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NEW PSEUDOSCORPIONS OF THE SUBFAMILY LAMPROCHERNETINAE

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Through the kindness of Dr. W. J. Gertsch, the writer has been privileged to study the pseudoscorpions in the collection of the American Museum of Natural History. In the present paper five new species belonging to the subfamily Lamprochernetinae are described from Mexico, Central America, and Dominica. New records for a sixth species of the subfamily are given. Other species, possibly new, of this subfamily were found in the collections examined, but in each instance the

material was considered inadequate for description.

Measurements given in the text are, unless otherwise indicated, of specimens cleared in beechwood creosote and mounted in Canada balsam. The body, but not the appendages, of each individual was treated before mounting with potassium hydroxide solution. All drawings were made with the aid of a camera lucida.

Type specimens are deposited in the American Museum of Natural History.

SUBORDER MONOPHYRIONIDA CHAMBERLIN

SUPERFAMILY CHELIFEROIDEA CHAMBERLIN

FAMILY CHERNETIDAE CHAMBERLIN

Subfamily Lamprochernetinae Beier

Lamprochernes ellipticus, new species

Figures 1-4

FEMALE: Body elongate, elliptical, length 3.5 mm. Cephalothorax with straight posterior margin and rounded anterior margin; marked median furrow near center, posterior furrow weak; color brown anteriorly, yellow posteriorly; slightly granular on the sides anterior to the median furrow; length 0.93 mm.; width 0.77 mm.; eight or 10 long, acuminate setae along the posterior margin; face sparsely setaceous. Abdomen yellowish brown, 2.6 mm. in length, 1.25 mm. in width. Tergites divided, except the first incompletely, the last not at all; 16 to 18 acuminate setae on each entire tergite from the first through the tenth; chaeto-

taxy of each tergite consisting of a marginal row, a single seta placed anteriorly and medially in each half tergite, and a seta placed anteriorly and laterally in each half tergite. Sternites except the last divided; usually 20 to 24 setae on the fifth to tenth sternite; position of setae as on the tergites; all setae acuminate; fourth sternite with six medially placed setae. Posterior stigmatic plate with one seta, the anterior with three. Pleural membranes marked by large numbers of closely placed longitudinal plications.

Chelicera: Width of base 0.175 mm.; basal and subbasal setae much shorter than interior and laminal setae; flagellum of three setae, the two distal ones subequal in length and much longer than the proximal; the distal seta of the flagellum toothed along the anterior margin. Fixed finger with lamina exterior; serrula interior with the five distal teeth separate, ligulate, and marginally serrate; outer margin of fixed finger with a shallow subterminal sinuation; terminal tooth with two rounded cusps on the inner surface; internal margin of finger distal to terminal

¹ Quincy College, Quincy, Illinois. This study was aided by a grant from the American Association for the Advancement of Science through the Illinois State Academy of Science.

tooth with four well-developed denticles. Movable finger with straight margins; slightly and evenly narrowed distally; length 0.23 mm.; serrula exterior with 19 to 21 ligulate plates, the proximal one longer than the others; internal margin edentate except for the single subapical lobe just distal to the base of the galeal seta; terminal tooth roughened on the concave side; galea with six thorn-like, terminal and lateral, undivided branches.

Palp: Robust, stout, reddish brown in color, granular in part; many of the long, acuminate setae with minute subterminal dentations. Maxilla 0.495 mm. long, 0.29 mm. wide. Trochanter, about 0.4 mm. in length; granular; with two sublateral protuberances, the more dorsal one being somewhat anterior to the subventrally placed protuberance. Femur stout, tumid; medially granular, laterally nearly smooth; length 2.25 times the width; length 0.73 mm., width 0.325 mm.; but little longer than tibia. Tibia 1.9 times as long as wide; lateral margin markedly curved near the distal one-third; medial margin evenly convex; a few granulations on the anterior-mesial surface. Chela 1.28 mm. long; 0.48 mm. wide; 2.65 times as long as wide; slightly granular on the anterior-mesial surface of the hand, otherwise seemingly smooth; hand with length of 0.675 mm., depth of 0.48 mm.; movable finger only with venom duct and tooth; nodus ramosus proximal to tactile seta *t*; movable finger 0.6 mm. in length. Fixed finger with eight sensory setae arranged in two groups as follows: *eb* and *esb* near base of finger and two to three areole diameters apart, *et* terminal and less than one-sixth of finger length from tip, *est* nearly midway between *et* and *eb*; *ib* and *isb* at level of *esb* and *eb*, *ist* nearly on level with *est*, distance between *ist* and *isb* less than distance of *t* from end point of finger. Movable finger with four tactile setae: *t* about one-third of finger length from tip; *b* and *sb* not far removed from base of finger and separated by less than two areole diameters; *st* about equidistant from *t* and *b*, being closer to *sb* than to *t*. Marginal and accessory teeth developed in both fingers. Fixed finger with a marginal row of between 35

and 40 teeth arranged contiguously along all but a small distal portion of the margin; the marginal teeth near the rounded finger tip enlarged; two internal accessory teeth, subterminally placed; external accessory teeth 12 in number, triangular in shape, well separated and evenly spaced through about the distal two-thirds of the finger length. Movable finger with teeth of marginal row similar in shape, position, and number to those of the opposing finger; a single internal accessory tooth removed from the finger tip by almost one-fourth of the finger length; external row of nine accessory teeth well spaced along the distal one-half of the finger.

Legs: Fairly stout; setae long and acuminate; subterminal setae simple; terminal claws hook-shaped, simple. First leg with trochanter 0.15 mm. deep; entire femur 0.53 mm. long, 0.17 mm. deep; tibia with greatest depth at about the distal one-third, length 0.415 mm., depth 0.105 mm.; tarsus with sides straight, slightly narrowed distally, 0.35 mm. long, 0.07 mm. deep. Fourth leg with trochanter 0.31 mm. long and 0.185 mm. deep; pars basilis of femur 0.27 mm. long, 0.21 mm. deep; pars tibialis 0.575 mm. long, 0.25 mm. deep; entire femur with well-rounded extensor margin, flexor margin slightly convex and conspicuously beset with acuminate setae; length of entire femur 0.75 mm., depth 0.25 mm., length 3 times the depth; tibia with length of 0.595 mm., depth of 0.145 mm., length 4.1 times the depth; tarsus of nearly equal width throughout, length 0.415 mm., depth 0.095 mm., length 4.4 times the depth; tactile seta of extensor margin of tarsus 0.08 mm. from the proximal-extensor corner of the podomere.

Genital complex: Posterior operculum with 10 to 12 marginal setae; anterior operculum with three setae well spaced laterally on each side of a small, compact group of 11 medially placed setae.

TYPE LOCALITY: The single female holotype upon which this description is based belongs to a collection labeled "Algodones, Baja Calif., Mexico, Mar. 6, 1937, Cockerell, etc. Coll."

The only previously described Nearctic

species of this genus is the widely distributed North American species, *Lamprochernes oblongus* (Say), which differs from *L. ellipticus* in many characteristics including body size and the shape of the palpal podomeres.

Lustrochernes communis (Balzan)

Chelifer communis BALZAN, 1890, Ann. Mus. Civ. Storia Nat. Genova, ser. 2, vol. 9, p. 416, pl. 13, fig. 4.

Lustrochernes communis BEIER, 1932, Das Tierreich, vol. 58, pp. 90-91, fig. 110.

RECORDS: La Zacualpa, Chiapas, Mexico; La Buena Ventura, Veracruz, Mexico.

Lustrochernes dominicus, new species

Figures 5-7

MALE: Elongate, elliptical; yellowish brown in color; 2.9-3.5 mm. long. Cephalothorax about 20 per cent longer than wide; length 0.85-1 mm.; surface smooth; medial transverse furrow somewhat more pronounced than the posterior; anterior margin rounded; posterior margin straight and with a row of 10 to 12 acuminate setae; scattered setae on face and sides; eye spots not observed (KOH treated material). Abdomen elongate, 1.75-2.5 mm. long; 0.95-1.15 mm. wide; yellowish brown color. Tergites divided except the first incompletely divided or entire, the last never divided; chaetotaxy of each half tergite consisting of a single medial-anterior seta, one or two lateral setae, and a marginal row of six or seven setae; total number of setae for each entire tergite from one to 10 inclusive ranging from 16 to 22. Sternites from four to 10 inclusive divided; chaetotaxy of fifth to tenth sternites similar to that of the tergites except additional setae in the marginal row, total setae for each sternite varying from 20 to 26; fourth sternite with six to eight setae; all setae acuminate. Pleural membranes with numerous longitudinal, somewhat irregular plications. Anterior and posterior stigmatic plates with three setae.

Chelicera: Width of base 0.175 mm.; subbasal and basal setae shorter than laminal and interior setae; all setae acuminate; flagellum of three setae, the anterior one serrate along the distal edge. Fixed finger with three denticles along the

concave margin of the terminal tooth; five teeth (sometimes a rudimentary sixth) along the inner margin of the finger; lamina exterior present; serrula interior with basal teeth fused to form a velum and with five distal teeth marginally serrate and free. Movable finger 0.24-0.275 mm. long; serrula exterior of 20 to 23 ligulate plates, basal two longer than the rest; galea variable, bifurcated proximal to the midpoint, the lateral ramus smaller than the other, both rami usually subdivided; subapical lobe strong; slight protuberance on the inner margin of the finger near the level of the galeal seta.

Palp: Stout; somewhat shorter than body; color reddish brown. Maxilla lighter in color than rest of palp; 0.48-0.53 mm. long, 0.27-0.32 mm. wide. Trochanter with few setae; two or sometimes three sublateral protuberances; granular at least laterally; averaging about 0.4 mm. in length, 0.3 mm. in width. Femur with mesial margin granular; centrally tumid; medial margin with a marked concavity in the distal half; length 0.8-0.85 mm.; width 0.34-0.37 mm.; length 2.2-2.4 times the width. Tibia with mesial-distal surface granular; lateral margin with a marked convexity at each end; length 0.72-0.77 mm.; width 0.37-0.41 mm.; length 1.85 to 1.95 times the width. Chela 1.3-1.4 mm. long; 0.5-0.55 mm. wide; 2.5 to 2.7 times as long as wide; hand length 0.675-0.765 mm.; hand depth 0.51-0.55 mm.; depth equal to width; chela virtually smooth; setae long, acuminate, numerous; length of movable finger 0.62-0.68 mm., slightly less than hand length; movable finger only with poison apparatus and tooth. Movable finger with about 40 small, contiguous teeth, arranged along the distal four-fifths of the finger length; nine to 11 or more external accessory teeth well spaced within the distal two-thirds of the finger length; internal accessory teeth four or five in number, conical, close together and some distance removed from the finger tip. Fixed finger with more than 40 marginal teeth, the distal ones more acute, especially near the rounded finger tip; usually 10 to 11 external accessory teeth well spaced along the distal four-fifths of the

finger length; five or six internal accessory teeth along the distal one-third of the finger; teeth of all rows variable in number and position. Four tactile setae on movable finger: *t* about one-third of finger length from tip; *b* and *sb* close to base, separated by little more than one areole diameter; distance of *st* from *t* usually less than the distance of *t* from the finger tip; *st* usually slightly closer to *b* than to *t*; *nodus ramosus* slightly proximal to *t*. Fixed finger with two series of sensory setae: external series with *et* one-sixth of finger length from tip, *eb* and *esb* near base and separated by about two areole diameters, *est* variable in position but usually about as far from *et* as from *eb* and *esb*; internal series with *it* about one-third of finger length from tip, *ist* often about one-half as far from *it* as *it* is from finger tip, *ist* on level with *est*, usually about twice as far removed from *ib* and *isb* as from *it*, *isb* and *ib* near base of finger separated by about two areole diameters. *Position of tactile setae extremely variable*, restricting their usefulness in species diagnosis.

Legs: Moderately stout, yellow color; claws simple. First leg with trochanter length equal to depth; entire femur 0.52–0.6 mm. in length, 0.19–0.24 mm. in depth, length 2.5 to 2.7 times the depth; tibia with extensor margin weakly S-shaped, greatest depth near distal one-fourth, length 0.39–0.43 mm., depth 0.12–0.135 mm., length 3.2 to 3.3 times the depth; tarsus 0.35 mm. long, 0.085–0.09 mm. deep, length 3.9 to 4.1 times the depth. Fourth leg with trochanter length 0.3–0.32 mm., depth two-thirds of length; pars basilis of femur 0.32 mm. long, 0.24–0.26 mm. deep; pars tibialis 0.63–0.675 mm. long, 0.28–0.31 mm. deep; entire femur 0.8–0.82 mm. long, 0.28–0.305 mm. deep, flexor margin little convex, extensor margin evenly arched; entire femur 2.7 to 2.85 times as long as deep; tibia 0.59–0.635 mm. long, 0.16–0.18 mm. deep, 3.5 to 3.7 times as long as deep, deepest near the distal third; tarsus 0.415–0.435 mm. long, 0.11–0.115 mm. deep, 3.65 to 3.8 times as long as deep, slightly narrowed distally; tactile seta 0.09–0.1 mm. from basal-extensor corner of the podomere.

Genital complex: Posterior operculum with three variable setae groups: a row of about 10 long and acuminate setae along the posterior margin, a row of four or six slightly shorter setae just anterior to the first row, and a row of four short setae anterior to the others and immediately posterior to the genital opening. Anterior operculum with eight setae in a row immediately anterior to the genital pore and about 16 scattered setae anterior to the row.

FEMALE: Average length 3.8 mm.; color and shape as in the male. Cephalothorax like that of the male; abdomen often longer than in male; tergites and sternites similar in the two sexes.

Chelicera: As in the male.

Palp: In general similar to the palp of the male. Femur length 0.8–0.9 mm.; width 0.35–0.38 mm.; length 2.25 to 2.4 times the width. Tibia 0.69–0.77 mm. in length; width 0.4–0.41 mm.; length 1.75 to 1.9 times the width. Chela length 1.375–1.45 mm., width 0.55–0.59 mm., length 2.4 to 2.5 times the width; hand length 0.8–0.82 mm.; hand depth 0.54–0.57 mm.; length of finger 0.64–0.655 mm. Teeth and tactile setae of fixed and movable fingers as in the male.

Legs: Similar to male except podomeres sometimes slightly longer. First leg with femur up to 2.9 times as long as deep; tibia 0.42–0.46 mm. long, 0.13–0.135 mm. deep, 3.25 to 3.4 times as long as deep; tarsus as in the male. Fourth leg with pars basilis often slightly longer and deeper than in the male; pars tibialis 0.65–0.7 mm. long, 0.3–0.315 mm. deep; entire femur 0.83–0.89 mm. long, 0.3–0.315 mm. deep, 2.7 to 2.9 times as long as deep; tibia 0.625–0.655 mm. long, 0.17–0.175 mm. deep, 3.7 times as long as deep; tarsus 0.43–0.45 mm. long, 0.115–0.12 mm. deep, 3.65 to 3.75 times as long as deep; tactile seta 0.11–0.115 mm. from proximal-extensor corner of tarsus.

Genital complex: Posterior operculum with a single row of 10 to 14 setae; anterior operculum with a group of three or four setae anteriorly placed on each side of the opening and a medially placed compact group of 14 to 18 setae.

TYPE LOCALITY: Male holotype and three male paratypes from Fore Hunt Flat, Dominica, collected on June 27, 1911; female allotype and five paratypes including both sexes from Laudet, Dominica, June 12, 1911.

***Cordylochneres angustochelatus*,**
new species

Figure 8

MALE: Body 3.5 mm. long; stout; color yellowish brown. Cephalothorax 1.27 mm. long, 1.12 mm. wide; marked median transverse furrow just posterior to mid-point of cephalothorax; conspicuous posterior furrow about midway between median furrow and posterior margin; surface weakly granular anterior to median furrow, especially on the lateral surface; smooth, more setaceous, and lighter in color posterior to median furrow; anterior margin rounded; posterior margin slightly convex with 12 to 14 marginal setae. Abdomen fairly stout, 2.25 mm. long, width about two-thirds of length. Tergites except the first and eleventh divided; chaetotaxy consisting in each half tergite of a medial-anterior seta, a row of marginal setae, and one or two lateral setae; total setae for each tergite varying from about 18 to 24; all setae acuminate. Sternites from four to 10 inclusive divided; chaetotaxy of fifth to tenth half sternites similar to the half tergites except additional setae in marginal row; total setae for center sternites about 28. Fourth sternite with 10 setae. Pleural membranes marked by numerous fairly regular plications. Each anterior stigmatic plate with six setae, the posterior with three.

Chelicera: Width of base 0.23 mm.; basal and subbasal setae shorter than laminal and interior setae; flagellum of three setae, the anterior one bearing six to eight acute serrations along the distal margin; all setae of base acuminate. Fixed finger with lamina exterior; serrula interior with the six distal teeth serrate, ligulate, and free; other teeth of serrula interior fused into a velum; apical tooth with three denticles along the concave margin; six teeth along the interior margin of the finger. Movable finger about 0.35 mm. in length;

interior and exterior margins almost straight; serrula exterior with 26 or 27 ligulate teeth, proximal two longer than the remainder; apical tooth heavy; well-developed subapical lobe somewhat distal to the galeal seta; galea proximally bifurcated, both rami branched.

Palp: In general more slender than in most species of the genus; as long or longer than the body; red in color; setae long, acuminate. Maxilla lighter in color than rest of palp; 0.7 mm. long, 0.43 mm. wide. Trochanter about 0.6 mm. long, width 0.42 mm., numerous long setae; two granular sublateral protuberances, the anterior more developed than the proximal one. Femur 1.2 mm. long; 0.465 mm. wide; 2.6 times as long as wide; laterally tumid; smooth except for very fine granulations on the lateral surface; numerous long setae. Tibia 1.12 mm. long, greatest width 0.51 mm.; length 2.2 times the width; lateral margin proximally flattened, convex along the distal half; marked mesial protuberance; smooth; numerous acuminate setae especially on the mesial protuberance. Chela 1.98 mm. long; 0.725 mm. wide; 2.73 times as long as wide; depth of chela 0.75 mm.; hand length about 1.05 mm.; chela smooth with numerous acuminate setae; movable finger about 1 mm. long; venom duct and tooth only in movable finger. Movable finger with a marginal row of over 60 teeth; internal accessory teeth six to eight in number, not contiguous, the row removed some distance from the finger tip; external row of about 16 accessory teeth, evenly spaced along the distal two-thirds of the finger margin. Fixed finger with nearly 60 marginal teeth; about 15 external accessory teeth; seven or eight internal accessory teeth confined to the distal two-fifths of the finger. Movable finger with four sensory setae: *t* about one-third of finger length from tip, *sb* and *b* close to base of finger and less than two areole diameters apart, *st* about equidistant from *b* and *t*; *nodus ramosus* slightly closer to *t* than to *st*. Fixed finger with two series of tactile setae: external series with *et* less than one-eighth of finger length from tip, *esb* and *eb* near base and less than two areole diame-

ters apart, distance of *esb* to *est* subequal to distance from *est* to *et*, *est* farther from *eb* than from *et*; internal series with *it* slightly more than one-fifth of finger length from tip, distance between *it* and *ist* subequal to distance of *it* from finger tip, *ist* much closer to *it* than to *isb* and *ib*, *isb* and *ib* at base of finger separated by about two areole diameters.

Legs: Anterior legs yellowish brown in color; posterior legs yellow; relatively slender; beset with numerous acuminate setae; claws simple. First leg with trochanter 0.24 mm. long, 0.21 mm. deep; pars basilis of femur 0.31 mm. long, 0.24 mm. deep; pars tibialis 0.64 mm. long, 0.23 mm. deep; entire femur 0.79 mm. long; tibia with weakly S-shaped extensor margin, flexor margin weakly concave, 0.655 mm. long, 0.15 mm. deep, length 4.4 times the depth; tarsus 0.53 mm. long, 0.1 mm. deep. Fourth leg with trochanter 0.44 mm. long, 0.27 mm. deep; pars basilis 0.37 mm. long, 0.29 mm. deep; pars tibialis 0.815 mm. long, 0.315 mm. deep, extensor margin evenly convex, flexor margin nearly straight; entire femur 1.06 mm. long, 0.315 mm. deep, 3.37 times as long as deep, long acuminate setae numerous; tibia 0.92 mm. long, 0.18 mm. deep, 5.1 times as long as deep, extensor margin very slightly concave and with a tactile seta slightly distal to the midpoint, flexor margin weakly convex; tarsus 0.63 mm. long, 1.2 mm. deep, 5.25 times as long as deep, nearly cylindrical in shape; tactile seta 0.165 mm. from the proximal-extensor corner of the tarsus.

Genital complex: Posterior operculum with 12 or 14 setae confined chiefly to a single row; anterior operculum with nearly 30 long setae scattered in position.

TYPE LOCALITY: Species known only from the male holotype taken by G. C. Wood at Boquete, Chiriqui Province, Panama, January, 1940.

The species is easily differentiated from other members of the genus, except *C. perproximus* Beier, 1933, by a much narrowed chela. Separation from *C. perproximus* may be made on the much more slender tibia and tarsus of the fourth leg of *C. angustochelatus*.

***Cordylochernes nigermanus*, new species**

Figures 9, 10

MALE: Body robust; large; 4.6 mm. in length; brown in color. Cephalothorax width nearly equal to length of 1.7 mm.; posterior margin straight, anterior margin rounded; marked median transverse furrow located three-fifths of the distance from the anterior end of the cephalothorax; posterior furrow weaker than the median and close to the posterior margin of the cephalothorax; surface conspicuously granular anterior to the median furrow, smooth behind; setae sparse on the granular portion of the cephalothorax; numerous setae posterior to the median furrow with 14 or 16 setae along the posterior margin; eye spots not distinguishable (KOH treated material). Abdomen ovate, light brown, measuring 2.85 mm. long and 2.25 mm. wide in the treated specimen. Tergites divided except the first and eleventh; each half tergite in the central part of the abdomen with a seta along the mesial border anterior to the marginal row, two setae along the lateral border, and six to eight setae well spaced along the posterior margin. Sternites from four to 10 inclusive divided; the chaetotaxy similar to that of the tergites except for additional marginal setae; each half sternite from five to 10 inclusive with a medially placed seta anterior to the marginal row, one or two setae on the lateral margin, and from eight to 11 setae in the marginal row; total number of setae on each sternite from the fifth to the tenth ranging from 20 to 28; setae of the fourth sternite medial in position, six on each half sternite. Pleural membranes marked by well-developed longitudinal plications. Each anterior stigmatic plate with five setae; posterior plate with three setae.

Chelicera: Width of base 0.31 mm.; flagellum of three setae, the distal one serrate along the anterior margin; laminal seta especially much longer than others; all setae acuminate. Fixed finger with a terminal tooth bearing three denticles on the concave or inner surface; margin of finger with six to eight evenly spaced teeth; serrula interior with six or seven serrate

distal teeth, remainder of teeth fused into a velum; lamina exterior present. Movable finger little bent and with length of about 0.46 mm.; apical tooth well developed, little larger than subapical lobe; two minute teeth distal to the subapical lobe and near the level of the insertion of the galeal seta; galea heavily branched, proximally bifurcated (tips broken in specimen); serrula exterior composed of 33 ligulate plates.

Palp: Length about one and one-half times the length of the body; chela and tibia lengths together slightly greater than body length; heavy; dark reddish brown in color; setae abundant, acuminate, many bearing subdistally one to three minute denticles; palpal podomeres appearing smooth except for the finely granular condition of the mesial and dorsal surfaces of the femur. Maxilla 0.99 mm. in length; 0.63 mm. in width. Trochanter with two protuberances, differing somewhat in the trochanters of the right and left sides. Femur pedunculate; laterally tumid; mesial margin slightly convex near center followed proximally by a slight concavity; dorsal surface conspicuously swollen; length 1.7 mm., width 0.75 mm.; length 2.25 times the width. Tibia approximate in length to femur and with well-marked mesial protuberance; width from dorsad 0.85 mm.; width in sublateral view as measured across the protuberance somewhat greater; length 2.1 times the width. Chela heavy; length 2.975 mm.; width 1.25 mm.; depth 1.41 mm.; length of hand 1.65 mm.; length of movable finger 1.5 mm.; movable finger only with poison apparatus and tooth. Fixed finger with eight tactile setae: external series, *eb* and *esb* near base of finger, *et* close to tip, *est* scarcely closer to *et* than to *esb*; internal series, *ib* and *isb* near base of finger, *it* removed from tip of finger by less than one-fourth of finger length, *ist* about two-thirds as far from *it* as from *isb*. Tactile setae of movable finger: *b* and *sb* separated by two or three areole diameters and located near the base of the finger, *t* about one-fourth of finger length from tip of finger, *st* about twice as far from *t* as from *sb*; nodus ramosus closer to *t* than to *st*.

Marginal teeth of movable claw poorly developed, numerous, contiguous, extending in a row from near the poison claw to a point not far from the base of the finger, distal teeth of the row more acute and well developed than the proximal teeth; external row of 18 to 20 accessory teeth evenly spaced along the distal three-fourths of the finger; internal row of about 16 conical teeth confined to the distal one-half of the finger. Teeth of the margin of the fixed finger similar in position and shape to the corresponding row on the movable finger; internal accessory teeth about 14 in number and confined to the distal half of the finger; external row with 18 to 20 smaller, but well-spaced teeth dispersed throughout the distal two-thirds of the finger.

Legs: Moderately slender; terminal claws simple; anterior legs darker in color than the posterior. First leg with pars basilis 0.48 mm. long, 0.35 mm. deep; pars tibialis 1.01 mm. long, 0.33 mm. deep; entire femur 1.25 mm. long; tibia 1.03 mm. long, 0.215 mm. deep, flexor margin slightly convex, distal portion of extensor margin nearly straight; tarsus cylindrical in shape, length 0.74 mm., depth 0.14 mm. Fourth leg with trochanter length 0.705 mm., depth 0.36 mm., almost twice as long as deep; pars basilis triangular, 0.54 mm. in length, 0.385 mm. in depth; pars tibialis 1.28 mm. long, 0.43 mm. deep; length of entire femur 1.61 mm., 3.7 times as long as deep; tibia 1.44 mm. in length, depth 0.245 mm., ratio of length to depth 5.9, a long sensory seta slightly distal to the midpoint of the extensor margin; tarsus cylindrical, elongated, length 0.88 mm., depth 0.16 mm., length 5.5 times the depth, flexor margin slightly convex, extensor margin slightly concave, sensory seta about 0.23 mm. from the proximal-extensor corner of the podomere.

Genital complex: Posterior operculum with nearly 25 setae; anterior operculum with more than 30 long setae.

TYPE LOCALITY: A single specimen, male holotype, was found with several individuals of *C. panamensis*, new species, in a collection labeled "Parasites found on large beetle caught at Gatun Lock." Collector and date unknown.

C. nigermanus is peculiar in the large number of plates composing the serrula exterior of the chelicera and the more than ordinary number of accessory teeth on the movable finger of the chela.

***Cordylocheres panamensis*, new species**

Figures 11–15

MALE: Body robust, heavy; length 3.2–3.6 mm.; brown color. Cephalothorax rounded anteriorly; posterior margin straight, with a marginal row of about 20 setae; length of cephalothorax 1.29–1.3 mm., width slightly less; two transverse furrows, the median located five-eighths of the length of the cephalothorax from the anterior end and slightly more marked than the posterior transverse furrow; sides and dorsal surface of cephalothorax anterior to median furrow reddish brown; laterally granular, medially almost smooth; area posterior to median furrow smooth, yellowish brown; eye spots not observed (treated specimens). Abdomen subovate; light brown; length 1.9–2.3 mm.; width slightly greater than two-thirds of length. Tergites divided except for the incompletely divided or entire first and the undivided eleventh; each half tergite with a medial seta placed anterior to the marginal row, one or two lateral setae, and six to eight marginal setae; total setae for each tergite ranging from 18 to 22. Sternites from the fourth to tenth inclusive divided; chaetotaxy similar to that of the tergites except for an average of about 10 marginal setae in each half sternite; setae of the marginal row usually much shorter than the medial and lateral setae; all setae acuminate; fourth sternite with five or six relatively long setae in the mesial half of each scutum. Pleural membranes yellow, marked by numerous, conspicuous longitudinal plications. Apparently four or five setae on each stigmatic plate.

Chelicera: Width of base 0.24–0.27 mm.; basal and subbasal setae shorter than the interior and laminal setae; flagellum of three setae, the distal with 10 to 12 serrations along the anterior edge. Movable finger 0.35–0.4 mm. long; internal margin of finger entire except for the subapical lobe and two weak denticles at the

level of the insertion of the galeal setae; serrula exterior consisting of 28 ligulate plates; galea subequally bifurcated near the base, each primary ramus branched. Fixed finger with terminal tooth displaying either two or three dentations on the concave margin, followed distally by six or seven teeth along the inner margin of the finger; serrula interior with basal teeth fused to form a velum, distal five or six teeth separate and serrate; lamina exterior present.

Palp: Heavy, dark reddish brown; smooth except for very fine granulations on the trochanter, on the mesial surface of the femur and tibia, and on the internal surface of the hand near the base of the finger; setae numerous, slender; often with one or two very fine subdistal dentations. Maxilla slightly lighter in color than other palpal podomeres; 0.76–0.79 mm. long; 0.47–0.49 mm. wide. Trochanter with two unequal sublateral protuberances, width greater than two-thirds of the length. Femur with mesial edge slightly convex; laterally very convex, centrally swollen; length 1.2–1.25 mm., width 0.52–0.54 mm., length 2.3 times the width. Tibia with proximal half of lateral margin little convex, distal half markedly convex; well-developed, but variable, medio-dorsal protuberance present; setae of protuberance not much more conspicuous than other setae of podomere; length 1.17–1.28 mm., width from dorsad 0.54–0.61 mm., length 2.1 to 2.25 times the width. Chela moderately stout; setae acuminate, fairly numerous, often with one or two weak dentations near the tip; length 2–2.2 mm., width 0.8–0.9 mm., length 2.45 to 2.65 times the width; hand length 1.1–1.2 mm., somewhat greater than the length of the movable finger; depth of hand subequal to the finger length, exceeding the width of the hand by 10 per cent to 20 per cent; movable finger with length of 0.97–1.01 mm., usually conspicuously bent just distal to the midpoint, rarely more evenly curved; with poison apparatus and tooth; nodus ramosus near the level of the proximal tooth of the internal row, closer to base of tactile seta *t* than *st*. Movable finger with four tactile setae: *t* between

one-third and one-fourth of finger length from tip of finger; *sb* and *b* proximal in position, separated by less than two areole diameters; *st* about two-thirds as far from *sb* as from *t*. Fixed finger without poison apparatus; with eight tactile setae. External series of four tactile setae: *et* with a weak areole and placed between one-eighth and one-tenth of finger length from finger tip; *est* anterior to the midpoint of the finger and somewhat nearer to *et* than to *esb*; *esb* and *eb* near base, close to inner margin of finger and separated by less than two areole diameters. Internal series of four tactile setae: *ib* and *isb* near base of finger about three areole diameters apart; *it* removed from finger tip by close to one-fourth of finger length; *ist* between two-thirds and three-fourths as far from *it* as latter is from tip of finger; *ist* about twice as far from *ib* as from *it*. Movable finger with marginal and accessory teeth; marginal teeth more than 50 in number, contiguous, confined to the distal three-fourths of the finger; internal accessory teeth seven to eight in number, conical, bases of teeth contiguous, distalmost tooth removed from the finger tip by about one-eighth of the finger length; external row of about 15 teeth, well separated and dispersed along the distal two-thirds of the finger length. Fixed finger with marginal teeth similar to those of the opposing finger; external row of about 15 accessory teeth, hardly more elevated than the teeth of the marginal row, well spaced along the distal three-fifths of the finger; mesial or internal row of about 10 teeth, well separated, confined to less than the terminal one-half of the finger.

Legs: Moderately slender, yellow to light reddish brown, the anterior legs lighter in color than the posterior; terminal claws without accessory teeth. First leg with trochanter about five-sixths as deep as long; pars basilis of femur subrectangular in shape, length 0.32–0.36 mm., depth 0.26–0.27 mm.; pars tibialis 0.7–0.76 mm. in length, 0.25–0.26 mm. in depth; entire femur 0.88–0.91 mm. long; tibia 0.71–0.77 mm. long, 0.17–0.18 mm. deep, 4.2 to 4.4 times as long as deep; tarsus cylindrical, with nearly straight and parallel margins,

length 0.57–0.58 mm., depth 0.115–0.12 mm., 4.8 to 5 times as long as deep. Fourth leg with trochanter nearly 0.5 mm. long, depth about one-half of length; pars basilis triangular, 0.39–0.42 mm. long, 0.29–0.305 mm. deep; pars tibialis with extensor margin slightly and evenly convex, flexor margin little convex especially near the proximal end, length 0.9–0.95 mm., depth 0.34–0.36 mm.; entire femur 1.12–1.22 mm. long, 0.345–0.36 mm. deep, length 3.25 to 3.5 times the depth; tibia gradually widened distally, 1.01–1.07 mm. in length, 0.2–0.205 mm. in depth, length 5.05 to 5.35 times the depth; tarsus with almost straight and parallel margins, 0.675–0.72 mm. in length, 0.13–0.135 mm. in depth, length 5 to 5.4 times the depth. Pars basilis of femur with prominent sensory seta on flexor side; tactile seta of tibia somewhat distal to the midpoint of the extensor surface; sensory seta of tarsus proximal, between 0.15–0.175 mm. from the proximal-extensor corner of the podomere.

Genital complex: Three transverse rows of setae on the posterior operculum: anterior row usually of two setae, second row of about four setae, third or posterior row frequently with 12 setae. Usually 14 to 16 setae on the anterior operculum.

FEMALE: The body in general outline, shape and size of cephalothorax and abdomen, and chaetotaxy of the tergites and sternites similar in male and female.

Chelicera: Width of base 0.23–0.24 mm.; galea basally bifurcated; both rami branched; movable finger length 0.35–0.37 mm.; serrula exterior with 26 to 28 plates; otherwise as in the male.

Palps: Color and sculpture similar in the two sexes; podomeres smaller in relation to the body than in the male. Maxilla length 0.73–0.79 mm., width 0.43–0.51 mm. Trochanter almost as in the male. Femur length 1.04–1.15 mm., width 0.46–0.54 mm.; 2.1 to 2.3 times as long as wide. Tibia without mesial protuberance, mesial margin evenly convex; length 1.05–1.15 mm., width 0.49–0.58 mm., length 2 to 2.2 times the width. Chela not so stout as in the male, length 1.9–2.1 mm., width 0.7–0.8 mm., length 2.6 to 2.8 times width;

length of hand more than 10 per cent greater than length of movable finger; depth of hand 0.7–0.8 mm.; width and depth of hand subequal; movable finger not markedly angular near the midpoint, stouter than in the male; length of movable finger 0.9–0.975 mm.; movable finger only with venom apparatus and tooth. Tactile setae of movable finger of female similar to that of the male except that the distance from *st* to *sb* is from three-fourths to four-fifths of the distance from *st* to *t*. Tactile setae of the fixed finger similar in position to those of the male. Marginal teeth of movable finger like those of the male except frequently somewhat fewer in number; internal row of accessory teeth consisting of only two to three, occasionally four, well-formed teeth, separated from one another by about the width of the base of the tooth, and placed proximal to the terminal one-sixth of the finger; external row of 10 to 13 teeth evenly spaced throughout most of the distal three-fifths of the finger length. Fixed finger with marginal teeth similar to those of the male except often fewer in number; teeth of external accessory row about 15 in number, conical in shape, uniformly spaced along the distal two-thirds to three-fourths of the finger; three to five (occasionally six) internal accessory teeth, well separated, and confined to the distal one-third to one-fourth of the finger.

Legs: Very similar to those of the male. First leg with pars basilis 0.31–0.35 mm. long, 0.24–0.28 mm. deep; pars tibialis 0.65–0.72 mm. long, 0.23–0.26 mm. deep; tibia with flexor margin convex, distal portion of extensor surface concave, length 0.66–0.74 mm., depth 0.15–0.17 mm.;

tarsus cylindrical, 0.52–0.56 mm. long, 0.11–0.12 mm. deep, length 4.7 to 5 times as great as the depth. Fourth leg with pars basilis 0.385–0.43 mm. long, 0.275–0.34 mm. deep; pars tibialis 0.83–0.95 mm. long, 0.32–0.38 mm. deep; entire femur 1.06–1.28 mm. long, 0.32–0.38 mm. deep, length 3.1 to 3.45 times the depth; tibia 0.95–1.1 mm. long, 0.19–0.21 mm. deep, length 4.95 to 5.2 times the depth; tarsus 0.64–0.7 mm. in length, 0.13 mm. in depth, length 4.9 to 5.2 times the depth. Sensory seta of pars basilis and tibia as in the male; sensory seta of tarsus 0.15–0.18 mm. from proximal-extensor corner of podomere.

Genital complex: Posterior operculum with 16 to 18 short setae arranged to form a marginal row. Anterior operculum with a group of four or five short setae sublateral to the genital opening on each side and an anterior, median, compact group of about 18 setae.

TYPE LOCALITY: Type specimens from two collections taken in the Canal Zone. The male holotype, female allotype, two male paratypes, and four female paratypes from a collection bearing the label: "‘Parasites’ found on large beetle caught at Gatun Lock"; one male paratype from a collection marked "Barro Colorado, C. Z., Curran, xii-25-1928." The only other pseudoscorpion in either of these collections is a single individual of the species *C. nigermanus*, new species, taken from the beetle at Gatun Lock.

C. panamensis appears closely related to *C. costaricensis* Beier, a species whose geographical range may be expected to overlap the range of *C. panamensis*. Separation of the two forms may be made on the stouter tarsus of the fourth leg and the shape of the palp in *C. panamensis*.

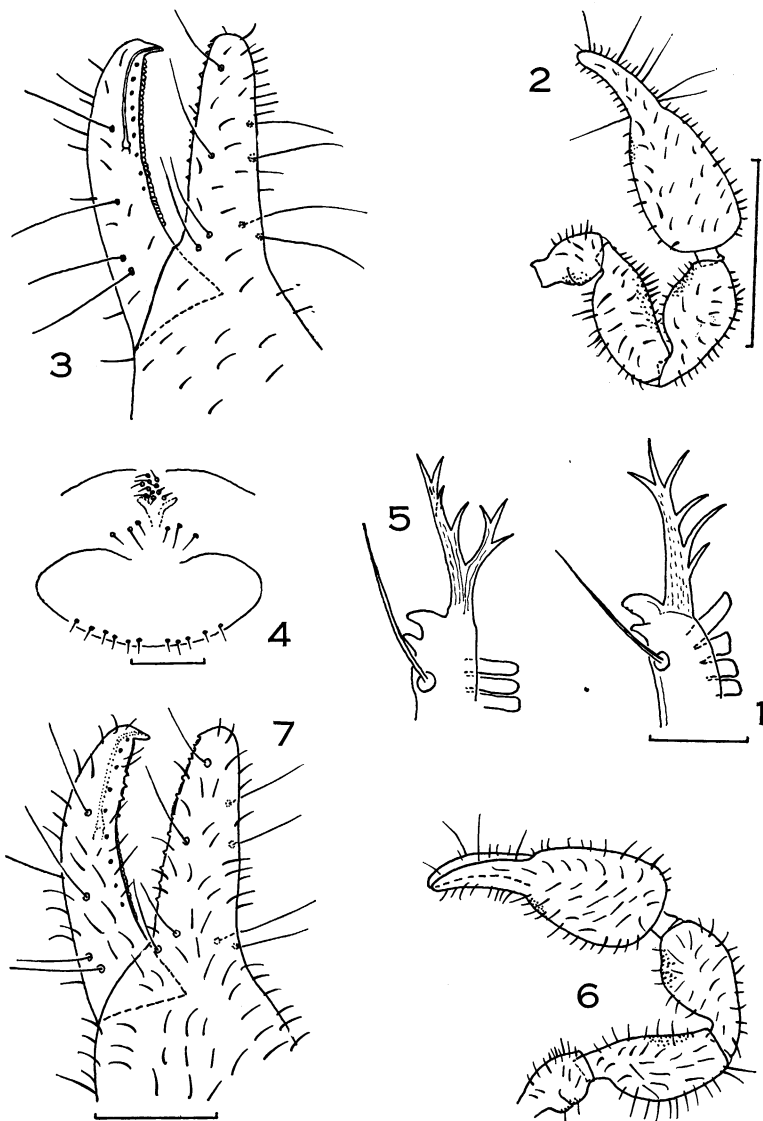


Fig. 1. *Lamprochernes ellipticus*, new species, female holotype, distal end of movable finger of chelicera (scale equals 0.05 mm.).

Fig. 2. Idem, dorsal view of palp (scale equals 1 mm.).

Fig. 3. Idem, external view of fingers and part of hand (scale equals 0.25 mm., as in fig. 7).

Fig. 4. Idem, setae of genital complex (scale equals 0.1 mm.).

Fig. 5. *Lustrochernes dominicus*, new species, male holotype, distal portion of movable finger of chelicera (scale equals 0.05 mm., as in fig. 1).

Fig. 6. Idem, dorsal view of palp (scale equals 1 mm., as in fig. 2).

Fig. 7. Idem, fingers and part of hand in external view (scale equals 0.25 mm.).

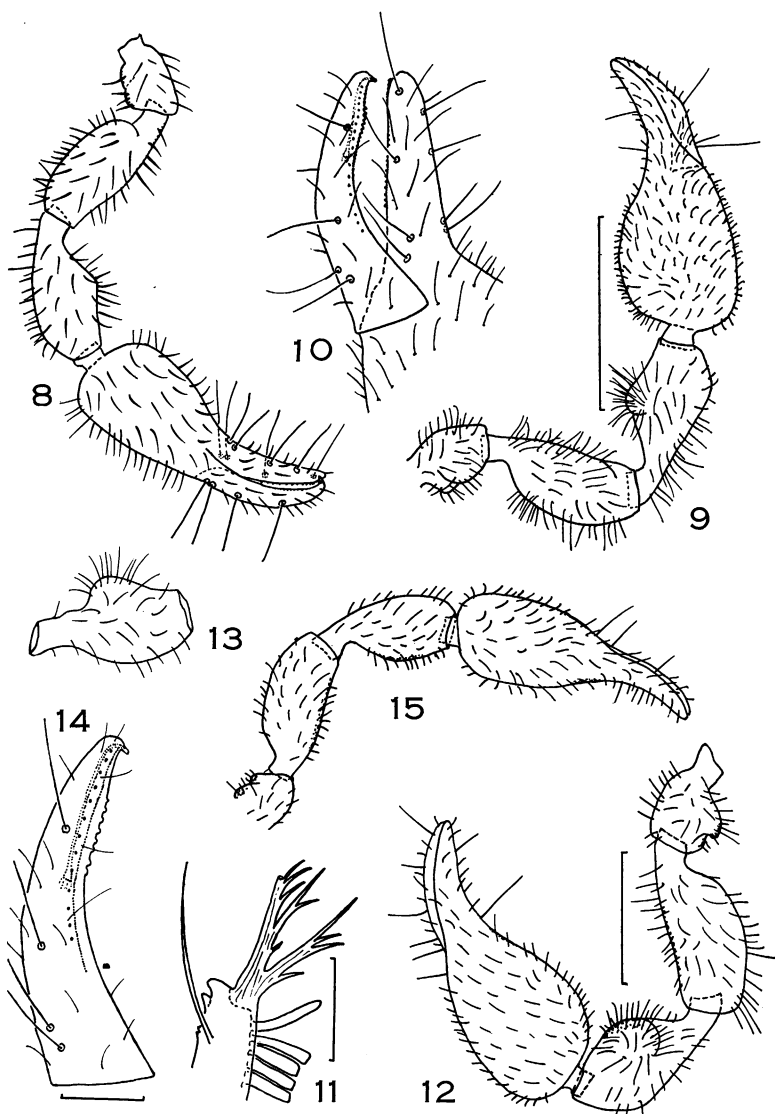


Fig. 8. *Cordylocheres angustochelatus*, new species, male holotype, ventral view of palp (scale equals 1 mm., as in fig. 12).

Fig. 9. *Cordylocheres nigermanus*, new species, male holotype, dorsal view of palp (scale equals 2 mm.).

Fig. 10. Idem, external view of fingers (scale equals 1 mm., as in fig. 2).

Fig. 11. *Cordylocheres panamensis*, new species, male holotype, distal portion of movable finger (tip of galea broken) of chelicera (scale equals 0.1 mm.).

Fig. 12. Idem, dorsal view of palp (scale equals 1 mm.).

Fig. 13. Idem, male paratype from Gatun Lock, sublateral view of tibia to show protuberance in profile (scale equals 1 mm., as in fig. 12).

Fig. 14. Idem, male paratype from Barro Colorado, external view of movable finger (scale equals 0.25 mm.).

Fig. 15. Idem, female allotype, dorsal view of palp (scale equals 1 mm., as in fig. 12).

AUTHOR INDEX

AMERICAN MUSEUM NOVITATES NOS. 1249 TO 1271

1944

	NUMBER
Amadon, Dean.....	1251, 1252
Aronson, Lester R.....	1250
Curran, C. H.....	1256
Fennah, Ronald Gordon.....	1265
Goodnight, Clarence J. and Marie L.....	1249, 1255
Goodwin, George G.....	1267
Hoff, C. Clayton.....	1271
Hyman, Libbie H.....	1266
Klots, Elsie Broughton.....	1258, 1259, 1260
Loveridge, Arthur.....	1254
Mayr, Ernst.....	1269
Muma, Martin H.....	1257
Phelps, William H.....	1270
Schneirla, T. C.....	1253, 1261
Young, Chung-Chien.....	1264, 1268
Zimmer, John T.....	1262, 1263, 1270

