BIOLOGIA

CENTRALI-AMERICANA.

CHILOPODA AND DIPLOPODA.

BY

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1910.
Class CHILOPODA, Latr.

Subclass ANARTIOSTIGMA*.

Order SCUTIGEROMORPHA, nov.

Fam. SCUTIGERIDÆ, Gerv.

SCUTIGERA.

Scutigera, Lamarck, Syst. des Animaux sans Vertèbres, p. 182 (1801).

1. Scutigera linceci. (Tab. I. figg. 1, 1 a, b.)


In this species the colours are somewhat variable. When the tints are well defined, the tergites are adorned laterally with a wide, deep green band, and with a much narrower band of the same tint in the dorsal middle line; this median band is not complete behind, just falling short of the stomata; the stoma-saddles are flavous or pale olivaceous-flavous, the colour being continuous with a wide band on each side of the middle line, separating the median from the lateral green band. The legs have their femora, patellæ, and tibiae more or less distinctly ringed with deep green. Tarsi and antennæ ferruginous.

In some specimens the legs are nearly concolorous, of a deep green, and the bands of the dorsal surface become more or less fused.

Head very flat between the eyes; the posterior portion swollen laterally, flat in the middle, the median flat area being continuous with that between the eyes.

Tergites closely spicular, and very evenly convex, being hardly noticeably undulated at the sides; the stoma-saddles are ill-defined, and the stomata are inclined and short; the hinder borders of the tergites mesially emarginate.

* Written Anartiotignata by Silvestri; but this form of the neuter plural is, I believe, etymologically incorrect. Compare Echinodermata, sometimes written Echinoderma.

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CHILOPODA.

Sterna mesially sulcate and, at least in the posterior half of the body, with the hind borders mesially emarginate.

Length up to about 19 millim.

Hab. NORTH AMERICA, Texas \(^1\).—MEXICO, Chilpancingo 4600 feet, Omitlame 8000 feet, and Anua 6000 to 7000 feet, all in Guerrero (H. H. Smith), Oaxaca \(^2\); GUATEMALA, Volcan de Pacaya (Stoll); NICARAGUA, Granada \(^3\).

This species differs from the common North-American Scutigera forceps (Raf.), which is very closely allied to, even if not identical with, the common S.-European S. coleoptrata, in being of smaller size, in having its tergites more closely spicular and the head less flat; moreover, the median band of colour on the tergites of S. forceps extends over the stoma-saddles on each side of the stomata, instead of falling short of them as in S. linecci.

According to Mr. H. H. Smith these centipedes are found under logs and stones in damp places. They are exceedingly fragile, the legs breaking off at the least touch, so that it is almost impossible to secure perfect specimens.

2. Scutigera nigro-vittata. (Tab. I. figg. 2, 2 a.)


Colour: upper surface black or very deep brown, with a wide, median, dorsal, flavous band extending from the anterior extremity of the labrum to the posterior extremity of the terminal tergite; this band crosses the middle of each half of the stoma-saddles and is uninterrupted except for a black patch on each stoma; the lateral portions of the head and the tergites just above the side-margins furnished with a fine irregular flavous band; sternal surface fulvous. The legs nigro-annulate, the femur adorned beneath with two rings—a proximal smaller, which is very incomplete above, and a distal larger, which is almost complete above; the patella with two wide rings and a fusous distal extremity; tibia indistinctly biannulate; tarsi fulvous, concolorous.

Head with labral area sparsely hairy; region above it in front of the eyes deeply sulcate longitudinally, and furnished on each side of the sulcus with two longitudinal, subparallel, apically curved ridges, which posteriorly diverge and meet the inner angle of the eye; area between the eyes deeply scooped transversely; margin of the head raised and smooth.

Tergites smooth in the middle line, sparsely spicular elsewhere; the borders raised, spicular, the posterior border mesially emarginate; the stoma-saddles sparsely spicular, ill-defined, but much wider than long; posterior tergite with its hinder border not excised.

Sterna hairy, mesially sulcate.

Legs carinate and serrate.

Length 22 millim.

Hab. PANAMA \(^1\).—VENEZUELA, Caracas.

This species was described by Meinert from Panama. The accompanying figure and description have been taken from an example sent to the British Museum by Dr. Ernst. This specimen was from Caracas, but Meinert's description applies so closely to it that in all probability it was taken from an example of the same species.

S. nigro-vittata may be at once separated from S. linecci by the marked difference in colour. Apart from this, however, the head and tergites are very differently
sculptured, the tergites being distinctly undulated laterally, and the interocular area of
the head strongly scooped out transversely. In colouring it calls to mind \textit{S. rugosa}
of Newport, from East Africa, which has the same complete median dorsal flavous
band, the same wide black band on each side of it, and the same strongly annulate
legs. But the stomata in \textit{S. rugosa} are not fuscous, and the tibiae are more strongly
annulate.

\textbf{Subclass ARTIOSTIGMA*.}


\textbf{Order LITHOBIOMORPHA, nov.}

\[\text{[=Unguipalpi, Bollman, 1893; Artiosig mata, Silvestri, 1895.]}\]

\textbf{Containing the Lithobiidae and Cermatobiidae.}

\textbf{Fam. LITHOBIIDÆ, Newp.}

\textbf{LITHOBIUS.}


The following is a key to the identification of the species of \textit{Lithobius} known to me:—

\textit{a}. The posterior angles of the ninth, eleventh, and thirteenth terga squared
\quad (about 30 ocelli and 30 antennal segments) . . . . . . . . . . . . \textit{stollii}, sp. n.

\textit{b}. The posterior angles of the ninth, eleventh, and thirteenth terga produced.
\quad \textit{a}'. Ocelli about 30 in number on each side (also about 30 antennal segments);
\quad \quad claw of generative forceps of female trisid . . . . . . . \textit{aztecutus}, H. & S.
\quad \textit{b}'. Ocelli about 9 or 10 on each side; claw of female generative forceps
\quad \quad simple.

\textit{a}'. Of very large size, over 30 millim., with about 60 antennal segments
\quad \quad and 10 to 12 coxal teeth . . . . . . . . . . . . \textit{macrocroes}, sp. n.

\textit{b}'. Under 30 millim., fewer than 60 antennal segments, and (except in
\quad \quad \textit{L. decodontus}) with only 6 coxal teeth.
\quad \textit{a}'. Coxal teeth about 10, all alike, and normally formed . . . . \textit{decodontus}, sp. n.
\quad \textit{b}'. Coxal teeth only 6, the external on each side spinuliform; anal legs
\quad \quad of the male modified.
\quad \textit{a}'. Male with legs of the fourteenth pair unmodified; the first tarsal
\quad \quad of the anal legs modified.

\* I here use this term in a much wider sense than that proposed by Silvestri, to embrace all the
Chilopeda that were called Holotarsia by Brandt.

\textit{b 2}
a'. About 27 millim.; external coxal tooth on each side larger than the internal (for sexual character, see Tab. I. fig. 4 d). \textit{pontifex}, sp. n.

b'. About 18 millim.; external tooth on each side smaller than the others (for sexual character, see Tab. I. fig. 5 e). \textit{humberti}, sp. n.

b'. Male with legs of the fourteenth and fifteenth pairs modified; the first tarsal of the anal leg unmodified.

a'. Antennal segments about 40; angles of the seventh tergum not produced, with an elongate crest on the patella of the anal leg. \textit{vulcani}, sp. n.

b'. Antennal segments about 50; angles of the seventh tergum produced, with a rounded prominence on the patella of the anal leg.

a'. Tibia of the fourteenth pair in male much thicker than the patella, deeply grooved, and hairy above. \textit{godmani}, sp. n.

b'. Tibia of the fourteenth leg in male only a little wider than the patella. \textit{salvini}, sp. n.

1. \textbf{Lithobius macroceros}, sp. n. (Tab. I. figg. 3, 3 a–d.)

\textit{Colour} of upper surface ochraceous or castaneous, anteriorly and posteriorly darker than mesially, the head castaneous; under surface and legs pale ochraceous or pale castaneous; antennæ darker in tint than the legs.

\textit{Body} long, narrow, and nearly parallel-sided, shining.

\textit{Head} a little wider than long, minutely and closely punctured, shining and smooth, lightly convex, with raised lateral and posterior margins; the frontal plate distinctly defined and conspicuously longitudinally grooved.

\textit{Eyes} composed of 10 ocelli, 1+3, 3, 3; the posterior eye large, irregularly ovate, and widely separated from the rest, the superior ocelli of the cluster larger than the inferior.

\textit{Antennæ} very long, more than half the length of the body, attenuate, composed of from 58 to 63 subcylindrical, thickly but shortiy hairy segments, less thickly hairy quite at the base; apical segment always longer than the one that precedes it, but not thicker.

\textit{Coxal plate of maxillipedia} smooth, shining, very indistinctly punctured, hairy in front, longitudinally depressed and sulcate throughout its length in the middle, the anterior border angularly excised in the middle, the margins of the excision lightly convex and sloped inwards, bearing on each side 6+6 or 5+5 minute sharp teeth, the external of which are smaller and more separated than the internal.

\textit{Tergites} minutely and closely punctured throughout, distinctly wrinkled, but very much less wrinkled in front than behind, posteriorly sparsely hairy and roughened; the first six with rounded posterior angles and straight posterior borders, the seventh with its posterior angles slightly produced but not sharp, the posterior borders of the eighth, tenth, and twelfth straight and with the angles squared; the angles of the ninth, eleventh, and thirteenth produced and sharp, the angles of the fourteenth very slightly produced.

\textit{Sternites} sparsely hairy, mesially and laterally impressed.

\textit{Legs} long and slender; the first pair armed below as follows—0, 0, 0 (one posterior), 3 or 2 (one anterior), 1; the anal legs armed below as follows—0, 1, 3, 3, 2, or 0, 1, 3, 2, 1; the claw basally spurred, the coxa furnished with one superior and one lateral spine, the coxa of the fourteenth pair with one lateral spine, the rest of the coxae unspined; coxal pores ovate, 6, 6, 6, 6, arranged in a single series.

\textit{Generative forceps} in the female with a simple undivided claw, and two separated, diverging, basal spurs on each side.

\textit{Length} up to 35 millim.; length of antenna of largest specimen 21 millim.

\textit{Hab.} Mexico, Omitemje in Guerrero 7000 to 9000 feet (H. H. Smith).
LITHOBIUS.

Obtained under rotted wood &c. about the clearings and neighbouring forest (H. H. Smith).

2. Lithobius pontifex, sp. n. (Tab. I. figg. 4, 4 a–d.)

Colour: upper surface deep ochraceous; head, antennae, and first tergite deep castaneous and polished; legs and lower surface clear olivaceous.

Body robust, scarcely attenuated anteriorly, strongly attenuated posteriorly.

Head a little wider than long, smooth, very finely and obscurely punctured, the frontal plate deeply grooved longitudinally and mesially, with raised margin.

Eyes composed of 11 ocelli, 1 + 3, 3, 4, the posterior and superior eyes subequal in size and larger than the rest, the inferior eyes the smallest.

Antennae long, about half the length of the body, attenuate, composed of 53–56 short, subcylindrical segments, thickly hairy, sparsely so at the base, the apical segment longer, but not thicker, than the penultimate.

Coxal plate of maxillipodes sparsely punctured and hairy, its anterior border nearly straight and but little produced, scarcely excised in the middle line, bearing 3+3 minute, separated teeth, whosetf the external is the largest and somewhat spiniform.

Tergites very finely punctured and, with the exception of the first two, conspicuously wrinkled and sparsely hairy: from the first to the sixth with rounded angles and straight posterior border; the sixth with its angles produced and widely rounded; the seventh also with its angles widely rounded, but more produced than in the sixth; the ninth, eleventh, and thirteenth with their angles strongly produced and sharp; the eighth, tenth, and twelfth with straight or only very lightly emarginate posterior borders; the fourteenth with widely, but not deeply, emarginate border.

Sternites sparsely hairy, mesially and laterally impressed.

Legs: first pair absent; anal legs short, shorter than the fourteenth pair, stout, armed beneath as follows—0, 1, 3, 3, 1; the tibia very thick, thicker than the patella, its upper inner margin hairy, and deeply and widely grooved longitudinally, the groove bearing a conspicuous elongate prominence; the first tarsal segment also enormously enlarged, as wide as and a little longer than the tibia, piriform, narrowed behind, its upper surface deeply and widely excavated, the distal tarsal segment slender and terminated by a double claw; coxa of the anal leg armed with a single superior spine; fourteenth pair of legs of normal form, with unarmed coxa; coxal pores 5, 4, 4, 3, mostly very large and rounded.

Length 27 millim.; of antenna 12.5 millim.

Hab. MEXICO, Amula in Guerrero 6000 feet (H. H. Smith).

A single male specimen. This species differs from the preceding in the lesser number of its maxillary teeth and of its antennal segments.

3. Lithobius humberti, sp. n. (Tab. I. figg. 5, 5 a–e.)

Colour obscure ochraceous, with an olivaceous tint; head and antennae with castaneous tint; legs and lower surface a little paler than the upper surface.

Body robust; a little narrowed anteriorly and posteriorly.

Head considerably wider than long, more convex than the body, very indistinctly punctured; the frontal longitudinal furrow shallow.

Eyes composed of 10 ocelli, 1 + 3, 3, 3, the posterior ocellus in contact with the anterior cluster; the superior and posterior ocelli larger than the inferior and anterior.

Antennae long, a little more than half the length of the body, composed of 52 or 53 short subcylindrical segments; the apical segment longer, sometimes much longer, but not thicker, than the one that precedes it, thickly hairy, except at the base.

Coxal plate of maxillipodes smooth, hairy in front, with a deep median longitudinal sulcus, its anterior border not much produced, distinctly bilobed, the margins of the lobes directed inwards, each furnished with three sharp teeth, whereof the two internal are larger and stronger, and the external smaller and weaker.

Tergites smooth at the anterior end of the body, lightly wrinkled, and shortly hairy posteriorly; first to the fifth with rounded angles and straight posterior border; sixth and seventh with the angles produced, but
widely rounded internally, the posterior border being mesially emarginate; the ninth, eleventh, and thirteenth with the angles produced and sharp, the prolongation with straight inner edge; the eighth, tenth, twelfth, and fourteenth with widely emarginate posterior borders.

Stermites sparsely hairy, mesially and laterally impressed.

Legs adorned with long hairs; the first pair armed below as follows—0, 0, 1 (posterior), 1, 1; anal legs armed below 0, 1, 3, 2, 1 (♂), or 0, 1, 3, 3, 1 (♀); claw double, coxa unarmed; posterior coxae unarmed; coxal pores rounded, 4, 4, 4, 3 with the proximal pore small (♂), or 5, 4, 4, 4 with the proximal pore not remarkably smaller than the next.

♂. Anal legs shorter and much stouter than the fourteenth pair; the tibia a little thicker than the patella and furnished at its distal end on the upper inner edge with a conspicuous nodular prominence; the proximal tarsal segment elongato-ovate, as thick as the tibia, with a conspicuous longitudinal groove on its upper inner edge; legs of the fourteenth pair normally formed.

♀. Anal legs long and slender, a little longer than the fourteenth pair, and normally formed; generative forceps with the proximal segment narrowed at the base, produced internally, and bearing two spurs, the lower of which is longer and stouter than the upper; the claw long, slender, curved, undivided, and armed basally with a small but conspicuous tooth.

Length up to 18 millim.

Hab. Mexico, Omilteme in Guerrero 7000 to 9000 feet (H. H. Smith).

Three specimens (2 ♂, 1 ♀), obtained under rotting wood &c. about the clearings and neighbouring forest (H. H. Smith).

This species is very closely allied to L. pontifex, from Amula, of which the male only is known. It is, however, very much smaller, and the two internal teeth on each side of the maxillary sternite are large, and the external tooth is either absent or very small; whereas in L. pontifex the two internal teeth are minute and smaller than the external. Again, in the male of L. pontifex the nodular prominence on the tibia of the anal leg is less projecting, and the groove on the first tarsal segment is much wider and deeper.

4. Lithobius godmani, sp. n. (Tab. I. figg. 6, 6 a–c.)

Colour ochraceous or castaneous, darker anteriorly; legs and ventral surface paler.

Body robust, attenuated posteriorly, shining.

Head a little wider than long, lightly convex, smooth, shining, indistinctly punctured, with deep anterior longitudinal frontal groove.

Eyes composed of 9 ocelli, 1 + 1, 3, 4; the posterior and superior ocelli subequal in size and larger than the rest.

Antennæ long, more than half the length of the body, composed of from 49–53 subcylindrical segments; hairy, but less hairy at the base; apical segment elongate, longer than the penultimate.

Coxal plate of maxillipeds sparsely hairy, mesially and longitudinally sulcate; its anterior border produced and bearing 3 + 3 teeth, whereof the two internal are large and stout, and the external slender, spiniform, and often absent.

Tergites in the anterior portion of the body smooth, lightly wrinkled in the posterior half, roughened and sparsely hairy: from the first to the sixth with rounded angles and straight posterior border; the seventh with its posterior border emarginate in the middle, and its angles produced, but very wide and scarcely sharpened; ninth, eleventh, and thirteenth with angles strongly produced and sharp; eighth, tenth, twelfth, and fourteenth with posterior borders only very slightly emarginate.

Stermites mesially and laterally impressed and hairy.

Legs: first pair armed below 0, 0, 2, or 1, 1, 1; and legs about as long as the fourteenth pair, armed below 0, 1, 3, 3, 1, claw double; coxa with superior and lateral spines; coxal pores round, 5, 4, 4, 4, or 4, 3, 3, 3, the proximal pore small when the series consists of 4 or 5.
LITHOBIUS.

3. Fourteenth pair of legs with the tibia enormously swollen and rounded internally and beneath, deeply and widely excavated above and hairy, with a tuft of hairs on the middle of the inner (posterior) edge of the excavation; anal legs with the tibia also swollen, but less swollen than in the fourteenth pair, distally excavated above, the excavation bearing an elongate superiority flattened nodule.

2. Fourteenth and fifteenth legs normally formed; generative forceps with a stout undivided claw; two basal spurs, of which the external is longer and stouter than the internal.

Length up to 19 millim.

Hab. Mexico, Amula in Guerrero 6000 feet (H. H. Smith).

The male of this species may be at once separated from that of L. pontifex and L. humberti by the fact that the tibiae of the fourteenth and fifteenth legs are enormously swollen, whereas in these others the fourteenth legs are normally constituted, and in the anal leg the tibia and proximal tarsal segment are enlarged. Again, in the female the claw of the generative forceps is stouter, shorter, and has no tooth at its base; whereas in L. humberti the claw is longer, more slender, and has a distinct tooth at its base.

5. Lithobius salvini, sp. n. (Tab. 1. figg. 7, 7 a–d.)

Colour ochraceous or castaneous, darker anteriorly; legs and ventral surface paler; antennæ dark.

Body robust, attenuated posteriorly, shining.

Head a little wider than long, lightly convex, smooth, shining, not or very obscurely punctured, the frontal plate deeply furrowed longitudinally, with raised margin.

Eyes composed of 9 ocelli, 1 + 1, 3, 4; the posterior and superior eyes subequal in size and larger than the rest.

Antennæ long, more than half the length of the body, attenuate, composed of from 48 to 56 hairy, subcylindrical segments; loss hairy at the base; apical segment varying in length, but always longer, but not thicker, than the segment that precedes it.

Coxal plate of maxillipeds sparsely hairy, mesially longitudinally sulcate, the anterior border nearly straight, and bearing 3+3 strong, sharp teeth, whereof the external is more slender, somewhat spiniform, and often absent.

Tergites not manifestly punctured; with the exception of the first, wrinkled, sparsely hairy, and roughened, more wrinkled and roughened towards the hinder end of the body: the first, second, third, fourth, and fifth, and often the sixth, with rounded angles and straight posterior border (in the fifth the border is lightly concave); the sixth, sometimes the seventh, ninth, eleventh, and thirteenth with their angles strongly produced, and posterior border deeply, but narrowly, emarginate; the eighth, tenth, twelfth, and fourteenth with the posterior border widely emarginate and the angles sharp. In younger specimens (15 millim. or less) the angles of the sixth tergite are rounded, and the posterior borders of the rest much less markedly emarginate.

Sternites mesially and laterally impressed, shortly and sparsely hairy.

Legs of moderate length; the first pair armed below as follows—0, 0, 1 (posterior), 1, 1: anal legs short, as long as the fourteenth pair, armed below 0, 1, 3, 3 or 2, 1, claw double; coxa with superior and lateral spine*: coxal pores 4, 3, 3, 3, arranged in a single series, large and round; coxæ of thirteenth and fourteenth with a superior spine.

3. Tibia of fourteenth pair a little stouter than the patella, subcylindrical, with a conspicuous, short, ovate depression on the upper-inner surface at its distal extremity; tibia of anal leg also cylindrical and stouter than, or at least as stout as, the patella, with a somewhat similar, although much less conspicuous, depression.

* When these spines are invisible, their absence is probably to be attributed rather to mutilation than variability.
With the fourteenth and fifteenth pairs of legs of normal form; claw of the generative forceps stout, not long, and undivided; two basal spurs on each side, of which the external is considerably longer and stouter than the internal. Length up to 26 millim.; average length about 21 millim., with antennae measuring about 11 ½. In one specimen, measuring 28 millim., the antennae are not more than half the length of the body. In young specimens (i. e. males in which the fourteenth and fifteenth pairs of legs are unmodified, and females in which the generative forceps is only half-formed) the coxal pores are 3, 2, 2, 2.

Hab. Mexico, Omilteme in Guerrero 7000 to 9000 feet (H. H. Smith).

Obtained under rotting wood &c. about the clearings and neighbouring forest (H. H. Smith).

The males of this species may be easily recognized from those of L. godmani by the difference in the form of their posterior legs. But the females are very hard to determine. Possibly the two species may prove to be identical; in which case we shall have an interesting instance of dimorphism in the males. I think, however, that, provisionally at least, it is wiser to regard the two as distinct, at all events until a larger series of the females are forthcoming for examination.

In the case of females not associated with males, I have referred all those from Omilteme to L. salvinii, and those from Amula to L. godmani.

6. Lithobius vulcani, sp. n. (Tab. I. figg. 8, 8 a, 8 b.)

Colour castaneous.
Head weakly punctured; frontal plate distinct, with conspicuous median groove.
Eyes composed of about 9 ocelli, 1+1, 3, 3.
Antenna of moderate length, composed of 41 segments.
Coxal plate of maxillipede with anterior edge lightly emarginate, armed with 3+3 evenly spaced teeth, whereof the external is slender and has the appearance of being a movable spinule.
Terga smooth: ninth, eleventh, and thirteenth with produced angles; the fourteenth posteriorly emarginate, the rest of the posterior borders straight.
Legs: spine-armature of first, 0, 0, 0, 1, 1; the fifteenth leg a little longer than fourteenth, armed below with 0, 1, 3, 3, 1 spines, claw double; the coxal pores uniserial, small, circular, 4, 4, 4, 3.
Legs of the fourteenth pair with the tibia much thicker than the tarsal segments, and thicker in the middle than at the two ends; the tibia of the anal leg also slightly thickened, a little flattened posteriorly on its inner side, and from the middle of the flattened area there rises a low crest, which terminates abruptly behind.

Generative appendages represented by two short, rounded processes.
Length 17 millim.

Hab. Guatemala, Volcan de Agua (Stoll).

In the same bottle as that which contained the above described male there was a female measuring 19 millim., with 36 antennal segments, 5, 6, 6, 5 coxal pores, two long subequal spurs, and a simple claw on the generative forceps, but otherwise agreeing with the typical male. Another smaller specimen, a male, which may be an immature form of the one described, has only 32 antennal segments, and the anal legs unmodified.

In its male sexual features, i.e. in having the tibiae of the fourteenth and fifteenth
legs modified, and the tarsi of the fifteenth unmodified. *L. vulcani* agrees with *L. godmani* and *L. saleini*. It may be recognized by having a smaller number of antennal segments, the angles of the seventh tergite not produced, and in the different structure of the anal leg of the male.

7. **Lithobius decodontus**, sp. n. (Tab. I. figg. 9, 9 a, b.)

*Colour* castaneous.

*Head* nearly smooth; about 9 or 10 ocelli on each side; frontal plate defined and mesially sulcate.

*Antenna* elongate, furnished with 41 or 42 short cylindrical segments.

*Coxal plate of maxillipeds* with anterior border deeply notched in the middle, convex on each side of it, and armed with 0+4 small subequal teeth.

*Posterior terga* lightly wrinkled and sparsely hirsute; the angles of the ninth, eleventh, and thirteenth strongly produced, the posterior border of the seventh noticeably emarginate, of the eighth, tenth, and twelfth nearly straight, but becoming gradually emarginate towards the hinder end of the body.

*Legs*: first pair armed below, 0, 0, 0, 1, 1; coxa of the last three pairs armed with a superior spur, those of the last two furnished in addition with a lateral spur; coxal pores uniserial, small, circular, 5, 5, 5, 5; anal legs long, slender, longer than the preceding pair, armed below 0, 1, 3, 3, 2; claw double.

5. Fourteenth and fifteenth pairs of legs unmodified, generative appendages represented by a pair of rounded tubercles.

Length about 20 millim.

*Hab.* **Guatemala**, Volcan de Acatenango (*Stoll*).

One male example. A second male, from Quezaltenango, which has the anal legs broken off, agrees with the one described in most characters, but it differs in having the distal segment of the tarsus noticeably shorter as compared with the proximal segment. I consequently expect that the two are specifically distinct.

This species differs from *L. pontifex*, *L. humberti*, *L. godmani*, and *L. saleini* in the dentition of its maxillary coxae, its unmodified anal legs (in male), and the smaller number of its antennal segments.

8. **Lithobius stollii**, sp. n. (Tab. I. figg. 10, 10 a–c.)

*Colour* fuscous-oliveaceous, with traces of a dorsal median longitudinal band.

*Head* and *terga* smooth, sparsely punctured.

*Antenna* long, hirsute, composed of 27 elongate cylindrical segments.

*Eyes* composed of about 26 ocelli.

*Coxal plate of maxillipeds* with anterior border transverse, shallowly notched, the inner half of each side furnished with three small, evenly spaced teeth, of which the external is a little the largest.

The ninth, eleventh, and thirteenth *terga* with squared angles; the eighth, tenth, twelfth, and fourteenth with their posterior borders slightly emarginate.

*Legs*: those of first pair armed below as follows—0, 0, 2, 2, 1; coxa of twelfth armed with one upper spine, coxa of thirteenth to fifteenth furnished with an external lateral spine as well; the anal legs longer than the preceding pair, armed below as follows—0, 1, 3, 3, 2, 1; claw simple; coxal pores uniserial, elongate as in adult *L. forficatus* (Linn.), 9, 8, 8, 8.

*Generative forceps* of female with two pairs of spurs and simple pointed claw.

Length 27 millim.

*Hab.* **Guatemala**, Volcan de Agua (*Stoll*).

A single female example.

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9. Lithobius azteicus. (Tab. I. figg. 11, 11 a–c.)


*Colour*: upper surface uniformly castaneous, or more commonly ochraceo-castaneous, and darker anteriorly and posteriorly; lower surface ochraceous with olivaceous tint; apex of legs and of antennæ paler.

*Body* moderately robust, attenuated posteriorly, shining.

*Head* a little wider than long, finely punctured, the frontal longitudinal groove absent.

*Eyes* composed of about 30, mostly rounded ocelli, arranged in about five rows; the posterior ocellus the largest.

*Antennæ* short, not half the length of the body, hairy, sparsely so at the base, composed of about 30 short subcylindrical segments; the apical segment elongate, longer than the penultimate.

*Coxal plate of maxillipede* finely punctured, longitudinally sulcate in the middle, its anterior border moderately produced, nearly straight, bearing 7+7 or 6+6 small subequal teeth, of which the internal are close set and the external more separated.

*Tergites* lightly wrinkled and sparsely hairy; from the first to the sixth with straight posterior border and rounded angles; the seventh with its angles slightly produced; the eighth, tenth, twelfth, and fourteenth with squared angles, and posterior borders straight, or only very lightly emarginate; the ninth, eleventh, and thirteenth with angles produced and sharp.

*Sterites* smooth, mesially impressed in the posterior half, and with fainter lateral impressions, the posterior sternites and coxae pubescent.

*Legs*: the first pair armed below, 0, 0, 2, 2, 1; anal legs long, longer than the fourteenth pair, which extend only as far as the middle of their proximal tarsal segment, armed below, 0, 1, 3, 3, 2; claw double; coxae of thirteenth, fourteenth, and fifteenth armed with one superior and one lateral spine, coxae of eleventh and twelfth armed with a superior spine; coxal pores in a single series, elongate, 6, 7, 7, 5 to 4, 6, 6, 4.

♂. *Anal leg* with femur marked beneath with a single longitudinal groove; patella much widened, deeply and widely excavated above, with two longitudinal grooves beneath; tibia and tarsal segments of normal form.

♀. *Femur* and *patella* of *anal leg* with a single inferior groove, all the segments of normal size and shape; generative forceps with two subequal, subparallel, basal spurs on each side, and a stout trifid claw.

*Length* up to 24 millim.; average length of adult about 19 millim.

*Hab. Mexico*, Omitemé 7000 to 9000 feet, and Sierra de las Aguas Escondidas 9500 feet, both in Guerrero (*H. H. Smith*), Eastern Cordillera ¹; *Guatemala*, Antigua and Tezpam (*Stoll*).

The original description of this species is somewhat meagre, but it applies sufficiently well to these examples from Omitemé as to leave very little doubt in my mind that they are rightly to be named *L. azteicus*. The species may be at once recognized by its short antennæ and large number of ocelli. Mr. Smith’s specimens were found under decaying logs, in damp thick forest, and also in the clearings.

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The following Central-American species are unknown to me: —

**Lithobius mysticus**.
