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NEW NEOTROPICAL DIPLOSPHYRONIDA (CHELONETHIDA)

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During examination of the Neotropical pseudoscorpion collections of the American Museum of Natural History, the writer encountered a number of new species of the suborder Diplosphyronida. The present paper describes these new species and gives locality records for a species previously described by With (1905).

The descriptions are based on a study of unstained individuals mounted in

Canada balsam. Previous to mounting, the bodies, but not the appendages, of most individuals were treated with potassium hydroxide solution. All drawings were made with the aid of a camera lucida. Measurements have been made in the manner indicated by Chamberlin (1931, his fig. 1). Type specimens are deposited in the American Museum of Natural History.

SUBORDER DIPLOSPHYRONIDA CHAMBERLIN

NEOBISIIDAE CHAMBERLIN

Ideobisiinae Chamberlin

Ideobisium balzanii With, 1905

I. Balzanii WITH, 1905, Ann. Mag. Nat. Hist., ser. 7, vol. 15, pp. 131-135, pl. 10, fig. 2a-h. *I. balzanii* CHAMBERLIN, 1930, Ann. Mag. Nat. Hist., ser. 10, vol. 5, p. 37; CHAMBERLIN, 1931, Stanford Univ. Publ., Biol. Sci., vol. 7, no. 1, p. 139, fig. 35, O. *I. balzani* BEIER, 1932, Das Tierreich, vol. 57, p. 158.

RECORDS: Two collections, each containing numerous individuals of both sexes; one collection made on June 12, 1911, from Laudat, and the other on June 21, 1911, from "Long Ditton" near Roseau, both in Dominica, British West Indies.

SYARINIDAE CHAMBERLIN

Chitrellinae Beier

PACHYCHITRA CHAMBERLIN, 1938, EMEND.

Pachychitra CHAMBERLIN, 1938, Carnegie Inst. Washington Publ., no. 491, p. 111.

The genus was established by Chamberlin (1938) to contain the species *P. maya* from Yucatan. The inclusion of *P. insularum* into the genus makes necessary a minor change in the generic diagnosis

since the palps, instead of being smooth as indicated by Chamberlin in his generic description, are in part weakly granular. The presence or absence of granulations on the palpal podomeres is very probably no more than a species characteristic.

REVISED DIAGNOSIS: Carapace and abdomen smooth; carapace subrectangular to nearly square, usually little longer than wide, with a weakly developed and rounded epistomal process. Tergites and sternites entire. Lamina exterior absent; one accessory cheliceral seta present between *b* and *es*; galea slender and unbranched. Movable chelal finger with *t*, *st*, and *sb* grouped near the middle of the finger, *b* near the base; fixed chelal finger with *est* somewhat distal to the midpoint of the finger, *it* and *ist* close together and located between the levels of *et* and *est*, *ib* located dorsally near the base of the fixed finger and distinctly distad to the externally placed *isb*, *esb*, and *eb*.

Pachychitra insularum, new species

Figures 1-5

MALE: Body slender, length 1.8-2.1 mm.; abdomen and legs yellow in color, carapace and palps darker. Carapace brownish yellow; subrectangular; about

¹ Quincy College, Quincy, Illinois. This investigation was assisted by a Grant-in-Aid from the Sigma Xi Research Fund.

0.5 mm. long; greatest width near the posterior one-third and equal to between three-fourths and seven-eighths of the length, posterior width very slightly less than the greatest width; posterior margin weakly and evenly convex; anterior margin convex except for the small, rounded epistome; lateral margins weakly convex anteriorly but subparallel and nearly straight in the posterior half; anterior margin with a long acuminate submedial seta on each side of the epistomal process and a similar seta at each lateral corner; posterior margin with perhaps six short setae; surface of carapace smooth; eyes wanting. Abdomen slender, elongate, non-granular; length 1.35–1.6 mm., width no more than one-half of the length; tergites and sternites not divided, setae short, slender, acuminate, fragile, mostly lost from specimen through storage in alcohol for many years; apparently 10 to 12 marginal setae on each tergite in the central part of the body, possibly about the same number on each central sternite. Pleural membranes wide, consisting of a number of regular parallel striations. Each stigmatic plate with two acuminate setae.

Chelicera: Surface smooth; base about 0.22 mm. long, 0.12–0.13 mm. wide; laminar seta wanting; exterior seta not so long as the width of the basal portion of the movable finger, other setae (including the extra seta near the exterior seta) very long; flagellum apparently of five setae (difficult to count accurately), the distalmost one serrate along the anterior margin; flagellum located between the bases of the two fingers. Fixed finger slender; apical tooth long, acute, and gently curved; about 12 very small and acute retroconical denticles arranged along the distal two-thirds of the inner margin of the finger, central denticles of row stronger than those near the ends; serrula interior of about 25 (difficult to count) well-separated ligulate plates. Movable finger 0.195–0.205 mm. long, slender; apical tooth acute and more curved than the tooth of the opposing finger; usually about eight acute, slender, conical denticles, variable in size, directed distad, and much better developed than those of the fixed finger; marginal teeth of movable

finger confined to almost the distal one-third of the finger; serrula exterior usually composed of 28–30 ligulate plates; galeal seta long, extending far beyond the tip of the galea and inserted a little proximal to the level of the midpoint of the row of marginal teeth; galea little curved, simple, spine-like, length about equal to the width of the movable finger at the level of the insertion of the galeal seta.

Palpus: Brown color; moderately stout; weakly developed granules on the inner surface and sometimes the entire surface of the femur and on the inner surface of the tibia and hand; setae sparse, long, acuminate. Maxilla subrectangular; 0.30–0.325 mm. long, width a little more than one-half of the length; surface smooth, polished; two long apical setae with a third long seta near the base of the apical projection; two or three acuminate setae along the anterior border of the maxilla, setae otherwise sparse. Trochanter almost smooth, pedunculate; outer margin except for pedicle weakly convex to almost straight, with a few relatively long, acuminate setae; inner margin short, convex except for pedicle; length 0.21–0.23 mm., width 0.125–0.135 mm., length 1.65 to 1.75 times the width. Femur with a short pedicle well separated on the outer side from the rest of the podomere; inner margin convex in basal one-half but concave in the distal one-half; outer margin suddenly bulging near pedicle, slightly concave or straight in the center of the podomere, convex in the distal one-third; widest near the pedicle; a few acuminate setae, longer on the inner surface than elsewhere with one or two especially long pseudotactile setae in the basal one-half; length 0.42–0.475 mm., width 0.15–0.165 mm., length 2.75 to 2.95 times the width. Tibia conspicuously club shaped; pedicle slender, about twice as long as wide; podomere distal to the pedicle greatly swollen; a few acuminate setae present; inner margin distal to the pedicle markedly and evenly convex; outer margin very convex but often somewhat irregular; length 0.41–0.45 mm., length little more than twice the width. Chela smooth except for weakly granular area on inner surface of hand toward the

finger base; outer margin of hand nearly straight and meeting the basal margin in almost a right angle; inner margin weakly convex; hand in dorsal view subrectangular; fingers slender; setae sparse, long, acuminate, those of the inner surface especially long; length of chela 0.675–0.74 mm., width 0.245–0.285 mm., length 2.6 to 2.8 times the width. From the side, dorsal and ventral margins of the hand appear but little convex and nearly parallel; length of hand without pedicle 0.34–0.37 mm.; depth of hand subequal to the width, ranging from 0.24–0.28 mm.; pedicle in center of base; fixed finger fairly stout and with inner margin moderately convex, outer margin weakly convex to weakly concave; movable finger slender throughout, inner margin concave, outer margin convex; length of movable finger 0.37–0.43 mm., slightly greater than the length of the hand without pedicle; chela gaping when the fingers are closed. Movable finger with about 40–45 subrectangular marginal teeth arranged along more than the distal four-fifths of the finger length; teeth little separated, cusps absent; receptor venedentis formed of the short apical tooth and three heavily sclerotized lateral and sublateral denticles located near the base of the apical tooth. Fixed finger with about 35–40 subrectangular and subcontiguous marginal teeth; some teeth with a small cusp often placed toward the proximal corner of the tooth; 10 teeth of fixed finger at level of *et* occupy about 0.06 mm. of the finger margin; teeth arranged along about the distal four-fifths of the finger margin; nodus ramosus near base of venedens and a little closer to the distal end of the apical tooth than to tactile seta *et*. Movable finger with tactile seta *st* near the midpoint of the finger, *t* about two areole diameters distal to *st*, *sb* about three areole diameters proximal to *st*, *b* about one-sixth of finger length from base of finger. Fixed finger with *et* a little less than one-fourth of finger length from tip; *est* about one and one-fourth times as far from *et* as *et* is from finger tip; *it* on a level about midway between *et* and *est* or somewhat closer to the latter; *ist* on a level slightly distal to *est*; *ib* about as far from *it* as the latter is from

the finger tip; *isb* near base of finger and between *ib* and *esb*; *esb* and *eb* about three areole diameters apart and located on the external face of the chela near the base of the fingers.

Legs: Moderately slender to slender; setae not especially numerous, relatively long, acuminate; legs yellow in color; smooth. First leg with trochanter subtriangular in shape, length 0.1 mm. or less, depth somewhat less than the length, flexor margin evenly convex, extensor margin very short; pars basilis with both flexor and extensor margins weakly convex, deepest near the distal end, a few acuminate setae present, length 0.167–0.18 mm., length 1.9 to 2.1 times the depth; pars tibialis with both margins, especially the flexor somewhat more convex than the margins of the pars basilis, length 0.137–0.152 mm., length 1.65 to 1.85 times the depth; tibia with weakly concave to virtually straight extensor margin, flexor margin weakly convex, greatest depth near the center of the podomere, length 0.212–0.235 mm., depth 0.5 mm. or slightly more, length 4.25 to 4.5 times the depth; both pars tibialis and tibia with a few long, acuminate setae; metatarsus subcylindrical, deepest at the very base, a few acuminate setae present, length 0.074–0.08 mm., depth 0.034–0.035 mm.; telotarsus tapering slightly toward the distal end, length 0.125–0.137 mm., depth 0.026–0.028 mm., length 4.5 to 5 times the depth; subterminal seta of tarsus with numerous spine-like denticles along the distal two-thirds; terminal claws simple. Fourth leg with trochanter between 0.13 and 0.14 mm. long, depth about 0.1 mm., extensor and flexor margins nearly straight and parallel, few setae; pars basilis with nearly straight flexor margin, extensor margin weakly convex, a few setae on the flexor surface, length 0.17–0.18 mm., depth 0.125–0.13 mm., length 1.33 to 1.45 times the depth; pars tibialis with basal portion of flexor margin straight and continuous with the flexor margin of the pars basilis, extensor margin weakly convex, a few acuminate setae present, length 0.235–0.25 mm., depth about 1.3 mm.; entire femur 0.37–0.38 mm. long, 0.13–0.131 mm. deep, length 2.8 to 2.9 times the depth;

tibia with central and distal portions of extensor surface virtually straight, flexor margin weakly convex, a few acuminate setae present, surface near distal end may sometimes show very weak scale-like markings, length 0.31–0.325 mm., depth 0.069–0.072 mm., length 4.35 to 4.7 times the depth; metatarsus widest across the base, narrowed toward the distal end, margins nearly straight, several long and acuminate setae present, length 0.093–0.095 mm., depth 0.05–0.053 mm., length 1.8 to 1.9 times the depth; telotarsus with subterminal setae and terminal claws much as in the first leg; length of telotarsus 0.14–0.156 mm., length 4.1 to 4.2 times the depth.

Genital complex (description based on male holotype): Posterior border of third sternite with six widely spaced acuminate setae; four setae just behind genital opening on the operculum. About nine setae in a row along the posterior margin of the anterior operculum and two submedially placed just posterior to the row; in addition, a group of three setae occurs anterior to the row on each side of the median line.

FEMALE: Body in general, carapace, abdomen, pleural membranes, and stigmatic plates like those of the male as far as can be determined from the specimens at hand.

Chelicera: Base 0.215–0.235 mm. long, 0.135–0.14 mm. wide; movable finger 0.2–0.21 mm. long; galea simple, gently curved, much longer than in the male, having a length about equal to two times the width of the movable finger at the level of the insertion of the galeal seta; tip of galeal seta reaches approximately to the level of the tip of the galea; otherwise as in the male.

Palpus: Fundamentally as in the male; dimensions of chela of allotype exceeds slightly the limits of measurement determined in the males; allotype with chela 0.775 mm. long, 0.28 mm. wide, 0.277 mm. deep; hand of allotype 0.385 mm. long, movable finger 0.425 mm. long; chela of female paratype slightly smaller, ratios as in allotype. Teeth of chelal fingers, position of nodus ramosus, and nature of receptor venedentis as in the male. Tactile

setae with *it* on a level much closer to *est* than to *et*; *ib* somewhat nearer to *it* than latter is to finger tip; otherwise as in the male.

Legs: In allotype, almost identical with the legs of the male except that some podomeres of the fourth leg vary slightly; entire femur 3 times, metatarsus 1.8 times, telotarsus 4 times as long as wide. All the pedal appendages of the female paratype are smaller than the corresponding ones of the allotype and so do not always fall within the size limits given in the description of the male. The length:depth ratios of podomeres, however, are nearly the same for the allotype and the female paratype.

Genital complex: Not favorable for study in specimens available.

TYPE LOCALITY: The male holotype, the female allotype, two male paratypes, and one paratype of undetermined sex (in alcohol) in a collection made on Dessecheo Island, West Indies, in February, 1914; one male paratype and one female paratype in a collection from Mayaqu  , Puerto Rico, date unknown.

Pachychitra insularum may be separated readily from *P. maya* (Chamberlin, 1938) by the presence of granules on the palpal podomeres, the better-developed pedicle on the palpal femur, and differences in the marginal teeth of the chelal fingers.

MENTHIDAE CHAMBERLIN

Menthus mexicanus, new species

Figures 6, 7

MALE: Unknown.

FEMALE: Description based on two individuals; measurements given are of the holotype and are followed in parentheses by corresponding measurements of the paratype in instances where significant differences occur. Body slender, about 2.7 mm. in length; abdomen and legs light brown in color, carapace and palps darker brown. Cephalothorax as in the genus; carapace extending only to the level of the anterior margin of the coxae of the third leg. Carapace subrectangular, very similar to that figured by Chamberlin (1930, fig. 2, B) for *M. rossi* (Chamberlin, 1923);

dorsal surface smooth, setae sparse; anterior margin convex, well rounded, with a pair of submedial and a pair of sublateral setae; lateral margins evenly but weakly convex; minute granules seen in relief along the lateral margins; posterior margin almost straight with apparently two pairs of setae and a pair of submedial slit-like lyrifissures; postero-lateral corners rounded; antero-lateral corners marked by a sclerotic bar just anterior to the eyes; a weakly defined transverse furrow near the posterior margin of the carapace; two well-developed eyes on each side, the posterior eye smaller than the anterior eye; eyes of each side separated by about one-half of the diameter of the posterior eye; length of carapace 0.67 (0.77) mm., greatest width near the center and equal to a little less than 0.6 of the length; ocular width 0.325 (0.37) mm. Abdomen elongate, about 1.75 mm. long, width less than one-half of the length; sternites and tergites not highly sclerotic, not divided, each with a single marginal row of seldom more than 10 setae; all setae acuminate. Pleural membranes with numerous but weakly developed parallel striations.

Chelicera: Base relatively stout; fingers slender; moderate size. Hand of chelicera with five setae, all long and acuminate; the basal and subbasal setae somewhat shorter than the others; flagellum of four setae, the serrations of the most distal seta so sparse and fine that they are barely discernible; base of chelicera 0.21 (0.26) mm. long, 0.13 (0.16) mm. wide; movable finger 0.155 (0.19) mm. long. Fixed finger moderately slender; outer margin evenly convex; lamina exterior present; apical tooth sclerotic, with one sclerotic denticle on the inner margin near the tip and another near the base; removed some distance from the apical tooth is a row of five or six retroconical denticles along the inner margin of the finger; the distal tooth of this row is large and sclerotic, the other teeth regularly decrease in size toward the basal end of the row; serrula interior too transparent for detailed study. Movable finger slender; apical tooth heavy, very sclerotic, and dark brown in color; subapical lobe conical in shape, weakly sclerotic, often with a small

terminal cusp; galeal seta inserted near the base of the subapical lobe and reaching almost to the tip of the galea; serrula exterior of about 25 ligulate teeth, the basal ones of the row longer than the others; galea bifurcated proximal to the midpoint, both rami simple and slender.

Palpus: Moderately stout, especially the chela; brown color; surface virtually smooth; numerous long, acuminate setae. Maxilla with apex long and acute; two apical setae, the more distal much longer than the other; another long seta at base of apex; setae of face of maxilla sparse, acuminate, moderately long; length of maxilla 0.38 (0.46) mm., length 2.5 (2.4) times the width. Trochanter pedunculate; inner margin irregularly convex; outer margin variable; length 0.28 (0.34) mm. long, being about 2 times the width. Femur with a weakly defined and short pedicle; outer margin convex, somewhat flattened in the central half; inner margin with basal portion convex, distal portion concave; widest near the basal third; acuminate setae fairly numerous, well scattered; length 0.475 (0.56) mm., width 0.155 (0.183) mm.; length about 3.05 times the width. Tibia with pedicle about as long as wide; outer margin of tibia very weakly convex or even straight in the basal half, distinctly convex in the distal half; inner margin irregularly convex with a slight sinuation in the distal third of the margin; chaetotaxy as in the femur; length slightly greater than the length of the femur, 0.485 (0.595) mm.; width 0.2 (0.235) mm.; length 2.43 (2.53) times the width. Chela from the dorsad with subrectangular hand; fingers slightly curved and well separated from the hand; a few acuminate setae present; chela widest near the base; both margins more or less flatly convex; chela 0.815 (0.94) mm. long, 0.295 (0.355) mm. wide; length 2.75 (2.65) times the width; length of hand without the pedicle 0.385 (0.46) mm.; length of movable finger 0.455 (0.53) mm. From the side, chelal hand has a flattened ventral margin; dorsal margin weakly convex; pedicle placed toward the ventral side of the hand; fixed finger with weakly convex inner and outer margins, narrowed toward the distal end; movable finger more slender,

outer margin convex, inner margin concave; movable finger with receptor venedentis; gaping not evident when chela is closed; depth of hand 0.295 (0.37) mm. Each finger with about 35 teeth arranged along most of the finger margin; teeth in the basal portion of the row not so well developed as the more distal teeth; bases of teeth contiguous; marginal teeth slightly retroconical, especially on the fixed finger; cusps fairly well developed; apical tooth of the movable finger heavily sclerotic, dark brown in color, conical in shape; functional venedens present on fixed finger. Movable finger with four tactile setae: *t* about one-fourth of finger length from tip, *st* two-thirds to three-fourths as far from *t* as latter is from the finger tip, *sb* a little farther from *st* than *t* is from the finger tip, *b* closer to base of finger than to *sb*. External series of tactile setae of fixed finger with *et* about one-fourth of finger length from tip, *est* closer to *et* than the latter is to the finger tip; *esb* and *eb* three or four areolar diameters apart and located on the external surface of hand near base of movable finger; internal series with *it* slightly proximal to the level of *est*, *ist* little proximal to *it*, *isb* separated from *isb* by somewhat less than the distance of *et* from the finger tip, *ib* located a little proximal to the level of *isb* and separated from the latter by several areolar diameters; three accessory tactile setae¹ present: *a* dorsal to and associated with *eb* and *esb* on the external side of the hand at the base of the fixed finger, *c* and *d* well separated and located on the dorsal surface of the hand; numerous pseudotactile setae with very small areoles present on hand and fingers.

Legs: Yellow in color; surface smooth; setae acuminate and fairly numerous on the distal podomeres. First leg with trochanter little more than 1 mm. long, depth about 0.9 of the length, both flexor and extensor margins convex, the former more so than the latter; pars basilis with nearly

straight margins, the greatest depth at the distal end, a few long setae present, length 0.212 (0.255) mm., 2.55 times the depth; pars tibialis with weakly convex extensor margin, inner surface swollen, setae as in pars basilis, length 0.14 (0.167) mm., 1.6 times the depth; tibia with nearly straight extensor margin, flexor margin evenly convex, acuminate setae fairly numerous, length 0.21 (0.265) mm., depth 0.061 (0.0715) mm., length 3.45 (3.7) times the depth; metatarsus subcylindrical, setae as on the tibia, length 0.102 (0.122) mm., length 2.46 (2.7) times the depth; telotarsus subcylindrical, extensor margin very weakly convex, flexor margin virtually straight, setae numerous, especially on the flexor surface, length 0.14 (0.156) mm., length 4.05 (4.3) times the depth; tarsal claws simple. Fourth leg with color and chaetotaxy as in the first leg; trochanter with highly convex extensor margin, flexor margin almost straight, length 0.175 (0.198) mm., length between 1.45 and 1.5 times the depth; pars basilis relatively small, subtriangular, a few setae near the evenly convex flexor margin, length 0.16 (0.175) mm., length about 1.35 times the depth; pars tibialis with extensor margin very convex near the basal end, flexor margin weakly convex to nearly straight, length 0.395 (0.46) mm., 2.05 times the depth; entire femur 0.475 (0.545) mm. long, 0.192 (0.225) mm. deep, length 2.45 (2.4) times the depth; tibia with flexor margin evenly convex, the extensor margin less convex than the flexor, deepest near the distal two-fifths, length 0.357 (0.41) mm., 3.7 (3.8) times the depth; metatarsus subcylindrical, slightly wider across the proximal than the distal end, length 0.159 (0.187) mm., depth about one-third of the length; telotarsus of same general shape as telotarsus of first leg, length 0.160 (0.182) mm., depth 0.042 (0.045) mm., length 3.8 (4.05) times the depth.

Genital complex: No structures of diagnostic importance observed.

TYPE LOCALITY: Two individuals, the female holotype and a female paratype, in a collection made by L. I. Davis at Mexcala, Guerrero, Mexico, on July 2, 1941.

Menthus mexicanus is the fourth species

¹ Chamberlin (1931, p. 141, fig. 37, A) has designated these three accessory setae by the letters *a*, *b*, and *c*. Since his use of the letter *b* for both the basal seta of the movable finger and the central one of the accessory setae may lead to some confusion, I have taken the opportunity to redesignate the accessory setae by the letters *a*, *c*, and *d* as shown in my figure 7.

to be described as belonging to the genus. Little or no trouble is encountered in separation of our form from two of the previously described species, *M. californicus* Chamberlin, 1930, and *M. lindahli* (Chamberlin, 1923), but separation from *M. rossi* (Chamberlin, 1923) is more difficult. From *M. californicus*, our species may be separated by the larger body size, the flatter lateral and medial chelal margins, and the greater number of teeth on the movable palpal finger. The greater number of teeth in the serrula exterior, the relatively longer chelal finger, and the more slender chela distinguish *M. mexicanus* from *M. lindahli*.

Menthus mexicanus appears to be very closely related to *M. rossi*, but on the basis of material available is considered distinct. The differences between the two forms are clearly noticeable when the females of the present species are compared with the female allotype described by Chamberlin (1923). The two most important criteria for separation of the two related species are the shape of the chela and the ratio of the lengths of the chelal finger and hand. For the female allotype of *M. rossi*, Chamberlin (1923) gives data which make possible calculations that the chela length is 3.15 times the width, and the length of the chelal finger is 1.48 times the hand length. Very similar ratios are indicated by Chamberlin in a figure published later (1931, p. 223, fig. 60). In *M. mexicanus*, the length of the chela is no more than 2.75 times the width, and the length of the finger does not exceed the length of the hand by more than 1.2 times. Moreover, the femur and tibia of the fourth leg in *M. mexicanus* are stouter than indicated by Chamberlin (1923) for these structures in the allotype of *M. rossi*.

A study of the description of *M. mexicanus* as given here indicates that numerous marked differences in size of podomeres occur between the holotype and the paratype. With the exception of the distal three podomeres of the first leg (which may be abnormal in one of the individuals) the dimensional ratios of all podomeres measured are well within the usual range of intraspecific variation. Undoubtedly ratios

show less variation and are more reliable as species characteristics than are the measurements themselves. In addition, much more significance must be attached to the length : width ratios of the palpal podomeres, which in this instance are almost identical, than to the length : depth ratios of pedal podomeres, since the measurements of the small pedal podomeres allow considerable error. This error is reflected in the length : depth ratio.

OLPIIDAE CHAMBERLIN

Olpiinae Banks

Apolpium ecuadorensis, new species

Figures 8-10

MALE: Unknown.

FEMALE: Body fairly stout; appendages except for chelal hand moderately slender; all setae relatively long and acuminate; color of body yellowish brown, with palps, carapace, and tergites somewhat darker. Carapace not in a favorable position on slide for detailed measurements; length about 0.85 mm., greatest width posterior to center and considerably less than the length; posterior width little less than the greatest width; lateral margins apparently convex behind the eyes; anterior margin with a weak median sinuation and four setae, two of which are submedial in position; posterior margin almost straight with apparently four marginal setae placed somewhat anterior to the actual margin; area between setae and margin smooth and unpigmented; lateral surfaces and the posterior margin just anterior to the marginal setae marked by net-like lines; surface of carapace with about 10 acuminate setae and a few slit-like lyrifissures; eyes of the two pairs large, almost circular in outline, those of each side little separated, removed from the anterior margin by about the diameter of the eye. Abdomen subovate, about 2.15 mm. long, width about two-thirds of the length (KOH treated specimen). Number of setae on each tergite and sternite in central portion of abdomen about 10; all setae acuminate, those of the tergites longer than the sternal setae; anterior two tergites marked by net-like

sculpturing, other tergites smooth; tergites darker and more sclerotic than the sternites; each tergite with a sublateral pair and a submedial pair of conspicuous slit-like lyrifissures; many sternites with a submedial pair of weakly developed lyrifissures. Pleural membranes consisting of numerous fine plications. Stigmatic plates asetaceous.

Chelicera: Base smooth, yellow; five sensory setae, *b* and *sb* shorter than others, all acuminate; flagellum of three setae, the two proximal ones subequal in length and much shorter than the third, the longest seta finely serrate, at least distally along the anterior margin, the other two setae appear smooth; length of chelicera 0.265 mm., width of base about 0.175 mm. Fixed finger with well-developed lamina exterior; apical tooth short, somewhat blunt, brown in color; apical tooth with two shallow, conical teeth on inner surface; inner margin of finger with five retroconical teeth, forming an almost continuous series with the denticles of the apical tooth and confined to less than the distal one-half of the finger; the distal plate of the serrula interior slender, elongate, almost spine-like, directed distad, with a very finely serrate margin; remainder of plates fused into a velum, in which the vestigial plates are outlined; velum very wide in the proximal half. Movable finger slender, not greatly curved, distal half with inner and outer margins subparallel; length of finger 0.225 mm.; apical tooth acute, dark in color; subapical lobe conical and placed near base of apical tooth at same level as insertion of galeal seta and galea; galeal seta shorter than the galea; galea relatively slender and straight, trifold in the distal one-fifth with branches simple, gently curved, and finger-like; serrula exterior of about 23 to 25 ligulate plates, the position of the finger precluding an accurate count.

Palpus: Moderately slender except chelal hand; golden brown color, polished, smooth. Maxilla about 0.5 mm. long; four apical and subapical setae, another just medial to articulation with the trochanter, other setae sparse. Trochanter subtriangular; inner margin well rounded, outer margin short and weakly concave;

numerous setae on inner surface; greatest width of trochanter 0.235 mm., length a little greater than the width. Femur with pedicle barely indicated; outer margin almost straight except for a sinuation at the region of the pedicle and a distal convexity; inner margin very weakly convex except near each end; setae all acuminate, fairly numerous, those of the inner surface longer than those of the outer surface; a dorsal sensory seta in the basal third; femur widest near the distal fourth; length 0.85 mm., width 0.22 mm., length equal to 3.85 times the width. Tibia with outer margin weakly and irregularly convex, greatest convexity near distal one-fourth, central portion of margin flatly convex; inner margin centrally bulging, a concavity in the region of the pedicle, a weak sinuation in the distal one-fourth; pedicle longer than wide; length of tibia 0.755 mm., width 0.247 mm., length 3.05 times the width. Chela from the dorsad with pedicle displaced far to the outer side; outer margin from pedicle to base of fingers weakly convex, being slightly more convex near the pedicle than elsewhere; inner margin tumid, a little more convex near pedicle than near the fingers; numerous, fairly long acuminate setae; fingers very slender, gently and evenly curved; chela 1.47 mm. long, 0.465 mm. wide, length 3.16 times the depth. Chela from the side with hand subovate; both margins evenly convex, the dorsal much more so than the ventral; pedicle displaced toward the ventral margin; depth of chela equal to the width; length of hand 0.66 mm.; both fingers slender; nodus ramosus of movable finger somewhat distal to tactile seta *t*, of fixed finger about midway between *et* and the level of *it*; venedens of each finger long, slender, and acute; lamina defensor present in the fixed finger, not observed in the opposing finger. Movable finger 0.8 mm. long, somewhat longer than the hand with pedicle; outer margin convex; inner margin weakly concave; 35 contiguous marginal teeth, a few conical at the distal end of the row, the remainder retroconical, becoming much flattened in the distal portion of the row, cusps weak or lacking; not more than the proximal one-sixth of the

margin edentate; four tactile setae as follows: *t* about one-fifth of finger length from tip of finger, *st* slightly less than three-fifths of finger length from tip, *b* about one-tenth of finger length from basal margin, *sb* and *b* separated by between two and three areolar diameters. Fixed finger with a weakly convex inner margin, outer margin virtually straight except near the ends; marginal teeth contiguous, 55 in number and distributed along the entire finger margin, those of anterior three-fourths of row acute and retroconical, gradually changing to more symmetrical and rounded teeth at proximal end of row, cusps moderately well developed; tactile setae as follows: *et* within the terminal one-tenth of finger length; *it* about one-fifth of finger length from tip; distance from *it* to *ist* about equal to distance from *it* to finger tip; *est* located within the proximal one-third of the finger, about equidistant from the levels of *ist* and *eb*; *eb* and *esb* at very base of finger and separated by less than two areolar diameters; *isb* forming a row with *eb* and *esb* and separated from the latter by less than two areolar diameters; *ib* subdorsal in position and on a level little distal to the level of *isb*.

Legs: Slender except femora of third and fourth legs; smooth; light yellow in color; setae long and acuminate, not especially abundant except on the tarsal podomeres of the first and second pairs of legs. First leg with trochanter subtriangular, anterior or flexor margin distally convex but proximally concave, posterior or extensor margin nearly straight and somewhat short, length about 0.2 mm., slightly greater than depth; pars basilis elongate, flexor margin nearly straight and with a weak sinuation near the proximal end, extensor margin centrally concave with a convexity at the very distal end where the podomere is the deepest, length 0.4 mm., greatest depth 0.115 mm., length equal to about 3.5 times the depth; pars tibialis much shorter than the pars basilis, flexor margin very weakly convex, extensor margin evenly convex, greatest depth in distal half, length 0.19 mm., depth 0.115 mm.; tibia with extensor margin nearly straight but a little convex proximally and very weakly con-

cave in the distal half, flexor margin evenly convex, length 0.295 mm., depth 0.078 mm.; metatarsus with inner or flexor margin virtually straight, outer margin very weakly concave, deepest at the proximal end, length 0.268 mm., depth 0.059 mm.; telotarsus of about the same shape as the metatarsus, length 0.195 mm., depth 0.04 mm.; tarsal podomeres markedly setaceous; terminal claws small and simple, arolium extending much beyond the claws and distally widened. Fourth leg with the flexor margin of the trochanter virtually straight, extensor margin very convex with a highly arched midpoint, length 0.31 mm., depth equal to two-thirds of the length; pars basilis subtriangular, almost no extensor margin, flexor margin weakly convex especially near the proximal end, length 0.247 mm., depth 0.15 mm.; pars tibialis swollen, extensor margin very convex especially in the proximal portion, flexor margin weakly convex, length 0.675 mm., depth 0.307 mm.; entire femur 0.79 mm. long, 0.307 mm. deep, length 2.57 times the depth; tibia with weakly S-shaped extensor margin, flexor margin weakly convex, deepest near the center, length 0.545 mm., depth 0.125 mm.; metatarsus with very weakly concave extensor margin and weakly convex flexor margin, narrowed toward the distal end, length 0.315 mm., depth 0.08 mm.; metatarsus with a long tactile seta about one-seventh of the length of the podomere from the proximal end; telotarsus with a very weakly concave inner margin, irregularly convex extensor margin, deepest near the center, length 0.27 mm., depth 0.053 mm.; setae of tarsal podomeres long but less numerous than those of the tarsus of the first leg; terminal claws and arolium as in the first leg.

Genital complex: Anterior operculum with three or four very slender setae on each side of the genital opening; posterior operculum relatively little modified and with a row of six marginal setae. Cribiform plates include a pair of prominent lateral plates and two median pairs; the anterior median cribiform plates larger than those of the posterior median pair; a few additional, small, and inconspicuous cribi-

form plates associated with the median pairs.

TYPE LOCALITY: A single specimen, the female holotype, in a collection made by F. M. Brown in March, 1939, at Banos, Tungurahua, Ecuador; altitude 1800 meters.

By virtue of its large size and certain other characteristics, our form seems more closely related to *A. cordimanum* (Balzan, 1891) than to any other species of *Apolpium*. The present species keys to *A. cordimanum* in the key given by Beier (1932). The two related forms, however, differ in many characteristics, *A. ecuadorensis* being recognized readily by the very slightly convex inner margin of the palpal femur, the greatest width of the palpal femur near the distal end rather than in the center of the femur, hand less triangular in outline when viewed from above, more convex outer margin of chela, and the narrower chela (measurements of Balzan's, 1891, fig. 28 indicate a length:width ratio of about 2.5 for the chela). In this connection, it might be well to point out that there is considerable difference in the shape of the palpal femur of *A. cordimanum* as pictured by Balzan (1891, fig. 28) and as depicted by Chamberlin (1931, p. 131, fig. 32, M) indicating that perhaps Chamberlin did not have the true *A. cordimanum* of Balzan. Our form has a palpal femur vastly different from that shown for *A. cordimanum* by either Balzan or Chamberlin.

***Apolpium parvum*, new species**

Figures 11-14

MALE: Unknown.

FEMALE: Body and appendages moderately slender; body and legs light yellow in color, palps and carapace slightly darker; all setae acuminate; body 1.9 mm. long. Carapace light yellowish brown; posterior margin little convex and with four marginal setae separated from the posterior margin by a narrow unpigmented band, a slit-like lyrifissure just medial to each of the sublateral setae; anterior margin straight and with either six or eight marginal setae; lateral margins little convex behind the eyes; carapace abruptly nar-

rowed and truncate before the eyes; between 20 and 24 setae on the surface of the carapace; surface smooth except for a submarginal band marked by poorly developed net-like sculpturing along the lateral margins and just anterior to the posterior marginal setae; eyes of the two pairs large, not regularly circular in outline, separated from the anterior margin of the carapace by less than the greatest diameter of one eye; carapace length 0.56 mm., greatest width 0.48 mm. at about the posterior one-fourth, posterior width subequal to the greatest width, ocular width 0.35 mm. Abdomen (KOH treated) about 1.35 mm. long, width about 0.8 mm.; tergites and sternites very weakly sclerotic, smooth except first and second tergites with weak net-like markings. First tergite with two to four setae, second with eight, third with 10, number on each central tergite about 14. About 10 setae on sternites of central part of body; sternal setae smaller than tergal setae; fourth sternite with six marginal setae forming a row in the median part of the sternite, in addition a small seta on the sternite just medial to the stigmatic plate of each side. Pleural membranes marked by fine, wavy plications. Stigmatic plates obliquely placed, asetaceous.

Chelicera: Length 0.185 mm., width of base 0.118 mm.; base moderately stout; the five tactile setae acuminate, *b* and *sb* shorter than the other three; flagellum of three blades, the longest very broad and with about 12 small lobe-like denticles along the distal half of the anterior margin, the other two flagellar blades more setalike and each with a length equal to about one-half of the length of the longest blade. Fixed finger with wide and evenly convex lamina exterior; apical tooth acute, sclerotic, brown in color; the two denticles on the inner surface of the apical tooth retroconical and similar in shape but smaller than the four marginal teeth of the finger; denticles of the apical tooth and those of the inner finger margin form an almost unbroken series of six teeth all confined to much less than the distal half of the finger; serrula interior composed of 15 or slightly more plates, of which the distalmost plate is elongated and spine-like, other plates

fused to form a velum in which the terminal portion of each plate is more or less free. Movable finger slender; apical tooth, subapical lobe, galeal seta, and galea much as in *A. ecuadorensis* except the three terminal rami of the galea appear slightly longer and less curved; serrula exterior of about 24 ligulate plates; movable finger 0.15 mm. long.

Palpus: Moderately slender; light yellow color; smooth; setae long and acuminate. Maxilla with two long setae (one apical and one subapical) and two or three smaller setae on the apical projection; length 0.32 mm., almost twice the width. Trochanter with extensor margin slightly concave, flexor margin convex, numerous setae on flexor surface, length 0.26 mm., width 0.163 mm. Femur without definite pedicle although both flexor and extensor margins show a weak concavity near the base of the podomere, distal to the basal concavity the extensor margin is virtually straight or very weakly concave becoming weakly convex in the distal one-half of the margin; the flexor margin centrally convex with a shallow concavity near the distal end; setae of flexor surface longer and more conspicuous than those of the extensor surface; sensory seta within the proximal one-third of the dorsal surface; length 0.54 mm., width 0.15 mm. Tibia weakly pedunculate, extensor margin evenly convex, flexor margin centrally convex but almost straight in the distal fifth, length 0.465 mm., width 0.173 mm. Chela from the dorsad with the extensor or outer margin evenly convex, the flexor margin more convex especially in the proximal portion; setae fairly numerous and acuminate; fingers little curved, slender; hand without pedicle 0.42 mm. long; movable finger 0.515 mm. long; length of chela 0.915 mm., width 0.265 mm., length 3.45 times the width. From the side, the dorsal margin much more convex than the weakly convex ventral margin, both margins less convex toward the finger base; depth of hand slightly greater than the width, 0.28 mm.; fingers slender, each with an acute venedens and delicate lamina defensor; fixed finger with inner and outer margins very weakly convex; movable finger with

weakly convex outer margin, inner margin very weakly concave. Teeth of movable finger at the very distal end of the row small, conical, and with a cusp; gradually changing to the flattened retroconical, and acuspid teeth of the proximal end of the row; the 32 teeth dispersed along nearly the entire finger margin. Fixed finger with 47 retroconical teeth, mostly well developed but the basal ones reduced and without cusps; entire inner margin of finger bearing teeth. Movable finger with four tactile setae; *t* about one-fourth of finger length from tip, *st* about midway between *t* and base of finger, *b* and *sb* about three areolar diameters apart and located near base of finger; nodus ramosus slightly closer to tactile seta *t* than to the finger tip. Fixed finger with tactile setae arranged much as in *A. ecuadorensis*; *et* about one-tenth of finger length from tip, *ist* near midpoint of finger, *it* about midway between the finger tip and *ist*; *est* within the basal one-third of finger and on a level about midway between *ist* and *esb*; *isb*, *esb*, and *eb* forming an external row near the base of the finger, separated from one another by less than two areolar diameters; *ib* on about the same level as *isb*; nodus ramosus a little closer to *et* than to *it*.

Legs: Slender, especially the first two pairs; very light yellow in color; smooth; long acuminate setae fairly numerous especially on the distal podomeres. First leg with subtriangular trochanter, flexor margin convex, inner margin almost straight; length of trochanter 0.15 mm., depth about 0.115 mm.; pars basilis elongated, flexor margin with a small proximal concavity but otherwise weakly convex, extensor margin centrally concave and terminally convex; pars basilis deepest near the distal end, length 0.275 mm., depth 0.086 mm.; pars tibialis relatively short, both margins convex, length 0.145 mm., greatest depth in distal third equal to 0.0835 mm.; tibia with weakly convex flexor margin, extensor margin virtually straight except for a weak convexity near the proximal end, length 0.2 mm., depth 0.058 mm.; metatarsus with margins nearly straight, deepest at very basal end, gradually less deep toward the distal end,

length 0.167 mm., depth 0.046 mm.; telotarsus tapering toward the distal end, flexor margin nearly straight, extensor margin weakly convex; length of telotarsus 0.137 mm., greatest depth at proximal end 0.03 mm.; terminal claws small and simple; arolium distally widened and extending well beyond the claws. Fourth leg: trochanter with a relatively straight flexor margin, extensor margin very convex and highly arched in the center, length 0.202 mm., depth 0.137 mm.; pars basilis with convex flexor margin, length 0.167 mm., depth 0.102 mm.; pars tibialis with flexor margin moderately convex; extensor margin of pars tibialis evenly and moderately convex except at the very proximal end where an angulation is formed by a sudden bending of the extensor margin to meet the pars basilis; length of pars tibialis 0.45 mm., depth 0.202 mm.; entire femur 0.53 mm. long, length 2.62 times the greatest depth which is near the center; tibia shaped like the tibia of the first leg, 0.36 mm. long, 0.085 mm. deep; metatarsus with both margins nearly straight, deepest at the proximal end, length 0.222 mm., depth 0.057 mm.; telotarsus with flexor margin very weakly concave, extensor margin slightly convex, length 0.185 mm., depth 0.038 mm.; tactile seta of metatarsus not especially well developed, located about one-sixth of the length of the extensor margin from the proximal end of the podomere; terminal claws and arolium as in the first leg.

Genital complex: Posterior operculum little modified, in present material with two marginal setae on one side and three on the other side of the median line; anterior operculum with a group of three setae on each side of the genital opening; lateral cribiform plates much larger than any of the median plates; median cribiform plates consisting of two well-formed pairs and a few very small and irregular plates; cribiform plates of the two median pairs about equal in size.

TYPE LOCALITY: The female holotype is from a collection made by Dr. Strickland from silty clay soil surface litter at Non Pareil Estate, Sangre Grande, Trinidad, British West Indies, on March 3, 1944.

In the same collection occurs a very young individual possibly belonging to this species, although the nature of the galea suggests otherwise. The young individual has a single tactile seta on the movable chelal finger and three on the fixed finger. It seems inadvisable at this time to describe such an immature individual.

Apolpium parvum appears related through body size and other characteristics to *A. longidigitatum* (Ellingsen, 1910) (*vide* Beier, 1932) and *A. minutum* Beier, 1931. Our form differs from *A. longidigitatum* by having a slightly stouter and much shorter palpal femur, a greater length: width ratio of the chela, a shorter chelal finger, and a less convex flexor margin on the chelal hand. From *A. minutum* our form may be separated by the concavity near the distal end of the flexor margin of the palpal femur, the more evenly convex extensor margin of the stouter palpal tibia, and the somewhat greater length: width ratio of the chela.

Pachyolpium adiposum, new species

Figures 15, 16

MALE: Unknown.

FEMALE: Body and palpi moderately stout to stout; legs moderately slender; light yellowish brown color with palpi and carapace a little darker than the abdomen and legs; all setae acuminate; surface smooth and unsculptured except for the palpal femur, the chelal hand, and the sides of the carapace; body length 2.1 mm. Carapace with posterior margin little convex; four marginal setae separated from the true posterior margin of the carapace by an unpigmented band; lateral margins weakly convex; anterior margin weakly convex and with four long setae; carapace narrowed somewhat before the eyes; smooth except for net-like markings on the sides; setae of face of carapace not abundant, scattered; eyes large, nearly circular, separated from the anterior margin by about the diameter of the anterior eye; eyes of each pair separated one from the other by about one-half the diameter of the eye; carapace about 0.72 mm. long, greatest width in the posterior half and little less than the length, posterior width

subequal to the greatest width, ocular width 0.53 mm.

Abdomen stout, length 1.38 mm., width 0.92 mm. (KOH treated specimen); tergites unsculptured, first tergite with four setae, second tergite with five, third with nine, maximum number in central tergites 12 to 14; sternites with maximum number of setae 10 to 12 in central portion of abdomen, setae somewhat smaller than setae of the tergites; fourth sternite with six or eight setae confined to the median half of the sternite and a lateral seta near each posterior stigmatic plate; anterior stigmatic plates without associated setae; pleural membranes with numerous fine plications.

Chelicera: Stout; length 0.3 mm., width of base 0.215 mm.; five long setae on base; flagellum of three stout blades, the longest denticulate along about the distal third of the anterior margin, the middle blade much shorter and with a few fine denticulations in the distal fourth, the third still shorter and with fewer denticulations. Fixed finger relatively narrow; with conspicuous lamina exterior; one or two denticles on the concave surface of the apical tooth continuous with six or seven denticles along the terminal two-thirds of the inner margin of the finger; the proximal one or two denticles of the marginal row reduced in size; serrula interior with plates fused into a velum, free plates of distal end of row not in a position for observation although the terminal plate seems to be spine-like and smooth. Movable finger stout, outer margin almost straight, inner margin evenly concave, length 0.233 mm.; serrula exterior with 24 ligulate plates, the terminal one of which is on a level with the insertion of the galeal seta; apical tooth brown, sclerotic, conical in shape; subapical lobe with a very wide base, obtuse, blunt, located on a level with the insertion of the galeal seta and very close to the apical tooth; subapical lobe appears to be indefinitely and irregularly bicuspid; inner margin of the finger near the subapical lobe and the posterior slope of the lobe itself with two or three minute denticles; galeal seta shorter than the galea; galea bifurcated near the center with the

apical ramus secondarily bifurcated just proximal to its midpoint, all three branches slender and terminally acute.

Palpus: Fairly stout, podomeres except hand of chela smooth; yellowish brown color; numerous acuminate setae. Maxilla with three setae on apical projection, one distinctly apical, another subapical, the third near the base; length 0.48 mm., width somewhat greater than half the length. Trochanter with a well-marked pedicle, inner margin distal to pedicle well rounded, outer margin weakly concave; setae numerous especially on the inner surface; length about 0.405 mm., width 0.225 mm. Femur with pedicle wider than long and poorly developed; extensor margin distal to pedicle flatly convex becoming more convex near the distal third or fourth; inner margin weakly convex distal to the pedicle but becoming nearly straight in the terminal one-third; a few very fine granules on the distal half of the inner surface; dorsal tactile seta located about one-third of femur length from the proximal margin; length of femur 0.59 mm., greatest width 0.25 mm. near the center, length 2.36 times the width. Tibia very slightly longer and considerably stouter than the femur; pedicle hardly as long as wide; outer margin of entire podomere evenly convex; inner margin evenly convex distal to the pedicle; length 0.61 mm., width 0.285 mm., length 2.14 times the width. Chela with outer margin weakly convex, being less convex toward the finger base than near the pedicle; inner margin markedly but evenly convex especially near the pedicle; smooth except for fine scattered granules over a small area on the inner surface of the hand near the base of the fingers; fingers from dorsad moderately stout, gently curved; setae fairly numerous and relatively long; length of chela 1.12 mm., width 0.425 mm.; length of hand without pedicle 0.59 mm.; depth of chela about equal to the width. From the side, the chela shows a well-arched dorsal margin while the ventral margin is weakly convex in the proximal portion but virtually flat in the distal two-thirds; pedicle placed toward the ventral side of the hand; fingers stout, color darker toward the finger tips;

the fixed finger heavier than the movable, with distinctly convex inner margin, outer margin weakly concave except near tip of finger; movable finger gently curved, outer margin moderately convex, inner margin concave, length 0.61 mm.; venedens of each finger acute and very sclerotic; a lamina defensor possibly present and tightly appressed against the inner margin of each venedens. Fixed finger with 42 contiguous teeth arranged along the entire length of the margin; teeth at distal end of row retroconical with highly developed cusps, becoming much flattened and without cusps near the proximal end of the row. Movable finger with 38 teeth; the distal teeth conical and with well-developed cusps; teeth in the center of the marginal row becoming flatly rounded, those of the proximal end of the row much flattened and without well-formed cusps; row of teeth of movable finger extending from the venedens to a level between tactile setae *st* and *sb*. Movable finger with four tactile setae: *t* located slightly distal to the midpoint of the finger, *st* a little nearer the basal margin of the finger than to *t*, *b* about midway between *st* and the proximal margin of the finger, *sb* less than two areolar diameters distad of *b*. Fixed finger with *et* about one-fifth of finger length from tip; *it* near midpoint of the finger; *est* located about one-third of the finger length from the proximal margin; *ist* distinctly basal in position, located a short distance distal to *ib* and hardly at all distal to the level of *isb*; *isb*, *esb*, and *eb* forming a compact row on the external face of the finger near the base.

Legs: Light yellow color; smooth; acuminate setae relatively long, fairly numerous especially on the distal podomeres. First leg with subtriangular trochanter, flexor margin convex, extensor margin short and nearly straight, length 0.163 mm., depth 0.142 mm.; pars basilis elongate, flexor margin weakly convex, extensor margin with a concavity in the central half, a few long setae present, length 0.285 mm., greatest depth near the distal end 0.12 mm.; pars tibialis much shorter than pars basilis, both margins convex, the flexor more convex than the extensor, length 0.198

mm., greatest depth 0.125 mm. near the center; tibia with extensor margin weakly S-shaped, flexor margin moderately convex, setae as in the pars basilis, length 0.255 mm., depth 0.0875 mm. near the distal one-third; metatarsus subcylindrical, tapering slightly toward the distal end, deepest at the very proximal end, length 0.167 mm., depth 0.061 mm.; telotarsus with flexor margin nearly straight, extensor margin convex especially in the distal half, length 0.145 mm., greatest depth 0.05 mm. near the proximal margin; setae of tarsal podomeres more numerous and larger than on other podomeres; terminal claws simple, arolium extending beyond the terminal claws. Fourth leg with trochanter about 0.28 mm. long, nearly 0.2 mm. deep, flexor margin weakly convex, extensor margin moderately convex; pars basilis subtriangular, numerous setae on flexor surface and sides, flexor margin convex especially at the proximal end, length 0.23 mm., depth 0.163 mm.; pars tibialis with flexor margin very weakly convex, extensor margin moderately and, except for the very distal end, evenly convex, more and longer setae on the flexor surface than on the extensor, length 0.575 mm., depth 0.28 mm.; entire femur 0.68 mm. long, 0.28 mm. deep; tibia with flexor margin unevenly convex, extensor margin weakly convex, numerous setae scattered over surface, length 0.495 mm., greatest depth distal to the center and equal to 0.155 mm.; metatarsus subcylindrical, proximal end with slightly greater depth than distal end, margins nearly straight, tactile seta of extensor surface within less than one-tenth of the length of the metatarsus from the proximal end; length of metatarsus 0.25 mm., depth 0.095 mm.; telotarsus with virtually straight flexor margin, extensor margin convex, length 0.187 mm., greatest depth 0.068 mm. near the midpoint of the podomere; numerous long setae on tarsal podomeres; terminal claws and arolium as in the first leg.

Genital complex: A well-developed pair of lateral cribiform plates present as well as a pair of large median plates; in addition a single and smaller median cribiform plate present in the holotype, possibly one of a

pair, the mate of which may have been lost in preparing the specimen for study. Posterior operculum with a marginal row of six well-separated setae; anterior operculum with a group of three irregularly arranged setae anterior and to each side of the genital aperture.

TYPE LOCALITY: The female holotype collected by Dr. W. J. Gertsch at Barro Colorado, Canal Zone, on February 10, 1936.

Pachyolpium adiposum is related structurally to several *Pachyolpium* species characterized by stout palpal podomeres:

P. incertum Beier, 1931, *P. reimoseri* Beier, 1931, and *P. arubense* Beier, 1936. Separation of *P. adiposum* from *P. incertum* may be made by the larger size of the body in the former, the greater length of the movable chelal finger, and the shape of the palpal femur. From *P. arubense* and *P. reimoseri*, our form may be distinguished by the movable chelal finger which is longer than the hand without the pedicle, by differences in the shape of some of the palpal podomeres, and by a stouter palpal femur.

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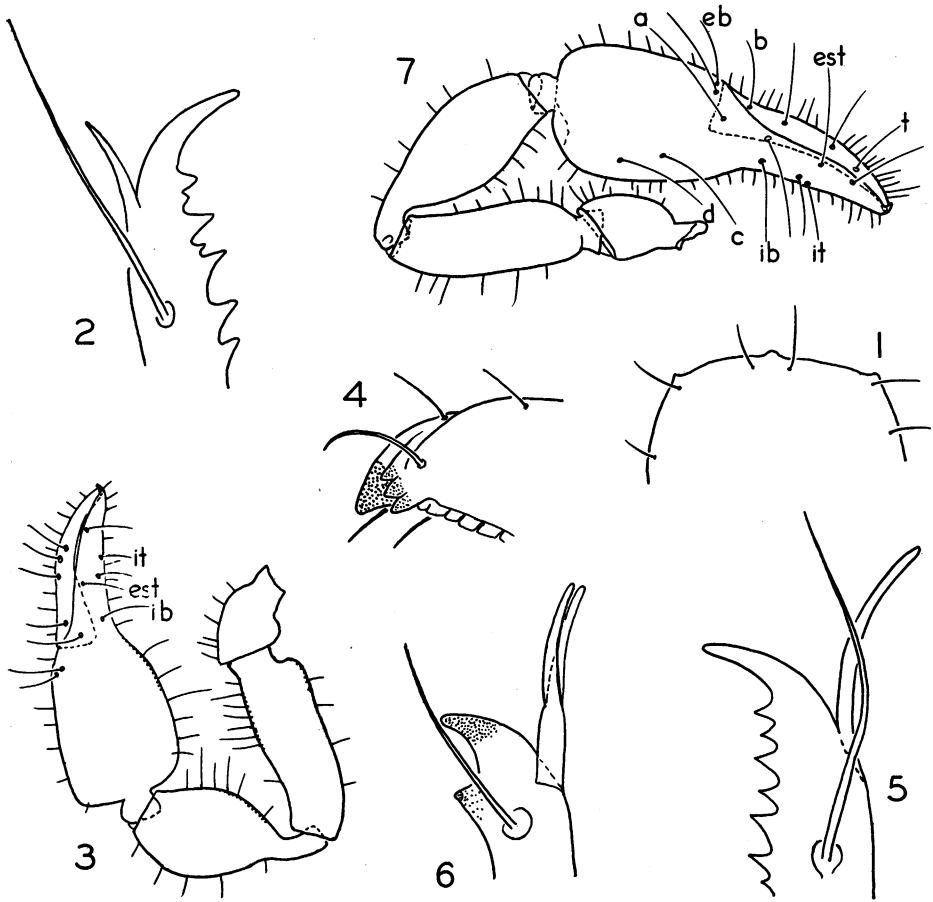


Fig. 1. *Pachychitra insularum*, new species, dorsal view of anterior end of carapace, male paratype; not treated with KOH solution.

Fig. 2. Idem, end of movable finger of chelicera, male holotype; serrula exterior omitted.

Fig. 3. Idem, dorsal view of palp of male paratype; lettering as in the text.

Fig. 4. Idem, receptor venedentis and distal end of movable finger of chela, male paratype.

Fig. 5. Idem, end of movable finger of chelicera, female allotype; serrula exterior omitted.

Fig. 6. *Menthus mexicanus*, new species, end of movable finger of chelicera, female holotype; serrula exterior omitted.

Fig. 7. Idem, dorsal view of palp, female holotype; lettering as in the text.

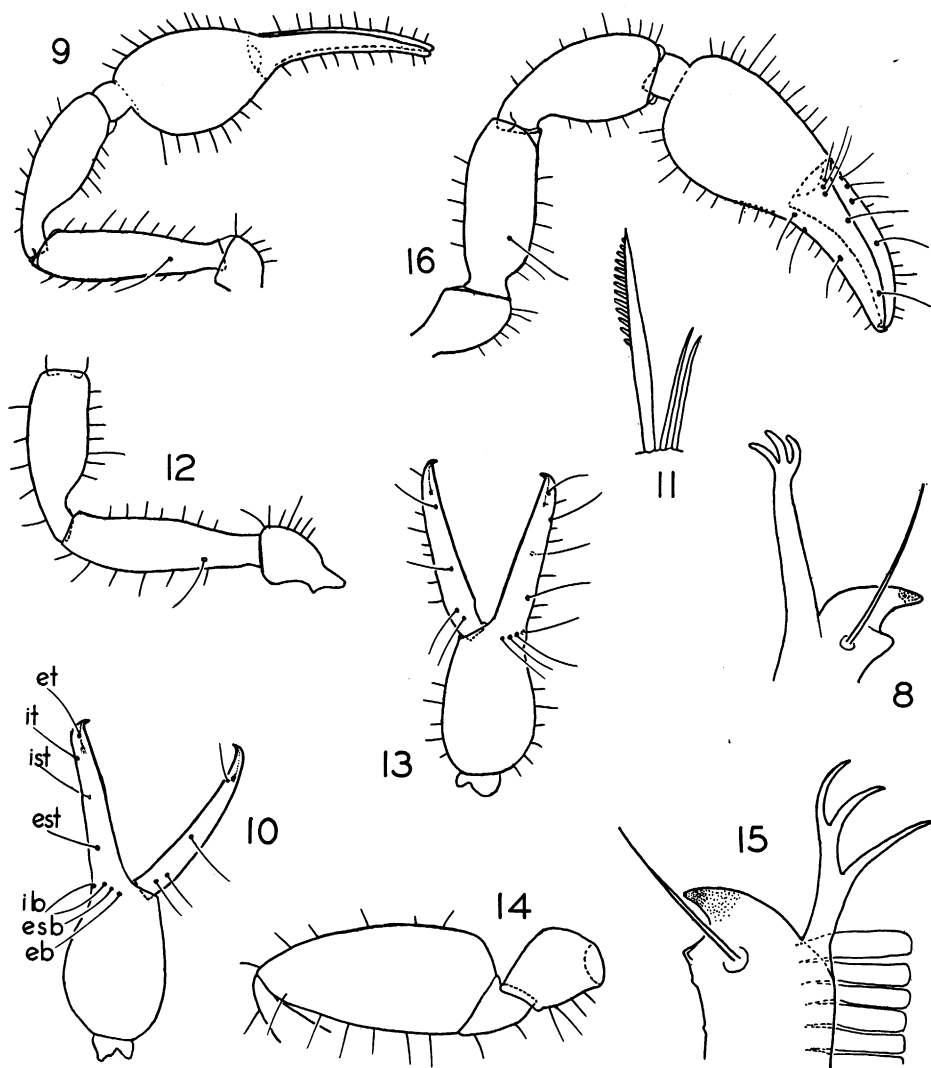


Fig. 8. *Apolpium ecuadorensis*, new species, end of movable finger of chelicera, female holotype; serrula exterior omitted.

Fig. 9. Idem, dorsal view of palp, female holotype; tactile setae of chelal fingers omitted.

Fig. 10. Idem, lateral view of chela, female holotype; setae except tactile ones omitted; lettering as in the text.

Fig. 11. *Apolpium parvum*, new species, flagellum of chelicera, female holotype.

Fig. 12. Idem, dorsal view of distal podomeres of palp, female holotype.

Fig. 13. Idem, lateral view of chela, female holotype.

Fig. 14. Idem, trochanter and femur of fourth leg, female holotype.

Fig. 15. *Pachyolpium adiposum*, new species, end of movable cheliceral finger, female holotype.

Fig. 16. Idem, dorsal view of palp, female holotype.

