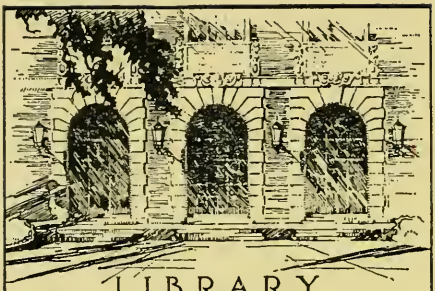

A REVISION OF THE GENUS *LOBOPODA* (COLEOPTERA: ALLECULIDAE) IN NORTH AMERICA AND THE WEST INDIES

JOHN M. CAMPBELL

ILLINOIS BIOLOGICAL MONOGRAPHS

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A REVISION OF THE GENUS *LOBOPODA* (COLEOPTERA: ALLECULIDAE) IN NORTH AMERICA AND THE WEST INDIES

Fig. 1. *Lobopoda panamensis*, male.

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INTRODUCTION

Species of the genus *Lobopoda* are known only from the New World. They occur primarily in the wet tropics and subtropics, although a few of them are adapted to somewhat xeric habitats in temperate regions. Previously there were 170 species assigned to the genus; 6 of these were described from the United States, 47 from México and Central America, 4 from the West Indies, 1 from the Galápagos Islands, and 112 from South America. In this revision, 30 new species are described, five names are placed in synonymy, and one species is transferred to the genus from the genus *Allecula*, bringing the total number of described species in the genus to 195. Eighty-two of these are considered in this revision.

This revision includes all species of the genus known from North America and the West Indies. Those species inhabiting islands of the West Indies lying on the continental shelf of South America, such as Trinidad, were excluded from consideration, as I feel that they would be more appropriately considered in a study of the South American fauna. The separation of the North American species from the South American species has proven to be convenient, as there seems to be very little overlap of species between these two areas. In a few cases, I have included South American localities for species with ranges extending from Central into South America.

There is a great need for a systematic revision of most of the genera of the family, particularly those found south of the United States. Since Champion's (1888) treatment of the Mexican and Central American species of the family Alleculidae, the only comprehensive publications

pertaining to any of the Central or South American species was Borchmann's (1930) revision of the genus *Lystronychus*.

THE FAMILY ALLECULIDAE

Systematic Position

The family Alleculidae is assigned to the section Heteromera, superfamily Cucujoidea, series Cucujiformia, and suborder Polyphaga of the order Coleoptera (Crowson, 1955). It is similar in most respects to the families Tenebrionidae and Lagriidae. In each of these families the front coxal cavities are closed posteriorly by the proepisterna, the gonostyli of the male genitalia are fused, and the aedeagus is membranous and greatly reduced in size. There seems to be general agreement among workers that the family Alleculidae is closely related to the family Tenebrionidae. Adults of the two families may be separated only on the basis of the pectinate tarsal claws of the alleculids. Larvae of alleculids are also very similar to those of tenebrionids. In general, alleculid larvae may be recognized by the subconical ninth abdominal segment, which is usually devoid of urogomphi, or, if urogomphi are present, the pleural sutures are absent. Tenebrionid larvae may be recognized by the more rounded or more acute ninth abdominal segment which is usually armed with urogomphi, spines, or dense setae, and pleural sutures are always present.

Alleculids were probably derived from a form similar to members of the subfamily Tenebrioninae. Adults of both have the third, fourth, and fifth sterna separated by a distinct membrane, the mesocoxal cavities not closed externally by the sterna, and the mesotrochantin visible. Seidlitz (1896) suggested that the alleculids are similar to members of the tribe Helopini and particularly to species of the genus *Nephodes*. Both alleculids and members of the tribe Helopini have the labrum connected to the clypeus by means of a visible membrane and the antennae articulated under the enlarged lateral margin of the head; in all but the wingless genera, the alleculids show a distinct humeral swelling on the elytra.

Classification

The history of the classification of the family Alleculidae was thoroughly reviewed by Seidlitz (1896) in his *Naturgeschichte der Insecten Deutschlands*. In this work, Seidlitz proposed a new classification of the family based primarily on the European fauna but including many non-European genera. He divided the family into two subfamilies, the Alleculinae and the Omophlinae.

The subfamily Alleculinae was characterized by having the eyes usually deeply emarginate anteriorly, with the basal segments of the an-

tennae inserted adjacent to the eyes within this emargination; the hind coxae not projecting over the first abdominal sternum; the first abdominal sternum with a distinct, usually narrowly triangular intercoxal process; the sides and base of the abdomen margined and acutely narrowed; only five visible abdominal sterna (a small sixth sternum is often visible in the male and rarely in the female); the apical segment of the maxillary palpi expanded and much larger than the penultimate segment; and the apex of the mandibles cleft.

The subfamily Omophlinae was characterized by having the eyes circular or feebly emarginate, with the basal segment of the antennae inserted some distance anterior to the eyes and separated from them by a portion of the frons; the hind coxae projecting over the base of the first abdominal sternum; the intercoxal process of the first abdominal sternum reduced or absent; the sides and base of the abdomen rounded; six visible abdominal sterna (a small seventh sternum is often visible in the male); the last segment of the maxillary palpi usually only slightly larger than the penultimate segment; the apex of the mandibles entire; and the tarsi never lobed ventrally.

This classification was accepted by Borchmann (1910) in the *Coleopterorum Catalogus* and by subsequent authors. It seems acceptable to me, in general, although I am not in a position to evaluate it entirely because I have seen only a limited amount of material of the subfamily Omophlinae. The North American genera *Andrimus* Casey and *Androchirus* LeConte were placed by Seidlitz in the subfamily Omophlinae. Borchmann (1910) removed the genus *Andrimus* to the subfamily Alleculinae but left the genus *Androchirus* in the subfamily Omophlinae. The latter genus has the eyes emarginate; the antennae placed adjacent to the eyes; the abdomen with a distinct, narrow intercoxal process; the sides and base of the abdomen margined and acute; the abdomen with only five visible sterna; and the hind coxae not projecting over the first sternum of the abdomen. On the basis of these characters I propose that *Androchirus* be transferred to the subfamily Alleculinae. With this transfer, the subfamily Omophlinae is no longer represented in the New World.

The subfamily Alleculinae was divided by Seidlitz into three groups (tribes), each of which was known from both the Old and New Worlds. These were the Alleculini, Gonoderini, and Mycetocharini. The Alleculini were characterized by having the penultimate segment of the tarsi lobed ventrally (the lobes are sometimes obsolete on the posterior tarsi). The Gonoderini were characterized by having the antennae slender and covered with fine, appressed setae; the prosternal process not strongly compressed between the anterior coxae; and a small sixth sternum often visible in the male. The Mycetocharini were characterized by having the antennae somewhat thickened and covered with short, erect setae and

the prosternal process strongly compressed between the anterior coxae.

The tribe Alleculini of Seidlitz includes the genera *Allecula* Fabricius, *Mycetocharina* Seidlitz, *Hymenorus* Mulsant, *Prionychus* Solier, *Hymenalia* Mulsant, *Stenochidus* LeConte, and *Balassogloa* Semenov. In addition, I would place in this tribe the following New World genera: *Aeanes, Alethia, Amaropsis, Charisius, Diopoenus, Menes, Menoeceus, Narses, Phedius, Pitholaus, Polyidus, Telesicles, Temnes,* and *Theatetes* (all described by Champion); *Blepusa* Westwood; *Knausia* Fall; *Lobopoda* Solier; *Omocula* Borchmann; and *Orchesiolobopoda* Pic.

The tribe Gonoderini, as defined by Solier, contains the genera *Capnochroa* LeConte, *Cistelomorpha* Redtenbacher, *Copistethus* Seidlitz, *Gerandryus* Rottenberg, *Gonodera* Mulsant, *Isomira* Mulsant, and *Pseudocistela* Crotch. The New World genera *Andrimus* Casey and *Androchirus* LeConte, which have been removed from the subfamily Omophlinae, and the genus *Tedinus* Casey should also be placed in this tribe.

The tribe Mycetocharini contains one genus, *Mycetochara* Berthold.

In addition to the three tribes described by Seidlitz, Lacordaire (1859) described the New World tribe Lystronychini. He included in this tribe the genera *Cteisa* Solier, *Lystronychus* Latreille, *Prostenus* Latreille, and *Xystropus* Solier. He separated these genera from other alleculids by the broadly triangular intercoxal process of the abdomen and the absence of ventral lobes on the tarsi. Champion (1888) accepted this tribe and added to it a new genus, *Erxias.* Borchmann (1930), in his revision of the genus *Lystronychus,* gave a key for the separation of the genera of the tribe (exclusive of *Erxias*). The genus *Microprostenus* Pic should also be added to it. Crowson (1955) stated that the met-endosternite of *Prostenus,* and presumably of the other Lystronychini, is distinct from the met-endosternite of other alleculids. On the basis of these characters it may be necessary, after further study, to give the tribe the rank of subfamily.

For convenience, a list of the New World genera of the family Alleculidae is given below. I am unable to determine the tribal relationships of four of the genera because I have not been able to examine representatives of them.

Subfamily ALLECULINAE

Tribe Alleculini

Aeanes Champion
Alethia Champion
Allecula Fabricius
Amaropsis Champion
Blepusa Westwood
Charisius Champion
Diopoenus Champion
Hymenorus Mulsant
Knausia Fall
Lobopoda Solier
Menes Champion
Menoeceus Champion
Narses Champion
Omocula Borchmann
Orchesiolobopoda Pic
Phedius Champion

Tribe Alleculini (continued)

Pitholaus Champion
Polyidus Champion
Stenochidus LeConte
Telesicles Champion
Temnes Champion
Theatetes Champion

Tribe Gonoderini

Andrimus Casey
Androchirus LeConte
Capnochroa LeConte
Isomira Mulsant
Pseudocistela Crotch
Tedinus Casey

Tribe Mycetocharini

Mycetochara Berthold

Tribe Lystronychini

Cteisa Solier
Erxias Champion
Lystronychus Latreille
Microprostenus Pic
Prostenus Latreille
Xystropus Solier

Tribal Assignment Questionable

Anamphidora Casey
Dastoxystropus Pic
Eucaliga Fairmaire
Scotobiopsis Brethes

HISTORICAL RÉSUMÉ OF *LOBOPODA*

The genus *Lobopoda* was originally described in 1835 by Solier in his *Prodrome de la famille des Xystropides.* The major works dealing with the classification of the genus subsequent to Solier's are those of Lacordaire (1859), Champion (1888), and Casey (1891).

Solier recognized two divisions (subgenera) within the genus, *Lobopoda* and *Monoloba.* The subgenus *Monoloba* was characterized by having the penultimate segment of all the tarsi distinctly lobed on their ventral surface. The subgenus *Lobopoda* was characterized by having only the penultimate segment of the anterior and intermediate tarsi lobed. In the latter subgenus the lobes on the penultimate segment of the posterior tarsi are greatly reduced or absent.

The subgenus *Lobopoda,* as described by Solier, contained three species: *Allecula contracta* Germar, *A. pallicornis* Fabricius, and *Lobopoda striata* Solier. The subgenus *Monoloba* contained only one species, *Lobopoda dircaeoides* Solier.

A number of species were transferred to the genus *Lobopoda* from the genus *Allecula* by Lacordaire (1859). He assigned *A. velutina* Castelnau, *A. helops* Perty, *A. catopina* Perty, and *A. umbrosa* Erichson to the subgenus *Lobopoda;* and *A. impressa* Erichson and *A. inculta* Erichson to the subgenus *Monoloba.*

Solier divided the subgenus *Lobopoda* into two subdivisions on the basis of the number of lobed tarsal segments of the anterior tarsi. However, this subdivision is not acceptable, as it is based solely on sexual

differences. One division in which the four basal segments of the tarsi are lobed is composed solely of males and the other division in which only the first or first and second segments are lobed is composed only of females.

Champion (1888) described the Central American and Mexican fauna of the genus *Lobopoda* in some detail describing all but two of the species now known from this area. In his work he adopted the two subgenera proposed by Solier, adding 3 new species to the subgenus *Monoloba* and 42 new species to the subgenus *Lobopoda*. He divided the subgenus *Lobopoda* into two sections based on the presence or absence of pubescence on the body. In addition, the division containing pubescent species was further divided on the basis of the number of lobed tarsal segments present on the intermediate tarsi of the male. Most of Champion's groupings have been adopted except those based on color, although, in most cases, the rank of his groupings has been elevated.

In his revision of the species of the family Alleculidae of the United States, Casey (1891) recognized six species of the genus *Lobopoda*. These species were not placed in subgenera; however, they were all members of the subgenus *Lobopoda* as defined at that time.

BIONOMICS OF *LOBOPODA*

Very little is known of the bionomics of the family Alleculidae, particularly of its American species. Larvae of the subfamily Alleculinae are often found in decomposing wood; mixtures of wood and fungal hyphae in tree holes; excrement and detritus in nests of birds, mammals, ants, and termites; frass produced by wood-boring insects; and bracket fungi. Larvae of the subfamily Omophlinae are found in the soil feeding on plant roots and potato tubers.

Before pupation the larvae hollow out a cell, usually in decayed wood or in the soil, curl into a tight circle, and become inactive. This inactive stage may last from a few days to a month or more before the larva transforms to the pupa. The pupal stage normally lasts seven to ten days. Most species of the temperate zones have only one generation per year, the adults normally emerging in spring or early summer. In tropical areas adults may be present throughout the year.

Adults are found in a great variety of habitats: in dead wood, under bark, in bracket fungi, on flowers, on blue-green algae, in lichens on trees, and in ant nests. Adults of some species, particularly those feeding on flowers, are often gregarious. Many are nocturnal and are often collected at lights.

Almost nothing is known of the bionomics of species of *Lobopoda* except for *L. opacicollis*. Larvae of this species were collected in large numbers by Moser (1963) in the nests of the leaf-cutting ant, *Atta texana*

(Buckley). These larvae feed on the material deposited by the ants in underground detritus cavities. Larvae of *L. punctulata* were reported from knots in oak trees (Craighead, 1950). Adults have been collected by beating dead leaves, lichens, mosses, and bromeliads on limbs and tree trunks; under bark; at night feeding on algae on tree trunks; and at lights.

TERMINOLOGY AND METHODS

Only a few of the terms used in this revision require explanation. The ocular index (Fig. 18), originally defined by Campbell and Marshall (1964), is the ratio of the distance between the eyes (B) to the distance between the lateral margins of the eyes (A), multiplied by 100. The pronotal index is used to express the ratio of the length of the pronotum along the midline to the width of the pronotum across the basal angles, multiplied by 100. Total body length is measured to the nearest .5 mm. from the apex of the labrum to the apex of the elytra.

Immediately after emergence from the pupal stage, color is normally not developed in adult alleculids and the cuticle is very soft. The cuticle starts to harden and to darken very shortly after emergence, the antennae and mouthparts being the first areas to be affected. Coloration is normally completely developed within 12 hours. Since teneral adults are occasionally encountered in collections, care must be taken in using color as a distinguishing character between species. It has not been used in the keys except for the presence or absence of metallic colors and, in rare instances, the color of the legs.

The mesosternum is always depressed in the middle just anterior to the mesocoxae. This area is usually V-shaped, with the apex of the V extending posteriad between the mesocoxae and the arms of the V extending laterad to the anterior margin of the mesosternum. This depression is referred to as the median depression of the mesosternum. In *Lobopoda,* as in other members of the subfamily Alleculinae, there are only five visible abdominal sterna. These are numbered one through five, although they are morphologically the third through the seventh. The outside of the legs is that part facing laterad when the anterior legs are pulled anteriad and the middle and posterior legs are pulled posteriad.

The eighth and ninth morphological sterna of the male have provided very useful taxonomic characters. These structures are bilobed and completely invaginated. They are referred to as the lobes of the eighth and ninth sterna respectively. The terms basal piece and apical piece have been used to describe the male genitalia. The term basal piece was proposed by Sharp and Muir (1912) and has since been called the gonocoxite (Michener, 1944) and phallobase (Snodgrass, 1935). The term apical piece has been used for convenience, and is synonymous with the terms lateral lobes (Sharp and Muir), gonostyli (Michener), and

parameres (Snodgrass). The ventral strut is a small, elongate structure which covers the ventral groove of the apical piece. The term male terminalia has been used to refer to the eighth and ninth sterna and the genital apparatus as a unit.

Two types of setae are found on the male terminalia. Setae of one type are unmodified, long, and hairlike and are referred to simply as setae. Setae of the other type, referred to as dentiform setae, are very short and triangular.

Except in rare cases, it has not been possible to construct keys for the identification of female specimens. Females may be identified to subgenus; and in the subgenus *Flavipoda,* they may be keyed to species. In order to construct keys for the identification of the remaining females it would be necessary to use very narrowly defined geographic ranges. As the Mexican and Central American species of *Lobopoda* are very poorly collected, I have not used geographical range independently of morphological characters in keys except to separate the West Indian fauna from the continental fauna.

In maps, state or indefinite localities were plotted with open figures; darkened figures were used for specific localities. The spelling of all place names has been checked primarily by the use of the following references: *Rand McNally Road Atlas for the United States; The United States Board on Geographic Names, Gazetteer Number 15 for Mexico, 18 for Costa Rica,* and *30 for Cuba;* the current *National Geographic Society Map of Mexico and Central America;* and Selander and Vaurie's (1962) *Gazetteer to Accompany the "Insecta" Volumes of the "Biologia Centrali-Americana"* for all "Biologia" localities.

The synonymies list all references so far as known. Each reference includes the name of the species as used by the author, the author's name, the year of publication, and the page number. Complete references are given in the bibliography according to the system recommended in the *Style Sheet for Scientific Publications of the American Museum of Natural History.*

Without referring to type-specimens, it is not possible to identify South American species. Consequently, some of the new species described in this revision may have been previously described from South America.

In most cases, collections are not adequate to analyze properly the extent of variation within species. Distinct geographical variation has been observed in only two species. In keeping with the suggestions of Wilson and Brown (1953), I have refrained from giving formal scientific names to subspecies.

In the records of species, the following abbreviations are used to cite museums or other institutions where specimens are housed: Agricultural and Mechanical College of Texas (TAM), American Museum of Natural

History (AMNH), British Museum (Natural History) (BMNH), California Academy of Sciences (CAS), Canadian National Collection (CNC), Carnegie Institute (CI), Chicago Natural History Museum (CNHM), Cornell University (CU), Deutsche Entomologische Institut (DEI), Illinois Natural History Survey (INHS), Iowa State University (ISU), Los Angeles County Museum (LACM), Michigan State University (MSU), Museum of Comparative Zoology (MCZ), North Carolina State College (NCSC), Ohio State University (OSU), Oregon State College (OSC), Paris Museum (PM), Philadelphia Academy of Natural Sciences (ANSP), Purdue University (PU), State Plant Board of Florida (SPBF), United States National Museum (USNM), Universidad de Puerto Rico (UPR), University of Arizona (UA), University of California at Berkeley (UCB), University of Illinois (UI), University of Kansas (UK), University of Miami (UM), University of Michigan (UMN), Zoological Museum of the University of Helsinki (UHZM), and the Zoologische Staatssammlung in Munich (ZSM). The following personal collections were cited as follows: Thomas Farr (Farr), C. A. Frost (Frost), Henry Howden (Howden), John Moser (Moser), William Rosenberg (Rosenberg), P. Francisco Silverio Pereira (Pereira), and my personal collection (JMC).

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SYSTEMATICS

GENUS *LOBOPODA* SOLIER

Lobopoda Solier, 1835:233. Lacordaire, 1859:500. Champion, 1888:386. Casey, 1891:77.
Allecula: Laporte, 1840:242 [in part].

Body elongate-oval, widest at base of elytra; pronotum slightly narrower than base of elytra; sides narrowing anteriorly. Color normally brownish-black or black, occasionally with metallic sheen. Surface smooth or finely granulate.

Head moderately densely punctate on vertex, normally with impunctate area between posterior margins of eyes; clypeal punctures sparser than those of vertex, more deeply impressed on their posterior margin. Antennae elongate; apex of sixth segment reaching base of pronotum when pulled straight back over the elytra; segments 4 through 11 filiform or slightly obconical; third segment two to four times as long as second, equal to or slightly shorter than fourth segment; following segments approximately equal in length to third segment, each .3 to .4 as wide as long; apex of last segment acute. Apical segment of maxillary palpi (Fig. 181) narrowly, transversely elongate-oval; apical segment of labial palpi broadly oval. Apex of mandibles deeply notched, forming two apical teeth; upper tooth acute; lower tooth blunt and wider than upper tooth.

Pronotum much broader than long; length ranging from approximately one-half to three-fourths as great as width; sides and base distinctly, apex finely and obscurely, margined; base strongly bisinuate; a pair of distinct basal foveae usually present just anteriad of basal sinuations with median fovea placed at the base between them. Scutellum broadly triangular, usually with a few small, seta-bearing punctures on each side.

Prosternum with anterior face very narrow and inclined at a rather acute angle to receive the gular region of the head in repose, normally shallowly, very coarsely, rugosely punctate; apex of prosternal process strongly declivous posteriad of coxae (except in *L. gigantea*). Mesosternum with a distinct ridge in middle of anterior region; crest of ridge impunctate, shining; sides of ridge very densely, finely punctate; middle of mesosternum usually moderately deeply impressed; depression usually V-shaped; apex of V extending posteriad between mesocoxae; arms of V extending anterio-laterad to lateral margins of mesosternum. Mesepisterna obliquely impunctate on inner half; outer half densely, evenly punctate. Mesepimera coarsely, sparsely punctate. Metepisterna densely, coarsely punctate; anterior edge slightly raised, impunctate.

Elytra elongate; sides gradually converging or parallel from base to middle and then evenly narrowed to apex; distinctly striate; striae bearing large, conspicuous, non-setate punctures; interstices of striae usually bearing fine, setigerous punctures (except in subgenus *Glabrilobopoda*). Elytral epipleurae extending from base to apex. Intercoxal process of first abdominal sternum narrowly triangular.

Male.—Eyes very large, usually touching each other dorsally, oblique in position so that anterior margins are much more approximate than the posterior margins. Anterior tarsi with four basal segments conspicuously lobed ventrally; posterior tarsi with basal segment usually somewhat shorter than or equal to length of remaining segments combined. Tarsal claws usually with more than six teeth. Eighth and ninth sterna bilobed, functioning as part of genital apparatus. Lobes of eighth sternum often very highly modified, usually bearing both normal and dentiform setae. Lobes of ninth sternum usually distinctly shorter than those of eighth sternum, impunctate, glabrous; sides either smoothly, evenly rounded or straight, occasionally distinctly inflexed; apices rounded. Apical piece of genitalia elongate, triangular, usually strongly narrowed from base to apex, usually moderately densely covered with dentiform setae; apex occasionally widened. Basal piece with sides parallel or slightly converging approaching apical piece, glabrous. Ventral strut very long, narrow, received by median groove in ventral surface of apical piece.

Female.—Eyes never touching each other dorsally, varying from very narrowly separated to separated by distance fully as great as diameter of an eye; eyes oblique in position as in male. Penultimate segment of an-

terior and intermediate tarsi always lobed ventrally; second segment of anterior tarsi occasionally lobed. Tarsal claws with only five to seven teeth. Bursa copulatrix very large, spherical; dorsal surface bearing a pair of elongate plates which are dentate on inner margin; ventral surface with a pair of large, irregularly quadrate, dentate plates.

Type-species.—Allecula pallicornis Fabricius, from Brazil, by present designation.

Limits of the Genus

Because of the lack of knowledge of the South American genera of the tribe Alleculini, I have not been able to determine with any degree of certainty the relationships of the genera of the tribe. The species of México and Central America have been divided into a large number of genera by Champion (1888). However, all but six of the South American species of the tribe are placed in either *Lobopoda* (112 species) or *Allecula* (67 species). The genus *Lobopoda* is sufficiently distinct that most of the South American species assigned to it are probably correctly placed. However, the genus *Allecula* has been used as a "dumping ground" by various authors and is composed of many heterogeneous elements. Thus, in all probability, many of the South American species of *Allecula* should be removed from the genus and placed in other undescribed genera.

Based upon a study of the available South American material, the genus *Lobopoda* apparently evolved from a form similar in most respects to some of the modern South American species currently placed in *Allecula*. Both of these genera have the apical segment of the maxillary palpi widely expanded; the antennae elongate, filiform, or slightly obconical; the eyes moderately large; the pronotum normally sparsely to moderately densely punctate, rarely with the punctures very densely and confluently placed; the pronotum with the base slightly narrower than the base of the elytra; the elytral striae normally deeply impressed with deep strial punctures; the wings fully developed; and the body moderately large and elongate-oval.

In addition to the above-mentioned similarities, some South American species of *Allecula* even more closely resemble *Lobopoda* in having the maxillary palpi very broadly expanded, the prosternum shortened (but not sloping as in *Lobopoda*) anterior to the coxae, the lobes of the eighth sternum highly modified, and the lobes of the ninth sternum long and well developed.

Lobopoda may be easily separated from *Allecula* and other related genera of the tribe Alleculini such as *Hymenorus* and *Alethia*. In *Lobopoda* the eyes are very large and obliquely converging in front so that the anterior margins are much more approximate than the posterior margins

(they usually touch each other dorsally in the male). The apical segment of the maxillary palpi (Fig. 181) is very strongly, transversely expanded. The anterior face of the prosternum is very short and slants strongly to receive the gular region of the head in repose. The lobes of the eighth sternum are large and often highly modified; and the lobes of the ninth sternum are also very well developed, being usually at least half as long as the lobes of the eighth sternum.

The genera *Allecula, Hymenorus,* and *Alethia* have the apical segment of the maxillary palpi broadly, triangularly expanded. The eyes are usually somewhat smaller than in *Lobopoda* and are not obliquely converging in front; the anterior and posterior margins are equally separated from each other, and the eyes of the male are only rarely touching dorsally. The anterior face of the prosternum is long and flat. The lobes of the eighth sternum are usually evenly and convexly curved medially approaching the apex, and the lobes of the ninth sternum are rarely well developed, usually not extending beyond the basal third of the eighth sternal lobes.

A very conspicuous characteristic of *Lobopoda* is the well-developed sexual dimorphism. Males may be easily separated from females by the difference in the number of lobed tarsal segments, particularly on the anterior tarsi; the more approximate eyes (except in rare instances), which usually are in contact dorsally; the distinct swelling or modification of the anterior tibiae; and the more abundant teeth on the tarsal claws. Other genera of the tribe Alleculini also show some degree of sexual dimorphism; however, in no other genus are the sexual differences as great as in *Lobopoda.* Each of the sexual differences in *Lobopoda* mentioned above is represented in at least one South American species of *Allecula,* but I do not know of any New World species of *Allecula* that possesses all of them, and the differences are usually not as distinct as in *Lobopoda.*

The genus *Lobopoda* is the largest Neotropical genus of Alleculidae. It may be easily separated from other genera of the family with the aid of Arnett's (1962) or Champion's (1888) key. Arnett's key should be used for the United States genera and Champion's key for the Mexican and Central American genera. Champion's key is also satisfactory for separating *Lobopoda* from the described West Indian genera.

Classification and Phylogeny

The suggested phylogenetic relationships of the subgenera of *Lobopoda* are shown in Figure 2. Three main lines may be recognized, one giving rise to *Monoloba,* another to *Flavipoda,* and the third producing *Mesolobopoda, Glabrilobopoda,* and *Lobopoda.*

The subgenera *Monoloba* and *Flavipoda* are separated from the re-

mainder of the genus primarily because of the presence of a distinct lobe on the penultimate segment of the posterior tarsi of both sexes. Since all the genera of the tribe Alleculini related to *Lobopoda* have a wide, distinct lobe on the penultimate segment of the tarsi, its presence is almost certainly archaic for the genus *Lobopoda*.

The subgenus *Flavipoda* apparently represents an early divergence from the remainder of the genus, having since become highly specialized as shown by the highly modified shape of the male terminalia, the emarginate fifth abdominal sternum of the males, the emarginate apices of the elytra of the females of most species, and the very densely and evenly punctate pronotum.

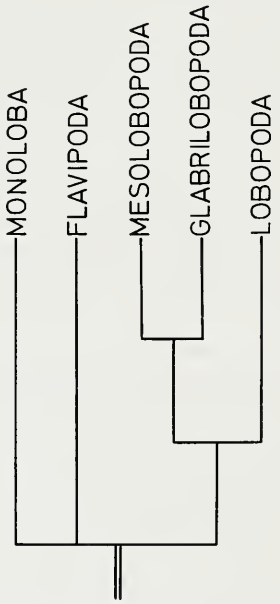


FIG. 2. Phylogeny of the subgenera of *Lobopoda*.

Mesolobopoda and *Glabrilobopoda* are separated from other subgenera by the presence of wide, membranous lobes on the basal four segments of the intermediate tarsi of the male. Other subgenera of *Lobopoda* have, at most, only two segments of the intermediate tarsi lobed ventrally. Since other related genera of the tribe Alleculini normally have only one or two segments of the intermediate tarsi lobed in the male, the modification of the male intermediate tarsi apparently represents a specialization within the genus. *Glabrilobopoda* is distinguished by the loss of all the pubescence from the body. Within this subgenus there is a tendency toward metallic coloration, reduction or loss of punctation, and loss of elytral striae. More species of *Glabrilobopoda* are found at higher elevations (3,000 to 6,000 feet) than are other species

of the genus. Except for the four lobed segments of the intermediate tarsi of the male and the highly specialized male terminalia, *Mesolobopoda* is similar in most respects to the subgenus *Lobopoda* and particularly to the species of the Panamensis and Apicalis groups.

Lobopoda is by far the largest of the subgenera of the genus. It has been divided into a large number of species groups, most of which have representatives in South America as well as those discussed from North America. It is quite variable, and, when a study of the South American species is made, it may be necessary to divide it into two or more subgenera. It is distinguished from the other subgenera of the genus by having the lobes of the posterior tarsi obsolete, only one or two segments of the male intermediate tarsi lobed, and the body distinctly pubescent.

The genus *Lobopoda* probably evolved in the wet, tropical regions of South America. Each of the three major lines seems to have invaded North America independently. Many of the subgenera and species groups found in North America contain only a few species but have a large number of similar and apparently closely related South American species. This is particularly true of *Monoloba*, which contains only three North American species, and *Mesolobopoda*, which contains only four North American species, although both of these subgenera have a large number of South American species. *Glabrilobopoda* probably evolved in the mountainous regions of Central America, and a few of its species have extended their range into South America. *Flavipoda* represents an endemic West Indian subgenus of seven species. *Lobopoda* has a large number of both North and South American species. Although many of its species groups are apparently endemic to South America, only a few are endemic to North America.

The West Indian species of *Lobopoda* are very distinct from all other species of the genus known to me. At present three of the five subgenera, *Flavipoda, Mesolobopoda,* and *Lobopoda,* are represented in the West Indies. *Flavipoda* contains seven species which are apparently restricted to the Greater Antilles and the Bahama Islands.

Mesolobopoda contains only one West Indian species, *L. ebenina,* from the Grenadines. The subgenus *Lobopoda* contains seven West Indian species; however, these are very different in appearance from one another and apparently represent separate invasions of the West Indies from either Central or South America. Most of the West Indian species of this subgenus are so distinct and highly specialized that, at present, I am unable to determine their probable origin.

Key to the Subgenera

1. Penultimate segment of all tarsi distinctly lobed ventrally 2
   Penultimate segment of posterior tarsi no more than very obsoletely lobed ventrally 3

2. Mexican and Central American species; length usually exceeding 13 mm. ..... *Monoloba*
   West Indian species; length rarely exceeding 12 mm.; pronotum very densely, coarsely punctate; legs often yellow ..... *Flavipoda*
3. Intermediate tarsi of male with the four basal segments distinctly lobed ventrally 4
   Intermediate tarsi of male with, at most, the third and fourth segments lobed ventrally ..... *Lobopoda*
4. Body glabrous ..... *Glabrilobopoda*
   Body pubescent ..... *Mesolobopoda*

SUBGENUS *MONOLOBA* SOLIER

Monoloba Solier, 1835:235. Lacordaire, 1859:501. Champion, 1888:388.

Body broadly elongate-oval; surface moderately densely covered with pale-yellow setae. Length exceeding 13 mm. Head and pronotum very deeply, densely, coarsely punctate; punctures irregularly distributed. Pronotum broad; pronotal index usually less than 60. Median depression of mesosternum deeply impressed, not extending posteriad between mesocoxae. Elytra with sides broadly oval, tapering from humeral angles to apex. Posterior tarsi short, only approximately .6 as long as posterior tibiae. Penultimate segment of all tarsi conspicuously lobed ventrally.

Type-species.—*Lobopoda dircaeoides* Solier; fixed by monotypy.

Discussion.—*Monoloba* is the smallest subgenus of *Lobopoda*, containing only three North American species. Its species are known from southern Veracruz and Yucatán in México and from Nicaragua south into South America. They may be easily recognized by their large size; the very irregularly punctate head and pronotum; the lobed penultimate segment of the posterior tarsi; and the presence of dense, pale-yellow pubescence on the legs and body.

KEY TO THE GROUPS OF THE SUBGENUS *Monoloba*

1. Prosternum horizontal, subacuminately produced, and received by the deeply excavate mesosternum ..... Gigantea Group
   Prosternum abruptly declivous behind the procoxae .. Grandis Group

GIGANTEA GROUP

Color dark bronze; surface shining; pubescence moderately long, fine. Prosternum horizontal, convexly, subacuminately produced; prosternal process received by the deeply excavate mesosternum.

Male.—Unknown.

Discussion.—The Gigantea Group contains only one species, *L. gigantea*, which was described by Champion (1888) from a unique female. Champion was somewhat hesitant to place this species in the genus *Lobopoda* because of the very distinctive shape of the prosternum.

However, he stated that "in its other characters it approaches the first section of that genus so closely, more especially to *L. grandis*, that I am unwilling to separate it in the absence of the male sex."

The genus *Blepusa* Westwood, which, according to Westwood's (1842) description, is also characterized by a horizontally produced prosternum and excavate mesosternum, seems to agree quite closely in other characters with the genus *Lobopoda*. Based on these similarities, *Blepusa costata* Westwood, which was described from "Mexico, or some adjacent part of South America," may have to be transferred eventually to the genus *Lobopoda* and, perhaps, to the Gigantea Group.

Lobopoda (*Monoloba*) *gigantea* Champion

Lobopoda gigantea Champion, 1888:388, pl. 17, fig. 1.

Champion (1888) described this species as follows:

Elongate, broad, rather depressed, dark bronze, shining, thickly clothed with ashy pubescence. Head very irregularly, somewhat closely, and rather coarsely punctured; eyes (female) moderately large, widely separated; prothorax very broad at the base, the sides a little sinuate behind and rapidly converging from the very acute outwardly directed hind angles, the disc flattened and distinctly canaliculate, the basal foveae large and rather deep, the surface very irregularly, rather coarsely, and somewhat closely punctured, a narrow ill-defined longitudinal space on the middle of the disc impunctate; elytra long and broad, narrowing from the base, broadly depressed below the scutellum, the base rather deeply impressed on each side within the humeri, with rows of fine closely placed punctures which gradually become finer towards the apex, the interstices here and there feebly raised in the middle, flat on the basal half of the disc, and very sparsely and very irregularly punctured, the punctures on the apical half as coarse as those of the striae; beneath dark bronze, rather closely and somewhat coarsely punctured, a longitudinal space on the middle of the metasternum impunctate; prosternum horizontal, convexly and subacuminately produced and received by the deeply excavate mesosternum; legs and antennae obscure dark bronze, the former very thickly pubescent.

Length 19 millim.; breadth 7 millim. (female).

Type.—Holotype, female, from Sontecomapan, Veracruz, México (Sallé Collection). The type is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—MÉXICO: *Veracruz:* Santecomapan [Sontecomapan] (Champion, 1888).

Discussion.—*Lobopoda gigantea* seems to be a member of the genus *Lobopoda* based on Champion's description and a drawing of the apical segment of the maxillary palpi of the holotype made for me by Miss C. M. F. von Hayek. A more definite conclusion regarding its systematic position will not be possible until the male of the species is discovered.

Grandis Group

Body very broadly elongate-oval. Length 13 to 19 mm. Antennae moderately short; apical segments distinctly obconical; third segment

three to four times as long as second, slightly shorter than fourth. Metasternum moderately densely, finely, evenly punctate; punctures becoming slightly larger approaching sides. Elytral apices narrowly rounded; epipleurae not quite reaching to apex of elytra.

Male.—Anterior tibiae (Fig. 135) very broadly, convexly expanded on ventral surface near middle. Intermediate tarsi with third and fourth segments lobed. Apical half of fifth sternum distinctly, concavely excavate. Lobes of eighth sternum devoid of all dentiform setae; lobes long, slender, acutely produced; apex of lobes strongly curved dorsally; ventral surface with a prominent, setate ridge placed in middle near base; viewed laterally, lobes distinctly S-shaped. Apical piece of genitalia short, very broad; viewed laterally, apex prominently expanded both dorsally and ventrally.

Female.—Penultimate segment of all tarsi lobed ventrally; anterior tarsi with third segment moderately broadly, second segment very narrowly, lobed; basal segments of anterior and intermediate tarsi densely pubescent ventrally. Fifth sternum with a distinct concave impression in middle near apex; apical margin very broadly oval.

Discussion.—The two species of the Grandis Group are placed together primarily on the basis of their very similar male terminalia. Similarities in the structure of the male anterior tibiae and the fifth sternum of both males and females further indicate that the species are more closely related to each other than either is to other species of *Lobopoda.*

Key to the Species of the Grandis Group

1. Eyes of male touching dorsally; margin of basal abdominal sternum smooth; punctures of strial interstices regularly distributed . . . *grandis*
   Eyes of male separated dorsally; margin of basal abdominal sternum dentate; punctures of strial interstices placed in groups . . . *asperula*

Lobopoda (*Monoloba*) *grandis* Champion

Lobopoda grandis Champion, 1888:389.

Body very broadly elongate-oval, dark brown; surface finely granulate, somewhat shining; setae moderately long, fine, pale yellow, very conspicuous. Length 17 to 19 mm. Vertex very densely, deeply punctate, less densely punctate between eyes. Apical segment of maxillary palpi .4 to .5 as long as wide; width approximately equal to length of third antennal segment. Pronotum with sides slightly sinuate near base, slightly narrowed from base to near apex, and then broadly rounded to apex; basal angles slightly acute; mean pronotal index of four specimens 54.3 (52–57); surface densely, deeply punctate; punctures large, somewhat more densely placed on sides and base; basal foveae very broad, moderately shallowly impressed, connected across base by a wide, shallow median fovea; midline very broadly, shallowly impressed; remainder of

pronotum very irregularly convex. Prosternum densely, rugosely punctate; punctures conspicuously setate. Proepisterna very densely punctate in anterior half; posterior half impunctate. Mesosternum convex, very strongly, vertically declivous just anteriad of mesocoxae; vertical portion deeply impressed in middle; sides of mesosternum deeply, moderately densely punctate. Elytra with striae moderately shallowly impressed near base, becoming more deeply impressed approaching apex; strial punctures large, oblong, densely, deeply placed along striae; strial interstices slightly convex near base, becoming very convex in apical half of elytra; interstices sparsely, deeply punctate; punctures placed on each side of interstices near strial punctures; epipleurae densely, shallowly punctate. Abdominal sterna coarsely, densely punctate; punctures of fourth and fifth sterna much finer than those of basal three sterna, especially near anterior margin.

Male.—Eyes large, touching dorsally. Anterior femora with very small, scattered, erect setae on basal half of ventral margin. Dorsal side of anterior tibiae distinctly, acutely carinate in apical three-fourths. Fifth sternum deeply, broadly, triangularly excavate in apical half. Lobes of eighth sternum (Fig. 19) moderately densely setate on both sides of basal ridge; ridge shallowly produced, evenly curved; viewed ventrally, apex of lobes narrowly rounded. Lobes of ninth sternum moderately long; apex of lobes obliquely truncate. Apical piece of genitalia (Fig. 77) with sides irregularly rounded from base to apex; ventral surface with approximately four pairs of small dentiform setae placed near median groove; basal two-thirds of dorsal surface densely covered with small dentiform setae; apex strongly produced dorsally, only slightly produced ventrally; apical projection bearing a few small dentiform setae.

Female.—Eyes moderately widely separated; mean ocular index of three specimens 14.0 (11–16). Tarsal claws each with eight teeth.

Type.—As lectotype, I have selected a female from the type-series of two specimens collected by Janson from Chontales, Nicaragua. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from Nicaragua and Panamá in Central America and from northwestern South America.

Records.—COLOMBIA: Gorgona Island, 200 feet, November (BMNH) 1. ECUADOR: Country label only (BMNH) 1. NICARAGUA: Chontales (BMNH–Biologia Collection) 3. PANAMÁ: Cerro Campana, 3000 feet, August (JMC) 1; La Chorrera, June (CNHM) 1.

Discussion.—In most characters *L. grandis* closely agrees with Champion's description of *L. gigantea*, but the two species may be separated quite easily by differences in the form of the prosternal process. The mesosternum of *L. grandis* is more convex and more abruptly declivous than in any other species of the genus known to me.

Bionomics.—I collected one specimen of this species in Panamá by beating dead limbs of trees which were very heavily covered with lichens. The trees were located on a windswept tree line. The species has been collected in Panamá in June and August and in Colombia in November.

Lobopoda (*Monoloba*) *asperula* Champion

Lobopoda asperula Champion, 1888:390, pl. 17, figs. 2, 2a, 2b.

Body broadly elongate-oval, dark brownish-black with a bronze metallic tint; surface finely, distinctly granulate, slightly shining; setae long, coarse, pale yellow. Length 13 to 18 mm. Vertex very densely punctate. Apical segment of maxillary palpi .4 as long as wide; width approximately 1.4 times as great as length of third antennal segment. Pronotum with sides slightly sinuate near base, slightly narrowed from base for basal two-thirds, and then broadly rounded to apex; basal angles acute; mean pronotal index of 20 specimens 56.7 (54–59; $S_{\bar{x}} = .4$); surface densely, deeply, irregularly punctate; punctures very large, deeply impressed in middle half of pronotum, more shallowly punctate on sides; a distinct impunctate area placed on each side anteriad of basal foveae; basal foveae large, moderately deeply impressed; median fovea small, shallowly impressed, widely separated from basal foveae; pronotal midline unimpressed. Prosternum moderately sparsely punctate, very coarsely granulate, conspicuously setate; proepisterna rather densely, deeply punctate around anterior portion of coxae and near anterior margin; remainder impunctate. Mesosternum distinctly declivous anterior to coxae; declivous portion split by a large, deep, V-shaped depression which extends posteriad to middle of mesocoxae. Posterior femora flattened laterally, very smooth, completely glabrous on inner side; ventral edge of inner side forming a distinct ridge on basal half of femur; viewed dorsally, femora distinctly curved. Elytral striae very narrowly, shallowly, evenly impressed from base to apex; strial punctures small, elongate, densely placed along striae; strial interstices broad, flat, finely, distinctly punctate; punctures of interstices placed in irregular groups with four to six punctures in each group; punctures bearing short, very conspicuous pale-yellow setae giving the elytra a mottled appearance; elytral epipleurae sparsely, finely punctate. Abdominal sterna very finely, moderately sparsely, evenly punctate; surface very distinctly granulate; lateral margins of first sternum expanded laterally, very coarsely dentate or filelike.

Male.—Eyes distinctly separate dorsally; mean ocular index of 9 specimens 7.7 (7–9; $S_{\bar{x}} = .3$). Dorsal surface of anterior tibiae rather inconspicuously carinate in apical half. Tarsal claws each with 12 to 13 teeth. Apical half of fifth sternum broadly, moderately deeply, concavely exca-

vate. Lobes of eighth sternum (Fig. 20) with basal ridge strongly produced, distinctly sinuate; basal ridge moderately densely setate on both sides; viewed ventrally, apex of lobes produced dorsally, very narrowly rounded. Lobes of ninth sternum long, slender; apex of lobes narrowly rounded; inner side concavely excavate. Apical piece of genitalia (Fig. 78) with sides evenly triangular, devoid of setae; apex slightly produced both dorsally and ventrally.

Female.—Eyes small, widely separated; mean ocular ratio of 11 specimens 25.5 (22–30; $S_{\bar{x}} = .7$). Third segment of intermediate tarsi distinctly lobed ventrally. Tarsal claws each with 6 to 7 teeth.

Type.—As lectotype I have selected from the type-series of 15 specimens a male collected by Gaumer from North Yucatán, México. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Yucatán, México.

Records.—MÉXICO: Country label only (BMNH) 1. *Yucatán:* State label only (BMNH–Biologia Collection) 2, (ZSM) 1; North Yucatán (BMNH–Biologia Collection) 13, (AMNH) 1.

Discussion.—Lobopoda asperula differs from all other species of the genus in having the posterior femora and the margins of the basal abdominal sternum modified, possibly for the production of sound. The posterior femora have a distinct ridge on their inner margin which can be scraped across the filelike margins of the basal abdominal sternum. If this is indeed used to produce sound, it would represent the only stridulating species of the family Alleculidae known to me. This condition is equally developed in both sexes. This species is also unique in having the elytra with a very distinctive pattern produced by the irregularly distributed interstitial punctures.

SUBGENUS *FLAVIPODA,* NEW SUBGENUS

Body elongate-oval, light brown to black, nonmetallic; legs and mouthparts usually yellow, distinctly paler than body. Pubescence short, conspicuous, pale yellow. Length 7 to 12 mm. Pronotum with surface very densely, deeply, evenly punctate (moderately densely, shallowly punctate in *L. cayamasensis*); basal foveae usually small, moderately shallowly impressed, distinctly separated from median fovea. Penultimate segment of all tarsi lobed ventrally (lobes of posterior tarsi reduced in *L. bicolor*).

Type-species.—Allecula flavipes Jacquelin DuVal; fixed by present designation.

Discussion.—Species of the subgenus *Flavipoda* resemble those of the subgenus *Monoloba* in having the penultimate segment of the posterior tarsi lobed ventrally. However, they may be distinguished easily by their densely, evenly punctate pronotum; smaller body size; more elongate

shape; very distinctive male terminalia; and different geographic distribution.

Flavipoda is apparently endemic to Cuba and the Bahama Islands. One species is known only from the Bahamas, while the remaining six are known only from Cuba. *Lobopoda flavipes* has been reported by Gowdey (1926) and Wolcott (1923, 1948) as occurring on the islands of Puerto Rico and Jamaica, but I have not seen any specimens of it from these islands, and I suspect strongly these published records were based on misidentified representatives of the genus *Hymenorus*.

Flavipoda must be regarded as one of most highly specialized groups of the genus *Lobopoda*. The retention of tarsal lobes on the penultimate segment of the posterior tarsi suggests a very early isolation of the subgenus from the remainder of the genus. In addition, the secondary sexual characters of most of its species as well as the very distinctive and highly modified male terminalia are unlike those found in any other subgenus of *Lobopoda*.

Flavipoda is divided into two groups. The Flavipes Group contains six species; the Cayamasensis Group contains one.

KEY TO THE GROUPS OF THE SUBGENUS *Flavipoda*

1. Pronotum coarsely, very densely punctate; punctures separated by average distance no greater than diameter of a puncture; surface shining ..... Flavipes Group
   Pronotum finely, moderately densely punctate; punctures separated by average distance distinctly greater than diameter of a puncture; surface distinctly granulate, opaque ..... Cayamasensis Group

FLAVIPES GROUP

Body brown; legs, antennae, and mouthparts pale yellow; surface of body smooth or very finely granulate, shining, very densely, coarsely punctate. Length 7 to 12 mm. Antennae elongate; apical segments very slightly enlarged apically. Pronotum with basal angles rectangular; surface very densely, deeply punctate; punctures evenly distributed, separated by average distance no greater than diameter of a puncture; basal foveae small, shallowly impressed, widely separated from small median fovea; pronotal midline shallowly but distinctly impressed. Prosternum and mesosternum very densely, coarsely punctate. Elytral epipleurae and abdominal sterna finely, densely, evenly punctate.

Male.—Anterior tibiae (Figs. 136–139) expanded on ventral side near base; only penultimate segment of intermediate tarsi lobed; tarsal claws each with more than 11 teeth, often with more than 15. Terminalia highly variable.

Female.—Eyes moderately widely to very widely separated. Only pe-

nultimate segment of anterior and intermediate tarsi lobed. Apex of each elytron and apical margin of fifth sternum often deeply emarginate.

Discussion.—Except for their secondary sexual characters, the species of the Flavipes Group are very similar in appearance. All have a very deeply, densely punctate body surface and pale-yellow legs, antennae, and mouthparts.

The secondary sexual characters of most species of this group are very highly specialized. The highly modified male anterior tibiae and concavely emarginate fifth sternum of *L. tibiodentata, L. emarginata,* and (to a lesser extent) *L. bahamensis* are quite different from those of any

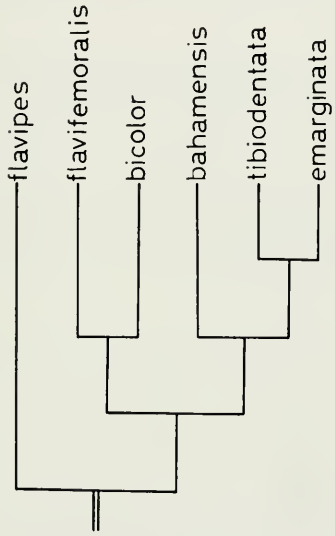


Fig. 3. Phylogeny of the Flavipes Group.

other species of the genus. Equally distinctive are the lateral compression of the apical and basal pieces of the male genitalia in *L. tibiodentata* and *L. emarginata* and the presence of a large median sclerite between the lobes of the ninth sternum in *L. tibiodentata.* The females of *L. tibiodentata, L. emarginata, L. flavifemoralis,* and *L. bahamensis* are unique within the genus in that their elytral apices are distinctly emarginate. In the females of *L. tibiodentata* and *L. emarginata* the apical margin of the fifth sternum is deeply biemarginate and in those of *L. bahamensis* it is simply emarginate.

The suggested phylogeny of the species of the Flavipes Group is shown in Figure 3. Two main lines of the group may be recognized. The first is represented by the species *L. flavipes.* It is considered primitive because of the small size of the body and the lack of specialized sexual

characters of the female. The second line is specialized in having a somewhat larger body size and the elytral apices of the female distinctly emarginate. Within the second line, *L. bahamensis, L. tibiodentata,* and *L. emarginata* are distinct from *L. flavifemoralis* and *L. bicolor* in having the apical margin of the fifth sternum of both sexes distinctly emarginate. *Lobopoda bahamensis* is distinct from *L. tibiodentata* and *L. emarginata* in having much simpler male terminalia, a simply emarginate fifth sternum, and the ventral margin of the male anterior tibiae convexly rounded.

The males of *L. flavipes* and *L. flavifemoralis* are unknown, as is the female of *L. bicolor.* These facts must be taken into consideration in using the following key.

Key to the Species of the Flavipes Group

1. Length of body not exceeding 9 mm.; elytral apices of female not emarginate; elytral striae very deeply impressed; interstices very convex (Cuba) ..... *flavipes*
   Length of body exceeding 8 mm., usually exceeding 10 mm.; elytral apices of female distinctly emarginate; elytral striae moderately impressed; strial interstices moderately convex 2
2. Males 3
   Females 6
3. Eyes distinctly separated dorsally; lobes of eighth sternum (Fig. 22) densely covered with long, curved setae on ventral surface (Bahama Islands) ..... *bahamensis*
   Eyes touching dorsally; lobes of eighth sternum devoid of long, curved setae (Cuba) 4
4. Basal half of tibiae and base of femora dark brown; remainder of legs yellow; apical margin of fifth sternum truncate; anterior tibiae (Fig. 136) convexly expanded on ventral surface near base . *bicolor*
   Legs yellow throughout; apical margin of fifth sternum concavely emarginate; anterior tibiae abruptly expanded near base 5
5. Anterior tibiae (Fig. 138) acutely, triangularly expanded on ventral surface near base; apical margin of fifth sternum (Fig. 184) thickened, deeply, concavely emarginate; large median sclerite located between lobes of ninth sternum (Fig. 23) ..... *tibiodentata*
   Anterior tibiae (Fig. 139) obtusely, triangularly expanded on ventral surface near base; apical margin of fifth sternum (Fig. 186) shallowly emarginate, not thickened; lobes of ninth sternum (Fig. 24) not separated by median sclerite ..... *emarginata*
6. Apical margin of fifth sternum evenly convex (Cuba) . *flavifemoralis*
   Apical margin of fifth sternum deeply emarginate or biemarginate . . 7
7. Elytral apices (Fig. 175) very deeply emarginate; sutural angles very

acutely produced; fifth sternum (Fig. 182) simply emarginate (Bahama Islands) ..... *bahamensis*

Elytral apices shallowly to moderately deeply emarginate; sutural angle narrowly or broadly rounded; fifth sternum biemarginate (Cuba) 8

8. Elytral apices (Fig. 178) shallowly emarginate; sutural angle broadly rounded; median angle of biemargination of fifth sternum (Fig. 185) reaching posteriad to posterior margin of sternum *.emarginata*

Elytral apices (Fig. 177) moderately deeply emarginate; sutural angle narrowly rounded; median angle of biemargination of fifth sternum (Fig. 183) not reaching posteriad to posterior margin of sternum ..... *.tibiodentata*

Lobopoda (Flavipoda) flavipes (Jacquelin DuVal)

Allecula flavipes Jacquelin DuVal, 1857:66 [in part]. Leng and Mutchler, 1914:464.

Allecula fuscula Quedenfeldt, 1886:119. Gundlach, 1894:315. Leng and Mutchler, 1914:464. (New synonymy.)

Body brown; appendages pale yellow; surface very finely granulate, slightly shining. Length 7 to 8.5 mm. Third segment of antennae two to three times as long as second, .7 to .8 as long as fourth. Apical segment of maxillary palpi .4 as long as wide; width 1.3 times as great as length of third antennal segment. Pronotum with sides distinctly converging from base in basal two-thirds in one specimen, parallel for basal half and then broadly rounded to apex in remaining specimens; mean pronotal index of four specimens 59.2 (57–61); pronotal punctures large, deeply impressed, separated by average distance less than diameter of a puncture. Proepisterna moderately densely, evenly punctate in anterior two-thirds. Mesosternal depression shallowly impressed, broadly V-shaped; apex of V extending posteriad only as far as anterior margin of mesocoxae. Metasternum densely, coarsely, very deeply punctate. Posterior tarsi three-fourths as long as posterior tibiae; basal segment .7 as long as the other segments combined. Elytra with sides broadly rounded from base to apex; strial interstices very convex, densely, finely punctate.

Male.—Unknown.

Female.—Eyes widely separated; mean ocular index of four specimens 18.8 (12–27). Tarsal claws each with five to six teeth. Fifth sternum somewhat more sparsely, finely punctate than four basal sterna, shallowly, concavely impressed in middle; apical margin evenly convex.

Type.—I have not been able to locate the type-material of either *A. flavipes* or *A. fuscula.*

Geographic Distribution.—Known from Las Villas and Pinar del Río Provinces in Cuba.

Records.—CUBA: Country label only (ZSM) 2. *Las Villas:* Sancti-Spíritus, July (UPR) 1. *Pinar del Río:* Aspiro-Rangel, June (INHS) 1; 7 kil. north Viñales, September (AMNH) 1.

Discussion.—Many of the characters described for *L. flavipes* are quite variable and the species may have to be separated into two or more species upon discovery of males. The specimen from Aspiro-Rangel differs from the remaining specimens in that it has the sides of the pronotum strongly narrowed, a much larger ocular index, the pronotum more finely punctate, and the strial interstices of the elytra more densely punctate. The two specimens bearing only a country label differ from the other specimens in that they have the lobes on the penultimate segment of the posterior tarsi reduced in size, the mesosternal depression deeper and projecting further posteriad, the proepisterna more sparsely and finely punctate, and the size somewhat larger.

The species was first described by Jacquelin-Duval (1857), who cited Dejean as its author. Since Jacquelin-Duval was the first to apply a valid name to the species, I have followed subsequent authors in considering him as its author.

I consider *Allecula fuscula* Quedenfeldt as a synonym of *L. flavipes.* Quedenfeldt credited the name *fuscula* to Schonherr, but after considerable searching of the literature, I have not been able to locate a description prior to Quedenfeldt's. Some authors have considered this species as distinct from *L. flavipes,* while others have placed *L. flavipes* as a synonym of *A. fuscula.*

The only clue in the literature to the correct identification of the species is found in Jacquelin-Duval's description of *A. flavipes.* In his synopsis, he describes the eyes as being oblique and approximate in front, the pronotal disk densely and finely punctate, and the length 8 mm. This description is adequate only to identify this species as a representative of the genus *Lobopoda.* In addition, he states in his discussion that one specimen in the Guerin Collection differs from other specimens of the species in having more approximate eyes, the anterior tibiae dilated in the form of a tooth at their base, and a somewhat larger size (11 mm.). I have two specimens of *L. flavipes* and one specimen of *L. tibiodentata* from the Guerin Collection which were doubtless the ones referred to by Jacquelin-Duval. Since his description of *A. flavipes* was based on the smaller of the specimens, I have applied the name *L. flavipes* to these specimens, and the larger specimen is referred to as *L. tibiodentata.*

Wolcott (1923) lists Puerto Rico as a locality for this species and Gowdey (1926) lists Jamaica as a locality. However, I believe that the specimens referred to by these authors are members of the genus *Hymenorus.*

Bionomics.—This species has been collected in June, July, and September.

Lobopoda (Flavipoda) bahamensis, new species

Allecula flavipes: Leng and Mutchler, 1917:214 [in part].

Body brown; appendages light reddish-yellow; surface smooth, shining. Length 8 to 9.5 mm. Third segment of antennae three times as long as second, only slightly shorter than fourth. Apical segment of maxillary palpi .4 to .5 as long as wide; width equal to or slightly greater than length of third antennal segment. Pronotum with sides straight, very slightly converging in basal half and then broadly rounded to apex; mean pronotal index of seven specimens 64.1 (59–67); pronotal punctures moderately large, circular, separated by average distance less than half as great as diameter of a puncture. Proepisterna moderately densely punctate in anterior half, sparsely punctate in basal half near base of coxae. Mesosternal depression deeply impressed, broadly V-shaped; apex of V not extending posteriad of anterior margin of mesocoxae. Metasternum very densely punctate; punctures very densely placed in middle, becoming somewhat more sparsely distributed approaching sides. Posterior tarsi approximately .7 as long as posterior tibiae; basal segment .8 to .9 as long as the other segments combined. Elytra with sides parallel for basal half and then evenly rounded to apex; striae moderately shallowly impressed at base, becoming very deeply impressed in apical half; strial punctures large, deeply impressed, separated along striae by distance less than half as great as length of punctures; strial interstices almost flat at base, becoming very convex approaching apex; interstices moderately finely, sparsely punctate. Fifth sternum impunctate, widely, shallowly, concavely excavate in middle.

Male.—Eyes narrowly separated; mean ocular index of five specimens 4.6 (3–6). Femora devoid of short, erect setae on ventral surface. Anterior tibiae (Fig. 137) with ventral surface moderately narrowly, abruptly, convexly expanded near base; expansion moderately densely covered with short, thick, erect setae. Tarsal claws each with 11 to 13 teeth. Elytral epipleurae moderately widely expanded just anteriad of apex. Apical margin of fifth sternum very shallowly sinuate. Lobes of eighth sternum (Fig. 22) moderately broad; apical half somewhat curved medially; inner margin with sparsely distributed dentiform setae; outer side of ventral surface densely covered from near base of lobes to their apex with very long, curved setae; viewed laterally, apex of lobes obliquely transverse, sides somewhat constricted just anterior to apex. Lobes of ninth sternum narrow; their apices evenly rounded. Apical piece of genitalia (Fig. 80) broadly curved from base to apex; apex broadly rounded; sides sparsely covered with very small dentiform setae; viewed laterally, apical piece curved dorsally, apex acute.

Female.—Eyes widely separated; ocular index of two specimens 23.5

(21–26). Tarsal claws each with six to seven teeth. Elytral epipleurae widely expanded just anteriad of apex; apices of elytra (Fig. 175) very deeply emarginate; sutural angles very acutely, triangularly produced. Apical margin of fifth sternum (Fig. 182) deeply emarginate.

Type.—Holotype, male, collected by M. Cazier and C. and P. Vaurie from South Bimini Island, Bahama Islands, British West Indies, June, 1951. The specimen is in the American Museum of Natural History.

Geographic Distribution.—Known only from the Bahama Islands in the British West Indies.

Records.—BRITISH WEST INDIES: *Bahama Islands:* Eleuthera, July (USNM) 1; South Bimini Island, May–July (AMNH) 6.

Discussion.—The specimen of *L. bahamensis* from Eleuthera differs from those from South Bimini Island in having the legs only slightly lighter in color than the body and the ocular and pronotal indices somewhat smaller.

Lobopoda bahamensis differs from all other species in this revision except *L. tropicalis* and *L. guerrerensis* in having the ventral surface of the male eighth sternal lobes covered with long, curved setae.

Bionomics.—Specimens of this species have been collected from May through July.

Lobopoda (*Flavipoda*) *bicolor*, new species

Body dark brown; appendages pale yellow except for base of femora and basal half of tibiae which are dark brown; surface smooth, shining. Length 10 mm. Third segment of antennae 3.5 times as long as second, .8 as long as fourth. Apical segment of maxillary palpi .5 as long as wide; width .9 as great as length of third antennal segment. Pronotum with sides straight, distinctly converging from base for basal two-thirds; pronotal index of one specimen 61; pronotal punctures moderately large, separated by average distance somewhat less than diameter of a puncture. Proepisterna moderately densely punctate in anterior half, sparsely punctate in basal half around base of coxae. Mesosternal depression very shallowly impressed, V-shaped; apex of V extending posteriad between mesocoxae to metasternum. Metasternum very densely, finely punctate in middle; punctures becoming coarse, moderately sparsely distributed approaching sides. Posterior tarsi .8 as long as posterior tibiae; basal segment .8 as long as the other segments combined. Elytra with sides parallel for basal half and then evenly rounded to apex; elytral striae moderately deeply, evenly impressed from base to apex; strial punctures moderately large, deeply impressed within striae, very narrowly separated along striae; strial interstices slightly convex, moderately densely punctate.

Male.—Eyes touching dorsally. Basal third of ventral surface of ante-

rior femora covered with very short, erect setae; ventral surface of intermediate and posterior femora sparsely covered with moderately elongate, erect setae. Anterior tibiae (Fig. 136) broadly, evenly, convexly expanded in basal half; ventral margin of expansion moderately densely covered with very short, erect setae. Tarsal claws each with 17 to 19 teeth. Fifth sternum very shallowly, broadly impressed in middle; apical margin truncate. Lobes of eighth sternum (Fig. 21) narrow; apical half distinctly curved medially; apex evenly, narrowly rounded; inner surface of lobes moderately densely covered with dentiform setae. Lobes of ninth sternum straight; outer sides convex; apices evenly rounded. Apical piece of genitalia (Fig. 79) with sides evenly converging for basal three-fourths and then parallel to apex; apex evenly rounded; ventral groove extending from base to apex, moderately densely covered with short, dentiform setae.

Female.—Unknown.

Type.—Holotype, male, collected by M. L. Jaume from Pan de Guajaibón, Pinar del Río, Cuba, May 16–17, 1953. The specimen is in the Illinois Natural History Survey.

Geographic Distribution.—Known only from the type-locality.

Records.—CUBA: *Pinar del Río:* Pan de Guajaibón, May (INHS) 1.

Discussion.—*Lobopoda bicolor* differs from all other species in this revision except *L. femoralis* in having the legs distinctly bicolored.

Bionomics.—This species has been collected in May.

Lobopoda (Flavipoda) flavifemoralis, new species

Body dark brown; appendages pale yellow; surface smooth, shining. Length 10.5 to 11 mm. Third segment of antennae four times as long as second, equal in length to fourth. Apical segment of maxillary palpi .5 as long as wide; width .9 as great as length of third antennal segment. Pronotum with sides straight, nearly parallel for basal two-thirds and then evenly rounded to apex; pronotal index of two specimens 61; pronotal punctures moderate in size, separated by average distance about equal to diameter of a puncture. Proepisterna moderately densely punctate in anterior half and around base of coxae. Mesosternal depression moderately deeply impressed, V-shaped; apex of V extending posteriad between mesocoxae almost to metasternum. Metasternum moderately densely, coarsely punctate in middle; punctures becoming sparsely distributed approaching sides. Posterior tarsi .8 as long as posterior tibiae; basal segment .8 as long as the other segments combined. Elytra with sides parallel for basal half and then evenly rounded to apex; elytral striae moderately shallowly, evenly impressed from base to apex; strial punctures large, deeply impressed within striae, very narrowly separated along striae; strial interstices slightly convex, densely punctate.

Male.—Unknown.

Female.—Eyes moderately separated; mean ocular index 17.5 (17–18). Tarsal claws each with six to seven teeth. Apices of elytra (Fig. 176) narrowly, moderately deeply emarginate; sutural angles acutely rounded; elytral epipleurae widely expanded just anteriad of apex. Fifth sternum slightly, concavely depressed in middle; apical margin evenly convex, unmodified.

Type.—Holotype, female, collected by M. W. Sanderson from Florida Blanca near Alto Songo, Oriente Province, Cuba, May 23–24, 1959. The specimen is in the Illinois Natural History Survey.

Geographic Distribution.—Known only from the type-locality.

Records.—CUBA: *Oriente:* Florida Blanca near Alto Songo, May (INHS) 2.

Discussion.—*Lobopoda flavifemoralis* is very similar in appearance to *L. bicolor.* Unfortunately, it is known only from the female, while *L. bicolor* is known only from the male. It differs from *L. bicolor* primarily in having the legs uniformly colored and the pronotal punctures somewhat more widely separated. It may readily be separated from females of *L. tibiodentata* and *L. emarginata* by the unmodified apical margin of the fifth sternum.

Bionomics.—This species has been collected in May.

Lobopoda (*Flavipoda*) *tibiodentata,* new species

Allecula flavipes Jacquelin DuVal, 1857:66 [in part].

Body dark brown; appendages pale yellow; surface finely granulate, slightly shining. Length 11 to 12 mm. Third segment of antennae four times as long as second, .8 to .9 as long as fourth. Apical segment of maxillary palpi .4 as long as wide; width .8 to .9 as great as length of third antennal segment. Pronotum with sides straight, parallel for basal half and then broadly rounded to apex; mean pronotal index of 12 specimens 63.8 (60–66; $S_{\bar{x}} = .6$); pronotal punctures moderately small, circular, separated by distance equal to or slightly less than diameter of a puncture; basal foveae moderately deeply impressed; median fovea large, deeply impressed; pronotal midline very distinctly impressed. Proepisterna moderately densely punctate in anterior half, sparsely punctate in basal half around base of coxae. Mesosternal depression deeply impressed, V-shaped; apex of V extending posteriad between mesocoxae to metasternum. Metasternum very densely, finely punctate in middle; punctures becoming coarser and more sparsely distributed approaching sides. Posterior tarsi three-fourths as long as posterior tibiae; basal segment approximately equal in length to the other segments combined. Elytra with sides parallel for basal half and then evenly rounded to apex; elytral striae moderately deeply, evenly impressed from base to apex; strial punctures large, deeply impressed within striae, very narrowly

separated; strial interstices feebly convex, very densely, finely punctate. Fifth sternum impunctate in middle.

Male.—Eyes touching dorsally. Anterior femora densely covered with short, reddish, erect setae on ventral surface at base; intermediate and posterior femora with longer, somewhat more sparsely distributed, erect setae in basal half of ventral surface. Anterior tibiae (Fig. 138) with a very prominent, acutely triangular expansion at base; expansion with apical margin emarginate ventrally, very densely covered with short, erect setae; tarsal claws each with 13 to 15 teeth. Elytral epipleurae widely expanded just anteriad of apex of elytra. Fifth sternum deeply, concavely impressed in middle; apical margin (Fig. 184) deeply, concavely emarginate in middle; emargination strongly thickened. Lobes of eighth sternum (Fig. 23) straight; apices widened, moderately densely covered with dentiform setae. Lobes of ninth sternum very broad, abruptly constricted on outer side near base; apices of lobes widely, obliquely transverse; a large, triangular sclerite placed between lobes. Apical piece of genitalia (Fig. 81) very long, narrow; sides strongly compressed laterally; ventral groove very short, not reaching to middle of apical piece; sides densely covered with very small dentiform setae.

Female.—Eyes moderately widely separated; mean ocular index of three specimens 14.7 (13–17). Tarsal claws each with six to seven teeth. Elytral apices (Fig. 177) broadly, deeply emarginate; sutural angles narrowly rounded; elytral epipleurae widely expanded just anteriad of apex. Fifth sternum slightly, concavely impressed in middle; apical margin (Fig. 183) deeply biemarginate in middle.

Type.—Holotype, male, collected by E. A. Schwarz from Las Cayamas, Cuba, May 31. The specimen is in the United States National Museum.

Geographic Distribution.—Known from central Cuba.

Records.—CUBA: Country label only (UHZM) 1, (ZSM) 2. *Camagüey:* Baraguá, May (USNM) 1. *Las Villas:* [Las] Cayamas, March, May (USNM) 8.

Discussion.—One male of *L. tibiodentata* in the collection of the Zoological Museum of the University of Helsinki is labeled "*Allecula dentata* Kl., Cuba, Type Guerin-Mer." This specimen is undoubtedly the one referred to by Jacquelin-Duval in his description of *Allecula flavipes.* A female in the collection of the Zoologische Staatssammlung of Munich is labeled *flavipes* Duv.

This species is very distinct from all other species of *Lobopoda* on the basis of its very highly specialized sexual characters in both the male and the female. The morphological origin of the median sclerite between the lobes of the ninth sternum of the male is unknown to me. I have seen no evidence of a similar structure in any other species of Alleculidae.

Bionomics.—Specimens of *L. tibiodentata* have been collected from cotton and taken at lights in March and May.

Lobopoda (*Flavipoda*) *emarginata*, new species

Lobopoda emarginata is very similar in appearance to *L. tibiodentata* and differs from it only in the following respects:

Surface of body smooth, shining. Length 10 to 11.5 mm. Third segment of antennae 3.5 times as long as second, equal to or slightly shorter than fourth. Apical segment of maxillary palpi .4 as long as wide; width approximately equal to length of third antennal segment. Pronotum with punctures moderately small, circular, separated by average distance equal to or slightly greater than diameter of a puncture; mean pronotal index of two specimens 60.5 (60–61).

Male.—Anterior tibiae (Fig. 139) broadly, triangularly expanded near base; ventral surface of expansion densely covered with short, reddish, erect setae. Tarsal claws each with 13 to 15 teeth. Middle of fifth sternum broadly, shallowly, convexly impressed in middle; apical margin (Fig. 186) very broadly, shallowly emarginate in middle; emargination not thickened. Lobes of eighth sternum (Fig. 24) long, narrow; apices slightly curved medially; apex of lobes with a short, blunt tooth projecting medially from medio-ventral surface; tooth very densely covered with dentiform setae; ventral surface of lobes with a median, densely setate ridge extending from base to apex. Lobes of ninth sternum moderately long, narrow; outer sides broadly rounded; apices evenly, narrowly rounded. Apical piece of genitalia (Fig. 82) with sides parallel from base to apex; apex broadly rounded; viewed laterally, apex only slightly compressed, acute; sides densely covered with dentiform setae; ventral groove very short.

Female.—Ocular index of one specimen 12.5. Tarsal claws each with six to seven teeth. Apical margin of fifth sternum (Fig. 185) moderately deeply biemarginate in middle. Elytral apices (Fig. 178) broadly, moderately deeply emarginate; sutural angles broadly rounded.

Type.—Holotype, male, from Punta Turquino, Cuba, June 24, 1948. The specimen is in the University of Miami.

Geographic Distribution.—Known only from the type-locality.

Records.—CUBA: *Oriente:* P[un]ta. Turquino, June (UM) 2.

Discussion.—*Lobopoda emarginata* is very similar to *L. tibiodentata.* The female specimens of the two species are very difficult to separate, but the males may be readily separated by differences in the terminalia, the emargination of the fifth sternum, and the anterior tibiae.

Bionomics.—The species has been collected in June.

CAYAMASENSIS GROUP

Body with surface finely, but very distinctly granulate, opaque. Length 10.5 to 11.5 mm. Antennae elongate; apical segments very slightly en-

larged apically. Pronotum with surface finely, moderately sparsely, evenly punctate; punctures separated by distance approximately twice as great as diameter of a puncture; basal and median foveae large, very deeply impressed; midline only slightly impressed; base of pronotum broadly, moderately deeply bisinuate; basal angles rectangular. Prosternum and mesosternum densely, coarsely, deeply punctate; prosternum impunctate in middle of anterior margin. Abdominal sterna finely, sparsely, evenly punctate.

Male.—Unknown.

Female.—Eyes moderately widely separated. Apex of elytra and apical margin of fifth sternum unmodified.

Discussion.—The Cayamasensis Group is composed of only one species, which is known only from the female. I have placed this species in the subgenus *Flavipoda* primarily on the basis of the lobed penultimate segment of the posterior tarsi. Aside from this characteristic, there is very little similarity between it and the species of the Flavipes Group. It may have to be transferred to another section of the genus *Lobopoda* upon discovery of the male.

Lobopoda (*Flavipoda*) *cayamasensis*, new species

Body dark brownish-black; antennae, tarsi, and palpi reddish-brown; setae very fine, short, colorless. Length 10.5 to 11.5 mm. Vertex moderately sparsely, deeply, coarsely punctate; punctures oval, evenly distributed. Third segment of antennae four times as long as second, .8 to .9 as long as fourth. Apical segment of maxillary palpi .4 to .5 as long as wide; width 1.1 as great as length of third antennal segment. Pronotum with sides straight, distinctly converging from base for basal two-thirds and then evenly rounded to apex; mean pronotal index of two specimens 67.0 (66–68); surface moderately densely, finely, evenly punctate; punctures small, shallowly impressed, separated by average distance equal to one to two times the diameter of a puncture. Proepisterna very finely, sparsely punctate in anterior half. Mesosternal depression large, deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Metasternum densely, very coarsely, deeply punctate; punctures slightly more densely placed in anterior half. Posterior tarsi three-fourths as long as posterior tibiae; basal segment equal in length to the remaining segments combined. Elytra with striae shallowly impressed at base, becoming deeply impressed approaching apex; strial punctures large, deeply impressed, rectangular, closely placed along striae; strial interstices slightly convex, densely, finely punctate; epipleurae evenly arched from base to apex, very finely, moderately densely punctate, slightly expanded just anterior to apex.

Male.—Unknown.

Female.—Eyes moderately widely separated; mean ocular index of

two specimens 13.5 (13–14). Tarsal claws each with five to six teeth.

Type.—Holotype, female, collected by E. A. Schwarz from Las Cayamas, Cuba, February 23. The specimen is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—CUBA: *Las Villas:* Cayamas, February, March (USNM) 2.

Discussion.—*Lobopoda cayamasensis* may represent an early divergence from the Flavipes Group in that it lacks the distinctive sexual modifications found in the females of most of the species of that group.

Bionomics.—This species was collected from the same locality as *L. tibiodentata,* but it apparently occurs earlier in the year. It was collected in February and March, while adults of *L. tibiodentata* were collected in March and May.

SUBGENUS *MESOLOBOPODA,* NEW SUBGENUS

Body broadly elongate-oval, dark brown to black; surface smooth or finely granulate, strongly shining; surface distinctly pubescent; pubescence fine, moderately long, reddish-brown. Length 8.5 to 15 mm. Vertex moderately sparsely punctate; a small, irregular, impunctate area placed between posterior margins of eyes. Pronotum sparsely to moderately densely punctate; punctures moderately large, deeply impressed, more densely placed along midline and in basal foveae. Posterior tarsi .7 to .8 as long as posterior tibiae. Elytral striae moderately to deeply impressed; strial interstices distinctly convex.

Male.—Eyes large, touching dorsally. Basal four segments of anterior and intermediate tarsi broadly lobed ventrally. Tarsal claws each usually with 7 to 11 teeth.

Female.—Eyes narrowly to moderately widely separated. Penultimate segment of anterior and intermediate tarsi broadly lobed; third segment of anterior tarsi narrowly lobed ventrally.

Type-species.—*Allecula socia* LeConte; fixed by present designation.

Discussion.—The subgenus *Mesolobopoda* contains five species which may be easily recognized by the broadly lobed four basal segments of the intermediate tarsi of the males, the distinctly pubescent body, and the moderately sparsely and irregularly punctate pronotum (the punctures being somewhat more densely placed along the midline). In the last characteristic, *Mesolobopoda* closely resembles the Panamensis Group of the subgenus *Lobopoda.* The lobed four basal segments of the intermediate tarsi of the males are also characteristic of the subgenus *Glabrilobopoda.* However, these two subgenera may be easily separated by the presence of pubescence in *Mesolobopoda* and its absence in *Glabrilobopoda.*

This subgenus occurs from southern Texas into South America; one

species, *L. ebenina,* is known from the island of Grenada in the Antilles.

The suggested phylogeny of the subgenera of *Mesolobopoda* is shown in Figure 4. Three major lines may be recognized. The Acutangula Group may be considered as archaic in having the male eighth and ninth sternal lobes comparatively simple in structure, the pronotum moderately densely punctate, and the male anterior tibiae not expanded. This group

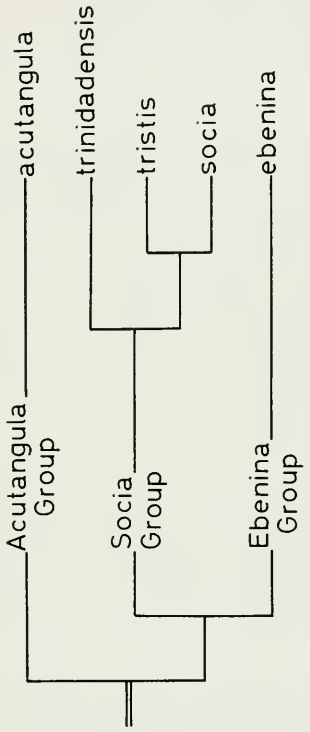


Fig. 4. Phylogeny of the subgenus *Mesolobopoda.*

is considered to be specialized in that it has the apical piece of the male genitalia distinctly asymmetrical and the fifth sternum of the male deeply emarginate. The remaining two groups may be considered as specialized in having the male anterior tibiae broadly expanded. The Ebenina Group may be considered as archaic based on the moderately simple structure of the male terminalia, particularly of the apical piece of the genitalia. The Socia Group is highly specialized in the shape of the male eighth sternal lobes and the broadly rounded sides of the apical piece of the male genitalia. The pronotal punctation is sparser and more heavily concentrated along the midline than in either the Ebenina or Acutangula groups.

KEY TO THE GROUPS OF THE SUBGENUS *Mesolobopoda*

1. Basal angles of pronotum acute, slightly prolonged posteriorly; fifth sternum of male deeply excavate in middle; male genitalia (Fig. 83) asymmetrical ..... Acutangula Group
   Basal angles of pronotum rectangular; fifth sternum of male convex or slightly concave in middle; male genitalia symmetrical 2
2. North and Central American species .....Socia Group
   West Indian species .....Ebenina Group

ACUTANGULA GROUP

Antennae filiform; segments 4 through 11 very densely covered with large white pits. Basal angles of pronotum slightly acute, prolonged posteriorly. Elytra widest at base, gradually narrowing to apex; apices very narrowly rounded. Basal segment of posterior tarsi equal in length to the other segments combined.

Male.—Ventral side of anterior tibiae slightly sinuate. Fifth sternum with apical margin deeply, semicircularly impressed; sides sinuate. Lobes of eighth sternum (Fig. 25) long, narrow; apices curved medially, very narrowly, triangularly curved dorso-posteriorly. Genitalia (Fig. 83) distinctly asymmetrical; left side of apical piece distinctly wider and longer than right side.

Discussion.—This very distinct group is represented by only one Central American species, *L. acutangula*. It differs from the other groups of the subgenus *Mesolobopoda* in having the apical margin of the fifth sternum of the male deeply impressed, the male genitalia distinctly asymmetrical, and the lobes of the eighth sternum comparatively simple in structure.

At least one South American species will eventually be placed in this group. This species differs from *L. acutangula* in having the body very bright metallic green and the legs pale yellow.

Lobopoda (*Mesolobopoda*) *acutangula* Champion

Lobopoda acutangula Champion, 1888:390, pl. 17, figs. 3, 3a.

Body dark reddish-brown; surface smooth, strongly shining. Length 12 to 15 mm. Third segment of antennae approximately three times as long as second, .8 as long as fourth. Apical segment of maxillary palpi approximately .4 as long as wide; width 1.2 to 1.3 as great as length of third antennal segment. Pronotum with sides slightly sinuate just anterior to basal angles, distinctly narrowed from base to apex; mean pronotal index of 19 specimens 56.6 (54–61; $S_{\bar{x}} = .4$); surface moderately densely punctate; punctures moderately large, deeply impressed, more densely placed in basal foveae and to a lesser extent along midline; basal and median

foveae moderately large, deeply impressed; pronotum distinctly impressed along midline. Prosternum granulate, moderately sparsely, finely punctate; proepisterna very sparsely, finely punctate. Mesosternum densely, rugosely punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between mesocoxae to their middle. Metasternum very sparsely, evenly punctate; punctures small, moderately deeply impressed. Elytra with striae deeply impressed; strial punctures moderately densely, deeply placed within striae; interstices moderately convex, deeply, moderately densely punctate.

Male.—Ventral margin of posterior femora distinctly, narrowly carinate; carina with a row of short, very densely placed, erect setae. Anterior tibiae (Fig. 140) faintly carinate near apex on dorsal side. Tarsal claws each with seven to eight teeth. Apical margin of fifth sternum deeply, semicircularly excavate in middle. Lobes of eighth sternum (Fig. 25) with inner side concave; apices bearing numerous short dentiform setae on inner side from base of apical curve to base of lobes. Lobes of ninth sternum reaching to near middle of eighth sternal lobes; apices and outer sides of lobes evenly rounded; inner sides deeply emarginate near base. Apical piece of genitalia (Fig. 83) with apex broadly, irregularly truncate, emarginate in middle; short dentiform setae moderately densely placed on venter and sides; viewed laterally, apical piece strongly curved dorsally near base, apex truncate; basal piece strongly ridged on dorsal surface.

Female.—Eyes moderately narrowly separated; mean ocular index of 13 specimens 8.0 (5.8–10.5; $S_{\bar{x}} = .4$). Posterior femora with inner surface flat, glabrous. Tarsal claws each with five to six teeth. Fifth sternum almost impuncate, unevenly flattened medially.

Type.—Lectotype, male, from the type-series of 14 specimens, collected by Champion from El Reposo, Guatemala, 800 feet. The specimen is in the British Museum (Natural History).

Geographic Distribution.—The distribution of *L. acutangula* is shown in Figure 11. It is known from northern Hidalgo in México to Panamá. It is primarily found on mountain slopes at elevations between 1,000 and 6,000 feet, with most of the recorded localities at the higher elevations.

Records.—BRITISH HONDURAS: Country label only (BMNH–Biologia Collection) 1. CANAL ZONE: Barro Colorado Island, December, January (USNM) 3. COSTA RICA: La Caja, near San José, June (USNM) 1. GUATEMALA: El Reposo (BMNH–Biologia Collection) 2; Purulá [Purulhá], [Baja] Verapaz (BMNH–Biologia Collection) 1; Santa Rosalía, Sierra de las Minas (CNHM) 1; Tamahú, Verapaz (BMNH–Biologia Collection) 1; Trece Aguas, Alta Verapaz, March–April (USNM) 3; Zapote (BMNH–Biologia Collection) 1. MÉXICO: Country label only (BMNH) 1, (ZSM) 2. *Chiapas:* El Suspiro, Berrio-

zábal, June (JMC) 1. *Hidalgo:* 24 miles northeast Rancho Viejo, June (JMC) 3. *Michoacán:* Morelia (DEI) 1. *Veracruz:* Jalapa (BMNH–Biologia Collection) 1, (USNM) 1; Orizaba (BMNH–Biologia Collection) 2. NICARAGUA: Chontales (BMNH–Biologia Collection) 1. PANAMÁ: Volcán de Chiriquí (BMNH–Biologia Collection) 4.

Discussion.—Lobopoda acutangula is not very similar to any other species in this subgenus. I have placed it in the subgenus *Mesolobopoda* primarily on the basis of the four lobes of the middle tarsi of the male. It apparently represents a very early offshoot of the subgenus.

Three female specimens from Barro Colorado Island differ from the other specimens of *L. acutangula* in that they have somewhat finer pronotal punctation and deeper elytral striae. Since the antennae and the shape of the pronotum and mesosternum are similar to those of other specimens of *L. acutangula,* and in the absence of other differences, I have identified these specimens as *L. acutangula.*

Bionomics.—I collected adults of this species in the Mexican state of Hidalgo by beating oak trees having large numbers of dead leaves as well as living leaves. These beetles were probably either hiding in or feeding on these leaves, as other nearby trees of the same species that lacked dead leaves yielded no specimens.

One specimen at hand was taken from the gut of a whippoorwill in Santa Rosalía, 3,500 feet, Sierra de las Minas, Guatemala.

Adults have been collected in March, April, and June in México and Guatemala and in January and December in the Canal Zone of Panamá.

Socia Group

Body dark brown to black, moderately shining. Antennae distinctly obconical; antennal segments 4 through 11 sparsely covered with small, white pits. Pronotum with surface distinctly convex; basal angles rectangular; base broadly, moderately deeply bisinuate; basal and median foveae moderately large, deeply impressed, subequal in size; median fovea very narrowly separated from basal foveae; midline very shallowly impressed or unimpressed, more densely punctate than sides. Prosternum finely, moderately sparsely punctate. Elytra widest near middle; sides evenly rounded from base to apex; elytral striae moderately deeply, evenly impressed from base to apex; strial interstices moderately convex. Basal segment of posterior tarsi .8 as long as the other segments combined. Abdominal sterna moderately finely, densely, evenly punctate; fifth sternum flattened or somewhat concavely impressed in middle, impunctate in middle in female.

Male.—Apical piece of genitalia with sides broadly rounded, widest in middle or basal third; apex broadly rounded; viewed laterally, apex curved dorsally.

Discussion.—The three species of the Socia Group are very similar in appearance externally. They are about equal in size, and the shape and punctation of the pronotum are quite similar. These species may be divided into two distinct subgroups based on the male terminalia. The eighth sternal lobes of *L. tristis* and *L. socia* have a prominent median and basal ridge, the area between the ridges deeply concave, the apex only slightly concave, and densely placed dentiform setae. The eighth sternal lobes of *L. trinidadensis* are quite dissimilar from those of the preceding two species in that they have the apices deeply convex, the median and basal ridges very weakly developed, and the dentiform setae very fine and sparsely distributed.

In addition to these three species, there are a few South American species which are members of this group. The Socia Group is one of only three groups known to occur in the United States.

Key to the Species of the Socia Group

1. Male eighth sternal lobes with a large tooth placed near middle of inner margin; lobes bearing dentiform setae almost exclusively on their inner margin ..... *trinidadensis*
   Male eighth sternal lobes without a large distinct tooth on inner margin; lobes moderately densely covered with dentiform setae ..2
2. Apex of male eighth sternal lobes obliquely truncate; known from Costa Rica and Panamá ..... *tristis*
   Apex of male eighth sternal lobes rounded; known from southern Texas to Nicaragua ..... *socia*

Lobopoda (*Mesolobopoda*) *trinidadensis*, new species

Body dark brown to black; surface finely granulate, shining. Length 11.5 to 12 mm. Third segment of antennae four times as long as second, .8 as long as fourth. Apical segment of maxillary palpi .4 as long as wide; width 1.1 as great as length of third antennal segment. Pronotum with sides distinctly converging from base to near apex and then broadly rounded to apex, slightly sinuate near base; basal angles slightly acute; mean pronotal index of seven specimens 59.4 (58–62); surface moderately densely punctate along midline; sides sparsely punctate; punctures large, circular, moderately deeply impressed, separated on sides by average distance equal to two or three times diameter of a puncture. Proepisterna impunctate except for a few scattered punctures around base of coxae. Mesosternum finely, shallowly, moderately densely punctate; median depression broadly, longitudinally, deeply impressed; apex of depression extending posteriad between mesocoxae to their middle. Basal segment of posterior tarsi .8 as long as the other segments combined. Elytra with striae moderately deeply, evenly impressed from base to apex; strial punctures elongate, almost touching each other along striae; strial inter-

stices moderately convex, deeply, coarsely, rather sparsely punctate; interstitial punctures placed in two or three uneven rows; epipleurae sparsely, shallowly punctate. Abdominal sterna coarsely, moderately densely punctate.

Male.—Metasternum moderately densely, finely punctate in middle. Femora with sparsely placed, short, erect setae on basal half of their ventral margin. Anterior tibiae (Fig. 141) widely, convexly expanded in middle of ventral margin; finely carinate on apical half of dorsal margin. Tarsal claws each with 10 or 11 teeth. Lobes of eighth sternum (Fig. 26) broad at base; sides narrowed to apex; apex triangularly produced; apical half of lobes curved medially, slightly concave; a broad tooth placed on inner margin near middle of lobes and connected to outer side by a strong concave ridge; a second ridge extending from middle of outer side to middle of lobes; area between these ridges very deeply concave; lobes moderately densely covered with dentiform setae along inner margin. Lobes of ninth sternum short, very narrow; apices narrowly rounded. Apical piece of genitalia (Fig. 84) with sides broadly rounded, widest near middle; apex broadly rounded; small dentiform setae placed along outer sides.

Female.—Eyes large, narrowly separated; mean ocular index of four specimens 10.0 (8–12). Tarsal claws each with seven to eight teeth. Elytral epipleurae not expanded. Fifth sternum evenly convex.

Type.—Holotype, male, collected by F. Birch, 1904, from Trinidad. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from the state of Yucatán in México and the island of Trinidad.

Records.—MÉXICO: *Yucatán:* Mérida (ZSM) 1. TRINIDAD: Country label only (BMNH) 6.

Discussion.—Since most of the specimens of *L. trinidadensis* are from Trinidad, I have selected the holotype from that area. Since no other South American species of *Lobopoda* known to me extends as far north as México, I am somewhat doubtful of the validity of the Yucatán locality. The Yucatán specimen is from the Haag-Rutenberg Collection and was collected by Koltze.

This species is quite similar in appearance to *L. calcarata* of the subgenus *Lobopoda;* however it may be very easily separated from this species by the difference in the male terminalia and the absence of lobes on the basal two segments of the male intermediate tarsi.

Lobopoda (*Mesolobopoda*) *tristis* Champion

Lobopoda tristis Champion, 1888:391, pl. 17, figs. 4, 4a.

Body dark brown; surface smooth, shining; antennal segments 4 through 11 light reddish-yellow. Length 12 to 13.5 mm. Third segment of

antennae three to four times as long as second, .7 to .8 as long as fourth. Apical segment of maxillary palpi .4 as long as wide; width 1.1 to 1.2 as great as length of third antennal segment. Pronotum with sides slightly sinuate in basal half, slightly narrowed from base for basal two-thirds and then broadly rounded to apex; mean pronotal index of 14 specimens 59.1 (56–61; $S_{\bar{x}} = .6$); surface moderately densely punctate along midline and in basal foveae, sparsely punctate on sides; punctures circular, deeply impressed, separated on sides by distance two to three times as great as diameter of a puncture. Mesosternal depression deeply impressed, narrowly V-shaped; apex of V extending posteriad between coxae nearly to metasternum; sides of mesosternum finely, moderately densely punctate. Metasternum deeply, moderately sparsely punctate. Basal segment of posterior tarsi .8 as long as the other segments combined. Elytra with striae moderately deeply impressed, becoming somewhat more deeply impressed nearing apex; strial punctures large, circular, narrowly separated along striae; strial interstices slightly convex, moderately sparsely, deeply punctate; punctures placed in two uneven rows along each side of striae; epipleurae very finely, sparsely punctate.

Male.—Metasternum moderately densely, finely punctate in middle. Basal half of ventral side of femora moderately densely covered with very short setae. Ventral side of anterior tibiae (Fig. 142) broadly expanded near base and then evenly tapering to apex, more densely setate than sides of tibiae; dorsal side finely carinate in apical half. Tarsal claws each with 10 to 11 teeth. Elytral epipleurae slightly concave just anterior to elytral apices. Lobes of eighth sternum (Fig. 27) long, straight; apices obliquely truncate; sides abruptly inflexed near middle; each lobe bearing two distinct ridges on ventral surface, one extending from near apex on outer side to middle of inner side, the second extending from middle of outer side to center of lobes and then abruptly curved anteriorly; inner margin of apical ridge and apex of lobes moderately densely covered with dentiform setae; curved region of basal ridge and inner margin of lobes near base moderately densely covered with normal setae. Lobes of ninth sternum moderately long; apices extending beyond apical ridge of eighth sternum; apices narrowly, unevenly rounded. Apical piece of genitalia (Fig. 85) with sides broadly rounded, widest near middle; apex very distinctly curved dorsally; sides moderately densely covered with dentiform setae.

Female.—Eyes moderately separated; mean ocular index of six specimens 9.6 (7–12). Tarsal claws each with six to seven teeth. Elytral epipleurae broadly expanded just anteriad of apex; elytral apices slightly prolonged into short mucro.

Type.—As lectotype I have selected from the type-series of 14 specimens a male collected by Champion and labeled "Volcán de Chiriquí,

2500–4000 feet." The specimen is in the collection of the British Museum (Natural History).

Geographic Distribution.—Known from Costa Rica and western Panamá near the Volcán de Chiriquí.

Records.—COSTA RICA: Country label only (BMNH–Biologia Collection) 1. PANAMÁ: Bugaba, 800–1500 feet (BMNH–Biologia Collection) 2; Volcán de Chiriquí, 2000–3000 feet (BMNH–Biologia Collection) 2, 2500–4000 feet (BMNH–Biologia Collection) 9.

Lobopoda (*Mesolobopoda*) *socia* (LeConte)

Allecula socia LeConte, 1854:84
Lobopoda socia: Casey, 1891:84.
Lobopoda mexicana Champion, 1888:392, pl. 17, figs. 5, 5a. (New synonymy.)

Body dark brown to black; surface very finely granulate, slightly shining. Length 9.5 to 13 mm. Third segment of antennae 3.5 to 4 times as long as second, .8 as long as fourth. Third segment of maxillary palpi approximately .4 as long as wide; width approximately equal to length of third antennal segment. Pronotum with sides straight, nearly parallel for basal two-thirds and then broadly rounded to apex; mean pronotal index of 57 specimens 60.8 (56–66; $S_{\bar{x}} = .3$); surface moderately densely punctate along midline and in basal foveae, sparsely punctate on sides; punctures large, circular, deeply impressed, separated on sides by distance equal to two to three times diameter of a puncture. Proepisterna with scattered punctures located around base of coxae. Mesosternum finely, moderately densely, shallowly punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad only to anterior margin of mesocoxae. Metasternum moderately sparsely punctate; punctures small, shallowly impressed in middle, becoming somewhat larger and more sparsely distributed approaching sides. Basal segment of posterior tarsi .8 as long as the other segments combined. Elytra with striae moderately deeply, evenly impressed from base to apex; strial punctures small, circular, very narrowly separated along striae; strial interstices slightly convex, densely, deeply punctate; punctures placed in approximately three uneven rows along interstices. Abdominal sterna moderately finely, sparsely punctate.

Male.—Anterior tibiae (Figs. 143–144) with ventral margin moderately narrowly to widely expanded in basal half; dorsal surface distinctly, rather widely carinate in apical two-thirds. Middle tibiae with dorsal surface faintly carinate in apical third. Tarsal claws each with 9 to 13 teeth. Lateral lobes of eighth sternum (Figs. 28–29) long, curved inwardly approaching apex; apices concave, bearing moderately densely placed dentiform setae; lobes with two distinct ridges; one large, well-defined, convex ridge extending obliquely across ventral surface from apical third of outer side to middle of inner side; another ridge extending

from outer side near base of lobes to middle and then abruptly curving anteriorly; between the ridges lobes deeply concave; inner margin of lobes moderately densely covered with normal setae in basal half and dentiform setae in apical half. Lobes of ninth sternum small, narrowed somewhat apically. Apical piece of genitalia (Figs. 86–87) rounded from base to apex, widest near middle, strongly curved dorsally; ventral surface bearing six to eight small dentiform setae near apex; sides moderately densely covered with dentiform setae.

Female.—Eyes large, narrowly separated; ocular index variable (see Discussion). Tarsal claws each with six teeth.

Type.—The holotype of *L. socia* is in the collection of the Museum of Comparative Zoology. The type-locality is Laredo to Ringgold Barracks, Texas. As lectotype of *L. mexicana* I have selected from the type-series of 27 specimens a male from North Yucatán, México (Gaumer). The specimen was figured by Champion in the *Biologia* and is in the British Museum (Natural History).

Geographic Distribution.—The distribution of *L. socia* is shown in Figure 12. It is known from the gulf coastal plain of southern Texas, México, and Guatemala. It has been collected as far south as Lake Nicaragua. Two specimens have been collected from the west coast of México in the state of Sinaloa.

Records.—The records of this species are listed by race.

Northern Race: MÉXICO: *Nuevo León:* Chipinque, May (JMC) 1; El Cercado, June (JMC) 1. *San Luis Potosí:* Tamazunchale, November (CAS) 1. *Tamaulipas:* 20 miles north El Limón, November (CAS) 1. UNITED STATES: *Texas:* State label only (MCZ) 1, (BMNH) 1; Angleton, September (TAM) 3; Bellaire, September (TAM) 4; Brownsville, April–June, August, November (MCZ) 1, (CAS) 3, (OSU) 4, (USNM) 7, (INHS) 1, (CU) 4, (UK) 6; Esperanza Ranch, Brownsville, May–June (UCB) 2; Los Borregos, Brownsville, May (USNM) 1; Cameron County, southernmost, April (UK) 1; Conroe, August (TAM) 3; Corpus Christi, Naval Air Station, June (CU) 1; Hidalgo County, April (OSU) 1; Houston, August (TAM) 2; Lake Corpus Christi State Park, June (CNC) 1; Thayer, July (USNM) 1.

Intermediate Specimens: MÉXICO: *Sinaloa:* Presidio [near Mazatlán] (BMNH–Biologia Collection) 2.

Southern Race: BRITISH HONDURAS: Belize[1] (BMNH-Biologia Collection) 1. GUATEMALA: Country label only (BMNH) 1; Finca El Zapote, Escuintla, July (CNHM) 1; San Gerónimo [San Jerónimo]

[1] This specimen is labeled as "Belize, Blancaneaux," which may refer to the town of Blancaneau in British Honduras. However, Champion lists Blancaneaux as a collector in the *Biologia*.

(USNM) 1; Trece Aguas, Alta Verapaz, March, April (USNM) 9; Zapote (BMNH–Biologia Collection) 3. HONDURAS: Carmeline (USNM) 1; La Ceiba, February (USNM) 1. MÉXICO: Country label only (BMNH–Biologia Collection) 3, (DEI) 3, (ZSM) 1. *Tabasco:* Frontera (BMNH–Biologia Collection) 1. *Veracruz:* 12 mi. south Alvarado, July (JMC) 7; Córdova [Córdoba] (BMNH–Biologia Collection) 1; El Palmar, 16 km. west Tetzonapa, June (UA) 1; Jalapa (BMNH–Biologia Collection) 5, (AMNH) 2, (DEI) 2; Lake Catemaco, July (JMC) 2; 17 mi. north Nautla, June (JMC) 2; Santecomapan [Sontecomapan] (BMNH–Biologia Collection) 1; Tejeria, July (CNHM) 1; Tuxtla [San Andrés Tuxtla] (BMNH–Biologia Collection) 2; Veracruz, July (JMC) 1. *Yucatán:* State label only (ZSM) 1; Mérida (ZSM) 1; North Yucatán (BMNH–Biologia Collection) 8, (AMNH) 1, (DEI) 1; Temax (Champion, 1888). NICARAGUA: [Isla de] Ometepe (USNM) 1.

Discussion—Lobopoda socia may be divided into two distinct races. The northern race extends from southern Texas south to Tamazunchale in San Luis Potosí, México; the southern race ranges from Jalapa in central Veracruz, México, south to Isla de Ometepe in Lake Nicaragua.

The northern race may be distinguished from the southern race in having the eyes of the female somewhat more approximate (the mean ocular index of 13 specimens is 10.6 [8–13; $S_{\bar{x}} = .5$]; that of 31 specimens of the southern race is 11.8 [8–15; $S_{\bar{x}} = .3$]); the pronotum somewhat more densely and evenly punctate; the expansions of the anterior tibiae of the male more convex than those of the southern race in which they are somewhat transverse; the male tarsal claws with somewhat more teeth (usually 10 to 13 teeth in the northern race and nine to ten in the southern race); the very different shape of the male terminalia (the basal ridge is undivided and extends down the center of the lobes in contrast to the southern race in which the basal ridge is divided near the middle of the lobes into a small transverse ridge and a larger convex ridge, both of which extend to the inner margin of the lobe); and the slightly expanded elytral epipleurae (they are widely expanded and distorted just anterior to the elytral apex in the southern race). The female elytral apices are often slightly mucronate in the southern race, but always convex in the northern race. The sides of the apical piece of the male genitalia are more broadly rounded and the apex more acute in specimens of the northern race than in those of the southern race, and when viewed laterally, the apical piece is more strongly curved dorsally in the southern race.

One male and one female labeled Presidio (near Mazatlán in Sinaloa according to Selander and Vaurie [1962]) have characters intermediate between those of the two races. They resemble the northern race in having the pronotal punctation more densely and evenly placed, the elytral epipleurae of the female only slightly widened, and the anterior

tibiae of the male broadly and convexly expanded. They resemble the southern race in the shape of the male terminalia. The female is distinct from either of the races in having the eyes very narrowly separated (ocular index of 6.3).

One female labeled México in the Biologia Collection has the pronotum coarsely, densely, and irregularly punctate with the punctures only slightly more densely placed along the midline; an ocular index of 7.5; and the elytral apices distinctly and acutely mucronate. In the absence of any other differences, I have tentatively identified this species as *L. socia.*

Bionomics.—I have collected specimens of *L. socia* by beating coconut palm (*Cocus nucifera*), coffee trees (*Coffea* sp.), and a species of laurel (*Lauraceae*). In addition, I collected a number of specimens in a sandy area 12 miles south of Alvarado, Veracruz, México by beating small trees bearing foilage similar to that of oak. Unfortunately, I was not able to identify these trees. Specimens of *L. socia* have also been collected under bark and occasionally come to light. Unlike other species of *Lobopoda* known to me, this species is often found by beating the foliage of trees without dead leaves, lichens, or bromeliads.

Adults may be collected from April through September (primarily from April to June) in Texas; in México and Guatemala they have been collected from March through July; and one specimen from Honduras was collected in February. One specimen collected in Texas in November is labeled "under bark."

Ebenina Group

Body elongate; surface smooth, strongly shining; color deep black. Length 8.5 mm. Pronotum sparsely, somewhat coarsely punctate. Elytra with striae deeply impressed; interstices convex, sparsely, finely punctate.

Male.—Eyes touching dorsally. Anterior tibiae subtriangularly expanded in basal half of ventral surface. Lobes of eighth sternum long, moderately narrow, abruptly curved inwardly nearing apex; inner surface of lobes moderately densely covered with dentiform setae. Apical piece of genitalia with sides evenly converging from base to apex; apex narrowly rounded; ventral surface moderately densely covered with dentiform setae.

Female.—Unknown.

Discussion.—The Ebenina Group contains only one species, *L. ebenina,* from the island of Grenada in the West Indies. This is the only species of the subgenus *Mesolobopoda* known to occur in the West Indies. It is quite distinct from the other species of the subgenus and probably, as in most of the West Indian species, represents a case of very early isolation from the remainder of the subgenus.

It may be easily recognized, apart from its geographical distribution, by its very distinctive male terminalia.

Lobopoda (*Mesolobopoda*) *ebenina* Champion

Lobopoda ebenina Champion, 1896:34, pl. 1, fig. 11.

Champion (1896) described this species as follows:

Male. Elongate, somewhat fusiform, convex, deep black, very shining, clothed with a few scattered hairs; the palpi and tarsi, the apical joint of the antennae, and the apices of the preceding joints, ferruginous. Head sparsely, finely punctate; the eyes very large, approximate in front; antennae about half the length of the body. Prothorax strongly transverse, a little narrowed in front, the sides rounded anteriorly and almost parallel behind; the surface very sparsely and somewhat coarsely punctate, transversely depressed in the middle before the base, and with the basal foveae sharply defined. Elytra not wider than the prothorax, moderately elongate, rapidly narrowing from about the middle, and rounded at the apex; coarsely and deeply crenate-striate, the punctures closely placed; the interstices convex, sparsely, and finely punctate. Legs rather short; anterior and intermediate tarsi stout, with joints 1–4 broadly lobed beneath; anterior tibiae sub-triangularly widened on the inner side before the middle. Genitalia: the lateral lobes [eighth sternal lobes] moderately long, rather narrow, and abruptly curved inwards at the apex, the apices obtuse; the central sheath [apical piece] gradually narrowing outwards. Length 8½, breadth 3 mm.

Type.—Holotype, male, from Soubise, Grenada, on the Windward side. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—WEST INDIES: *Grenada:* Soubise, on the Windward side (Champion, 1896).

Discussion.—*Lobopoda ebenina* is placed in the subgenus *Mesolobopoda* on the basis of the four lobed segments on the intermediate tarsi of the male and the presence of pubescence on the body.

Champion (1896) states that "among the numerous Central-American species of *Lobopoda* described by myself, *L. ebenina* is perhaps nearest allied to *L. tristis;* but it is much smaller and more shining, with less elongate limbs, the thorax almost parallel behind, and the genitalia in the male very differently formed."

On the basis of drawings of the male terminalia of the type-specimen made by Miss C. M. F. von Hayek, this species is quite distinct from the other described species of the subgenus *Mesolobopoda.* A small sketch of the male terminalia was published by Champion with his description of this species. This drawing will be of considerable value in the recognition of additional males of this species.

Bionomics.—The type-specimen was collected in "the shore-woods."

SUBGENUS *GLABRILOBOPODA*, NEW SUBGENUS

Body with surface finely granulate or smooth, strongly shining; surface completely glabrous except appendages. Length 7 to 13 mm. Apical

segments of antennae distinctly obconical; third segment two to three times as long as second, approximately .8 as long as fourth. Pronotum with surface varying from almost impunctate to moderately sparsely, coarsely punctate; punctures often more densely distributed in basal half of middle of pronotum. Prosternum and proepisterna smooth, impunctate. Elytral interstices impunctate; elytral epipleurae impunctate except for a row of punctures along ventral margin.

Male.—Eyes narrowly separated dorsally. Anterior tibiae distinctly expanded on ventral margin. Intermediate tarsi with four basal segments narrowly lobed ventrally. Tarsal claws each usually with four to seven teeth.

Female.—Eyes moderately narrowly to widely separated. Penultimate segment of anterior and intermediate tarsi lobed ventrally.

Type-species.—*Lobopoda glabrata* Champion; fixed by present designation.

Discussion.—*Glabrilobopoda* is the only subgenus of *Lobopoda* with the body completely glabrous and the basal four segments of the male intermediate tarsi lobed ventrally. The tarsal lobes differ from the corresponding lobes in the subgenus *Mesolobopoda* in being much longer and narrower and usually extending along the entire ventral surface of the tarsal segments. The eyes of the males are always narrowly separated dorsally and the strial interstices of the elytra are impunctate. Many species of the subgenus are metallic green or blue, and often the surface of the body is very sparsely and irregularly punctate or occasionally impunctate.

Species of the subgenus are found for the most part in Costa Rica and Panamá. One species, *L. obsoleta*, is known from Guatemala and southern México and one species, *L. coerulescens*, is known from northern South America.

The subgenus contains 12 species in México and Central America that are divided into four groups.

Phylogeny.—The suggested phylogeny of *Glabrilobopoda* is shown in Figure 5. This subgenus probably evolved from a species having the following characteristics: surface of the pronotum, metasternum, and abdomen moderately densely, evenly punctate; eyes of female moderately narrowly separated; anterior tibiae of male convexly expanded in middle of ventral margin; elytral striae moderately deeply impressed; strial interstices convex; male eighth sternal lobes long, narrow, evenly curved medially approaching the apex; apical piece of male genitalia convexly expanded; color non-metallic.

The Tilaranensis Group, which contains only one species, is specialized in having the posterior femora of the male widely expanded on the ventral margin, the eighth sternal lobes very highly modified, the apical

piece of the male genitalia narrowly triangular, the anterior tibiae of the male abruptly widened in the basal third and then evenly narrowed to the apex, and the abdomen impunctate.

The Cariniventris Group, which contains four species, is specialized in having the basal three abdominal sterna of the male carinate medially, the eyes of the female very widely separated dorsally, the surface of the pronotum more densely punctate in the middle, the abdomen impunc-

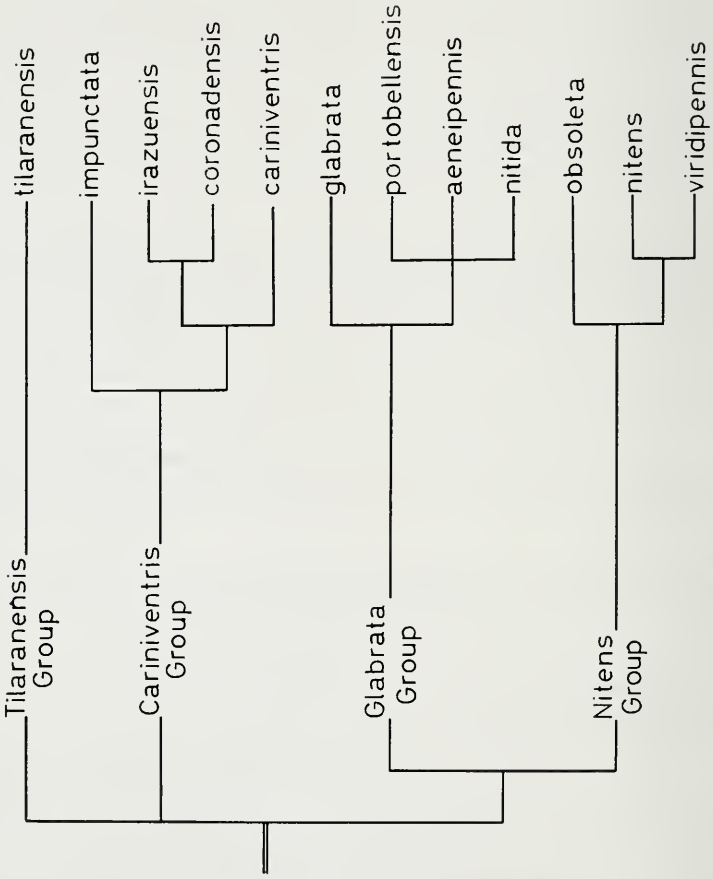


FIG. 5. Phylogeny of the subgenus *Glabrilobopoda*.

tate, and the apical piece of the male genitalia highly modified. Within this group, *L. impunctata* has the body very broad and the pronotum impunctate. *Lobopoda coronadensis* and *L. irazuensis* have the elytral striae very shallowly impressed or unimpressed. *Lobopoda coronadensis* is distinct in having its shape very narrowly elongate, the pronotum

almost impunctate except in the basal half of the middle, and the eyes of the female very widely separated. *Lobopoda irazuensis* has the apex of the apical piece of the male genitalia triangularly widened and curved ventrally and the color of the body metallic; *L. cariniventris* has the apex of the apical piece very broadly and transversely expanded.

The Glabrata Group, which contains four species, may be considered as primitive in having the metasternum and abdomen distinctly punctate, the pronotum usually moderately densely punctate, the apex of the apical piece of the male genitalia evenly and convexly expanded, the anterior tibiae of the male convexly expanded in the middle of the ventral margin, and the eyes of the female moderately narrowly separated. Within the species group, *L. glabrata* is specialized in having the eighth sternal lobes modified, the elytral striae very deeply impressed, the strial interstices very convex, the pronotum sparsely punctate, and the color non-metallic. The remaining three species, *L. nitida, L. portobellensis,* and *L. aeneipennis,* have the color metallic and the pronotal punctation much denser along the midline. *Lobopoda portobellensis* is distinct from *L. aeneipennis* in having the apex of the eighth sternal lobes curved dorsally. Based on Champion's (1888) description, *L. nitida* is quite similar to *L. aeneipennis.*

The Nitens Group, which contains three species, is specialized in having the color metallic, the apical piece of the male genitalia very broadly and transversely widened, the elytral striae very flat, and most or all of the punctation of the metasternum and abdomen obsolete. Within the group *L. obsoleta* has retained the deeply impressed elytral striae, most of the pronotal punctation, and a few punctures on the metasternum. *Lobopoda viridipennis* and *L. nitens* have the elytral striae very shallowly impressed or unimpressed, the pronotum very sparsely punctate, and the metasternum completely impunctate.

Key to the Groups of the Subgenus *Glabrilobopoda*

1. Posterior femora of the male broadly, convexly expanded on the ventral margin; pronotum more densely punctate in middle than on sides; metasternum and abdomen distinctly punctate ..... Tilaranensis Group

   Posterior femora of the male not expanded on the ventral margin; if both metasternum and abdomen distinctly punctate, pronotum almost evenly punctate 2

2. Eyes of female very widely separated; ocular index exceeding 15; basal three abdominal sterna of male carinate in middle; pronotum impunctate or more densely punctate in middle than on sides ..... Cariniventris Group

   Eyes of female moderately to narrowly separated; ocular index less than 15; male abdominal sterna not carinate medially 3

3. Both metasternum and abdomen distinctly punctate; apical piece of male genitalia evenly, narrowly rounded .....Glabrata Group
Abdomen impunctate; mestasternum impunctate or, very rarely, very finely punctate; apical piece of male genitalia with apex broadly expanded .....Nitens Group

Tilaranensis Group

Size small. Length 7 mm. Vertex moderately densely, finely, irregularly punctate. Pronotum with sides straight, slightly converging from base for basal two-thirds of pronotum; surface moderately coarsely, densely punctate in basal half between basal foveae; front and sides sparsely punctate. Metasternum moderately densely, evenly, very deeply, coarsely punctate. Posterior tarsi three-fourths as long as posterior tibiae; basal segment of posterior tarsi equal in length to the other segments combined. Elytra with striae very deeply, evenly impressed; strial punctures elongate, separated along striae by distance equal to length of a puncture; strial interstices distinctly convex. Abdominal sterna very finely, sparsely punctate.

Male.—Posterior femora flattened laterally; ventral margin widely, convexly expanded in middle; ventral margin of expansion moderately densely covered with short, coarse, erect setae. Anterior tibiae (Fig. 145) evenly widened from apex to middle and then abruptly narrowed. Lobes of eighth sternum (Fig. 30) highly modified; basal two-thirds of inner side moderately densely covered with very long setae; apex of lobes strongly narrowed, abruptly curved dorsally. Apical piece of genitalia (Fig. 88) with sides evenly narrowed from base to near apex and then parallel for a very short distance before apex; apex narrowly rounded; apical piece slightly curved dorsally.

Female.—Unknown.

Discussion.—The Tilaranensis Group contains only *L. tilaranensis.* It is the only species of the genus that has the ventral margin of the posterior femora of the male convexly expanded. The highly modified eighth sternal lobes and the triangular apical piece of this species will easily separate it from the other species of *Glabrilobopoda.*

Lobopoda (*Glabrilobopoda*) *tilaranensis,* new species

Body narrowly elongate, brown; surface finely granulate, strongly shining; apex of antennal segments 4 through 11 light yellow-brown. Length 7 mm. Antennae short; apical segments slightly obconical. Apical segment of maxillary palpi .4 as long as wide; width 1.3 as great as length of third antennal segment. Pronotum with basal angles rectangular; pronotal index of one specimen 60; basal foveae small, moderately shallowly impressed; median fovea small, shallowly impressed, widely separated from basal foveae; midline unimpressed. Mesosternum moderately

densely, deeply punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Elytra with sides narrowly rounded from base to apex. Apical margin of fifth abdominal sternum broadly, bluntly rounded, setate.

Male.—Eyes narrowly separated; ocular index of one specimen 3. Ventral margin of intermediate femora bearing very small, erect setae. Anterior femora with a few small, erect setae at base of ventral margin. Tarsal claws each with five teeth. Basal half of eighth sternal lobes (Fig. 30) with a distinct ventral ridge extending along inner margin. Lobes of ninth sternum moderately long, slightly shorter than eighth sternal lobes; apices narrowly, acutely rounded. Apical piece of genitalia (Fig. 88) with sides and venter bearing a few small, scattered dentiform setae.

Female.—Unknown.

Type.—Holotype, male, collected by F. Nevermann from Tilarán, Guanacaste, 800 meters, Costa Rica, March 3, 1934. The specimen is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—COSTA RICA: Tilarán, Guanacaste, 800 meters, March (USNM) 1.

Discussion.—The female of this species, when discovered, may be recognized by its narrowly elongate shape, small size, non-metallic color, deeply and evenly impressed elytral striae, distinctly punctate metasternum and abdominal sterna, and somewhat unevenly punctate pronotum.

Bionomics.—The type-specimen was collected in March.

Cariniventris Group

Size moderate. Length 8 to 12 mm. Vertex very finely, sparsely punctate. Apical segment of maxillary palpi .5 as long as wide; width 1.1 to 1.2 as great as length of third antennal segment. Pronotum with sides sinuate in basal half, almost parallel in basal two-thirds and then broadly rounded to apex; surface very finely, sparsely punctate; punctures larger, more densely placed in basal half of middle and in basal foveae; basal foveae small, moderately shallowly impressed; median fovea very small, very shallowly impressed, widely separated from basal foveae; midline unimpressed. Elytra with sides parallel for basal half to two-thirds and then evenly narrowed to apex; apices slightly projecting posteriad. Visible abdominal sterna impunctate.

Male.—Anterior tibiae (Fig. 146) narrowly, convexly expanded in middle of ventral margin. Basal three abdominal sterna strongly carinate in middle. Lobes of eighth sternum (Figs. 31–32) moderately narrow; inner side covered with dentiform setae. Apical piece of genitalia (Figs. 89–90) with ventral groove extending to apex; venter moderately densely covered with dentiform setae in apical half.

Female.—Eyes widely separated dorsally.

Discussion.—The Cariniventris Group contains four species. Two of these, *L. impunctata* and *L. coronadensis,* are known only from the female. *Lobopoda irazuensis* and *L. cariniventris* are known from both male and female. Based on the females, the members of this species group may be very easily recognized in having the eyes very widely separated dorsally. The males of *L. irazuensis* and *L. cariniventris* are unique in the genus in having the basal three abdominal sterna carinate medially.

Key to the Species of the Cariniventris Group

1. Pronotum impunctate ..... *impunctata*
   Pronotum distinctly punctate 2
2. Elytral striae deeply, evenly impressed; interstices convex ..... *cariniventris*
   Elytral striae very shallowly impressed or unimpressed between strial punctures; interstices flat 3
3. Color metallic ..... *irazuensis*
   Color brown, non-metallic ..... *coronadensis*

Lobopoda (Glabrilobopoda) impunctata, new species

Body broadly elongate-oval, dark reddish-brown; surface smooth, strongly shining. Length 11.5 to 12 mm. Pronotum with basal angles obtuse; mean pronotal index of two specimens 61.0 (60–62); surface appearing impunctate; punctures extremely fine, very sparsely distributed, visible only under magnification. Mesosternum very finely, sparsely punctate on each side; median depression deeply impressed, elongate; apex of depression projecting posteriad between coxae to metasternum. Metasternum impunctate in middle, becoming moderately deeply, sparsely punctate approaching sides. Femora and basal half of tibiae glabrous; apical half of tibiae moderately sparsely setate. Posterior tarsi .8 as long as posterior tibiae; basal segment of posterior tarsi .8 as long as the other segments combined. Elytra with apices slightly projecting posterio-ventrally; elytral striae moderately deeply, evenly impressed from base to apex; strial punctures small, elongate, moderately densely placed along striae, separated by distance approximately equal to length of a puncture; elytral interstices moderately convex. Fifth sternum conspicuously, widely flattened in middle, slightly depressed near middle of apical margin.

Male.—Unknown.

Female.—Eyes widely separated; mean ocular index of two specimens 25.0 (24–26). Tarsal claws each with six teeth.

Type.—Holotype, female, collected by F. Nevermann from Vara Blanca, 1,700 meters, Costa Rica, July 7, 1928. The specimen is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—COSTA RICA: Vara Blanca, 1700 meters, July (USNM) 2.

Bionomics.—This species was collected by F. Nevermann in July on dry wood at night.

Lobopoda (Glabrilobopoda) irazuensis Champion

Lobopoda irazuensis Champion, 1888:406, pl. 18, figs. 9, 9a.

Body narrowly elongate-oval, black, with dark metallic green tint; antennae and tarsi reddish-brown; surface smooth, strongly shining. Length 10 to 11 mm. Pronotum with basal angles obtuse; mean pronotal index of two specimens 63.5 (63–64); surface impunctate anteriorly and on sides; middle and base very finely, sparsely, shallowly punctate; punctures becoming finely, moderately deeply impressed in basal depression. Mesosternum moderately densely, shallowly, rugosely punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Metasternum very sparsely, finely punctate; punctures evenly distributed. Femora very sparsely, very finely setate. Posterior tarsi .8 as long as posterior tibiae; basal segment of posterior tarsi equal in length to the other segments combined. Elytra with striae very shallowly impressed between punctures; strial punctures small, oval, very densely placed within striae, separated by distance half as great as length of a puncture; elytral striae becoming obsolete near apex of elytra; elytral interstices flat; apex of elytra slightly acuminate in female, projecting posteriad and slightly turned downward; elytral epipleurae slightly expanded just anteriad of apex. Fifth sternum widely, distinctly concave in middle in female, flat in male; fourth sternum with a small depressed area placed near middle of each side at posterior margin.

Male.—Eyes moderately widely separated; ocular index of one specimen 12. Femora with a few scattered, short, erect setae on ventral margin. Anterior tibiae broadly, convexly expanded in middle of ventral surface. Tarsal claws each with six to seven teeth. Second abdominal sternum distinctly carinate in middle. Lobes of eighth sternum (Fig. 31) long, narrow, evenly curved toward middle approaching apex; inner side densely covered with dentiform setae; venter moderately densely covered with normal setae; apex of lobes slightly curved dorsally. Lobes of ninth sternum equal in length to eighth sternal lobes, long, very narrow. Apical piece of genitalia (Fig. 89) with sides rounded, converging in basal three-fourths; apex triangularly expanded; dorsal side moderately densely covered with dentiform setae.

Female.—Eyes very widely separated; ocular index of one specimen 25. Tarsal claws each with five to six teeth.

Type.—As lectotype I have selected a male from the type-series of two specimens collected by Rogers from the Volcán de Irazú, 6,000–7,000 feet, Costa Rica. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—COSTA RICA: Volcán de Irazú, 6000–7000 feet (BMNH–Biologia Collection) 2.

Lobopoda (*Glabrilobopoda*) *coronadensis,* new species

Body narrowly elongate, light reddish-brown; antennae, tarsi, and mouthparts reddish-yellow; surface smooth, shining. Length 8.5 mm. Pronotum with basal angles obtuse, projecting laterad; pronotal index of one specimen 64; surface moderately sparsely, finely, shallowly punctate for basal two-thirds of middle; remainder impunctate. Mesosternum finely, shallowly, moderately densely, rugosely punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Metasternum very finely, sparsely punctate in middle; punctures becoming moderately densely, deeply impressed approaching sides. Femora and basal third of tibiae glabrous. Posterior tarsi .8 as long as posterior tibiae; basal segment of posterior tarsi three-fourths as long as the other segments combined. Elytra with apices very slightly projecting posteriad; projection curved ventrally on inner margin; median striae of elytra obsoletely impressed; outer striae moderately deeply impressed; strial punctures deeply impressed within striae, very elongate, moderately widely separated along striae by distance approximately equal to length of a puncture; interstices slightly convex. Fifth sternum slightly flattened, concave near apex.

Male.—Unknown.

Female.—Eyes very widely separated; ocular index of one specimen 28. Tarsal claws each with five teeth.

Type.—Holotype, female, collected by T. Assman from Coronado, Costa Rica, 1,400–1,500 meters, August 15, 1930. The specimen, from the Nevermann Collection, is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—COSTA RICA: Coronado, 1400–1500 meters, August (USNM) 1.

Discussion.—*Lobopoda coronadensis* is quite dissimilar in appearance to other members of the subgenus *Glabrilobopoda.* It differs primarily in having the strial punctures more elongate, the elytral striae unimpressed between the punctures, the pronotum impunctate except for a few punctures in the basal two-thirds of the middle, and the shape narrowly elongate. It is placed in the Cariniventris Group primarily on the basis of the widely separated eyes of the female.

Lobopoda (*Glabrilobopoda*) *cariniventris* Champion

Lobopoda cariniventris Champion, 1888:408, pl. 18, fig. 12.

Body narrowly elongate-oval, dark brown; antennae lighter in color, reddish-brown; surface very finely granulate, strongly shining. Length 8

to 8.5 mm. Pronotum with basal angles rectangular; mean pronotal index of three specimens 61.7 (59–63); surface very finely, sparsely punctate; punctures shallowly impressed, larger, more deeply impressed in median fovea and along midline; punctures slightly coarser, more uniform in size in male. Mesosternum moderately densely punctate on sides; median depression moderately deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Metasternum moderately densely, deeply punctate; punctures evenly distributed. Femora sparsely covered with very fine setae. Posterior tarsi approximately .7 as long as posterior tibiae; basal segment of posterior tarsi .8 as long as the other segments combined. Elytra with apices very slightly projecting mesoventrally; elytral striae shallowly, evenly impressed from base to apex; strial punctures elongate, densely placed along striae, separated by distance equal to half the length of a puncture; strial interstices slightly convex. Apical margin of fifth sternum in female transverse; posterior half concavely impressed.

Male.—Eyes narrowly separated; ocular index of one specimen 3. Basal half of median suture of metasternum impressed; sides of impression very densely, finely punctate. Femora with a row of very small, erect setae on ventral surface. Anterior tibiae (Fig. 146) slightly enlarged on middle of ventral surface. Tarsal claws each with five to six teeth. Basal three abdominal sterna strongly carinate along midline; viewed laterally, median carina of first sternum obliquely truncate, carina of second sternum strongly projecting, margin convex, carina of third sternum moderately projecting, margin oblique, slightly convex. Fifth sternum moderately deeply, concavely impressed in middle; apical margin slightly concave in middle. Lobes of eighth sternum (Fig. 32) moderately broad, straight except for apex which is curved slightly medially; lobes slightly curved dorsally; ventral surface of apex and inner margin of lobes moderately densely covered with dentiform setae. Lobes of ninth sternum long, narrow; apex narrowly rounded. Apical piece of genitalia (Fig. 90) very short, broad; apex broadly transverse; viewed laterally, apex abruptly widened; basal piece very narrow in posterior two-thirds and then abruptly widened.

Female.—Eyes widely separated; mean ocular index of two specimens 19.5 (19–20). Tarsal claws each with five to six teeth. Midline of basal three sterna slightly raised.

Type.—As lectotype, I have selected from the type-series of five specimens a male collected by Champion from the Volcán de Chiriquí, 2,000–3,000 feet. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.— PANAMÁ: V[olcán] de Chiriquí, 25–4000 feet (BMNH–Biologia Collection) 5.

Glabrata Group

Body moderate in size. Lengths of three species 7 to 10 mm. Vertex finely, evenly punctate. Antennae short; apical segments distinctly obconical. Pronotum with sides almost straight, very slightly sinuate in basal half; surface almost evenly punctate; punctures slightly more densely placed in middle than on sides; basal foveae small, shallowly impressed; midline unimpressed. Metasternum moderately densely, deeply, evenly punctate. Posterior tarsi approximately .7 as long as posterior tibiae; basal segment of posterior tarsi approximately equal in length to the other segments combined. Elytra with striae moderately deeply impressed from base to apex; strial punctures small, deeply impressed within striae; punctures separated by distance approximately equal to length of a puncture; strial interstices moderately to very convex. Abdominal sterna distinctly punctate.

Male.—Eyes narrowly separated dorsally. Anterior tibiae (Fig. 147) narrowly but very convexly expanded in middle of basal half of ventral surface. Tarsal claws each with four to six teeth. Lobes of eighth sternum (Figs. 33–35) long, narrow; inner side sparsely to moderately densely covered with dentiform setae; lobes narrowly modified.

Female.—Eyes moderately narrowly separated.

Discussion.—The Glabrata Group contains four species from Panamá. *Lobopoda glabrata* and *L. aeneipennis* are known from both the male and the female, *L. portobellensis* from the male, and *L. nitida* from the female.

This group may be separated from other groups by the moderately deeply impressed elytral striae, convex elytral interstices, distinctly punctate abdomen and metasternum, and evenly and narrowly expanded apex of the apical piece of the male genitalia. This is the only group of the subgenus having the abdomen punctate.

The species of this group may be collected at elevations ranging from sea level (*L. portobellensis*) to between 2,500 and 4,000 feet (*L. aeneipennis*).

Key to the Species of the Glabrata Group

1. Body non-metallic; apex of eighth sternal lobes (Fig. 33) of male curved ventrally ..... *glabrata*
   Body metallic; apex of eighth sternal lobes of male simple or curved dorsally 2
2. Surface of pronotum moderately densely, coarsely punctate; elytral interstices very convex 3
   Surface of pronotum moderately sparsely, finely punctate; elytral interstices flat ..... *nitida*

3. Apices of the eighth sternal lobes (Fig. 34) of the male curved dorsally ..... *portobellensis*
Apices of the eighth sternal lobes (Fig. 35) of the male simple and curved medially ..... *aeneipennis*

Lobopoda (*Glabrilobopoda*) *glabrata* Champion

Lobopoda glabrata Champion, 1888:409, pl. 18, figs. 14, 14a.

Body moderately narrowly elongate-oval, dark brown to black; surface smooth, strongly shining. Length 9 to 10 mm. Vertex sparsely punctate. Length of apical segment of maxillary palpi .4 as great as width; width 1.3 as great as length of third antennal segment. Pronotum with basal angles slightly acute, slightly projecting posteriad; mean pronotal index of two specimens 58.5 (57–60); surface finely, sparsely, evenly, shallowly punctate; median fovea very small, shallowly impressed. Mesosternum moderately coarsely, densely punctate; punctures deeply impressed; median depression moderately shallowly impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Elytra with sides evenly rounded from base to apex, widest near base; elytral striae moderately deeply impressed at base, becoming very deeply placed approaching apex; strial interstices convex at base, becoming extremely convex approaching apex. Visible abdominal sterna moderately densely punctate; punctures moderately large, deeply impressed; fifth sternum slightly depressed on posterior margin.

Male.—Eyes narrowly separated dorsally; ocular index of one specimen 6. Ventral surface of intermediate and posterior femora with a row of sparsely placed, small, erect setae. Tarsal claws each with five to six teeth. Lobes of eighth sternum (Fig. 33) curved ventrally, bearing a few dentiform and normal setae along inner margin; apex of lobes very narrowly rounded. Lobes of ninth sternum slightly shorter than those of the eighth sternum; apex of lobes narrowly, unevenly rounded. Apical piece of genitalia (Fig. 91) with sides parallel in basal fourth, strongly, evenly narrowed in middle half, and then strongly expanded in apical fourth; apex broadly rounded.

Female.—Eyes narrowly separated; ocular index of one specimen 9. Tarsal claws each with five teeth.

Type.—As lectotype I have selected from the type-series of three specimens a male collected by Champion from the Volcán de Chiriquí, 2,000–3,000 feet, Panamá. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from western Panamá.

Records.—PANAMÁ: Bugaba (Champion, 1888); Caldera, 1200 feet (BMNH–Biologia Collection) 1; V[olcán] de Chiriquí, 2–3000 feet (BMNH–Biologia Collection) 1.

Discussion.—*Lobopoda glabrata* may be very easily recognized from all other species of *Glabrilobopoda* by the very deeply impressed elytral striae approaching the elytral apices and the very convex strial interstices. It is the only species of the Glabrata Group which is not metallic in coloration.

Lobopoda (Glabrilobopoda) portobellensis, new species

Body elongate-oval, dark brownish-black; elytra with bright metallic green luster; antennal segments 4 through 11 light brown; surface finely granulate, strongly shining. Length 9 mm. Vertex moderately densely punctate. Length of apical segment of maxillary palpi .5 as great as width; width 1.2 as great as length of third antennal segment. Pronotum with basal angles rectangular; pronotal index of one specimen 59; surface moderately densely punctate; punctures small, shallowly impressed on sides, larger, somewhat more densely placed in basal half of pronotum between basal foveae; median fovea very broad, shallowly impressed, widely connected to basal foveae. Mesosternum finely, moderately sparsely punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Elytra with sides broadly oval, widest just behind base; elytral striae evenly impressed from base to apex; strial interstices very convex. Abdominal sterna very finely, sparsely punctate; surface rugose; fifth sternum flattened in middle with apical margin broadly oval, almost transverse.

Male.—Eyes distinctly separated dorsally; ocular index of one specimen 4. Femora very sparsely setate; ventral surface of anterior femora with a wide patch of short, erect setae near middle; intermediate femora with a row of widely placed short, erect setae. Tarsal claws each with five to six teeth. Lobes of eighth sternum (Fig. 34) elongate, narrow, abruptly curved dorsally just before apex; lobes bearing an indistinct median ridge extending from base of lobes to near their middle; inner surface, ridge, and apex bearing moderately large, densely placed dentiform setae; outer side of basal half of lobes bearing long, normal setae. Lobes of ninth sternum short; apex semicircularly rounded. Apical piece of genitalia (Fig. 92) with sides converging from base to apical fourth and then narrowly, ovally expanded to apex; basal two-thirds with moderately densely placed dentiform setae.

Female.—Unknown.

Type.—Holotype, male, collected by Schwarz from Porto Bello, Panamá, March 9, 1911. The specimen is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—PANAMÁ: Porto Bello, March (USNM) 1.

Discussion.—*Lobopoda portobellensis* is the only species of *Glabrilo-*

bopoda that is known to occur at elevations near sea level, although *L. glabrata* has been collected at elevations ranging from 1,000 feet to between 2,000 and 3,000 feet.

Miss C. M. F. von Hayek compared the holotype of this species with that of *L. nitida*. According to her observations, it differs in having the pronotal punctures coarser, the surface more granulate, and the elytral interstices more convex.

Bionomics.—The holotype was collected in March.

Lobopoda (Glabrilobopoda) aeneipennis Champion

Lobopoda aeneipennis Champion, 1888:408, pl. 18, figs. 11, 11a.

Body moderately narrowly elongate-oval, dark brown; elytra with slight metallic green luster; apical segments of antennae light brownish-yellow; surface smooth, strongly shining. Length 8 to 8.5 mm. Vertex moderately sparsely punctate. Length of apical segment of maxillary palpi .5 as great as width; width 1.4 as great as length of third antennal segment. Pronotum with basal angles rectangular; mean pronotal index of three specimens 60.0 (58–62); surface moderately densely, coarsely, evenly punctate in middle half; sides moderately sparsely, finely punctate; punctures separated in middle by distance equal to twice diameter of a puncture; median fovea moderately broadly, shallowly impressed, narrowly separated from basal foveae. Mesosternum moderately densely, finely, deeply punctate on sides; median depression widely, deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Elytra with sides evenly rounded from base to apex, widest just back of base; elytral striae evenly impressed from base to apex; strial interstices moderately convex. Abdominal sterna very finely, sparsely punctate; surface strongly shining; fifth sternum very obscurely flattened in middle with apical margin narrowly, evenly rounded.

Male.—Eyes narrowly separated; ocular index of one specimen 2. Tarsal claws each with four to five teeth. Lobes of eighth sternum (Fig. 35) long, narrow, evenly curved medially approaching apex; inner side moderately densely, evenly covered with dentiform setae. Lobes of ninth sternum slightly shorter than those of eighth sternum; apex of lobes evenly rounded. Apical piece of genitalia (Fig. 93) with sides rounded, converging from base to apical third and then slightly expanded to apex; apex evenly rounded.

Female.—Eyes narrowly separated dorsally; ocular index of each of two specimens 11. Tarsal claws each with six teeth.

Type.—As lectotype I have selected from the type-series of four specimens a male collected by Champion from the Volcán de Chiriquí, 2,500–4,000 feet, Panamá. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—PANAMÁ: Volcán de Chiriquí, 25–4000 feet (BMNH–Biologia Collection) 4.

Discussion.—*Lobopoda aeneipennis* is very similar to *L. portobellensis.* It may be separated by its simply shaped male eighth sternal lobes, somewhat sparser and finer pronotal punctation, shallower elytral striae, flatter strial interstices, and less aeneous color of its elytra.

Lobopoda (*Glabrilobopoda*) *nitida* Champion

Lobopoda nitida Champion, 1888:407.

Champion (1888) described this species as follows:

Rather short, somewhat convex, bright aeneous, glabrous. Head with scattered coarsish punctures; eyes (female) moderately large, rather widely separated; prothorax convex, the sides straight behind, the hind angles rectangular, the disc finely canaliculate behind, and a little flattened in the middle before the base, the basal foveae small but deep, the surface finely and moderately closely punctured; elytra rather short, a little rounded at the sides, gradually narrowing from a little before the middle, with narrow but deep striae, the striae with oblong rather distantly placed, coarsish punctures which (like the striae) become shallower towards the apex, the interstices flat and almost impunctate; beneath brownish-piceous, the metasternum coarsely and rather closely punctured all over, the ventral surface smooth and almost impunctate; legs very sparsely pilose, ferruginous, the femora darker; antennae ferruginous.

Length 7 millim.; breadth 2¾ millim. (female).

Type.—Holotype, female, collected by Champion from the Volcán de Chiriquí, Panamá. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—PANAMÁ: Volcán de Chiriquí (Champion, 1888).

Discussion.—Champion (1888) stated that "*L. nitida* is intermediate between *L. viridipennis* and *L. aeneipennis*, but abundantly distinct from either; from the former it is distinguished by its aeneous thorax, deeper elytral striae, shorter form, etc., and from the latter by its bright aeneous upper surface, flat elytral interstices, etc."

Nitens Group

Size moderately large; surface varying from pale to very bright metallic green. Length 8 to 13 mm. Vertex moderately sparsely, finely, evenly punctate. Pronotum with sides sinuate near base; surface finely, evenly punctate. Median depression of mesosternum very deeply impressed, V-shaped. Metasternum impunctate or very finely, sparsely punctate. Posterior tarsi .8 as long as posterior tibiae; basal segment of posterior tarsi equal in length to the other segments combined. Elytra with strial interstices flat or slightly convex. First through third abdominal sterna im-

punctate; fourth and fifth sterna very finely, sparsely punctate; fifth sternum flattened or slightly concave in middle.

Male.—Anterior tibiae (Fig. 148) broadly, triangularly expanded in apical two-thirds of ventral surface; ventral surface of expanded area densely setate. Lobes of eighth sternum moderately long, narrow, evenly curved medially; inner side of ventral surface moderately sparsely covered with small dentiform setae. Apical piece of genitalia with sides abruptly expanded at apex.

Female.—Eyes narrowly separated dorsally.

Discussion.—The Nitens Group contains three species: one from Costa Rica, one from Panamá, and one from México and Guatemala. The last species (*L. obsoleta*) is the only member of *Glabrilobopoda* known to occur north of Costa Rica.

The members of this group may be easily separated from those of the other groups of *Glabrilobopoda* by their shallowly impressed or unimpressed elytral striae, their flat elytral interstices, the evenly punctate pronotum, the impunctate abdomen and metasternum, and the broadly and somewhat transversely expanded apex of the apical piece of the male genitalia. The three species of this group all have metallic coloration.

Species of this group have been collected at elevations ranging from 1,000 to 5,000 feet.

Key to the Species of the Nitens Group

1. Elytral striae moderately deeply impressed; pronotum moderately densely punctate; known from southern México and Guatemala ..... *obsoleta*
   Elytral striae very shallowly impressed or unimpressed; pronotum sparsely punctate; known only from Costa Rica and Panamá 2
2. Elytral striae completely unimpressed between strial punctures; strial punctures very elongate ..... *nitens*
   Elytral striae very shallowly, evenly impressed; strial punctures small ..... *viridipennis*

Lobopoda (Glabrilobopoda) obsoleta Champion

Lobopoda obsoleta Champion, 1888:409, pl. 18, fig. 13.

Body moderately broadly elongate-oval; dark brown to black with a slight green, metallic luster; apex of antennal segments 4 through 11 yellow-brown; surface finely granulate, strongly shining. Length 8 to 10.5 mm. Apical segment of maxillary palpi one-third as long as wide; width 1.3 to 1.4 as great as length of third antennal segment. Pronotum with sides slightly converging from base to anterior third and then broadly rounded to apex; sides distinctly sinuate in basal half; basal angles slightly acute; mean pronotal index of seven specimens 58.1 (55–60); surface moderately densely punctate; punctures separated by distance

slightly greater than diameter of a puncture; basal and median foveae very small, shallowly impressed; median fovea widely separated from basal foveae; midline unimpressed. Mesosternum finely, sparsely punctate; apex of median depression extending posteriad between coxae to metasternum. Metasternum of female impunctate in middle, becoming finely, very sparsely punctate approaching sides; metasternum in male very finely, densely punctate in middle. Elytra with sides narrowly rounded from base to apex; elytral striae moderately deeply, narrowly, evenly impressed from base to apex; strial punctures small, elongate, rather deeply impressed within striae, separated along striae by distance approximately equal to length of a puncture; strial interstices almost flat.

Male.—Eyes very narrowly separated; ocular index of six specimens 1.8 (1–2). Ventral margin of intermediate and posterior femora bearing moderately densely placed, very short, erect setae. Tarsal claws each with three to five teeth. Lobes of eighth and ninth sterna as in Figure 36. Apical piece of genitalia (Fig. 94) with apex slightly emarginate medially; sides with a few scattered dentiform setae.

Female.—Eyes narrowly separated dorsally; ocular index of one specimen 9. Tarsal claws each with five teeth.

Type.—As lectotype, I have selected from the type-series of two specimens a male collected by Champion from the Volcán de Atitlán, 2,500–3,500 feet, Guatemala. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from Guatemala and the state of Veracruz in México.

Records.—GUATEMALA: Capetillo (Champion, 1888); Volcán de Atitlán, 25–3500 feet (BMNH–Biologia Collection) 1. MÉXICO: Country label only (ZSM) 1. *Veracruz:* Jalapa (BMNH–Biologia Collection) 1; 10 mi. west Tlapacoyan, June (JMC) 4.

Bionomics.—I collected four specimens of this species in June on the slopes of the Sierra Madre Oriental at an elevation of approximately 1,000 feet. Two were taken by beating trees which had no indication of either lichens or bromeliads, one was found under bark, and another was collected by beating a dead limb which was heavily covered with lichens and fungi.

Lobopoda (*Glabrilobopoda*) *nitens* Champion

Lobopoda nitens Champion, 1888:406, pl. 18, fig. 8.

Body narrowly elongate, very dark metallic green; surface smooth, strongly shining. Length 13 mm. Apical segment of maxillary palpi .5 as long as wide; width 1.3 as great as length of third antennal segment. Pronotum with sides deeply constricted at basal third and then broadly rounded to apex; sides strongly declivous in basal half; pronotum widest

near middle and at base; base very deeply trisinuate; basal angles rounded, obtuse; a deep, circular impression placed in middle, anteriad of basal foveae; pronotal index of one specimen 55; surface sparsely punctate; punctures shallowly impressed; basal foveae large, very deeply impressed; median fovea broad, moderately deeply impressed, connected to basal foveae; midline unimpressed. Mesosternum very finely, evenly punctate; apex of median depression extending posteriad between coxae to metasternum, very deeply impressed between coxae. Metasternum impunctate. Elytra with sides straight, converging gradually from base of elytra to apex; elytral striae obsolete between strial punctures; punctures elongate, moderately deeply impressed, widely separated along striae; strial interstices flat.

Male.—Unknown.

Female.—Eyes very narrowly separated; ocular index of one specimen 7. Third segment of anterior tarsi very narrowly, inconspicuously lobed ventrally. Tarsal claws each with six teeth.

Type.—Holotype, female, not seen, collected by Rogers from the Río Sucio, Costa Rica. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from the vicinity of San José, Costa Rica.

Records.—COSTA RICA: La Caja, 8 kil. west San José (DEI) 1; R[ío] Sucio (Champion, 1888).

Discussion.—The specimen of *L. nitens* from La Caja is very similar to five specimens from Colombia and Venezuela identified by Borchmann as *L. coerulescens.* It differs from the latter species in having the eyes somewhat more approximate, the sides of the pronotum more strongly constricted, the pronotum more finely and sparsely punctate, and the basal depressions more deeply impressed. The elytral apices of *L. coerulescens* are usually modified. However, this character is probably variable, as Champion (1888) states that the elytral apices are modified in the holotype of *L. nitens.*

The specimen of *L. nitens* examined was compared with the holotype by Miss C. M. F. von Hayek.

A male of *L. coerulescens* from Colombia agrees very closely with the characters given in the description of the males of the Nitens Group.

Lobopoda (Glabrilobopoda) viridipennis Champion

Lobopoda viridipennis Champion, 1888:407, pl. 18, figs. 10, 10a.

Body narrowly elongate-oval, dark metallic green; appendages dark brown; apex of antennal segments 4 through 11 yellow; surface finely granulate, strongly shining. Length 9 to 10.5 mm. Apical segment of maxillary palpi .4 as long as wide; width 1.5 as great as length of third

antennal segment. Pronotum with sides slightly converging from base for basal two-thirds and then broadly rounded to apex; sides distinctly sinuate in basal third; basal angles rectangular; surface shallowly but distinctly depressed posteriad of a broadly oval line drawn from the basal foveae through middle of pronotum; mean pronotal index of three specimens 57.7 (57–60); surface sparsely punctate; punctures small, shallowly impressed, slightly larger in median fovea; basal foveae very small, moderately shallowly impressed; median fovea very shallowly impressed, widely separated from basal foveae; midline unimpressed. Mesosternum impunctate; apex of median depression extending posteriad to anterior margin of mesocoxae. Metasternum almost impunctate, a few very small scattered punctures near middle. Elytra with sides broadly rounded, narrowing from base to apex of elytra; elytral striae very narrowly, shallowly, evenly impressed from base to apex; strial punctures elongate-oval, shallowly impressed within striae; punctures separated along striae by distance slightly greater than length of a puncture; strial interstices flat.

Male.—Eyes narrowly separated; ocular index of one specimen 4. Tarsal claws each with five to six teeth. Lobes of eighth and ninth sterna as in Figure 37. Apical piece of genitalia (Fig. 95) with apex broadly rounded; sides and venter moderately densely covered with dentiform setae.

Female.—Eyes narrowly separated; mean ocular index of three specimens 10.3 (10–11). Tarsal claws each with five teeth.

Type.—As lectotype, I have selected from the type-series of four specimens a male collected by Champion from the Volcán de Chiriquí, 2,500–4,000 feet. The specimen is now in the British Museum (Natural History).

Geographic Distribution.—Known from the Province of Chiriquí in Panamá.

Records.—PANAMÁ: 1 mi. north El Volcán, 5000 feet, July (JMC) 1; V[olcán] de Chiriquí, 25–4000 feet (BMNH–Biologia Collection) 4.

Discussion.—One specimen of *L. viridipennis* collected near El Volcán differs from the remaining specimens in having its size somewhat larger (10.5 mm.) and its color light brown with only a slight metallic sheen. The light color and the absence of most of the metallic coloration are probably the result of the specimen being somewhat immature when collected.

Bionomics.—I collected one specimen of this species in July by beating the dead lower branches of small oak trees which were very heavily covered with lichens. The specimen was associated with *L. minuta*, *Pseudocistela decepta* Champion, *Hymenorus chiriquensis* Campbell, and *H. panamensis* Campbell.

SUBGENUS *LOBOPODA* SOLIER

Lobopoda Solier, 1835:234. Lacordaire, 1859:501. Champion, 1888:390.

Body distinctly setate. Length 5.5 to 18.5 mm. Third segment of antennae 2.5 to 4 times as long as second, usually .8 as long as fourth. Apical segment of maxillary palpi usually .4 as long as wide.

Male.—Eyes variable, usually touching or occasionally distinctly separated dorsally. Only penultimate segment of intermediate tarsi lobed ventrally (third segment narrowly lobed in *L. cubensis*). Posterior tarsi without tarsal lobes (rarely with a very small, greatly reduced lobe).

Female.—Penultimate segment of anterior and intermediate tarsi lobed, third segment of anterior tarsi occasionally narrowly lobed.

Type-species.—*Allecula pallicornis* Fabricius from Brazil; fixed by present designation.

Discussion.—The subgenus *Lobopoda* is the largest and most variable subgenus of the genus. Its species range in length from 5.5 to 18.5 mm. The male anterior tibiae vary greatly between species, ranging from unmodified as in *L. tenuicornis* (Fig. 161) to very greatly expanded as in *L. panamensis* (Figs. 1, 168). The elytral striae range from very deeply impressed to unimpressed. The male terminalia are very highly variable; they are very simple in shape in the species of the Minuta and Opacicollis groups but very complex in species of the Apicalis and Laevicollis groups.

The subgenus *Lobopoda* contains 55 species, which I have divided into 22 groups, many of which are monotypic.

The subgenus probably evolved from a form similar in most respects to members of the Opacicollis and Opaca groups. These groups are quite similar to many of the species of *Allecula* in that they have the male anterior tibiae evenly and convexly expanded, the body dark brown in color, the pronotum moderately densely and evenly punctate, the intermediate tarsi of the male with the third segment at least partially lobed ventrally, and the lobes of the eighth sternum simple in structure and evenly and convexly curved medially.

Phylogeny.—The proposed phylogeny of the groups of the subgenus is shown in Figure 6. The seven groups from the West Indies are excluded from this figure because it is not possible at present to suggest any relationships among these groups or between them and the species inhabiting the mainland. Since there is very little similarity between these groups and those of North and Central America, they have almost certainly been introduced separately into the islands from South America, or else their ancestral species have been replaced in North or Central America. Each of the West Indian species has been placed in a separate species group, except for *L. sulcaticollis* and *L. tarsalis*, which are treated

FIG. 6. Phylogeny of the subgenus *Lobopoda*.

as species of uncertain status because of inadequate specific descriptions given by their authors.

The remaining 40 species of the subgenus *Lobopoda* have been placed into 17 groups. Two main lines may be recognized. The first may be characterized by having the male terminalia very simple in structure and similar to that in related genera of Alleculidae, such as *Allecula* and *Hymenorus*. The male terminalia have the lobes of the eighth sternum either straight or evenly and convexly curved medially, the eighth sternal

lobes devoid of large ridges or processes, and the apical piece of the male genitalia with the sides evenly narrowed from the base to the apex and the sides evenly narrowed approaching the apex (widened in some species of the Opacicollis Group). In addition, the species of this line are usually small to moderately large in size and have the male anterior tibiae evenly and convexly expanded ventrally and the pronotum evenly and moderately densely punctate. This line contains the Opacicollis, Opaca, Pilosa, Minuta, Championi, Attenuata, and Tenuicornis groups.

The Tenuicornis Group has several characteristics which apparently represent specializations within its line. The species of this group have the pronotal punctation partially or completely surrounded by a raised concentric ring; the male anterior tibiae long, slightly curved, and not expanded on the ventral margin; and the eyes of the male narrowly separated dorsally.

The Minuta, Championi, and Attenuata groups may be considered as specialized in having the eighth sternal lobes narrow and evenly curved medially with the apices of the lobes narrowly rounded; the pronotum finely punctate; the shape of the body narrowly elongate; the basal foveae and midline shallowly impressed or unimpressed; and the lobe of the third segment of the intermediate tarsi completely obsolete. These three groups are somewhat similar to one another; they are defined primarily on differences in the male terminalia and pronotal punctation.

The Opacicollis, Opaca, and Pilosa groups may be considered as primitive in that the eighth sternal lobes are very broadly, evenly, and convexly curved; the body is moderately large in size and moderately convex in shape; the pronotum is moderately densely and coarsely punctate; and the basal foveae and midline are large and deeply impressed. The Pilosa Group represents a specialized line having the coloration dark metallic green, the lobe of the male third tarsal segment completely reduced, and the surface of the body strongly shining. The Opacicollis and Opaca groups are similar to each other in most respects, but the Opacicollis Group is specialized in having the lateral margins of the fifth and sometimes the fourth abdominal sterna obliquely striate.

The second main line of the subgenus *Lobopoda* is characterized primarily on the basis of the shape of the highly specialized male terminalia, particularly the eighth sternal lobes. This line contains the Atrata, Laevicollis, Punctulata, Apicalis, Panamensis, Calcarata, Puncticollis, Guerrerensis, Tropicalis, and Femoralis groups.

There has been a very high degree of specialization in the male terminalia and secondary sexual characters in the various species groups of this line. Many of the species have the male terminalia so highly modified that it has been necessary to place them into monotypic groups. It has been difficult to arrange these groups phylogenetically because of

the lack of specialized characters other than those of the male terminalia. In addition to the characteristics of the male terminalia, many of the species groups of this line may be separated by differences in the pronotal punctation, the depth of the elytral striae, the shape of the male anterior tibiae, and the male and female ocular indices. The following discussion includes only the major specialized characteristics.

The Femoralis Group is one of the most distinctive. In its single species the male terminalia (Figs. 68, 126) are asymmetrical and very highly specialized in shape. Further specializations of the male of this species are the distinctly separated eyes and the broadly expanded anterior tibiae (Fig. 170).

The Tropicalis and Guerrerensis groups are specialized in having the male eighth sternal lobes covered with very long setae. In both groups the sides of the apical piece of the male genitalia (Fig. 132) are slightly narrowed from the base for the basal three-fourths and then abruptly narrowed for a short distance before becoming parallel to the apex, the apical piece is very sparsely covered with setae, the pronotum is moderately sparsely punctate, and the median and basal foveae are small and shallowly impressed. The Tropicalis Group has retained the primitive shape of the male eighth sternal lobes except that the lobes are somewhat flattened and spatulate in shape. The anterior tibiae of the male have lost all but a trace of the expansion of the ventral surface. The Guerrerensis Group has the shape of the eighth sternal lobes highly specialized as may be seen in Figure 74.

The line giving rise to the Puncticollis Group is specialized in having the body very densely and coarsely punctate. This condition will easily separate the species of this group from those of all other groups of the subgenus *Lobopoda*.

The Calcarata Group is essentially primitive. However, the male terminalia are specialized in having the apical piece of the genitalia (Fig. 125) and the eighth sternal lobes (Fig. 67) devoid of dentiform setae and the inner side of the eighth sternal lobes with a large triangular projection on their inner margin.

The line giving rise to the Apicalis and Panamensis groups may be considered as specialized on the basis of having the pronotum moderately sparsely and coarsely punctate with the punctures somewhat more densely placed along the midline, the size of the body large, the eyes of the female moderately narrowly separated dorsally, the male anterior tibiae of some of the species in each group very broadly and triangularly expanded ventrally, and the ventral surface of the male anterior femora with one or more short teeth. These two groups may be easily separated on the basis of the much more complex structure of the male terminalia of the species of the Apicalis Group (Figs. 62–65, 120–123) than that of

the Panamensis Group (Figs. 66, 124). In addition, the line giving rise to the Apicalis Group is specialized in having the elytral striae unimpressed in the basal half of the elytra.

The Laevicollis, Atrata, and Punctulata groups have been placed together primarily on the basis of the similarity of their external appearance. It has not been possible to find any external specializations that will separate these three groups from one another. However, their male terminalia (Figs. 57–61, 115–119) are very dissimilar.

KEY TO THE GROUPS OF THE SUBGENUS *Lobopoda*

1. Lateral margins of fifth and sometimes the fourth abdominal sterna obliquely striate ..... Opacicollis Group
   Lateral margins of neither the fourth nor the fifth abdominal sternum striate 2
2. West Indian species 18
   Continental species 3
3. Eighth sternal lobes of male usually highly modified (Figs. 57–76); if simple, lobes covered with very long, coarse setae or anterior tibiae very broadly expanded 9
   Eighth sternal lobes of male straight, evenly curved medially, or angulate near middle of outer side, devoid of long setae, not highly modified (Figs. 38–56); anterior tibiae of male evenly, convexly expanded or unexpanded on ventral margin 4
4. Pronotal punctures surrounded, at least in part, by a raised, concentric margin ..... Tenuicornis Group
   Pronotal punctures evenly impressed, not surrounded by a raised concentric margin 5
5. Color dark metallic green ..... Pilosa Group
   Color brown or black, non-metallic 6
6. Eighth sternal lobes of male very broad (Fig. 46); elytral striae obsolete between strial punctures; eyes of male distinctly separated dorsally ..... Opaca Group
   Eighth sternal lobes narrow; elytral striae distinctly impressed between strial punctures 7
7. Eighth sternal lobes of male (Fig. 55) angulate near middle of outer side; ventral margin of anterior tarsi of male widely expanded; pronotum slightly more densely punctate in middle than on sides ..... Attenuata Group
   Eighth sternal lobes of male straight or evenly curved medially; ventral margin of anterior tarsi of male narrowly expanded; pronotum evenly punctate 8
8. Surface of pronotum very smooth, strongly shining, moderately sparsely, evenly punctate; length usually exceeding 10 mm. ..... Championi Group

Surface of pronotum usually finely granulate, only slightly shining, moderately densely, coarsely punctate; length rarely exceeding 10 mm., usually 8 to 9 mm. or less ..... Minuta Group

9. Apical piece of male genitalia (Fig. 126) distinctly asymmetrical; apex of eighth sternal lobes (Fig. 68) strongly, abruptly curved medially, broadly expanded; legs often bicolored . Femoralis Group

If apical piece of male genitalia asymmetrical, lobes of eighth sternum (Fig. 69) evenly curved medially, not expanded 10

10. Eighth sternal lobes of male moderately densely covered in apical half with very long setae (Fig. 74) 11

Eighth sternal lobes of male devoid of long setae 12

11. Apical half of eighth sternal lobes of male (Fig. 74) flattened and spoon-shaped; sides of apical piece of genitalia (Fig. 132) evenly narrowed from base to near apex and then parallel to apex; apex evenly rounded ..... Guerrerensis Group

Apical half of eighth sternal lobes of male elongate and convex; sides of apical piece of genitalia broadly rounded from base to near apex and then expanded to apex; apex transverse ..... Tropicalis Group

12. Pronotum with surface very densely, evenly punctate; punctures separated by distance no greater than diameter of a puncture ..... Puncticollis Group

Pronotum with surface sparsely to moderately densely punctate; punctures separated by distance greater than diameter of a puncture 13

13. Eighth sternal lobes of male (Fig. 67) with a distinct, triangular tooth on their inner surface near base ..... Calcarata Group

Eighth sternal lobes of male without triangular tooth on their inner margin 14

14. Elytral striae obsolete between strial punctures at least in apical half of elytra ..... Apicalis Group

Elytral striae distinctly, evenly impressed from base to apex 15

15. Pronotal punctures more deeply impressed along midline and in basal foveae; anterior tibiae of male (Fig. 168) greatly expanded on ventral margin ..... Panamensis Group

Pronotal punctures evenly distributed, impressed; anterior tibiae of male evenly, convexly rounded on ventral surface 16

16. Eighth sternal lobes of male (Fig. 58) very elongate, narrow; apical half strongly recurved ventrally and anteriorly ..... Laevicollis Group

Eighth sternal lobes of male variously modified, but apical half not evenly curved ventrally and anteriorly 17

17. Apex of male eighth sternal lobes (Figs. 59–61) curved ventrally and medially ..... Punctulata Group

Apex of male eighth sternal lobes (Fig. 57) spoon-shaped; curved medially ..... Atrata Group

18. Color dark metallic green above; known from Dominican Republic ..... Substriatus Group
Color brown or black, non-metallic 19

19. Elytral striae obsolete; eyes of male widely separated dorsally; known from Cuba ..... Cubensis Group
Elytral striae deeply, evenly impressed 20

20. Color black; pronotum with surface at least partially shining 21
Color light brown; pronotum with surface finely granulate, opaque; known from Haiti ..... Haitensis Group

21. Known only from Jamaica ..... Jamaicensis Group
Known only from the island of Mustique ..... Insularis Group

Opacicollis Group

Body elongate to elongate-oval. Length 8 to 18.5 mm. Vertex very densely, coarsely, deeply punctate. Antennae with apical segments distinctly obconical. Lateral margins of fifth and sometimes fourth sternum finely, conspicuously, obliquely striate.

Male.—Anterior tibiae convexly expanded in basal half. Basal three segments of intermediate tarsi often densely pubescent ventrally. Lobes of eighth sternum (Figs. 38–45) moderately narrow to broad, evenly curved toward middle from base to apex; inner surface moderately densely covered with dentiform setae.

Female.—Penultimate segment of anterior and intermediate tarsi broadly lobed; third segment of anterior tarsi often narrowly lobed.

Discussion.—The Opacicollis Group contains eight species which have been divided into four subgroups. These species are known from Louisiana and Texas in the southern United States through México and Central America into South America. One species, *L. granulata,* has been recorded from Barbados in the West Indies Federation.

This is the only group of the genus *Lobopoda* which has the lateral margins of the fifth and sometimes the fourth sternum obliquely striate. In addition, the very simple and evenly curved eighth sternal lobes and the simply expanded anterior tibiae of the males; and usually the densely and coarsely punctate surface of the body will aid in the identification of species of this group.

Phylogeny.—The proposed phylogeny of the species of the Opacicollis Group is shown in Figure 7. The following characters may be considered primitive for this group: body non-metallic in coloration; only apical segment of abdomen with oblique striations; eyes of male narrowly separated dorsally; elytral striae becoming more deeply impressed approaching apex; and sides of the pronotum parallel or narrowed from the base in the basal half. The Foveata Subgroup contains one species, *L.*

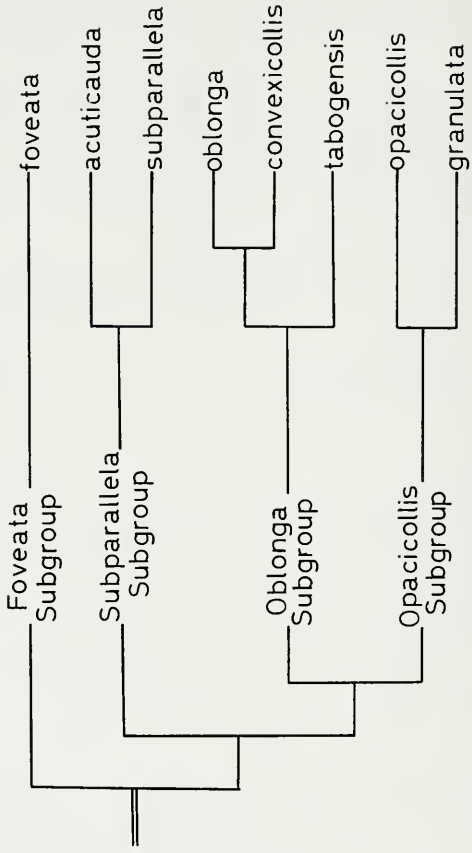


FIG. 7. Phylogeny of the Opacicollis Group.

foveata, which is specialized in having the body metallic in coloration. The Subparallela Subgroup contains two species, *L. acuticauda* and *L. subparallela.* This subgroup is primitive in most respects, but the very large size of the body and the distinctive shape of the male terminalia will easily separate it from the others. *Lobopoda acuticauda* is specialized in having the male elytral apices prolonged into a long spine. The Oblonga and Opacicollis subgroups are specialized in having both the fourth and fifth abdominal sterna with distinct transverse striations. The Oblonga Subgroup contains three species, *L. oblonga, L. convexicollis,* and *L. tabogensis.* This subgroup is specialized in having the eyes of both the male and female very widely separated dorsally and the sides of the pronotum narrowed from the middle toward the base. The Opacicollis Subgroup contains two species, *L. opacicollis* and *L. granulata,* and is specialized in having the elytral striae evenly impressed, the eyes of the

male usually touching dorsally, and the surface of the pronotum very coarsely granulate.

KEY TO THE SUBGROUPS OF THE OPACICOLLIS GROUP

1. Only apical segment of abdomen with transverse striations 2
   Apical and penultimate segments of abdomen with distinct transverse striations 3
2. Color metallic green; known only from Costa Rica and Panamá .....Foveata Subgroup
   Color dark brownish-black to black .....Subparallela Subgroup
3. Eyes of male distinctly separate dorsally; sides of pronotum distinctly narrowed posteriorly .....Oblonga Subgroup
   Eyes of male touching dorsally; sides of pronotum not narrowed posteriorly; surface of pronotum very coarsely granulate .....Opacicollis Subgroup

FOVEATA SUBGROUP

Body elongate-oval, dark metallic green; surface smooth, strongly shining. Pronotum with sides distinctly sinuate in basal two-thirds and then rounded to apex, widest at base and near anterior third; pronotal punctures densely distributed, slightly more densely placed along midline and in basal foveae than on sides; punctures large, deeply impressed, separated on sides by average distance equal to or slightly greater than diameter of a puncture. Elytral striae unimpressed in basal two-thirds of elytra, becoming shallowly impressed in apical third. Lateral margins of only fifth sternum obliquely striate.

Male.—Eyes narrowly separated. Anterior tibiae (Fig. 149) slightly, convexly expanded on ventral side near middle. Lobes of eighth sternum (Fig. 38) broad, evenly curved toward middle from base to apex; lobes sparsely covered in apical half with short dentiform setae. Apical piece of genitalia (Fig. 96) long, very narrow; venter and sides moderately densely covered with dentiform setae.

Female.—Eyes moderately narrowly separated. Third segment of anterior tarsi densely pubescent ventrally.

Lobopoda (*Lobopoda*) *foveata* Champion

Lobopoda foveata Champion, 1888:405, pl. 18, figs. 7, 7a; 1893:565.

Body dark metallic green; antennae, legs, and mouthparts dark reddish-brown; setae long, fine, reddish-brown. Length 9 to 12 mm. Width of apical segment of maxillary palpi 1.1 as great as length of third antennal segment. Pronotum with basal angles rectangular; mean pronotal index of 18 specimens 60.0 (58–62; $S_{\bar{x}} = .3$); basal foveae moderately large, very deeply impressed; median depression broad, moderately deeply impressed, widely connected to basal foveae; midline unimpressed. Prosternum very densely, deeply, rugosely punctate. Proepi-

sterna moderately sparsely, coarsely punctate along anterior margin and around base of coxae. Mesosternum with surface densely, deeply punctate; median depression broad, deeply impressed, V-shaped; apex of V extending posteriad to anterior margin of mesocoxae. Metasternum moderately densely, evenly punctate; punctures becoming slightly coarser, more sparsely distributed approaching sides. Inner side of posterior femora concave, glabrous, strongly shining. Posterior tarsi three-fourths as long as posterior tibiae; basal segment equal in length the remaining segments combined. Elytra with sides broadly oval, converging from near base to apex; strial punctures small, deeply impressed, separated along striae by distance approximately equal to length of a puncture; punctures becoming elongate approaching apex of elytra; strial interstices flat, very sparsely, moderately deeply punctate. First through third abdominal sterna sparsely, but moderately coarsely punctate; fourth and fifth sterna finely, irregularly punctate; fifth sternum flattened in middle.

Male.—Mean ocular index of six specimens 4.7 (4–5). Tarsal claws each with eight teeth. Lobes of eighth sternum (Fig. 38) broad with apical half bearing large, moderately sparsely placed dentiform setae; apices evenly rounded. Lobes of ninth sternum short; apices evenly rounded. Apical piece of genitalia (Fig. 96) very narrow; sides slightly converging from base to near apex and then slightly widened; apex evenly rounded, slightly curved dorsally; apical piece bearing small, moderately densely placed dentiform setae on venter and sides.

Female.—Mean ocular index of 12 specimens 10.2 (8–12; $S_{\bar{x}} = .4$). Tarsal claws each with six teeth.

Type.—As lectotype of *L. foveata* I have selected from the type-series of ten specimens a male collected by Schunke from Matachín, Panamá, July, 1877. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from Costa Rica south to the Canal Zone.

Records.—CANAL ZONE: Fort Clayton, May (CNHM) 1; Tabernilla, July (USNM) 1. COSTA RICA: Country label only (PM) 2. PANAMÁ: Caldera, 1200 ft. (BMNH–Biologia Collection) 3; Cerro Campana, Province Panamá, August (JMC) 6; David (BMNH–Biologia Collection) 1; Matachín (BMNH–Biologia Collection) 4; Tolé (BMNH–Biologia Collection) 1; Volcán de Chiriquí (BMNH–Biologia Collection 1.

Bionomics.—Six specimens of this species were collected by beating dead lichen-covered branches of small trees. The species has been collected in May, July, and August.

SUBPARALLELA SUBGROUP

Body narrowly elongate, black; surface finely granulate, moderately shining. Length 13 to 18.5 mm. Width of apical segment of maxillary

palpi approximately equal to length of third antennal segment. Pronotum with basal foveae broad, very shallowly impressed; median fovea very shallowly impressed, narrowly separated from basal foveae. Prosternum very densely, rugosely punctate; proepisterna moderately densely, coarsely punctate around base of coxae. Median depression of mesosternum very broad, shallowly, concavely impressed; apex of depression extending posteriad between coxae to metasternum. Posterior tarsi .8 as long as posterior tibiae. Lateral margins of only fifth sternum obliquely striate.

Male.—Eyes touching or very narrowly separated dorsally. All femora with ventral surface at least partially covered with very short, erect setae. Anterior tibiae moderately broadly, convexly expanded near middle of ventral surface. Metasternum very densely, finely punctate in posterior two-thirds of middle; punctures becoming coarse and moderately sparsely distributed on sides. Lobes of eighth sternum long, moderately narrow, evenly curved toward middle from base; ventral surface with a distinct ridge extending from base to apical third of lobes; lobes densely covered on ventral surface with very short, dentiform setae.

Key to the Species of the Subparallela Subgroup

1. Elytral apices of male prolonged into a long spine; surface of pronotum moderately sparsely, finely punctate; punctures separated by average distance at least three times as great as diameter of a puncture ..... *acuticauda*

   Elytral apices of male rounded; surface of pronotum moderately densely, coarsely punctate; punctures separated by average distance slightly greater than diameter of a puncture .... *subparallela*

Lobopoda (*Lobopoda*) *subparallela* Champion

Lobopoda subparallela Champion, 1888:394, pl. 17, fig. 10.

Setae moderately long, fine, brownish-black. Length 13 to 16 mm. Pronotum with sides straight, parallel for basal half and then broadly, evenly rounded to apex; basal angles rectangular; mean pronotal index of 38 specimens 68.3 (63–71; $S_{\bar{x}} = .2$); surface moderately densely punctate; punctures large, shallowly impressed, slightly oval, separated by average distance slightly greater than diameter of a puncture; midline unimpressed. Mesosternum sparsely, moderately finely punctate on sides. Metasternum coarsely, moderately sparsely punctate in middle in female, becoming somewhat more sparsely, coarsely punctate approaching sides. Basal segment of posterior tarsi .8 to .9 as long as remaining segments combined. Elytra with sides parallel for basal two-thirds and then broadly rounded to apex; apices slightly produced posteriorly; elytral striae shallowly impressed at base, becoming slightly more deeply impressed nearing apex; strial punctures large, deeply, circularly impressed,

separated by distance approximately equal to diameter of a puncture; strial interstices feebly convex, moderately densely, coarsely, deeply punctate; punctures placed in two uneven rows along sides of interstices. Basal three abdominal sterna finely, moderately densely punctate; fourth sternum shallowly, finely punctate on sides and apical half; fifth sternum of female nearly impunctate, broadly, deeply concave in middle, of male, finely, sparsely punctate in apical half, evenly convex.

Male.—Eyes distinctly but narrowly separated; mean ocular index of 27 specimens 3.0 (1–6; $S_{\bar{x}} = .2$). Anterior tibiae (Fig. 150) slightly, convexly expanded on ventral side near base; outer side finely, acutely carinate from near base to apex. Intermediate tibiae obscurely carinate along middle of dorsal side. Tarsal claws each with 16 to 18 teeth. Lobes of eighth sternum (Fig. 39) with apices narrowly, evenly rounded. Lobes of ninth sternum slightly more than half as long as eighth sternal lobes; apices narrowly, evenly rounded; outer side convexly inflexed near middle. Apical piece of genitalia (Fig. 97) with sides straight and very slightly converging from base to near apex and then parallel to apex; apex broadly triangular; venter and sides moderately densely covered with dentiform setae.

Female.—Eyes moderately widely separated; mean ocular index of 11 specimens 12.4 (9–15; $S_{\bar{x}} = .5$). Tarsal claws each with seven to nine teeth.

Type.—As lectotype, I have selected from the type-series of four specimens, a male from the Höge Collection from Tehuantepec, Oaxaca, México. The specimen is in the British Museum (Natural History).

Geographic Distribution.—This species is known from southern México from the states of Morelos and Guerrero south to Chiapas. This is the only species of *Lobopoda* recorded from the states of Guerrero, Morelos, and Oaxaca. The species occurs at elevations ranging from 3,800 feet to 7,400 feet.

Records.—MÉXICO: *Chiapas:* 8 km. south Bochil, July (JMC) 28; 20 mi. west Cintalapa, December (ISU) 1; 14 km. north Tuxtla Gutiérrez, July (JMC) 5. *Guerrero:* Chilpancingo (USNM) 1. *Morelos:* Cuernavaca (Champion, 1888). *Oaxaca:* Tehuantepec (BMNH–Biologia Collection) 1; Yolos [probably refers to Yolox, 100 kil. northwest of Oaxaca] (BMNH–Biologia Collection) 1. *Veracruz* Jalapa (Champion, 1888).

Discussion.—In the appearance of the pronotum *L. subparallela* very closely resembles *L. breyeri* Brethes from Argentina; however, it differs in having oblique striations on the fifth sternum, the elytral interstices more sparsely punctate, the elytral apices slightly prolonged, and the vertex somewhat more densely punctate, and by the more approximate eyes of the male.

Bionomics.—I collected this species in rather large numbers in Chiapas

by beating the dead leaves of oak trees and dry bromeliads on limbs of small oak and legume trees. It has been collected in Chiapas in July and December.

Lobopoda (Lobopoda) acuticauda, new species

Setae very short, dark reddish-brown. Length 17 to 18.5 mm. Pronotum with sides very slightly rounded, converging from base for basal two-thirds and then evenly narrowed to apex; basal angles rectangular; mean pronotal index of two specimens 69.0 (67–71); surface moderately sparsely, irregularly punctate; punctures circular, shallowly impressed, separated by average distance three to four times as great as diameter of a puncture; midline broadly, shallowly impressed. Mesosternum very sparsely, finely, shallowly punctate. Basal segment of posterior tarsi equal in length to remaining segments combined. Elytra with sides straight, slightly converging from base for basal two-thirds and then evenly rounded to apex; elytral striae moderately deeply, evenly impressed from base to apex; strial punctures small, circular, moderately shallowly impressed within striae, separated along striae by distance slightly greater than diameter of a puncture; interstices of striae distinctly convex, sparsely, deeply punctate; punctures placed in one uneven row near middle of interstices. Abdominal sterna moderately finely, sparsely punctate; fifth sternum evenly convex.

Male.—Eyes either touching dorsally or separated by a very narrow ridge. Anterior tibiae with dorsal side bearing two distinct, parallel carinae extending from near base to apex; inner side of posterior tibiae obsoletely carinate near base. Basal three segments of intermediate tarsi rather densely pubescent ventrally. Tarsal claws each with nine to ten teeth. Elytral apices (Fig. 180) bearing a long, acute spine which is curved medially and ventrally; spines of apices broadly overlapping. Lobes of eighth sternum (Fig. 40) with apices broadly, unevenly rounded. Lobes of ninth sternum narrow, slightly shorter than those of eighth sternum; apices narrowly, evenly rounded. Apical piece of genitalia (Fig. 98) with sides parallel from base to apex; apex broadly rounded, almost truncate; venter and sides bearing moderately densely placed dentiform setae.

Female.—Unknown.

Type.—Holotype, male, from La Caja, 8 km. west of San José, Costa Rica, 1934, Schmidt, in the collection of the Deutsch Entomologische Institut.

Geographic Distribution.—Known only from Costa Rica.

Records.—COSTA RICA: Chitaria (USNM) 1; La Caja, 8 km. west San José (DEI) 1.

Discussion.—This species is the only North American species of the

genus which has the male elytral apices prolonged into a long acute spine.

OBLONGA SUBGROUP

Body elongate-oval. Length 8 to 12 mm. Pronotum with sides widest near middle, at least slightly converging toward base. Prosternum very densely, coarsely, rugosely punctate. Metasternum moderately densely, coarsely punctate; punctures somewhat larger, more sparsely distributed approaching sides. Elytral striae very shallowly impressed near base, becoming more deeply impressed approaching apex; strial interstices only slightly convex. Basal three abdominal sterna finely, moderately densely, evenly punctate; fourth and fifth sterna very finely, sparsely, unevenly punctate; fifth sternum flattened in middle. Lateral margins of fourth and fifth sterna obliquely striate.

Male.—Eyes widely separated dorsally. Anterior tibiae (Figs. 151–152) convexly expanded on basal half of ventral margin.

Female.—Eyes very widely separated dorsally.

Key to the Species of the Oblonga Subgroup

1. Vertex very densely, coarsely punctate; punctures confluent. Pronotal punctures somewhat more densely placed along midline; known from Guatemala and southern México 2
   Vertex moderately densely, finely punctate; punctures not confluent; pronotal punctures evenly distributed over surface. Known from islands in the Bay of Panamá ..... *tabogensis*
2. Sides of pronotum very slightly narrowed posteriorly; pronotum only slightly more densely punctate in middle than on sides ..... *convexicollis*
   Sides of pronotum strongly narrowed posteriorly; pronotum much more densely punctate in middle than on sides ..... *oblonga*

Lobopoda (*Lobopoda*) *tabogensis*, new species

Body dark brown; surface distinctly, rather coarsely granulate, dull, not at all shining; setae coarse, reddish-brown. Length 9.5 to 11 mm. Vertex moderately densely, coarsely punctate; punctures elongate-oval. Width of apical segment of maxillary palpi 1.2 as great as length of third antennal segment. Pronotum with sides widest near middle, anterior half broadly, evenly rounded from middle to apex; posterior half distinctly sinuate, narrowest just before base; basal angles rectangular; mean pronotal index of nine specimens 62.3 (60–63; $S_{\bar{x}} = .4$); surface very coarsely, evenly, densely punctate; punctures oval, somewhat variable in size; basal foveae very broad, very deeply impressed, reaching laterad to near basal angles; median depression shallowly impressed, widely con-

nected to basal foveae; midline narrowly, very shallowly impressed. Proepisterna moderately densely, coarsely punctate in anterior half; remainder impunctate. Mesosternum coarsely, confluently punctate; median depression deeply impressed, V-shaped; apex of V reaching posteriad to anterior margin of mesocoxae. Posterior tarsi approximately .7 to .8 as long as posterior tibiae; basal segment of posterior tarsi .9 as long as the other segments combined. Elytra with sides slightly converging from base in basal two-thirds and then broadly rounded to apex; strial punctures large, oval, deeply impressed, separated along striae by distance approximately equal to length of a puncture; strial interstices moderately deeply, densely punctate; punctures placed in approximately three uneven rows along interstices.

Male.—Mean ocular index of four specimens 24.3 (22–27). Ventral side of posterior femora with a row of rather densely placed, short, erect setae extending from base to apex. Anterior tibiae (Fig. 151) narrowly, convexly expanded in basal half of ventral surface. Basal three segments of intermediate tarsi densely pubescent ventrally. Tarsal claws each with seven to eight teeth. Lobes of eighth sternum (Fig. 41) broad, spoon-shaped; inner side concave, bearing moderately sparsely distributed dentiform setae in apical half. Lobes of ninth sternum slightly shorter than those of eighth sternum; apices evenly, narrowly rounded. Apical piece of genitalia (Fig. 99) with sides slightly converging from base to near apex and then parallel to apex; apex evenly rounded; venter and sides bearing a few sparsely distributed dentiform setae.

Female.—Mean ocular index of five specimens 22.4 (22–23). Third segment of anterior tarsi narrowly lobed ventrally; second segment of anterior tarsi and third segment of intermediate tarsi with a small densely pubescent area ventrally. Tarsal claws each with six to seven teeth.

Type.—Holotype, male, from Taboga Island, Panamá, June 11, 1911, August Busck, in the United States National Museum.

Geographic Distribution.—Known from Taboga and Tabogilla islands in the Bay of Panamá.

Records.—PANAMÁ: Country label only (USNM) 1; Taboga Island, February, June (USNM) 5; Tabogilla Island, February (USNM) 4.

Discussion.—*Lobopoda tabogensis* is almost unique in having the ocular index of the male as large or larger than that of the female. Although there is very little sexual difference in the ocular index of the other two species of this subgroup, in both cases the male ocular index is somewhat smaller than in the female.

The very restricted known geographic distribution of this species should be useful in identifying members of this species.

Bionomics.—This species has been collected in February and June.

Lobopoda (*Lobopoda*) *convexicollis* Champion

Lobopoda convexicollis Champion, 1888:395, pl. 17, fig. 12; 1893:564.

Body dark reddish-brown; surface smooth, moderately shining; setae short, coarse, fulvous in color. Length 11 to 12 mm. Vertex very densely, coarsely, confluently punctate; punctures circular. Apical segment of maxillary palpi approximately 1.5 as wide as length of third antennal segment. Pronotum widest in anterior fourth; sides slightly narrowed for basal three-fourths and then broadly rounded to apex; basal angles rectangular; mean pronotal index of three specimens 64.0 (63–65); surface moderately densely punctate; punctures slightly more densely placed in middle; punctures separated in middle by distance slightly less than diameter of a puncture, separated on sides by distance somewhat greater than diameter of a puncture; basal foveae small, moderately deeply impressed; median fovea broadly, shallowly impressed, widely connected to basal foveae; midline slightly impressed or unimpressed. Mesosternal depression very deeply, semicircularly impressed, extending posteriad to anterior margin of mesocoxae, finely, moderately densely punctate. Proepisterna moderately densely punctate around base of coxae and anterior margin. Elytra with sides straight, converging from base to near apex and then broadly rounded; strial punctures large, circular, rather deeply impressed, separated along striae by less than half the diameter of a puncture; strial interstices moderately sparsely punctate; punctures rather deeply placed in approximately two uneven rows.

Male.—Ocular index of one specimen 12. Intermediate and posterior femora with a row of short, erect setae on ventral margin from base to apex. Anterior tibiae (Fig. 152) abruptly expanded in basal half of ventral margin; outer side slightly carinate at apex of tibiae, obscurely carinate to middle of tibiae. Third segment of intermediate tarsi densely pubescent ventrally. Tarsal claws with nine to ten teeth. Lobes of eighth sternum (Fig. 42) with apices narrowly, evenly rounded, widened dorsoventrally; inner surface rather densely covered with short, dentiform setae; ventral surface with moderately long setae placed on a diagonal ridge extending obliquely from apical third of outer side to near base of inner side; viewed laterally, lobes moderately broad, ventral margin setate. Apical piece of genitalia (Fig. 100) with sides broadly rounded, widest near basal fourth, converging from basal fourth to apex which is evenly rounded; sides and venter of apical piece moderately densely covered with short dentiform setae; viewed laterally, apical piece narrowly triangular; apex very acute.

Female.—Eyes widely separated; mean ocular index of two specimens 19.0 (18–20). Third segment of anterior tarsi narrowly lobed ventrally. Tarsal claws with six teeth.

Type.—As lectotype I have selected from the type-series of four speci-

mens a male labeled "Córdova, México, Sallé collection." The specimen was figured by Champion in the *Biologia*. In addition to Champion's labels, the specimen bears the label "*Lobopoda sulcatipennis* Dugès."

Geographic Distribution.—Known from the localities of Jalapa and Córdoba in central Veracruz, the Yucatán Peninsula, and Cobán in the province of Alta Verapaz in Guatemala.

Records.—GUATEMALA: Cobán, [Alta] Verapaz (BMNH–Biologia Collection) 1; Las Mercedes (Champion, 1888). MÉXICO: *Veracruz:* Córdova [Córdoba] (BMNH–Biologia Collection) 1; Jalapa (BMNH–Biologia Collection) 1. *Yucatán:* N[orth] Yucatán (BMNH–Biologia Collection) 1.

Discussion.—One specimen of *L. convexicollis* from North Yucatán in the Biologia Collection was identified by Champion as *L. oblonga*. This specimen is very similar to *L. oblonga* in all external characters except the more evenly spaced pronotal punctures and the more shining surface; yet the male genitalia indicate that this specimen almost certainly belongs to *L. convexicollise*. It is only 8 mm. long.

Lobopoda (*Lobopoda*) *oblonga* Champion

Lobopoda oblonga Champion, 1888:396, pl. 17, fig. 13.

Body dark brown; surface finely granulate, only slightly shining; setae short, fine, reddish-yellow. Length 8 to 10 mm. Vertex very densely, confluently punctate; punctures circular. Apical segment of maxillary palpi 1.4 as great as length of third antennal segment. Pronotum with sides diverging from base for basal two-thirds and then broadly rounded to apex; sides distinctly sinuate just anterior to base; base broadly, shallowly bisinuate; basal angles rounded, obtuse; mean pronotal index of 26 specimens 67.7 (63–71; $S_{\bar{x}} = .4$); surface deeply, densely punctate; punctures slightly oval in shape, much more densely placed in middle of pronotum; punctures separated by less than diameter of a puncture in middle and by approximately twice diameter of a puncture on sides; basal foveae broadly, moderately shallowly impressed; median fovea very shallowly impressed, connected to basal foveae; midline unimpressed. Proepisterna with a few large punctures on their inner margin. Mesosternum with median depression very broadly, deeply impressed, semicircularly shaped, extending posteriad to anterior margin of mesocoxae; very finely, moderately sparsely punctate. Basal segment of posterior tarsi subequal in length to remaining segments combined. Elytra elongate-oval, widest near middle, very slightly narrowed in front, broadly, evenly rounded posteriorly; strial punctures circular, moderately deeply impressed, separated along striae by distance less than diameter of a puncture; interstices bearing one uneven row of rather coarse punctures which are only slightly more densely placed than strial punctures.

Male.—Mean ocular index of 16 specimens 15.3 (13–18; $S_{\bar{x}} = .5$). Ventral surface of intermediate and posterior femora with a row of densely placed, erect setae from base to apex; anterior tibiae narrowly, subangularly expanded in basal half. Tarsal claws each with nine to ten teeth. Lobes of eighth sternum (Fig. 43) moderately long, narrow, bearing short dentiform setae in middle of inner surface; apices of lobes slightly enlarged, evenly rounded; viewed laterally, lobes straight. Lobes of ninth sternum inflexed just anterior to apex on inner side, very strongly, distinctly narrowed at base of lobes; lobes rather broad, evenly rounded. Apical piece of genitalia (Fig. 101) very narrow, widest at base; sides gradually, evenly narrowed to apex; apex broadly, evenly rounded; lateral margins and sides bearing many moderately short, posteriorly pointing, dentiform setae; viewed laterally, apical piece very narrow, sides almost parallel.

Female.—Eyes small, widely separated; mean ocular index of ten specimens 17.4 (15–21; $S_{\bar{x}} = .5$). Third segment of anterior tarsi densely pubescent ventrally. Tarsal claws each with six to seven teeth.

Type.—As lectotype I have selected a male from the type-series of 24 specimens collected by Gaumer in North Yucatán, México. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from North Yucatán.

Records.—MÉXICO: *Yucatán:* State label only (BMNH–Biologia Collection) 2, (ZSM) 1; N[orth] Yucatán (BMNH–Biologia Collection) 21, (AMNH) 1, (DEI) 1.

Discussion.—The oblique striations on the fourth and fifth sterna are not as well developed in *L. oblonga* as in the other two species of the Oblonga Subgroup. One specimen from the Zoologische Staatssammlung of Munich is labeled *intermedia* Chevr.

OPACICOLLIS SUBGROUP

Body elongate-oval, dark brown to black; surface very coarsely granulate; elytra slightly shining; head and pronotum dull. Length 8 to 11.5 mm. A large impunctate area placed on vertex between posterior margins of eyes. Pronotum rectangular; sides slightly sinuate or parallel for basal two-thirds and then broadly rounded to apex; base broadly, deeply bisinuate; basal angles rectangular; surface densely, very coarsely punctate; punctures large, shallowly impressed, very irregular in size and shape, often slightly more densely placed along midline and in median fovea, separated in middle by average distance less than diameter of a puncture; basal and median foveae very large, deeply impressed; median fovea widely separated from basal foveae; midline unimpressed. Median depression of mesosternum moderately deeply impressed, V-shaped; apex of V extending posteriad to middle of mesocoxae. Elytral striae moder-

ately deeply, evenly impressed from base to apex. Lateral margin of fourth and fifth sterna obliquely striate.

Male.—Eyes touching dorsally or separated by a very narrow ridge. Ventral margin of femora moderately densely covered with short, erect setae in basal half. Anterior tibiae (Fig. 153) moderately broadly, convexly expanded in basal half of ventral margin; dorsal margin acutely carinate in apical half. Lobes of eighth sternum (Figs. 44–45) narrow, slightly curved medially approaching apex; ventral surface moderately densely covered with dentiform setae.

Female.—Eyes moderately widely separated; mean ocular index of two species 9.9 and 11.5.

Key to the Species of the Opacicollis Subgroup

1. Apical piece of genitalia (Fig. 102) with apex evenly rounded, not expanded; ranging from southern United States south to Guatemala ..... *opacicollis*

   Apical piece of genitalia (Fig. 103) with apex expanded laterad, curved ventrad; ranging from Costa Rica into South America ..... *granulata*

Discussion.—The Opacicollis Subgroup contains two species which may be easily distinguished from other members of the genus by having the pronotum very coarsely granulate with the surface very dull and the pronotal punctures large and irregular in shape.

Both species of this subgroup have a very wide range. *Lobopoda opacicollis* ranges from Louisiana south to British Honduras and Guatemala; *L. granulata* ranges from Costa Rica south to Brazil and has been collected on the island of Barbados in the West Indies Federation.

Lobopoda (*Lobopoda*) *opacicollis* Champion

Lobopoda opacicollis Champion, 1888:400.
Lobopoda subcuneata Casey, 1891:79. Moser, 1963:290. (New synonymy.)

Setae long, fine, reddish-yellow. Length 8 to 10.5 mm. in the United States and 9 to 11.5 mm. in México and Central America. Width of apical segment of maxillary palpi approximately equal to length of third antennal segment. Pronotum with mean pronotal index of 39 specimens 61.9 (56–66; $S_{\bar{x}} = .3$); two small impunctate areas often placed on sides just anterior to basal foveae; basal foveae large, deeply impressed. Prosternum coarsely, closely punctate. Proepisterna finely punctate anteriorly and around coxae. Mesosternum moderately densely, coarsely punctate. Metasternum very finely, densely punctate in middle; punctures becoming sparsely distributed, moderately large approaching sides. Basal segment of posterior tarsi equal to or slightly longer than other segments combined. Sides of elytra tapering from near base to apex; strial punctures small, oval, separated along striae by distance less than diameter of

a puncture; strial interstices broad, slightly convex in basal half, moderately densely punctate; punctures placed in approximately two uneven rows. Four basal abdominal sterna finely, moderately densely punctate; fifth sternum very finely, sparsely punctate, convex in female, slightly concave in male.

Male.—Eyes large, touching or separated by a very narrow ridge dorsally. Tarsal claws each with 14 to 15 teeth. Lobes of eighth sternum (Fig. 44) narrow; apices curved slightly inwardly, broadly, evenly rounded; distal half and inner margin of each lobe bearing short, moderately densely placed dentiform setae; a row of normal setae placed on an indistinct ridge extending from middle of outer side to middle of base; lobes slightly concave internally. Lobes of ninth sternum only slightly shorter than those of eighth sternum; apices broadly rounded; internal margin heavily sclerotized, straight. Apical piece of genitalia (Fig. 102) with sides unevenly narrowed from base to near apex and then slightly expanded; venter and sides moderately densely covered with dentiform setae.

Female.—Eyes moderately narrowly separated; mean ocular index of 37 specimens 11.5 (7.5–15.6; $S_{\bar{x}} = .3$). Tarsal claws each with five to six teeth.

Type.—As lectotype of *L. opacicollis* I have selected from the type-series of four specimens a female labeled "Guanajuato, México, Sallé collection." It also bears the label "*Lobopoda sulcatipennis* Dugès." The specimen is in the British Museum (Natural History). The holotype of *L. subcuneata* is in the Casey Collection of the United States National Museum. The type-locality of *L. subcuneata* is Texas.

Geographic Distribution.—*Lobopoda opacicollis* is known from central Louisiana south through southern Texas, most of México to British Honduras and Guatemala (Fig. 13). One specimen labeled Key West, Florida, may be mislabeled.

Records.—BRITISH HONDURAS: Blancaneau (BMNH–Biologia Collection) 1. GUATEMALA: Trece Aguas, Alta Verapaz, April (USNM) 1. MÉXICO: Country label only (DEI) 1. *Guanajuato:* State label only (BMNH–Biologia Collection) 1. *Nuevo León:* Apodaca, April (JMC) 1; Cola de Caballo, 24 mi. southwest Monterrey, August (JMC) 1; Monterrey, July (JMC) 1. *Sinaloa:* Mazatlán, February, July (CAS) 1, (JMC) 1; Venodio [possibly an error for El Venodillo, 5 mi. northeast of Mazatlán], June, July (USNM) 5, (CAS) 1. *Tamaulipas:* Tampico, June (UCB) 1. *Veracruz:* 12 mi. south Alvarado, July (JMC) 3; Córdova [Córdoba] (BMNH–Biologia Collection) 2; El Fortín, August (CNHM) 1; Jalapa (Champion, 1888); Lake Catemaco, August (Howden) 1; 17 mi. north Nautla, June (JMC) 1. UNITED STATES: *Florida:* Key West (UCB) 1. *Louisiana:* Calcasieu, Rapides Parish, June (Moser) 1; Flat-

woods (Moser) [larvae only] 15, [reared from larvae] 11; Hineston, Kisatchie National Forest, October (Moser) 11; Jena, November (Moser) 1; Lucky, June (Moser) 1; Melder, November (Moser) 1; 2 mi. north Melder, February (Moser) 1; 2 mi. southeast Melder, August (Moser) 5, [reared from larvae] 4; New Hope, Rapides Parish, May (Moser) 1. *Texas:* State label only (MCZ) 1, (ANSP) 1, (CU) 2, (UCB) 1; Bastrop, September (TAM) 1; Bastrop County, October (TAM) 1; Brownsville, Esp[e]r[an]za Ranch, June–August (USNM) 3; College Station, May (TAM) 1; Del Rio, June (USNM) 1; Falfurrias, June (CAS) 1; Kerrville, June (CNC) 1; Lake Corpus Christi State Park, June (CNC) 1; Macdona, July (USNM) 1; Sabinal, May (USNM) 1; San Diego, May (USNM) 7; Seguin, June (UK) 1; Stephen Austin State Park near Sealy, June (CU) 1; Uvalde, August (OSU) 1; Val Verde County, May (OSU) 1.

Discussion.—*Lobopoda opacicollis* has one of the largest ranges of any species in the genus *Lobopoda*. It is one of six species known to occur in the United States and one of two species known to occur on the west coast of México north of Acapulco.

Bionomics.—Moser (1963) has collected the larvae of this species in the nests of the leaf-cutting ant, *Atta texana*. The larvae feed on detritus deposited by the ants in underground detritus chambers. According to Moser (personal communication), "it is one of the primary insects that are involved in the decomposition of the detritus or waste located in special cavities of the nest."

The larvae form cells under the detritus cavities where the pupal stage is passed. Teneral adults are often found in the nests. The larvae were found by Moser in detritus cavities ranging in depth from 1 to 11 feet beneath the soil surface. The range of this species in the United States almost exactly coincides with that of the ant.

Adults are most abundant from May through August; however, they have been collected in February and from May through November. According to Moser there is apparently only one generation per year. Adults are occasionally collected at lights; one was captured in a tanglefoot screen.

Lobopoda (*Lobopoda*) *granulata*, new species

Differs from *L. opacicollis* as follows:

Setae moderately long, coarse, yellow. Length 9.5 to 11.5 mm. Mean pronotal index of 14 specimens 59.4 (55–63; $S_{\bar{x}} = .7$); surface more finely, densely punctate; punctures only slightly elongate in shape, very densely placed in middle, separated by distance less than half diameter of a puncture; midline very slightly impressed.

Male.—Tarsal claws each with 12 to 15 teeth. Lobes of eighth sternum (Fig. 45) moderately narrow; apices of lobes curved medially from near base, bearing numerous short dentiform setae on outer margin to near base of lobes; inner margin of lobes strongly concave. Lobes of ninth sternum shorter than those of eighth sternum, strongly, sharply inflexed on inner margin near middle. Apical piece of genitalia (Fig. 103) with apex strongly expanded; lateral margins each bearing two rows of large dentiform setae; viewed laterally, apex strongly deflexed; dorsal surface covered with large, irregularly placed, dentiform setae.

Female.—Eyes moderately narrowly separated; mean ocular index of 12 specimens 9.9 (5–15; $S_{\bar{x}} = .8$). Tarsal claws each with six to seven teeth.

Type.—Holotype, male, Province Panamá, Cerro Campana, Panamá, 3,000 feet, August 6–9, 1961, J. M. Campbell. The specimen is in the British Museum (Natural History).

Geographic Distribution.—This species has been recorded from Costa Rica south through northern South America to the state of Mato Grosso, Brazil. One specimen was collected from Barbados in the West Indies Federation.

Records.—NO DATA: (Pereira) 1. BRAZIL: Country label only (AMNH) 1, (DEI) 1, (ZSM) 2. *Mato Grosso:* Corembá, September (JMC) 1. *Pará:* Conceição do Araguaia, Rio Araguaia, July (CAS) 1. *Paraíba:* Mamanguape, July (Pereira) 1. CANAL ZONE: Ancon, May (USNM) 2. COLOMBIA: Villavicencio, Meta, July (CNHM) 1. COSTA RICA: Country label only (BMNH) 1. FRENCH GUIANA: Maroni River (USNM) 1; St. Jean (USNM) 1. PANAMÁ: Cerro Campana, 3000 feet, August (JMC) 4; La Chorrera, May (CAS) 1; Panamá [City], April (USNM) 1. VENEZUELA: El Valle, D.F. (CNHM) 1. WEST INDIES FEDERATION: *Barbados* (BMNH) 1.

Discussion.—*Lobopoda granulata* is very similar to *L. opacicollis.* The two species can be separated with certainty only by dissection of the male terminalia.

One female from Barbados, West Indies Federation, assigned to this species differs from other specimens in being somewhat larger (length 12.5 mm.) and a lighter brown in color. It agrees well in other respects including its ocular index (10) and pronotal index (59).

Bionomics.—I collected four adults of this species at Cerro Campana, Panamá, at an elevation of 3,000 feet by beating dead, lichen-covered limbs of small trees in windswept areas at the edges of clearings. Three of the specimens were taken near a large nest of a leaf-cutting ant of the genus *Atta.* It is possible that the larvae of this species live in *Atta* nests, as do those of *L. opacicollis.* Adults have been collected from April through July in Panamá and Colombia.

Opaca Group

Body broadly elongate-oval, dark brown; surface dull, finely granulate. Apical segments of antennae short, distinctly obconical. Pronotum with sides straight, very slightly converging from base in basal half and then broadly rounded to apex; base broadly, deeply bisinuate; basal angles rectangular; surface densely, very coarsely, irregularly punctate; punctures more or less circular, deeply impressed, very irregular in size. Elytra with sides slightly converging from base for basal two-thirds and then broadly rounded to apex; elytral striae unimpressed between punctures at base, becoming shallowly impressed approaching apex.

Male.—Eyes distinctly, moderately narrowly separated. Anterior tibiae (Fig. 154) convexly expanded in basal half of ventral surface. Lobes of eighth sternum (Fig. 46) very broad, spoon-shaped; inner surface deeply concave, moderately densely covered with small dentiform setae along sides and apex; lobes evenly curved medially. Apex of lobes of ninth sternum broadly, evenly rounded. Apical piece of genitalia (Fig. 104) with sides evenly converging from base to near apex and then parallel for a short distance before apex; venter and sides moderately sparsely covered with large dentiform setae.

Female.—Eyes moderately narrowly separated. Penultimate segment of anterior and intermediate tarsi lobed, third segment of anterior tarsi narrowly lobed, second segment of anterior tarsi and third segment of intermediate tarsi densely pubescent ventrally.

Discussion.—The Opaca Group contains two species, one of which I have not been able to examine. This group is very similar to the Opacicollis Group, especially the Oblonga Subgroup. In both groups the surface is finely granulate, the eyes of the male are distinctly separated dorsally, and the elytral striae are shallowly impressed or unimpressed. The male terminalia of the Opaca Group very closely resemble those of *L. tabogensis* of the Oblonga Subgroup.

The Opaca Group may be easily separated from the Oblonga Subgroup on the basis of the more narrowly separated eyes, the lack of oblique striations on the fourth and fifth sterna, and the converging sides of the pronotum.

I have not attempted to construct a key for the separation of the two species of this group since I have not been able to examine a specimen of *L. hirta.* Based on Champion's (1888) description of this species, it almost certainly should be placed in synonymy with *L. opaca.* However, I have chosen to keep the names separate until I have examined the holotype.

Lobopoda (*Lobopoda*) *opaca* Champion

Lobopoda opaca Champion, 1888:400, pl. 17, figs. 23, 23a; 1893:564.
Lobopoda biolleyi Pic, 1927:22. (New synonymy.)

Setae moderately long, fine, reddish-brown. Length 11 to 13 mm. Vertex densely, irregularly punctate; punctures oval, confluent posteriorly. Third segment of antennae equal in length to fourth. Width of apical segment of maxillary palpi 1.4 as great as length of third antennal segment. Mean pronotal index of nine specimens 58.3 (56–61; $S_{\bar{x}} = .7$); pronotum with punctures separated by average distance equal to or slightly less than diameter of a puncture; sides with a small impunctate area sometimes placed near middle just anteriad of basal foveae; basal foveae large, moderately deeply impressed; median fovea large, somewhat more deeply impressed, distinctly separated from basal foveae; midline widely, shallowly impressed. Prosternum densely, confluently, rugosely punctate. Proepisterna densely, coarsely punctate on inner margin adjacent to prosternum; anterior half sparsely, coarsely punctate; remainder impunctate. Mesosternum coarsely, densely punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad as far as anterior margin of mesocoxae. Metasternum finely, moderately sparsely punctate; punctures very fine in middle, becoming somewhat larger and more deeply impressed approaching sides. Posterior tarsi .8 to .9 as long as posterior tibiae; basal segment .9 as long as remaining segments combined. Elytra with strial punctures elongate, moderately deeply impressed, separated by distance approximately equal to length of a puncture; interstices flat, moderately densely punctate; punctures deeply impressed, placed in approximately three or four uneven rows. Basal three abdominal sterna moderately densely, finely, evenly punctate; fourth sterna finely, shallowly punctate in posterior half; fifth sternum impunctate, evenly concave.

Male.—Eyes narrowly separated dorsally; mean ocular index of four specimens 5.5 (4–6). Posterior femora bearing a dense row of short, erect setae on ventral margin from base to apex; setae more densely placed in apical half. Anterior tibiae (Fig. 154) slightly, convexly expanded in basal half of ventral side; dorsal side finely, acutely carinate in apical half; posterior tibiae carinate in basal half of ventral margin. Third segment of intermediate tarsi densely pubescent ventrally. Tarsal claws each with 10 to 11 teeth. Male terminalia shown in Figures 46 and 104.

Female.—Mean ocular index of five specimens 10.0 (7–11). Tarsal claws each with six to seven teeth.

Type.—Holotype, male, collected by Champion from the Volcán de Chiriquí, Panamá. The specimen is in the British Museum (Natural History). The holotype of *L. biolleyi* is in the Paris Museum.

Geographic Distribution.—Known from the state of Chiapas in southern México south to the Volcán de Chiriquí in Panamá. It has been collected at altitudes ranging from 3,000 to 4,500 feet.

Records.—COSTA RICA: Country label only (PM) 1; La Caja, 8 km.

west San José, 900 meters, June (DEI) 2, (USNM) 1; San José, 1160 meters (BMNH) 1. GUATEMALA: Cobán, Alta Verapaz (BMNH–Biologia Collection) 1. MÉXICO: *Chiapas:* 8 km. north Bochil, July (JMC) 4. PANAMÁ: Volcán de Chiriquí (Champion, 1888).

Discussion.—*Lobopoda opaca* was originally described by Champion from only one specimen, although he added additional specimens to the holotype in the supplement to the *Biologia* in 1893. I have examined a female paratype of *L. biolleyi* Pic from the Paris Museum labeled Costa Rica, P. Biolley. On the basis of this specimen, I have placed *L. biolleyi* as a synonym of *L. opaca.*

Bionomics.—I collected four specimens in southern México by beating a large bromeliad on the lower limbs of a small tree. Specimens have been collected in June and July.

Lobopoda (*Lobopoda*) *hirta* Champion

Lobopoda hirta Champion, 1888:400, pl. 17, fig. 19.

Champion (1888) described this species as follows:

Elongate, rather convex, brownish-castaneous, rather dull, thickly pubescent. Head with the vertex very closely, the epistoma more sparingly and more coarsely, punctured; eyes moderately large, separated by a narrow space in the male; prothorax convex, broadly and shallowly canaliculate (except in front), deeply impressed in the middle before the base, the basal foveae very deep, the surface very closely and shallowly but somewhat coarsely punctured; elytra subparallel anteriorly, gradually narrowing from a little before the middle, with rows of not very closely placed, oblong, moderately coarse impressions, the interstices quite flat throughout, and sparsely and finely punctured; beneath sparsely and rather coarsely punctured, the middle of the metasternum more closely and finely so in the male; legs and antennae reddish-ferruginous, the latter comparatively stout.

Male.—Anterior tibiae subtriangularly widened on the inner side before the middle. The lateral lobes of the last ventral segment short and broad, curved, and spoon-shaped; the central sheath acuminate, the apical portion horizontal, and setose beneath, the apex slightly thickened.

Length 11⅓ millim.; breadth 3¾ millim. (male).

Type.—Holotype, male, [not examined] collected by Janson from Chontales, Nicaragua. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—NICARAGUA: Chontales (Champion, 1888).

Discussion.—Based on Champion's description, *L. hirta* is very similar to *L. opaca.* In his discussion of this species, he stated that "it differs, however, from that insect [*L. opaca*] in its more convex and more closely punctured thorax, narrower and more parallel shape, and stouter legs." Based on a drawing made from the type-specimen by Miss C. M. F. von Hayek, the anterior tibiae of the male are slightly less expanded than in *L. opaca.* There are apparently no discernible differences in the male

terminalia between the two species. The differences cited above are very minor and hardly would warrant recognition of the two forms as separate species.

PILOSA GROUP

Body narrowly elongate-oval; surface smooth, shining, with a distinct metallic green color. Length 9.5 to 12 mm. Vertex finely, moderately sparsely punctate; a large impunctate area placed between posterior margins of eyes. Antennal segments elongate, very slightly enlarged apically; third segment only slightly shorter than fourth. Width of apical segment of maxillary palpi 1.4 as great as length of third antennal segment. Pronotum with sides straight, parallel for basal two-thirds and then broadly rounded to apex; basal angles rectangular; base broadly, deeply bisinuate; surface moderately sparsely, evenly punctate; punctures separated by average distance at least twice as great as diameter of a puncture; basal foveae small, shallowly impressed; median fovea moderately broad, shallowly impressed, widely separated from basal foveae; midline unimpressed. Mesosternum moderately densely, evenly punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Posterior tarsi .8 to .9 as long as posterior tibiae; basal segment of posterior tarsi equal in length to remaining segments combined. Abdominal sterna finely, moderately sparsely punctate; fifth sternum flattened in middle.

Male.—Eyes touching dorsally. Anterior tibiae (Fig. 155) only slightly expanded on ventral margin near base. Lobes of eighth sternum broad, concave on inner margin; very similar to those of Opacicollis Group.

Female.—Eyes large, very narrowly separated dorsally. Only penultimate segment of anterior and intermediate tarsi lobed ventrally.

Discussion.—The Pilosa Group contains two species, *L. pilosa* and *L. aeneotincta*. The group is known from southern México and Central America.

Key to the Species of the Pilosa Group

1. Pronotal punctures small, shallowly impressed; known from Guatemala and southern México ..... *pilosa*
   Pronotal punctures large, deeply impressed; known from western Panamá ..... *aeneotincta*

Lobopoda (*Lobopoda*) *aeneotincta* Champion

Lobopoda aeneotincta Champion, 1888:405.

Punctures bearing short, reddish-black setae. Length 10 to 12 mm. Pronotal index of two specimens 59; pronotum with surface moderately densely, evenly punctate; punctures large, moderately deeply impressed. Prosternum moderately sparsely, shallowly, rugosely punctate; proepi-

sterna sparsely, very coarsely punctate in anterior half; remainder impunctate. Metasternum moderately densely, finely, evenly punctate in middle; punctures becoming slightly larger, more sparsely distributed approaching sides. Elytral striae very shallowly impressed at base, becoming moderately deeply impressed nearing apex; strial punctures oval, separated by distance approximately equal to length of a puncture; strial interstices flat, moderately sparsely, deeply punctate; punctures placed in approximately two uneven rows.

Male.—Unknown.

Female.—Eyes narrowly separated; mean ocular index of two specimens 5.0 (4–6). Penultimate segment of anterior and intermediate tarsi narrowly lobed ventrally. Tarsal claws each with five teeth.

Type.—As lectotype I have selected from the type-series of two specimens a female collected by Champion from the Volcán de Chiriquí in Panamá. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from Costa Rica and western Panamá.

Records.—COSTA RICA: Hamburgfarm, Reventazon, Ebené Limón, April (USNM) 1. PANAMÁ: Volcán de Chiriquí (BMNH–Biologia Collection) 2.

Bionomics.—One specimen collected by F. Nevermann in Costa Rica in April was collected on dead wood at night.

Lobopoda (*Lobopoda*) *pilosa* Champion

Lobopoda pilosa Champion, 1888:405; 1893:565.

Setae long, fine, reddish-brown. Length 9.5 to 10.5 mm. Mean pronotal index of two specimens 59.0 (58–60); pronotum with surface moderately densely, evenly punctate; punctures moderately small, shallowly impressed. Prosternum finely, very sparsely punctate; proepisterna very finely, sparsely punctate near anterior margin. Metasternum very finely, densely punctate in middle; punctures becoming somewhat coarser, more sparsely distributed approaching sides. Elytral striae shallowly impressed at base, becoming deeply impressed near apex; strial punctures small, circular, very narrowly separated along striae; strial interstices slightly convex, moderately densely, deeply punctate; punctures placed in approximately three uneven rows.

Male.—Eyes touching dorsally. All femora moderately densely covered with very short, erect setae on ventral margin near base. Anterior tibiae (Fig. 155) distinctly carinate on dorsal margin from base to apex. Lobes of eighth sternum very broad, spoon-shaped; apices broadly rounded; inner margin of lobes moderately densely covered with short dentiform setae. Apical piece of genitalia long, very narrow; sides slightly converging from base to apex; apex narrowly rounded; venter and sides moderately densely covered with dentiform setae.

Female.—Eyes narrowly separated; mean ocular index of two specimens 6.5 (6–7). Penultimate segment of anterior and intermediate tarsi narrowly lobed ventrally. Tarsal claws each with four or five teeth.

Type.—As lectotype, I have selected a female from the type-series of two specimens collected by Höge at Tapachula, Chiapas, México. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from southern México in Chiapas and in Guatemala.

Records.—GUATEMALA: Coatepeque, 1300 feet (BMNH–Biologia Collection) 1; Cobán, [Alta Verapaz] (BMNH–Biologia Collection) 1. MÉXICO: *Chiapas:* Tapachula (BMNH–Biologia Collection) 1.

Discussion.—Lobopoda pilosa is quite possibly a geographic variant of *L. aeneotincta*. The two species may be separated by the smaller pronotal punctures, more deeply impressed elytral striae, and the more densely punctate elytral striae of *L. pilosa*. On the basis of these differences and the lack of a male of *L. aeneotincta* and specimens from areas between the known ranges of these two species, I have followed the example set by Champion and considered them as separate.

Champion described the male of this species in his supplement to the *Biologia* in 1893. Although I have seen this specimen, its terminalia are so mutilated that I have not attempted to illustrate them.

Minuta Group

Body narrowly elongate-oval; color ranging from brown to black. Length 5.5 to 10.5 mm. Vertex moderately sparsely to moderately densely punctate; a large impunctate area placed between posterior margins of eyes. Pronotum with sides straight, slightly narrowed from base for basal half to two-thirds (sides parallel in basal half in *L. remoinsularis*); base of pronotum moderately deeply bisinuate; basal angles rectangular; mean pronotal index of seven species ranging from 58.9 to 64; surface moderately densely, evenly punctate. Basal segment of posterior tarsi approximately equal in length to other segments combined.

Male.—Eyes large, touching dorsally (very narrowly separated in *L. minuta*). Anterior tibiae (Figs. 156–158) distinctly, convexly expanded in basal half of ventral margin. Tarsal claws each with four to nine teeth. Lobes of eighth sternum (Figs. 47–53) moderately long, narrow; curved medially just before apex; apices evenly rounded; lobes moderately densely covered on inner side and apical half of ventral surface with short dentiform setae. Lobes of ninth sternum moderately long; apices usually broadly, evenly rounded. Apical piece of genitalia (Figs. 105–111) long, narrowly triangular; sides straight, evenly narrowed from base to apex; apex evenly rounded, often abruptly curved either dorsally or ventrally.

Female.—Eyes narrowly to moderately widely separated. Only penultimate segment of anterior and intermediate tarsi lobed. Tarsal claws each with from three to six teeth.

Discussion.—The Minuta Group, with eight species, is possibly polyphyletic. The group may be considered as primitive on the basis of the simple shape of the terminalia and only slightly modified anterior tibiae of the male. However, these similarities are possibly the result of convergence as a result of specialization for small size. For this reason, a discussion of the phylogeny of the species of this group has not been attempted.

Care should be taken in using the key for the species of the Minuta Group. All specimens should be carefully checked with the species descriptions and illustrations of the male termalia. I have seen females of at least two undescribed species from Costa Rica and Panamá which will probably be referred to this group upon discovery of the males.

Key to the Species of the Minuta Group

1. Eyes of male distinctly separated dorsally; length 5.5 to 6 mm.; known from Panamá ..... *minuta*
   Eyes of male touching each other dorsally; length greater than 6 mm. 2
2. Lobes of eighth sternum abruptly curved medially just before apex; apex acutely narrowed ..... *teapensis*
   If lobes of eighth sternum abruptly curved medially, apex of lobes rounded 3
3. Surface of pronotum finely, moderately sparsely punctate, very finely, distinctly granulate, opaque; elytral interstices almost flat in basal half; known from southern México and Guatemala ..... *parvula*
   If surface of pronotum granulate, punctures larger, separated by average distance no greater than diameter of a puncture 4
4. Pronotum smooth, strongly shining; punctures separated by an average distance at least twice as great as diameter of a puncture; known from southern México ..... *proxima*
   If pronotum smooth and strongly shining, punctures separated by an average distance equal to diameter of a puncture 5
5. Surface of pronotum smooth, strongly shining; basal foveae very small, shallowly impressed 6
   Surface of pronotum finely, distinctly granulate; basal foveae moderately large, distinctly impressed 7
6. Lobes of eighth sternum (Fig. 51) of male narrow, evenly curved medially; known from British Honduras ..... *simplex*
   Lobes of eighth sternum (Fig. 53) broad, abruptly curved medially near their apices; known from Costa Rica ..... *costaricensis*

7. Outer sides of lobes of eighth sternum (Fig. 49) expanded dorsally and medially from middle to near apex of lobes; known from El Salvador south to Panamá ..... *brunneipennis*

Outer sides of lobes of eighth sternum (Fig. 50) not expanded; lobes abruptly angulate on outer side just anterior to apices of lobes; known from Costa Rica and Panamá ..... *remoinsularis*

Lobopoda (*Lobopoda*) *proxima* Champion

Lobopoda proxima Champion, 1888:402, pl. 18, fig. 1.

Body elongate-oval, dark brown to black, moderately shining. Length 8.5 to 9.5 mm. Vertex moderately sparsely punctate; punctures moderately large, separated by distance slightly greater than diameter of a puncture. Width of apical segment of maxillary palpi 1.3 as great as length of third antennal segment. Pronotum with mean pronotal index of 14 specimens 62.8 (59–68; $S_{\bar{x}} = .7$); surface smooth, shining, finely, moderately sparsely punctate; punctures small, shallowly impressed, separated by average distance greater than twice diameter of a puncture; basal and median foveae small, moderately deeply impressed; median fovea widely separated from basal foveae; midline very shallowly, indistinctly impressed. Prosternum coarsely, moderately densely, rugosely punctate; proepisterna coarsely, very sparsely punctate in anterior half. Mesosternum with moderately deeply impressed V-shaped groove; apex of V extending posteriad to middle of mesocoxae; sides and base of mesosternum densely, coarsely punctate. Metasternum moderately densely, coarsely punctate. Elytral striae moderately shallowly impressed, becoming somewhat deeper approaching apex; strial punctures slightly elongate, shallow, moderately densely placed along striae, separated by average distance equal to length of puncture; interstices flat to very slightly convex, moderately densely punctate; punctures placed in two to three uneven rows. Abdominal sterna finely, sparsely punctate; fifth sternum slightly concave; surface of sterna finely, but distinctly granulate.

Male.—Anterior and intermediate femora moderately densely covered with short, erect setae on ventral surface near base. Anterior tibiae distinctly carinate on dorsal side from base to apex; slightly expanded near basal third of tibiae. Tarsal claws normally each with six teeth. Lobes of eighth sternum (Fig. 47) very narrow; apical portion of lobes evenly curved medially and dorsally; apex slightly enlarged ventrally, bearing numerous short dentiform setae; inner margin of lobes with small dentiform setae extending from apex to base. Lobes of ninth sternum evenly rounded at apex; sides evenly rounded in all but one male from Yucatán in which the lobes are abruptly inflexed near middle of outer side. Apical piece of male genitalia (Fig. 105) with sides evenly converging from base to near apex and then evenly rounded; ventral surface with

moderately densely placed dentiform setae on sides; viewed laterally, apex slightly deflexed; dorsum of apical piece with densely placed dentiform setae on sides; basal piece with sides almost parallel, slightly diverging approaching base.

Female.—Eyes moderately narrowly separated; mean ocular index of nine specimens 10.0 (7–17; $S_{\bar{x}} = .8$). Tarsal claws each usually with six teeth.

Type.—Unfortunately, the only male of this species in the syntype-series lacks the head and pronotum; therefore, as lectotype I have selected from the type-series of five specimens a female. The lectotype is labeled "N[orth] Yucatán (Gaumer)" and is in the British Museum (Natural History).

Geographic Distribution.—Lobopoda proxima is known from central Veracruz in México south to the Yucatán Peninsula and central Guatemala.

Records.—GUATEMALA: Trece Aguas, Alta Verapaz, April (USNM) 3. MÉXICO: Country label only (DEI) 3, (USNM) 1. *Chiapas:* Pacific slope Cordilleras, 800–1000 meters (USNM) 1. *Veracruz:* Córdova [Córdoba] (BMNH–Biologia Collection) 1 [identified by Champion as *L. laevicollis*], (AMNH) 1; Jalapa (BMNH–Biologia Collection) 2 [identified by Champion as *L. laevicollis*]. *Yucatán:* Temax (BMNH–Biologia Collection) 1.

Discussion.—There is no certain way of distinguishing *L. proxima* from *L. laevicollis* except by dissection of the male terminalia. If specimens of both species are available for comparison, they usually may be separated by the somewhat smaller and narrower form of *L. proxima* and the more shining surface and reddish legs of *L. laevicollis.* As mentioned above, none of these characters will separate all the individuals of these two species as there seems to be a considerable degree of variation within *L. proxima.* However, as can readily be seen from the illustrations of the male terminalia (Figs. 47, 58, 105, 116), there is no doubt of the distinctness of these two species. One of the undissected males and several of the females identified by Champion in the *Biologia* as *L. laevicollis* are actually *L. proxima.*

It is possible that *L. proxima* may consist of two or more species. All the males examined of this species, except the syntype, are very similar to one another and may possibly represent a closely related species. These males differ from the male syntype in having the dentiform setae on the apex of the eighth sternal lobes somewhat more sparsely distributed, particularly on the outer side of the apex; and also in having the outer sides of the lobes of the ninth sternum evenly rounded. Variation in the ocular and pronotal indices is excessive.

Bionomics.—The only recorded date of collection for this species is in April (for specimens collected in Guatemala).

Lobopoda (*Lobopoda*) *minuta* Champion

Lobopoda minuta Champion, 1888:403, pl. 18, fig. 4.

Body narrowly elongate, light brown; antennae light yellowish-brown; surface smooth, strongly shining. Length 5.5 to 6 mm. Vertex deeply, moderately sparsely, evenly punctate; punctures separated by distance equal to diameter of a puncture. Antennae moderately short; apical segments distinctly obconical; third segment only twice as long as second, .9 as long as fourth segment. Apical segment of maxillary palpi .6 as long as wide; width 1.3 as great as length of third antennal segment. Pronotum with mean pronotal index of 17 specimens 58.9 (55–61; $S_{\bar{x}} = .4$); surface smooth, shining, deeply, very coarsely punctate; punctures separated by distance slightly greater than diameter of a puncture; basal foveae small, shallowly impressed; median fovea broad, shallowly impressed, narrowly connected to basal foveae; midline very narrowly, shallowly impressed. Prosternum impunctate; proepisterna finely, moderately sparsely punctate around anterior half of coxae; remainder impunctate. Mesosternum densely, finely punctate; median groove deeply impressed, V-shaped; apex of V extending posteriad between mesocoxae to metasternum. Metasternum finely, moderately densely punctate in middle; punctures becoming somewhat coarser and more sparsely distributed aproaching sides. Posterior tarsi .8 to .9 as long as posterior tibiae. Elytral striae moderately shallowly, evenly impressed from base to apex; strial punctures elongate, deeply, densely placed within striae, separated by average distance distinctly less than diameter of a puncture; interstices of striae feebly convex, sparsely punctate; punctures scattered in one uneven row down middle of interstices. Abdominal sterna sparsely, moderately coarsely punctate; punctures evenly distributed; fourth and fifth sterna very sparsely, finely punctate; fifth sternum evenly convex.

Male.—Eyes very narrowly separated; mean ocular index of seven specimens 3.7 (3–5). Femora devoid of short, erect setae on ventral surface. Anterior tibiae (Fig. 156) not carinate on dorsal side, slightly, convexly expanded near base. Tarsal claws each with from three to four teeth. Lobes of eighth sternum (Fig. 48) narrow, evenly curved medially near apex; inner and apical surface bearing large, moderately densely placed, dentiform setae. Lobes of ninth sternum short; apex evenly, narrowly rounded. Apical piece of genitalia (Fig. 106) narrowly triangular, bearing moderately large dentiform setae on the sides of the apical half of the ventral surface.

Female.—Eyes moderately widely separated; mean ocular index of ten specimens 16.1 (13–18; $S_{\bar{x}} = .5$). Tarsal claws each with only three to four teeth.

Type.—Holotype, male, collected by Champion from Volcán de Chiriquí, Panamá [not examined]. The type is in the British Museum (Natural History).

Geographic Distribution.—Known only from the vicinity of the Volcán de Chiriquí in the province of Chiriquí in Panamá.

Records.—PANAMÁ: 1 mile north El Volcán, Province Chiriquí, 5000 feet, July (JMC) 17; Volcán de Chiriquí (Champion, 1888).

Discussion.—This species is the smallest member of the genus known from Central America. It may readily be distinguished from other species of the Minuta Group in having the surface strongly shining, the pronotum coarsely and moderately densely punctate, and the eyes of the male narrowly separated.

One male at hand was compared with the holotype by Miss C. M. F. von Hayek.

Bionomics.—I collected a large number of individuals of this species by beating small scrub oak trees in an abandoned field in Panamá. The trees bore numerous dead limbs which were very heavily covered with lichens and mosses. The beetles were usually found between these epiphytes and the bark. They were easily collected by pulling the epiphytes from the limbs and examining them over a beating sheet. The beetles were usually well hidden in the lichens, but were readily dislodged by shaking.

This species was found in association with *Hymenorus chiriquensis* Campbell, *H. panamensis* Campbell, *Pseudocistela decepta* Champion, and *Lobopoda viridipennis* (Campbell, 1962). It has been collected in July.

Lobopoda (*Lobopoda*) *teapensis* Champion

Lobopoda teapensis Champion, 1893:564, pl. 23, fig. 24.

Champion (1893) described this species as follows:

Moderately elongate, fusiform, pitchy-brown, thickly and coarsely pubescent. Head finely and rather sparsely punctured, more closely so in front, the eyes very large and approximate; antennae ferruginous, moderately slender, not reaching to the middle of the elytra; prothorax convex, narrowing almost from the base, the sides rounded anteriorly, the hind angles subrectangular, the disc shallowly but distinctly canaliculate, the basal foveae rather deep, the surface closely, finely punctate, sparsely so on the middle of the disc; elytra moderately long, rapidly narrowing from a little below the base, and rounded at the apex, deeply and coarsely punctate-striate, the punctures closely placed, the interstices strongly convex towards the sides and apex, flatter on the basal portion of the disc, muricately punctured; legs ferruginous, rather stout.

Male.—Anterior tibiae slightly sinuous within. The lateral lobes of the last ventral segment moderately long, somewhat spoon-shaped, abruptly bent inwards at the apex; the central sheath gradually narrowing to the tip.

Length 8½, breadth 3¼ millim.

Type.—Holotype, male, collected by H. H. Smith from Teapa in the state of Tabasco, México. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—MÉXICO: *Tabasco:* Teapa (Champion, 1893).

Discussion.—Based on Champion's (1893) description, *L. teapensis* is apparently a member of the Minuta Group. Its characteristics agree well with those of the Minuta Group except that the male eighth sternal lobes are curved medially more so than in the other species of the group.

Champion (1893) stated that *L. teapensis* is similar to *L. chontalensis* "but smaller and less elongate, the thorax more parallel at the sides behind (the hind angles in consequence less prominent), more finely and more sparsely punctured, and with a distinct, shallow median groove; the elytral interstices more convex."

Lobopoda (*Lobopoda*) *brunneipennis,* new species

Body narrowly elongate-oval, dark brown; surface very finely granulate, slightly shining. Length 8.5 to 10.5 mm. Vertex moderately densely, coarsely punctate. Antennae moderately elongate; apical segments only slightly obconical. Width of apical segment of maxillary palpi 1.2 as great as length of third antennal segment. Pronotum with mean pronotal index of six specimens 61.8 (60–64); surface deeply, moderately densely punctate; punctures large, moderately deeply impressed, separated by average distance slightly greater than diameter of a puncture; surface finely, distinctly granulate; basal and median foveae very small, shallowly impressed; median fovea wide, narrowly separated from basal foveae; midline broadly, shallowly impressed. Prosternum sparsely, shallowly punctate; proepisterna nearly impunctate, a few very small, shallow punctures placed near anterior margin. Mesosternum coarsely, moderately densely, rugosely punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. In male, metasternum densely, finely punctate in middle; punctures becoming coarsely, moderately sparsely distributed approaching sides. Hind tarsi .7 to .8 as long as hind tibiae. Elytral striae moderately deeply, evenly impressed; strial punctures large, elongate-oval, deeply impressed, very narrowly separated along striae; elytral interstices convex, moderately densely, finely punctate; punctures placed in approximately two to three uneven rows. Abdominal sterna moderately sparsely, finely, evenly punctate; fifth sternum slightly impressed in middle.

Male.—Anterior and intermediate femora with a row of densely placed, short, erect setae in basal half of ventral margin. Anterior tibiae (Fig. 157) distinctly carinate from base to apex on dorsal side; ventral side moderately widely, convexly expanded in basal half. Tarsal claws each with eight to nine teeth. Fifth sternum impunctate along midline.

Lobes of eighth sternum (Fig. 49) very narrow, straight from base to near apex and then rather abruptly curved medially; inner side of lobes strongly expanded dorsally; both dorsal and ventral margins of inner side bearing numerous dentiform setae; base of lobes narrow. Lobes of ninth sternum narrow; apex narrowly, evenly rounded. Apical piece of genitalia (Fig. 107) with sides evenly triangular from base to near apex and then parallel to apex; apex narrowly rounded; venter with four large dentiform setae near middle of each side.

Female.—Eyes moderately widely separated; mean ocular index of two specimens 13.5 (13–14). Tarsal claws each with six teeth. Fifth sternum sparsely, finely punctate.

Type.—Holotype, male, collected by E. A. Schwarz from Panamá [City], Panamá, April 27, 1911. The specimen is in the United States National Museum.

Geographic Distribution.—This species is known from the Pacific coast of Central America ranging from El Salvador south to the Canal Zone.

Records.—CANAL ZONE: Cocoli, August (USNM) 1. EL SALVADOR: San Miguel, August (UHZM) 2. NICARAGUA: Shimek, Omitepé [Isla de Ometepé] (BMNH) 1. PANAMÁ: Cabima, May (USNM) 1; La Campana, August (USNM) 1; Panamá [City], April (USNM) 1.

Discussion.—*Lobopoda brunneipennis* is the only species of the Minuta Group in which the inner sides of the eighth sternal lobes (Fig. 49) are strongly expanded dorsally. In this respect, it is unlike any other species of *Lobopoda* discussed herein.

This is the only species of the genus that has been recorded from El Salvador.

Bionomics.—This species has been collected in May and August.

Lobopoda (*Lobopoda*) *remoinsularis*, new species

Body narrowly elongate-oval, brown; surface dull, finely granulate. Length 7.5 to 9 mm. Vertex moderately densely, deeply, coarsely punctate. Antennae with apical segments very slightly obconical; third segment only slightly shorter than fourth. Width of apical segment of maxillary palpi slightly greater than length of third antennal segment. Pronotum with mean pronotal index of four specimens 63.0 (62–64); punctures large, deeply impressed, separated by distance approximately equal to diameter of a puncture; surface of pronotum very finely, distinctly granulate; basal and median foveae very small, moderately shallowly impressed; median fovea widely separated from basal foveae; midline shallowly impressed in basal half. Prosternum finely, very sparsely, shallowly punctate; proepisterna almost impunctate, a few small scattered punctures placed along inner margin. Mesosternum densely, moderately coarsely punctate; median depression deeply impressed, V-

shaped; apex of V extending posteriad between coxae to metasternum. Metasternum densely, moderately finely punctate in middle; punctures becoming somewhat sparser and coarser approaching sides. Posterior tarsi .7 as long as posterior tibiae. Elytral striae moderately deeply, evenly impressed from base to apex; strial punctures elongate-oval, moderately deeply impressed within striae, separated by distance approximately equal to diameter of a puncture; strial interstices moderately convex, moderately densely punctate with punctures moderately deeply impressed, placed in two to three uneven rows. Abdominal sterna moderately coarsely, sparsely punctate; punctures evenly distributed except for large, median impunctate area in middle of fifth sternum.

Male.—Anterior and intermediate femora with a dense row of very fine, short, erect setae on basal half of ventral margin. Anterior tibiae distinctly, acutely carinate on dorsal side from base to apex, moderately broadly, convexly expanded on ventral side near base. Tarsal claws each with from six to seven teeth. Lobes of eighth sternum (Fig. 50) narrow at base; strongly curved medially nearing apex; apex and medial surface with large, moderately densely placed, dentiform setae; ventral surface slightly carinate in middle; carina extending around outer side and across middle of lobes near their base. Lobes of ninth sternum approximately equal in length to lobes of eighth sternum; apex of lobes narrowly rounded. Apical piece of genitalia (Fig. 108) with sides narrowly triangular from base to apex; apex narrowly rounded; ventral surface bearing small, sparsely distributed, dentiform setae.

Female.—Eyes narrowly separated; mean ocular index of one specimen 6.5. Tarsal claws each with five teeth.

Type.—Holotype, male, "labeled #2253, August 31, 1923, Large Remo Island, Canal Zone, Panamá, J. Zetek; 'with *Nasutitermes.*'" The specimen is in the United States National Museum.

Geographic Distribution.—Known from Costa Rica and the Panamá Canal Zone.

Records.—CANAL ZONE: Corozal, April (USNM) 1; Large Remo Island, August (USNM) 2. COSTA RICA: Porvenir, Guanacaste (USNM) 1.

Discussion.—*Lobopoda remoinsularis* may be distinguished from other members of the Minuta Group in having the surface very distinctly granulate and the pronotum deeply and moderately densely punctate with the sides parallel in the basal half. For positive identification the male terminalia must be relied on in most cases.

Bionomics.—This species has been collected from the nests of a termite of the genus *Nasutitermes* by Zetek. One specimen was taken at lights. Adults have been collected in April and August.

Lobopoda (*Lobopoda*) *simplex* Champion

Lobopoda simplex Champion, 1888:399, pl. 17, fig. 22.

Body elongate-oval, dark reddish-brown; surface smooth, strongly shining. Length 9 to 9.5 mm. Vertex sparsely punctate; punctures large, evenly distributed. Width of apical segment of maxillary palpi 1.2 to 1.3 as great as length of third antennal segment. Pronotum with mean pronotal index of two specimens 62.0 (60–64); pronotal punctures coarsely, moderately shallowly impressed, separated by distance approximately equal to diameter of a puncture; surface smooth, very strongly shining; basal and median foveae very small, shallowly impressed; median fovea widely separated from basal foveae; midline unimpressed. Prosternum densely, coarsely punctate; proepisterna moderately finely punctate over entire surface; setae moderately long, conspicuous. Mesosternum sparsely, evenly punctate; median depression shallowly impressed, V-shaped; apex of V extending posteriad only as far as anterior margin of mesocoxae. Metasternum evenly, moderately densely punctate; punctures coarsely, deeply impressed, separated by distance slightly greater than diameter of a puncture. Elytral striae moderately deeply, evenly impressed; strial punctures circular, very deeply impressed within striae, separated by distance approximately equal to diameter of a puncture; strial interstices slightly convex, densely, deeply punctate; punctures placed in two or three uneven rows. Abdominal sterna finely, evenly, moderately sparsely punctate; fifth sternum evenly convex, impunctate in middle in male.

Male.—Femora devoid of small, erect setae on ventral surface. Anterior tibiae very slightly carinate on outer side; broadly, narrowly, convexly expanded in basal half. Tarsal claws each with from five to six teeth. Lobes of eighth sternum (Fig. 51) long, narrow, slightly curved medially from middle to apex of lobes; inner margin of lobes densely covered with moderately large dentiform setae. Lobes of ninth sternum broad, evenly rounded. Apical piece of genitalia (Fig. 109) narrow; sides evenly converging from base to near apex and then parallel to apex; sides moderately densely covered with dentiform setae.

Female.—Eyes large, moderately narrowly separated; ocular index of one female 11. Tarsal claws each with only five teeth.

Type.—Lectotype, from the type-series of three specimens, from Belize, British Honduras. The specimen is in the collection of the British Museum (Natural History). It was figured by Champion in the *Biologia*.

Geographic Distribution.—Known only from the type-locality.

Records.—BRITISH HONDURAS: Belize (BMNH–Biologia Collection) 2.

Discussion.—*Lobopoda simplex* is very similar in appearance to *L.*

laevicollis, L. proxima, and *L. attenuata.* It is distinct from *L. attenuata* by the more densely punctate proepisterna and more sparsely punctate and more strongly shining pronotum. It differs from *L. proxima* and *L. laevicollis* in the more convex pronotum and the somewhat denser and more evenly distributed pronotal punctation. The males of these species may be easily separated on the basis of the male terminalia. One specimen identified by Champion as *L. simplex* is actually *L. laevicollis.*

Lobopoda (*Lobopoda*) *parvula* Champion

Lobopoda parvula Champion, 1888:403, pl. 18, fig. 3.

Body narrowly elongate-oval, dark brown; surface opaque, finely granulate. Length 7.5 to 8.5 mm. Vertex moderately densely, finely punctate. Antennae moderately short; apical segments distinctly obconical. Apical segment of maxillary palpi .5 as long as wide; width 1.2 to 1.3 as great as length of third antennal segment. Pronotum with mean pronotal index of five specimens 63.0 (62–64); pronotal punctures small, shallowly impressed, separated by distance approximately twice as great as diameter of a puncture; surface very distinctly, finely granulate; basal and median foveae small, shallowly impressed; median fovea widely separated from basal foveae; midline shallowly impressed in basal half of pronotum. Prosternum coarsely, moderately densely punctate; proepisterna moderately deeply, densely punctate in anterior half. Mesosternum densely, finely punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between mesocoxae to metasternum. Metasternum finely, moderately sparsely punctate; punctures shallowly impressed in middle, becoming sparsely and somewhat more deeply impressed approaching sides. Hind tarsi .9 as long as hind tibiae. Elytral striae shallowly impressed at base, becoming somewhat more deeply impressed approaching apex; strial punctures elongate, very shallowly, closely impressed within striae, separated by distance approximately half as great as diameter of a puncture; strial interstices wide, very slightly convex, densely, finely punctate. Abdominal sterna moderately sparsely, finely, evenly punctate. Fifth sternum impunctate in middle, evenly convex in male.

Male.—Anterior and intermediate femora and trochanters with densely placed, short, erect setae in basal half of ventral margin. Anterior tibiae (Fig. 158) with distinct carina on outer side of dorsal margin from base to apex. Tarsal claws each with only four teeth. Lobes of eighth sternum (Fig. 52) simple; apices slightly curved medially; medio-ventral surface of lobes bearing large, moderately densely placed dentiform setae. Lobes of ninth sternum only slightly shorter than lobes of eighth sternum. Apical piece of genitalia (Fig. 110) with sides narrowly triangular; apex

narrowly, evenly rounded; ventral surface with row of rather coarse dentiform setae on each side of apical half.

Female.—Eyes narrowly separated dorsally; ocular index of three specimens 6 for each of the specimens. Tarsal claws each with only four teeth.

Type.—Lectotype, female, from the type-series of five specimens from Córdoba, Veracruz, México. The specimen, from the Sallé Collection, is in the British Museum (Natural History). A female was selected as lectotype as the only male syntype at hand is partially mutilated.

Geographic Distribution.—Known only from the state of Veracruz in México.

Records.—MÉXICO: Country label only (DEI) 1. *Veracruz:* Córdova [Córdoba] (BMNH–Biologia Collection) 3; Jalapa (BMNH–Biologia Collection) 1.

Lobopoda (Lobopoda) costaricensis, new species

Body narrowly elongate-oval, light brown; surface smooth, shining. Length 9 mm. Vertex finely, sparsely punctate; punctures separated by average distance distinctly greater than diameter of a puncture. Antennae with apical segments distinctly obconical. Apical segment of maxillary palpi .5 as long as wide; width 1.6 as great as length of third antennal segment. Pronotum with index of one specimen 61; surface coarsely, shallowly punctate; punctures separated by distance approximately equal to diameter of a puncture; basal and median foveae small, very shallowly impressed; median fovea widely separated from basal foveae; midline shallowly impressed in basal half of pronotum. Prosternum moderately densely, coarsely, rugosely punctate; proepisterna very finely, sparsely punctate on anterior and mesal margin; remainder impunctate. Mesosternum coarsely, shallowly punctate; median depression deeply impressed, V-shaped; apex of V extending posteriad between mesocoxae to their middle. Metasternum densely, coarsely, deeply punctate; punctures becoming more sparsely distributed and somewhat larger approaching sides. Posterior tarsi .8 as long as posterior tibiae. Elytral striae moderately deeply, evenly impressed from base to apex; strial punctures shallowly impressed within striae; punctures elongate-oval, separated by average distance approximately equal to diameter of a puncture; strial interstices moderately convex, finely, moderately densely punctate; punctures small, moderately deeply impressed. Abdominal sterna sparsely, finely punctate; fifth sternum of male evenly convex, impunctate in middle.

Male.—Anterior and intermediate femora and trochanters with small, short, erect setae densely placed in basal half of ventral margin. Anterior tibiae with a distinct carina along lateral margin of dorsal side; ventral

side slightly, convexly expanded in basal half. Tarsal claws each with only four to five teeth. Lobes of eighth sternum (Fig. 53) broad; apices curved strongly medially; inner side of lobes moderately densely covered with dentiform setae. Sides of ninth sternal lobes parallel; apices evenly rounded. Apical piece of genitalia (Fig. 111) narrowly triangular; apex evenly rounded, moderately densely covered with dentiform setae on ventral surface and in apical half of sides.

Female.—Not known.

Type.—Holotype, male, collected by Nevermann, Costa Rica, Hamburgfarm, Reventazon, Ebené Limón, June 30, 1935. The specimen is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—COSTA RICA: Hamburgfarm, Reventazon, Ebené Limón, June (USNM) 1.

Bionomics.—The type-specimen was collected on wood at night in June.

Championi Group

Body narrowly elongate; surface smooth, strongly shining, brown to brownish-black. Length 10.5 to 13 mm. A large impunctate area placed between posterior margins of eyes. Pronotum with surface moderately sparsely, evenly punctate; punctures separated by average distance equal to two to three times diameter of a puncture; basal foveae small, shallowly impressed; median fovea wide, shallowly impressed; midline unimpressed. Mesosternal depression moderately shallowly impressed, V-shaped; apex of V extending posteriad to middle of mesocoxae. Posterior tarsi .8 to .9 as long as posterior tibiae; basal segment equal to or slightly shorter than length of other segments combined. Elytra with sides parallel for basal half and then narrowly rounded to apex; strial interstices slightly convex, moderately sparsely, finely punctate; punctures small, shallowly impressed, placed in approximately two uneven rows. Abdominal sterna deeply, moderately sparsely punctate.

Male.—Eyes touching dorsally. Anterior tibiae (Fig. 159) widely, convexly expanded in middle of ventral margin. Lobes of eighth sternum (Fig. 54) with apical half evenly curved medially; densely covered on ventral surface with dentiform setae.

Discussion.—The Championi Group may be separated from other groups of the subgenus *Lobopoda* by the very smooth and shining surface of the body, the moderately sparsely and evenly punctate pronotum, the moderately large size of the body, and the simple shape of the male terminalia.

Unfortunately, *L. championi* is known only from the male and *L. diversicauda* only from the female. Although these two species are quite

similar and both have been collected at the same locality in Costa Rica, I believe that the differences mentioned in the following descriptions warrant their recognition as distinct species.

Key to the Species of the Championi Group

1. Pronotal punctures very fine; setae dark reddish-brown and erect ... *diversicauda*
   Pronotal punctures coarse; setae light reddish-yellow and somewhat appressed ... *championi*

Lobopoda (Lobopoda) championi, new species

Lobopoda ——? Champion, 1888:410.

Body with sides nearly parallel, brown to dark brownish-black; setae reddish-brown, short, moderately appressed. Length 12 to 13 mm. Vertex moderately densely, coarsely punctate. Antennae moderately long; apical segments feebly obconical. Width of apical segment of maxillary palpi 1.1 to 1.2 as great as length of third antennal segment. Pronotum with sides straight, parallel for basal four-fifths and then evenly rounded to apex; basal angles rectangular; base distinctly narrower than base of elytra; mean pronotal index of three specimens 65.7 (65–66); pronotal punctures moderately coarsely, deeply impressed; median fovea very broad, shallowly impressed, broadly connected to basal foveae. Prosternum densely, rugosely punctate; proepisterna sparsely punctate on inner margin around base of coxae. Mesosternum densely, finely punctate. Metasternum moderately densely, finely punctate in middle; punctures becoming somewhat coarser, more sparsely distributed approaching sides. Elytral striae shallowly impressed at base, becoming more deeply impressed approaching apex; strial punctures deeply impressed, circular, separated by distance approximately equal to diameter of a puncture. Middle of fifth sternum moderately deeply, concavely impressed.

Male.—Anterior femora with a few short, scattered, erect setae on ventral side near base; middle and posterior femora with a row of densely placed, rather long, erect setae along ventral margin from base to apex; anterior tibiae (Fig. 159) rather broadly, convexly expanded in middle of ventral margin; dorsal surface finely carinate from middle to apex; middle tibiae distinctly carinate on dorsal surface near base; posterior tibiae finely carinate on ventral margin from base to near middle. Intermediate tarsi with only penultimate segment lobed ventrally. Tarsal claws each with nine to ten teeth. Lobes of eighth sternum (Fig. 54) moderately broad, slightly curved medially from base to apex; lobes densely setate on apical half of inner margin and along dorsal margin of inner surface from base to apex. Lobes of ninth sternum short, evenly, narrowly rounded. Apical piece of genitalia (Fig. 112) with sides evenly converging from base to apex; apex broadly rounded; sides of ventral margin with rather densely placed dentiform setae.

Female.—Unknown.

Type.—Holotype, male, collected by Champion and labeled "V[olcán] de Chiriquí, 25–4000 feet [Panamá]." Champion identified the specimen as *L. tristis.* The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from Costa Rica and the type-locality in western Panamá.

Records.—COSTA RICA: Cache [Cachí], (BMNH–Biologia Collection) 1; Coronado, 1400–1500 meters, June (USNM) 1. PANAMÁ: Volcán de Chiriquí, 25–4000 feet (BMNH–Biologia Collection) 1.

Discussion.—*Lobopoda championi* was described by Champion in the *Biologia* from a specimen without a head. He had one other specimen of this species which he mistakenly identified as *L. tristis.* It differs from other species of the genus in having the pronotum very rectangular in shape with the base distinctly narrower than the base of the elytra.

Lobopoda (*Lobopoda*) *diversicauda,* new species

Body elongate-oval, dark brown; setae erect, dark reddish-brown, long, very fine. Length 10.5 to 11.5 mm. Vertex finely, sparsely, unevenly punctate. Antennae moderately elongate; apical segments feebly obconical; segments 3 to 11 with apex lighter in color than base; third segment only slightly shorter than fourth. Width of apical segment of maxillary palpi 1.1 to 1.2 as great as length of third antennal segment. Pronotum with sides very slightly sinuate in basal half, distinctly converging from base to apex; base moderately shallowly bisinuate; basal angles slightly acute; disk moderately convex; pronotal index of two specimens 58; punctures fine, moderately deeply impressed; median fovea moderately small, shallowly impressed, widely separated from basal foveae. Prosternum moderately sparsely, rugosely punctate; proepisterna with a few scattered punctures placed along inner margin. Mesosternum densely, coarsely punctate on sides, very sparsely punctate in middle. Metasternum coarsely, moderately densely, evenly punctate. Elytral striae moderately deeply, evenly impressed; punctures deeply impressed within striae, circular, separated by average distance much less than length of a puncture. Fifth sternum evenly convex, impunctate in middle.

Male.—Unknown.

Female.—Eyes moderately widely separated; ocular index of two specimens 12. Only penultimate segment of anterior and intermediate tarsi lobed ventrally. Tarsal claws each with six teeth. Apices of elytra (Fig. 179) broadly, triangularly expanded medially.

Type.—Holotype, female, collected by F. Nevermann and labeled "Coronado, 1400–1500 meters, Costa Rica, 17–1–29." The specimen is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—COSTA RICA: Coronado, 1400–1500 meters, January, June (USNM) 2.

Discussion.—The broadly triangular apices of the elytra of *L. diversicauda* will readily separate the female of this species from those of all the other species of the genus. In addition, the very fine and sparse punctation of the pronotum; the strongly shining surface of the body; and the short, erect, very fine, deep reddish-brown setae will readily separate this species from other similar species.

Bionomics.—This species was collected by F. Nevermann in January and June from dry wood and on tree trunks at night.

Attenuata Group

Body narrowly elongate-oval; surface very finely granulate, strongly shining. Size moderately small. Pronotum moderately densely punctate; punctures separated by distance approximately equal to diameter of a puncture in middle of pronotum, slightly more distant near sides. Mesosternal depression deeply impressed, V-shaped; apex of V extending posteriad only to anterior margin of mesocoxae.

Male.—Eyes touching dorsally. Anterior tibiae (Fig. 160) widely, convexly expanded near base. Lobes of eighth sternum (Fig. 55) broad, strongly angulate near middle of outer side.

Female.—Eyes narrowly separated dorsally. Only penultimate segment of anterior and intermediate tarsi lobed ventrally.

Discussion.—The Attenuata Group contains only *L. attenuata*, which is quite similar to the species of the Minuta and Championi groups. In these three groups the body is dark brown to black and narrowly elongate-oval, the male tibiae are simply and convexly expanded in their basal half, and the lobes of the eighth sternum of the male are not greatly modified.

The Attenuata Group differs from the Minuta Group in being somewhat larger and in having the pronotal punctation unevenly distributed and the eighth sternal lobes of the male with the sides angulate. It differs from the Championi Group in being somewhat smaller and having the pronotum more densely punctate, the basal foveae more deeply impressed, and the eighth sternal lobes angulate.

Lobopoda (*Lobopoda*) *attenuata* Champion

Lobopoda attenuata Champion, 1888:397, pl. 17, fig. 16.

Body dark brown; surface moderately densely covered with short yellow setae. Length 8.5 to 10.5 mm. Antennae elongate; apical segments only slightly obconical. Width of apical segment of maxillary palpi 1.3 as great as length of third antennal segment. Pronotum with sides straight and parallel or narrowly converging for basal two-thirds and then

broadly rounded to apex; base deeply bisinuate; basal angles rectangular; mean pronotal index of four specimens 61.3 (59–64); basal foveae small, but rather deeply impressed; median fovea small, shallowly impressed, not connected to basal foveae; midline moderately deeply impressed in basal half of pronotum. Prosternum smooth, very finely, sparsely punctate; proepisterna moderately densely punctate along anterior margin. Mesosternum coarsely, moderately densely, evenly punctate. Metasternum densely, finely punctate in middle; punctures somewhat coarser and more sparsely distributed approaching sides. Elytra with sides gradually narrowed from base to apex; elytral striae moderately deeply, evenly impressed from base to apex; strial punctures deeply impressed, elongate, very closely placed along striae; interstices of striae moderately convex, very finely punctate; punctures small, moderately densely placed in two or three uneven rows. Abdominal sterna finely, moderately densely punctate; fifth sternum with a large, shallow impunctate depression in middle.

Male.—Femora with ventral surface flat, impunctate, bearing a row of short, densely placed, erect setae. Anterior tibiae (Fig. 160) moderately widely expanded in basal third; conspicuously, acutely carinate on outer side from near base to apex. Tarsal claws each with five to six teeth. Lobes of eighth sternum (Fig. 55) with apices evenly, narrowly rounded; apical half of inner surface of lobes moderately sparsely covered with small dentiform setae. Lobes of ninth sternum short; apices broadly, evenly rounded, abruptly narrowed on inner side near middle. Apical piece of genitalia (Fig. 113) very narrow; sides slightly converging from base to near apex and then slightly expanded to apex; ventral surface and sides rather densely covered with very small dentiform setae; viewed laterally, apical piece smoothly, evenly curved dorsally.

Female.—Eyes narrowly separated; ocular index of one specimen 8. Tarsal claws each with only four to five teeth.

Type.—Lectotype, male from the type-series of five specimens, collected by Champion from Capetillo, Guatemala. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from central Guatemala south to the eastern coast of Costa Rica.

Records.—COSTA RICA: Hamburgfarm, Reventazon, Ebené Limón, May, (USNM) 1. GUATEMALA: Capetillo (BMNH–Biologia Collection) 3. NICARAGUA: Chontales (BMNH–Biologia Collection) 2.

Discussion.—*Lobopoda attenuata* may be readily distinguished from other species of the subgenus *Lobopoda* by the shape of the male terminalia. The broadly angulate lobes of the eighth sternum are unlike those of any other species of the subgenus.

Bionomics.—One specimen collected by Nevermann in May in Costa Rica is labeled "on tree trunk at night."

TENUICORNIS GROUP

Body narrowly elongate, dark brown. Length 6 to 9 mm. Pronotum with sides straight, strongly narrowed from base to near apex; base moderately deeply bisinuate; surface moderately densely, deeply punctate; punctures large, evenly distributed, partially or completely surrounded by a raised, concentric ridge; midline of pronotum unimpressed. Median depression of mesosternum broadly, deeply impressed, V-shaped; apex of V extending posteriad between mesocoxae at least to their middle. Elytra with striae deeply, evenly impressed; strial punctures large, elongate, densely placed along striae; strial interstices moderately convex, rather sparsely punctate; punctures placed on sides of interstices adjacent to strial punctures.

Male.—Eyes narrowly separated dorsally. Lobes of eighth sternum simple, evenly curved medially near apex.

Female.—Penultimate segment of anterior and intermediate tarsi narrowly lobed ventrally.

Discussion.—The Tenuicornis Group contains two species. These differ from all other species of the genus *Lobopoda* discussed in this revision in having the pronotal punctures surrounded, at least in part, by a raised concentric ridge. In their other characteristics, these species are very similar to members of the Minuta Group.

Key to the Species of the Tenuicornis Group

1. Pronotal punctures completely surrounded by raised concentric ridge ..... *tenuicornis*
   Pronotal punctures surrounded by raised concentric ridge only on median edge ..... *sculpturata*

Lobopoda (*Lobopoda*) *tenuicornis* Champion

Lobopoda tenuicornis Champion, 1888:403, pl. 18, figs. 5, 5a.

Body narrowly elongate, dark brown; surface finely granulate, moderately strongly shining. Length 8 to 9 mm. Vertex sparsely, finely punctate; punctures separated by distance at least twice as great as diameter of a puncture. Antennae moderately long, thin; apical segments slightly obconical; third segment only .6 to .7 as long as fourth. Apical segment of maxillary palpi approximately .3 as long as wide; width approximately 1.3 to 1.4 as great as length of third antennal segment. Pronotum with basal angles slightly acute, approximately twice as wide as long; mean pronotal index of 12 specimens 51.9 (48–56; $S_{\bar{x}} = .9$); pronotal punctures with a deep, seta-bearing pit; margin of each puncture surrounded by a smooth, distinctly raised ridge; surface distinctly granulate; basal foveae large, shallowly impressed; median fovea large, deeply impressed, connected along base with basal foveae. Prosternum very narrow, reduced

anteriad of coxae; surface rugose, impunctate. Proepisterna with a few punctures along anterior margin. Mesosternum very densely, rugosely punctate; apex of mesosternal depression extending posteriad between mesocoxae to metasternum. Metasternum moderately sparsely, finely punctate; punctures slightly denser in middle; surface distinctly granulate. Posterior tarsi .7 as long as posterior tibiae; basal segment of posterior tarsi slightly longer than other segments combined. Elytra with sides rounded from base to apex, widest near middle of elytra; apices bluntly rounded. Abdominal sterna moderately densely, very finely punctate; punctures shallowly impressed, bearing moderately long, fulvous setae. Fifth sternum slightly flattened in middle in both male and female.

Male.—Eyes very narrowly separated dorsally; mean ocular index of five specimens 2.4 (2–3). Anterior tibiae (Fig. 161) very slender, evenly, convexly curved from base to apex; ventral surface not expanded; obtusely, obscurely carinate on dorsal surface. Tarsal claws each with six to seven teeth. Lobes of eighth sternum (Fig. 56) moderately long, narrow; sides parallel from base to near apex and then abruptly rounded to apex; apex and inner sides bearing large dentiform setae; viewed laterally, apex of lobes broadly rounded. Lobes of ninth sternum straight, narrow; apex transversely truncate; viewed laterally, apex strongly curved on ventral surface. Apical piece of genitalia (Fig. 114) long, narrowly triangular; sides bearing small dentiform setae from near base to apex; viewed laterally, apical piece slightly curved dorsally.

Female.—Eyes widely separated; mean ocular index of seven specimens 21.0 (19–23). Tarsal claws each with only four to five teeth.

Type.—Lectotype, male, from the type-series of 12 specimens, collected by Champion from the Volcán de Chiriquí, 2,500–4,000 feet, Panamá. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from southern México and western Panamá.

Records.—MÉXICO: *Chiapas:* 27 km. southwest Simojovel, July (JMC) 1. PANAMÁ: Volcán de Chiriqui, 25–4000 ft. (BMNH–Biologia Collection) 10; 2–3000 ft. (BMNH–Biologia Collection) 2.

Discussion.—Lobopoda tenuicornis is very distinct from all other species of *Lobopoda* included in this revision on the basis of its very distinctive pronotal punctation and very small pronotal index. The pronotum of this species is finely granulate and the pronotal punctures are very coarsely and deeply impressed, each being completely surrounded by a smooth, shining, raised concentric ridge. In this latter character, *L. tenuicornis* is similar to a number of South American species.

This species may be used to point out the inadequacy of collections of Central American *Lobopoda*. Prior to this revision, it was known only from the Panamanian type-material. In the summer of 1962 I collected a

specimen in the state of Chiapas, México. Most species of *Lobopoda* probably have quite extensive ranges, but the majority described from Central America are known from only one locality, or at best a few localities within a relatively small area.

Bionomics.—I collected one specimen in July by beating dead vines on the edge of a forest.

Lobopoda (*Lobopoda*) *sculpturata* Champion

Lobopoda sculpturata Champion, 1888:401, pl. 17, fig. 20.

Body elongate, strongly tapering from elytral humeri to apex of elytra, dark brown; legs, antennae, and middle of each elytron reddish-brown; sides of elytra and elytral suture dark brown; surface smooth, moderately shining; setae long, fulvous. Length 6 mm. Vertex sparsely punctate; punctures small, deeply impressed. Antennae long, thin; apical segments slightly obconical; third segment approximately twice as long as second, .7 to .8 as long as fourth. Width of apical segment of maxillary palpi 1.6 as great as length of third antennal segment. Pronotum with basal angles rectangular; pronotal index of one specimen 57; pronotal punctures large, deeply impressed; each puncture surrounded on median side by a large, concentrically curved ridge; surface of pronotum very finely granulate; basal foveae small, shallowly impressed; median fovea wide, shallowly impressed, narrowly separated from basal foveae. Prosternum smooth, moderately sparsely punctate. Proepisterna and mesosternum sparsely, irregularly punctate. Mesosternal depression with apex extending posteriad to middle of mesocoxae. Metasternum moderately deeply, densely punctate; punctures becoming somewhat more shallowly impressed approaching sides. Posterior tarsi approximately equal in length to posterior tibiae; basal segment of posterior tarsi equal in length to other segments combined. Abdominal sterna strongly shining, sparsely, finely punctate; fifth sternum evenly convex.

Male.—According to Champion (1888), the anterior tibiae are angularly widened on the inner side before the middle. The male terminalia were not examined.

Female.—Eyes narrowly separated; ocular index of one specimen 6. Tarsal claws each with five to six teeth.

Type.—Lectotype, female, from the type-series of three specimens collected by Champion and labeled "Bugaba (800–1500 ft.), Panamá." The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from the province of Chiriquí in Panamá.

Records.—PANAMÁ: Bugaba, 800–1500 ft. (BMNH–Biologia Collection) 1; Volcán de Chiriquí (Champion, 1888).

Discussion.—*Lobopoda sculpturata* may be easily recognized from all other species of the genus *Lobopoda* by its very distinctive pronotal

punctation and the bicolored elytra. Each pronotal puncture is surrounded on its median side by a large, semicircular ridge. In some respects, this condition is similar to *L. tenuicornis,* but in the latter species the elevated ridge forms a complete circle around each puncture. It is not possible at this time to determine the relationships of this species. It has been placed with *L. tenuicornis* solely on the basis of the pronotal punctation.

A female was chosen as lectotype because the only male of the syntype-series is teneral and the male terminalia are not completely developed.

Atrata Group

Body narrowly elongate-oval; surface smooth, strongly shining. Pronotum with surface moderately densely, coarsely, evenly punctate; punctures moderately deeply impressed, separated by distance approximately equal to or slightly greater than diameter of a puncture. Median depression of mesosternum deeply impressed, V-shaped; apex of V extending posteriad between mesocoxae to near metasternum. Elytra with striae moderately deeply, evenly impressed; strial interstices slightly convex in basal half, moderately deeply impressed approaching apex.

Male.—Eyes touching dorsally. Ventral surface of anterior tibiae (Fig. 162) broadly, convexly expanded near middle. Lobes of eighth sternum (Fig. 57) abruptly curved medially near apex; apical half of lobes deeply concave on inner side. Apical piece of genitalia (Fig. 115) with sides converging from base to apex; apex narrowly rounded.

Female.—Eyes large, narrowly separated. Penultimate segment of anterior and intermediate tarsi lobed ventrally; third segment of anterior tarsi narrowly lobed.

Discussion.—The Atrata Group contains only *L. atrata.* This species is placed in a separate group primarily on the basis of the very distinctive shape of the male terminalia.

This group is quite similar in appearance to the Punctulata Group. In both groups the pronotum is moderately densely, deeply, and evenly punctate; the elytral striae are moderately deeply and evenly impressed; the male anterior tibiae are simply expanded; and the general appearance is quite similar. The Atrata Group, however, may be easily separated from members of the Punctulata Group by its somewhat more sparsely punctate pronotum and its distinctive male terminalia.

Lobopoda (*Lobopoda*) *atrata* Champion

Lobopoda atrata Champion, 1888:394, pl. 17, figs. 9, 9a.

Body dark brown to black; antennae, mouthparts, tibiae, and tarsi reddish-yellow; setae reddish-orange. Length 13 to 13.5 mm. Vertex coarsely, moderately densely punctate; a large impunctate area placed

between posterior margin of eyes. Antennae elongate; apical segments only slightly obconical. Width of apical segment of maxillary palpi 1.3 to 1.4 as great as length of third antennal segment. Pronotum with sides straight, slightly converging from base for basal two-thirds and then broadly rounded to apex; base shallowly bisinuate; basal angles rectangular; mean pronotal index of two specimens 60.5 (60–61); basal and median foveae small, moderately shallowly impressed; median fovea widely separated from basal foveae; midline shallowly impressed. Prosternum sparsely, finely, rugosely punctate; procpisterna sparsely, finely punctate near anterior margin. Mesosternum densely, coarsely punctate. Metasternum finely, moderately densely punctate; punctures somewhat more densely placed near middle. Posterior tarsi three-fourths as long as posterior tibiae; basal segment approximately equal in length to other segments combined. Elytra with sides evenly converging from base to apex; strial punctures deeply, densely impressed along striae, separated by average distance equal to length of a puncture; strial interstices moderately densely punctate; punctures finely, shallowly impressed, placed in approximately three to four uneven rows. Abdominal sterna finely, moderately densely punctate; middle of fourth and fifth sterna impunctate in female, sparsely punctate in male; fifth sternum broadly, deeply concave in middle.

Male.—Basal half of ventral surface of anterior and intermediate femora and entire length of ventral surface of posterior femora bearing moderately densely placed, short, erect setae. Anterior tibiae (Fig. 162) slightly carinate on outer margin of dorsal surface from base to apex; tarsal claws each with four to five teeth. Lobes of eighth sternum (Fig. 57) narrow, tapering from base to apex; apical half of lobes concave; inner margin moderately densely covered with short dentiform setae. Lobes of ninth sternum approximately half as long as eighth sternal lobes, very narrow; apex evenly rounded. Apical piece of genitalia (Fig. 115) with sides converging from near base to apical fourth and then parallel to apex; apex narrowly rounded; venter and sides moderately densely covered with dentiform setae.

Female.—Tarsal claws each with six teeth.

Type.—Lectotype, male, from the type-series of two specimens, collected by Champion and labeled "V[olcán] de Chiriquí, 25–4000 feet." The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from western Panamá and Nicaragua.

Records.—NICARAGUA: Chontales (BMNH–Biologia Collection) 1. PANAMÁ: V[olcán] de Chiriquí, 25–4000 feet (BMNH–Biologia Collection) 1.

Discussion.—The female specimen of *L. atrata* is dissimilar in certain

respects to the male specimen. This is the only species known to me in which the female has more teeth on the tarsal claws than the male. In addition, the female is somewhat more broadly elongate-oval, and the vertex is somewhat more sparsely punctate. It is possible that the two specimens are not con-specific.

LAEVICOLLIS GROUP

Body elongate-oval; surface smooth, strongly shining. Vertex sparsely, coarsely punctate; a large impunctate area placed between posterior margins of eyes. Pronotum with surface sparsely, evenly punctate; punctures shallowly impressed, separated by a distance at least three times as great as diameter of a puncture. Median depression of mesosternum very deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Elytra with striae moderately deeply, evenly impressed; strial interstices slightly convex; moderately densely, finely punctate; punctures placed in approximately three to four uneven rows.

Male.—Eyes touching dorsally or rarely separated by a very narrow ridge. Anterior tibiae (Fig. 163) slightly, convexly expanded near middle of ventral margin. Lobes of eighth sternum (Fig. 58) very long, thin; apices of lobes strongly recurved ventrally and then anteriorly; inner margin of lobes moderately densely covered with dentiform setae near base.

Female.—Eyes moderately narrowly separated. Only penultimate segment of anterior and intermediate tarsi lobed ventrally.

Discussion.—The Laevicollis Group contains one species, *L. laevicollis*, from southern México. It is apparently related to the Punctulata Group. Both groups have the pronotum evenly punctate and the surface of the body strongly shining. They may be easily separated by the unique shape of the male eighth sternal lobes of *L. laevicollis* (Fig. 58).

Lobopoda (*Lobopoda*) *laevicollis* Champion

Lobopoda laevicollis Champion, 1888:401, pl. 17, figs. 21, 21a, 21b.

Body dark brown to brownish-black; antennae, mouthparts, and legs usually reddish-orange; sometimes legs colored as body; setae long, very fine, reddish-yellow. Length 9 to 11.5 mm. Apical segments of antennae moderately elongate, only slightly widened apically. Apical segment of maxillary palpi approximately 1.3 as wide as length of third antennal segment. Pronotum with sides straight, slightly narrowed in basal half and then rounded to apex; base deeply bisinuate; basal angles rectangular; mean pronotal index of 29 specimens 64.2 (60–68; $S_{\bar{x}} = .5$); basal and median foveae small, shallowly impressed; midline unimpressed. Prosternum very finely, sparsely, irregularly punctate; proepisterna smooth, impunctate except for a few scattered punctures around base of coxae. Mesosternum moderately densely, deeply punctate. Metasternum moder-

ately finely, moderately densely punctate in middle; punctures becoming deeply impressed and larger approaching sides. Basal segment of posterior tarsi approximately equal in length to other segments combined. Elytra with sides parallel for basal half and then gradually narrowed to apex; striae with large, dense punctures which are oval and deeply impressed within striae; punctures separated along striae by distance approximately equal to length of a puncture; apex of elytra very slightly mucronate; inner margin of mucro curved ventrad. Basal three abdominal sterna finely, deeply, moderately densely punctate; fourth and fifth sterna very finely, sparsely, irregularly punctate; fifth sternum somewhat flattened medially.

Male.—Posterior femora with ventral surface flat, glabrous; outer edge of ventral surface with a row of dense, short, erect setae. Intermediate femora moderately densely covered with short, erect setae in ventral margin. Anterior tibiae (Fig. 163) slightly, obscurely carinate on outer side. Tarsal claws each with seven to nine teeth. Recurved portion of eighth sternal lobes (Fig. 58) approximately one-third as long as total length of lobes; apices with a few small scattered dentiform setae. Lobes of ninth sternum with sides strongly inflexed on outer side near middle of lobes; apices of lobes very narrowly rounded. Apical piece of genitalia (Fig. 116) with sides narrowing from base to near apex and then abruptly expanded; venter devoid of dentiform setae; viewed laterally, apex strongly curved dorsally forming a hooklike projection; sides near base moderately densely covered with short dentiform setae.

Female.—Eyes moderately narrowly separated; mean ocular index of 13 specimens 12.2 (8–16; $S_{\bar{x}} = .6$). Tarsal claws each with six teeth.

Type.—Lectotype, male, from the type-series of 24 specimens from Jalapa, México. The specimen was collected by Höge. It is in the British Museum (Natural History).

Geographic Distribution.—Known from southern México from Jalapa in Veracruz to North Yucatán and Chiapas.

Records.—MÉXICO: Country label only (BMNH) 2, (BMNH–Biologia Collection) 1. *Chiapas:* 8 km. S. Bochil, July (JMC) 1. *Veracruz:* Córdova [Córdoba], December (USNM) 1, (BMNH–Biologia Collection) 5; El Fortín, July (CNHM) 1; Jalapa (BMNH–Biologia Collection) 15. *Yucatán:* N[orth] Yucatán (BMNH–Biologia Collection) 3.

Discussion.—Externally *L. laevicollis* very closely resembles *L. erythrocnemis.* Both species have the integument strongly shining, particularly on the pronotum; the pronotum finely and moderately sparsely punctate; and the legs and antennae reddish in color. They may be separated by their quite dissimilar male terminalia. The male terminalia of *L. laevicollis* do not resemble those of any other species of the genus known to me.

One female from northern Yucatán was misidentified by Champion as *L. simplex*.

Bionomics.—I collected this species by beating a large, dead, broad-leaved bromeliad on an oak tree. *Lobopoda subparallela* was taken in nearly the same environment.

Specimens have been collected in July in Chiapas and in July and December in Veracruz.

PUNCTULATA GROUP

Body elongate-oval, dark brown to black; apex of antennal segments 4 through 11 pale; surface shining, very finely granulate or smooth, moderately densely setate. Length 6.5 to 11.5 mm. Vertex moderately densely punctate; punctures moderately coarsely, evenly distributed except for a large, impunctate area placed between posterior margins of eyes. Apical segments of antennae slightly obconical. Width of apical segment of maxillary palpi slightly greater than length of third antennal segment. Pronotum with surface densely, evenly punctate; punctures large, circular, deeply impressed, separated by distance approximately equal to or greater than diameter of a puncture; base broadly, shallowly bisinuate. Prosternum and mesosternum densely, closely punctate; proepisterna moderately densely punctate in anterior half, especially around base of coxae. Median depression of mesosternum very shallowly impressed, broadly V-shaped; apex of V extending posteriad only to anterior margin of mesocoxae. Metasternum moderately densely, finely punctate in middle; punctures becoming coarser and more sparsely distributed approaching lateral margins. Elytral striae moderately deeply to very deeply impressed; strial punctures large, deeply impressed, closely placed along striae. Fifth sternum of abdomen evenly convex.

Male.—Anterior tibiae (Fig. 164) broadly, convexly expanded on ventral side near base. Tarsal claws each with at least ten teeth. Lobes of eighth sternum (Figs. 59–61) strongly narrowed apically; apex of lobes strongly curved ventrally and then twisted posterio-mediad; apex and inner surface of lobes moderately sparsely, but coarsely dentate; ventral surface of lobes just posteriad of apical lobes deeply, concavely excavated. Lobes of ninth sternum subequal in length to lobes of eighth sternum; apex of lobes evenly rounded or obliquely transverse. Apical piece of genitalia (Figs. 117–119) moderately densely dentate on ventral and lateral surfaces; sides rounded or straight, strongly converging from base to near apex and then parallel to apex; apex narrowly, evenly rounded; viewed laterally, apical piece curved dorsally near base.

Female.—Anterior and intermediate tarsi with penultimate segments lobed ventrally. Tarsal claws each with six to seven teeth.

Discussion.—This group contains four species, all occurring in the

United States. One species (*L. punctulata*) is known from New York throughout the eastern United States west to Texas and south to Jalapa in the Mexican state of Veracruz. *Lobopoda erythrocnemis* is known from the southeastern states as far north as North Carolina and Tennessee and west into eastern Texas. *Lobopoda nigrans* has essentially the same range within the United States as *L. punctulata* except that it does not occur south of northern Texas and its range extends northward slightly further than that of the latter species. *Lobopoda monticola* is known only from the mountains of western Texas. All species of this group except *L. monticola* are broadly sympatric.

Lobopoda nigrans has been collected frequently at the same locality as *L. punctulata* and often on the same host plants. These two species are probably ecologically separated by differences in their periods of activity.

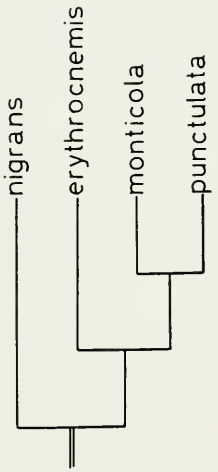


FIG. 8. Phylogeny of the Punctulata Group.

Adults of *L. punctulata* are completely nocturnal and remain hidden during the day while those of *L. nigrans* are either crepuscular or diurnal. Specimens of *L. erythrocnemis* are sometimes collected at the same localities as either *L. nigrans* or *L. punctulata*, but adults are usually collected much earlier in the year than either of the latter species.

The four species of this group may be easily recognized from other species of the genus *Lobopoda* by the very distinctive shape of the male terminalia, particularly in the shape of the eighth sternal lobes (Figs. 59–61); the moderately densely and evenly punctate pronotum; the large number of teeth on each of the male tarsal claws; the deeply and evenly impressed elytral striae; and the pale color of the apex of antennal segments 4 through 11.

Phylogeny.—The relationships of the four species of the Punctulata Group seem reasonably clear (Fig. 8).

The species of this group seem to have evolved from a form having the pronotum moderately densely, coarsely, and evenly punctate; the eyes of the male touching dorsally and those of the female moderately widely separated; the surface of the body finely granulate and moderately shining; the sides of the pronotum slightly narrowed from base to near apex and then broadly rounded; color dark brown to black throughout; elytral striae moderately deeply and evenly impressed with the strial interstices slightly convex; and the tarsal claws of the male each with 10 to 11 teeth.

Lobopoda nigrans seems to represent a line from this proposed ancestral type in which the body has become specialized for diurnal or crepuscular activity. This is indicated by the fact that the eyes of the male are small and widely separated dorsally and those of the female are very small and separated by a distance almost as great as their own width. Other characteristics which point to an early branching from the ancestral form are the very narrow pronotum with the sides narrowed posteriorly, the very smooth and strongly shining surface of the body, the deeply impressed elytral striae with the strial interstices strongly convex, and the male tarsal claws each with 12 to 14 teeth.

Lobopoda erythrocnemis seems to represent a somewhat later line from the ancestral form. In this line, the color is somewhat lighter and the legs are usually reddish, the pronotal punctation is finer and more sparsely distributed, and the eyes of the female are much more approximate dorsally.

The remaining two species, *L. punctulata* and *L. monticola,* are similar in most respects to the proposed ancestral species. *Lobopoda monticola* differs in having the color of the body and setae a very deep, intense black throughout and the setae are usually very erect rather than in the normal appressed position.

Key to the Species of the Punctulata Group

1. Eyes small, widely separated in male, separated by distance approximately equal to diameter of an eye in female; pronotum smooth, strongly shining; length 6.5 to 8.5 mm. ..... *nigrans*
   Eyes larger, touching or very narrowly separated dorsally in male, separated by distance distinctly less than diameter of an eye in female; pronotum only moderately shining; sides straight in basal half; length 8 to 11.5 mm. 2
2. Legs normally red; pronotal punctation moderately fine, shallowly impressed; surface finely granulate; eyes of male separated by very narrow ridge; posterior margin of eighth sternal lobes of male (Fig. 60) broadly, evenly rounded; known only from the southeastern United States ..... *erythrocnemis*
   Legs brown to black; pronotal punctures coarse, deeply impressed; eyes of male touching dorsally, rarely separated by narrow ridge;

posterior margin of eighth sternal lobes (Fig. 59) of male narrowly, acutely rounded 3

3. Color of body and setae dark, shining black; known from the Davis and Chisos mountains of western Texas ..... *monticola*

Color of the body dark brown to black; setae reddish; known from eastern United States and along the gulf coast to Veracruz in México ..... *punctulata*

Lobopoda (*Lobopoda*) *punctulata* (Melsheimer)

Cistela punctulata Melsheimer, 1846:59.
Allecula punctulata: LeConte, 1866:64. Blatchley, 1910:1272.
Lobopoda punctulata: Champion, 1888:388 (footnote). Casey, 1891:80.
Lobopoda oculatifrons Casey, 1891:81. (New synonymy.)
Lobopoda jalapensis Champion, 1888:402, pl. 18, fig. 2; 1893:564. (New synonymy.)

Body dark-brown to black, moderately shining; tarsi and palpi reddish-brown; setae reddish. Length 8 to 11.5 mm. Pronotum with sides slightly converging from base to apex in northern race, parallel in basal half and then broadly rounded to apex in southern race; basal angles slightly acute or rectangular. Pronotum with basal and median foveae small, shallowly impressed; median fovea widely separated from basal foveae; pronotal index variable (see Table I); surface smooth, shining in northern race, finely granulate, faintly shining in southern race; punctures large, densely, deeply, evenly impressed, separated by distance equal to or slightly greater than diameter of a puncture. Elytral striae moderately deeply, evenly impressed from base to apex in northern race, moderately shallowly impressed in southern race; strial punctures small, elongate-oval, moderately deeply impressed within striae; strial interstices moderately convex, moderately sparsely punctate in northern race; interstices flat, densely punctate in southern race. Visible abdominal sterna moderately densely, finely, evenly punctate.

Male.—Eyes large, touching dorsally or separated by very narrow ridge (see Table II). Anterior tibiae narrowly, convexly expanded on ventral surface near base; dorsal surface acutely, narrowly carinate in apical half, rarely carinate for apical two-thirds. Tarsal claws each with 10 to 11 teeth. Lobes of eighth sternum (Fig. 59) with apex strongly curved medially as far as lobes of ninth sternum; posterior margin of lobes acutely rounded. Lobes of ninth sternum broadly convex on outer sides; apex obliquely truncate. Apical piece of genitalia (Fig. 117) with sides broadly, evenly rounded from base to near apex and then parallel to apex.

Female.—Eyes moderately widely separated (see Table I).

Type.—The holotype of *Cistela punctulata* Melsheimer is in the Harvard Museum of Comparative Zoology; the type-locality is Pennsylvania.

The holotype of *L. oculatifrons* is in the Casey Collection in the United States National Museum; the type-locality is Texas. I have selected as lectotype of *L. jalapensis* Champion a male from the type-series of three specimens collected by Flohr at Tampico, Tamaulipas, México. The specimen is in the British Museum (Natural History).

Geographic Distribution.—I have divided this species into a northern and a southern race. The distribution of these races is shown in Figure 17. The northern race is restricted to dry, sandy areas of the eastern United States and an area extending westward into eastern Iowa, Kansas, Oklahoma, and Texas. The southern race is found in southern Texas and in México along the gulf coast of Nuevo León, Tamaulipas, and the northern half of Veracruz.

Records.—I have listed the records of this species by race.

Northern Race: UNITED STATES: No data (CU) 1, (INHS) 2, (MSU) 1, (UK) 1. *Alabama:* Valley Head, July (CI) 1. *Arkansas:* southwestern Arkansas (AMNH) 3; Cove, August (UK) 1; Drew County, June (INHS) 1; Hope, June (CAS) 1; Marion County, June (OSC) 1; Washington County, June–July (CU) 1, (INHS) 1; Washington County, Mount Sequoyah, June–July (INHS) 6. *Florida:* State label only (UI) 1, (UCB) 2, (ANSP) 1; Archbold Biological Station, Highlands County, April (Frost) 1; Bartow, June (USNM) 1; Brandford, July (UK) 1; Destin, Okaloosa County, May–June (SPBF) 3, (CNHM) 1; Enterprise, June (USNM) 2, (MCZ) 1; Jacksonville, July (CAS) 1; Kissimmee (AMNH) 2; Oneco, Manatee County (UM) 1; Sneads, June (UK) 1; Tallahassee, July (UK) 1. *Georgia:* State label only (MCZ) 1; Emery Union Field Station, Newton, Baker County, June, August (CNC) 2; Tybee Island, June (OSU) 2. *Illinois:* Northern Illinois (INHS) 1; Bell Smith Springs Recreational Area, Pope County, June (JMC) 1; Catlin, Camp Drake, June (INHS) 1; Harrisburg, June (INHS) 1; Henderson State Forest, July (JMC) 1; Mason State Forest, Mason County, June (JMC) 39; Mount Carmel, July (INHS) 1; Norwood Park, Cook County, May (CNHM) 1. *Indiana:* Crawford County, June, July (PU–Blatchley Collection) 2; Kosciusko County, August (PU–Blatchley Collection) 1; Marshall County, June (PU–Blatchley Collection) 1; Putnam County, July (PU–Blatchley Collection) 1. *Iowa:* Ames (ISU) 1. *Kansas:* State label only (UCB) 1, (USNM) 1, (PU) 1; Doniphan County, July (UK) 1; Douglas County (UK) 1; Lawrence, July (CNC) 1; Onaga, June (CAS) 2; Riley County, May (JMC) 2. *Kentucky:* 8 mi. northwest Golden Pond, Trigg County, June (JMC) 1; 5 mi. west Hopkinsville, Christian County, June (JMC) 1; Morehead, July (CNC) 3. *Louisiana:* State label only (CI) 1; Covington, June (USNM) 5; Dry Prong, Grant Parish, May (CNHM) 1; Kisatchie National Forest, June (Moser) 1; Rapides Parish, May

(Moser) 1. *Maryland:* Glen Echo, June (USNM) 2; Montgomery County, June (AMNH) 1; Plummer's Island, May–July (USNM) 9. *Mississippi:* Beaumont, April (CU) 1; Gulfport, May–June (USNM) 8; Lucedale, April–May (CU) 4; State Line, May–June (CU) 3; Waynesboro, July (CU) 1. *Missouri:* Central Missouri, June (USNM) 1; Arnold, June (OSU) 1; Creve Coeur Lake, central Missouri, April (MCZ) 1; St. Louis, June (MCZ) 3. *New Jersey:* State label only (ANSP) 3, (UK) 1; Anglesea, June–July (OSU) 2, (CAS) 1, (USNM) 1; Atco, June (MCZ) 1, (CAS) 2; Atlantic City, June (MCZ) 1; Atsion, June–July (CAS) 11; Brown's Mill[s], June (CU) 1; Clementon, June (MCZ) 3; Da Costa, June–July (CAS) 2, (MCZ) 2; Fort Lee (CU) 1; Lakehurst, July (CU) 1, (AMNH) 1, (USNM) 2; Malaga, June–July (CAS) 2, (USNM) 2; Ocean County (UCB) 1. *New York:* Babylon, June (AMNH) 1; Yaphank, Long Island, June (CU) 1. *North Carolina:* Hot Springs (AMNH) 1; Long Beach, May (CNC) 1; Raleigh, February, May, October (Howden) 1, (NCSC) 3; Southern Pines, May, June (UI) 1, (Howden) 2. *Ohio:* State label only (INHS) 4, (UK) 1, (UI) 1. *Pennsylvania:* State label only (BMNH) 1, (ANSP) 1; Jeannet[t]e, May–June (CI) 3; Philadelphia (MCZ) 1; Pittsburg[h] (CI) 1. *South Carolina:* Ware Shoals, June (USNM) 3. *Tennessee:* Black Mountain, Cumberland County, May–August (CU) 1; Burrville, May–July (Rosenberg) 18; Elmwood (CAS) 1; Great Smoky Mountains National Park, June (OSU) 1, (CNHM) 1. *Texas:* State label only (USNM) 1, (UCB) 1; Harrison County, June (OSU) 1; Livingston, Polk County, May (AMNH) 1; Marshall, June (OSU) 1; Texarkana, May (OSU) 1. *Virginia:* State label only (CU) 4, (INHS) 1; Black Pond, Fairfax County, June (AMNH) 1; Cobham (CU) 1; Falls Church, June (USNM) 4; Nelson County, June–July (USNM) 2.

Intermediate specimens: UNITED STATES: *Oklahoma:* Latimer County, July (CAS) 1; Wichita National Forest, June (CAS) 2. *Texas:* State label only (AMNH) 1, (ANSP) 2, (MCZ) 5; Borden [County], June (USNM) 1; College Station, May (USNM) 3; Cyp[ress] Mills (USNM) 2; Fresno, June (USNM) 1; 2½ mi. north Giddings, Lee County, June (JMC) 1; Gillespie County, May–June (OSU) 3; Gurley, May (USNM) 1; Jackson County, May (OSU) 1; Mexia, July (TAM) 1; New Braunfels, August (CAS) 1; Richmond, May (CU) 1; Round Mountain (OSU) 1.

Southern race: MÉXICO: *Nuevo León:* 10 mi. east Iturbide, June (JMC) 23; Rancho Presa, Nueva, June (USNM) 1. *Nuevo León* or *Tamaulipas?:* State or states records only (USNM) 3. *Tamaulipas:* Rancho el Plato, 38 mi. southeast Reynosa, June (USNM) 1; Tampico (BMNH–Biologia Collection) 2. *Veracruz:* Jalapa (BMNH–Biologia Collection) 3. UNITED STATES: *Texas:* State label only (ANSP) 4,

(BMNH) 1, (CU) 1, (MCZ) 9, (INHS) 3, (OSU) 1, (UCB) 2, (UK) 2, (USNM) 7; 18 mi. north Alice, Jim Wells County, June (JMC) 3; Brownsville, May–July, September (USNM) 1, (CAS) 4, (MCZ) 9, (CU) 1, (OSU) 4; Brownsville, Los Borregos, May (USNM) 1; Columbus, May–June (USNM) 3; Corpus Christi, May (USNM) 1; Edinburg (CU) 1; Falfurrias, June, August (CAS) 2, (JMC) 1; Fedor, Lee County, June (MCZ) 5; Kerrville, April, June (USNM) 1, (CNC) 5; Kingsville (CU) 3; Lake Corpus Christi State Park, June (CNC) 1; Sabinal, September (USNM) 1; San Patricio County, Welder Wildlife Foundation, August (JMC) 1; Somerset, July (CAS) 1; Uvalde, June (OSU) 1; Victoria, April, June–July (USNM) 4; Yucca Ridges, near Brownsville, August (USNM) 1.

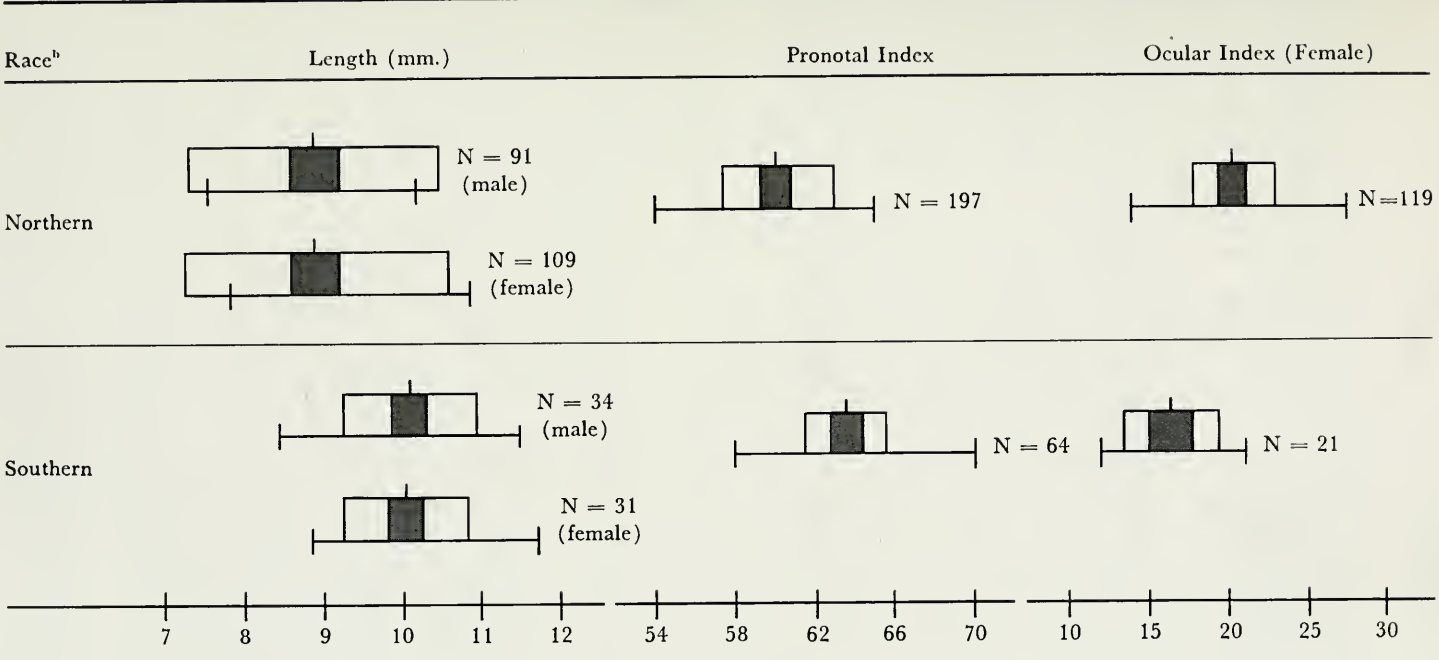
Discussion.—This is the most abundant and widely distributed species of *Lobopoda* in the United States. I have divided it into two distinct races which I have called the northern race and the southern race. These races may be separated by the characters shown in Tables I and II. In addition, the specimens of the northern race are usually dark brown to very dark brownish-black and have the pronotal punctures moderately coarse and deeply impressed and the elytral striae large and deeply impressed. Specimens of the southern race are usually brownish-black, have the pronotal punctures small and shallowly impressed, and have the elytral striae shallowly impressed.

I am unable to assign specimens from central Texas and Oklahoma to either of these races because of the discordant variation shown by them. Some individuals from this area are quite large in size and have the same shape as those of the southern race, but have the pronotum very coarsely punctate and shining as in those of the northern race. Others have the sides of the pronotum parallel and the surface of the pronotum granulate and punctate as in the southern race but the elytral striae are convex and moderately sparsely punctate as in the northern race.

Bionomics.—Specimens of the northern race are very common in dry, sandy areas on the dead limbs of *Quercus* species. I have collected adults in Illinois, north-central Texas, and Kentucky on the lower limbs of *Q. stellata* Wang and *Q. marilandica* Muench. I have collected adults of the southern race on the dead limbs of mesquite (*Prosopis* sp.) in southern Texas and by beating dry clumps of bromeliads on the sides of oaks in the state of Nuevo León, México. Adults apparently feed or hide on lichens and bromeliads which are found on dead branches of oaks and some legumes. They are seldom collected during the day unless they are beaten from their hiding places under lichens and loose bark; however, at night they emerge from their hiding places and crawl over the limbs. I have dissected the gut contents of this species and the only recognizable material present is fungal spores. Adults are completely nocturnal and

TABLE I

COMPARISON OF THE NORTHERN AND SOUTHERN RACES OF *LOBOPODA PUNCTULATA*[a]



[a] Sample range shown by horizontal lines ending in vertical lines; means marked by narrow vertical triangle; bar represents one standard deviation on each side of mean; screened portion of bar represents two standard errors of the mean on each side of the mean.

[b] See Figure 17 for distribution of races.

are often collected at lights. If placed in a cage they are completely inactive in the presence of light. Craighead (1950) records the larvae from knot holes in oak trees.

One adult is labeled "in cow manure" and another was collected on

TABLE II

COMPARISON OF NORTHERN AND SOUTHERN RACES OF *LOBOPODA PUNCTULATA*

	Number		Male ocular index[a]			Pronotal texture[b]			Sides of pronotum[c]			Elytral punctation[d]		
Race	Male	Total	1	2	3	1	2	3	1	2	3	1	2	3
Northern	92	197	26	13	53	147	50	0	176	17	4	157	37	3
Southern	16	43	12	2	6	8	5	30	1	9	33	9	5	29

[a] Classes: 1—eyes touching dorsally; 2—ocular index ranging from 0 to 1; 3—ocular index greater than 1.
[b] Classes: 1—surface of pronotum shining; 2—shining and granulate; 3—granulate but not shining.
[c] Classes: 1—sides of pronotum distinctly narrowed from base; 2—only slightly narrowed; 3—parallel in basal half.
[d] Classes: 1—elytral interstices moderately punctate; 2—moderately densely punctate; 3—densely punctate.

Liriodendron. In Florida, adults are occasionally collected in fruit fly traps.

Adults may be collected from April through August in the southeastern states, from May to September in southern Texas, and from May to July (primarily in June) in the northern portion of its range.

Lobopoda (*Lobopoda*) *monticola*, new species

Color very dark black; surface strongly shining, bearing short, erect, black setae. Length 9.5 to 11 mm. Pronotum with sides straight, gradually narrowed from base to near apex; basal angles rectangular; mean pronotal index of eight specimens 64.5 (63–68); basal foveae very small, shallowly impressed, narrowly separated from broad, very shallowly impressed median fovea; surface smooth, shining, moderately densely, deeply, evenly punctate; punctures separated by distance slightly greater than diameter of a puncture. Elytral striae moderately deeply impressed from base to apex; strial punctures large, elongate-oval, densely, deeply placed along striae; strial interstices moderately convex, moderately sparsely punctate, punctures deeply impressed, placed in two uneven rows. Visible abdominal sterna moderately densely, finely, evenly punctate.

Male.—Eyes large, touching dorsally. Anterior tibiae narrowly, convexly expanded on ventral surface near base; dorsal surface obtusely carinate from base to apex. Tarsal claws each with approximately ten teeth. Male terminalia similar to those of *L. punctulata.*

Female.—Eyes widely separated dorsally; mean ocular index of six specimens 19.0 (17–21).

Type.—Holotype, male, collected by D. J. and J. N. Knull from Jeff Davis County, Texas, July 12, 1950. The specimen is in the collection of The Ohio State University.

Geographic Distribution.—Known only from the Davis Mountains of western Texas south to Big Bend National Park (Fig. 17).

Records.—UNITED STATES: *Texas:* Alpine, August (CU) 1; Big Bend National Park, May (CNC) 5; Chisos Mountains, June (OSU) 1; Davis Mountains, June–July (OSC) 2, (CAS) 4, (OSU) 1; Fort Davis, June (CNC) 1; Jeff Davis County, July (OSU) 1.

Discussion.—*Lobopoda monticola* is apparently confined to the Davis and Chisos mountains of western Texas. It is very similar to *L. punctulata* and may possibly represent a geographical race of it. Since it is anatomically distinct from either of the races of *L. punctulata* and is almost certainly geographically isolated from them, I have chosen to recognize it as a distinct species although I have been unable to find any consistent differences between the male terminalia of the two species.

Bionomics.—There is no ecological data for any of the specimens, but the adults are probably found on the dead limbs of the oaks (*Quercus* sp.) which are very common in the area. Adults have been collected from June through August.

Lobopoda (*Lobopoda*) *erythrocnemis* (Germar)

Allecula erythrocnemis Germar, 1824:164.
Cistela nigrans var. A.: Melsheimer, 1846:60.
Lobopoda erythrocnemis: Champion, 1888:388 (footnote). Casey, 1891:82.

Body dark brown to black; surface moderately shining, finely granulate; venter reddish-brown; legs normally pale red or rarely dark red to reddish-brown; mouthparts pale yellow; antennae reddish-yellow. Length 8.5 to 10 mm. Pronotum with sides converging from base for basal two-thirds and then broadly, evenly rounded to apex; basal angles rectangular; mean pronotal index of 99 specimens 63.0 (57–69; $S_{\bar{x}} = .3$); basal and median foveae small, very shallowly impressed; median fovea widely separated from basal foveae; surface moderately shining, very finely granulate, moderately densely, evenly punctate; punctures moderately small, circular, shallowly impressed, separated by distance approximately equal to two to three times diameter of a puncture. Elytral striae moderately shallowly, evenly impressed from base to apex; strial punctures large, oval, moderately densely placed along striae, separated by distance approximately equal to half the length of a puncture; strial interstices slightly convex, moderately densely punctate; punctures placed in three to four uneven rows along interstices. Visible abdominal sterna moderately sparsely, shallowly punctate.

Male.—Eyes separated by very narrow ridge dorsally. Anterior tibiae broadly, convexly rounded in basal half of ventral surface; dorsal side obtusely carinate in apical third. Tarsal claws each with 10 to 12 teeth. Lobes of eighth sternum (Fig. 60) with apices evenly curved ventrally and then twisted medially; posterior margin of lobes evenly, very broadly rounded. Lobes of ninth sternum broad; sides nearly parallel; apex broadly rounded. Apical piece of genitalia (Fig. 118) moderately densely covered with dentiform setae on ventral surface; sides of apical piece straight, evenly converging from base to apex; apex evenly rounded.

Female.—Eyes moderately large; mean ocular index of 136 specimens 14.0 (9–18; $S_{\bar{x}} = .2$).

Type.—The location of the holotype of *Allecula erythrocnemis* Germar is unknown. The type-locality is Kentucky.

Geographic Distribution.—Lobopoda erythrocnemis is apparently very common in the southeastern states, particularly in Florida. It is known from south of a line drawn through northern North Carolina and northern Tennessee to Arkansas and west into eastern Texas (Fig. 15). It occurs as far south as Key West, Florida.

Records.—UNITED STATES: No locality (USNM) 2, (MCZ) 5, (BMNH) 1. *Alabama:* State label only (CU) 1, (BMNH) 1; 11.3 mi. east Citronelle, April (JMC) 1; Mobile, April, June, December (ANSP) 2, (Rosenberg) 2, (CAS) 1, (CNC) 2. *Arkansas:* State label only (UK) 1, (CU) 4, (LACM) 4, (INHS) 2, (ANSP) 1, (CI) 1, (CAS) 1; Carlisle (MCZ) 5; Hope, December (CU) 1. *Florida:* State label only, September (INHS) 8, (UCB) 3, (CU) 1, (USNM) 3; Alachua County, April–June (SPBF) 6; Archbold Biological Station, Highlands County, March, December (Frost) 2; Biscayne, April–May (USNM) 3, (ANSP) 1; Biscayne Bay (AMNH) 1; Capron, April (USNM) 1; Crescent City (MCZ) 2, (USNM) 4; Dunedin, March–June (CU) 4, (PU–Blatchley Collection) 6; Englewood, March (CU) 1; Enterprise, May–June (USNM) 4, (ANSP) 1, (CAS) 4, (MCZ) 2, (CU) 2; Gainesville, March, May–June, September (SPBF) 4, (UM) 1, (PU) 1; Hastings, July (CU) 1; Highlands Hammock State Park, March (CU) 1; Hilsboro, May (USNM) 1; Holly Hill, Spring (Rosenberg) 1; Interlachen, November (CNC) 1; Jacksonville, May–August (OSU) 9, (CAS) 1; Key West (UCB) 1; Kissimmee (AMNH) 3; 3 mi. southwest Lake Marion, March (CNC) 1; Lake Mary, October (MCZ) 2, (Rosenberg) 1; Lake Placid, March–April (CU) 2; Largo, July (CAS) 1; Lutz, March–April (LACM) 2; Miami, April–May, July (UI) 1, (CI) 5; Monroe County, April (OSU) 1; New Smyrna, May–June (OSU) 5; Oneco, March (CU) 4, (UM) 9; Orange County, May, July (USNM) 2; Orlando, June (SPBF) 1; Osceola County, March (SPBF) 1; Ozello, July (SPBF) 2; Punta Gorda,

May–July (CNHM) 2, (USNM) 1, (CAS) 1, (UM) 1; 5 mi. south Punta Gorda, July (CAS) 1; Saint Augustine (MCZ) 8; Saint Petersburg (CU) 1; Sanford, April, May (Rosenberg) 1, (PU–Blatchley Collection) 1; Sebastian (MCZ) 1; Sebring, May, September (OSU) 2, (SPBF) 1, (MCZ) 2; Seminole County, June–August (USNM) 4; Starke, Bradford County, June (CNHM) 1; Tampa, May (USNM) 3; Tarpon Springs, March (CNC) 1; Welaka, May (CU) 6. *Georgia:* State label only (MSU) 5, (UI) 1, (ANSP) 1, (BMNH) 1; 1.5 mi. south Bainbridge, April (JMC) 1; Chesser's Island, June (CU) 1; Emery Union Field Station, Newton, June, July, September (CNC) 4; Okefenokee Swamp, July (UK) 1; Saint Simons Island, July (CU) 1; Tybee Island, June–July (CAS) 7, (OSU) 5, (MCZ) 1; 8 mi. south Waycross, June (CAS) 1. *Louisiana:* State label only (CI) 1, (ANSP) 4, (USNM) 3, (UK) 1; Bayou Sara, January (USNM) 2; Hart (CAS) 2; New Orleans, December–January (CAS) 1, (CU) 1; Vowell's Mill (UCB) 3, (AMNH) 2. *Mississippi:* Beaumont, April (AMNH) 1; Lucedale, March–April (CU) 19. *North Carolina:* Long Beach, May (CNC) 1; Raleigh, February–March (CNC) 1, (Howden) 1, (NCSC) 9; Southern Pines, March (USNM) 2. *Tennessee:* State label only, January (CNHM) 3; Elmwood (CAS) 1; Memphis, January (UMN) 3. *Texas:* 10 mi. south Elkhart, November (TAM) 1.

Discussion.—I have not had an opportunity to study the type for this species, but Germar's description is adequate for recognition.

This species is quite similar to *L. punctulata* but may be easily recognized in most specimens by the reddish legs. Teneral specimens cannot be identified on the basis of color, but they may be separated from those of *L. punctulata* by the much finer and sparser punctation of the pronotum and the more approximate eyes of the female.

Bionomics.—Adults have been collected under the bark of pine and on dead standing pine. I have taken them by beating the lower dead limbs of *Quercus marilandica* and *Q. stellata*. They are often found at lights. A number of specimens have been taken from fruit fly traps in Florida.

Most adults available were collected from March to July, although I have records in every month except September to November. The species probably overwinters in the adult stage in at least the northern portion of its range.

Lobopoda (*Lobopoda*) *nigrans* (Melsheimer)

Cistela atra Say, 1826:242.
Cistela nigrans Melsheimer, 1846:60 (new name for *Cistela atra* Say, preoccupied by *Cistela ater* Fabricius, 1775, and *Cistela atra* Olivier, 1795).
Lobopoda atra: Champion, 1888:388 (footnote). Casey, 1891:82.
Allecula atra: Blatchley, 1910:1272; 1914:144.

Body black dorsally; venter reddish; surface strongly shining; pronotum with bluish, metallic sheen; legs, labrum, and maxillae light brown

or reddish. Length 6.5 to 8.5 mm. Pronotum with sides distinctly narrowed at base, noticeably sinuate in basal half and then broadly rounded to apex; basal angles slightly acute; mean pronotal index of 49 specimens 74.5 (68–82; $S_{\bar{x}} = .5$); basal and median foveae very small, shallowly impressed; median fovea widely separated from basal foveae; surface very strongly shining, smooth; punctures moderately small, shallowly, evenly impressed, separated by distance equal to two to three times diameter of a puncture. Elytra with striae very deeply impressed; strial punctures large, deeply impressed within striae, separated along striae by distance approximately equal to one-third the length of a puncture; interstices very convex from base to apex, bearing approximately three uneven rows of punctures. Basal three abdominal sterna densely punctate; fourth and fifth sterna moderately sparsely punctate.

Male.—Eyes very small, widely separated dorsally; mean ocular index of 36 specimens 18.6 (10–26; $S_{\bar{x}} = .7$). Anterior tibiae (Fig. 164) moderately convexly expanded on inner side near base. Intermediate tarsi with penultimate segment broadly and third segment very feebly lobed ventrally. Tarsal claws each with 12 to 14 teeth. Lobes of eighth sternum (Fig. 61) with apices short, evenly curved ventrad and mediad; outer sides of lobes evenly rounded to apex; apex located near posterior margin. Lobes of ninth sternum almost straight. Apical piece of genitalia (Fig. 119) with sides narrowly rounded from base to near apex and then parallel to apex; apex evenly rounded.

Female.—Eyes very widely separated dorsally; mean ocular index of 34 specimens 34.1 (24–42; $S_{\bar{x}} = .8$).

Type.—The holotype of this species has been lost. The type-locality is Pennsylvania.

Geographic Distribution.—Figure 16. This species occurs from Massachusetts west to southern Michigan and south to northeastern Texas and Miami, Florida. The only localities west of the Mississippi River are in northeastern Texas. The records for this species are spotty except along the Atlantic and Gulf coasts.

Records.—UNITED STATES: *Alabama:* Mobile, June (USNM) 1, (CU) 1. *Connecticut:* State label only (USNM) 1; Pomfret (MCZ) 2. *District of Columbia:* Rock Creek, Washington, June (USNM) 1. *Florida:* State label only (AMNH) 1, (UCB) 1; Dunedin, March–April (PU–Blatchley Collection) 6; Eustis, April (PU–Blatchley Collection) 1; Jacksonville, June, August (OSU) 5; Lutz, April (CI) 1; Miami, April, July (CI) 2; Pensacola, May (SPBF) 1; Sebring, September (MCZ) 1; Tampa, April (MCZ) 1, (USNM) 2. *Georgia:* State label only (MCZ) 1, (ANSP) 2, (MSU) 2; Emery Union Field Station, Newton, July (CNC) 1; Spring Creek, Decatur County, July (CU) 1; 5 mi. south Waycross, July (CAS) 1. *Illinois:* Effingham, June (INHS) 1. *Indiana:* Atoka, June

(USNM) 1; South McAlester, June (USNM) 1. *Kansas:* Manhattan, June (USNM) 1. *Louisiana:* Bogalusa, May (USNM) 1; Covington, June (USNM) 1. *Maryland:* State label only (MSU) 1. *Massachusetts:* State label only (ANSP) 1, (MSU) 1; Fall River, June (MCZ) 1; Ipswich, July (USNM) 2; Nantucket Island (INHS) 1; Springfield (MCZ) 1; Stoughton, July (USNM) 1; Westport, August (MCZ) 1. *Michigan:* Gull Lake Biological Station, Kalamazoo County, June (MSU) 1. *Mississippi:* Southern Mississippi, June (USNM) 2; Lucedale, April, June (CU) 4. *New Jersey:* Atco, July (MCZ) 3; Atlantic City (MCZ) 1; Fort Lee (AMNH) 1; Jamesburg, June (UCB) 1; Snake Hill (AMNH) 1, (CU) 1. *New York:* State label only (UCB) 2, (CU) 1; Callicoon (AMNH) 1; Greenwood Lake (CU) 1. *North Carolina:* State label only (MCZ) 2, (ANSP) 2; 5 mi. north Bat Cave, June (AMNH) 1; Black Mountain, North Fork Swannanoa (MCZ) 1; Newton Grove, June (NCSC) 1; Raleigh, June (CNC) 1; Southern Pines, May (UI) 1; Valley of Black Mountains, June (AMNH) 1. *Ohio:* Shawnee Forest, June (OSU) 1. *Pennsylvania:* Chambersburg, June (CI) 1. *Rhode Island:* Warwick, June (UMN) 2; Watch Hill, June (USNM) 14. *South Carolina:* Aiken, June (CNC) 1; Clemson, June (USNM) 1. *Texas:* Alto, Cherokee County, June (JMC) 1; 2.5 mi. southwest of Forestburg, Montague County, May (CNHM) 5. *Virginia:* Nelson County, June (USNM) 1.

Discussion.—*Lobopoda nigrans* is placed within the Punctulata Group on the basis of the moderately densely and evenly punctate pronotum and the shape of the male terminalia. It is very distinct from the other species of the group in having the eyes of both the male and the female very small and widely separated dorsally; the body small; the pronotum strongly convex, with a metallic glaze; the pronotal index very large; the elytral striae deeply impressed; and the strial interstices very convex. These characters make this species one of the most distinctive of the genus.

The type of *Cistela atra* has been lost. Melsheimer's (1846) re-description of *L. nigrans* was almost certainly based on a misidentified specimen.

Bionomics.—Adults were recorded by Blatchley (1914) from Florida on oak. One specimen from Florida was collected on turkey oak (*Quercus incana* Bartr.) at night. Based on the habits of other species of the Punctulata Group, it would appear that the adults feed on lichens and fungi found on dead limbs of oaks. A few specimens were collected at lights.

Adults are present from April through August in the southern states and from June through July in the northern portion of its range.

Apicalis Group

Body elongate, strongly narrowed from elytral humeri to apex, dark brownish-black to black or dark metallic green to copper-brown. Length

11 to 16.5 mm. Vertex sparsely, unevenly punctate, a large impunctate area placed between posterior margins of eyes. Width of apical segment of maxillary palpi 1.1 to 1.3 as great as length of third antennal segment. Pronotum evenly convex; surface sparsely to moderately densely punctate; basal foveae large, deeply impressed; median fovea wide, deeply impressed, completely connected with basal foveae so that basal fourth of pronotum is strongly declivous between outer edges of basal foveae; median line moderately deeply, conspicuously impressed, at least in apical half of pronotum. Posterior tarsi .8 to .9 as long as posterior tibiae; basal segment of posterior tarsi equal in length to remaining segments combined. Elytra with sides narrow, evenly tapering from base to apex; apices evenly rounded; elytral striae obsoletely to feebly impressed in basal half, becoming obsolete in apical half; strial punctures large, deeply impressed, circular at base, becoming very elongate approaching apex; strial interstices flat, sparsely punctate.

Male.—Eyes touching dorsally. Ventral surface of anterior femora flattened, often with a large tooth and sometimes several smaller teeth projecting from anterior margin of ventral surface. Anterior tibiae (Figs. 165–167) very widely, triangularly expanded on ventral margin or slightly, evenly convex near middle of ventral margin. Tarsal claws each with only six to seven teeth. Lobes of eighth sternum (Figs. 62–65) broad; apices narrow, curved strongly mediad; a large, distinct ventral ridge placed obliquely across lobes just anterior to apex; ridge bearing elongate setae on ventral and posterior margins; ventral surface of lobes strongly concave anterior and posterior to oblique ridge; apex, sides of ridge, and medial margin of lobes near base all bearing dentiform setae. Lobes of ninth sternum moderately narrow; outer sides usually constricted just before apex. Apical piece of genitalia (Figs. 120–123) with sides strongly converging in basal fourth and then parallel to apical fourth which is strongly, triangularly narrowed; ventral and lateral margins moderately densely covered with dentiform setae.

Female.—Eyes usually narrowly separated (moderately widely separated in *L. seriata*). Penultimate segment of anterior and intermediate tarsi lobed ventrally; third segment of anterior tarsi densely pubescent on ventral surface. Tarsal claws each normally with six teeth. Elytral epipleurae slightly widened just anterior to apex.

Discussion.—This group contains four species: *L. apicalis, L. seriata, L. nigrissima,* and *L. viridis.* It may be easily recognized by the obsolete elytral striae in the apical half of the elytra, the very elongate strial punctures, the distinctive shape of the male terminalia, the very narrowly separated eyes of the female (except in *L. seriata*), and the small number of teeth on each of the tarsal claws of the male (usually six or seven).

This group perhaps most closely approaches the Panamensis Group,

based on the similarly modified anterior legs of the males of some of the species in each group. In addition, both groups have large bodies with the same general shape and a small number of teeth on the tarsal claws of the male. The group is placed near the Punctulata Group on the basis of the similar punctation of the pronotum and the somewhat similar shape of the male terminalia.

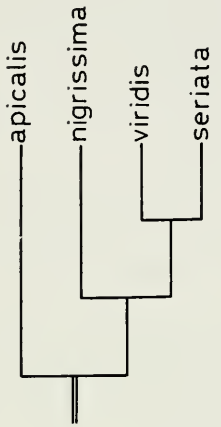


FIG. 9. Phylogeny of the Apicalis Group.

Phylogeny.—The proposed phylogeny of the Apicalis Group is shown in Figure 9. This group probably evolved from a form having the eyes of the male touching dorsally and those of the female rather narrowly separated, the color of the body dark brown or black, the sides of the pronotum straight or slightly sinuate in the basal half and slightly converging from the base, the surface of the pronotum moderately sparsely and evenly punctate, the elytral striae obsolete or feebly impressed at their base, the anterior femora of the male unarmed or with a very faint ventral tooth, and the anterior tibiae of the male slightly and convexly expanded in the middle of the ventral margin.

Lobopoda apicalis seems to be the most primitive species of this group. In it the anterior femora of the male are completely unarmed, the anterior tibiae are evenly expanded ventrally, and the elytral striae are feebly impressed at their base.

Lobopoda nigrissima is similar in most respects to *L. apicalis.* However, the anterior femora of the male are very slightly armed ventrally, the color is a very dark black with all the setae deep black, and the elytral striae are completely unimpressed.

The remaining two species, *L. viridis* and *L. seriata,* are specialized in that the anterior femora of the males each have a large tooth on their ventral margin and the anterior tibiae are usually broadly and triangu-

larly expanded on their ventral margin. *Lobopoda viridis* is further specialized in being a deep metallic green. *Lobopoda seriata* may be considered as specialized in having the sides of the pronotum divergent from the base in the basal half, the eyes of the female much more widely separated, and the pronotum sparsely and unevenly punctate.

Key to the Species of Apicalis Group

1. Anterior tibiae of male (Fig. 165) narrowly, convexly widened on ventral surface near middle; anterior femora without ventral tooth or, if present, tooth strongly reduced 2
   Anterior tibiae of male (Figs. 166–167) widely, triangularly expanded ventrally; anterior femora of male armed with a large, distinct tooth on ventral surface 3
2. Color of body and setae dark black; pronotum densely, deeply, evenly punctate ..... *nigrissima*
   Color of body dark brown; setae pale reddish-yellow; pronotum moderately punctate ..... *apicalis*
3. Color of body metallic; sides of pronotum converging from base ..... *viridis*
   Color of body dark brown; sides of pronotum slightly narrowed posteriorly ..... *seriata*

Lobopoda (*Lobopoda*) *apicalis* Champion

Lobopoda apicalis Champion, 1888:393, pl. 17, figs. 8, 8a.

Body dark brown; antennal segments 4 through 11 light reddish-brown. Length 12 to 15 mm. Antennal segments 4 through 11 with sides parallel from base to apex. Width of apical segment of maxillary palpi 1.1 to 1.2 as great as length of third antennal segment. Pronotum with sides straight, very gradually narrowed from base to apical third of pronotum and then broadly rounded to apex; basal angles rectangular; mean pronotal index of two specimens 60.5 (60–61); surface very strongly shining, smooth, moderately sparsely, irregularly punctate; punctures small, circular, deeply impressed, separated by average distance greater than twice diameter of a puncture. Prosternum coarsely, finely, rugosely punctate; proepisterna very sparsely punctate; a few punctures placed near base of coxae. Mesosternum and metasternum sparsely, evenly punctate; median depression elongate, moderately deeply impressed, extending posteriad between coxae to middle of coxae. Elytra with striae feebly impressed for basal two-thirds and then becoming obsolete approaching apex; strial punctures circular at base, becoming extremely elongate approaching apex, narrowly, moderately deeply impressed; interstices of striae moderately convex. Visible abdominal sterna moderately sparsely, evenly, coarsely punctate; last visible sternum flattened medially in male, somewhat concave in female.

Male.—Intermediate and posterior femora with short, very sparsely distributed, erect setae on ventral surface from base to apex. Anterior tibiae (Fig. 165) slightly, convexly expanded near middle of ventral surface; dorsal surface obscurely carinate from near base to apex. Viewed laterally, lobes of eighth sternum (Fig. 62) shallowly emarginate between apex and ventral ridge; apex of ventral ridge moderately broadly rounded. Lobes of ninth sternum evenly rounded from near base to apex. Sides of apical piece of genitalia (Fig. 120) narrow, densely covered with dentiform setae.

Female.—Eyes narrowly separated dorsally; ocular index of one specimen 4.

Type.—Lectotype, male, from the type-series of four specimens, collected by Champion from Capetillo, Guatemala. The specimen is now in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—GUATEMALA: Capetillo (BMNH–Biologia Collection) 4.

Lobopoda (*Lobopoda*) *nigrissima,* new species

Body strongly shining, dark black; elytra black, very faintly metallic; base of antennae black; apical segments fulvous, tinged with black; all setae except those on tarsi black. Length 12 mm. Antennal segments 4 through 11 slightly enlarged apically. Width of apical segment of maxillary palpi equal in length to third antennal segment. Pronotum with sides straight, slightly narrowed from base to apical third of pronotum and then broadly rounded to apex; basal angles rectangular; pronotal index of one specimen 61; surface smooth, shining, moderately densely, evenly punctate; punctures large, circular, deeply impressed, separated by distance slightly greater than diameter of a puncture. Prosternum coarsely, finely, rugosely punctate; proepisterna moderately densely, finely punctate around base of coxae. Mesosternum densely punctate on sides; middle deeply, broadly, longitudinally impressed; impression extending posteriad between coxae to metasternum; metasternum finely, moderately sparsely punctate. Elytra with striae obsolete from base to apex; strial punctures circular near base, becoming extremely elongate approaching apex, narrowly, moderately deeply impressed; strial interstices flat, sparsely punctate. Visible abdominal sterna moderately sparsely, evenly, coarsely punctate; last visible sternum slightly concave near middle.

Male.—Anterior femora very slightly toothed near middle of ventral surface; intermediate and posterior femora with moderately densely placed, very short, erect setae in basal half of ventral margin. Anterior tibiae very slightly, convexly expanded on ventral surface near middle; dorsal surface obscurely carinate in basal half. Viewed laterally, apex of lobes of eighth sternum (Fig. 63) strongly projecting posteriad, area

between apex and ventral ridge shallowly emarginate, apex of ventral ridge moderately broadly rounded. Outer sides of lobes of ninth sternum constricted just before apex. Apical piece of genitalia (Fig. 121) moderately broad, moderately sparsely covered with dentiform setae.

Female.—Unknown.

Type.—Holotype, male, collected by Campbell from five miles west of Gómez Farías, Tamaulipas, México, June 15–16, 1962. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—MÉXICO: *Tamaulipas:* 5 mi. west Gómez Farías, June (JMC) 1.

Discussion.—*Lobopoda nigrissima* is very similar in appearance to *L. apicalis* and may possibly be a geographical variant of it. It is distinct from the latter species in having the color of the body dark, shining black; the setae stiff, erect, and solid black; the elytral striae obsolete from base to apex; the strial punctures more widely separated; and the apical segments of the antennae slightly, but distinctly obconical and only slightly lighter in color than the basal segments.

In the melanistic nature and the punctation of the pronotum, it resembles *L. monticola* from the Davis and Chisos mountains of western Texas.

Bionomics.—I collected the type-specimen by beating the debris which had collected in the crotch of a tree. The locality five miles west of Gómez Farías is in a dense cloud forest at an elevation of approximately 5,000 feet. The specimen was collected in June.

Lobopoda (*Lobopoda*) *seriata* Champion

Lobopoda seriata Champion, 1888:395, pl. 17, figs. 11, 11a.

Body dark, brownish-black; antennal segments 4 through 11 light reddish-yellow; surface shining. Length 11 to 13 mm. Sides of antennal segments 4 through 11 slightly diverging from base to apex. Width of apical segment of maxillary palpi approximately 1.3 as great as length of third antennal segment. Pronotum with sides slightly divergent in basal two-thirds and then broadly rounded to apex; basal angles rectangular; mean pronotal index of 17 specimens 64.2 (62–68; $S_{\bar{x}} = .4$); surface smooth, shining, sparsely punctate; punctures circular, moderate in size, shallowly impressed, somewhat more densely congregated along midline. Prosternum sparsely, shallowly punctate; proepisterna impunctate except posterior margin and area around base of coxae. Mesosternum and metasternum moderately finely, sparsely, evenly punctate; median depression large, deeply impressed, V-shaped; apex of V extending posteriad between coxae to their middle. Elytra with striae obsolete from base to apex; strial punctures circular at base, becoming moderately elongate approaching apex; punctures shallowly impressed; strial interstices slightly convex.

Visible abdominal sterna very finely, evenly, sparsely punctate; last visible sternum distinctly concave in middle.

Male.—Anterior femora (Figs. 166–167) with a moderately large, acutely rounded spine placed on outer side of ventral surface near base; intermediate and posterior femora moderately sparsely covered with very short, erect setae. Anterior tibiae (Figs. 166–167) variable, ranging from very widely and triangularly expanded near apex to only moderately and somewhat convexly expanded, acutely carinate on dorsal surface from near base to apex; intermediate tibiae slightly carinate on outer side near base. Lobes of eighth sternum (Fig. 64) with apex not projecting posteriad of ventral ridge and very narrowly rounded; ventral surface deeply, narrowly emarginate between ventral ridge and apex. Lobes of ninth sternum with outer side constricted just anterior to apex. Apical piece of genitalia (Fig. 122) with sides only slightly narrowed in basal fourth, parallel in medial half; apical fourth broadly rounded.

Female.—Eyes moderately widely separated dorsally; mean ocular index of ten specimens 12.4 (9–15; $S_{\bar{x}} = .6$).

Type.—Lectotype, male, from the type-series of 18 specimens, collected by Gaumer from northern Yucatán. The anterior tibiae of the specimen are broadly expanded. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—MÉXICO: *Yucatán:* North Yucatán (BMNH–Biologia Collection) 17, (AMNH) 1.

Discussion.—*Lobopoda seriata* is similar to *L. apicalis;* it may be readily identified by having the eyes of the female more widely separated dorsally, the sides of the pronotum narrowed approaching the base, the pronotal punctation finer and somewhat less densely distributed, and the anterior tibiae of the males more widely expanded. These differences could be the result of geographical variation; however, in the absence of intermediate forms and because of the very different habitats of the type-localities, I have considered them as separate species, as did Champion in the *Biologia.*

There is some variation in the degree of expansion of the anterior tibiae of the male (Figs. 166–167) and in the size of the ventral tooth of the femora within *L. seriata.* In some specimens the anterior tibiae are very widely, triangularly expanded as in *L. viridis,* but in other specimens the tibial expansion is much smaller, though still triangularly expanded and not rounded.

Lobopoda (*Lobopoda*) *viridis* Champion

Lobopoda viridis Champion, 1888:404, pl. 18, figs. 6, 6a, 6b.
Lobopoda longipes Borchmann, 1937:218. (New synonymy.)

Body shining, dark metallic green or dark metallic copper-brown; antennal segments 4 through 11 reddish-yellow. Length 11.5 to 16.5 mm. Sides of apical antennal segments gradually, evenly enlarged from base to apex, slightly lighter in color than basal segments. Width of apical segment of maxillary palpi approximately equal or slightly greater than length of third antennal segment. Pronotum with sides straight or slightly sinuate in basal half, slightly converging from base; basal angles rectangular or slightly acute; mean pronotal index of 11 specimens 60.6 (59–63; $S_{\bar{x}} = .4$); surface smooth, strongly shining, metallic, finely, moderately sparsely, evenly punctate; punctures moderate in size, moderately deeply impressed, separated by distance greater than twice diameter of a puncture. Prosternum densely, rugosely punctate; proepisterna sparsely punctate around base of coxae and basal margin; remainder impunctate. Mesosternum moderately densely punctate; median depression broadly, deeply impressed, V-shaped; apex of V extending posteriad between coxae to middle of coxae. Metasternum sparsely, evenly punctate; punctures small, moderately deeply impressed. Elytral striae obsolete from base to apex in middle, feebly impressed on sides; strial punctures large, oval in basal third of elytra, becoming elongate approaching apex and very elongate near apex. Visible abdominal sterna shining, moderately densely punctate; last visible sternum widely, ovally, concavely impressed in middle.

Male.—Anterior femora with a small to moderately large blunt tooth placed on outer side of ventral surface near middle; tooth often surrounded on each side with a few much smaller, blunt teeth; intermediate and posterior femora with very short, densely placed, erect setae in basal half of ventral surface. Anterior tibiae moderately widely to very widely, triangularly expanded on ventral surface near apex; anterior side concavely impressed posteriad of ventral expansion; dorsal surface of anterior and intermediate tibiae acutely carinate from near base to apex. Eighth sternal lobes (Fig. 65) with apices very narrow, only slightly projecting beyond ventral ridge; ventral surface between ventral ridge and apex broadly, deeply emarginate; ventral ridge very broadly rounded. Lobes of ninth sternum with sides distinctly constricted just before apex. Apical piece of genitalia (Fig. 123) moderately densely covered with dentiform setae; sides moderately narrow.

Female.—Eyes very narrowly separated dorsally; mean ocular index of four specimens 4.5 (4–5).

Type.—Lectotype, male, from the type-series of seven specimens, collected by Höge from Misantla, México. The specimen, figured by Champion, is in the British Museum (Natural History).

The holotype of *Lobopoda longipes* was collected by Kraatz and labeled "México" [examined]. It is in the Deutsche Entomologische Institut.

Geographic Distribution.—Known only from the Mexican states of Veracruz and Chiapas.

Records.—MÉXICO: Country label only (DEI) 1, (ZSM) 2. *Chiapas:* El Suspiro, Berriozábal, June (JMC) 1. *Veracruz:* Córdova [Córdoba], July (CNHM) 1, (BMNH–Biologia Collection) 3; Jalapa, June (USNM) 1; Misantla (BMNH–Biologia Collection) 2.

Discussion.—*Lobopoda longipes* was described on the basis of one male specimen. This specimen differs from *L. viridis* only in its smaller size, the somewhat less expanded anterior tibiae, and the somewhat reduced ventral teeth of the anterior femora. In the absence of other characters, I have placed it in synonymy with *L. viridis.*

Bionomics.—This species has been collected in June and July.

Panamensis Group

Body varying from moderately light to dark brown; punctures bearing moderately long, fine, reddish-yellow setae. Length 12.5 to 16 mm. Vertex finely, moderately sparsely punctate; a large impunctate area placed between posterior margins of eyes. Apical segments of antennae with sides parallel, only slightly widened approaching apex. Pronotum with sides slightly converging from base in basal half and then broadly rounded to apex; base moderately deeply bisinuate; basal angles rectangular; pronotal punctures more densely placed along midline. Prosternum very finely, shallowly, rugosely punctate. Median depression of mesosternum deeply impressed; apex of depression rounded, not extending posteriad of anterior margin of mesocoxae. Metasternum moderately finely, densely punctate; punctures slightly more densely placed near middle. Abdominal sterna finely, moderately densely, evenly punctate; fifth sternum flattened, usually impunctate in middle.

Male.—Unknown for two of the three species.

Female.—Eyes very narrowly to moderately narrowly separated dorsally. Penultimate segment of anterior and intermediate tarsi lobed ventrally. Tarsal claws each with five to six teeth.

Discussion.—In Central America this group contains *L. panamensis, L. mucronata,* and *L. chontalensis.* None has been recorded from north of Nicaragua.

Lobopoda impressa Erichson, from Peru, also belongs in this group. The males of both *L. panamensis* and *L. impressa* may be easily recognized by having their anterior femora with a large tooth on their ventral margin and the anterior tibiae broadly expanded ventrally. The females of *L. impressa* and *L. mucronata* may be recognized by having the elytral epipleurae broadly expanded just anterior to the apex and the elytral apices mucronate.

No attempt has been made to discuss the phylogeny of the species of this group because the males of two of the species are unknown.

Key to the Species of the Panamensis Group

1. Elytral interstices wide, almost flat; interstitial punctures moderately densely placed in three or four uneven rows; shape broadly elongate-oval ..... *chontalensis*
   Elytral interstices narrow, very convex; interstitial punctures placed in two uneven rows, one along each side; shape narrowly elongate-oval 2
2. Elytral apices of female mucronate; eyes narrowly separated dorsally ..... *mucronata*
   Elytral apices of female not mucronate; eyes moderately widely separated dorsally ..... *panamensis*

Lobopoda (*Lobopoda*) *chontalensis* Champion

Lobopoda chontalensis Champion, 1888:399.

Body broadly elongate-oval, strongly narrowed from anterior third of elytra to head and to apex of elytra, dark brown; tibiae, tarsi, mouthparts, and antennae reddish-yellow; surface very finely granulate, slightly shining. Length 12.5 to 14 mm. Width of apical segment of maxillary palpi 1.4 as great as length of third antennal segment. Pronotum with sides very slightly sinuate in basal half; mean pronotal index of three specimens 56.7 (56–57); surface moderately densely punctate; punctures evenly distributed, slightly larger, more deeply impressed in middle; basal and median foveae small, shallowly impressed; median fovea widely separated from basal foveae; midline shallowly impressed or unimpressed; a small shallow depression located on each side anteriad of basal foveae. Proepisterna impunctate. Mesosternum moderately densely, finely punctate. Elytra with striae moderately shallowly impressed at base, becoming moderately deeply impressed nearing apex; strial punctures large, oval, separated by distance approximately equal to half the length of a puncture; strial interstices very wide, slightly convex, very densely punctate; punctures small, shallowly impressed, placed in three to four indistinct rows; epipleurae with dorsal half very finely, moderately densely punctate.

Male.—Unknown.

Female.—Eyes large, narrowly separated; mean ocular index of three specimens 7.7 (7–8).

Type.—Lectotype, female, from the type-series of two specimens collected by T. Belt from Chontales, Nicaragua. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known from one locality each in Nicaragua, Costa Rica, and western Panamá.

Records.—COSTA RICA: Hamburgfarm, S[an]ta Clara Pr[ovince], January (USNM) 1. NICARAGUA: Chontales (BMNH–Biologia Collection) 2. PANAMÁ: Vicinity Boquete, August (CAS) 1.

Discussion.—The exact placement of *L. chontalensis* will remain in doubt until the male is discovered.

Bionomics.—The species has been collected in January and August.

Lobopoda (Lobopoda) panamensis Champion

Lobopoda panamensis Champion, 1888:392, pl. 17, figs. 6, 6a.

Body narrowly elongate-oval, widest near base of elytra; color varying from light to dark brown; surface smooth, shining; setae short, fine, reddish-yellow. Length 13.5 to 16 mm. Third segment of antennae approximately .7 as long as fourth. Width of apical segment of maxillary palpi only slightly greater than length of third antennal segment. Pronotum with sides straight in basal half; mean pronotal index of eight males 60.4 (59–62), and of six females 55.7 (54–57); surface moderately sparsely, coarsely, very irregularly punctate; punctures deeply, more densely impressed within basal depression and along midline, normally separated on sides by a distance two to three times as great as diameter of a puncture; basal foveae small, very deeply impressed; median fovea very wide, deeply impressed, broadly connected to basal foveae; two small depressions present on sides anteriad of basal foveae; midline faintly impressed. Proepisterna finely punctate on anterior margin and around base of coxae. Mesosternum moderately densely, coarsely punctate on sides, very sparsely punctate in middle. Elytra with sides widest near base, gradually narrowing to posterior third of elytra and then evenly rounded to apex; apices narrowly rounded; striae moderately deeply, evenly impressed; strial punctures large, deeply impressed, very narrowly separated along striae; interstices of striae moderately convex, sparsely, finely punctate; punctures placed in two very irregular rows; epipleurae slightly, irregularly widened just anteriad of apex in female, very finely, sparsely punctate along dorsal margin.

Male.—Eyes touching dorsally. Anterior femora (Fig. 168) slightly enlarged, dentate near middle of ventral surface; a patch of short, erect setae placed near base of ventral surface. Ventral surface of intermediate and posterior femora moderately densely covered with short, erect setae. Anterior tibiae (Fig. 168) with ventral margin widened from base of tibiae to anterior third and then abruptly narrowed; expanded area of tibiae concave on inner surface; dorsal side strongly carinate in basal half. Dorsal side of intermediate tibiae slightly carinate in middle. Tarsal claws each with seven to eight teeth. Lobes of eighth sternum (Fig. 66) elongate, narrow; apex of each lobe curved medially; inner surface rather densely covered with short dentiform setae; a small ridge bearing a number of short, but conspicuous setae extending along middle of each lobe on ventral surface; viewed laterally, lobes straight, apices evenly, broadly rounded. Apices of ninth sternal lobes somewhat obliquely truncate. Apical piece of genitalia (Fig. 124) broad; sides evenly converging

from near base to apex; apex broadly, evenly rounded; sides bearing short dentiform setae from near apex to near base; a pair of small dentiform setae on venter near apex; viewed laterally, sides converging from base to apex; apex very acute.

Female.—Eyes large, narrowly separated dorsally; mean ocular index of seven specimens 11.4 (9–14).

Type.—Lectotype, male from the type-series of two specimens collected by Champion from Caldera, Panamá (1,200 feet). The specimen is in the British Museum (Natural History).

Geographic Distribution.—Lobopoda panamensis is known from the wet, tropical areas of Panamá and the island of Trinidad. It probably occurs in northern South America also.

Records.—CANAL ZONE: Barro Colorado Island, April, June–August, December (JMC) 7, (CNHM) 2, (USNM) 4. PANAMÁ: Caldera, 1200 feet (BMNH–Biologia Collection) 2. TRINIDAD: Island label only (BMNH) 1.

Bionomics.—Adults have been collected near lights and feeding at night on crustose lichens on tree trunks. They apparently hide during the day, possibly as a means of protection against predators since they are very conspicuous against the light-colored lichens on which they feed.

Adults are probably present throughout the year, but they have been collected only in April, June, July, August, and December.

Lobopoda (*Lobopoda*) *mucronata* Champion

Lobopoda mucronata Champion, 1888:393.

This species differs from *L. panamensis* only in the following characters:

Length 14.5 to 15 mm. Pronotum with surface bearing small, rather deep depressions just anteriad of basal foveae, moderately sparsely, irregularly punctate; punctures separated on sides by distance approximately equal to twice diameter of a puncture; punctures slightly more densely placed along midline and in basal foveae; mean pronotal index of two specimens 59.0 (58–60). Elytral epipleurae very widely, distinctly expanded anteriad of apex; epipleurae obliquely transverse posterior to expansion; apex prolonged into a short mucro.

Male.—Unknown.

Female.—Eyes very narrowly separated; mean ocular index of two specimens 4.0 (3–5). Anterior tarsi with third segment distinctly lobed ventrally.

Type.—Holotype, female, collected by Champion from Bugaba, Panamá. The holotype is in the British Museum (Natural History).

Geographic Distribution.—Known from Bugaba, Panamá, and Barro Colorado Island in the Canal Zone.

Records.—CANAL ZONE: Barro Colorado Island, August (JMC) 2. PANAMÁ: Bugaba (Champion, 1888).

Discussion.—One specimen studied was compared with the holotype by Miss C. M. F. von Hayek of the British Museum.

Although this species is very similar in appearance to *L. panamensis*, the two species may be readily separated by the characters given in the key.

Bionomics.—Although there may be some doubt of the distinctness of this species and *L. panamensis* from an anatomical viewpoint, they apparently have somewhat different habitats. On Barro Colorado Island *L. panamensis* was collected at night near lights and feeding on crustose lichens on tree trunks, while *L. mucronata* was found on dead palm leaves. The adults perhaps live in the palm trees, which provide a habitat similar to that of arboreal bromeliads, in which many species of alleculids are found.

The two specimens examined were collected in August.

Calcarata Group

Body narrowly elongate-oval; surface finely granulate, shining. Vertex finely, moderately sparsely punctate; a small impunctate area placed between posterior margins of eyes. Antennal segments elongate, slightly obconical. Pronotum with sides straight, distinctly converging for basal two-thirds and then broadly rounded to apex; base moderately deeply bisinuate; basal angles rectangular. Prosternum finely, densely punctate; proepisterna very finely, moderately densely punctate on inner margin anteriad of coxae. Median depression of mesosternum wide, shallowly impressed, V-shaped; apex of V extending posteriad to anterior margin of coxae. Basal segment of posterior tarsi .8 as long as other segments combined. Abdominal sterna moderately finely, densely punctate; fifth sternum broadly, moderately deeply, concavely impressed in middle.

Male.—Eyes touching dorsally. Anterior tibiae (Fig. 169) widely, convexly expanded in middle of ventral margin. Lobes of eighth sternum (Fig. 67) broad at base; sides strongly narrowed to apex; apical half of lobes evenly curved medially; apex evenly rounded; inner side near middle triangularly produced; lobes devoid of dentiform setae. Apical piece of genitalia (Fig. 125) with sides unevenly narrowed from base to apex, devoid of dentiform setae.

Female.—Unknown.

Discussion.—The Calcarata Group contains only *L. calcarata*, from México. This is the only species of the subgenus having the male eighth sternal lobes triangularly produced in the middle of their inner margin and completely devoid of dentiform setae.

Lobopoda (*Lobopoda*) *calcarata* Champion

Lobopoda calcarata Champion, 1893:563, pl. 23, figs. 23, 23a.

Body dark brown; setae moderately long, fine, reddish-yellow. Length 15 mm. Third segment of antennae only .7 as long as fourth. Width of apical segment of maxillary palpi approximately equal to length of third antennal segment. Pronotum with surface moderately sparsely, finely punctate; punctures small, circular, shallowly impressed, separated by distance approximately three times as great as diameter of a puncture; pronotal index of one specimen 69; basal and median foveae small, shallowly impressed; median fovea narrowly separated from basal foveae; midline unimpressed. Mesosternum finely, shallowly, moderately densely punctate. Metasternum moderately densely, finely punctate in middle. Elytra with striae moderately deeply impressed from base to apex; strial punctures circular, moderately deeply impressed within striae, separated by distance approximately equal to length of a puncture; interstices of striae slightly convex, deeply, moderately sparsely punctate; punctures placed in approximately two uneven rows, one placed on each side of interstices.

Male.—Ventral surface of all femora with sparsely placed, short, erect setae extending from base to middle. Anterior tibiae (Fig. 169) finely carinate on apical half of dorsal margin. Tarsal claws each with 10 to 11 teeth. Lobes of eighth sternum (Fig. 67) with apical half concavely excavate on inner side; inner margin of lobes bearing short, normal setae. Lobes of ninth sternum only half as long as those of eighth sternum; apex of lobes narrowly, triangularly rounded. Apical piece of genitalia (Fig. 125) with sides parallel for basal half and then broadly rounded to near apex; viewed laterally, sides narrowed rapidly to apex; apex very acutely triangular.

Female.—Unknown.

Type.—Lectotype, male, from the type-series of two specimens, collected by Flohr from Juquila, México. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—MÉXICO: *Oaxaca:* Juquila (BMNH–Biologia Collection) 2.

Discussion.—*Lobopoda calcarata* does not closely resemble any other Mexican or Central American species of the subgenus *Lobopoda*. It does resemble *L. trinidadensis* of the subgenus *Mesolobopoda*. The two species may be readily separated by the differences in the two subgenera.

PUNCTICOLLIS GROUP

Body narrowly elongate-oval, dark brown. Length 9.5 to 14 mm. Vertex moderately densely, coarsely, evenly punctate; a small impunctate area placed between posterior margins of eyes. Pronotum with surface very

densely, coarsely, evenly punctate; punctures separated by average distance less than diameter of a puncture; basal and median foveae very small, shallowly impressed; median fovea widely separated from basal foveae; midline unimpressed. Elytra with sides evenly tapering from base to apex; elytral striae moderately deeply, evenly impressed from base to apex; elytral epipleurae moderately sparsely punctate at base, becoming densely punctate approaching apex.

Male.—Eyes touching or very narrowly separated dorsally. Anterior tibiae (Figs. 171–173) at most slightly, convexly expanded on ventral margin. Male terminalia (Figs. 69–73, 127–131) highly variable between species subgroups.

Female.—Unknown for four of the six species of the group.

Discussion.—The Puncticollis Group contains six species, which are divided among three subgroups. The subgroups are based primarily on differences in the male terminalia and to a lesser extent on differences in the male secondary sexual characters.

With respect to the almost confluently punctate pronotum, the species of this group resemble those of the Flavipes Group of the subgenus *Flavipoda* and most of those of the genus *Hymenorus.*

This group is known from Guatemala and the Mexican states of Yucatán, Veracruz, and Tamaulipas.

Phylogeny.—The proposed phylogeny of the species of the Puncticollis Group is shown in Figure 10. This group is presumed to have been derived from a species having the body narrowly elongate-oval; the surface very densely, almost confluently punctate, particularly on the pronotum; the eyes of the male narrowly separated dorsally; the median depression of the mesosternum V-shaped with the apex of the V not reaching posteriad of the anterior margin of the mesocoxae; the male anterior tibiae convexly expanded on the ventral side near the middle; the intermediate and posterior male tibiae simple and not sexually modified; and the male genitalia symmetrical.

It is further presumed that from this ancestral species one line gave rise to the Terminalis Subgroup and another line to the Guatemalensis and Puncticollis subgroups. The first line is primitive in most respects except the shape of the male terminalia. The male terminalia of this subgroup are very distinctive and highly specialized in that the apical piece of the genitalia is strongly twisted on the basal piece and the lobes of the eighth sternum are distinctly asymmetrical. The second line is specialized in having the median depression of the mesosternum longitudinally impressed and the male posterior tibiae at least partially carinate. The Guatemalensis Subgroup has the posterior tibiae only slightly carinate, while in the Puncticollis Subgroup they are very distinctly and sinuately carinate for their entire length. In addition, the latter group may be

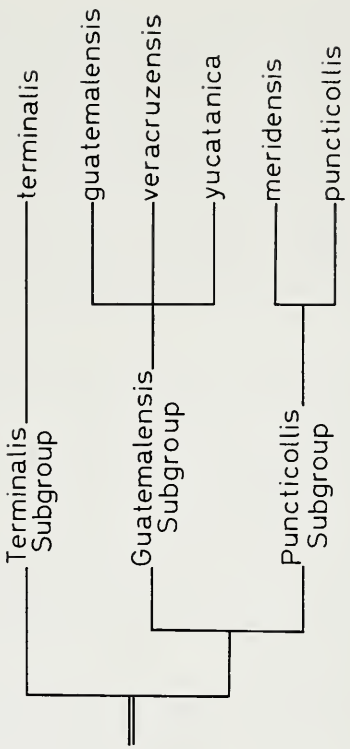


FIG. 10. Phylogeny of the Puncticollis Group.

considered as specialized in having the eyes of the male touching each other dorsally.

Within each of the subgroups, the species are separable almost exclusively on differences in the male terminalia.

KEY TO THE SUBGROUPS OF THE PUNCTICOLLIS GROUP

1. Median depression of mesosternum V-shaped; apex of V not extending posteriad of anterior margin of mesocoxae; male terminalia (Figs. 69, 127) distinctly asymmetrical ..... Terminalis Subgroup
   Median depression of mesosternum longitudinal; apex of depression extending posteriad between coxae to metasternum; male terminalia symmetrical 2
2. Eyes of male touching dorsally; posterior tibiae of male with a distinct, sinuate carina along ventral margin; apex of lobes of eighth sternum (Figs. 70–71) straight, broadly truncate ..... Puncticollis Subgroup
   Eyes of male very narrowly separated dorsally; posterior tibiae of male slightly carinate on ventral margin; apex of lobes of eighth sternum

(Figs. 72–73) curved dorsally, somewhat expanded .....
.....Guatemalensis Subgroup

TERMINALIS SUBGROUP

Body with surface finely granulate, slightly shining; setae moderately long, fine, yellow-brown. Antennae long, thin; sides of segments 4 through 11 almost parallel. Pronotum with base deeply bisinuate; basal angles rectangular; pronotal punctures very narrowly separated by distance less than half as great as diameter of a puncture. Prosternum very densely, confluently punctate; proepisterna sparsely punctate around coxae, with a few punctures placed near anterior margin. Mesosternum moderately densely, coarsely punctate; median depression deeply impressed, V-shaped; apex of V not extending posteriad of anterior margin of mesocoxae. Metasternum moderately densely, finely punctate in middle; punctures somewhat larger, more sparsely distributed approaching sides. Elytra with strial punctures moderately large, elongate, deeply impressed, narrowly separated along striae; interstices moderately convex, densely punctate; punctures placed in approximately three uneven rows. Abdominal sterna moderately sparsely, coarsely punctate; fifth sternum flattened, impunctate in middle.

Male.—Eyes very narrowly separated dorsally. Anterior tibiae (Fig. 171) moderately widely, convexly expanded in middle. Lobes of eighth sternum (Fig. 69) elongate; sides parallel from base to near apex and then strongly curved medially; left lobe bearing a distinct swelling on ventral side near apex; apex acutely triangular; apex of right lobe widened, broadly emarginate. Lobes of ninth sternum narrow; apex evenly, narrowly rounded. Apical piece of genitalia (Fig. 127) strongly asymmetrical.

Female.—Unknown.

Discussion.—The Terminalis Subgroup contains a single, very distinct species from Guatemala. This species is the only one of the genus *Lobopoda* known to me in which the male eighth sternum is bilaterally asymmetrical. Moreover, the apical piece of the genitalia is strongly twisted on the basal piece and very conspicuously asymmetrical.

Lobopoda (Lobopoda) terminalis, new species

Length 10 to 10.5 mm. Third segment of antennae approximately .7 as long as fourth. Width of apical segment of maxillary palpi 1.3 as great as length of third antennal segment. Pronotum with sides nearly straight, slightly converging in basal two-thirds and then broadly rounded to apex; mean pronotal index of two specimens 58.5 (57–60). Posterior tarsi approximately .8 as long as posterior tibiae; basal segment of posterior tarsi approximately .9 as long as remaining segments combined.

Male.—Eyes very narrowly separated dorsally; mean ocular index of

two specimens 1.5 (1–2). Ventral margin of intermediate and posterior femora bearing a few rows of short, erect setae. Anterior tibiae (Fig. 171) very feebly, obscurely carinate on outer side. Tarsal claws each with 10 to 11 teeth. Lobes of ninth sternum (Fig. 69) very narrow; sides parallel; apex narrowly rounded. Apical piece of genitalia (Fig. 127) strongly asymmetrical.

Female.—Unknown.

Type.—Holotype, male, collected by Schwarz and Barber from Cacao, Trece Aguas, Alta Verapaz, Guatemala, April 25. The specimen is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—GUATEMALA: Trece Aguas, Alta Verapaz, April (USNM) 2.

Bionomics.—*Lobopoda terminalis* has been collected in April.

PUNCTICOLLIS SUBGROUP

Surface of body smooth, moderately shining. Apical segments of antennae slightly obconical; third segment only two-thirds as long as fourth. Pronotum with sides slightly sinuate just anteriad of base; distinctly converging from base to apex for basal two-thirds and then evenly rounded to apex; punctures separated by average distance distinctly less than diameter of a puncture. Prosternum densely, coarsely, rugosely punctate; proepisterna densely punctate in anterior half, becoming impunctate approaching posterior margin. Mesosternum coarsely, shallowly punctate on sides; median depression deeply impressed, elongate; apex of depression extending posteriad between coxae to metasternum. Posterior tarsi .9 as long as posterior tibiae. Elytra with strial punctures small, moderately densely placed along striae, shallowly impressed; interstices moderately convex, densely, finely punctate; punctures placed in approximately three to four uneven rows. Abdominal sterna densely, coarsely, evenly punctate. Fifth sternum flattened in middle; apical margin broadly rounded.

Male.—Eyes touching dorsally. Anterior tibiae (Fig. 172) with an acute, conspicuous carina on apical half of outer side; middle tibiae with a distinct, acute carina on basal two-thirds of outer side; posterior tibiae with an obtuse carina extending length of tibiae along middle of ventral surface; carina and posterior tibiae strongly sinuate. Lobes of eighth sternum (Figs. 70–71) broad, moderately short; apex of lobes truncate; inner surface moderately densely covered with dentiform setae. Apical piece of genitalia (Figs. 128–129) with sides evenly narrowed from base to apex; apex narrowly rounded; sides and venter densely covered with dentiform setae.

Female.—Unknown for one of the two species.

Discussion.—The Puncticollis Subgroup, which contains *L. puncticollis* and *L. meridensis,* may be easily recognized by the characters given in the key. In addition, the shape of the male terminalia and the strongly carinate and sinuate posterior tibiae of the male are useful in distinguishing the subgroup from all others of the genus *Lobopoda.*

The species of this subgroup are known from Guatemala and the state of Yucatán in México.

Key to the Species of the Puncticollis Subgroup

1. Lobes of ninth sternum of male (Fig. 71) almost twice as long as those of eighth sternum; apex of lobes slightly emarginate .... *meridensis*

   Lobes of ninth sternum of male (Fig. 70) only slightly longer than those of eighth sternum; apex of lobes broadly rounded .... *puncticollis*

Lobopoda (Lobopoda) puncticollis Champion

Lobopoda puncticollis Champion, 1888:396, pl. 17, figs. 14, 14a, 14b.

Antennal segments 4 through 11 lighter in color than basal segments; setae short, fine, yellow-brown. Length 12 mm. Width of apical segment of maxillary palpi 1.4 as long as length of third antennal segment. Pronotal index of one specimen 60. Metasternum moderately densely, shallowly punctate in middle; punctures becoming larger, sparsely distributed approaching sides. Basal segment of posterior tarsi approximately equal to length of remaining segments combined.

Male.—Anterior tibiae (Fig. 172) only slightly expanded on inner margin. Tarsal claws each with 10 to 11 teeth. Lobes of ninth sternum (Fig. 70) slightly longer than lobes of eighth sternum; apex broadly rounded.

Female.—Unknown.

Type.—Lectotype, male, from the type-series of two specimens, collected by G. C. Champion and labeled Capetillo, Guatemala. The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—GUATEMALA: Capetillo (BMNH–Biologia Collection) 2.

Lobopoda (Lobopoda) meridensis, new species

Antennal segments 4 through 11 lighter in color than body; setae short, fine, yellow-brown. Length 12 to 13.5 mm. Width of apical segment of maxillary palpi 1.2 as great as length of third antennal segment. Mean pronotal index of four specimens 64.3 (62–66). Metasternum densely, finely punctate in middle; punctures becoming moderately small, sparsely distributed approaching sides. Basal segment of posterior tarsi 1.2 as long as remaining segments combined.

Male.—Anterior tibiae slightly, convexly enlarged in basal half. Tarsal claws each with 11 to 12 teeth. Lobes of ninth sternum (Fig. 71) almost twice as long as lobes of eighth sternum; apex of lobes slightly emarginate; inner surface very broadly, triangularly inflexed in apical half.

Female.—Eyes moderately narrowly separated; mean ocular index of two specimens 11.5 (11–12). Penultimate segment of anterior and intermediate tarsi lobed. Tarsal claws each with six teeth.

Type.—Holotype, male, labeled "Mérida [Yucatán, México], Koltze." The specimen, from the Haag-Rutenberg Collection, is in the Zoologische Staatssammlung in Munich.

Geographic Distribution.—Known only from the type-locality.

Records.—MÉXICO: Country label only (ZSM) 2. *Yucatán:* Mérida (ZSM) 2.

Discussion.—In one specimen of this species the male tibial carinae are particularly distinct. The carina of the anterior and intermediate tibia extends the length of the segment and that of the posterior tibia is very sharp and distinct throughout.

Lobopoda meridensis may be a geographic variant of *L. puncticollis.* However, it differs anatomically from the latter species in having the ninth sternal lobes of the male very elongate and the tibial carinae more distinctly developed. In addition, the habitats of the two species are quite different.

GUATEMALENSIS SUBGROUP

Surface of body smooth, slightly shining, very densely punctate; setae fine, short, yellow-brown. Antennae moderately short; apical segments widest in middle, slightly narrowed at each end. Pronotum with base deeply bisinuate; basal angles rectangular; pronotal punctures separated by distance distinctly less than diameter of a puncture. Prosternum very densely, finely punctate; proepisterna moderately densely punctate in anterior half, impunctate in posterior half. Mesosternum sparsely, moderately deeply, finely punctate; median depression deeply, longitudinally impressed; apex of depression extending posteriad between coxae to metasternum. Metasternum very densely, finely, almost confluently punctate in middle, becoming moderately densely, coarsely, deeply punctate approaching sides. Elytra with strial punctures shallowly impressed, elongate, densely placed; interstices slightly convex, very densely, finely punctate; punctures placed in approximately four to five uneven rows. Abdominal sterna very densely, moderately finely punctate; surface finely granulate; apex of fifth sternum flattened in middle.

Male.—Eyes separated dorsally by very narrow ridge. Anterior tibiae (Fig. 173) very slightly, convexly expanded on inner side near base; outer side slightly carinate in apical half; intermediate tibiae distinctly carinate in basal half of outer side; inner side of posterior tibiae slightly

carinate in basal half. Tarsal claws each with 10 to 11 teeth. Lobes of eighth sternum (Figs. 72–73) abruptly curved dorsally in apical half; apex of ventral expansion expanded laterad; dorsal expansion and inner margin of lobes moderately densely covered with dentiform setae. Lobes of ninth sternum with inner margin concave; apices evenly rounded. Apical piece of genitalia (Figs. 130–131) with sides converging from base to apex; apex narrowly rounded; sides of apical piece with an oblique row of large, densely placed dentiform setae extending from near base to apical third; also a few dentiform setae placed on ventral surface mesad of oblique row.

Female.—Unknown for two of the three species.

Discussion.—This subgroup contains the species *L. yucatanica, L. guatemalensis,* and *L. veracruzensis.*

Key to the Species of the Guatemalensis Subgroup

1. Lobes of eighth sternum curved externally at approximately a 45° angle near middle; apex of lobes not widened ..... *yucatanica*
   Lobes of eighth sternum (Figs. 72–73) only slightly curved externally; apex of lobes distinctly widened 2
2. Viewed ventrally, apex of eighth sternal lobes abruptly bent medially near apex ..... *guatemalensis*
   Viewed ventrally, apex of eighth sternal lobes bent externally, distinctly widened ..... *veracruzensis*

Lobopoda (*Lobopoda*) *yucatanica* Champion

Lobopoda yucatanica Champion, 1888:397, pl. 17, figs. 15, 15a.

Champion (1888) described this species as follows:

Moderately elongate, dull brownish-piceous, thickly pubescent. Head closely and somewhat coarsely punctured; eyes (male) very large and approximate; prothorax wide in front, the sides straight behind, the hind angles rectangular, the disc almost unimpressed, the basal foveae very shallow, the surface finely and densely punctured; elytra moderately long, gradually narrowing from a little below the base, with finely and closely punctured striae, the interstices feebly convex and finely and thickly punctured, beneath somewhat closely and rather coarsely punctured, the metasternum (male) densely so in the middle behind; legs and antennae brownish-ferruginous, the former short.

Male.—Anterior tibiae subtriangularly widened on the inner side before the middle. The lateral lobes of the last ventral segment short, and with a slender club-like prolongation at the end; the central sheath gradually narrowing to the apex, the latter blunt.

Length 8½ millim.; breadth 3 millim.

Type.—Holotype, male, collected by Gaumer from Temax in northern Yucatán, México. The type is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—MÉXICO: *Yucatán:* Temax (Champion, 1888).

Lobopoda (Lobopoda) guatemalensis, new species

Length 9.5 mm. Width of apical segment of maxillary palpi 1.4 as great as length of third antennal segment. Pronotum with sides parallel for basal third and then very broadly rounded to apex; pronotal index of one specimen 64. Posterior tarsi .8 as long as posterior tibiae; basal segment of posterior tarsi 1.3 as long as remaining segments combined.

Male.—Eyes very narrowly separated dorsally; ocular index of one specimen 1. Lobes of eighth sternum (Fig. 72) long, narrow; apical half abruptly, obliquely curved dorsally; apex slightly widened, curved medially. Lobes of ninth sternum distinctly shorter than those of eighth sternum; apices of lobes narrowly, evenly rounded. Apical piece of genitalia as in Figure 130.

Female.—Unknown.

Type.—Holotype, male, collected by Schwarz and Barber from Cacao, Trece Aguas, Alta Verapaz, Guatemala, April 9. The specimen is in the United States National Museum.

Geographic Distribution.—Known only from the type-locality.

Records.—GUATEMALA: Trece Aguas, Alta Verapaz, April (USNM) 1.

Discussion.—*Lobopoda guatemalensis* is very similar to *L. veracruzensis* and *L. yucatanica*. *Lobopoda veracruzensis* may possibly represent a variant of this species. They can be separated best on the basis of differences in the male terminalia, particularly the shape of the lobes of the eighth sternum; the more widely separated eyes of the male; the more broadly rounded sides of the pronotum; and the more broadly expanded male anterior tibiae in *L. veracruzensis*. It differs from *L. yucatanica* (based on Champion's [1888] description and illustration of the latter species) only in the shape of the male terminalia. This was verified by Miss C. M. F. von Hayek of the British Museum who compared the holotype of *L. guatemalensis* with that of *L. yucatanica*.

Lobopoda (Lobopoda) veracruzensis, new species

Length 11 mm. Third segment of antennae approximately equal to length of fourth. Width of apical segment of maxillary palpi 1.1 as great as length of third antennal segment. Pronotum with sides broadly rounded from base to apex, slightly wider in middle than at base; mean pronotal index of two specimens 65.0 (64–66). Posterior tarsi .7 as long as posterior tibiae; basal segment of posterior tarsi 1.4 as long as remaining segments combined.

Male.—Eyes distinctly separated dorsally by narrow ridge; ocular index of one specimen 4. Lobes of eighth sternum (Fig. 73) broad; apical half abruptly, obliquely curved dorsally; apex bent externally, distinctly

widened. Lobes of ninth sternum equal in length to those of eighth sternum; apices of lobes broadly, unevenly rounded. Apical piece of male genitalia as in Figure 131.

Female.—Eyes moderately widely separated dorsally; ocular index of one specimen 14. Penultimate segment of anterior tarsi very narrowly lobed; penultimate segment of intermediate tarsi not lobed. Tarsal claws each with six to seven teeth.

Type.—Holotype, male, collected by H. S. Dybas from Puente Nacional, Veracruz, México, July 3, 1941. The specimen is in the Chicago Natural History Museum.

Geographic Distribution.—Known only from two localities in México, one near the coast of central Veracruz and the other from a cloud forest at Gómez Farías in southern Tamaulipas.

Records.—MÉXICO: *Tamaulipas:* 5 mi. west Gómez Farías, 5000 feet, June (JMC) 1. *Veracruz:* Puente Nacional, July (CNHM) 1.

Discussion.—Miss C. M. F. von Hayek compared the holotype of this species with that of *L. yucatanica.*

Bionomics.—This species has been collected in June and July. It was found in the cloud forest at Gómez Farías at night, feeding on crustose lichens on a tree trunk.

GUERRERENSIS GROUP

Body narrowly elongate; sides parallel; surface finely granulate, shining. Antennae elongate; apical segments only slightly wider at apex than at base. Pronotum with surface finely, shallowly, moderately sparsely, evenly punctate; punctures circular, separated by average distance two to three times as great as diameter of a puncture. Median depression of mesosternum widely, shallowly impressed, V-shaped; apex of V not reaching posteriad as far as anterior margin of mesocoxae. Elytra with striae shallowly impressed at base, becoming moderately deeply impressed approaching apex; strial interstices slightly convex, moderately densely punctate.

Male.—Eyes touching dorsally. Anterior tibiae (Fig. 174) moderately broadly, triangularly expanded on ventral margin in basal half. Lobes of eighth sternum (Fig. 74) broad; apical half broadly, concavely spoon-shaped; moderately densely covered on inner side with very long, coarse setae.

Female.—Unknown.

Discussion.—This group contains *L. guerrerensis,* from Guerrero, México. This and the following group are distinguished from other groups in having a covering of long setae on the eighth sternal lobes. The shape of the male terminalia of this group is very distinctive.

Lobopoda (*Lobopoda*) *guerrerensis*, new species

Body light brown; setae very short, fine, reddish-yellow. Length 13 mm. Vertex finely, moderately sparsely punctate; a small impunctate area placed between posterior margins of eyes. Antennae with third segment .7 as long as fourth. Width of apical segment of maxillary palpi approximately equal to length of third antennal segment. Pronotum with sides straight, distinctly converging from base for basal two-thirds and then rounded to apex; base deeply bisinuate; basal angles rectangular; pronotal index of one specimen 66; pronotal punctures somewhat smaller near middle; basal foveae small, shallowly impressed; median fovea shallowly impressed, wide, narrowly separated from basal foveae; midline distinctly but shallowly impressed. Prosternum very finely, shallowly punctate; proepisterna finely punctate on inner margin around coxae from base to apex. Mesosternum finely, moderately sparsely punctate. Metasternum finely, moderately densely punctate in middle; punctures larger, more sparsely distributed approaching sides. Elytra with sides parallel for basal half and then rounded to apex; strial punctures moderately deeply, densely impressed along striae, separated by distance less than diameter of a puncture; punctures of strial interstices placed in two to three uneven rows; elytral epipleurae densely, finely punctate. Abdominal sterna moderately finely, densely, evenly punctate; fifth sternum broadly concave in middle.

Male.—All femora moderately densely covered with short, erect setae on ventral margin. Anterior tibiae (Fig. 174) with dorsal surface finely, obscurely grooved near middle; intermediate tibiae finely carinate near base. Tarsal claws each with eight to nine teeth. Lobes of eighth sternum (Fig. 74) with apex abruptly curved medially; inner margin with a row of short, densely placed, dentiform setae. Lobes of ninth sternum short, very narrow; apex acutely rounded. Apical piece of genitalia (Fig. 132) with sides converging from base to near apex and then abruptly narrowed and parallel to apex; apex broadly rounded; sides with very fine dentiform setae.

Female.—Unknown.

Type.—Holotype, male, from the Fry Collection. The specimen is labeled "Tasco [Taxco], México, 1905.100." It is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—MÉXICO: *Guerrero:* Tasco [Taxco] (BMNH) 1.

Discussion.—This species may be easily distinguished from other species of the subgenus *Lobopoda* by its very fine pronotal punctation, very distinctive male terminalia, and elongate shape. Superficially it resembles *L. trinidadensis* of the subgenus *Mesolobopoda*.

TROPICALIS GROUP

Body moderately elongate; surface shining, moderately densely pubescent. Pronotum sparsely, moderately coarsely, shallowly punctate; basal foveae shallowly impressed. Elytra with striae moderately deeply impressed; strial interstices slightly convex, coarsely punctate.

Male.—Eyes touching dorsally. Anterior tibiae not modified on ventral surface. Lobes of eighth sternum long, curved slightly medially in apical half; apical portion flattened, spatulate in shape, covered with very long setae; inner margin with fine dentiform setae. Apical piece of genitalia with sides rounded; apex broad, truncate.

Female.—Unknown.

Discussion.—The Tropicalis Group contains *L. tropicalis,* from Panamá. It is placed near the Guerrerensis Group because of the presence of long setae on the male eighth sternal lobes.

Lobopoda (Lobopoda) tropicalis Champion

Lobopoda tropicalis Champion, 1888:398, pl. 17, fig. 17.

Champion (1888) described this species as follows:

Moderately elongate, brownish-piceous, rather shining, somewhat thickly pubescent. Head with scattered coarsish punctures; eyes large and approximate in the male; prothorax sparsely and rather coarsely (but shallowly) punctured, the disc very distinctly canaliculate, and shallowly, transversely impressed before the base, the basal foveae not very deep, the hind angles rectangular; elytra moderately long, with closely punctured striae, the interstices feebly convex and somewhat coarsely punctured; beneath sparsely and rather coarsely punctured, the metasternum in the middle behind closely so in the male; legs and antennae dark ferruginous, the former thickly clothed (especially on the inner side of the femora and tibiae) with hairs.

Male.—Anterior tibiae simple. The lateral lobes of the last ventral segment long and curved, the apical portion widened and of a flattened spatulate shape, nearly straight, and clothed with very long hairs, the inner edge minutely serrate; the central sheath rather broad, gradually narrowing behind, the apex abruptly truncate.

Length 10½ millim.; breadth 3⅔ millim.

Type.—Holotype, male, collected by Champion from the Volcán de Chiriquí, Panamá [not examined]. The type is in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—PANAMÁ: Volcán de Chiriquí (Champion, 1888).

Discussion.—This very distinct species of *Lobopoda* is unfortunately known only from the type-specimen. Champion (1888) stated that it is "about the size and shape of *L. attenuata;* but it is readily distinguished by the more sparsely punctured and more distinctly canaliculate thorax, the simple anterior tibiae in the male, etc."

Miss C. M. F. von Hayek has supplied a drawing of the male termi-

nalia of the holotype of this species. The sides of the apical piece are slightly narrowed and rounded for the basal three-fourths and then abruptly narrowed for a short distance before becoming parallel to the apex. The apex of the genitalia is rather broadly truncate.

FEMORALIS GROUP

Body elongate-oval, brown; surface finely granulate, slightly shining. Pronotum with sides straight, slightly narrowed from base to apex; base deeply bisinuate; basal angles rectangular; surface densely, evenly punctate; punctures moderately shallowly impressed, separated by average distance slightly greater than diameter of a puncture. Median depression of mesosternum very deeply impressed, V-shaped; apex of V extending posteriad to anterior margin of mesocoxae. Basal segment of posterior tarsi equal in length to remaining segments combined. Elytral striae deeply, evenly impressed from base to apex.

Male.—Eyes very narrowly, distinctly separated dorsally. Anterior tibiae (Fig. 170) broadly expanded near middle of ventral surface. Lobes of eighth sternum (Fig. 68) highly modified. Lobes of ninth sternum short, narrow; apices acutely triangular. Apical piece of genitalia (Fig. 126) strongly asymmetrical, slightly twisted on basal piece.

Female.—Eyes moderately widely to widely separated dorsally. Only penultimate segment of anterior and intermediate tarsi lobed ventrally; third segment of anterior tarsi densely pubescent ventrally.

Discussion.—This group contains only *L. femoralis,* which ranges from central México south into Panamá. It may be easily separated from those of any other group by the very distinctive shape of its male terminalia. It resembles many of the members of the subgenus *Flavipoda,* particularly *L. bicolor,* in the color of the legs.

Phylogenetically, this species probably represents a very early divergence from the remaining species of the subgenus *Lobopoda.* I have placed it in the second division of the subgenus on the basis of its highly specialized male terminalia, but it possibly should be placed in a third division.

Lobopoda (*Lobopoda*) *femoralis* Champion

Lobopoda femoralis Champion, 1888:398, pl. 17, figs. 18, 18a.

Body light brown; antennae and mouthparts light yellow; legs light yellow except apex of femora and very small part of base of tibiae, which are dark brown; setae short, fine, yellow. Length 8.5 to 10 mm. Vertex moderately densely, shallowly punctate; a small impunctate area placed between posterior margins of eyes. Antennae moderately short; apical segments slightly enlarged approaching apex. Width of apical segment of maxillary palpi slightly greater than length of third antennal segment. Pronotum broadly rectangular; mean pronotal index of 19 specimens 59.9

(57–62; $S_{\bar{x}} = .3$); basal foveae small, shallowly impressed; median fovea broad, moderately deeply impressed, connected to basal foveae; midline very shallowly impressed. Prosternum shallowly, densely punctate; proepisterna and mesosternum very finely, sparsely punctate. Metasternum moderately finely, densely punctate in middle; punctures becoming coarser and sparser approaching sides. Elytra with sides broadly rounded from base to apex; strial punctures large, oval, very densely placed along striae; strial interstices moderately convex, very densely punctate; punctures placed in three to four uneven rows. Abdominal sterna moderately densely, shallowly punctate; fifth sternum evenly convex.

Male.—Eyes very narrowly separated; mean ocular index of four specimens 3.3 (1–6). Posterior femora with a distinct row of short, erect, evenly spaced setae along ventral margin; intermediate and anterior femora with modified setae moderately densely placed on ventral surface. Anterior tibiae (Fig. 170) broadly, convexly expanded near middle, slightly carinate on outer side from near base to apex; middle tibiae carinate on outer side in basal half. Tarsal claws each with 10 to 11 teeth. Lobes of eighth sternum (Fig. 68) very long, narrow; apical third bent strongly medially; apices of lobes widened, prominently extended dorsally, parallel with lobes; dorsal extension bearing numerous small dentiform setae; inner side of lobes widened, concave, bearing scattered dentiform setae in and on margins of the concavity. Apical piece of genitalia (Fig. 126) with sides and venter moderately densely covered with scattered dentiform setae; apex somewhat widened; basal piece very small, narrow in apical half but greatly widened in basal half.

Female.—Eyes widely separated in pale race; mean ocular index of ten specimens 20.0 (17–26; $S_{\bar{x}} = .8$); in dark race mean ocular index of five specimens 13.2 (10–19). Tarsal claws each with six teeth.

Type.—Lectotype, male, from the type-series of 14 specimens, collected by Höge from Tapachula, Chiapas. The specimen is in the British Museum (Natural History). It is a member of the pale race.

Geographic Distribution.—Ranging from southern San Luis Potosí, México, to western Panamá. It has been collected at elevations from near sea level to 4,000 feet. See Figure 14.

Records.—COSTA RICA: Country label only (BMNH) 1. GUATEMALA: San Isidro, 1600 feet (BMNH–Biologia Collection) 1; V[olcán] de Atitlán, 25–3500 ft. (BMNH–Biologia Collection) 1. MÉXICO: *Chiapas:* Tapachula (BMNH–Biologia Collection) 7. *San Luis Potosí:* Tamazunchale, June (CNHM) 1. *Tabasco:* Frontera (BMNH–Biologia Collection) 1; Teapa (BMNH–Biologia Collection) 1. *Veracruz:* El Fortín, July (CNHM) 2; Lake Catemaco, August (Howden) 2; 3 mi. north Nautla, June (JMC) 1; 2 mi. north Santiago Tuxtla, July (JMC) 1. PANAMÁ: Bugaba, 800–1500 feet (BMNH–Biologia Collection) 1;

Caldera, 1200 feet (BMNH–Biologia Collection) 2; Taboga Island, November (USNM) 1.

Discussion.—There are two distinct races of this species. One (pale race), known only from México, is rather light brown, with the legs, antennae, and mouthparts light yellow and the apex of the femora dark brown. The second (dark race) is characterized by having the body, antennae, and mouthparts dark brown and the legs dark yellow with the apex of the femora dark brown. In addition, the eyes of the female are more approximate in the dark race. There are apparently no differences in the male terminalia. One specimen each of the dark race from Costa Rica; Tapachula, Chiapas; and San Isidro, Guatemala, has uniformly colored legs.

Bionomics.—*Lobopoda femoralis* has been collected in México in June and July and in Panamá in November. One specimen was collected by beating wilted leaves from a tree that had recently been cut down.

Cubensis Group

Body elongate-oval, dark brownish-black. Antennal segments 4 through 11 distinctly obconical; third segment equal to length of fourth. Pronotum with sides sinuate, slightly converging in basal two-thirds; base broadly, deeply bisinuate; basal angles rectangular; surface densely, coarsely punctate; punctures circular or slightly oval, very deeply impressed, irregularly distributed over surface, separated by average distance less than diameter of a puncture. Median depression of mesosternum deeply impressed, V-shaped; apex of V extending posteriad between coxae to middle of mesocoxae. Elytra with striae obsolete; strial punctures large, elongate, very deeply impressed, separated by average distance at least equal to length of a puncture.

Male.—Eyes moderately widely separated dorsally. Third and fourth segments of intermediate tarsi lobed ventrally, penultimate segment of posterior tarsi very feebly lobed ventrally. Male terminalia (Figs. 76, 133) very simple in structure.

Female.—Unknown.

Discussion.—The Cubensis Group contains one species, from Cuba. It may be considered as the most primitive group of the subgenus *Lobopoda* on the basis of having the eyes of the male widely separated dorsally, the third segment of the intermediate tarsi lobed, the fourth segment of the posterior tarsi very feebly lobed, and the male terminalia very simple in structure. However, it is apparently specialized in having the elytral striae obsolete and the pronotum irregularly punctate. It probably represents a very early branch from the line giving rise to the remainder of the subgenus *Lobopoda.*

This group is very similar in appearance to members of the Opacicollis

Group in having the male terminalia simple in shape, the basal and medan foveae deeply impressed, the pronotum densely punctate and finely granulate, the vertex densely punctate, and the anterior tibiae of the male convexly expanded. It particularly resembles members of the Oblonga Subgroup in having the eyes of the male widely separated dorsally, the sides of the pronotum sinuate, the elytral striae shallowly impressed or unimpressed, and the eighth sternal lobes of the male very broad. It differs from the Opacicollis Group by the absence of oblique striations on the fourth and fifth sterna, the completely obsolete elytral striae, and the elongate strial punctures.

Lobopoda (*Lobopoda*) *cubensis,* new species

Surface of body very finely granulate, opaque; setae moderately long, reddish-brown. Length 12 mm. Vertex very densely, coarsely, confluently punctate; punctures oval in shape, deeply impressed. Width of apical segment of maxillary palpi 1.2 as great as length of third antennal segment. Pronotum with basal and median foveae large, very deeply impressed; median fovea widely separated from basal foveae; midline unimpressed; pronotal index of one specimen 61. Prosternum, anterior half of proepisternum, and mesosternum densely, coarsely, rugosely punctate. Metasternum very finely, moderately densely punctate in middle; punctures becoming very sparsely distributed and somewhat larger approaching sides. Elytra with sides parallel for basal half and then evenly narrowed to apex; strial interstices flat, finely, moderately sparsely punctate; punctures placed in approximately two uneven rows. Basal three abdominal sterna moderately densely, coarsely punctate; fourth and fifth sterna very finely, sparsely punctate around sides and apex; remainder impunctate; fifth sternum evenly convex.

Male.—Ocular index of one specimen 9.5. Posterior femora with a row of densely placed, erect setae along ventral margin. Anterior tibiae slightly, convexly expanded on ventral surface near middle; dorsal surface finely, acutely carinate from near base to apex. Lobes of eighth sternum (Fig. 76) very wide, broadly concave on inner margin, densely covered with dentiform setae on margins of apical half; apices broadly, evenly rounded. Lobes of ninth sternum narrow; outer side broadly rounded to apex from middle; apices narrowly rounded. Apical piece of genitalia (Fig. 133) with sides evenly narrowed from base to apex; sides and venter with moderately densely placed dentiform setae; apex narrowly rounded.

Female.—Unknown.

Type.—Holotype, male, from Cuba. The specimen, originally in the Chevrolat Collection, is in the Zoologische Staatssammlung of Munich.

Geographic Distribution.—Known only from the island of Cuba.

Records.—CUBA: Country label only (ZSM) 1.

Discussion.—Unfortunately all the tarsi of the type-specimen are missing.

HAITENSIS GROUP

Body narrowly elongate-oval; surface finely granulate, opaque. Pronotum with surface finely, shallowly, moderately sparsely punctate; punctures evenly distributed, separated by average distance approximately three times as great as diameter of a puncture. Median depression of mesosternum moderately deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Elytra with striae moderately deeply, evenly impressed; strial punctures small, shallowly impressed, separated by average distance equal to or slightly greater than length of a puncture.

Male.—Unknown.

Female.—Eyes widely separated dorsally. Penultimate segment of anterior and intermediate tarsi lobed ventrally.

Discussion.—The Haitensis Group contains only *L. haitensis,* from Haiti. This species is known only from the female and therefore cannot be compared phylogenetically with the other groups of the subgenus *Lobopoda.*

Lobopoda (*Lobopoda*) *haitensis,* new species

Body light brown in color; apex of antennal segments 4 through 11 light yellow; setae short, fine, reddish-brown. Length 8 mm. Vertex moderately sparsely, shallowly, finely punctate. Third antennal segment only slightly shorter than fourth. Apical segment of maxillary palpi .5 as long as wide; width 1.3 as great as length of third antennal segment. Pronotum with sides rounded, converging from base to apex; base shallowly bisinuate; basal angles rectangular; pronotal index of one specimen 55; basal and median foveae very small, very shallowly impressed; median fovea widely separated from basal foveae; midline unimpressed. Prosternum very finely, sparsely, shallowly punctate; proepisterna moderately sparsely, finely punctate on anterior half of inner margin. Mesosternum and metasternum moderately densely, coarsely, evenly punctate. Posterior tarsi .8 to .9 as long as posterior tibiae; basal segment of posterior tarsi equal in length to remaining segments combined. Elytra with sides parallel in basal half and then evenly narrowed to apex; interstices almost flat, moderately densely punctate; punctures placed in two to three uneven rows along middle of interstices; epipleurae impunctate except for a row of fine punctures along dorsal margin. Basal three abdominal sterna moderately densely punctate; fourth and fifth sterna sparsely, finely punctate around apical and lateral margins, otherwise impunctate; fifth sternum evenly convex.

Male.—Unknown.

Female.—Ocular index of one specimen 18. Tarsal claws each with four or five teeth.

Type.—Holotype, female, from Shada Refuge Headquarters, Haiti, collected May 28, 1950. The specimen is in the Illinois Natural History Survey.

Geographic Distribution.—Known only from the type-locality.

Records.—HAITI: Shada Refuge Headquarters, May (INHS) 1.

Discussion.—This species may be easily separated from all other known West Indian species of the subgenus *Lobopoda* by its sparsely punctate and finely granulate pronotum, widely separated eyes of the female, and light brown color. It is the only species of Alleculidae recorded from Haiti.

Substriatus Group

Body narrowly elongate, dark metallic green above; underside and appendages reddish-brown; surface moderately densely setate. Pronotum with surface moderately densely, finely punctate; punctures shallowly, evenly impressed, separated by average distance equal to twice diameter of a puncture. Median depression of mesosternum deeply impressed, V-shaped; apex of V not extending posteriad of anterior margin of mesocoxae. Elytra with striae obsolete; strial punctures small, circular at base, becoming very elongate approaching apex and widely separated along striae.

Male.—Eyes distinctly separated dorsally. Lobes of eighth sternum (Fig. 75) moderately simple in structure; apical third angulate, sparsely covered with small dentiform setae.

Female.—Unknown.

Discussion.—The Substriatus Group contains only one species, from the Dominican Republic.

Lobopoda (Lobopoda) substriatus, new species

Body with surface smooth, shining; setae fine, very short, reddish-brown. Length 13.5 mm. Vertex moderately densely, finely punctate; a large impunctate area located between posterior margins of eyes. Antennae elongate; apical segments distinctly obconical; third segment .8 as long as fourth. Width of apical segment of maxillary palpi slightly greater than length of third antennal segment. Pronotum with sides straight, strongly narrowed from base to near apex; base moderately deeply bisinuate; basal angles slightly acute; pronotal index of one specimen 53.5; basal and median foveae small, shallowly impressed; median fovea widely separated from basal foveae; midline shallowly, distinctly impressed. Prosternum sparsely, irregularly punctate; proepisterna finely, sparsely punctate in anterior third. Mesosternum moderately densely, finely punctate. Metasternum finely, moderately sparsely, evenly punc-

tate. Posterior tarsi .8 as long as posterior tibiae; basal segment equal in length to remaining segments combined. Elytra with sides parallel for basal half and then evenly rounded to apex; strial interstices flat, moderately densely, very finely punctate; elytral epipleurae finely, densely punctate. Visible abdominal sterna coarsely, moderately densely punctate; fifth sternum shallowly impressed in middle of apical margin.

Male.—Ocular index of one specimen 4. Femora with short, moderately sparsely placed, erect setae in basal half of ventral margin. Anterior tibiae distinctly, convexly expanded near base. Tarsal claws each with 14 to 15 teeth. Lobes of eighth sternum (Fig. 75) moderately broad; apical third angled medially; ventral surface with a well-developed ridge extending from angulate portion of apex to middle of base; inner surface with a few scattered dentiform setae; apices abruptly, acutely curved dorsally. Lobes of ninth sternum moderately long; apices narrowly, evenly rounded. Apical piece of genitalia (Fig. 134) with sides broadly, convexly narrowed in basal half and then evenly narrowed to apex; apex narrowly rounded, curved dorsally; sides and venter with a few small, scattered dentiform setae.

Female.—Unknown.

Type.—Holotype, male, collected by Jaeger and labeled "Santo Domingo [Dominican Republic]." The specimen is now in the Zoological Museum of the University of Helsinki, Finland.

Geographic Distribution.—Known only from the type-locality.

Records.—Dominican Republic [Santo Domingo]: Country label only (UHZM) 1.

Discussion.—This species is superficially very similar to *L. nitens* of the subgenus *Glabrilobopoda*. Both are very similar in size and shape, are bright metallic green in color, and lack elytral striae.

Jamaicensis Group

Body moderately elongate-oval, black, distinctly setate; apex of antennal segments 4 through 11 and mouthparts light reddish-yellow. Pronotum with surface finely, moderately densely, evenly punctate; punctures separated by average distance equal to two or three times diameter of a puncture. Median depression of mesosternum moderately deeply impressed, V-shaped; apex of V extending posteriad between coxae to metasternum. Elytral striae deeply, evenly impressed from base to apex; strial punctures oval, very deeply impressed within striae, separated by distance less than length of a puncture.

Male.—Unknown.

Female.—Eyes moderately narrowly separated dorsally. Penultimate segment of anterior and intermediate tarsi lobed ventrally.

Discussion.—This group contains one species, from the island of Jamaica.

Lobopoda (Lobopoda) jamaicensis, new species

Body with surface very finely granulate, only slightly shining; setae short, fine, dark brownish-black. Length 10.5 to 11 mm. Vertex moderately densely, deeply, evenly punctate. Third segment of antennae approximately .8 as long as fourth. Width of apical segment of maxillary palpi 1.3 as great as length of third antennal segment. Pronotum with sides straight, parallel for basal third and then evenly rounded to apex; base deeply bisinuate; basal angles rectangular; mean pronotal index of both specimens 59; basal and median foveae moderately small, shallowly impressed; median fovea widely separated from basal foveae; midline very shallowly impressed. Prosternum finely, densely punctate; proepisterna moderately densely, coarsely punctate in anterior half. Mesosternum and metasternum finely, sparsely punctate. Posterior tarsi .8 as long as posterior tibiae; basal segment approximately equal in length to remaining segments combined. Elytra with sides gradually narrowed from base for basal half and then evenly narrowed to apex; strial interstices convex, moderately densely, finely punctate; punctures placed in approximately three uneven rows; epipleurae very densely, finely punctate, distinctly widened just anterior to apex. Abdominal sterna moderately densely, coarsely, evenly punctate; middle of fifth sternum of female flattened, impunctate.

Male.—Unknown.

Female.—Mean ocular index of two specimens 7.5 (6–9). Tarsal claws each with six teeth.

Type.—Holotype, female, from the Pascoe Collection, labeled "Jamaica, 1858, J. Gray." The specimen is in the British Museum (Natural History).

Geographic Distribution.—Known only from Jamaica in the West Indies.

Records.—JAMAICA: Country label only (BMNH) 1; St. Catherine, Juan de Bolas, 2000–2700 feet (Farr) 1.

Discussion.—This species is similar in general appearance to *L. punctulata* of the Punctulata Group. It is the only species of *Lobopoda* known from Jamaica.

Insularis Group

Body elongate, black; surface shining; apex of antennal segments one through five partly piceous. Pronotum with sides rounded, slightly narrowed nearing base; surface sparsely, finely punctate; basal foveae deeply impressed. Elytra with striae deeply impressed; interstices slightly convex.

Male.—Eyes touching dorsally. Anterior tibiae with ventral margin gradually widened from base to slightly beyond the middle and then abruptly, concavely narrowed to apex. Lobes of eighth sternum moder-

ately long, slender, slightly curved medially nearing apex; ventral surface fringed with moderately long setae. Genitalia with basal piece long, broad; apical piece moderately long at base, much narrower than basal piece; apex truncate.

Female.—Unknown.

Discussion.—The Insularis Group contains only the very distinct species, *L. insularis*, described by Champion from the island of Mustique in the British West Indies. It is placed near the Jamaicensis Group primarily on the basis of its black, shining surface; bicolored antennae; and deeply and evenly impressed elytral striae. The Insularis Group is known only from the male, while the Jamaicensis Group is known only from the female. For this reason, it is not possible to compare these two groups satisfactorily.

Lobopoda (*Lobopoda*) *insularis* Champion

Lobopoda insularis Champion, 1896:32, pl. 1, figs. 10, 10a.

Champion (1896) described this species as follows:

Male.—Elongate, rather broad, black, shining, clothed with scattered hairs; the tibiae pitchy-brown, the tarsi ferruginous; the antennae ferruginous, with the five basal joints partly piceous. Head sparsely, finely punctate; the eyes very large, approximate in front; antennae about half the length of the body. Prothorax strongly transverse, a little narrowed in front, the sides rounded anteriorly and almost parallel behind; the surface sparsely, finely punctate, obsoletely canaliculate down the middle, transversely depressed in the centre before the base, and with deep basal foveae. Elytra elongate, a little wider than the prothorax, gradually narrowing from about the middle to the apex, the apices rounded; deeply crenate-striate, the punctures moderately coarse; the interstices feebly convex, very sparsely, finely punctate. Legs elongate; tibiae roughly punctured, the anterior pair gradually widened on the inner side to a little beyond the middle, and then abruptly narrowed and concave to the apex (appearing broadly subangularly dilated), the hind pair slightly curved; anterior tarsi with joints 1–4, and the intermediate tarsi with joint 4, broadly lobed beneath. Genitalia: the lateral lobes slender and moderately long, curved inwards, slightly tapering at the tip, and fringed with long hairs beneath; the central sheath very long and stout, abruptly narrowed at some distance before the apex, the apex truncate. Length 9¾, breadth 3½ mm.

Type.—Holotype, male, from the Grenadines, Mustique Island [not examined]. The specimen is now in the British Museum (Natural History).

Geographic Distribution.—Known only from the type-locality.

Records.—BRITISH WEST INDIES: The Grenadines, Mustique Island (Champion, 1896).

Discussion. Lobopoda insularis is known from a single male specimen. Based on Champion's description, it is similar to *L. jamaicensis*. It differs in having sparser punctation, particularly on the pronotum; a differently shaped pronotum, with the sides slightly narrowed at the base; and the

basal foveae deeply impressed. Champion (1896) stated that "it perhaps approaches nearest to *L. oblonga* from Yucatan." It may be easily distinguished from the latter species by the quite distinct shape of the male terminalia, the wider expansion of the male anterior tibiae, and the more deeply impressed elytral striae.

SPECIES OF UNCERTAIN STATUS

Lobopoda sulcaticollis Pic from Cuba and *L. tarsalis* Fleutiaux and Sallé from Guadeloupe, each known only from a single specimen, cannot be placed satisfactorily in the present classification on the basis of their published descriptions. The available information concerning them is given below.

Lobopoda sulcaticollis Pic

Lobopoda sulcaticollis Pic, 1933:1.

The original description is as follows:

Elongata, subopaca, luteo-griseo pubescens, nigro-picea, capite antice, palpis, antennis pedibusque pro parte testaceis, elytris apice rufis.

Allongé, presque opaque, orné d'une pubescence couchée d'un gris jaunâtre, noir de poix, extrémité des élytres roussâtres, devant de la tête, palpes, antennes, cuisses et tarses en partie testaceis, tibias diversement bruns ou roux. Tête à ponctuation médiocre et écartée, yeux écartés; prothorax court et large, un peu rétréci en avant, droit sur les côtés postérieurs, sillonné au millieu et légèrement triimpressionné postérieurement, à ponctuation fovéolée moyenne, écartée; élytres un peu plus larges que le prothorax, longs, subparallèles, atténués postérieurement, striés, les stries ponctuées de points moyens; pattes robustes, tibias postérieurs un peu arqués. Long. 10 mill.

Type.—Holotype, Cuba, from the old collection of J. Thomson [not examined]. The specimen is probably a female. Pic deposited it in the collection of the Musée Royal d'Histoire naturelle de Belgique.

Lobopoda tarsalis Fleutiaux and Sallé

Lobopoda tarsalis Fleutiaux and Sallé, 1889:431.

The original description is as follows:

Long. 10 mill.—Ovale, d'un noir peu brillant. Tête ponctuée, arrôndie en avant, relevée sur les côtés, sillonnée transversalement au niveau des yeux; bord antérieur rougeâtre; labre large et transversal, palpes ferrugineux; yeux grands, se touchant presque sur le dessus. Corselet plus large que long, légèrement sinué à la base, arrondi en avant, élargi en arrière; angles antérieurs arrondis et abaissés; surface plus distinctement et moins densément ponctuée que la tête, vaguement sillonnée au milieu et impressionnée en avant de l'écusson. Écusson semi-circulaire, rougeâtre, ponctuée. Élytres un peu

plus larges que le corselet, graduellement rétrécies, planes a la bàse, convexes et abaissées à l'éxtrémité profondément ponctuées-striées; intervalles convexes, irrégulièrement et finement pointillées. Dessous et pattes noirs; antennes et tarses rouges.

Type.—Holotype, Basse-Terre [Guadeloupe] [not examined]. Based on the description, the type-specimen is probably a male. It was deposited in the Paris Museum by the authors.

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FIGURES

FIG. 11. Distribution of *Lobopoda acutangula.*

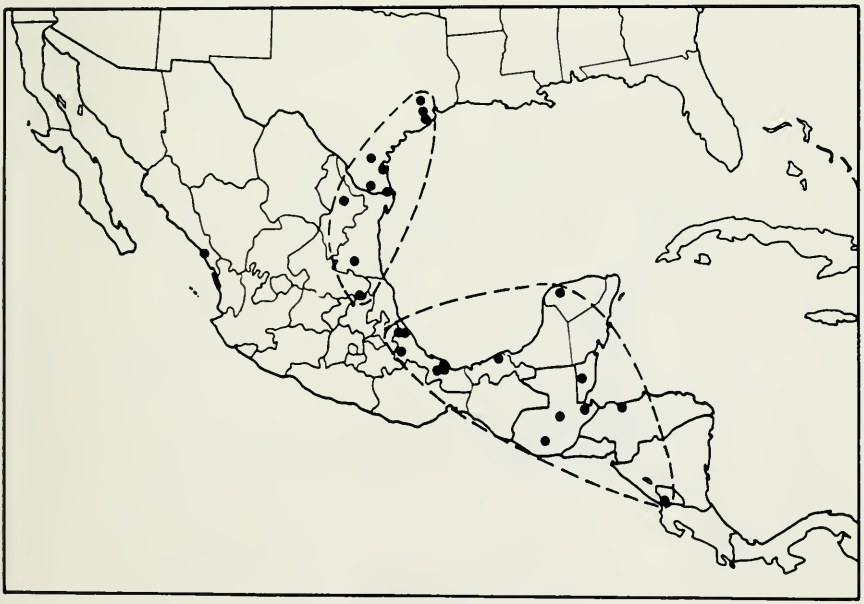


FIG. 12. Distribution of *Lobopoda socia* showing the range of the northern and southern races.

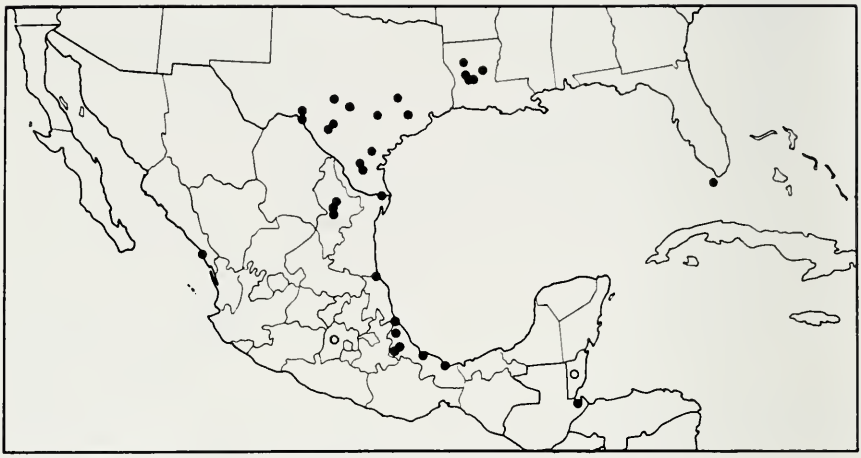


Fig. 13. Distribution of *Lobopoda opacicollis.*

Fig. 14. Distribution of *Lobopoda femoralis.*

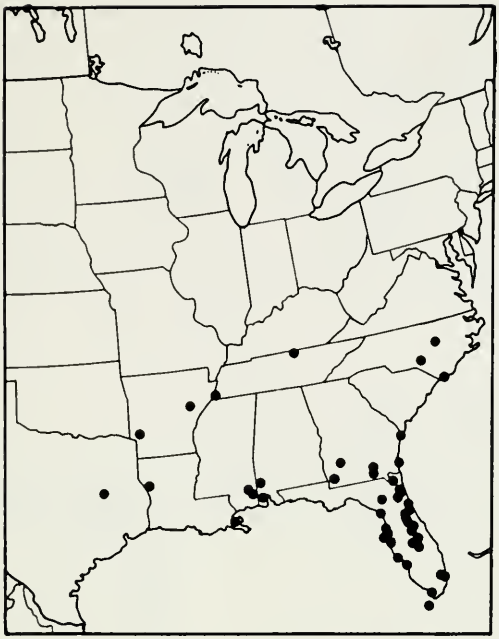


FIG. 15. Distribution of *Lobopoda erythrocnemis*.

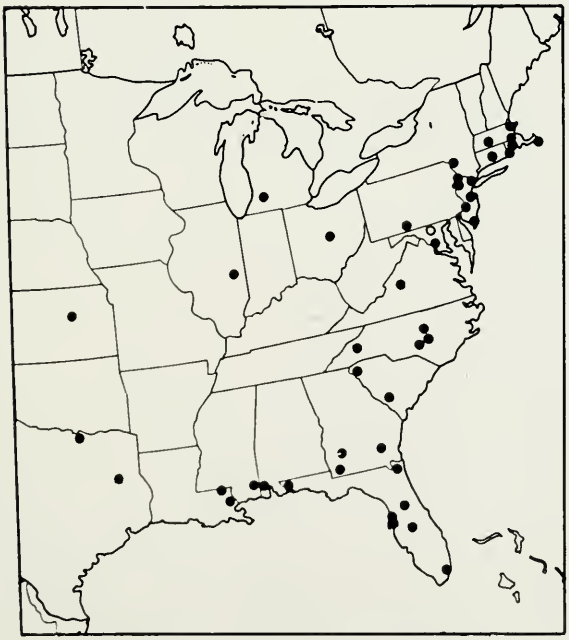


FIG. 16. Distribution of *Lobopoda nigrans*.

Fig. 17. Distribution of *Lobopoda punctulata* (circles) and *Lobopoda monticola* (triangles). The broken lines show the ranges of the northern and southern races of *L. punctulata*.

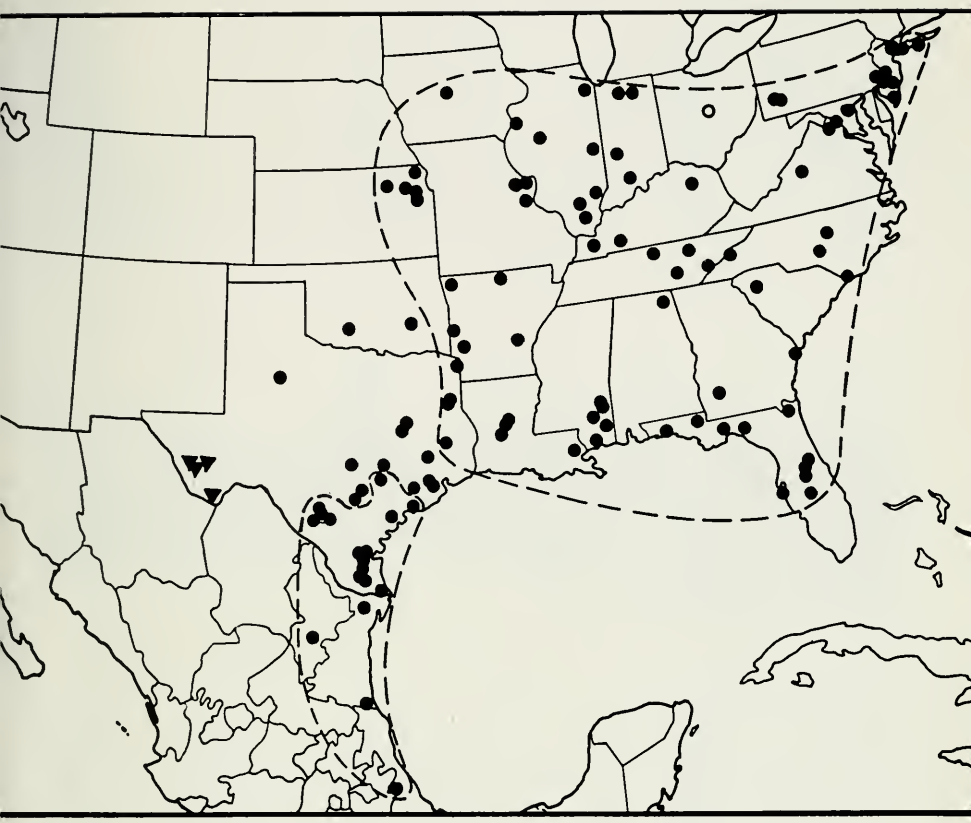
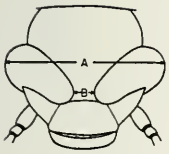


Fig. 18. Dorsal view of head of species of *Lobopoda* showing method of measuring ocular index; A = distance between lateral margins of eyes, B = distance between eyes. Figs. 19–29. Male eighth and ninth sternal lobes (left, ventral view of left half; right, lateral view) of species of *Lobopoda:* 19, *grandis;* 20, *asperula;* 21, *bicolor;* 22, *bahamensis;* 23, *tibiodentata;* 24, *emarginata;* 25, *acutangula;* 26, *trinidadensis;* 27, *tristis;* 28, *socia* (northern race); 29, *socia* (southern race).



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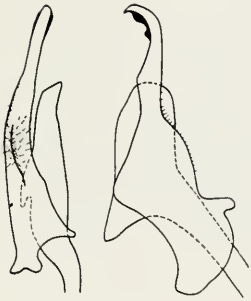

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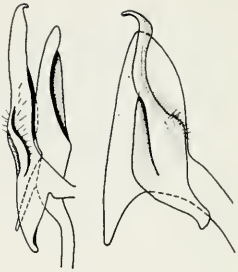

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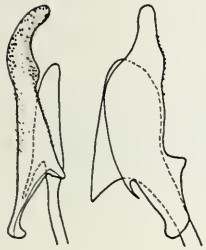

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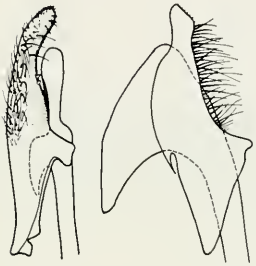

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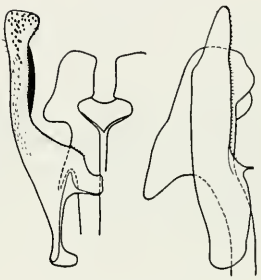

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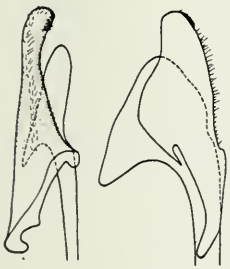

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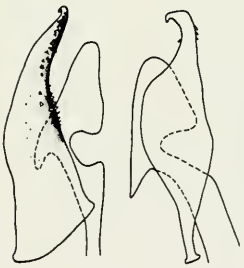

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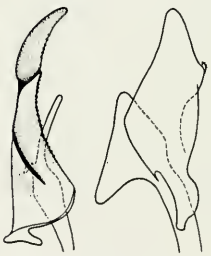

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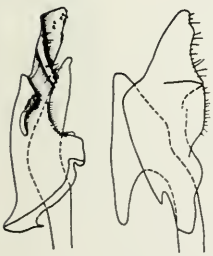

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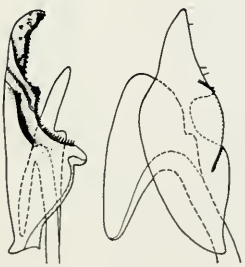

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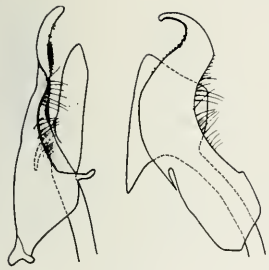
Figs. 30–41. Male eighth and ninth sternal lobes (left, ventral view of left half; right, lateral view) of species of *Lobopoda:* 30, *tilaranensis;* 31, *irazuensis;* 32, *cariniventris;* 33, *glabrata;* 34, *portobellensis;* 35, *aeneipennis;* 36, *obsoleta;* 37, *viridipennis;* 38, *foveata;* 39, *subparallela;* 40, *acuticauda;* 41, *tabogensis.*



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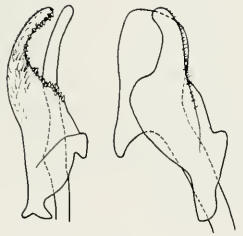

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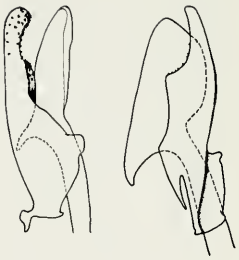

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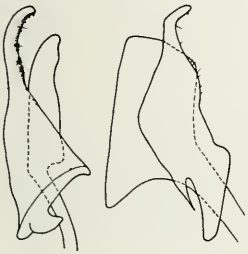

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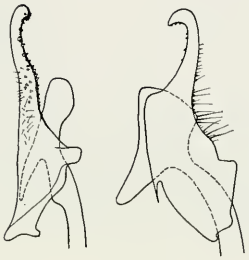

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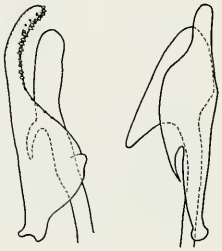

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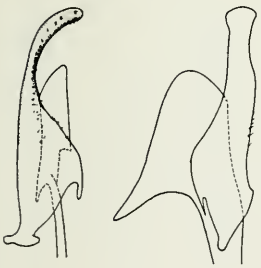

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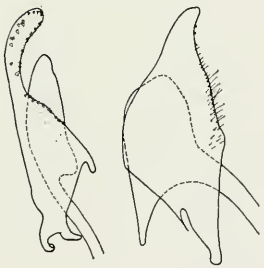

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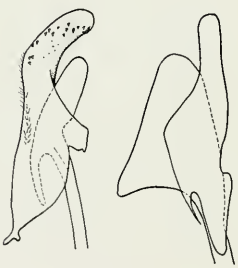

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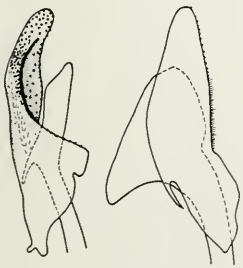

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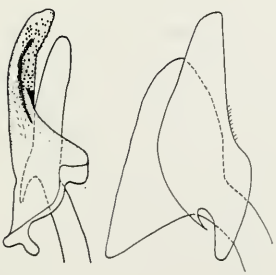

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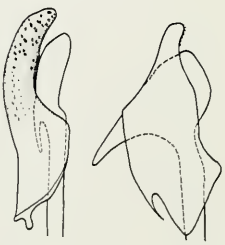
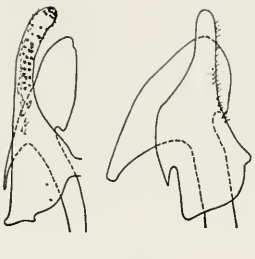


41

Figs. 42–53. Male eighth and ninth sternal lobes (left, ventral view of left half; right, lateral view) of species of *Lobopoda:* 42, *convexicollis;* 43, *oblonga;* 44, *opacicollis;* 45, *granulata;* 46, *opaca;* 47, *proxima;* 48, *minuta;* 49, *brunneipennis;* 50, *remoinsularis;* 51, *simplex;* 52, *parvula;* 53, *costaricensis.*

42



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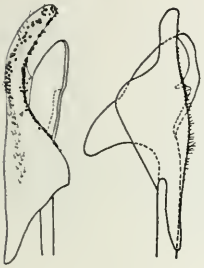

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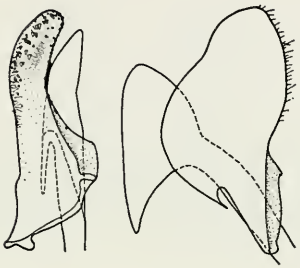

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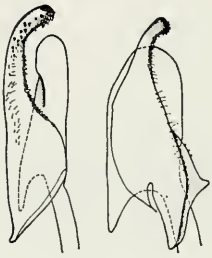

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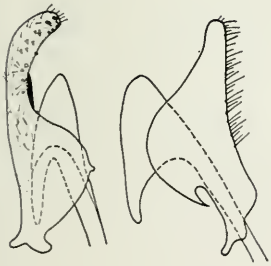

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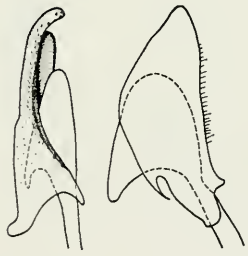

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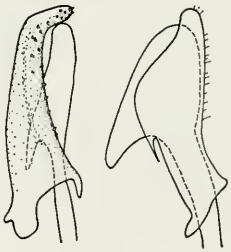

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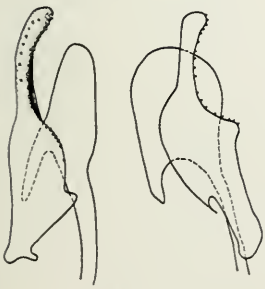

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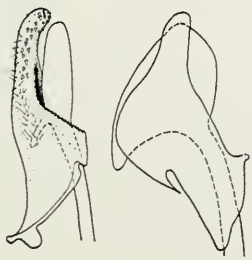

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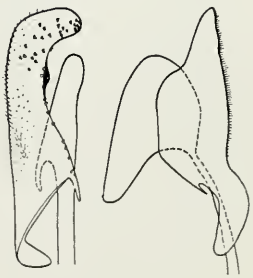
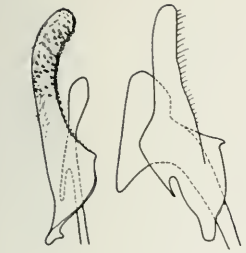


53

FIGS. 54–65. Male eighth and ninth sternal lobes (left ventral view of left half; right, lateral view) of species of *Lobopoda:* 54, *championi;* 55, *attenuata;* 56, *tenuicornis;* 57, *atrata;* 58, *laevicollis;* 59, *punctulata;* 60, *erythrocnemis;* 61, *nigrans;* 62, *apicalis;* 63, *nigrissima;* 64, *seriata;* 65, *viridis.*



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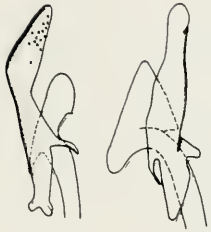

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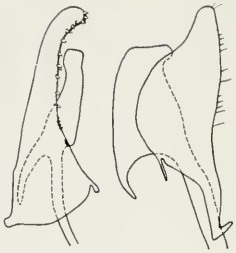

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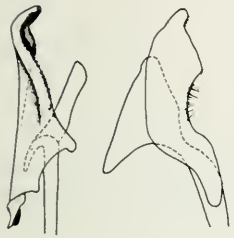

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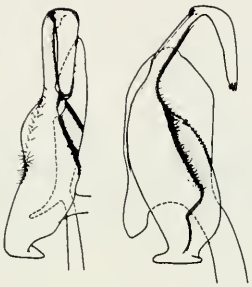

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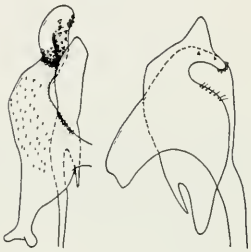

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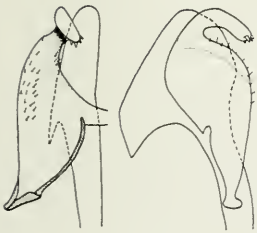

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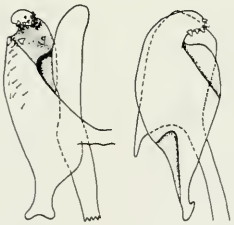

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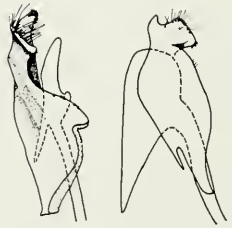

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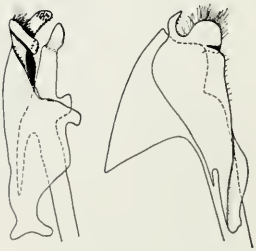
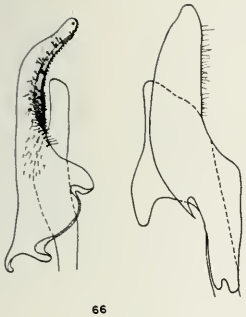


65

FIGS. 66–76. Male eighth and ninth sternal lobes (left, ventral view of left half; right, lateral view) of species of *Lobopoda:* 66, *panamensis;* 67, *calcarata;* 68, *femoralis;* 69, *terminalis* (complete); 70, *puncticollis;* 71, *meridensis;* 72, *guatemalensis;* 73, *veracruzensis;* 74, *guerrerensis;* 75, *substriatus;* 76, *cubensis.*



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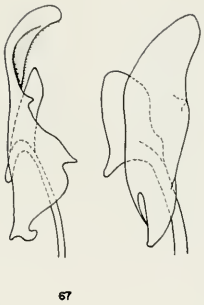

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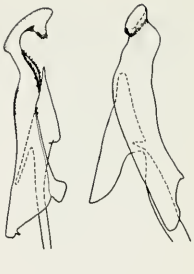

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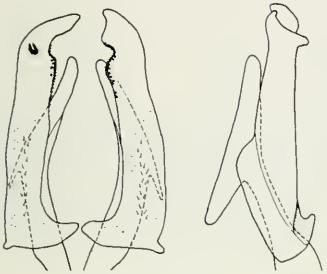

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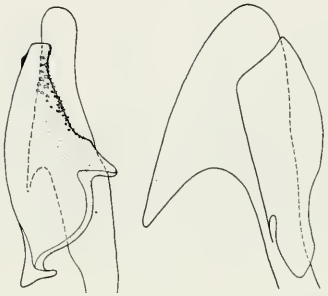

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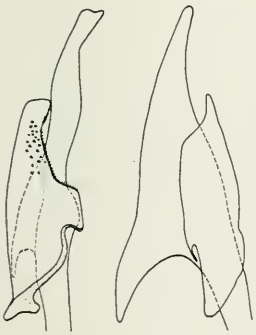

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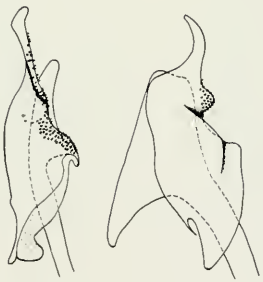

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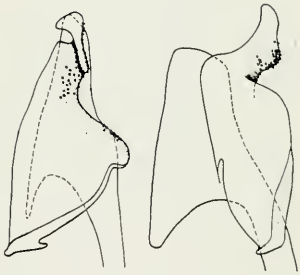

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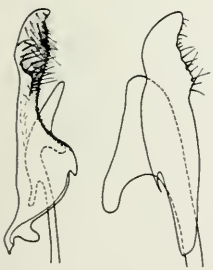

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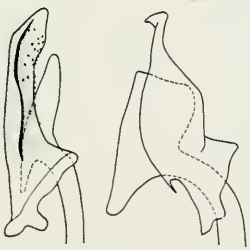

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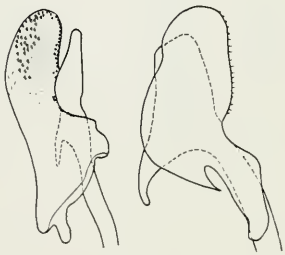
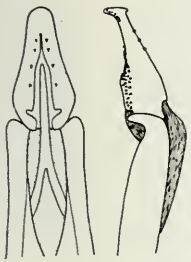


76

Figs. 77–92. Apical piece of male genitalia (left, ventral view; right, lateral view) of species of *Lobopoda:* 77, *grandis;* 78, *asperula;* 79, *bicolar;* 80, *bahamensis;* 81, *tibiodentata;* 82, *emarginata;* 83, *acutangula;* 84, *trinidadensis;* 85, *tristis;* 86, *socia* (northern race); 87, *socia* (southern race); 88, *tilaranensis;* 89, *irazuensis;* 90, *cariniventris;* 91, *glabrata;* 92, *portobellensis.*



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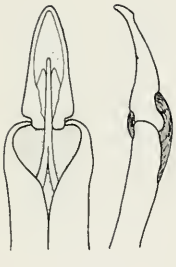

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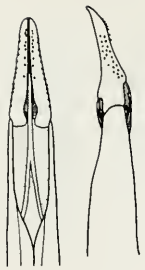

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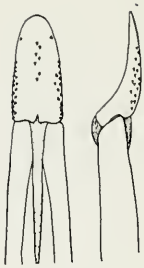

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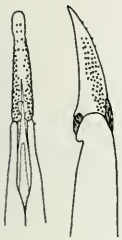

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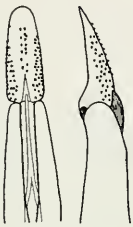

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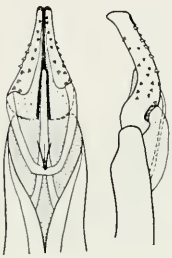

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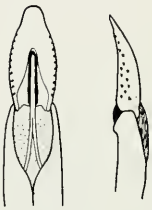

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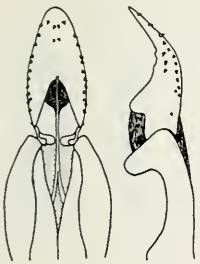

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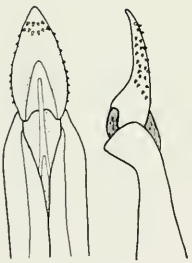

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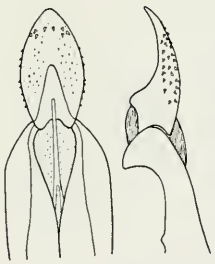

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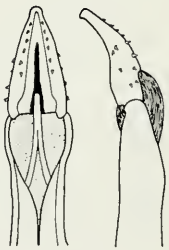

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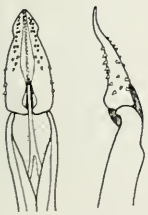

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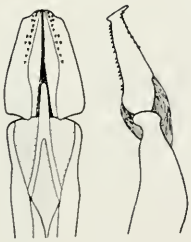

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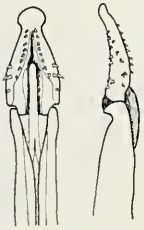

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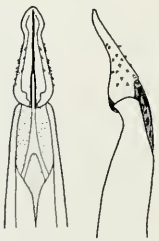
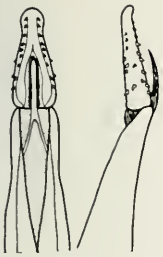


92

Figs. 93–108. Apical piece of male genitalia (left, ventral view; right, lateral view) of species of *Lobopoda:* 93, *aeneipennis;* 94, *obsoleta;* 95, *viridipennis;* 96, *foveata;* 97, *subparallela;* 98, *acuticauda;* 99, *tabogensis;* 100, *convexicollis;* 101, *oblonga;* 102, *opacicollis;* 103, *granulata;* 104, *opaca;* 105, *proxima;* 106, *minuta;* 107, *brunneipennis;* 108, *remoinsularis.*



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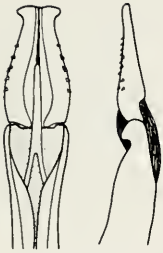

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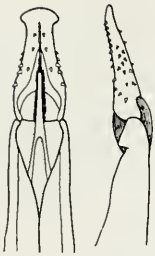

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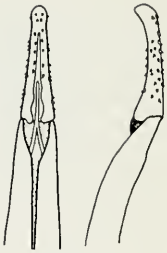

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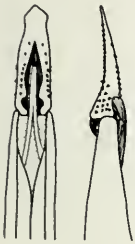

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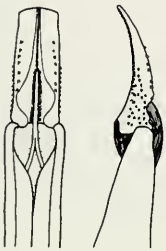

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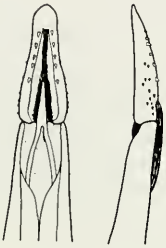

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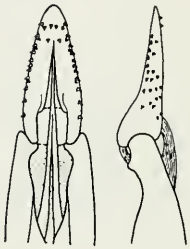

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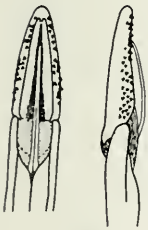

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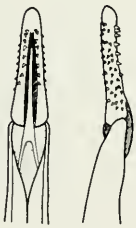

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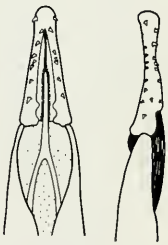

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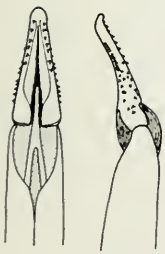

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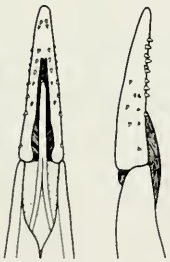

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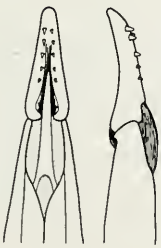

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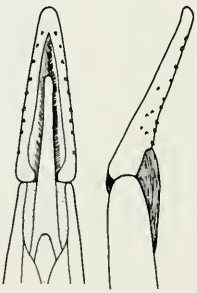
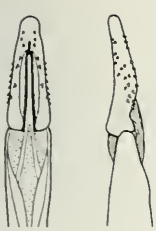


108

Figs. 109–124. Apical piece of male genitalia (left, ventral view; right, lateral view) of species of *Lobopoda:* 109, *simplex;* 110, *parvula;* 111, *costaricensis;* 112, *championi;* 113, *attenuata;* 114, *tenuicornis;* 115, *atrata;* 116, *laevicollis;* 117, *punctulata;* 118, *erythrocnemis;* 119, *nigrans;* 120, *apicalis;* 121, *nigrissima;* 122, *seriata;* 123, *viridis;* 124, *panamensis.*



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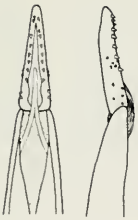

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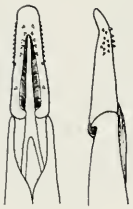

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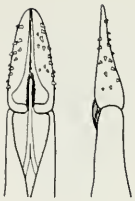

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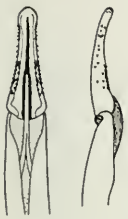

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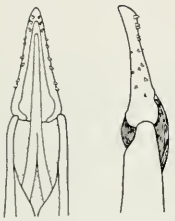

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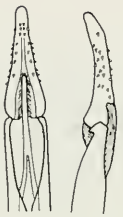

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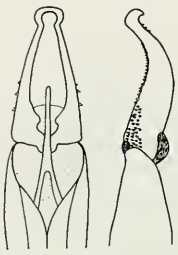

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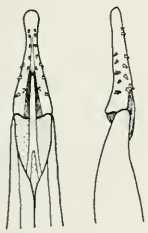

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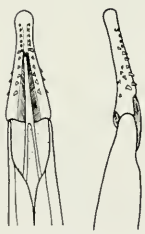

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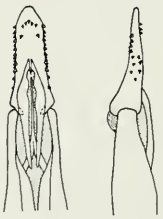

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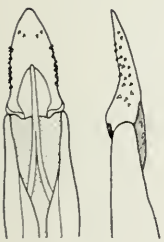

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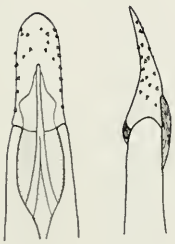

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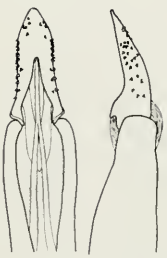

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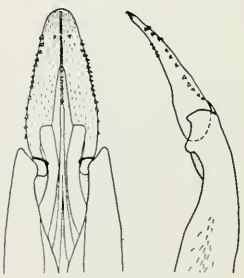

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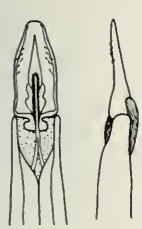
Figs. 125–134. Apical piece of male genitalia (left, ventral view; right, lateral view) of species of *Lobopoda:* 125, *calcarata;* 126, *femoralis;* 127, *terminalis;* 128, *puncticollis;* 129, *meridensis;* 130, *guatemalensis;* 131, *veracruzensis;* 132, *guerrerensis;* 133, *cubensis;* 134, *substriatus.* Figs. 135–152. Lateral view of anterior tibiae of male of species of *Lobopoda:* 135, *asperula;* 136, *bicolor;* 137, *bahamensis;* 138, *tibiodentata;* 139, *emarginata;* 140, *acutangula;* 141, *trinidadensis;* 142, *tristis;* 143, *socia* (northern race); 144, *socia* (southern race); 145, *tilaranensis;* 146, *cariniventris;* 147, *portobellensis;* 148, *obsoleta;* 149, *foveata;* 150, *subparallela;* 151, *tabogensis;* 152, *convexicollis.*



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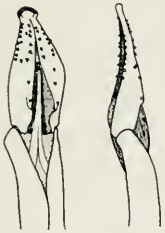

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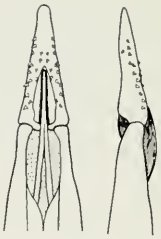

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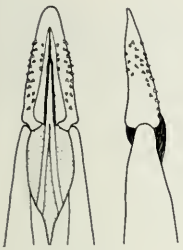

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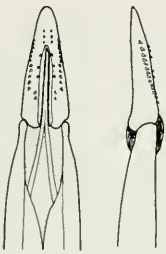

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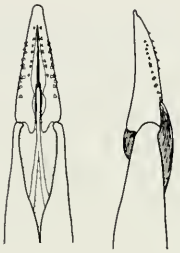

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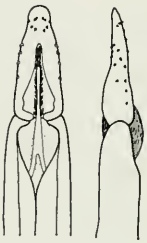

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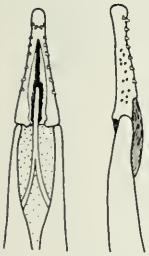

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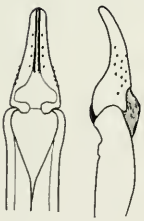

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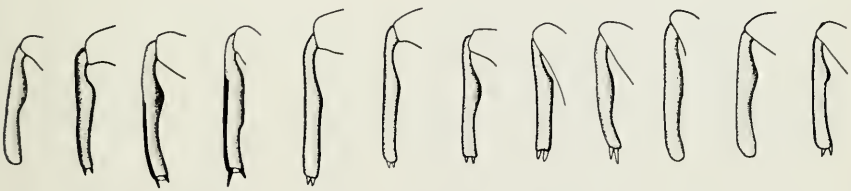

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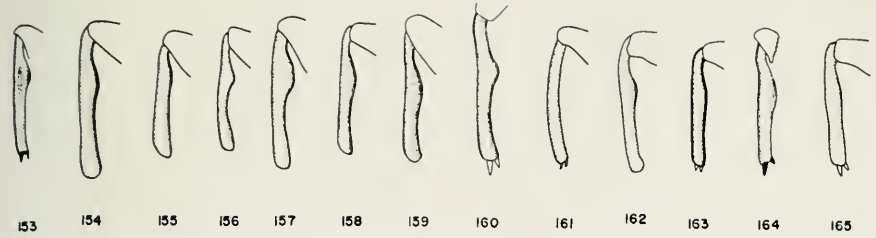

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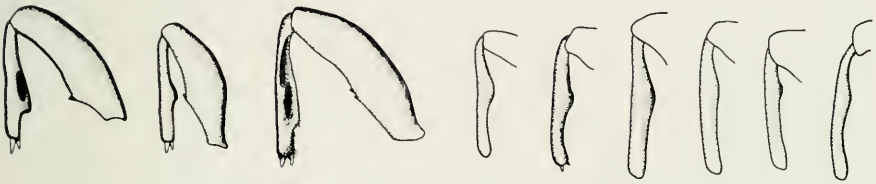

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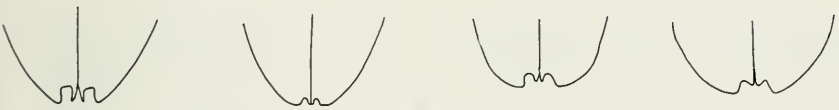

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Specific homonyms are printed in Roman letters; synonyms of the genus *Lobopoda* are printed in italics. For taxa of the genus *Lobopoda,* page numbers in italics indicate principal references.