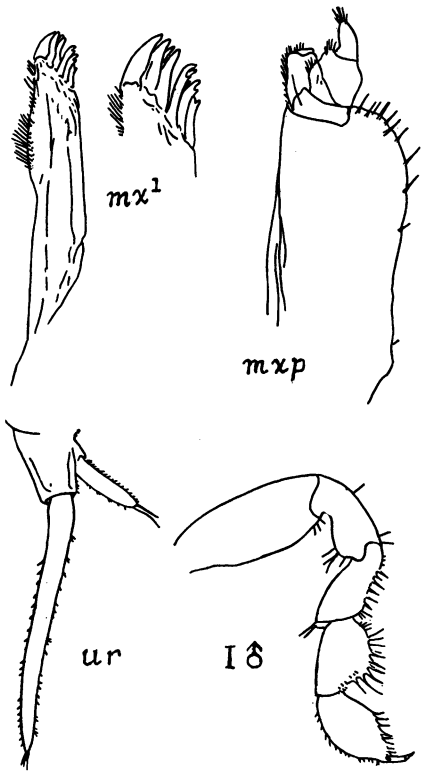

Fig. 33. *Philoscia bonariensis* Giambiagi, 1935. Details, after Giambiagi, 1939.

longer, and the outer branches of the uropoda are also wider. Though these are rather long, they have in this specimen the usual regularly tapering form generally occurring in this genus, and I must believe that Dollfus' figure is poorly drawn in respect to them. The lateral lobes of the head are more rounded than his figure shows them and the inner branches of the uropoda less enlarged toward the ends, though tipped with small bristles as in his figure.

It may be added to the characters given by Dollfus that the body outline is rather narrowly oblong and parallel sided in a dorsal view and the body not highly arched. The abdomen is short and not abruptly narrower than the rear end of the thorax. The rear corners of the first two thoracic segments are rounded off and not produced backward; in segments III (slightly) to VII the corners become successively more produced backward and more acute. The abdominal epimera are long, narrow and acute, and curved backward.

All Dollfus' specimens were also females; no male example has been available for study. His specimens were from Petare and Colonie Tovar, Venezuela.

Porcellio species

The American Museum of Natural History has a small female specimen 4 mm. long from the upper Rio Mapuera, Brazil, which lacks both the antennae and legs. It is evidently quite closely related to *P. pubescens*. The ground color of the back is dark brown, and the surface, though even, is somewhat more scabrous; the lateral lobes of the head slightly larger and the median lobe slightly more prominent. Probably it represents an allied undescribed species, but I am unwilling to establish a species on so incomplete a specimen.

Porcellionides saussurei (Dollfus), 1896

Two small female specimens from Ciudad del Mais, San Luis Potosi, Mexico, collected by A. M. and L. I. Davis.

Porcellionides virgatus (Budde-Lund), 1885

Mulaik, 1942, reports this species from west of Forest and south of Wiggins in Mississippi, and from McCook, Kerrville, and northwest of Uvalde in Texas.

Protrichoniscus heroldi Arcangeli, 1932

Mulaik, 1942, reports this species from east of Hammond, California, at 3500 feet elevation. Mulaik figures some of the mouth parts and part of leg VII of the female, which has a small protuberance bearing a tuft of hairs at the distal end of the propodus.

Trichoniscus magellanicus (Dana), 1853

Figure 34

Giambiagi, 1939, p. 693, Pl. x, gives a very brief description of this species, apparently based on specimens in the Argentine Museum from the region of the

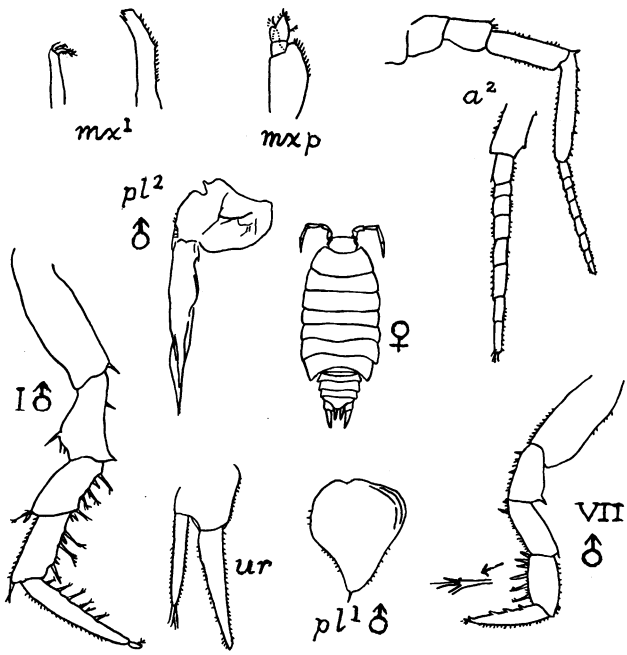

Fig. 34. *Trichoniscus magellanicus* (Dana), 1853. After Giambiagi, 1939.

Strait of Magellan, and gives figures that are reproduced here. Unfortunately these do not do much to clear up the deficiencies of our knowledge concerning this species, or regarding its relationship to the closely allied forms placed by Verhoeff, 1939, in his genus *Patagoniscus*, in which *magellanicus* probably also belongs.

Trichorhina thermophila (Dollfus), 1896, and **T. tomentosa** (Budde-Lund), 1893

Foster, 1911, p. 155, and Beresford and Foster, 1913, p. 47, record specimens taken in a greenhouse at the Belfast (Ireland) Botanic Gardens as *Trichorhina tomentosa* Budde-Lund, but the former author states that they "are more readily recognizable from M. Dollfus' description than from that of Budde Lund." The specific identity of Dollfus' species with Budde-Lund's is very doubtful, and until that has been settled the Belfast specimens should be referred to *T. thermophila* (Dollfus).

CORRECTIONS

In Van Name, 1936:

Porcellio vedadoensis in the caption of Fig. 145, p. 255, should read *Leptotrichus vedadoensis*.

Trachaeoniscus rathkei. The illustration, Fig. 149, shows the seventh leg of the male, not the first, as the lettering indicates.

In Van Name, 1940:

On page 141 (Bibliography) the authorship of the 1848 "Catalogue of the fauna of South Carolina" should have been credited to L. R. (Lewis Reeves) Gibbes, not to R. W. Gibbes.

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