

A REVISION OF THE SOUTH
AMERICAN GENUS *HYPHANTUS*
(COLEOPTERA, CURCULIONIDAE,
OTIORHYNCHINAE)

PATRICIA VAURIE

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INTRODUCTION

Hyphantus, WHICH MEANS "woven" in Greek, is the name of a genus of curculionids, of the subfamily Otiornychinae, that is endemic to South America. These flightless, ant-like weevils (in length, 5 to 11 mm.) inhabit the southeastern strip of Brazil, mostly in wooded sections, a few species extending south to Uruguay and Argentina, and west to Paraguay. Virtually nothing is known of their habits. They have short, broad beaks, long legs and antennae, large, globose, petiolate pronota, and convex, proportionately short, declivous elytra. The black dorsum is studded with large, shining tubercles (figs. 36, 37, 48), in some species also with orange scales or yellow hairs. These weevils are quite distinctive in their petiolate, tubercular appearance and in the stout subrostral tooth present in the males of at least 10 species (figs. 2-4). A few species, however, are not so petiolate or so convex in shape, and have rather flat, instead of conical, tubercles; these species approach in appearance some species of the well-known Palearctic genus *Otiornychus*, but differ from them, as do the other species of *Hyphantus*, chiefly by having subocular vibrissae (figs. 2-5).

From 1824 to 1891 only three species were known of *Hyphantus* (*baccifer* Germar, the type of the genus; *sulcifrons* Boheman; and *verrucifer* Boheman), although Lacordaire (1863, p. 161) said that he knew of many unpublished species. In 1892 Desbrochers des Loges made a preliminary revision, in which he described four new species and one variety from Brazil, and in 1926 Hustache described the first species from Argentina. In the 1950's Gregorio Bondar, the South American expert on neotropical Curculionidae, wrote a revision in which he described seven species, but he died before publishing it. Unfortunately, he had already sent specimens labeled "co-type" and "type" to a number of institutions in North and South America. These names are mere manuscript names and therefore have no standing in nomenclature.¹ I have

seen most of Bondar's material, and in the present paper describe six of the seven species that he had intended to describe, and which I am calling *angulatus*, *bondari*, *brevicauda*, *longicauda*, *olivae*, and *titan*. (His seventh "species" was, I find, already described as *teretirostris* by Desbrochers des Loges.) In the present paper 26 species (three-quarters of the genus) are described as new. At least 900 specimens were examined, 800 of which were from the collections of the Museum G. Frey in Munich and the Departamento de Zoologia in São Paulo. The types of the nine species described by Boheman, Desbrochers des Loges, Germar, and Hustache have been examined by me.

Bondar sent me a copy of his manuscript in 1954, suggesting that we study this group jointly, but to my regret I was unable to do so because of other commitments. He was handicapped in his preliminary study by not having seen the older types, or those of Desbrochers des Loges (at that time in the private collection of a Dr. Clerc in Paris, but now in the Muséum National d'Histoire Naturelle). He also did not dissect specimens to ascertain the sex, probably because he believed that the narrower specimens were males and the wider ones females, which is, of course, true of many, but not of all, the wingless weevils. When the American Museum bought the Bondar collection of Curculionidae around 1951 or 1952, it received also from him his notebooks, in which he remarked on many species he had collected or acquired and gave dates and localities with numbers corresponding to the numbers on his specimens.

According to present material, only a few species are very abundant (*carinatus*, *distinctuendus*, *montanus*, *simulans*, *sulcifrons*, and *teretirostris*, represented by 50 or more specimens), whereas two species (*longicauda*, *maculifer*) are known from the type only, and nine others from five or fewer specimens

¹ Bondar states in his manuscript that cotypes were deposited in the following places: Instituto Biológico da Bahia; Instituto Oswaldo Cruz, Rio de Janeiro; the collection of Frei T. Borgmeier, Rio de Janeiro; the

Chicago Natural History Museum; and the American Museum of Natural History. "Cotypes" of two species of *Phytotribus*, one species of *Tachygonus*, and one each of *Cryptobaris* and of two new genera were described in the same unpublished manuscript and sent to the same places.

(*chryseus*, *hypercalus*, *incongruus*, *lanceolatus*, *matronalis*, *pyramis*, *squamosus*, *tibialis*, *titan*).

NOTES ON SPECIES GROUPS

This genus seems to fall quite naturally into four groups (or five if one wished to place *angulatus* in a group by itself), which can be separated from one another by various combinations of characters (see Synoptic Table in Systematic Section). The juxtaposition of the groups reflects, in my opinion, their relationship, although the order could as well be reversed, with the *sulcifrons* group first and the *baccifer* group last. It is difficult to ascertain which species are more primitive in this rather primitive genus.

The characters of the groups include the presence or absence of a nasal plaque at the apex of the beak, the presence or absence of a tiny spine on the inner side of the front femur near its apex, the degree of separation and convexity of the abdominal segments, and the kind of male genitalia. Characters that are not constant for all species of a group include the shape of the front femur, the presence or absence of a subrostral tooth in males, and the presence of scales on the surface as opposed to hairs. One group (*baccifer*) has no nasal plaque, the three other groups have it; one group (*sulcifrons*) has no spine on the femora, the three other groups have it; two groups (*baccifer*, *maculifer*) have the abdomen "bulbous," two groups (*argentinensis*, *sulcifrons*) have it rather flat; one group (*baccifer*) has the orifice of the male genitalia situated near the apex of the tube, the other groups, with one or two exceptions, have the orifice half as long or as long as the entire tube. No males of two of the groups (*argentinensis*, *sulcifrons*) have the subrostral tooth, whereas most males of the other groups have it.

DISTRIBUTION

The genus *Hyphantus* was formerly believed to be restricted to Brazil, but additional material shows that some species occur also in other countries of South America, in adjacent Uruguay, Argentina, or Paraguay (*argentinensis*, *hustachei*, *minutus*, *simulans*, *sulcifrons*), and possibly in French Guiana (*argentinensis*, *minutus*, *simulans*). The French Guiana records, as well as a record of

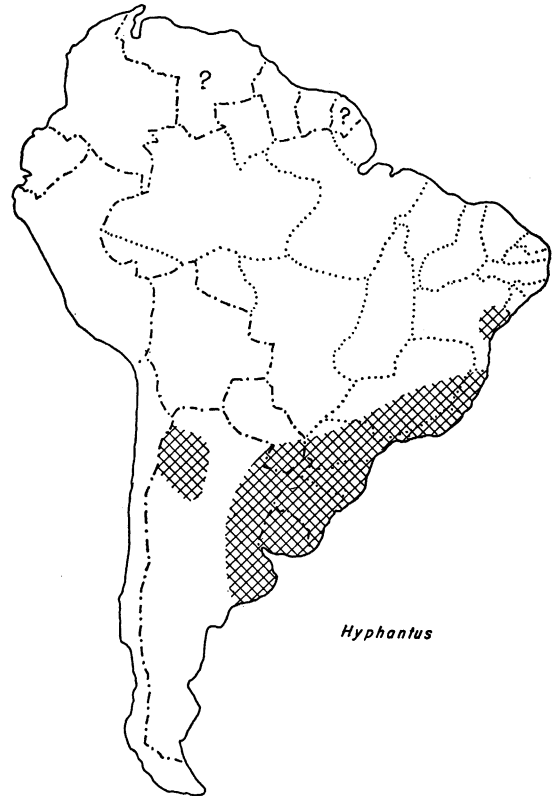


FIG. 1. Distribution of *Hyphantus* in South America. For explanation of the question mark, see footnote on this page.

a very old specimen of *montanus* from Venezuela, seem dubious, and I believe the locality labels may be erroneous.¹ It is noteworthy that only one species (*argentinensis*) of the 35 is not found in Brazil.

All the species that occur also outside Brazil are in either the *argentinensis* or *sulcifrons* groups. These two groups have more species in the southern states of Brazil (Paraná, Santa Catarina, and Rio Grande do Sul), whereas the species of the *baccifer* and *maculifer* groups appear to have a more northern distribution (fig. 1 and table 1). The southern groups, however, contain species with the most northern records, if the records from French Guiana are accepted.

In Brazil, the majority of species were col-

¹ The Venezuelan specimen is in the British Museum. The French Guiana specimens (five in all) are in the Paris museum and are labeled St. Laurent du Maroni and "Le Mout," the name of a dealer whose material has often proved unreliable as to locality labels.

lected in the state of Rio de Janeiro (16), with 14 from adjacent São Paulo. Santa Catarina in the south is next in the number of species (11), followed by Paraná and Rio Grande do Sul with six each. Minas Gerais in the north accounts for four, Espírito Santo for two, and Bahia for one. Species from other countries are shown in table 1. This distributional record is far from complete, no doubt, and additional material will certainly extend the ranges of some species. A limiting factor also is that about a third of the species are known from only five or fewer specimens.

Many species inhabiting the coast of Brazil have been taken, not surprisingly, in the same localities. Below are given, by states, localities from which three or more species have been collected:

Minas Gerais: Serra Caraça, 1380 meters (*conicus*, *gnomus*, *montanus*).

Rio de Janeiro: Itatiaia (*bracteatus*, *gnomus*, *pyramis*). Teresópolis (*baccifer*, *distinguendus*, *serpentis*, *subminutus*, *tibialis*). Serra Macaé or Macahé (*baccifer*, *serpentis*, *uncinatus*, *verrucifer*).

São Paulo: Campos do Jordão, 1500 meters (*bracteatus*, *distinguendus*, *gnomus*, *incongruus*, *minutus*, *tilan*). Caraguatatuba (*carinatus*, *distinguendus*, *minutus*, *teretirostris*). Salesópolis, Boraceia Station (*carinatus*, *distinguendus*, *teretirostris*). Alto da Serra (*carinatus*, *gibbosus*, *teretirostris*). Ypiranga or Ipiranga (*distinguendus*, *minutus*, *teretirostris*).

Paraná: Ponta Grossa (*parvulus*, *squamosus*, *teretirostris*).

Santa Catarina: Corupá or Hansa Humboldt (*dehiscens*, *hustachei*, *squamosus*, *teretirostris*, *uncinatus*).

HABITS

Gregorio Bondar, who probably knew more about the biology of South American curculionids than anyone, remarked in the manuscript of his proposed revision of *Hyphantus* that biological investigations were absolutely lacking in this curious group of weevils. However, in his notebooks were comments on two species, that *H. sulcifrons* was collected in strawberries (*Fragaria*) in Porto Alegre, and that one of his new species (called *angulatus* by me) was taken in *Gunnera brasiliensis*. These are only isolated collectors' notes and may have no biological significance. If the species of *Hyphantus* are similar to their Palearctic relatives, *Otiorhynchus*, they prob-

ably feed on many plants and shrubs, with the larvae feeding on the roots. Although apterous, they may well climb into vegetation, as many of the specimens from the collection of the Departamento de Zoologia in São Paulo were beaten from vegetation by the umbrella method (Pereira, *in litt.*). It is probable that they are nocturnal, as are many of the subfamily Otiorhynchinae. It would be interesting to know whether or not they stridulate when touched, because they have a double file down the center of the apical tergite which may be used for stridulation. Padre P. Buck tells me (*in litt.*) that these weevils live in different bushes or shrubs and that in Porto Alegre where he collected many of them he never noticed any preferred host plant.

SEXUAL DIMORPHISM

The high degree of sexual dimorphism (see below) in species that are so little known makes it impossible in some cases to associate the sexes. Even when adequate series from the same locality and with the same date are available for inspection, one cannot be certain which males and which females belong to the same species, because so many species which appear to be very locally distributed have been collected at the same locality (see list of localities above under Distribution). Possibly also some species are parthenogenetic, as are a few of their relatives in the genus *Otiorhynchus* in Europe. I have seen only females of seven species of *Hyphantus* (*brevicauda*, *dehiscens*, *incongruus*, *longicauda*, *matronalis*, *pyramis*, and *verrucifer*), but males of only three (*hypercalus*, *lanceolatus*, and *maculifer*).

In the majority of species, the sexes differ in the width of the elytra and pronotum and in the proportions. Females generally have the elytra at the widest part wider than the pronotum and wider and shorter than do males (in *montanus* and *parvulus* this distinction does not hold). Males, on the other hand, have the elytra about the same width as the pronotum, or only slightly wider or narrower than the pronotum, and more elongate than do females. In some species, females have the apex of the abdomen, which is not readily visible in most specimens because of the envelopment of the elytra, acuminate, and males have it truncate or emarginate. Paired

TABLE 1
GEOGRAPHICAL DISTRIBUTION OF THE SPECIES OF *Hyphantus* IN BRAZIL,
WITH THE STATES LISTED FROM NORTH TO SOUTH

	Bahía	Minas Gerais	Espírito Santo	Rio de Janeiro	São Paulo	Paraná	Santa Cata- rina	Rio Grande do Sul
Species group <i>baccifer</i>								
<i>distinguendus</i>	x	—	—	x	x	—	x	—
<i>baccifer</i>	—	—	x	x	—	—	x	—
<i>montanus</i> ^a	—	x	—	—	—	—	—	—
<i>teretirostris</i>	—	x	—	x	x	x	x	—
<i>serpentis</i>	—	—	—	x	—	—	—	—
<i>carinatus</i>	—	—	—	—	x	—	—	—
<i>verrucifer</i>	—	—	—	x	—	—	—	—
<i>dehiscens</i>	—	—	—	x	x	—	x	—
<i>brevicauda</i>	—	—	—	—	x	x	—	—
<i>incongruus</i>	—	—	—	—	x	—	—	—
Species group <i>maculifer</i>								
<i>maculifer</i> ^b								
<i>titan</i>	—	—	—	x	x	—	—	—
<i>hypercalus</i> ^b								
<i>bracteatus</i>	—	—	—	x	x	—	—	—
<i>gnomus</i>	—	x	—	x	x	—	—	—
<i>pyramis</i>	—	—	—	x	—	—	—	—
<i>conicus</i>	—	x	—	—	x	—	—	—
<i>chryseus</i>	—	—	—	x	x	—	—	—
<i>uncinatus</i>	—	—	x	x	—	—	x	—
<i>matronalis</i>	—	—	—	x	—	—	—	—
<i>gibbosus</i>	—	—	—	—	x	—	—	—
<i>tibialis</i>	—	—	—	x	—	—	—	—
<i>angulatus</i>	—	—	—	—	—	—	—	x
Species group <i>argentinensis</i>								
<i>hustachei</i> ^c	—	—	—	—	—	x	x	—
<i>subminutus</i>	—	—	—	x	—	—	—	—
<i>parvulus</i>	—	—	—	—	—	x	x	—
<i>minutus</i> ^d	—	—	—	—	x	—	x	—
<i>argentinensis</i> ^e								
<i>bondari</i>	—	—	—	—	?	—	x	—
<i>squamosus</i>	—	—	—	—	—	x	x	—
Species group <i>sulcifrons</i>								
<i>sulcifrons</i> ^f	—	—	—	—	—	x	—	x
<i>simulans</i> ^g	—	—	—	—	—	—	x	x
<i>longicauda</i>	—	—	—	—	—	—	—	x
<i>lanceolatus</i>	—	—	—	x	x	—	—	x
<i>olivae</i>	—	—	—	—	—	—	—	x

^a Doubtfully recorded also from "Venezuela."

^b Known only from "Brazil."

^c Known also from Argentina and Paraguay.

^d Known also from Argentina and possibly French Guiana, (see footnote on p. 244).

^e Known from Argentina, Paraguay, and possibly French Guiana (see footnote on p. 244).

^f Known also from Argentina and Uruguay.

^g Known also from Argentina, Uruguay, and possibly French Guiana (see footnote on p. 244).

projections or tumid areas on the elytral declivity, or constrictions of the sides of the apex of the elytra, present in females of some species may be absent or abbreviated in males of those species. All modifications of the tibiae or femora in the form of spines or teeth or apical widenings (except for the spine on the front femora present in both sexes of all but six species) are characters of males only. The female of *hustachei*, however, has a sinuation on the middle tibia in the place where the male has a large tooth. The male of this species has the apical segment of the abdomen very long and the sides of the preceding segment arcuate on the sides. The females of some species have the humeri of the elytra somewhat prominent, whereas all males have them obsolete.

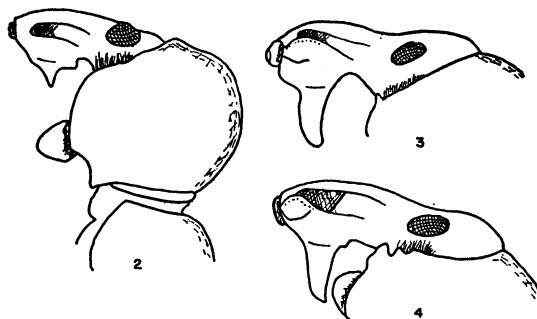
The most striking sexual difference is the large, drooping tooth under the beak in the males of at least 10 species. In repose this tooth is hidden between the front coxae, but when the head is raised it is most conspicuous. It is not present in females and may be absent or partly worn or broken off in individual males. This tooth has not been mentioned in any of the literature or manuscripts on *Hyphantus*. It does not occur, to my knowledge, in the genus *Otiorhynchus*, but Mr. R. T. Thompson of the British Museum (Natural History) writes me that there is such a tooth in another otiorhynchid, *Myloccerus herbaceus* Pascoe from western Australia, and that the four specimens of this species in the British Museum are males. The original description of this species makes no mention of the tooth, but Lea (1918, p. 263) found, on examination of the type, "a strong conical tubercle projecting backwards from the under-surface of the rostrum." Two additional species of *Myloccerus* (*mirabilis* and *subrostralis*) also have some kind of tooth (according to the descriptions of each).

An enumeration of the secondary sexual characters (these are given for each species in the text at the end of the description of the species) follows:

MALES

Beak toothed beneath (figs. 2-4): *angulatus*, *bracteatus*, *carinatus*, *gnomus*, *hypercalus*, *maculifer*, *serpentis*, *teretirostris*, *tibialis*, *titan*.

Abdomen with apical segment very long;



FIGS. 2-4. Beaks of males of *Hyphantus*, showing subrostral tooth. 2. *H. serpentis*; characteristic also of other species. 3. *H. angulatus*. 4. *H. titan*, showing large tubercle under eye.

preapical segment arcuate at sides (fig. 53): *hustachei*.

Elytral declivity tumid at suture: *bondari*, *gnomus*, *olivae*.

Front tibia with a spine near middle (fig. 9): *lanceolatus*. The female of this species is not known and possibly this is not a character exclusively of the male.

Front tibia with a brush of long hairs on the inner side near apex: *hustachei*.

Middle tibia near apex widened on inner side; apical mucro broad and leaf-like (fig. 23): *baccifer*, *hypercalus* (very slight), *tibialis*.

Middle tibia near base emarginate and with a large tooth (fig. 55): *hustachei*.

Hind tibia near apex with a brush of long hairs: *hustachei*.

Hind tibia near apex widened (figs. 11, 12): *simulans*, *sulcifrons*.

Hind tibia curved (fig. 58): *bondari*.

Middle femur impressed near apex and apex enlarged: *hustachei*.

Hind femur on inner side with large tooth (fig. 11): *sulcifrons*.

Hind femur on inner side with small tooth (fig. 12): *simulans*.

FEMALES

Beak tumid beneath (fig. 5): *carinatus*, *incongruus*, *teretirostris*.

Beak sinuate beneath (fig. 5): *baccifer*, *distinguendus*.

Elytral declivity with tuberculate crest or tumidity on third or fifth intervals (figs. 32, 42, 57): *bondari*, *bracteatus*, *verrucifer*.

Elytral declivity tumid or scarcely tuberculate at suture (figs. 7, 8, 42, 45): *bracteatus*, *incongruus*, *matronalis*, *sulcifrons*, *titan*.

Elytral declivity with paired tubercles at

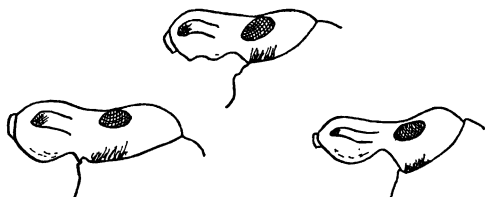


FIG. 5. Beaks of females of *Hyphantus*, showing tumid and sinuate under sides.

suture (figs. 35, 44, 60, 61): *brevicauda*, *chryseus*, *gnomus*, *longicauda*, *olivae*, *pyramis*.

Disc of elytra depressed: *angulatus* (only two females of this species seen).

Middle tibia sinuate near base on inner side (fig. 56): *hustachei*.

The dentate front tibiae present in about a half dozen species are not, as Desbrochers des Loges thought (1892), a secondary sexual character, but a specific one.

ANATOMY

BEAK

The beak or rostrum is usually a significant character in the classification of the Curculionidae. In the present genus it serves fairly well for the separation of one group of species (*baccifer*) from the other three groups, according to the presence or absence of an elevated nasal plaque, or plate (Bondar's "plaga"), on the epistoma between or slightly in front of the insertion of the antennae. This dorsal plaque is called V-shaped in the present paper, but it varies somewhat toward a shield shape or U shape in some individuals. It is separated from the remainder of the beak by a V-shaped or U-shaped furrow or depression of varying depth and width, and its surface varies in punctuation (feeble or strong) and in shape (flat, concave, or convex) among species. Species without the plaque present a smooth, convex, or flat surface not differentiated from the beak proper. This difference in the dorsal apex is not clear cut in all specimens or in all species, however, because a number of the species without the plaque are not entirely smooth in that area and do have a trace of the furrow, either in some individuals (as in *baccifer* and *distinguendus*), or in the species (as in *brevicauda*, *dehiscens*, *incongruus*, and *teretirostris*). One species (*gnomus*) with the plaque has it only very feebly elevated. All species have the apex of the beak shallowly emarginate.

Behind the plaque or the epistoma, the dorsum of the beak may be smooth, unicarinate, or tricarinate. The carinae in most species vary so much in their distinctness that they cannot be used reliably for the differentiation of species. The punctuation or rugosity of the beak appears to have little importance in diagnosis.

The proportions of the length and width of the beak differ among species, but the degree of individual variation makes anything finer than gross comparisons unusable. In the descriptions, therefore, I state merely how much longer the beak is than the length of the eye, and how wide the beak is in relation to its length. In these measurements I do not include the projecting mandibles.

Although there are differences in the length and width and direction of the grooves or scrobes for the antennae, it is difficult in many instances to decide at what point the scrobe ends and is no longer impressed. In the *baccifer* group the scrobe appears to be more linear and to end farther from the edge of the eye, whereas in the other groups, the scrobe appears as a rule to be somewhat curved downward and extends about to the eye.

In profile, some species have the beak proportionately much shorter and thicker; some have the lower edge straight; some have it sinuate, angulate, or tumid; and many males have it toothed. (See Sexual Dimorphism above for discussion of the tooth.) The upper edge may be horizontal or rather declivous apically.

HEAD AND EYES

The head is generally rugose but may be slightly granular in some species; its median impression is round, or linear, of varying length, and is lacking in some individuals. The eyes are separated across the head by about twice their diameters; they appear to be about the same (very convex and bulbous) in all species, except for *argentinensis*, in which they are much flattened and not at all prominent or bulging (fig. 18).

ANTENNAE

The antennae are very long, extending, if straightened, to at least the middle of the elytra in the majority of species. The long scape extends beyond the eyes in all species,

and well beyond the front of the pronotum in most species. The color, reddish or black, is variable and not of specific importance. The proportions of the segments of the funicle are rather difficult to judge because of the fine hairs. The first two segments of the funicle are about twice as long as any of the other segments. In about half of the species the first segment is slightly or distinctly longer than the second, in some it is shorter, and in some it appears to be about equal in length. The position in which the first segment is viewed affects one's judgment of its length, because, when the ental part is hidden under the apex of the scape, the segment naturally appears shorter than it is. It should be viewed in its entire length. The third segment of the funicle is about one-half of the length of the second (only one-third in *argentinensis*), and the fourth to the seventh segments are still shorter (but of the same length as the third in *argentinensis*). In all species, except for *argentinensis*, the segments are distinctly longer than wide; in *argentinensis* the third and following segments are scarcely longer than wide. The club is four-segmented and hairy.

The differences in length between the first and second segments are subject to individual (and perhaps also sexual) variation and are so slight that this character cannot be used by itself.

PRONOTUM

The significant characters of the petiolate pronotum are its shape, its width and length as compared with the width and length of the elytra (these proportions vary also sexually), and its tuberculation. The shape, in profile, is convex or globose in most species, gibbous in two, rather flat in four or five; in dorsal view it is more or less round in most species, distinctly elongate in four or five, and angulate in one. The tubercles are convex and rather densely placed in the majority of species, extremely conical and sparse in one or two, quite flat and of irregular shape in four or five, and virtually obsolete in one. The tubercles range from small to large and are, as a rule, fairly constant in size within a species. The size and density of the tubercles can be evaluated by one's looking down directly at a specimen and counting the approximate number of tubercles across the middle of the pro-

notum from side to side (the tubercles at the extreme sides will, of course, be out of focus). An elongate, rather flat pronotum with flat-tish tubercles is characteristic of the species of the *sulcifrons* group, whereas the species of the other groups, with one or two exceptions, have the pronotum and tubercles convex. The basal and apical margins are either broadly or narrowly margined, and the apical margin has a tubercle, or two tubercles in a few species, under the eyes, but these characters do not seem to be very important. The subocular vibrissae, present in all species, are shorter in *angulatus*, an unusual species also in other respects. The vestiture of the pronotum consists of setae, often abraded, from each tubercle, and in many species additional hairs or scales among the tubercles.

ELYTRA

The elytra are declivous on both sides and toward the apex, and narrowly enclose the abdomen. They are composed of punctate striae and tuberculate intervals, but the striae in most species are obscured by additional tubercles, and in some species the striae and intervals cannot be distinguished from one another.

A number of diagnostic characters are associated with the elytra, their shape, proportions, tuberculation, and vestiture. The shape should be judged from a lateral as well as from a dorsal view, as the slope (oblique or perpendicular) and the protuberances of the apical declivity make each view different. Thirteen species, chiefly the females, have some modification of the apical declivity in the form of swellings, paired projecting tubercles, tubercular crests, conical or tubular projections (these are enumerated under Sexual Dimorphism, and discussed in the text of *pyramis*). Viewed dorsally, the base of the elytra has no shoulders, the sides merely curving inward, and the sides, from base to apex, may be slightly or strongly arcuate, virtually subparallel, or angulate. They converge toward the apex rather abruptly in most species, but gently in some. In some species the sides of the apex are undercut or constricted, more so in females than in males. The apices of the elytra are strongly divaricate and acuminate in two species (*brevicauda* and *dehiscens*) and slightly so in four (*angula-*

tus, *bracteatus*, *gnomus*, and *verrucifer*); in other species they are contiguously rounded or feebly pointed.

Viewed laterally, the elytra are very convex in the majority of species, forming almost a semicircle in three (*conicus*, *maculifer*, and *uncinatus*), but they are rather straight or flat on top before the beginning of the declivity in some species, especially those of the *sulcifrons* group.

In proportions, the elytra of some species are very much wider than the pronotum (usually a character of females), or they are the same width or narrower (usually a character of males), but in a few species (*gibbosus*, *maculifer*, *uncinatus*) they are distinctly wider in both sexes. The elytra are broad, transverse, and foreshortened in some species, narrow and elongate in others.

The tubercles vary in size, density, shape, and arrangement. They are exceedingly tall, pointed, and sparse in *conicus* and *pyramis*, for example (figs. 44, 48), exceedingly dense in *baccifer*, *distinguendus*, *teretirostris*, and others, and flattened or virtually obsolete in *angulatus*, *longicauda*, *simulans*, and *sulcifrons*. In many species the tubercles are present on the suture and alternate rows only, the striae lacking tubercles or having only minute tubercles. In a few species they are on all rows, are of about the same size and often confluent, and thus make the rows indistinct and confused. Whether they occur on every row or not, the tubercles may be either widely or narrowly separated longitudinally on the rows, varying from being contiguous to being separated by three or four times the diameter of a tubercle.

All species, even the otherwise quite smooth *angulatus* (but in that species on the sides and apex of the elytra only), have a seta emerging from about the center of each tubercle. These setae are often abraded. This is the only vestiture of some species, but other species are furnished with hairs or scales, either in clusters (*maculifer*), in a definite pattern (*gnomus*, *bracteatus*), or scattered singly. Many specimens that appear glabrous at first sight actually have fine hairs which are usually visible at least on the declivity or apical region. The scales are nearly round and are distinctly scale-like in *bracteatus* (fig. 22), but in some of the other scaled species (*gibbo-*

sus, *gnomus*, *hypercalus*, *pyramis*, and *titan*), the scales might conceivably be called broad hairs (fig. 21), although they are very different from narrow hairs as in *chryseus* (fig. 20). Some species have scales and hairs, but generally far more of one than the other. None of the species of the *baccifer* group has scales, only two of the *argentinensis* group (*argentinensis* and *squamosus*) have scales, but more than half of the species of the *maculifer* group have them.

LEGS

The legs, especially those of the males, show good diagnostic characters (these are enumerated in the discussion of Sexual Dimorphism, above, and are not repeated here). The front tibia in all species has an apical mucro which is longer in some species than in others. The shape and size of the mucro on the middle tibia apparently vary in certain males. The hind tibia have no mucro. All tibiae, or any of the three pairs, may be straight or sinuate, the sinuation being usually on the inner side but may be on the outer side as well. Some species, mainly those of the *maculifer* group, have the front tibiae exceedingly sinuous (fig. 13); four species of the *baccifer* group (*baccifer*, *distinguendus*, *montanus*, and *verrucifer*) have the front tibiae distinctly dentate, especially near the apex. Several other species have slight crenulations or denticulations which are quite difficult to see because of the many hairs.

The front femora are gradually widened (fig. 26) in nine species, abruptly widened, or bulbous, in 23, and could be described in either way in three. A tiny spine or tooth on the inner side of the femur (fig. 10) is present in all species, except for the five of the *sulcifrons* group, and for *incongruus* of the *baccifer* group. The length of the hind femur varies somewhat, being very long in the majority of species (sufficiently long to reach the apex of the elytra), but short in some of the species of the *argentinensis* and *sulcifrons* groups.

No appreciable differences among species were found in the tarsi, although there may be slight differences in the lengths of the segments.

ABDOMEN

There are two general kinds of abdomen, the bulbous type (*baccifer* and *maculifer* groups)

and the flat type (*argentinensis* and *sulcifrons* groups). Two species (*gnomus*, *squamosus*) have abdomens that could be described as somewhat intermediate, and *hustachei* differs from all the other species by having the apical segment very long in the male. Species of the bulbous type have each of the segments separated by a noticeably deep sulcus which emphasizes the convexity of the segments, and the second segment usually not, or scarcely, longer than the third. Species of the flat type have the first and second segments flat, seemingly fused because separated so narrowly by a very feebly impressed line, the second segment distinctly longer than the third, the third and fourth segments rather flat (but somewhat bulbous in some individuals of *squamosus*) and with a deeper sulcus than that between the first two segments. The apex of the abdomen is difficult to see as it is deep within the enclosing elytra; it varies in shape in the sexes and among the species.

GENITALIA

The external male genitalia are generally diagnostic of the species. These organs, which I dissected from at least 180 specimens, are very long, curved, and tube-like, with a dorsal opening of varying length and width (figs. 62-91). The shape and location of this opening are significant, as is also the shape of the apex of the tube, or penis. Males of the *baccifer* group, at least of the six species for which males are known (*baccifer*, *carinatus*, *distinguendus*, *montanus*, *serpentis*, *teretirostris*), differ from males of other groups (except for *gibbosus* of the *maculifer* group), by having the dorsal orifice at the very apex, not extending backward along the penis. The genitalia of *gibbosus* differ from those of all other species by having a distinct pouch on the under side just in front of the acuminate apex. In all other males, the opening is as long as, or longer than, one-half of the length of the entire penis. Some species have the sides sinuous (*hustachei*, *maculifer*, *parvulus*), with little pre-apical dewlaps (*hustachei*), or notched (*subminutus*). The apices are acuminate in the minority of species, but they may be elongate-acuminate or triangularly acumi-

nate. The apex is gently elongate-rounded in *bondari*, *bracteatus*, *maculifer*, and *titan*; it is finger-like and very elongate in *angulatus*, finger-like and rather stubby in *gnomus*. Only six species have the genitalia similar enough to be figured in one drawing (*conicus*, *hypercalus*, *olivae*, *squamosus*, *tibialis*, and *uncinatus*). One species (*carinatus*) is unique in having a short keel in front of the dorsal orifice.

The female genitalia were not studied, nor were the inner parts of the male genitalia.

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SYSTEMATIC SECTION

GENUS *HYPHANTUS* GERMAR

Hyphantus GERMAR, 1824, p. 334. Type: *Hyphantus baccifer* Germar, by subsequent designation of Schoenherr, 1826.

This genus is distinguishable from allied genera by the row of hairs or vibrissae on the front edge of the pronotum under the eye (figs. 2-5).

DESCRIPTION OF GENUS: Length, 5 to 11 mm. Beak short, as broad as distance between eyes, sides widening gradually to apex, scrobes deep at apex, reaching partly or wholly to eyes. Antennae with long, sinuate scape reaching beyond eyes, funicle of seven segments, first and second segments longer than those following, club of four segments. Eyes globose, prominent in most species. Subocular vibrissae present. Thorax emarginate below and behind gula, base petiolate in majority of species. No scutellum visible. Elytra declivous on sides and apex. Abdomen narrowly enclosed by elytra, with five visible segments. Wings lacking or vestigial. Metasternum short, not longer than diameter of middle coxa; intercoxal projection elongate, narrow. Front coxae contiguous, prominent; middle coxae narrowly separated; hind coxae widely separated. Femora clavate or subclavate, armed within or not. Tibiae linear, narrow; front tibiae armed within or not; hind tibiae with corbels open, not cavernous. Tarsal claws free, not connate.

REMARKS: Germar, in his original description of the genus, gave as one of the characters (p. 334) the fact that the front tibiae were angulate and dentate within. Additional material shows that this is not true of all species, as a number of them have the front tibiae straight and smooth within.

In 1824 Germar had two species, *H. dasyopus* (Cape of Good Hope) and *H. baccifer* (Brazil). Two years later Schoenherr gave *baccifer* as the type and only species of *Hyphantus*, transferring *dasyopus* to his new genus, *Cyclomus* (p. 198), subfamily Hipporhininae, in which, according to Marshall (1906, p. 932), it still remains.

Germar said that *Hyphantus* was allied to *Bronchus*, which is a synonym of *Cherrus*, an Australian genus of the subfamily Leptopi-

nae. A few species of *Hyphantus* actually have slight sinuation under the eye, approaching the thoracic lobe characteristic of the Leptopinae.

The genus *Hyphantus* is the only member of the tribe Otiorhynchini in the New World tropics, according to Blackwelder (1947), and is the only genus in the tribe Otiorhynchides with subocular vibrissae, according to Lacordaire (1863, p. 155). In spite of the vibrissae, it is probably related to *Otiorhynchus* (Lacordaire, *loc. cit.*, considered it allied to that genus and to *Agraphus*), although the majority of species differ from those of *Otiorhynchus* by having a petiolate thorax, tuberculate, convex, and wide pronotum and elytra, longer legs, and a shorter third segment of the abdomen. There are, however, species of *Hyphantus* that have the tubercles virtually obsolete, the pronotum and elytra more elongate, the thorax scarcely petiolate, the legs rather short, and the abdominal segments variable in length. Although *Otiorhynchus* has been called a Palearctic genus, six species have been described from the Southern Hemisphere (Uruguay to Chile), and I have seen four or five specimens from Honduras, Argentina, and southern Brazil that appear to belong to *Otiorhynchus*. It is doubtful, however, that all these described species belong to that genus, as at least one of the authors of these neotropical "*Otiorhynchus*" was not sure of his placement of his species in that genus. Both the Junk catalogue (Lona, 1937) and Blackwelder's (1947) list put these six species under *incertae sedis*.

SYNOPTIC TABLE OF GROUPS OF *Hyphantus* IN ORDER OF TREATMENT

- A. Dorsal apex of beak (epistoma) smooth, without nasal plaque, not differentiated from remainder of beak; 10 species *baccifer*
- B. Dorsal apex of beak with raised, V-shaped, nasal plaque and V-shaped furrow (fig. 6)
 - 1. Front femur with tiny spine (fig. 26)
 - a. Abdomen with segments bulbous and widely separated by deep sutures; 13 species *maculifer*
 - b. Abdomen with segments rather flat and first two narrowly separated, seemingly fused; seven species *argentinensis*

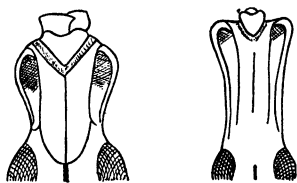


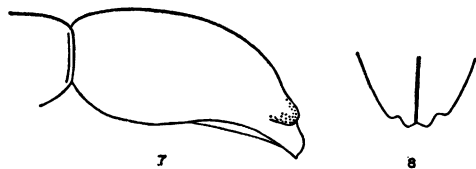
FIG. 6. Two kinds of beaks, showing apical nasal plate.

2. Front femur lacking spine; five species . . .
 *sulcifrons*

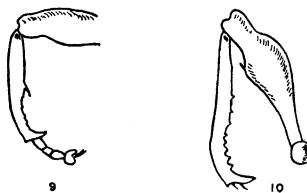
KEY TO THE SPECIES OF *Hyphantus*

Males generally have narrower, more elongate elytra than females (figs. 29, 30) and no indication of humeri; they usually have the elytra scarcely, if at all, wider than the pronotum.

1. Dorsal apex of beak with distinct nasal plaque or plate that is V-shaped or U-shaped, with elevated borders, and enclosed by V-shaped furrow (fig. 6) . . . 2
 Dorsal apex of beak either smoothly, uniformly convex or with feeble V-shaped depression, but not distinct nasal plate with elevated borders . . . 31
2. Pronotum with sides obtusely but sharply angulate (fig. 49); elytra smooth, not tuberculate, between punctate striae *angulatus*
 Pronotum with sides either arcuate or subparallel; elytra, at least toward apex, rough or tuberculate or both 3
3. Elytra so densely covered with roundish, not elongate (fig. 22), orange scales that scaly pattern visible to unaided eye; female with large subapical callosity of tubercles on sides of each elytron (fig. 42); male with genitalia rounded at apex *bracteatus*
 Elytra with scaly pattern, if present, not visible to unaided eye and scales more elongate (figs. 20, 21) 4
4. Dorsum in profile nearly horizontal (fig. 7) 5

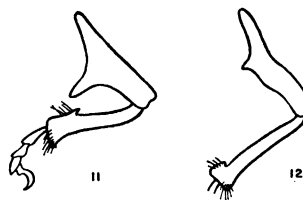


FIGS. 7, 8. *Hyphantus sulcifrons*, female. 7. Profile of elytra. 8. Dorsal view of apex of elytra.



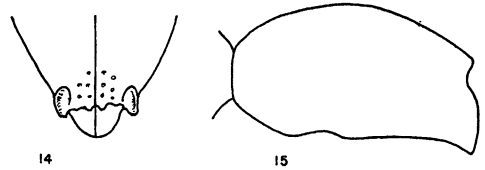
FIGS. 9, 10. Front legs of *Hyphantus*.
 9. *H. lanceolatus*. 10. *H. baccifer*.

- Dorsum in profile petiolate, with deep V between pronotum and elytra (figs. 28, 48) 8
5. Front tibia with sharp, forward-pointing spine in front of middle (fig. 9) *lanceolatus*
 Front tibia not spined near middle . . . 6
 6. Elytral declivity with two curving "tails" longer than one-half of length of pronotum (fig. 61) *longicauda*
 Elytral declivity with projections, if present, no longer than first segment of tarsus. 7
 7. Male with large spine on hind femur, hind tibia curved slightly, its widened apex on inner side nearly one-third of length of tibia (fig. 11); female with suture near apex of elytra strongly tumid or tuberculate, usually visible from above and in profile (figs. 7, 8), and submarginal row of each elytron tumid apically *sulcifrons*
 Male with tiny spine on hind femur, hind tibia straight, its widened apex only one-fourth of length of tibia (fig. 12); female with suture and submarginal row of elytra not or scarcely tumid, about as in male *simulans*
 - 8(4). Species, in male, with combination of strongly bisinuate front tibia (fig. 13); small size (6 to 10 mm.); subrostral tooth; elevated nasal plaque scarcely punctate, smoothly convex, not concave; dense scaly hairs on parts of elytra and pronotum *gnomus* (in part)
 Not exactly as stated above 9



FIGS. 11, 12. Hind legs. 11. *Hyphantus sulcifrons*. 12. *H. simulans*.

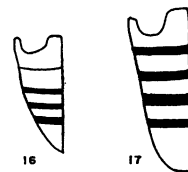
9. Apical declivity of elytra, in addition to normal tubercles, with some kind of tumidity or tuberculate protuberance either at suture or on third interval (figs. 15, 44, 45, 57, 60)10
 Apical declivity of elytra without additional tumidity or protuberance . . .17
10. Declivity of elytra with very large tubercles on third interval of each elytron (figs. 14, 57). *bondari* (in part)
 Declivity of elytra with tubercle or tumidity at suture11
11. Declivity of elytra, seen in profile, descending perpendicularly, with bend of declivity tumid, but not projecting as tubercles (fig. 45)12
 Declivity of elytra either sloping obliquely or with tubercular projections; if slope of declivity less than oblique and suture only vaguely tumid (as in male of *bondari*, fig. 15), then abdomen not bulbous, but flat, with first two segments appearing fused13
12. Elytra at widest part scarcely wider than pronotum, sides subparallel, disc of each elytron with only nine rows of tubercles when viewed from above
 *titan* (in part)
 Elytra at widest part much wider than pronotum, sides strongly arcuate, disc of each elytron with 12 rows of tubercles when viewed from above (fig. 37) *matronalis*
13. Front femur on inner side near apex entirely smooth, not spined or toothed *olivae*
 Front femur on inner side near apex with usual subapical spine (fig. 10) . . .14
14. Pronotum and elytra with tubercles large, pointed, conical, and widely separated (figs. 43, 44) . . . *pyramis*
 Pronotum and elytra with tubercles small, convex or subconvex, or flattened, rather dense, at least on pronotum15
15. Declivity of elytra at suture with no more than slight swelling or tumidity showing in profile (fig. 15) . *bondari* (in part)
 Declivity of elytra at suture with distinct, even if small, pair of tubercles jutting out in profile16
16. Each elytron with only five or six rows of tubercles from suture to edge of disc; tubercles widely separated longitudinally *gnomus* (in part)
 Each elytron with 12 or 13 rows of tubercles from suture to edge of disc; tubercles separated longitudinally by less than their diameters *chryseus* (in part)
- 17(9). Abdomen with second segment flat, appearing fused with, and scarcely separated from, first segment by narrow, feebly impressed line; second segment distinctly longer than either third or fourth (fig. 16)18
 Abdomen with second segment rather convex, widely separated from first by long, deep suture as deep as sutures between other segments; second segment usually not much longer than either third or fourth (fig. 17) . . .23
18. Middle tibia with large tooth near base on inner side in male (fig. 55), with feeble sinuation in same area in female (fig. 56) *hustachei*
 Middle tibia in both sexes straight on inner side19
19. Eyes scarcely convex (fig. 18); antennal funicle with third segment scarcely longer than wide and scarcely longer than any of following segments *argentinensis*
 Eyes very convex, bulbous (fig. 19); antennal funicle with third segment distinctly longer than wide (by two or three times) and longer than any of following segments20



FIGS. 14, 15. *Hyphantus bondari*. 14. Dorsal apex of elytra of female. 15. Lateral view of elytra of male.



FIG. 13. Bisinuate or strongly curved front tibia.



FIGS. 16, 17. One-half of abdomen. 16. Flat abdomen of *Hyphantus minutus*. 17. Bulbous abdomen of *H. serpensis*.



FIGS. 18, 19. Dorsal view of one-half of beak. 18. Flattened eye of *H. argentinensis*. 19. Normal convex eye.

20. Elytra, especially on declivity, rather densely covered with orange or yellow scales, most of which are nearly as wide as long *squamosus* (in part)
Elytra with fine, elongate hairs or only a few scales on disc 21
21. Pronotum with tubercles on disc contiguous, or at least of uniform size and spacing and smaller than larger elytral tubercles; male with apex of abdomen truncate and emarginate, and genitalia with apex blunt, sides sinuous (fig. 84) *parvulus*¹
Pronotum usually with at least some tubercles of disc separated by one-half of their diameters, or tubercles of various sizes, not uniform and as large as larger of elytral tubercles; male with apex of abdomen somewhat truncate but not emarginate, genitalia with apex needle-like or sides notched (figs. 82, 85) 22
22. Elytra with punctures, but no tubercles, on discal striae, outermost discal row of large tubercles with majority of tubercles widely separated; male genitalia with apex needle-like, sides of orifice entire (fig. 82) *minutus*¹
Elytra with tiny tubercles in front of punctures of discal striae, outermost discal row of large tubercles with them virtually contiguous; male genitalia with apex more or less rounded, sides of orifice notched (fig. 85) *subminutus*¹
- 23(17). Spaces among tubercles of elytral declivity either without hairs or scales, or with



FIGS. 20-22. Types of vestiture. 20. Elongate hairs of *H. chryseus* and other species. 21. Scales of *H. gnomus*, *hypercalus*, *pyramis*, *squamosus*, and other species. 22. Round scales of *H. bracteatus*.

¹ These three species can be identified with certainty only by the male genitalia or abdomen.

elongate hairs about six times longer than wide (judged best at high magnification) (fig. 20) 24

Spaces among tubercles of elytral declivity with flat, usually overlapping or dense scales not more than two or three times longer than wide (fig. 21) 27

24. Elytra without hairs or scales, each elytron with only five or six rows of tubercles, each row with usually not more than six tubercles from base to declivity (fig. 48) *conicus*

Elytra with at least some hairs, each elytron with at least 10 rows of tubercles, each row with 10 or more tubercles 25

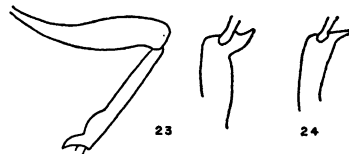
25. Female with elytra in profile flattened dorsally; male with middle tibia on inner side near apex slightly expanded sinuously (fig. 23) *tibialis*

Female with elytra in profile arcuate (fig. 47); male with middle tibia straight on inner side (fig. 24) . . . 26

26. Antennal funicle with first segment slightly shorter than second, or equal to it; pronotum, viewed from above, with 16 or fewer tubercles across middle; male genitalia with apex pointed (fig. 80) and in profile strongly arcuate *uncinatus*

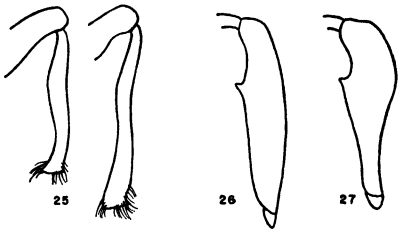
Antennal funicle with first segment slightly longer than second; pronotum, viewed from above, with about 20 or 22 tubercles across middle; male genitalia with apex more or less rounded (as in fig. 88) and in profile gently arcuate *chryseus* (in part)

- 27(23). Elytra a jumble of equal-sized, dense tubercles, many of them transversely or longitudinally confluent; sides of elytra subparallel (fig. 39); pronotum and elytra flattened dorsally; tubercles of pronotum virtually touching; male genitalia with apex rounded *titan* (in part)



FIGS. 23, 24. Middle tibiae of males. 23. Expanded apex in *Hyphantus baccifer* seen from above, and, enlarged, from beneath, showing also leaf-like apical mucro. 24. Normal straight apex seen from beneath, showing normal mucro.

- Elytra with tubercles in more separated and more or less distinct rows, and those of striae generally smaller; sides arcuate from base to apex (figs. 36, 40, 41); pronotum or elytra convex; tubercles of pronotum either sparse or dense; male genitalia various28
28. All tibiae distinctly sinuous within (figs. 13, 25); male with subrostral tooth (figs. 2-4); orifice of male genitalia with sides sinuous (fig. 76) . . . *maculifer*
- Only front tibiae, if any, sinuous; male with or without subrostral tooth; orifice of male genitalia with sides nearly straight (figs. 80, 87)29



FIGS. 25-27. Tibiae and femora. 25. Middle and hind tibiae of *H. maculifer*. 26. Gradually widened front femur. 27. Bulbous front femur.

29. Front femora gradually widened from base to spine (fig. 26); front tibiae strongly sinuate (fig. 13); male with large tooth under beak . . . *hypercalus*
- Front femora distinctly bulbous at spine (fig. 27); front tibiae straight except for slightly incurved apex; male with under side of beak straight30
30. Beak with nasal plaque flat or feebly convex; habitat southern Brazil (Paraná, Santa Catarina); pronotum rather flat in profile . . . *squamosus* (in part)
- Beak with nasal plaque concave within its elevated borders; habitat from São Paulo northward; pronotum gibbous or humped in profile (fig. 28) . . . *gibbosus*
- 31(1). Front femora without usual tiny subapical spine on inner side; elytral declivity with slight tumidity on suture
. *incongruus*
- Front femora with usual spine (figs. 26, 27) or small tubercle; elytral declivity with paired "tails," or with tubercular crests, or no protuberances at all . . .32
32. Elytral declivity with projecting pair of conical or crest-like tubercles in addition to normal tubercles.33
- Elytral declivity with normal tubercles, no protuberances34

33. Tubercles of declivity conical and projecting from suture (fig. 35); front tibia smooth, not dentate . . . *brevicauda*
- Tubercles of declivity cristate, projecting from third interval (fig. 32); front tibia dentate within *verrucifer*
34. Elytra with apices distinctly and deeply separated, triangularly pointed (fig. 33) *dehiscens*
- Elytra with apices contiguous or scarcely separated35
35. Front tibia distinctly denticulate within, especially near apex (fig. 10); pronotum with large tubercles across middle (10 to 15); male without subrostral tooth36
- Front tibia either perfectly smooth within or no more than feebly denticulate; pronotum with small, dense tubercles across middle (17 to 20); male with subrostral tooth40
36. Middle tibia with inner edge near apex sinuous and expanded, quite feebly in some specimens, apical mucro leaf-like (fig. 23); genitalia of male as shown in figures 63, 64 *baccifer*, male
- Middle tibia with inner edge straight, apical mucro normal and spine-like; genitalia of male as shown in figures 62, 6537
37. Genitalia of male as shown in figure 62; elytra with dense, numerous, transversely confluent tubercles, each elytron with from nine to 12 rows of tubercles of approximately same size on all rows from suture to edge of lateral declivity38
- Genitalia of male as shown in figure 65; elytra with more smooth space between tubercles, tubercles less dense, seldom transversely confluent, each elytron with seven or eight rows of large tubercles, with much smaller tubercles on intervening stria rows39
38. Surface generally without pubescence,

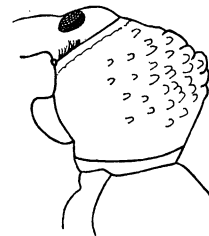
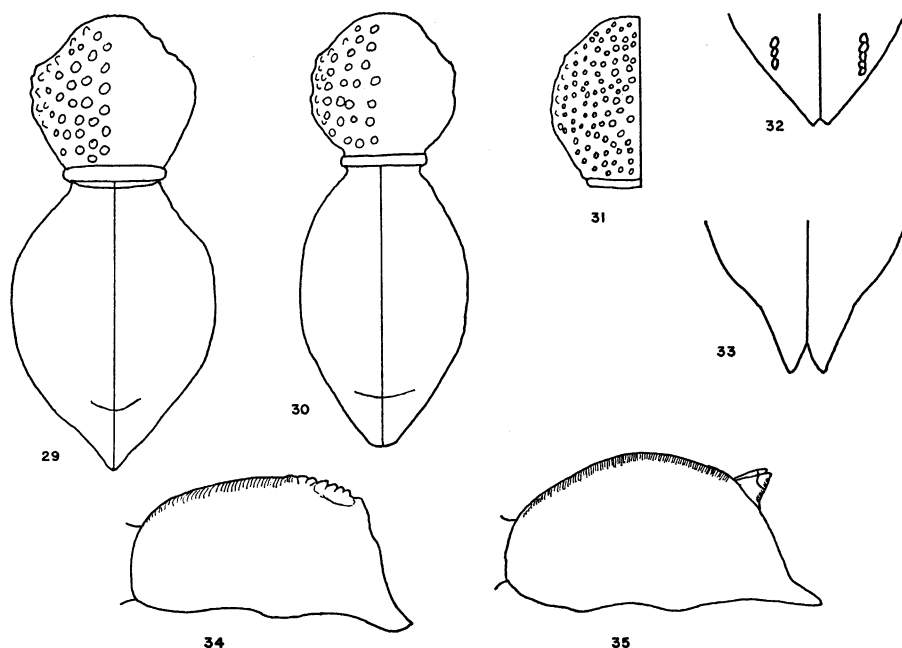


FIG. 28. Lateral view of humped pronotum of *H. gibbosus*.



FIGS. 29–35. Body parts of *Hyphantus* of species group *baccifer*. 29. Dorsum of *H. distinguendus*, female. 30. Dorsum of *H. distinguendus*, male; characteristic also of *H. baccifer*, male. 31. One-half of pronotum of *H. teretirostris*, showing tubercles. 32. Apices of elytra of *H. verrucifer*, showing tubercular crests. 33. Apices of elytra of *H. dehiscens*. 34. Lateral view of elytra of *H. verrucifer*. 35. Lateral view of elytra of *H. brevicauda*.

except for seta from center of each tubercle *distinguendus*¹

Surface generally with fine short hairs between tubercles . . . *baccifer*, female¹

39. Known only from inland Minas Gerais *montanus*¹

Known from coast of Espírito Santo to Santa Catarina . . . *baccifer*, female¹

40(35). Dorsal apex of beak with feeble indication of V-shaped depression or V-shaped nasal plate *teretirostris*

Dorsal apex of beak entirely smooth, either flat or convex 41

41. Elytral tubercles dense, usually all of about same size; male genitalia in profile snake-like (figs. 72, 75); female with profile of elytra rather horizontal on dorsum and profile of beak gradually wider from base to apex; Rio de Janeiro *serpentis*

Elytral tubercles less dense, usually much smaller on alternate or stria rows; male genitalia with short keel behind

orifice (figs. 73, 74); female with profile of elytra rather arcuate and profile of beak tumid at middle (fig. 5); São Paulo *carinatus*

SPECIES GROUP *baccifer*

The 10 species of this group have no nasal plate on the beak, no scales, the front femur toothed within (except in *incongruus*), the segments of the abdomen convex and broadly and deeply separated, the first segment of the antennal funicle distinctly longer than the second, the males of some species with a subrostral tooth, and the genitalia of the male with a short, subapical orifice. Four of the species are known from females only. In the formal descriptions, the species are compared with the first species, *distinguendus*. (See Introduction for comparison with other species groups.)

Hyphantus distinguendus Desbrochers des Loges
Figures 29, 30, 62, 68

[*Hyphantus*] *distinguendus* DESBROCHERS DES LOGES, 1892, pp. 15, 17, Brazil; type, apparently

¹ Females of these three species are often not separable unless taken with males from the same locality and on the same date.

female but not dissected, "Rio" [=Rio de Janeiro], in Muséum National d'Histoire Naturelle, Paris, examined.

DIAGNOSIS: No nasal plaque; no subrostral tooth; no elytral scales or projections; front tibiae dentate. Large, shining, rather transversely contiguous tubercles of elytra, which are of about same size on all rows, with long, stiff, white seta protruding from each tubercle, separate this species from most individuals of *baccifer* and *montanus*, species that differ further from *distinguendus* in shape of male genitalia, and generally by having fine white hairs among tubercles and elytral tubercles smaller on alternate rows.

RANGE: Coast of eastern Brazil from Bahia (one specimen) south to Rio de Janeiro, São Paulo, and (one specimen) Santa Catarina. (For data on the 105 specimens examined, see Appendix.)

DESCRIPTION: Length, 7 to 9 mm. Beak, dorsal view, about two and one-half times length of eye, width across scrobes a little more than one-half of length of beak; carinae lacking, beak punctate and rugose, epistoma flat or convex, lightly punctate, without nasal plaque but some individuals with faint trace of V-shaped furrow, beak in profile slightly wider at apex, under side in some specimens with slight angulation (males) or sinuation (both sexes) at middle. Antennal funicle with first segment slightly longer than second, second about twice as long as third, third longer than any of following segments, scrobe rather straight, ending width of an eye from eye. Eyes bulbous. Head rugose, with round or linear center depression.

Pronotum globose, about two-thirds of length of elytra, with large tubercles (usually larger than those on elytra) that are also globose, rather dense but not contiguous, in some specimens quite sparse (usually from 10 to 15 across pronotum at middle); pronotum slightly wider than long but appearing virtually round; sides strongly arcuate; in profile, outline strongly arcuate; base and apex broadly margined, apex with small tubercle under eye (fig. 5). Elytra with normal long seta emerging from each tubercle but virtually no hairs among tubercles, at widest part scarcely (male) or slightly (female) wider than pronotum;

sides gently arcuate to subapical fourth whence convergent to rather rounded apex; in profile elytra arcuate, steeper apically than basally; tubercles on disc dense, transversely contiguous in groups of two or three, tubercles present on all rows (about 10 or 12 rows from suture of one elytron to edge of disc), those on alternate rows (the striae) usually not or scarcely smaller, inner rows deeply pitted.

Front femur distinctly bulbous subapically, inner edge with tiny, forward-pointing spine or tooth (fig. 27); front tibia distinctly dentate within (fig. 10), bent inward at apical third, apical mucro as long as tibia is wide; middle and hind tibiae virtually straight; hind femur long, reaching to apex of elytra. Abdomen with all segments separated by deeply impressed, long sutures; segments 2 to 4 bulbous, convex; second segment scarcely, if at all, longer than either third or fourth; apical segment about as long as two preceding segments combined.

Male genitalia with apex elongate and acuminate, dorsal orifice short, situated near apex (figs. 62, 68).

SEXUAL DIMORPHISM: The elytra of the males are somewhat longer and narrower than those of the females.

REMARKS: This species and the two that follow (*baccifer* and *montanus*) differ from others of the *distinguendus* group by a combination of three characters: dentate front tibiae, very large tubercles on the pronotum (one-half of the pronotum with usually no more than seven tubercles in a more or less transverse line, whereas 12 or more in other species), and the absence of cristate projections on the declivity of the elytra. All the specimens with these characters that I have seen in collections, however, have been determined as *baccifer* Germar, except, of course, for the type of *distinguendus*, probably because the small differences among the three species have been considered individual, not specific, ones, as the male genitalia were not examined. In addition, the unique type of *distinguendus* might readily be mistaken for the female of *baccifer*. (For further comparisons, see *baccifer* and *montanus*.)

The genitalia of 29 males of *distinguendus* (figs. 62, 68-70), seen in profile, are less strongly curved than are those of males of

baccifer or *montanus*. Dorsally, they appear proportionately rather narrower and have the apex acuminate, not spatulate, and in the shape of an isosceles triangle which is twisted to one side in some specimens.

As for the beak, males of *distinguendus* may have a strong subrostral angulation, but I have not seen any with an actual tooth. Of 81 specimens examined of both sexes, 31 had the under side of the beak straight, 27 had a slight sinuation, and 23 had a distinct angulation. The individuals of the last group, as well as some in the other groups, were males. When the total was analyzed further, it was found that, of nine dissected males from Tijuca, Rio de Janeiro, four had the under side sinuate, five had it angulate; of seven females, five had it sinuate, and four had it straight. Males of some closely related species (*teretirostris*, *carinatus*, and *serpentis*) do have a subrostral tooth, but it is lacking (or abraded?) in some specimens; these three species differ further from *distinguendus*, *baccifer*, and *montanus* by having the tubercles of the pronotum smaller and much more numerous across the disc, and differently shaped genitalia in the male.

The elytra of *distinguendus* give the appearance of a jumble of tubercles of approximately the same size. Actually the tubercles are in rows, with those of alternate rows being slightly smaller, but the tubercles in most specimens merge transversely across the rows, confusing them. The setae emerging from the tubercles appear longer (as long as the diameter of a tubercle), whiter (not yellow), and thicker than those of most species. The fine white hairs interspersed among the tubercles in some species are absent in most specimens of *distinguendus*. They are not visible in 40 males and females examined from São Paulo and three from Rio de Janeiro, but on other specimens some scattered hairs are certainly present.

Hyphantus baccifer Germar

Figures 10, 23, 30, 63, 64, 69, 70

Hyphantus baccifer GERMAR, 1824, p. 335, Brazil; type, male, in Martin-Luther Universität, Halle, examined.

DIAGNOSIS: No nasal plaque; no subrostral tooth; no elytral scales or projections; front tibia dentate; male with inner edge of

middle tibia sinuate before apex. Very similar to *montanus* and *distinguendus*, but differing from them in shape of male genitalia and in modification of middle tibia of male. Some females separable from those of *distinguendus* by having fine hairs on elytra and alternate rows with smaller tubercles; females of *montanus* having fewer rows of tubercles on elytra.

RANGE: Southeastern Brazil from Espírito Santo south to Santa Catarina. (For data on the 48 specimens examined, see Appendix.)

DESCRIPTION: Length, 7 to 9 mm. Beak, antennae, eyes, head, and pronotum as described for *distinguendus*. Elytra almost as described for *distinguendus*, but with additional fine hairs among tubercles, tubercles usually more widely spaced, seldom transversely contiguous, alternate rows usually with smaller tubercles, elytra appearing more elongate and tapering in males (fig. 30). Legs and abdomen as described for *distinguendus*, except for middle tibia of male which is both wider and sinuate near apex on inner side (fig. 23), and which has widened, leaf-like, apical mucro.

Male genitalia with orifice short, situated near apex, apex rounded-spatulate (figs. 63, 64), extreme apex either turned up or with little bulbous knob.

SEXUAL DIMORPHISM: The elytra of males are longer and much narrower than those of females; the middle tibiae of females are not widened or sinuate.

REMARKS: Of this, the type species of the genus, we have far fewer specimens than of *distinguendus*, which is so similar to it, and no large series of both sexes. Through the courtesy of Dr. J. O. Husing of Halle, I have examined the type and a paratype of *baccifer*, both of which are males and have the peculiar characters of the middle tibia given in the description above. Males of *distinguendus* have the middle tibia straight and the apical mucro normal in size and spine-like, not expanded as in *baccifer*. The genitalia differ also, those of *baccifer* being spatulate and, in most specimens, having a slight tumidity at the apex on the dorsal side, and those of *distinguendus* having the apex acuminate in a kind of long isosceles triangle and not at all tumid (figs. 62-64). At least a dozen males of each species were dissected. The type of

distinguendus is a female and could conceivably be considered to be the female of *baccifer*, but, since there are in fact two species involved, there seems to be no reason to create a third name.

It is difficult to decide how much weight to give slight differences in the genitalia. Six dissected males from a series of 17 specimens from the state of Espírito Santo (Tirol, Victoria, Tijuco Preto) have the genitalia (figs. 63, 64) not quite similar to those of other *baccifer* because the orifice is somewhat longer and the apex turns upward instead of being tumid, yet these males have the same tibial characters as other males. These specimens, which appear to be also less elongate than other males, may represent a subspecies of *baccifer*, but more material from various localities is needed for such determination.

Females of *baccifer*, at least judged from the only females that I have in association with males (from Espírito Santo), apparently show more sexual difference in the width of the pronotum and elytra than do females of *distinguendus*. Thus, the narrow, tapering males of *baccifer* are immediately distinguishable from the more corpulent females, but males and females of *distinguendus* are not usually separable without dissection; many that seem to be males prove to be females. The elytra (measured by a micrometer eyepiece) are on an average from 10 to 15 lines wider than the pronotum (at the widest parts) in females of *distinguendus*, but usually are 20 or more in females of *baccifer*; in males of both species the elytra are from five to 15 lines wider than the pronotum.

No specimens of *distinguendus* have been seen from Espírito Santo, but males of both species have been collected in the state of Rio de Janeiro at Teresópolis (three of *distinguendus*, one of *baccifer*), and one male of each species came from Santa Catarina.

(For comparison with the very similar *montanus*, see that species.)

***Hyphantus montanus* Vaurie, new species**

Figures 65, 71

TYPE MATERIAL: Type, male, Serra Caraça, 1380 meters, Minas Gerais, Brazil, November, 1961, Kloss, Lenko, Martins, and Silva, collectors, in the Departamento de Zoologia, São Paulo; 21 male paratypes with

the same data as the type, some in the Departamento de Zoologia, some in the American Museum of Natural History; three male paratypes, Serra Caraça, Santa Barbara, Minas Gerais, Brazil, November 23 to 25, 1960, Araujo and Martins, collectors, in the Departamento de Zoologia.

DIAGNOSIS: No nasal plaque; no subrostral tooth; no elytral scales or projections; front tibiae dentate. Very similar to preceding species (*baccifer*, *distinguendus*), but differing chiefly by having fewer rows of large tubercles on elytra (alternate rows, or striae, having minute tubercles or no tubercles), therefore more flat, smooth, non-tuberculate areas, especially on inner rows; differing also in shape of male genitalia.

RANGE: Known only from the type locality (and possibly Venezuela; see below), which is a range of mountains in the mining district of Minas Gerais about 30 or 40 miles southeast of Belo Horizonte. Ninety-two additional specimens from Departamento de Zoologia (43 males, 49 females) with the same data as the type were examined, as well as two males and three females from "Brazil" in Zoologische Staatssammlung, Munich.

DESCRIPTION OF TYPE, MALE: Length, 7 mm. Beak, antennae, eyes, head, and pronotum as described for *distinguendus*, but beak with trace of median carina at base, its epistoma convex, not flat, its under side in profile not angulate at middle and only slightly wider at apex than at base. Elytra, especially on declivity, with fine hairs among tubercles, at widest part scarcely wider than pronotum, sides and profile as described for *distinguendus*; tubercles on disc sparse (on suture and adjacent rows separated longitudinally by from two to four times diameter of tubercle), with smooth, flat spaces between and no more than five or six rows of large tubercles on each elytron, tubercles on striae either very small in front of punctures, or lacking. Legs and abdomen as described for *distinguendus*, but front tibia somewhat sinuate on inner side, its apical mucro shorter.

Genitalia with apex less acuminate than that of *distinguendus*, less rounded than that of *baccifer*, with sides slightly sinuate or constricted subapically (figs. 65, 71), dorsal orifice short, situated near apex.

SEXUAL DIMORPHISM: The elytra of females

are only slightly wider than those of males and are not significantly wider than the pronotum. Females are thus not necessarily distinguishable from males unless by direct comparison. Many females, however, have the suture at the base of the elytra bare of tubercles, presenting a smoother surface than that of males.

VARIATIONS FROM TYPE: Females differ as stated above. The length ranges from 6.5 to 9 mm. The majority of specimens have no carinae on the beak; a few have a trace of a V-shaped depression near the apex; the under side is sinuate in several specimens. The impression on the head may be round or linear. The dentation of the front tibia is not visible in every individual. The elytra of some specimens have the tubercles less sparse and even transversely confluent. The pronotum in several has irregular empty spaces at the center.

REMARKS: This species was thought at first to be *baccifer* or *distinguendus*, but it differs from them not only in the slight elytral differences, the more abundant pubescence, and the absence of secondary sexual characters in the beak and tibiae, but also in the shape of the apex of the male genitalia. These organs, dissected from at least 20 specimens, are very uniform in shape, differing slightly but constantly from those of the other two species; they are also, seen in profile, proportionately shorter and thicker. They are more similar to the genitalia of males of *baccifer*, especially those of *baccifer* from Espírito Santo, than to those of *distinguendus* (figs. 62-65), but males of *baccifer* differ by having the inner apical edge of the middle tibia sinuous and the mucro rather leaf-like.

It would be interesting to know whether *montanus* is actually restricted to the state of Minas Gerais, or whether it occurs, as do *baccifer* and *distinguendus*, also along the coast or farther south. An old specimen marked simply "Venezuela" in the British Museum appears to be this species. If correctly labeled, this is the only record of *Hyphantus* from that northern country.

Hyphantus teretirostris Desbrochers des Loges

Figures 31, 66, 67

[*Hyphantus*] *baccifer* var. *teretirostris* DESBROCHERS DES LOGES, 1892, pp. 16, 19, Brazil;

type, female, without locality, in Muséum National d'Histoire Naturelle, Paris, examined.

DIAGNOSIS: No nasal plaque, but faint nasal furrow; no elytral projections or scales; front tibiae not dentate; male with subrostral tooth. Differing from preceding species (*distinguendus*, *baccifer*, and *montanus*) by having front tibiae smooth on inner side, not dentate, but more sinuate, pronotal tubercles smaller and more numerous, and male with a subrostral tooth. Resembling following species (*carinatus* and *serpentis*) in these characters, but differing from them by having a faint, V-shaped furrow in epistomal region of beak and male genitalia of a different shape (see table 2).

RANGE: Southeastern Brazil from the state of Minas Gerais south to Santa Catarina. (For data on the 68 specimens examined, see Appendix.)

DESCRIPTION: Length, 7 to 9 mm. Beak, dorsal view, three times as long as eye, width across scrobes about one-half of length of beak; median carina present at base or in more than basal half, faint lateral carinae present in some specimens; beak punctate and rugose; epistoma smooth, faintly punctate, with slightly depressed, V-shaped furrow (very feeble in some specimens), under side of beak with stepped tooth in male, tumidity at middle in female. Antennae, eyes, and head as described for *distinguendus*, but first segment of antennal funicle about one-third longer than second and eyes perhaps a bit farther apart.

Pronotum as described for *distinguendus*, except for much smaller and more numerous tubercles (at least 17 across middle, 20 in some specimens; fig. 31). Elytra as described for *distinguendus*, except for tubercles which are smaller, denser, flatter, in more regular, serried rows, not transversely contiguous, as a rule, in some specimens tubercles of same size on all rows, in others somewhat smaller on alternate rows.

Legs and abdomen as described for *distinguendus*, except for non-dentate, but sinuate, front tibia (in some specimens tibia slightly crenulate), and for sinuate middle and hind tibiae.

Male genitalia with apex knobbed or bulbous and rounded, dorsal orifice apical (figs. 66, 67).

SEXUAL DIMORPHISM: Females have the elytra wider and shorter than do males, and the under side of the beak tumid, but not toothed.

REMARKS: Desbrochers des Loges regarded this species as a variety of *baccifer*, stating merely that it had the beak convex, nearly impunctate, and without trace of carinae, but it appears to be a distinct species. His type, unfortunately, is a female, but nonetheless it differs from both sexes of *baccifer* by having the tubercles of the pronotum smaller and more numerous (figs. 30, 31), the middle and hind tibiae slightly sinuate, and the front tibiae smooth, not dentate, within. Desbrochers des Loges (1892, p. 13) thought that the female of *baccifer* had the dentations of the front tibiae usually obsolete which may be the reason for his making *teretirostris* conspecific with that species. The carinae on the beak are rather variable in most species; in *teretirostris* the median carina is present, even if abbreviated, in 52 of 56 specimens. The apical V-shaped impression of the beak, although rather feeble in some specimens, is absent in only one of 56 specimens. The subrostral tooth of the male was found to be missing on one specimen. The tubercles of the pronotum are usually uniform in size and spacing, as are those of the elytra. Some individuals have apparently smaller tubercles on the alternate rows of the elytra, but these tubercles are not necessarily actually smaller, because in many instances they are opaque at the base where they are large, but shining at the apex. Several specimens of both sexes (three from Paraná, one from Hansa Humboldt, Santa Catarina, one from São Paulo) have all the dorsal tubercles smaller, flatter, more shining than usual, as if worn down, and they, as well as a few other individuals, have the front tibiae faintly crenulate subapically.

At least 33 males were dissected, of which a few have a longer "neck" and a stronger, more reflexed "knob" at the apex of the genitalia, but, as some males have the genitalia more or less intermediate, I believe that they are all the same species (in fig. 66 the apex on the left is of a male from São Paulo, the one in the center represents males from São Paulo and Paraná, and the one on the right, a male from Santa Catarina).

***Hyphantus serpentis* Vaurie, new species**

Figures 2, 17, 72, 75

TYPE MATERIAL: Type, male, [Serra] Macaé [or Macahé], state of Rio de Janeiro, Brazil, September, 1909, Garbe, collector, and one male paratype with the same data, in the Departamento de Zoologia, São Paulo; one male paratype with the same data in the American Museum of Natural History; two male paratypes, Rio de Janeiro, Fry, collector, in the British Museum (Natural History); one male paratype, Teresópolis, Rio de Janeiro, November, 1955, "G. Barb. Frey," collector [?], and one male, Teresópolis, January, 1960, K. E. Hudepohl, collector, both in the Museum Frey, Munich.

DIAGNOSIS: No nasal plaque; no elytral projections or scales; front tibiae crenulate; male with subrostral tooth. Differing from all species in very sinuous genitalia of male; differing further from *teretirostris* by having dorsal apex of beak entirely smooth, with no V-shaped depression, and front femora not bulbous, from females of *carinatus* by having elytra rather horizontal on top, then declivous, not smoothly arcuate from base to apex. (See table 2.)

RANGE: State of Rio de Janeiro, eastern Brazil. Sixteen additional specimens examined: Teresópolis, Rio de Janeiro, November, 1955, "G. Barb. Frey," one female, and January, 1960, K. E. Hudepohl, collector, one female, in Museum Frey; Brazil, three males, six females, in British Museum (Natural History), Zoologische Staatssammlung, Munich, Chicago Natural History Museum, and the American Museum of Natural History; with same data as type, three females in Departamento de Zoologia, São Paulo.

DESCRIPTION OF TYPE, MALE: Length, 8.5 mm. Beak, dorsal view, about three times length of eye, width across scrobes no more than one-half of length of beak; median and lateral carinae feeble, beak punctate and rugose, epistoma convex, lightly punctate, without trace of nasal plaque: under side with large stepped tooth (fig. 2). Antennae, eyes, and head as described for *distinguendus*, but first segment of antennal funicle about one-third longer than second.

Pronotum as described for *distinguendus*,

TABLE 2
DIFFERENCES AMONG THREE SPECIES OF *Hyphantus*

	<i>H. teretirostris</i>	<i>H. serpentis</i>	<i>H. carinatus</i>
Genitalia of male	As shown in figures 66, 67	As shown in figures 72, 75	As shown in figures 73, 74
Epistoma of beak	With feeble, V-shaped furrow or depression	Smooth, no furrow	Smooth, no furrow
Elytra	Tubercles dense, usually of about same size on all rows	Tubercles dense, usually of about same size on all rows	Tubercles sparser, usually much smaller on alternate rows
Under side of beak of female	Tumid at middle	Gradually widening from base to apex	Tumid at middle
Profile of elytra of female	More or less horizontal from base to declivity	More or less horizontal from base to declivity	Uniformly arcuate from base to apex
Geographic range	Minas Gerais south to Santa Catarina	State of Rio de Janeiro	State of São Paulo

except for somewhat smaller, more numerous tubercles (at least 17 across middle). Elytra as described for *distinguendus*, but at widest part no wider than pronotum.

Front femur not bulbous, but widened gradually, inner tooth present, front tibia feebly crenulate within, bent inward at apical fourth, sinuate within, apical mucro not long; middle and hind tibiae sinuate within; hind femur extending a little beyond apex of elytra. Abdomen as described for *distinguendus*.

Genitalia in profile of a snake-like sinuosity (fig. 72), apex either rounded and bulbous or somewhat triangular, orifice short, apical (fig. 75).

SEXUAL DIMORPHISM: The under side of the beak is not toothed in the female. The female has the elytra distinctly wider than the pronotum, wider, less elongate, and more convex than those of the male and with a more constricted, more pointed apex.

VARIATIONS FROM TYPE: Females differ as stated above. The size ranges from 7 to 8.5 mm. Four males and three females have no carinae on the beak; most specimens have a few scattered, very fine white hairs on the elytra; the crenulations of the front tibia are scarcely visible in many specimens; the two males from Teresópolis have the apex of the genitalia more triangular than rounded, and the profile of the genitalia less sinuous.

REMARKS: It is unfortunate that about

one-half of the specimens examined have no other locality than "Brazil," and that two or three others have only "Rio." Thus we cannot say whether the species occurs to the south in the state of São Paulo, where *carinatus* seems to be restricted, or only in Rio de Janeiro. Both these species, which are very similar, except for the genitalia of the male, occur within the range of *teretirostris* (see table 2).

One male specimen, probably teneral because of its reddish, not black, color and its scarcely chitinized genitalia, has the subrostral tooth virtually lacking, but another male with diaphanous genitalia has the tooth as long as normal. Eleven males were dissected. Two of these, as stated above, have the apex of the genitalia slightly more triangular, but appear to be the same species.

Hyphantus carinatus Vaurie, new species

Figures 73, 74

TYPE MATERIAL: Type, male, Caraguatuba "Res. Flor.—680 m.," state of São Paulo, Brazil, April 2, 1962, Martins, Reichardt, and Silva, collectors, and 17 male paratypes with the same data, in the Departamento de Zoologia, São Paulo; six male paratypes with the same data in the American Museum of Natural History; six male paratypes, Est.[ação] Biol.[ógica] Boraceia, Salesópolis, São Paulo (four, October 17 and November 11, 1960, K. Lenko, collector;

two, May 11, 1961, H. Canter, collector), in Departamento de Zoologia; one male paratype, Alto da Serra, São Paulo, March 7, 1912, G. E. Bryant, collector, in British Museum (Natural History).

DIAGNOSIS: No nasal plaque; no elytral projections or scales; front tibiae faintly crenulate; male with subrostral tooth. Differing from all species in carinate genitalia of male; differing further from *teretirostris* by having dorsal apex of beak entirely smooth, without V-shaped depression, from *serpentis* by having more tiny white hairs among elytral tubercles and by being generally smaller. Very similar to these two species (see table 2).

RANGE: Southeastern Brazil, in the hills or lowlands around the city of São Paulo. Additional specimens examined: eighteen females and one male (without subrostral tooth) with the same data as the type, and two females from Salesópolis (Boracéia station), November 11, 1960, H. Lenko, collector.

DESCRIPTION OF TYPE, MALE: Length, 7 mm. Beak, dorsal view, about three times length of eye, width across scrobes a little less than one-half of length of beak, carinae lacking, beak feebly punctate and rugose, epistoma convex, feebly punctate, without trace of nasal plaque; under side with large stepped tooth (fig. 2). Antennae, eyes, and head as described for *distinguendus*.

Pronotum as described for *distinguendus*, except for smaller, denser tubercles (16 or 20 across disc at middle), and even more arcuate profile, tubercles about same size as larger tubercles of elytra. Elytra with tiny white hairs interspersed among tubercles in addition to normal setae emerging from tubercles, at widest part elytra no wider than pronotum, sides and profile as given for *distinguendus*; tubercles on disc rather dense and some of them contiguous transversely, but tubercles separated longitudinally, those on alternate rows smaller, rows not very distinct.

Front femur scarcely bulbous, subapical inner tooth present, front tibia feebly crenulate on inner side, bent inward at apical fourth, apical mucro not long; middle and hind tibiae slightly sinuate, hind tibia curved slightly inward at apex; hind femur extend-

ing a little beyond apex of elytra. Abdomen as described for *distinguendus*.

Genitalia with apex truncate, projecting like a blunt finger, orifice short, subapical, with short keel or carina behind orifice, best seen in profile view (figs. 73, 74).

SEXUAL DIMORPHISM: The under side of the beak is not toothed in the female; in profile the beak is tumid above in the apical half, tumid below in the apical three-fourths, narrowed, "pinched," or scooped out at the base (fig. 5). The female has the elytra slightly, but not markedly, wider than the pronotum and wider, more convex at the middle than does the male, the apex somewhat more pointed, the base along the sutural intervals usually smooth, without tubercles, the punctures of the inner striae in evidence.

VARIATIONS FROM TYPE: Females differ as stated above. The length ranges from 6 to 8 mm. Some specimens have the front tibiae indistinctly crenulate, virtually smooth; some have a faint median carina at the base of the beak and the beak more deeply punctate or more rugose; some have the elytral tubercles in more distinct rows (about 11 rows from the suture to the edge of the disc). The subrostral tooth is worn down or broken on some males.

REMARKS: The male genitalia, dissected from 16 specimens, are distinctive because of the keel but are otherwise of the same general type as those of other species of the group. This species appears quite uniform in its characters, perhaps because the majority of specimens examined come from the same locality, Caraguatatuba. A male of the quite similar *teretirostris* was also collected at this locality, and both species were taken at Salesópolis and Alto da Serra; *distinguendus* also occurs at Salesópolis and Caraguatatuba. The ranges of both *distinguendus* and *teretirostris* are more extensive than are those of *carinatus* or of *serpentis*.

The subrostral tooth of the male, characteristic also of males of *serpentis* and *teretirostris*, is lacking in one specimen; perhaps it was never formed, or perhaps it became abraded or broken. Five of the 22 males examined have this tooth truncated or otherwise abbreviated so that it is not of full size or shape.

***Hyphantus verrucifer* Boheman**

Figures 32, 34

H[yphantus] verrucifer BOHEMAN, 1843, p. 409, Brazil; type, female, in Naturhistoriska Riksmuseet, Stockholm, examined.

DIAGNOSIS: No nasal plaque; no elytral scales, but projections present; front tibia dentate; male not known. Similar to *distinguendus*, *baccifer*, and *montanus* in distinctly dentate front tibiae and in large, not numerous, pronotal tubercles, but differing from them by having cristate projections from elytral declivity. Resembling *brevicauda* and *incongruus*, known also from females only, in narrowed and separately acuminate elytral apices, but differing by having elytral projections not on suture.

RANGE: Southeastern Brazil around Rio de Janeiro. (For data on the 13 specimens examined, see Appendix.)

DESCRIPTION OF FEMALE: Length, 8 to 9 mm. Beak, eyes, head, and pronotum as described for *distinguendus*, but beak with feeble median carina in some specimens, epistoma without trace of V-shaped furrow, and under side of beak not angulate. Elytra with tiny white hairs among tubercles, at widest part wider than pronotum; humeri rounded; sides arcuate to apical fifth, whence strongly convergent to narrowly acuminate apex, apices slightly divergent (fig. 32); profile as shown in figure 34; third interval of each elytron at bend of declivity with elongate crest composed of from two to seven contiguous tubercles; other tubercles separated longitudinally by about their diameters, rather irregular, but arranged in seven or eight rows counting from suture to edge of disc, some alternate rows with tiny tubercles; disc on basal half with sutural and first striae rows flat and smooth, scarcely tuberculate. Legs and abdomen as described for *distinguendus*.

REMARKS: Through the courtesy of Dr. Karl-Johan Hedqvist of the museum in Stockholm I was able to reexamine the type of *verrucifer*, which I dissected sufficiently to make certain that it is a female, not a male as stated by both Boheman and Desbrochers des Loges. Ten of the 13 specimens available have been dissected, but I find no males.

Probably the male does not have the elytral projections, or they are reduced or in a different location. Possibly the male differs from the female further by having a subrostral tooth. Unfortunately, we have no series with adequate data, so that it is not yet possible to associate the sexes. It may be that *verrucifer* is parthenogenetic.

I have examined a male from "Rio" in the collection of the American Museum of Natural History, which has dentate front tibiae and feebly tuberculate crests on the elytra as in *verrucifer*, but this specimen differs by having the surface without tiny hairs, the elytra rounded at apex, not acuminate, the apices not at all divergent, the tubercles dense and well defined on all rows (as in *distinguendus*), and the epistoma of the beak with a faint, V-shaped furrow. In addition, the pronotum is very broad, rather flat, and the under side of the beak has a finger-like tooth; the genitalia are similar to those of *distinguendus* and *baccifer* but proportionately larger. This may be the male of *verrucifer*, but I believe the elytral differences, especially, are too great.

Other species with elytral projections differ from *verrucifer* either by having the projections emerging from the suture or by having a raised nasal plaque at the apex of the beak. At the time of Desbrochers des Loges' revision, this was the only species known with elytral projections, but at the present time there are at least 13. The elytral crests are somewhat variable in *verrucifer*, even in the same individual. In the type they are composed of six or seven small, elevated tubercles in a more or less single line; in the allotype they are less prominent and are two on one elytron, three on the other; in another specimen there are six or seven tubercles raised on one elytron and four in a hump on the other, with a solitary tubercle in line with the hump.

All the specimens examined have the apex of the abdomen distinctly tumid.

***Hyphantus dehiscens* Desbrochers des Loges**

Figure 33

[Hyphantus] dehiscens DESBROCHERS DES LOGES, 1892, pp. 15, 18, Brazil; type, female, without local-

ity, in Muséum National d'Histoire Naturelle, Paris, examined.

DIAGNOSIS: No nasal plaque; no elytral projections or scales; front tibia not dentate; male not known. Differing from other species of genus by having elytra without projections and deeply dehiscent (fig. 33); otherwise very similar to *teretirostris* and *brevicauda*.

RANGE: Southeastern Brazil from Rio de Janeiro south to Santa Catarina. (For data on the 12 specimens examined, see Appendix.)

DESCRIPTION OF FEMALE: Length, 9 mm. Beak, dorsal view, almost three times length of eye, width across scrobes a little more than one-half of length of beak, median carina present in some specimens, lateral carinae lacking or indistinct, epistoma flat or convex, with V-shaped nasal furrow faintly or rather strongly indicated, epistoma feebly punctate, rest of beak rugosely punctate; under side of beak tumid in front, in profile narrowed at base. Antennae, eyes, and head as described for *distinguendus*, but first segment of antennal funicle nearly one-third longer than second.

Pronotum globose, with globose, dense tubercles of same size as tubercles of elytra (usually from 20 to 22 across disc at middle); otherwise as described for *distinguendus*, except for proportionately narrower basal margin. Elytra with neither setae nor hairs much in evidence, at widest part not or scarcely wider than pronotum, sides strongly arcuate to subapical fourth where strongly constricted to acuminate apex, apices of each elytron separately, triangularly pointed (fig. 33), in profile elytra nearly horizontal to declivity, thence steeply oblique to apex; tubercles on disc dense, of nearly uniform size on all rows (about 12 rows from suture to edge of disc).

Front femur not bulbous, merely gently widened to near apex, inner spine present, front tibia not dentate, bent inward at apical third, mucro as long as tibia is wide, all tibiae slightly sinuate on inner side; hind femur extending to near apex of elytra. Abdomen as described for *distinguendus*.

REMARKS: The resemblance of this species to *brevicauda* is quite striking, both being known from females only and both having dehiscent elytra, but *brevicauda* has two stout tubercular projections from the suture of the

elytral declivity which are lacking in *dehiscens*. The elytra are dehiscent, though less strongly so, also in *verrucifer* which differs from the other two species by having larger and sparser dorsal tubercles and a crest of tubercles on the third interval of each elytron at the declivity. The type of *dehiscens* differs slightly from some of my specimens by having some hairs visible on the elytra, the beak tricarinate, the front of the head not noticeably foveolate, and the usual tiny tooth or spine of the front femur not visible.

It will be interesting to find out whether this species and the two following (*brevicauda*, *incongruus*) are parthenogenetic or whether the male simply has not yet been recognized.

***Hyphantus brevicauda* Vaurie, new species**

Figure 35

TYPE MATERIAL: Type, female, Paraná, Brazil,¹ Justus, collector, G. Bondar collection, David Rockefeller, donor, and one female paratype with the same data in the American Museum of Natural History; 14 female paratypes: one with the same data as the type, except for Hatschbach as collector, in the American Museum of Natural History; one, Paraná, Justus, collector, in Chicago Natural History Museum; one, Curitiba, Paraná, December, 1935, in Departamento de Zoologia, São Paulo; one, "Cad. da Santa" [=Sierra do Cadeado], Paraná, January, 1960, Hudepohl, collector, in Museum Frey, Munich; 10, São Paulo, Weir, collector, in British Museum (Natural History) and the American Museum of Natural History.

DIAGNOSIS: No nasal plaque but with faint nasal furrow; no elytral scales; front tibia not dentate; elytral declivity with projections; male not known. Only species of genus with combination of following characters: pair of stout tubercles on suture at top of elytral declivity (fig. 35), separately pointed, divergent elytral apices, and epistoma of beak without elevated plaque.

RANGE: Southeastern Brazil from the state of São Paulo south to Paraná.

¹ Under number 5054 in his notebook, Bondar gives a short diagnosis of the species and lists five specimens from Paraná sent to him by Justus and six by Hatschbach.

DESCRIPTION OF TYPE, FEMALE: Length, 9 mm. Beak as described for female of *distinguendus*, but median carina present, also V-shaped furrow, and under side not sinuate. Antennae, eyes, and head as described for *distinguendus*, except for first segment of antennal funicle which is one-third longer than second, and for feeble impression on head.

Pronotum as described for *distinguendus*, but tubercles denser and smaller (about 18 across disc at middle). Elytra with normal long seta from each tubercle but no hairs between tubercles, at widest part distinctly wider than pronotum, top of declivity at suture with two tubular tubercles (conical when viewed from side; fig. 35) extending horizontally backward and slightly divergent apically, about as long as first segment of tarsus and as wide as width of two rows of elytral tubercles, and with eight to 10 setae on each tubercle; sides of elytra arcuate to beyond projecting tubercles, thence strongly convergent to separately acuminate and angulate apices; in profile rather flat on top, apical slope oblique; tubercles on rest of elytra equally spaced longitudinally at about the distance of one tubercle, in distinct, even lines or rows, of nearly same size on all rows, base of elytra near suture flat, smooth, without tubercles, but with large striae punctures, suture at middle third of elytra slightly tumid.

Front femur slightly bulbous, front tibia smooth, not dentate, but slightly sinuate on inner edge; middle and hind tibiae slightly sinuate; hind femur not quite reaching apices of elytra. Abdomen as described for *distinguendus*.

VARIATIONS FROM TYPE: The size ranges from 8 to 9 mm. Some of the paratypes have a more distinct impression on the head; some have feeble lateral carinae on the beak and a deeper, V-shaped, nasal depression; some have the paired elytral tubercles smaller or shorter, or the tubercles of alternate rows smaller. The basal smooth area of the elytra varies in width and length and in the number of punctures that are visible. The paratype from Sierra do Cadeado has all the dorsal tubercles worn down smooth, so that they appear smaller than normal, and the setae worn short.

REMARKS: Dorsally this species is very similar in shape and tuberculation to *teretirostris*, *serpentis*, and *dehiscens*, except for its caudal appendages. It agrees with *dehiscens* and differs from the other two species by having the apices of the elytra divergent, and it also is known from the female only. Another species with slightly dehiscent elytra and elytral projections is *verrucifer*, but *brevicauda* differs from it by having the projections of the declivity emerging from the suture, not from the third interval. (See *pyramis* for discussion of additional species with elytral projections.)

Bondar had intended to describe this species from some of the same specimens that I have examined, but he thought he had males also "sem traços de protuberancias no declive." I have examined and dissected one of his males (from Paraná) and find that it agrees in the genitalia, the lack of protuberance on the elytra, the non-dehiscent elytra, and the subrostral tooth with males of *teretirostris*. The pattern of even rows of tubercles on the elytra is about the same, however, and it is possible that the unknown male of *brevicauda* is misidentified as a male of *teretirostris*. In support of this idea, all the specimens of *teretirostris* from Paraná are males, but against this idea are the facts that from São Paulo, where both species occur, I have seen males and females of *teretirostris*, and the slight differences in the genitalia of males of *teretirostris* are not confined to any one area.

At least five females of *brevicauda* were dissected.

Hyphantus incongruus Vaurie, new species

Figure 5

TYPE MATERIAL: Type, female, Campos do Jordão, São Paulo state, Brazil, November 18, 1944, F. Lane, collector, in the Departamento de Zoologia, São Paulo, and one female paratype, same locality, 1906, Luederwaldt, collector, in the American Museum of Natural History.

DIAGNOSIS: No nasal plaque; no elytral scales; front tibia not dentate; elytral declivity tumid at suture; male not known. Differing from other species of group by lacking tiny spine of front femur, but differing from other species that lack spine (*sulcifrons*

group) by having epistoma of beak smooth, without plaque. Under side of beak more tumid than that of most females (fig. 5), and suture of elytral declivity slightly protuberant.

RANGE: Southeastern Brazil in the northern part of the state of São Paulo near the border of Minas Gerais; the locality is at about 1200 meters.

DESCRIPTION OF TYPE, FEMALE: Length, 9 mm. Beak, dorsal view, only about twice length of eye, width across scrobes almost the same as length of beak, median carina feeble, at base only, beak punctate and rugose, epistoma convex, scarcely punctate, with feeble trace of V-shaped furrow, under side of beak in profile distinctly tumid at middle, narrow at base. Antennae, eyes, and head as described for *distinguendus*, but funicle of antennae with first segment one-third longer than second, and scrobe rather downcurved, reaching almost to eye.

Pronotum rather flat on disc, about one-half of length of elytra, with flattish, irregularly shaped, contiguous tubercles (about 22 across middle) as large on disc as tubercles of elytra, pronotum actually wider than long, but appearing longer than wide; in profile more arcuate basally than apically, base and apex narrowly margined, latter with small tubercle under eye. Elytra with many minute white hairs among tubercles, at widest part wider than pronotum, top of declivity with four sutural tubercles of each elytron pushed outward, forming elongate tumidity, sides of elytra widening from base to rounded humeri, thence gently arcuate to apical fifth whence constricted and convergent to rather acuminate apex; in profile elytra virtually horizontal from base to tumidity, thence steeply oblique to apex; tubercles very large on alternate rows (six rows visible from suture of an elytron to edge of disc), lacking or very small on striae, widely separated longitudinally by more than their diameter.

Front femur somewhat bulbous, apparently lacking normal subapical spine of inner side; front tibia not dentate, very slightly bent inward at apex, apical mucro short; hind femur not quite extending to apex of elytra; middle and hind tibiae and abdomen as described for *distinguendus*, with addition that apex of abdomen at center is distinctly tumid.

VARIATIONS FROM TYPE: On the paratype the pronotal tubercles are round, more regular in shape, and the elytral tubercles are more widely spaced, with the tumidity of the elytral declivity more prominent.

REMARKS: This species should probably be in a group by itself, but until the male becomes known it may remain here. It agrees with species of the present group by having no plaque on the beak, and the abdomen bulbous, but agrees with the *sulcifrons* group by having the tubercles of the pronotum flat and contiguous, the scrobe of the beak rather curved downward, and the femoral spine lacking. I think the character of the beak more important than the spine of the femur, because with only two specimens it is possible that the tiny spine is broken or worn in both. The general body shape is more elongate than that of many species of the present group, the beak is shorter and wider and more tumid below than usual, and the base and apex of the pronotum are more narrowly margined. The elytra have more prominent humeri than do those of many other species, but females of some species have the humeri more marked than do males.

SPECIES GROUP *maculifer*

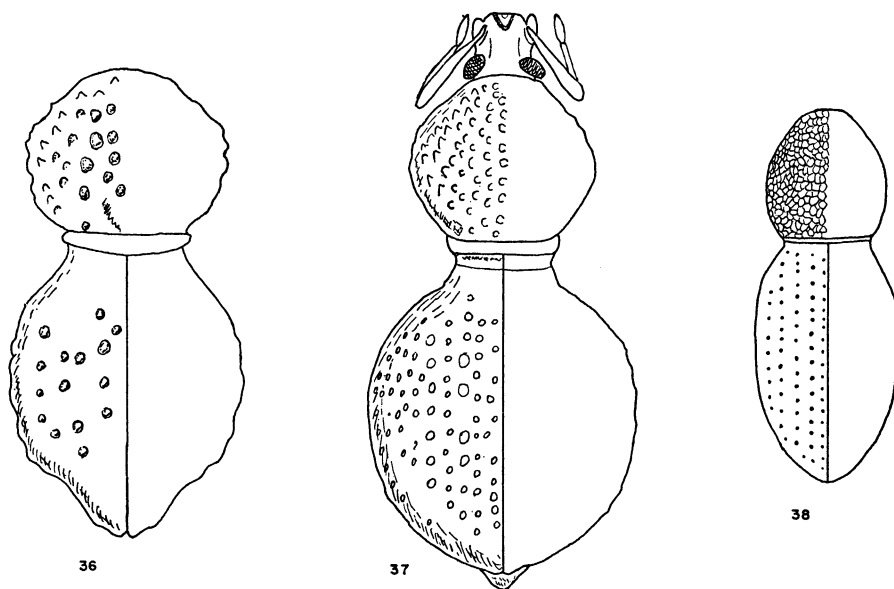
The 13 species of this group have a distinctly elevated nasal plate, hairs or scales, the front femora toothed within, the abdominal segments convex and deeply separated; the males of some species have a subrostral tooth, and the male genitalia (except for those of *gibbosus*) have the dorsal orifice at least one-half of the organ. Two species are known from males only; two, from females only. In the formal descriptions, the species are compared with the first species of the *baccifer* group, *distinguendus*.

Hyphantus maculifer Desbrochers des Loges

Figures 25, 36, 46, 76

[*Hyphantus*] *maculifer* DESBROCHERS DES LOGES, 1892, pp. 15, 16, Brazil; type, male, without locality, Muséum National d'Histoire Naturelle, Paris, examined.

DIAGNOSIS: With nasal plaque; scattered elytral scales, but no elytral projections; front tibiae very sinuate, not dentate; male with subrostral tooth; female not known. Similar to allied scaly species, especially *hypercalus*,



FIGS. 36-38. Dorsal views of *Hyphantus*, showing tubercles on one side. 36. *H. maculifer*, male. 37. *H. matronalis*, female. 38. *H. sulcifrons*, male, showing flat tubercles of pronotum and stria punctures of elytra.

in wide, rather flat pronotum, with large, sparse, flattish tubercles, in sinuous tibiae and non-bulbous front femora, but differing in more convex elytra (profile view; fig. 46), more transverse elytra (dorsal view; fig. 36), more sinuous middle tibia (fig. 25), and in distinctly sinuous sides of orifice of male genitalia (fig. 76).

RANGE: Known only from the type; probably southeastern Brazil, as for related species.

DESCRIPTION OF TYPE, MALE: Length, 8 mm. Beak, dorsal view, almost three times length of eye, width across scrobes slightly more than one-half of length of beak; median and lateral carinae strongly elevated, of equal length and strength, extending to edge of V-shaped furrow bordering elevated, V-shaped, nasal plaque, plaque punctate and slightly concave; under side with long, stout tooth (fig. 2). Antennae, eyes, and head as described for *distinguendus*, but first segment of funicle slightly shorter than second, impression on head reaching almost to front edge of pronotum, and some scales present.

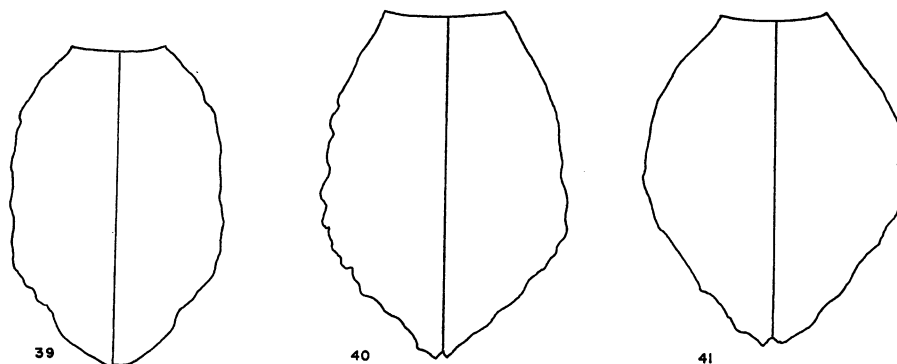
Pronotum rather flat on disc, about two-thirds of length of elytra, with large tubercles separated on disc by about one-half or more of their diameters; slightly wider than long,

appearing very transverse; scales present in single line medially at base; in profile strongly arcuate; base and apex broadly margined, latter with small tubercle under eye. Elytra with clusters of from six to 21 broad yellow scales; at widest part slightly wider than pronotum; sides strongly arcuate to about apical fourth, where abruptly constricted and convergent to rounded apex (fig. 36); in profile extremely arcuate, with steep declivity (fig. 46); tubercles flattened (perhaps abraded), those on alternate rows smaller, tubercles separated longitudinally by more than twice their diameters; some rows with only three or four large tubercles before declivity.

Front femur not bulbous, inner side near apex with sharp tubercle, surface rather granular; front tibia strongly sinuous, incurved at apex (fig. 13), inner apical mucro long; middle and hind tibiae somewhat less sinuous, apically bent (fig. 25); hind femur and abdomen as described for *distinguendus*.

Genitalia (fig. 76) with apex rounded-elongate, dorsal orifice with sinuous sides, its length about one-half of whole.

REMARKS: Desbrochers des Loges thought his type was a female, probably because it has wide, transverse elytra typical of many fe-



FIGS. 39-41. Outline of elytra of males. 39. *Hyphantus titan*. 40. *H. hypercalus*, type. 41. *H. hypercalus*, paratype.

males of the genus, but I find it is a male, not only because of the genitalia, but also because it has a subrostral tooth typical of males only. Neither Desbrochers des Loges nor Bondar (in the manuscript in my possession) was aware of the tooth as a character of males. I am grateful to Dr. A. Descarpentries of the Muséum National d'Histoire Naturelle for the opportunity to reexamine the type.

In the pattern of scale clusters and the very sparse tubercles, this species resembles *pyramis* (known from females only), but *maculifer* has very flat (not tall and pointed) tubercles, sinuate (not straight) tibiae, and foreshortened (not elongate) elytra.

The male genitalia, as figured (fig. 76), differ from those of all others of the group in the sinuous and constricted sides of the orifice, but subsequently discovered specimens may well show some variation.

***Hyphantus titan* Vaurie, new species**

Figures 4, 6, 39, 77

TYPE MATERIAL: Type, male, Campos do Jordão, São Paulo, Brazil, December 23, 1944, F. Lane, collector, in the Departamento de Zoologia, São Paulo; one male paratype with the same data, and one female with the same data, except for the date, January 1-5, 1948, in Departamento de Zoologia; one female paratype, Campos do Jordão, Eug[enio] Lefevre, São Paulo, 1200 meters, September 4-8, 1953, Trav[assos] F[ilho], Padre Pereira, and Medeiros, collectors, and one male paratype, Rio [de Janeiro], Brazil, Zikan, collector, G. Bondar collection, David

Rockefeller, donor, both in the American Museum of Natural History.

DIAGNOSIS: With nasal plaque; scattered elytral scales; front tibia very sinuous, not dentate; male with subrostral tooth; female with slightly tumid elytral declivity. Similar to *maculifer*, *hypercalus*, *bracteatus*, and *gnomus* in very large (wide and long) pronotum, with flattened disc, of male, and in broad, very sinuous front tibia and rather sinuous hind tibia of both sexes, but differing from these species chiefly by having sides of elytra subparallel for most of their length, not arcuate (fig. 39), and fewer scales or hairs.

RANGE: Southeastern Brazil in the mountains of São Paulo and Rio de Janeiro. The type locality is about 60 miles inland and near the southern border of Minas Gerais, and Lefevre is about 10 miles south of it, both places being northeast of the city of São Paulo.

DESCRIPTION OF TYPE, MALE: Length, 9 mm. Beak, dorsal view, nearly four times longer than eye (fig. 6, on right), width across scrobes about one-half of length of beak; median and lateral carinae fairly distinct, median carina extending almost to elevated border of V-shaped nasal plaque which is bordered by V-shaped furrow, plaque concave and feebly punctate at center; sides with scales; surface rugose; under side with large, stout tooth (fig. 4). Antennae, eyes, and head as described for *distinguendus*, but funicle of antennae with first segment perceptibly shorter than second, and head more granular than rugose.

Pronotum flat on disc, three-quarters of length of elytra, with large, dense, uniform tubercles as large as those of elytra (about 22 across middle of pronotum); slightly wider than long but appearing much wider than long because of bulging, strongly arcuate sides; medially near base with line of white, elongate scales; in profile scarcely arcuate; base and apex broadly margined, latter with very large double tubercle under eye (fig. 4). Elytra with elongate, yellowish scales among some tubercles; at widest part distinctly narrower than pronotum; sides subparallel to apical fourth, thence convergent to broadly rounded apex; in profile, flat (horizontal) from base to declivity, thence steeply arcuate to apex; tubercles as described for *distinguendus*, but of about same size on all rows.

Front femur not bulbous, with spine on inner side, surface rather granular; front tibia extremely sinuous (fig. 13), strongly incurved at apex, apical mucro not long; middle tibia virtually straight; hind tibia sinuous (incurved) at middle; hind femur and abdomen as described for *distinguendus*.

Genitalia with apex rounded-spatulate, dorsal orifice at least as long as one-half of whole (fig. 77).

SEXUAL DIMORPHISM: The male has the under side of the beak toothed and the elytra much narrower than the pronotum. The female has the under side of the beak slightly tumid, the beak somewhat shorter than that of the male, the elytra as wide as the pronotum, with four protuberant tubercles on each suture at the beginning of the declivity, forming a tumidity, the profile of the elytra with a longer horizontal outline and a somewhat steeper and more right-angled declivity than those of the male, the humeri more rounded and prominent, and only a small tubercle on the front of the pronotum under the eye.

VARIATIONS FROM TYPE: Females differ as stated above. The length is 9.5 or 10 mm. In some specimens the first two segments of the antennal funicle appear to be of about the same length. The paratype from Rio de Janeiro has even larger tubercles, those on the pronotum being more widely separated along the median line.

REMARKS: Bondar intended to describe this species from the male from Rio de Ja-

neiro. In his manuscript he mentions most of the salient characters, except for the large subrostral tooth, which he evidently did not see because it was retracted into the space between the front coxae. He had no females. The females that I have examined I assume belong to this species because of the locality and the subparallel elytra. Actually they may be the females of *hypercalus*, known from two males, but that species has the elytral sides arcuate and the beak with virtually no carinae.

One of the females and all three males were dissected. The genitalia of the male are very similar to those of *bracteatus* (figs. 77, 78), but have the orifice shorter, the rolled-over sides in dorsal aspect broader and therefore closer together; *titan* differs from that species not only in the scaling and shape of the elytra, as stated in the diagnosis, but also by having the beak longer, its nasal plaque concave, not flat, the middle tibia straight, not sinuous, and the female with a tumidity, but without additional callosities on the fifth interval. In size and general appearance, both *hypercalus* and *tibialis* resemble *titan*, but differ further from it by having the male genitalia acuminate, not rounded, apically.

The disproportionately large pronotum, slim elytra, sinuous front tibia, and large subrostral tooth are characteristic of *bracteatus* and of the tiny *gnomus* also, but in these two species some males have the pronotum less exaggerated and narrower.

***Hyphantus hypercalus* Vaurie, new species**

Figures 21, 40, 41, 80

TYPE MATERIAL: Type, male, "Brasilia" [= Brazil], "Wandsb. L." [= name of collector or collectors?], 1863, Jakob Sturm collection, in the Zoologische Staatssammlung, Munich, and one male paratype, "Brasilia/Wandsb. Lucas," same collection, in the American Museum of Natural History.

DIAGNOSIS: With nasal plaque; elytra with clusters of scales but no projections; front tibia very sinuate, not dentate; male with subrostral tooth; female not known. Very similar to males of other allied scaly species (*maculifer*, *titan*, *bracteatus*, *gnomus*) in large pronotum with flattened disc, sinuate front tibia, non-bulbous front femur, but differing

by having apical mucro of middle tibia broadened and leaf-like; differing further from all but *titan* by having middle tibia straight, not sinuate at middle, and from *titan* by having sides of elytra arcuate, not subparallel.

RANGE: Probably southeastern Brazil.

DESCRIPTION OF TYPE, MALE: Length, 10 mm. Beak, dorsal view, about three times length of eye, at widest part across scrobes a little more than one-half of length of beak; lateral carinae feeble, median carina extending from base of beak to V-shaped furrow bordering elevated, V-shaped, nasal plaque, plaque concave and feebly punctate at center; surface finely granular; under side with large, stout tooth (fig. 2). Antennae, eyes, and head as described for *distinguendus*, but antennal funicle with first segment slightly shorter than second and front of head not rugose.

Pronotum flat on disc, three-quarters of length of elytra, with large, slightly separated tubercles (about 16 across middle), larger than those of elytra; slightly wider than long, but appearing much wider than long; with scattered, not too elongate (fig. 21) scales, some in a line at base; in profile arcuate; base and apex broadly margined, latter rather sinuous under eye and with small tubercle. Elytra with clumps of fairly broad, orange scales among tubercles; at widest part no wider than pronotum; sides widening obliquely from base to region of declivity, thence strongly arcuate and convergent to rounded-truncate, slightly divergent apices (fig. 40); in profile arcuate; tubercles in uniform rows (about 10 or 11 on each elytron), those on alternate rows (striae) smaller, separated longitudinally either broadly or narrowly.

Front femur not bulbous (fig. 26), with sharp tubercle on inner side near apex, surface rather granular; front tibia extremely sinuous (fig. 13), strongly incurved at apex, apical mucro not long; middle tibia virtually straight, but with suggestion of subapical widened area (much less than is shown in fig. 23), its apical mucro leaf-like and broad; hind tibia slightly sinuous and incurved at middle; hind femur and abdomen as described for *distinguendus*.

Genitalia with apex triangularly acumi-

nate, dorsal orifice more than one-half of whole (fig. 80).

VARIATIONS FROM TYPE: The paratype has the elytra slightly wider than the pronotum, not so elongate, but rather transverse (fig. 41) and with more arcuate sides.

REMARKS: This handsome species is very similar to a number of others, as stated in the diagnosis, yet it seems to be specifically distinct. The rather leaf-like apical mucro of the middle tibia is like that of *baccifer* (differing by having no nasal plaque), and of *tibialis* (differing by having hairs, not scales, the front femur bulbous, the front tibia scarcely sinuous), but the subapical sinuous swelling on the inner side of the middle tibia is only faintly indicated in the paratype and appears to be lacking in the type. With so few specimens of *titan* and *tibialis* and no females of *maculifer* or *hypercalus*, it is difficult to be sure of the extent of variation of some of the characters. Even in *hypercalus*, the type and paratype have the elytra of a slightly different shape (figs. 40, 41), although the male genitalia (fig. 80) appear to be identical and other characters similar. A third male, without locality, has been examined in the collection of the British Museum. It has the leaf-like mucro on the middle tibia, and genitalia like those of the type and paratype, but the hind tibia (only one is present) appears to be straight, not slightly incurved. The elytra are like those of the paratype.

***Hyphantus bracteatus* Vaurie, new species**

Figures 22, 42, 78

TYPE MATERIAL: Type, male, Campos do Jordão, state of São Paulo, Brazil, December 23, 1944, F. Lane, collector, in Departamento de Zoologia, São Paulo; one male paratype, same data, in the American Museum of Natural History; three male and two female paratypes, Itatiaia, Rio de Janeiro, May 9,

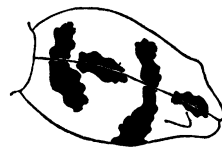


FIG. 42. Three-quarter view of elytra of *H. bracteatus*, female, showing typical pattern, white areas having pale scales.

1906, Luederw[aldt], collector, divided between each institution.

DIAGNOSIS: With nasal plaque; elytra with gold and white, overlapping scales; front tibia very sinuate, not dentate; male with subrostral tooth; female with elytra tumid on declivity at suture and on sides. Differing from related species by having much more abundant scale covering in readily visible pattern (fig. 42), scales less elongate, almost round (fig. 22).

RANGE: Southeastern Brazil in the mountains of the states of São Paulo and Rio de Janeiro.

DESCRIPTION OF TYPE, MALE: Length, 9 mm. Beak, dorsal view, about three times length of eye, width across scrobes a little more than one-half of length of beak; median and lateral carinae distinct, long; apex with elevated, V-shaped, nasal plaque and V-shaped furrow around it, plaque flat and feebly punctate; sides with dense golden scales; under side with large, stout tooth (fig. 2). Antennae and eyes as described for *distinguendus*. Head rather smooth, with median linear depression and dense covering of same kind of scales as on beak.

Pronotum as described for *distinguendus*, except for tubercles which are not quite so large but are more numerous across disc (about 18), for length (three-quarters of length of elytra), and for overlapping of dense scales among tubercles, scales lacking in two round areas at base of pronotum on each side of center. Elytra with greater part densely covered with overlapping, gold (and a few white) scales that are not much longer than wide (fig. 22), scaly pattern leaving uncovered (fig. 42) and black the humeri, a longitudinal area on disc along suture, a narrow, transverse line in front of the declivity and extending to sides of elytra, and a longitudinal area on declivity along suture; elytra at widest part slightly narrower than pronotum; sides and profile as described for *distinguendus*, but apices slightly divergent; tubercles about as described for *distinguendus*, but many partially hidden by scales, and sutural tubercles transverse, prominent, numerous.

Front femur scarcely bulbous, spine present, front tibia extremely sinuous (fig. 13), strongly incurved, apical mucro not long;

middle and hind tibiae sinuous or incurved at middle; hind femur and abdomen as described for *distinguendus*.

Genitalia with apex rounded-spatulate, dorsal orifice slightly longer than one-half of whole (fig. 78).

SEXUAL DIMORPHISM: Males have the under side of the beak toothed; females have it straight throughout. In females the beak is slightly shorter than that of the males, the elytra are wider than the pronotum, the top of the elytral declivity at the suture is somewhat tumid, the sides of the declivity at about the third interval on each elytron are distinctly tumid and protuberant, and the profile of the elytra is rather straight, not arcuate, in front of the declivity.

VARIATIONS FROM TYPE: Females differ as stated. The length varies from 8.5 to 11 mm. The second male from the type locality has the scales rather worn and faded. Some individuals have the tubercles of the pronotum larger and the sides of the pronotum more bulging.

REMARKS: This is the only species, except perhaps *squamosus* or *gibbosus*, that has a pattern visible to the unaided eye. The species mentioned are smaller than *bracteatus*, have no subrostral tooth in the male, and no elytral projections in the female; their front tibiae are virtually straight, not bisinuate, and their scales (hairs in *gibbosus*) more elongate, not at all round. Both *maculifer* and *hypercalus* have also many clusters of scales and resemble *bracteatus* by having bisinuate tibiae and a subrostral tooth, but the four male specimens that I have seen of these two species have not nearly so many or such dense scales, and they differ further from *bracteatus* by having the nasal plaque of the beak concave, not flat, and the genitalia slightly different in the shape of either the apex (fig. 80, *hypercalus*) or the rolled-over sides (fig. 76, *maculifer*).

The genitalia of the male are almost like those of *titan*, with which *bracteatus* agrees also in large size, bisinuate tibiae, and large pronotum, but the shape, tuberculation, and vestiture of the elytra, as well as the length of the beak, are not the same in the two species. (See *titan* for comparison.)

Although the two localities of the speci-

mens in the type series are in different states (São Paulo and Rio de Janeiro), they are actually not far apart. Curiously enough, there is a very similar but much smaller species (*gnomus*) taken on the same dates and by the same collectors at both Campos do Jordão and Itatiaia, but *gnomus* differs further by having widely spaced elytral tubercles, elongate, not roundish, scales, and different elytra in the female. The species *titan* has been collected at Campos do Jordão also, as well as species in different groups.

Two males in addition to the type specimen were dissected.

***Hyphantus gnomus* Vaurie, new species**

Figures 21, 79

TYPE MATERIAL: Type, male, Itatiaia, state of Rio de Janeiro, Brazil, May 5, 1906, Luederw[alddt], collector, in the Departamento de Zoologia, São Paulo; three male and one female paratypes, same data, in the Departamento de Zoologia and in the American Museum of Natural History; one male paratype, Campos do Jordão, São Paulo, December 23, 1944, F. Lane, collector, and one female, Serra Caraça, Minas Gerais, 1380 meters, November, 1961, Kloss, Lenko, Martins, and Silva, collectors, in the Departamento de Zoologia.

DIAGNOSIS: With nasal plaque; elytra with overlapping elongate scales; front tibia very sinuate, not dentate; male with subrostral tooth; female with two tiny projecting tubercles at suture on elytral declivity. Like *bracteatus* in miniature, but differing by having even more sinuate front tibia, elongate and hair-like, not round, scales, and widely separated elytral tubercles; females differing further in position of elytral projections on declivity, and males in shape of genitalia.

RANGE: Southeastern Brazil in the mountains of the states of Minas Gerais, São Paulo, and Rio de Janeiro.

DESCRIPTION OF TYPE, MALE: Length, 6 mm. Beak, dorsal view, about three times length of eye, width across scrobes a little more than one-half of length of beak; median and feeble lateral carinae present; V-shaped nasal plaque, bordered by V-shaped furrow, elevated, but not abruptly so, its surface

slightly convex, rather granular, scarcely punctate, remainder of beak granular; under side with large, stout tooth (fig. 2). Antennae, eyes, and head as described for *distinguendus*, but head with long, linear depression, and with scales near eyes.

Pronotum flat on disc, three-quarters of length of elytra, with large tubercles, some on disc larger than those of elytra, sparse on disc (about 13 across pronotum at middle), pronotum wider than long, sides strongly arcuate, bulging, center near base with line of elongate, yellow scales; in profile gently arcuate; base and apex narrowly margined, latter with sharp little tubercle under eye. Elytra with elongate scales and hairs among tubercles forming pattern about as shown in figure 42 of *bracteatus*, at widest part narrower than pronotum; sides and profile as described for *distinguendus*, but apices of elytra slightly divergent and declivity feebly tumid along suture; tubercles on disc irregularly sparse, separated longitudinally by about their diameters or by three or four times their diameters, those on declivity sparsest and smallest, tubercles present only on alternate rows, not on striae (about five or six rows on each elytron from suture to edge of disc).

Front femur not bulbous, with spine on inner side near apex; front tibia extremely sinuate (fig. 13), strongly incurved at apex, apical mucro not long; middle and hind tibiae sinuate; hind femur and abdomen as described for *distinguendus*, but segments of abdomen less bulbous.

Genitalia with apex rounded-spatulate, dorsal orifice extending more than one-half of distance from apex to base (fig. 79).

SEXUAL DIMORPHISM: The elytral declivity at the suture is feebly tumid in males, but in females has a pair of short, conical tubercles no larger than other tubercles. The under side of the beak is toothed in males, but straight or slightly tumid at the middle in females. Females have the elytra at their widest part distinctly wider than the pronotum and wider than those of males; females have the elytral humeri more rounded and prominent.

VARIATIONS FROM TYPE: Females differ as stated above. The length varies from 7 to 10 mm. In four specimens the scaly pattern is abraded so that only clusters of scales remain.

The single male from Campos do Jordão has the subrostral tooth partly broken, and one of the males from Itatiaia lacks the tooth entirely. The former specimen has the pronotum narrower, more elongate, with less arcuate sides.

REMARKS: This species and the larger *bracteatus* differ from the majority of the members of the group by having the nasal plaque smoothly convex or flat, but not concave, and the middle tibia sinuous (as also in *maculifer*), not straight.

All five males of *gnomus* were dissected, and the genitalia (fig. 79) are quite uniform in shape; they are not unlike those of *titan* and of *bondari*, but differ from them in the slight constriction of the sides before the apex. (See remarks under *bondari* in the *argentinensis* group for further comparison.)

A species (*squamosus*) from farther south (state of Paraná) is much like *gnomus*, although it is in the *argentinensis* group because of the flat abdomen with only a feeble suture between the first two segments. I mention it because it does not have the abdomen flat in all specimens, nor is the abdomen bulbous in all specimens of *gnomus*. Therefore

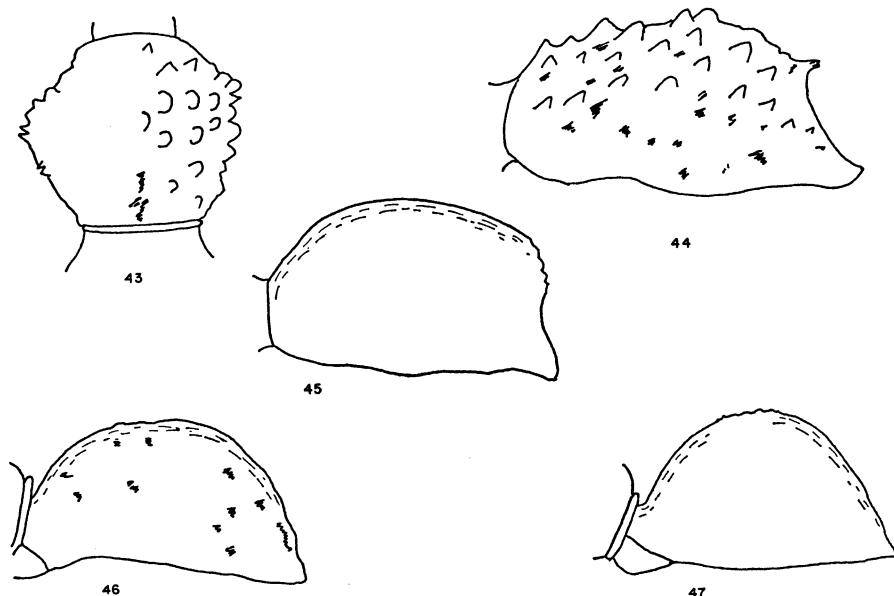
a male of *gnomus* lacking the subrostral tooth might be confused with a male of *squamosus*. The latter resembles *gnomus* in the arrangement of the scales on the dorsum, the small size, and the widely spread elytral tubercles, but *gnomus* differs from it by having sinuate, not straight, front tibia, a wider pronotum, with larger, sparser tubercles, and a more gradually widened, not bulbous, front femur; females of *gnomus* have paired projections on the suture of the elytral declivity that are lacking in those of *squamosus*.

Hyphantus pyramis Vaurie, new species

Figures 21, 43, 44

TYPE MATERIAL: Type, female, Itatiaia, state of Rio de Janeiro, Brazil, May 5, 1906, Luederw[alder], collector, in Departamento de Zoologia, São Paulo, and a female paratype with the prothorax lacking, same data, in the American Museum of Natural History.

DIAGNOSIS: With nasal plaque; elytra with scales and projecting tubercles on the declivity; front tibia not dentate; male not known. Only species with combination of following characters: tall, pyramidal, sparse tubercles on dorsum; paired projecting tubercles at



FIGS. 43-47. Body parts of *Hyphantus* of species group *maculifer*. 43. *H. pyramis*, dorsal view of pronotum. 44. *H. pyramis*, lateral view of elytra, showing tubercles and scale clusters. 45. *H. matronalis*, lateral view of elytra. 46. *H. maculifer*, lateral view of elytra, showing scale clusters. 47. *H. uncinatus*, lateral view of elytra.

suture of elytral declivity; elytral declivity sloping, elongate (fig. 44); and front femora not bulbous.

RANGE: Known only from the type locality in the mountains of Rio de Janeiro in southeastern Brazil.

DESCRIPTION OF TYPE, FEMALE: Length, 10 mm. Beak, dorsal view, about three times longer than eye, width across scrobes about two-thirds of length of beak; carinae virtually obsolete, nasal V-shaped plaque elevated above V-shaped furrow, plaque more or less flat, shallowly punctate; under side of beak slightly tumid. Antennae lacking, scrobe reaching to about two widths of eye from eye. Eyes bulbous. Head smooth, with white scales and linear median impression.

Pronotum globose, less than two-thirds of length of elytra, with large, conical, sparse tubercles (about eight across middle), widely separated by once or twice their diameters, pronotum slightly wider than long, sides strongly arcuate, their outline interrupted by pointed apices of tubercles (fig. 43), center at base and apex with cluster of elongate, yellow scales; profile as described for *distinguendus*, but apices of tubercles jutting out, base more narrowly margined, and no tubercle under eye. Elytra with irregular clusters of from four to 20 elongate, yellow scales on disc, 10 or more clusters on sides; elytra at widest part distinctly wider than pronotum, sides arcuate to apical fifth where constricted and convergent to slightly separated apices; in profile elytra rather horizontal to declivity where slope is oblique to apex; projections consisting of pair of sharp, scarcely divergent, conical tubercles (smaller than largest tubercles of elytra) on suture at about middle of elytral declivity; tubercles on disc widely separated, on some rows by four or five times their diameters, only five rows of tubercles from suture to edge of disc, inner row on one elytron with only two tubercles, suture smooth, except for tubercles of declivity, many tubercles taller than height of eye, alternate rows feebly punctate, not tuberculate.

Front femur scarcely widened, not bulbous, with femoral spine on inner side; front tibia not dentate, nearly straight, but slightly incurved at apex, apical mucro not long; middle and hind tibiae virtually straight;

hind femur reaching apex of elytra. Abdomen missing.

VARIATIONS FROM TYPE: The single paratype has no prothorax; it has the apices of the elytra contiguous and the abdomen as described for *distinguendus*.

REMARKS: This unusual, large, spiny species was thought at first to be the female of *maculifer* which it resembles in the scaly clusters, the sparse tubercles, and non-bulbous front femora, but it differs from *maculifer* by being larger, by having the tibiae straight, not sinuous, the elytra elongate, not transverse, and the tubercles pointed and cone-like, not flattened. The conical tubercles resemble those of *conicus*, but they are larger, sparser, and more pointed. The elytra of *pyramis* (fig. 44) are longer in profile, flatter on top, not so convex as in *conicus*, and have paired projections from the declivity that are not present in *conicus*, of which both sexes are known. The abortive inner wings are visible on both sides of the elytra of the paratype of *pyramis*; they are little round pieces about the size of an elytral tubercle.

The females of at least a dozen species of the genus have projections or crests or "tails" emerging from the elytral declivity, either at the suture or from the third or fifth intervals, and the females of two species and the males of three have the declivity merely tumid. Four such "tailed" species, in addition to *pyramis*, occur in the present group, and can be readily separated from *pyramis* as follows: *bracteatus* by having a thick, scaly pattern on the elytra, its female having the projection emerging from the third interval; *gnomus* by having flat, spreading tubercles on the pronotum and by being much smaller; *titan* and *matronalis* by having only a very feeble tumidity, no true projections; and *chryseus* by having exceedingly dense and small tubercles on the dorsum, and golden hairs. The last-named is the only species of the group with the "tails" of about the same style and length as those of *pyramis*; *brevicauda* of the *baccifer* group has similar "tails," but differs by having no nasal plaque on the beak. Others without nasal plaque but with projections are *verrucifer* and *incongruus*. The declivity is tumid in males of *bondari*, *olivae*, and *gnomus*. The female of *bondari* (*argentinensis* group) has the projections on the third interval.

Hyphantus conicus Vaurie, new species

Figures 48, 80

TYPE MATERIAL: Type, male, Serra Caraca, Minas Gerais, Brazil, 1380 meters, November, 1961, Kloss, Lenko, Martins, and Silva, collectors, in Departamento de Zoologia, São Paulo, and 15 male and 10 female paratypes, same data, in São Paulo and in the American Museum of Natural History; also two female paratypes from São Paulo, in British Museum (Natural History).

DIAGNOSIS: With nasal plaque; no elytral scales or projections; front tibia not dentate; male without subrostral tooth. Similar to *uncinatus* in male genitalia, long mucro of front tibia, and in convex, globose elytra that are quite wide in both sexes, but differing by having no hairy vestiture, larger, conical, more pointed tubercles and only four, five, or six tubercles on disc of each elytron in either transverse or longitudinal direction.

RANGE: Eastern Brazil, in the states of Minas Gerais and São Paulo.

DESCRIPTION OF TYPE, MALE: Length, 6.5 mm. Length and width of beak about as described for *distinguendus*; median and lateral carinae indistinct, V-shaped nasal plaque elevated over V-shaped furrow, plaque concave and punctate at center; under side straight, without tooth. Antennal funicle with first two segments about equal in length, other segments as described for *distinguendus*, scrobe rather downcurved, reaching almost to edge of eye. Eyes bulbous. Head rather smooth, median depression feeble.

Pronotum as described for *distinguendus*, except for larger, sparser, conical tubercles (only eight or nine across middle). Elytra without hairs or scales, at widest part slightly wider than pronotum, sides strongly arcuate to apical fourth, thence strongly convergent to rather pointed apex; in profile very arcuate, very steep apically, with conical tubercles interrupting outline (fig. 48); tubercles on disc as large as those of pronotum, only four rows of tubercles from suture to edge of disc, those of alternate rows widely spaced longitudinally (three or four on each discal row from near base to top of declivity), striae rows punctate, feebly tuberculate.

Legs and abdomen as described for *distinguendus*, but front tibia not dentate.

FIG. 48. *Hyphantus conicus*, lateral view.

Genitalia with apex triangularly acuminate (fig. 80), dorsal orifice about one-half of whole.

SEXUAL DIMORPHISM: The elytra are very wide and transverse in females and only slightly less so in males.

VARIATIONS FROM TYPE: Female differs as stated above. The size varies from 6.5 to 8 mm. The tubercles of the pronotum may be even more conical than as described for the type, and in some specimens are very unequal in size and spacing. The elytral interspaces between alternate rows are either quite smooth or have tiny puckerings and punctures; some individuals, usually females, have most of the sutural area smooth or with only minute tubercles; the elytral tubercles are regularly spaced in some specimens, but irregular in others. The carinae of the beak are partially or entirely obsolete in many specimens in which the surface is either granular or rugose.

REMARKS: The sparseness and large size of the conical tubercles of this species are surpassed only by those of specimens of *pyramis*, a larger species known only from two females, and from which *conicus* differs further by having no paired projecting tubercles on the declivity of the elytra, no scales, and the elytra in profile more convex and foreshortened. The elytra are so steeply declivous apically that their apices, when viewed from above, are quite out of focus and can scarcely be seen. The elytra are declivous in *matronalis*, but this species differs by having many more rows of tubercles on the elytra and a tumidity on the declivity.

Jekel (1816–1891) had put a name on the two specimens from São Paulo in the British Museum, but he never published it.

The male genitalia (fig. 80), dissected from nine or 10 specimens, are about like those of five other species.

***Hyphantus chryseus* Vaurie, new species**

Figures 20, 88

TYPE MATERIAL: Type, female, Est.[ação] Rio Grande, state of São Paulo, February, 1909, Luederwaldt, collector, in the Departamento de Zoologia, São Paulo, and the elytron of a male paratype (prothorax lacking), S[erra] Macaé [or Macahé], state of Rio de Janeiro, September, 1909, Garbe, collector, in the American Museum of Natural History.

DIAGNOSIS: With nasal plaque; no elytral scales, but elytral projections in female; front tibia not dentate; prothorax of male lacking. Differing from other species of group by combination of characters: abundant, narrow, golden hairs (fig. 20), not scales, among tubercles (somewhat as in *uncinatus* and *gibbosus*); females with paired elytral tubercles (as shown in fig. 35 of *brevicauda*); elytra densely lineate, with distinct rows of small, rather flat tubercles of about same size on all rows.

RANGE: Southeastern Brazil in the states of Rio de Janeiro and São Paulo.

DESCRIPTION OF TYPE, FEMALE: Length, 8 mm. Beak length as given for *distinguendus*, width across scrobes three-quarters of length of beak; median and lateral carinae strongly elevated, of equal length and strength, and extending to edge of V-shaped furrow bordering elevated, V-shaped, nasal plaque, plaque punctate and slightly concave; base of beak sulcate, under side virtually straight. Antennae, eyes, and head as given for *distinguendus*, but scrobe reaching about to eye.

Pronotum globose, with abundant fine yellow hairs among tubercles, about two-thirds of length of elytra, tubercles small, dense but not contiguous, regularly spaced (about 20 or 22 across middle), of same size as those on elytra; pronotum slightly wider than long, sides strongly arcuate; in profile strongly arcuate; base and apex narrowly margined, apex with small tubercle under eye. Elytra covered with fine yellow hairs among tubercles, but hairs forming no pattern; at widest part distinctly wider than

pronotum; top of declivity at suture with pair of contiguous tubercles (conical when viewed from the side) extending horizontally backward and about as long as first segment of tarsus, these tubercles furnished with smaller tubercles and hairs; sides of elytra arcuate to beyond paired tubercles, thence constricted and convergent to narrowly rounded apex; in profile rather flat on top, apical slope nearly perpendicular to it; dorsal tubercles equally spaced longitudinally (at less than distance of one tubercle) in distinct, uniform rows (about 12 rows from suture to edge of disc of each elytron), of nearly same size on all rows, but slightly smaller on outer striae.

Legs and abdomen as described for *distinguendus*, except for lack of dentation on front tibia, its mucro not long.

SEXUAL DIMORPHISM: The male genitalia have the apex triangular but rather bluntly acuminate, the orifice about one-half of the whole (fig. 88). The elytra of males have a scarcely visible tumidity at the top of the declivity, but no actual projection, whereas those of females have protuberances from the declivity, as described above. Whether the male has a subrostral tooth or a narrow pronotum cannot be ascertained, as the prothorax and head are lacking in the only male available.

REMARKS: The two known specimens of this species are immediately recognizable, but additional specimens may show variations. Although the specimens are from different localities, the male and female appear to be the same species because the dorsal tuberculation and vestiture are almost identical, except for the paired projecting tubercles of the female; in profile, however, the slope of the declivity of the elytra is less abrupt, more oblique in the male. The prothorax of the male was unfortunately lost from damage to the box of specimens in transit.

The small, closely placed tubercles and the golden hairs of the dorsum recall *uncinatus* Desbrochers des Loges, but the elytra of the female differ (*chryseus* has subapical "tails"), as do the genitalia of the male (the apex is pointed in *uncinatus*, blunt in *chryseus*). The male genitalia of *chryseus* are almost like those of males of *lanceolatus*, a quite different species of the *sulcifrons* group.

The male genitalia and the dorsal aspect are somewhat similar to those of *bondari*, a species with flat abdomen (in the *argentinensis* group) in which the male has a distinct tumidity on the suture of the elytral declivity, and the female has large, projecting tubercles from the third interval, not from the suture.

The front tibiae are not strongly sinuous as are those of some members of the group (*maculifer*, *bracteatus*, *hypercalus*, *gnomus*, and *titan*), which differ further from *chryseus* by having scales, not hairs, on the dorsal surface.

***Hyphantus uncinatus* Desbrochers des Loges**

Figures 47, 80

[*Hyphantus*] *uncinatus* DESBROCHERS DES LOGES, 1892, pp. 15, 18, Brazil; type, female, no locality, in Muséum National d'Histoire Naturelle, Paris, examined.

DIAGNOSIS: With nasal plaque; no elytral scales or projections; front tibia not dentate; male without subrostral tooth. Very similar to *conicus* in extremely convex elytra and pronotum, and in shape of male genitalia, but differing by having a hairy covering (often abraded), and denser, more numerous, more flatly rounded, less conical tubercles. Also similar to *gibbosus*, but having hairs, not scales, elytral tubercles closer together, and male genitalia of different shape.

RANGE: Eastern and southeastern Brazil, in the states of Espírito Santo, Rio de Janeiro, and Santa Catarina. (For data on the 10 specimens examined, see Appendix.)

DESCRIPTION: Length, 6.5 to 9 mm. Length and width of beak as described for *distinguendus*; median and lateral carinae, although indistinct in some specimens, extending from base of beak to V-shaped furrow bordering elevated, V-shaped, nasal plaque, plaque concave and punctate at center; under side straight, without tooth; in profile narrower at extreme base. Antennal funicle with first segment slightly shorter than or about equal to second in length, other segments as described for *distinguendus*, scrobe rather down-curved, reaching almost to edge of eye. Eyes and head as described for *distinguendus*.

Pronotum as described for *gibbosus*, but with yellow hairs, not scales, and not quite so gibbous, some specimens with larger, sparser

tubercles (13 to 16 across middle). Elytra with elongate yellow hairs among tubercles (abraded in most specimens), at widest part distinctly wider than pronotum, in females as much as one-fourth wider; sides strongly arcuate to apical fourth or fifth, thence strongly convergent to rounded apex; in profile arcuate, forming almost a semicircle in female; tubercles in uniform, serried rows (about 10 rows from suture to edge of disc), those on alternate rows usually slightly smaller, larger tubercles of same size as those of pronotum, tubercles separated longitudinally by their diameters or more.

Legs and abdomen as described for *distinguendus*, but front tibia not dentate.

Male genitalia with apex triangularly acuminate (fig. 80), dorsal orifice about one-half of whole.

SEXUAL DIMORPHISM: The elytra of females are very transverse and wide, those of males somewhat less so.

REMARKS: Except for the female of *conicus*, which has sparser and more conical tubercles, the female of this species has the most convex elytra of all species; in profile the outline of the elytra is virtually half a circle, with the basal slope almost as steep as the apical slope of the declivity (fig. 47). The male of *maculifer* has also very convex elytra, but that species differs by having scales, very sinuous front tibia, and a subrostral tooth in the male.

The male genitalia (fig. 80) of two specimens are about like those of *conicus*, *hypercalus*, and *tibialis* of this group, and like those of *olivae* (*sulcifrons* group) and *squamosus* (*argentinensis* group).

Two females from Espírito Santo and two from Santa Catarina (I have seen no males from these states) have the elytral tubercles somewhat larger and more widely separated than do three females from Rio de Janeiro. In fact, they might be mistaken for *conicus*, although the tubercles are not quite so large or so pointed as in *conicus*.

The hairs are unworn on only two of the 10 specimens examined (the type itself and a male from Rio de Janeiro). These two specimens, except for the absence of projections on the elytral declivity, resemble the hairy female of *chryseus*; they differ from the male of *chryseus* in the shape of the genitalia.

***Hyphantus matronalis* Vaurie, new species**

Figures 37, 45

TYPE MATERIAL: Type, female, Rio de Janeiro, Fry, collector, in the British Museum (Natural History), and a female paratype, with the same data, in the American Museum of Natural History.

DIAGNOSIS: With nasal plaque; no elytral scales, but tumid projections on declivity at suture; front tibia not dentate; male not known. Resembling female of *titan* and differing from that of other species by having elytral declivity descending steeply at right angles, with feeble but distinct tumidity emerging from suture (fig. 45). Quite similar in dorsal shape and in tuberculation of elytra to *gibbosus* and *uncinatus*.

RANGE: Region of Rio de Janeiro, Brazil.

DESCRIPTION OF TYPE, FEMALE: Length, 9 mm. Beak, dorsal view, about three times length of eye, width across scrobes about three-fourths of length of beak; median and lateral carinae strongly elevated, of equal length and strength, extending to edge of V-shaped furrow bordering elevated, V-shaped, nasal plaque, plaque punctate and concave, under side virtually straight. Antennae, eyes, and head as described for *distinguendus*, but first two segments of antennal funicle about equal in length, and antennal scrobe reaching about to eye.

Pronotum globose, gibbous, disc very convex, with elongate, yellow hairs among tubercles, slightly wider than long, scarcely more than half of length of elytra (because elytra is so steeply declivous at apex); tubercles round, convex, dense (about 16 across middle); in profile outline humped in front, about as shown in figure 28 of *gibbosus*; remainder as described for *distinguendus*. Elytra with elongate, yellow hairs among tubercles, at widest part distinctly wider (about one-fourth) than pronotum (fig. 37); sides strongly arcuate to near apex where abruptly constricted to rounded apex; in profile only slightly arcuate to top of declivity where sutural tubercles form a tumidity, thence emarginate to apex (fig. 45); tubercles in uniform rows (about 12 rows from suture to edge of disc), those on alternate rows and suture slightly smaller, larger tubercles equal in size to those of pronotum and separated

longitudinally by about their diameter; sutural area in basal half smooth and slightly depressed.

Legs and abdomen as described for *distinguendus*, but front tibia not dentate.

VARIATIONS FROM TYPE: The paratype is about 8.5 mm. in length, and has caked mud or sand in many of the unelevated areas.

REMARKS: This "matronly" species has the elytra even wider than do females of *uncinatus* and *gibbosus*. The apical slope or declivity is so steep that, when viewed from directly above, the apices are scarcely visible, and the outline of the sides forms a virtual circle (fig. 37). Viewed laterally, the elytra do not form a semicircle as do those of females of *uncinatus* (fig. 47) but are more elongate from the base to the declivity (fig. 45). The female of *titan*, which agrees with the two females of *matronalis* in the tumid elytral suture at the declivity, differs by having the elytra in profile even more elongate, and dorsally by having the sides subparallel, not arcuate, the elytra no wider than the pronotum, and the dorsal tubercles contiguous, not in regular rows. Females of *gibbosus* differ by having the elytra not tumid on the declivity, the tubercles more widely separated, and the vestiture composed of scales instead of hairs.

***Hyphantus gibbosus* Vaurie, new species**

Figures 28, 87

TYPE MATERIAL: Type, male, Alto da Serra, state of São Paulo, Brazil, March 5, 1912, G. E. Bryant, collector, in the British Museum (Natural History). Three male and five female paratypes, same locality and collector, but collected on February 28, March 5, 7, 9, 12, and 21, 1912, in the British Museum and the American Museum of Natural History; one male paratype, Ilha [de] Santo Amaro, São Paulo, April 15, 1912, Bryant, collector, in the British Museum; one male paratype, Estação Biológica, Paranapiacaba, São Paulo, November 19, 1961, Reichardt and Werner, collectors, in the Departamento de Zoologia, São Paulo.

DIAGNOSIS: With nasal plaque; elytral scales but no projections; front tibia slightly crenulate; male without subrostral tooth. Differing from all species in shape of male genitalia, and from related species by combination of shape of pronotum (humped in

front, steeply declivous to base), vestiture of dense, yellow scales, not hairs, wide elytra contrasted with narrow pronotum, and short first segment of antennal funicle.

RANGE: Southeastern Brazil in the state of São Paulo.

DESCRIPTION OF TYPE, MALE: Length, 7 mm. Length and width of beak as described for *distinguendus*; median and lateral carinae strongly elevated, of equal length and strength, V-shaped nasal plaque elevated above V-shaped furrow, plaque concave at center, punctate; under side straight, without tooth; beak in profile narrower at extreme base. Antennae as described for *distinguendus*, but first segment of funicle slightly shorter than second, and scrobe reaching almost to edge of eye. Eyes and head as described for *distinguendus*, but head with scales.

Pronotum gibbous, disc very convex, with elongate yellow scales among tubercles, about two-thirds of length of elytra; tubercles round, convex, dense (about 16 across middle), pronotum scarcely wider than long; sides strongly arcuate; in profile humped in front (fig. 28); base and apex broadly margined, sides of front with tiny tubercle under eye. Elytra with elongate yellow scales on and among tubercles, except for abraded part at middle base; at widest part distinctly wider than pronotum; sides arcuate to subapical fourth, thence convergent to rounded-truncate apex; in profile strongly, evenly arcuate; tubercles of about same size as those of pronotum, in uniform rows, separated longitudinally by twice or more than twice their diameters, tubercles of alternate rows smaller and interspersed longitudinally with stria punctures as large as larger tubercles (six rows of large tubercles from suture to edge of disc).

Front femur as described for *distinguendus*; front tibia not dentate, but slightly crenulate near apex, which is slightly incurved, apical mucro short; middle and hind tibiae straight; hind femur and abdomen as described for *distinguendus*.

Genitalia with apex triangularly acuminate, subapically bulbous like a pouch (fig. 87), dorsal orifice short, subapical.

SEXUAL DIMORPHISM: Females have the elytra wider and shorter than do males (about as is shown in fig. 52 of the female of

hustachei) and the apex of the abdomen pointed, not truncate as is that of the males.

VARIATIONS FROM TYPE: The female differs as stated. The size varies from 6 to 9 mm. Some specimens have the elytral tubercles more convex, some less convex; the large stria punctures are more evident in individuals with flatter tubercles or those with the scales worn off. The beak is less strongly carinate in some specimens.

REMARKS: This species is very similar to *uncinatus*, but differs from it distinctly by having the male genitalia of a different shape, the front tibia narrower, less incurved, a shorter mucro at the apex, scales, not hairs, on the dorsum, and the tubercles of the elytra more widely separated. These two species, as well as *conicus*, differ from *maculifer*, *titan*, and allies by having no subrostral tooth in the males, the elytra in both sexes distinctly wider than the pronotum, and the front tibiae not sinuous. Another species similar to *gibbosus* is *matronalis*, known from two females only, which also has a gibbous pronotum and wide elytra but which differs chiefly by having the apical declivity of the elytra tumid at the middle, and the vestiture hairy, not scaly. Five males of *gibbosus* were dissected.

The locality where one of the paratypes was taken, Ilha de Santo Amaro, is a low-lying island near the city of Santos. The other localities (the settlement of Alto da Serra and the biological station in the serra of Paranapiacaba) are in the mountains, the pass near Alto da Serra being at 800 meters and the Paranapiacaba Range rising to 1500 meters. The former locality is about 15 miles inland and north of Santos; the latter, about 70 miles due west of Santos.

Hyphantus tibialis Vaurie, new species

Figures 23, 80

TYPE MATERIAL: Type male, Brazil, W. Schaus, collector, and one male paratype with the same data, both in the American Museum of Natural History.

DIAGNOSIS: With nasal plaque; no elytral scales or projections; front tibia not dentate; male with subrostral tooth and with middle tibia swollen on inner side before apex (fig. 23). Differing from others of group by having middle tibia of male subapically widened and,

further, from *titan*, *bracteatus*, *gnomus*, *maculifer*, and *hypercalus* by having front femur bulbous, front tibia less sinuous, pronotum narrower, more globose, with its disc rounded, not flat, and with denser tubercles, and hind tibia virtually straight.

RANGE: Probably southeastern Brazil. Two females that appear to be this species are from Teresópolis, Rio de Janeiro, "G. Barb. Frey," collector, in the Museum Frey, Munich; another female, "Brazil," was examined in the collection of Elbert L. Sleeper.

DESCRIPTION OF TYPE, MALE: Length, 8 mm. Length and width of beak as described for *distinguendus*, but carinae present, lateral ones feeble, median carina strongly elevated, distinct, nasal, V-shaped plaque with elevated border and V-shaped furrow, plaque concave and punctate at center; surface of beak rather granular; under side swollen and tumid, but subrostral tooth evidently broken. Antennae, eyes, and head as described for *distinguendus* except that first segment of antennal funicle is shorter than second, and scrobe reaches about to eye.

Pronotum and elytra as described for *distinguendus*, except for presence on elytra of scattered, elongate hairs among tubercles.

Front femur as described for *distinguendus*; front tibia not dentate, somewhat sinuous within, incurved near apex, apical mucro long; middle tibia on inner side near apex slightly swollen and sinuate (fig. 23) and with apical mucro leaf-like; hind tibia virtually straight, but outer edge slightly bent inward; hind femur reaching almost to apex of elytra. Abdomen as described for *distinguendus*.

Genitalia with apex elongate, terminating in needle-like point, dorsal orifice extending about two-thirds of distance from apex to base (fig. 80).

SEXUAL DIMORPHISM: The under side of the beak is toothed in males, slightly tumid near the base in females. Females differ further from males by having the elytra distinctly wider than the pronotum, the humeri more rounded and prominent, the elytral profile longer in outline and steeper at the declivity, and the middle tibia not widened near the apex.

VARIATIONS FROM TYPE: Females differ as stated. The male paratype has the apex of the

genitalia broken, and the subrostral tooth developed, though short.

REMARKS: The shape and tuberculation of the dorsum are almost exactly like those of specimens of *distinguendus* (*baccifer* group), and the middle tibia of the male is like that of *baccifer*, but *tibialis* differs from both of these species by having a distinct nasal plaque, a subrostral tooth in the male, and the genitalia of the male with the orifice open halfway, not at the apex only, and with a needle-like point. The genitalia are similar to those of *hypercalus*, *conicus*, and *uncinatus*. The female resembles somewhat the female of *titan* but lacks the tumidity of the elytral declivity.

Hyphantus angulatus Vaurie, new species

Figures 3, 49, 59, 86

TYPE MATERIAL: Type, male, Tainhas, Rio Grande do Sul, Brazil¹; G. Bondar collection, David Rockefeller, donor, in *Gunnera brasiliensis*, and two male and one female paratypes with the same data in the American Museum of Natural History; a male and a female paratype, "Jaimbé" [not found, but presumably also in Rio Grande do Sul], in the Chicago Natural History Museum.

DIAGNOSIS: With nasal plaque; no elytral scales or projections; front tibia very sinuate, not dentate; male with subrostral tooth. Differing from all species of genus by having sharply angular sides on pronotum (fig. 49) and elytra without usual tubercles, but simply with uniform rows of tiny punctures.

RANGE: Southeastern Brazil in the state of Rio Grande do Sul.

DESCRIPTION OF TYPE, MALE: Length, 9 mm. Beak, dorsal view, about three times length of eye, width across scrobes more than one-half of length of beak; median and lateral carinae extending from base of beak to V-shaped furrow bordering V-shaped, elevated, nasal plaque, plaque rather flat, finely punctate; beak rugose; under side with partially worn large tooth. Antennae, eyes, and head as

¹ This locality is taken from Bondar's statement in his unpublished manuscript that his specimens were sent by Becker and Padre Buck "ambos de Porto Alegre," and were "coletados em Tainhas em *Gunnera brasiliensis*, Schindler, familia de Halorrhagaceas," and from his notebook under number 5056 where he repeats this information, though without mention of Tainhas itself.



FIG. 49. *Hyphantus angulatus*, pronotum and elytra of male.

described for *distinguendus*, but antennal funicle with first segment one-third longer than second.

Pronotum angular at sides, about two-thirds of length of elytra, covered densely with tiny, flattened granules or obsolete tubercles (at least 30 across middle); wider than long; sides obtusely angulate slightly in front of middle; in profile outline gently arcuate; base and apex narrowly margined, latter with sharp tubercle under eye. Elytra without hairs or tubercles, at widest part narrower than pronotum, sides obliquely divergent to beyond middle, thence sharply convergent to separately angulate apices (fig. 49); in profile gently arcuate; surface faintly granular between punctate striae (six or seven striae from suture to edge of disc), punctures widely separated longitudinally by about twice their diameters.

Front femur not bulbous, with strong, forward-pointing tooth or spine on inner side, surface rough and granular; front tibia extremely sinuous (fig. 13), strongly incurved at

apex, not dentate, apical mucro long; middle and hind tibiae slightly sinuous; hind femur and abdomen as described for *distinguendus*, but segments less bulbous. Space between front coxae filled with some extraneous material, perhaps tar or sap.

Genitalia with apex elongate and acuminate, dorsal orifice more than one-third of length of whole (fig. 86).

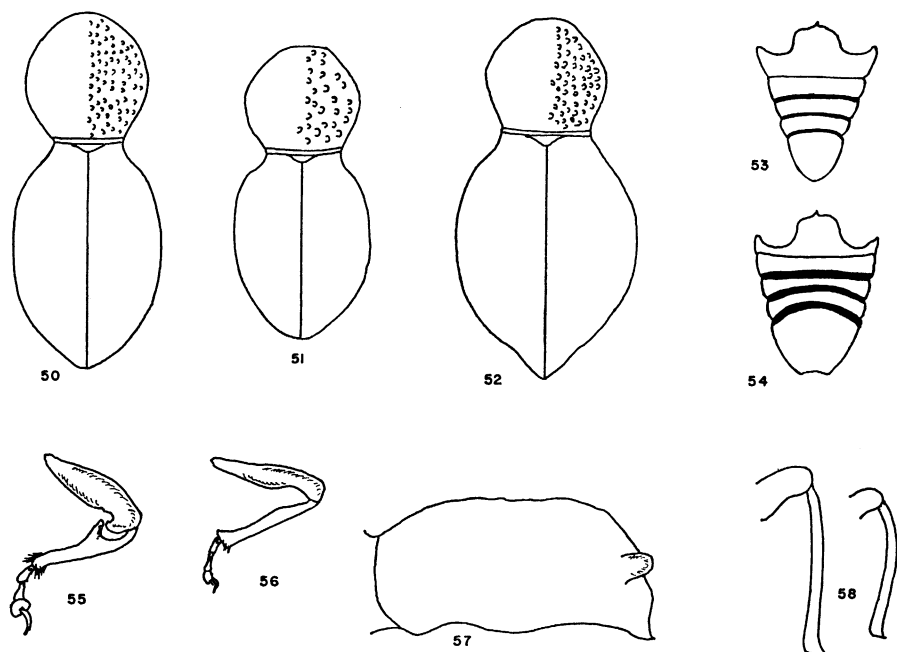
SEXUAL DIMORPHISM: Males have the under side of the beak toothed (fig. 3), the front femur granulate-tuberculate, and the elytra angulate before the apex. Females have the under side of the beak straight, the front femur smooth, the elytra rounded on the sides (fig. 59) and wider than the pronotum, the elytral sutures depressed on the disc at the middle (at least in the two females examined), and the apical segment of the abdomen depressed laterally.

VARIATIONS FROM TYPE: Females differ as stated. Two of the males have the subrostral tooth normally long (fig. 3), and one male has it even shorter, more abraded, than the type. The size of the paratypes ranges from 9 to 10 mm. The impression on the head is lacking in two females. The nasal plaque is slightly concave in one specimen.

REMARKS: The male is of a most unusual and elegant form, with a triangular, diamond-shaped thorax and elytra; both sexes have bright, reddish yellow feet which contrast with the dull black of the remainder of the weevil. The color of the tarsi, as also that of the antennae, appears to be variable and of no specific importance.

Although appearing so different from other species of the genus, *angulatus* has the same kind of beak with a nasal plaque, the strongly sinuous front tibiae, non-bulbous front femora, and sinuous hind tibiae present in *maculifer* and allied species. It agrees also with many species in the distinct dimorphism of the sexes. Even the smooth surface is not actually unique, as there are flattened or obsolete tubercles on the sides and disc of the pronotum and on the sides of the elytra. On the other hand, the subocular vibrissae in all the specimens seen are very short, about one-third of the length of the vibrissae of most species, and the eyes appear to be set somewhat farther apart.

Bondar had prepared a description of this



FIGS. 50-52. Species group *argentinensis*, showing tubercles of pronotum. 50. *Hyphantus argentinensis*, male. 51. *H. minutus*, male. 52. *H. hustachei*, female; characteristic also of females of *argentinensis* and *minutus*.

FIGS. 53-56. *Hyphantus hustachei*. 53. Abdomen of female. 54. Abdomen of male. 55. Femur and tibia of middle leg of male. 56. Femur and tibia of middle leg of female.

FIGS. 57, 58. *Hyphantus bondari*. 57. Lateral view of elytra of female. 58. Hind tibiae of male, type and another specimen.

species with the same material that I have, but he made no mention of the sex or sexual differences or of the large subrostral tooth of the male.

This species and *sulcifrons* are the only ones for which biological notes are available, and these are not specific. The type and three of the paratypes of *angulatus* were collected in ("em") *Gunnera brasiliensis* Schindler, a genus of herbs widely distributed in the Southern Hemisphere. Bondar thought it probable that the larvae lived in the roots, but he gave no basis for his statement. Padre Pio Buck tells me (*in litt.*) that he collected this species in 1923 about 90 kilometers from Tainhas at São Francisco de Paula in the white flowers of a plant. Both localities are at about 850 meters in altitude.

SPECIES GROUP *argentinensis*

The seven species of this group have a distinctly elevated nasal plate; front femora

that are bulbous and toothed within; generally flat abdominal segments (at least not notably convex or bulbous, the first two segments appearing fused, separated by a feebly impressed line, not a deep sulcus); no subrostral tooth in the males; and a long orifice in the male genitalia. Both sexes are known of all the species. In the formal descriptions, the species are compared with the first species, *hustachei*.

Hyphantus hustachei Vaurie, new species

Figures 52-56, 83

TYPE MATERIAL: Type, male, Corupá (Hansa Humboldt), Santa Catarina, Brazil, February, 1946. A. Maller, collector, Frank Johnson, donor, and 15 paratypes (four males, 11 females) with same data except for various dates from January to December, 1944 to 1948, in the American Museum of Natural History; three female paratypes,

Santa Catarina, and Rio Natal, Santa Catarina, September, 1945, in the American Museum of Natural History; one female, Corupá, November, 1944, Maller, collector, in Muséum National d'Histoire Naturelle, Paris; one female, Hansa, Santa Catarina, in British Museum (Natural History); two females, Hansa Humboldt, Reitter, collector, in Zoologische Staatssammlung, Munich; one male, Foz do Iguassú, state of Paraná, July, 1960, Hudepohl, collector, and four males, two females, Foz do Iguassú [or Iguazu], November, 1955, "G. Barb. Frey," collector [?], in Museum Frey, Munich; one male, one female, "Brasilia," in Naturhistoriska Riksmuseet, Stockholm.

DIAGNOSIS: With nasal plaque; no subrostral tooth; no elytral scales or projections. Male with large tooth at base of middle tibia (fig. 55), differing from males of all other species in this character, also in very long apical segment of abdomen (fig. 54), and in brush of golden hairs on front and middle tibiae. Females very similar to females of *minutus*, *subminutus*, and *parvulus*, but differing by having middle tibiae slightly expanded and sinuous at base on inner side (fig. 56).

RANGE: Southeastern Brazil and adjacent northern Argentina, also Paraguay. Eight additional specimens were examined in the museum in Paris: Hohenau, Paraguay, four males, two females; Misiones, Argentina, 1900, Bruch, collector, one female; Londrina, Paraná, Brazil, one female.

DESCRIPTION OF TYPE, MALE: Length, 7 mm. Beak, dorsal view, about two and one-fourth times length of eye, width across scrobes about two-thirds of length of beak; median and lateral carinae indistinct, extending from base of beak to furrow in front of V-shaped, elevated, nasal plaque, plaque concave at center, lightly punctate; beak rugose, transversely sulcate at base, in profile more or less straight beneath, narrowed at base. Antennae with first segment of funicle slightly longer than second, second nearly twice as long as third, third slightly longer than each of following segments; scrobe rather broad, reaching about to eye. Eyes bulbous. Head rugose, with median depression.

Pronotum slightly wider than long, globose,

with fine hairs, about one-half of length of elytra, in profile arcuate; sides strongly arcuate; tubercles small, round, convex, dense (about 20 across middle); base and front narrowly margined. Elytra at widest part scarcely wider than pronotum, with scattered, very fine, narrow hairs in addition to normal seta from each tubercle; sides feebly arcuate (subparallel at middle) to rounded-truncate apex; tubercles on alternate rows larger, widely separated longitudinally by twice their diameters or more, on other rows very small in front of stria punctures; in profile rather flat from base to declivity, thence arcuate to apex.

Front femur bulbous, on inner side near apex with tiny spine or tooth; front tibia not dentate, nearly straight on outer side but near base on inner side sinuous and widened, near apex on inner side with brush of long hairs as long as tibia is wide, apical mucro short; middle tibia with stout, triangular, backward-pointing tooth near base (fig. 55), middle femur modified to receive tooth by slight impression near apex, apex enlarged and distorted; hind femur reaching nearly to apex of elytra; hind tibia straight, on inner side near apex with brush of long, golden hairs. Abdomen with first and second segments seemingly fused, separated by very feebly impressed suture, sutures between other segments deep and long, all segments rather flat, at least not notably bulbous, second segment distinctly longer than third or fourth, apical segment longer than three preceding segments combined, its apex truncate-emarginate (fig. 54), next to last segment arcuate at sides.

Genitalia with apex triangularly acuminate, its sides incised, rolled-over sides sinuous, ventral part slightly tumid, dorsal orifice more than one-half of whole (fig. 83).

SEXUAL DIMORPHISM: Males have the front, middle, and hind tibiae and the last two abdominal segments modified as stated in the description. Females have the middle tibia slightly swollen or tumid near the base on the inner side (fig. 56), the apical segment of the abdomen acuminate, shorter than that of the male, the penultimate segment straight (fig. 53). In addition, females have the elytra wider than those of males, distinctly wider

than the pronotum, and with arcuate sides (fig. 52).

VARIATIONS FROM TYPE: In some specimens, the first two segments of the antennal funicle appear about equal in length, and the beak is more distinctly tricarinate, or the median carina is more evident. Males from Foz do Iguassú have the pronotum wider than does the type, about as wide as the elytra. The apex of the male organ is less acuminate in some specimens. Females differ as stated above.

REMARKS: This species is named in honor of the great French specialist in Curculionidae, Anton Hustache. He described one of the species of *Hyphantus* (*argentinensis*) and evidently was planning to describe the present species, but the name was never published. Hustache's specimens from Paraguay are in the museum in Paris.

The unique secondary sexual characters and the male genitalia distinguish this species from the three following (*minutus*, *subminutus*, and *parvulus*), but other characters are virtually the same. The sinuous or swollen inner basal edge of the middle tibia of females of *hustachei* is not found in females of the three other species. The first segment of the antennal funicle is slightly longer in *hustachei* than in the others, and the beak appears longer in both *hustachei* and *minutus* than in the others, but these characters are both relative and somewhat variable. Females of *hustachei*, *minutus*, and *subminutus* have the elytra much wider than the pronotum, females of *parvulus* have them either wider or scarcely wider; *hustachei* and *parvulus* have the pronotal tubercles generally denser and smaller.

The genitalia were dissected from four males and two females. Those of the male are quite complex (fig. 83), with two little triangular flaps on each side of the apex and a kind of forked overlain piece in the basal area. The forked piece is present also in the genitalia of *parvulus* (fig. 84), but *parvulus* differs from *hustachei* by having the apex truncate, not acuminate, and the side pieces of the apex not protruding. The genitalia of *subminutus* are different from those of both *hustachei* and *parvulus*. Those of *argentinensis* and *minutus* differ further in being a simple, half-open tube, with a needle-like apex.

Hyphantus subminutus Vaurie, new species

Figure 85

TYPE MATERIAL: Type, male, Teresópolis, Rio de Janeiro, Brazil, November, 1955, "G. Barb. Frey," collector [?], in Museum Frey, Munich; one male paratype, same data, in the American Museum of Natural History; one male, Rio de Janeiro, Fry, collector, in British Museum (Natural History); one male, Brazil, "Wandsb. Lucas," collector [?], in Zoologische Staatssammlung, Munich.

DIAGNOSIS: With nasal plaque; no subrostral tooth; no elytral scales or projections. Externally scarcely distinguishable from *minutus* and *parvulus* (*minutus* has fewer elytral tubercles, *parvulus* has denser pronotal tubercles), but genitalia of males differing from those of both species, being more similar to those of *hustachei*, a species distinct in its secondary sexual characters.

RANGE: Southeastern Brazil. Seven additional specimens were examined: Brazil, three females, in the American Museum of Natural History; Rio de Janeiro, Brazil, one male, two females, and one male, no locality, all in British Museum.

DESCRIPTION OF TYPE, MALE: Length, 6 mm. Beak, dorsal view, scarcely more than twice length of eye, width across scrobes more than two-thirds of length of beak; carinae, nasal plaque, and rest of beak as described for *hustachei*, but carinae more distinct. Antennae, eyes, and head as described for *hustachei* except for shorter first segment of antennal funicle (slightly shorter than second).

Pronotum as described for *hustachei* except for larger, fewer tubercles (about 16 across middle) and for length (slightly more than one-half of length of elytra). Elytra as described for *hustachei*, but sides more arcuate, more strongly convergent to apex, and outline in profile very convex.

Front femur and front tibia as described for *hustachei*, but tibia not sinuous or with brush of hairs within; middle and hind tibiae straight; hind femur and abdomen as described for *hustachei*, except for shorter and non-emarginate apical segment of abdomen and non-arcuate sides of fourth segment.

Genitalia with apex more or less rounded, rolled-over sides notched a little beyond

middle, dorsal orifice more than one-half of whole (fig. 85).

SEXUAL DIMORPHISM: The elytra of males appear elongate and narrow and are scarcely wider than the pronotum. Those of females appear foreshortened and transverse and are distinctly wider than the pronotum. The apex of the abdomen is rounded-truncate in males, slightly acuminate in females.

VARIATIONS FROM TYPE: Females differ as stated above. The length ranges from 5 to 7 mm. Three of the paratypes are black and shining like the type and have the dorsal hairs scarcely visible, but one specimen (no locality given) has distinct though tiny hairs. Another specimen is buffy in color, probably teneral, and most of its abdomen and the genitalia are missing. Some males are more slender than the type; some females have the tubercles of the pronotum rather sparse, and many have smooth areas on the elytra along the suture in the basal half.

REMARKS: Although males are readily differentiated from males of *hustachei*, females are more difficult to distinguish. In general, however, females of *subminutus* have somewhat larger and sparser tubercles on the pronotum, and of course they lack the slight swelling of the middle tibiae characteristic of females of *hustachei* (this swelling is not evident in all specimens). The sparse tubercles help also to differentiate *subminutus* from *parvulus*, but there is some variation in this character in both species. The only differences between females of *subminutus* and *minutus* are the slight ones given in the key and in the diagnosis above, which may not be constant, and the fact that *subminutus* has not yet been collected outside Brazil.

Bondar, among the species that he identified in his collection, confused *subminutus* with *parvulus* and both species with *uncinatus*. The last-named is a quite different species which Bondar probably identified from Desbrochers des Loges' description.

Five of the six males and three of the females were dissected (see under *hustachei* for a discussion of the genitalia).

Hyphantus parvulus Vaurie, new species

Figure 84

TYPE MATERIAL: Type, male, M.[orro] das Pedras, Santa Catarina, Brazil, February,

1956, Padre P. Buck, collector, and five male paratypes, with same data, in Museum Frey, Munich; two male paratypes, same data, in the American Museum of Natural History.

DIAGNOSIS: With nasal plaque; no subrostral tooth; no elytral scales or projections. Almost exactly similar externally to *minutus* and *subminutus*, except for generally denser and smaller pronotal tubercles, and for truncate-emarginate apex of abdomen in males, but differing in shape and complexity of male genitalia.

RANGE: Southeastern Brazil. Seven additional specimens, all females, were examined: two with same data as the type, in Museum Frey; two, Santa Catarina, and one, "Brazil," in British Museum (Natural History); one, Paraná, and two, Ponta Grossa, Paraná, in the American Museum of Natural History.

DESCRIPTION OF TYPE, MALE: Length, 6 mm. Beak as described for *hustachei*, but about twice as long as eye and width across scrobes more than two-thirds of length of beak. Antennae, eyes, and head as described for *hustachei*, except for shorter first segment of antennal funicle (slightly shorter than second).

Pronotum as described for *hustachei* but slightly more than one-half of length of elytra. Elytra as described for *hustachei*, but sides more arcuate and convergent to apex, in profile very convex, not flat on top, striae punctures not tuberculate in front.

Front femur and front tibia as described for *hustachei*, but tibia not sinuous or with long brush of hairs; middle and hind tibiae straight; hind femur and abdomen as described for *hustachei*, except for shorter apical segment of abdomen, and non-arcuate sides of fourth segment.

Genitalia with apex truncate, rolled-over sides sinuous, dorsal orifice at least one-half of whole (fig. 84).

SEXUAL DIMORPHISM: In males, the apex of the abdomen is truncate and broadly emarginate and has a feeble, shallow impression or concavity; in females it is rather acuminate. Some females have the elytra proportionately a little wider than those of males, but there is not much difference in other females.

VARIATIONS FROM TYPE: Females differ as stated above. The length varies from 5.5 to 7 mm. In some specimens, the first two seg-

ments of the antennal funicle appear to be equal in length; in some the carinae of the beak are more distinct. The slight concavity of the apical abdominal segment is not present in all the males.

REMARKS: The pattern of the elytra is very similar to that of *minutus*, that is, the small striae tubercles or swellings of some species (*hustachei*, *subminutus*) are lacking and the large tubercles of the intervals are widely spaced. A rather dense vestiture of golden hairs in fresh specimens somewhat obscures the striae.

All seven males and two females were dissected. The genitalia are discussed under *hustachei*.

Some of the females have the elytra so narrow that they cannot be distinguished externally from the males, but others (perhaps misidentified?) have the elytra distinctly wider than the pronotum. The two females taken at the same time and place as the males from the type locality have narrow elytra.

The type locality, Morro das Pedras, is not on the mainland, but is a rocky place on the island of Santa Catarina, about 30 kilometers north of Florianópolis, according to information (*in litt.*) from Padre Buck, the collector of the type and other specimens.

***Hyphantus minutus* Vaurie, new species**

Figures 16, 51, 52, 82

TYPE MATERIAL: Type, male, Ypiranga, [São] Paulo, Brazil, March 21, 1906, Luederw[aldt], collector, and one male paratype with the same data in the Departamento de Zoologia, São Paulo; five male paratypes from São Paulo as follows: Ypiranga, February, 1908, Luederw[aldt], collector, one male, in the Departamento de Zoologia; Ypiranga, February, 1912, Ihering, collector, two males, in the American Museum of Natural History; Monte Alegre, Faz.[enda] Bom Jesus, March 25, 1944, J. L. Lima, collector, one male; Itú, Faz.[enda] Pau d'Alho, September 9, 10, 1961, L. R. Silva, collector, one male, in the Departamento de Zoologia.

DIAGNOSIS: With nasal plaque; no subrostral tooth; elytra with some scales, but no projections. Externally very similar to *subminutus* and *parvulus* but male genitalia acuminate, not rounded, at apex, with rolled-

over sides entire, not notched or sinuous. Differing from *argentinensis* as stated in diagnosis of that species.

RANGE: Eastern Brazil from São Paulo to Santa Catarina, coastal and inland northern Argentina, and possibly French Guiana (see below). (For the 20 additional specimens examined, see Appendix.)

DESCRIPTION OF TYPE, MALE: Length, 5 mm. Beak as described for *hustachei*, except for distinct and elevated carinae, median carina extending from base of beak to middle, not reaching depressed, V-shaped, nasal area. Antennae, eyes, and head as described for *hustachei*, except for shorter first segment of antennal funicle (slightly shorter than second).

Pronotum as described for *hustachei*, but about two-thirds of length of elytra, and tubercles less dense, not touching. Elytra (fig. 51) scarcely wider than pronotum, with fine, yellow hairs as well as some thicker, more scale-like hairs in clusters; sides gently arcuate, convergent to apex; tubercles widely separated longitudinally by three or four times their diameters, tubercles on sutural interval and striae virtually lacking, but a few tiny ones present in front of striae punctures.

Front femur and front tibia as described for *hustachei*, but tibia without brush of hairs and scarcely sinuous; middle tibia straight; hind tibia slightly sinuous, appearing bent inward at apex; hind femur almost reaching apex of elytra. Abdomen as described for *hustachei*, except for shorter and non-emarginate apical segment, and non-arcuate sides of fourth segment.

Genitalia with apex triangular and needle-like, sides not sinuous, orifice about two-thirds of length of whole (fig. 82).

SEXUAL DIMORPHISM: Females have the elytra (fig. 52) much wider than the pronotum and wider than those of males. The abdomen is pointed (fig. 16) in females, rounded in males.

VARIATIONS FROM TYPE: Females differ as stated. The length of specimens ranges from 5 to 6 mm. The tubercles of the pronotum of three males (Entre Ríos and Isla Martín García, Argentina, and Campos do Jordão, São Paulo, Brazil) are flatter and quite densely placed; these appear to be immature

specimens as they are buffy in color instead of black, and their genitalia are pale and soft, apparently not yet sclerotized. Two females taken with the male from Campos de Jordão are reddish in color, but have the pronotal tubercles separated, about as in the type. The pubescence of the elytra is present in all the specimens examined, but in some it is abraded, and the scale-like clusters are lacking. In a few individuals the median carina of the beak is indistinct, but in one or two it extends all the way to the apical plaque. The length of the beak appears to be rather variable.

REMARKS: This species appears to be the smallest of the genus yet known, although some individuals of *subminutus*, *parvulus*, and *argentinensis* are as small as some of *minutus*. Externally it differs from *parvulus* as a rule by having fewer and sparser pronotal tubercles (12 to 14 across the middle in the majority of individuals of *minutus*, about 20 in *parvulus*), and from *subminutus* by lacking the tiny tubercles associated in that species with the stria punctures. A male of *minutus* from Santa Catarina, Brazil, has only 10 tubercles across the pronotum.

Although in a different group, *minutus* is very similar to *olivae* (*sulcifrons* group) in size, pubescence, general appearance, and the genitalia of the male. It differs from *olivae*, however, by lacking any projecting tubercles on the declivity of the elytra in either sex, and by having a spine on the inner edge of the front femur.

A small species of the *maculifer* group (*gnomus*) is quite similar to *minutus* in size and elytral pattern, but *gnomus* differs by having the front tibiae strongly sinuous in both sexes, and the under side of the beak with a large tooth in males.

The genitalia were removed from 10 of the males and seem to be quite uniform; they are quite similar to those of males of *argentinensis*.

Individuals of this species, as well as some of *argentinensis* and *simulans*, have been collected in some of the same localities in Argentina (in Misiones, Buenos Aires, and Entre Ríos). I have also seen two specimens of *minutus*, one of *argentinensis*, and two of *simulans* from the same locality (St. Laurent du Maroni) far in the north in French Guiana.

This northern distribution seems questionable, not only because of the distance from the rather restricted range of the majority of the species, but also because the locality labels of the material concerned have proved unreliable in some instances. (See footnote in Introduction under Distribution.)

Hyphantus argentinensis Hustache

Figures 18, 50, 52, 81

Hyphantus argentinensis HUSTACHE, 1926, p. 156, pl. 1, fig. 1; type locality not designated, but type, female, from Haut Paraná, San Ignacio, Misiones [state of Misiones], Argentina, in Muséum National d'Histoire Naturelle, Paris, examined.

DIAGNOSIS: With nasal plaque; no subrostral tooth; elytra with some scales but no projections; eyes not bulbous. Very similar in size, shape, tuberculation, and vestiture to preceding species (*minutus*, *parvulus*, *subminutus*, and *hustachei*), but differing notably in rather flat, more elongate eye (fig. 18), slight subocular sinuosity under eye, shorter third segment of antennal funicle, shorter scape, and generally more abundant, rather scaly hairs on body.

RANGE: Northern Argentina, Paraguay, and possibly French Guiana. (For data on the nine specimens examined, see Appendix.)

DESCRIPTION: Length, 4.5 to 7 mm. Beak as described for *hustachei* except perhaps not quite so long (twice length of eye) and carinae elevated and distinct. Antennae with first two segments of funicle about equal in length, second segment two-thirds longer than third, third scarcely longer than wide and no longer than each of following segments, scape stouter and straighter than in other species, its apex extending beyond eye by less than length of first segment of funicle. Eyes flat, not bulging out from sides of head (fig. 18). Head depressed medially in only one of six specimens, rugose.

Pronotum as described for *hustachei*, except for length (two-thirds of length of elytra), and, in fresh specimens, for median line of overlapping broader hairs, almost scales, and for slight sinuation at front of pronotum under eye. Elytra about as described for both sexes of *hustachei*, except for additional clusters of white, scale-like hairs, and for more arcuate, not flat, profile.

Front femur and front tibia as described for *hustachei*, but tibia without brush of hairs, and its inner edge less sinuate; middle and hind tibiae straight; hind femur short, not reaching apex of elytra. Abdomen as described for *hustachei*, but apical segment shorter, not emarginate, and fourth segment not arcuate at sides.

Male genitalia with apex triangularly acuminate, rolled-over sides slightly sinuous, orifice more than one-half of whole (fig. 81).

SEXUAL DIMORPHISM: The elongate elytra of the male are scarcely wider than the pronotum, whereas those of the female are distinctly wider and also wider and more transverse than those of the male (figs. 50, 52); the apical segment of the abdomen is no longer than the two preceding segments in the female, but slightly longer in the male.

REMARKS: Although this species differs from other species in the eyes and the antennae, it could readily be confused, on a superficial examination, with *hustachei*, *minutus*, *subminutus*, or *parvulus*, especially if the characteristic white scale clusters are abraded. In fact, Hustache himself (I have seen his specimens in the museum in Paris) included specimens of *minutus* among his series of *argentinensis*. He mentioned the eyes of *argentinensis* as "peu convexes," but did not stress this character, probably because he did not realize that they are extremely convex in all other species. He did not mention the short third segment of the antennal funicle; the shortness of this segment is difficult to judge because of the abundant hairs, but the difference between it and the same segment in the other species is evident if series are available for comparison. Hustache thought the front femora were "inermes," but the little tooth is actually present, and can be seen under the scales and hairs.

The male genitalia of one specimen (fig. 81) resemble those of *minutus*, but the pronotal tubercles are smaller and denser than those in *minutus*, more like those in specimens of *hustachei* and *parvulus*. These species, as well as *subminutus*, were not known to Hustache, and he compared his composite species, *argentinensis*, with another composite species (*sulcifrons*, Boheman), and with *uncinatus*

Desbrochers des Loges, from both of which it differs in many ways.

As far as known, *argentinensis* is the only species not found in Brazil; otherwise it has about the same distribution as have *simulans* and *minutus*.

***Hyphantus bondari* Vaurie, new species**

Figures 14, 15, 57, 58, 77

TYPE MATERIAL: Type, male, Nova Teutonia, Santa Catarina, Brazil, latitude 27° 11' S., longitude 52° 23' W., Fritz Plaumann, collector, Bondar collection, David Rockefeller, donor, and three paratypes (one male, two females), same data, in the American Museum of Natural History. Nine paratypes as follows: one female, with same data, in the Chicago Natural History Museum; one male, same locality and collector, February 1, 1951, in Museum Frey, Munich; two males, five females, same locality and collector, but various dates from January to October, 1953 to 1957, in the collection of Elbert L. Sleeper.

DIAGNOSIS: With nasal plaque; no subrostral tooth; elytra with projecting tubercles but no scales. Females distinguishable from those of other species by having, on declivity of elytra, two large, prominent tubercles on each side of two small, sutural tubercles (figs. 14, 57); males having two small, sutural tubercles only, in this respect differing from other species of group, but not of genus.

RANGE: Southern Brazil. Also examined are two females from Tayo [not located], Santa Catarina, in the collection of E. Sleeper, and a male, "S. Paulo?," in the American Museum of Natural History.

DESCRIPTION OF TYPE, MALE: Length, 8 mm. Beak as described for *hustachei*, except for width across scrobes which is about four-fifths of length of beak, and for distinct carinae, especially median carina which is strongly elevated, and for rather flat, instead of concave, center of nasal plaque. Antennae, head, and eyes as described for *hustachei*, but first segment of antennal funicle longer (about one-third longer than second).

Pronotum as described for *hustachei*, but tubercles relatively larger and sparser (about 18 across middle), and surface with narrow,

yellow hairs interspersed. Elytra as described for *hustachei*, with following differences: surface, except for few worn spots, covered densely with conspicuous, bright yellow, narrow hairs, majority of tubercles smaller than those on pronotum, top of elytral declivity at suture with tubercular swelling large enough to be visible in profile.

Front femur as described for *hustachei*; middle tibia virtually straight, front tibia slightly sinuate within, slightly crenulate on inner side near apex, apical mucro long; hind tibia curved slightly (fig. 58); hind femur and abdomen as described for *hustachei*, except for shorter and non-emarginate apical segment of abdomen, and non-arcuate sides of fourth segment.

Genitalia with apex narrowly rounded, orifice one-half of whole (fig. 77).

SEXUAL DIMORPHISM: Females differ from males by having the elytra distinctly, not scarcely, wider than the pronotum; the shoulders fairly prominent; the sutural area smooth, without tubercles, somewhat depressed; the declivity furnished with a large, conical tubercle on each elytron between the third and fifth intervals, each tubercle five or six times larger than the inconspicuous sutural tubercles (fig. 14). The elytral declivity of males is merely swollen at the suture (fig. 15).

VARIATIONS FROM TYPE: Females differ as stated. The length of the paratypes ranges from 6.5 to 9 mm. The majority of the females and one of the males lack the slight curve of the hind tibia of the type, but a male specimen from "S. Paulo?" has the tibia even more curved (fig. 58). In some specimens the median carina of the beak is shorter, and in some the lateral carinae are rather indistinct. The median impression of the head is variable in length.

REMARKS: This species is named for Gregorio Bondar who described so many South American Curculionidae and was an expert on their ecology. In his revision of *Hyphantus* (which was never published), he had given a name to the female of the present species, but he was not sure whether he had *verrucifer* Boheman instead, as he had not seen that species. Actually there are many differences between the two, but they are not evident from Boheman's description.

Although this is the only species of its group with the elytral declivity tuberculate, there are many species in other groups (three in the *baccifer* group, seven in the *maculifer* group, and two in the *sulcifrons* group) in which the females, at least, have such projections. One of these, *olivae* (*sulcifrons* group), superficially resembles *bondari* (although it lacks the little spine of the front femora) by having abundant yellow hairs, some of them in clusters, and virtually straight front tibiae. Females of both species have broad elytra, with prominent shoulders and a smooth sutural area. In females of *bondari* the projecting tubercles are not confined to the sutural area of the declivity as they are in *olivae*. Males of both species have small sutural swellings on the declivity (scarcely visible in some specimens of *olivae*), but males differ in the angle of the slope of the declivity which is nearly perpendicular in males of *bondari* and oblique in males of *olivae*. The normal elytral tubercles are quite close together longitudinally in *bondari* but are widely separated in *olivae*.

The only other species, also very small, that may be confused with *bondari*, is *gnomus* of the *maculifer* group. Some specimens of *gnomus* have the abdomen less bulbous than is usual for species of the group, and therefore they could be associated with species of the present group. Males of *gnomus* also have genitalia quite similar to those of males of *bondari*, but they differ by having a large subrostral tooth and very sinuous front tibiae. Females of *gnomus* differ from females of *bondari* by having their projecting tubercles of the elytral declivity on the suture only. Both sexes of *gnomus* have only one-half of the number of longitudinal rows of tubercles on the elytra.

Two males of *bondari* were dissected.

***Hyphantus squamosus* Vaurie, new species**

Figures 21, 80

TYPE MATERIAL: Type, male, Paraná, Brazil, Justus, collector, Gregorio Bondar collection, David Rockefeller, donor, and one male and one female paratype with the same data in the American Museum of Natural History; one male paratype, Ponta Grossa [state of Paraná], Brazil, in the same institu-

tion, and one female, Hansa [=Corupá, Santa Catarina]. Brazil, Maller, collector, in the British Museum (Natural History).

DIAGNOSIS: With nasal plaque; no subrostral tooth; elytra with scales, but no projections. Distinguished from other species of group by having apical half or third of elytra covered with overlapping yellow scales (fig. 21) not more than one and one-half times longer than wide (a little less elongate than scales in specimens of *argentinensis*).

RANGE: Southern Brazil.

DESCRIPTION OF TYPE, MALE: Length, 6 mm. Beak, dorsal view, about three times length of eye, width across scrobes two-thirds of length of beak; median carina distinct, extending from base of beak to subapical, V-shaped furrow, lateral carinae virtually obsolete, V-shaped nasal plaque elevated, flat, and lightly punctate; beak rugose, sulcate at base, in profile slightly angulate beneath, but no tooth present. Antennae, eyes, and head as described for *hustachei*.

Pronotum as wide as long but appearing longer than wide, a little more than one-half of length of elytra, in profile arcuate, sides arcuate; tubercles feebly convex, round, not touching (about 18 across middle), with dense scales and hairs interspersed; base and front narrowly margined. Elytra at widest part slightly wider than pronotum, with from three to four broad patches or clusters of dense, orange scales in basal portion of each elytron, declivity with scales virtually covering surface, including some tubercles; sides gently arcuate from base to subapical constriction, thence convergent to rounded apex; tubercles as described for *hustachei*; in profile gently arcuate.

Front femur as described for *hustachei*; front tibia not dentate, virtually straight except for bent apex; middle and hind tibiae straight; hind femur not quite reaching apex of elytra. Abdomen as described for *hustachei*, but apical segment shorter, not emarginate, fourth segment not arcuate at sides, and suture between first two segments almost as deep as sutures between other segments.

Genitalia with apex triangularly acuminate, orifice about one-half of whole (fig. 80).

SEXUAL DIMORPHISM: Females have the elytra distinctly wider than the pronotum, with fairly prominent shoulders, the sutural area mostly smooth, without tubercles, and the apex of the abdomen rather pointed. Males have the elytra narrower, more elongate than those of the female, and the apex of the abdomen truncate.

VARIATIONS FROM TYPE: Females differ as stated above. The length ranges from 6.5 to 8 mm. The suture between the first and second segments of the abdomen is only faintly impressed in two of the paratypes. The tubercles of the pronotum are denser in one paratype. The scale clusters on the elytra may be more numerous than in the type.

REMARKS: All species with scales on the dorsum are in the *maculifer* group, except for this species and *argentinensis*. In at least one of the five specimens of *squamosus* the suture between the first two segments of the abdomen is as deep as it is in species of the *maculifer* group. *Hyphantus squamosus* differs, however, from the majority of the scaled species by having straight, not sinuate, tibiae; a narrower pronotum with smaller tubercles; bulbous, not gradually widened, front femora; the obliquely sloping elytral declivity without projections; males with no subrostral tooth; and a more southerly distribution. The genitalia, dissected from all three males (fig. 80), appear to cut across group lines as here constituted, as they are virtually the same as those of *conicus*, *hypercalus*, *tibialis*, and *uncinatus* of the *maculifer* group, and of *olivae* in the *sulcifrons* group, differing, however, by having the apex more constricted, rather onion-shaped.

The differences between *squamosus* and *argentinensis* are given in the diagnosis of the latter. Four of my specimens were also examined by Bondar and are entered in his notebook under number 5047 with three names, the first two crossed out (*argentinensis* and *maculifer*), then *uncinatus*.

SPECIES GROUP *sulcifrons*

The five species of this group have a distinctly elevated nasal plate, but no spine or tooth on the front femora; they have the abdominal segments flattish, with the first two separated by a feeble suture, not a deep sulcus. Except for *olivae*, the species have

the pronotum quite flat, not convex, and the elytra also flat, with flat, obsolete tubercles. One species is known from males only; one, from females only. The males have no subrostral tooth; the genitalia of the males have a long orifice. In the formal descriptions, the species are compared with the first species, *sulcifrons*.

***Hyphantus sulcifrons* Boheman**

Figures 7, 8, 11, 38, 90

H[yphantus] sulcifrons BOHEMAN, 1843, p. 410, southern Brazil; type, male, in Naturhistoriska Riksmuseet, Stockholm, examined.

DIAGNOSIS: With nasal plaque; no subrostral tooth; no elytral scales; front femur not toothed; front tibia denticulate. Males differing from those of all species, except *simulans*, by having a large, tooth-like projection on hind femur (fig. 11), females differing by having apex of elytra markedly tuberculate at suture (figs. 7, 8) and deeply constricted on sides near apex. Resembling *simulans* very closely, except for secondary sexual characters.

RANGE: Southeastern South America, from the state of Paraná in southern Brazil south to Buenos Aires, Argentina, including Uruguay. (For the 174 specimens examined, see Appendix.)

DESCRIPTION: Length, 5 to 8 mm. Beak, dorsal view, scarcely twice as long as eye, width across scrobes about equal to length of beak; median carina distinctly elevated, extending to elevated, V-shaped, nasal plaque (fig. 6), which is rather flat, feebly punctate, lateral carinae present in some specimens; remainder of beak rugose, base transversely sulcate, in profile almost as thick as long, under side straight or slightly sinuate. Antennal funicle with first segment slightly longer than second, second about twice as long as third, third longer than any of following segments; antennal scrobe rather broad and curved down, reaching about to front of eye. Eyes bulbous, separated across front of head by twice their diameters. Head rugose, with linear impression.

Pronotum (fig. 38) appearing elongate but actually as wide as long, rather flat, about two-thirds of length of elytra; in profile almost straight, dorsal outline only shallowly interrupted between base and base of elytra

(fig. 7); tubercles flat, of irregular shape, touching one another (about 20 or more across middle); base very narrowly margined. Elytra at widest part scarcely wider than pronotum, with normal long seta emerging from each tubercle but no additional hairs, sides parallel to apical third, thence feebly convergent to broadly rounded-truncate apex (fig. 38); tubercles on disc indistinct, flat, in many specimens obsolete, more distinct on sides and on declivity, striae with large punctures; in profile nearly straight to declivity whence gently arcuate to apex in male, in female sides near apex undercut and tumid (fig. 7), suture tuberculate before apex.

Front femur bulbous, normal inner spine near apex lacking; front tibia straight to apical third where slightly bent inward, inner edge denticulate, inner apical mucro not long; middle tibia straight; hind femur short, not reaching apex of elytra, straight on outer side (for inner side and for hind tibia, see Sexual Dimorphism, below). Abdomen with first two segments separated by very feebly impressed line, sutures between other segments deep and long, all segments rather flat, at least not notably bulbous, second segment distinctly longer than either third or fourth, apical segment at least as long as two preceding segments combined.

Genitalia (three specimens) with apex triangularly acuminate, dorsal orifice more than one-half of whole (fig. 90).

SEXUAL DIMORPHISM: Males have the hind femur bulbous at the middle on the inner side where a large, spine-like, stout tooth projects, this tooth being at least as long as the femur is wide (fig. 11); the hind tibia slightly curved, widened at about the apical third within, where impressed and emarginate for the reception of the femoral tooth, the inner and outer apical edges hairy; the elytra not constricted or tuberculate at the apex; the apex of the abdomen truncate. Females have no tooth on the hind femur; straight hind tibia, not widened or hairy apically; the elytra undercut and constricted on the sides at the apex, forming a tumid roll on the ninth interval, the suture broadly tuberculate near the apex, the tubercle usually extending beyond the elytral outline when viewed either laterally or dorsally

(figs. 7, 8); the apex of the abdomen slightly acuminate.

REMARKS: This species appears to be the most abundant of the genus. It is one of the few for which we have some indication of the habits. Gregorio Bondar (in a letter of March 29, 1951, kindly sent to me by Dr. A. da Costa Lima) wrote that a collector in Porto Alegre took *sulcifrons* in "moranguinho (*Fragaria* sp.)." This plant (the strawberry) is one of the favorite foods of some species of the related genus *Otiiorhynchus* of the Palearctic Region.

The carinate beak and the large femoral tooth of the male are quite constant in the material examined, but the size of the tubercles at the apex of the elytra in the female is variable. The female allotype in the museum in Stockholm has prominent tuberculation.

A comparison of this species with its sibling, *simulans*, is given under *simulans*.

***Hyphantus simulans* Vaurie, new species**

Figures 12, 89

TYPE MATERIAL: Type, male, Nova Teutonia, Santa Catarina, Brazil, April 17, 1951, Plaumann, collector, in Museum Frey, Munich. Forty-four paratypes as follows: With the same data as the type, but various dates from January to November, 1950 to 1956, 11 males, 16 females, all in the collection of E. L. Sleeper, except for one female in the Museum Frey; two males, five females, from Itapiranga, Santa Catarina, October, 1952, Padre P. Buck, collector, in Museum Frey and the American Museum of Natural History. All the following from Argentina: one male, Santo Tomé, Corrientes, in Chicago Natural History Museum; four females, Palermo, Buenos Aires, January, 1918, November, 1913; one male, two females, Haut Paraná, San Ignacio, Misiones; one male, Territoire des Missions; one female, Río Paraná, Territoire des Missions, May, all in Muséum National d'Histoire Naturelle, Paris.

DIAGNOSIS: With nasal plaque; no subrostral tooth; no elytral scales or projections; front femur not toothed; front tibia denticulate in some specimens. Almost exactly like *sulcifrons*, but males differing in genitalia (figs. 89, 90), and by having spine of hind femur much narrower and shorter, even

absent, though perhaps worn off, in some individuals, spine nearer base than apex, hind femur with outer edge bent inward, not straight as in *sulcifrons*, and hind tibia with widened apical part much shorter; females differing by having no large sutural tubercles visible in profile view of apex of elytra.

RANGE: Northern Argentina, southern Uruguay, southern Brazil, and possibly French Guiana. (For data on the 21 additional specimens examined, see Appendix.)

DESCRIPTION OF TYPE, MALE: Length, 6 mm. Beak, antennae, eyes, head, pronotum, elytra, and abdomen as described for male of *sulcifrons*, but beak not quite so wide across apex, its median carina not reaching nasal plaque, lateral carinae present.

Front femur and front and middle tibiae as described for *sulcifrons*; hind femur slightly bent inward on outer side, slightly bulbous on inner side, small tooth or spine near middle on inner side shorter than width of tibia at base (fig. 12), hind femur not reaching apex of elytra; hind tibia straight on outer side, inner side widened at apical fourth or fifth for reception of femoral spine, edge of widened part with small tubercle.

Genitalia with apex triangularly acuminate, orifice more than one-half of whole (fig. 89).

SEXUAL DIMORPHISM: Females have the hind tibia straight, the hind femur not spined, and the apex of the abdomen slightly acuminate. Some females have the sides of the elytra slightly undercut and tumid at the apex and a small tubercle on the suture before the apex. Males have the tibia and femur modified as described above, the elytra not constricted, and the apex of the abdomen truncate.

VARIATIONS FROM TYPE: Females differ as stated above. The length of specimens is from 6.5 to 8 mm. The denticulations on the front tibia are feeble and not visible in all specimens. Of 18 male paratypes, the femoral spine of the hind legs is distinct in 11, about one-half of normal size in one, barely visible in three, and not visible in four.

REMARKS: Neither Bondar nor Hustache (1926) recognized this species, which is found in most collections mixed with specimens of *sulcifrons*. Males of *sulcifrons*, with

a huge tooth on the hind femur, are unmistakable, and males of *simulans*, with a small spine, have probably been overlooked or considered as damaged specimens or aberrations of *sulcifrons*. Males of *simulans*, with the spine lacking, have probably been considered to be females of *sulcifrons*. One such male in the collection of the museum in Paris was marked (by Hustache perhaps) as "*sulcifrons* var." Actually, males of the two species are readily identifiable by the spine, or by the genitalia (figs. 89, 90), or by the length of the widened inner apex of the hind tibia, which in *simulans* is only one-half of the length of the same part in *sulcifrons* (figs. 11, 12). The genitalia of males of *simulans*, dissected from three specimens, are proportionately larger than those of *sulcifrons*, have a larger apex, and are of a slightly different general shape.

The females, however, are not so readily distinguishable, except for those that have the protruding tubercles of the elytral apex large and distinct, these being invariably *sulcifrons* (figs. 7, 8). Females of *simulans* generally have the apex of the elytra virtually similar to that of the males of either species, that is, without tubercles. Some females of *simulans*, however, have a suggestion of tubercles, and some females of *sulcifrons* have the tubercles worn down, or at least quite smooth. Females of both species may have the sides near the apices strongly constricted or undercut.

These two species have approximately the same geographical range (except for the

doubtful occurrence of *simulans* in the north in French Guiana) and occur in some of the same localities. Thus from Buenos Aires I have seen seven males and six females of *sulcifrons* and five females of *simulans*; from Chacabuco, Buenos Aires, a male of *sulcifrons* and a female of *simulans*; from Concordia, Entre Ríos, Argentina, two males of *sulcifrons* and three females of *simulans*; from Montevideo or vicinity, three males and one female of *sulcifrons* and one female of *simulans*; from Bom Retiro, Rio Grande do Sul, Brazil, one female of *sulcifrons* and one female of *simulans*. I have not yet seen males of both species from the same locality, however, which suggests that I may be misidentifying the females. Five males of *simulans* were dissected.

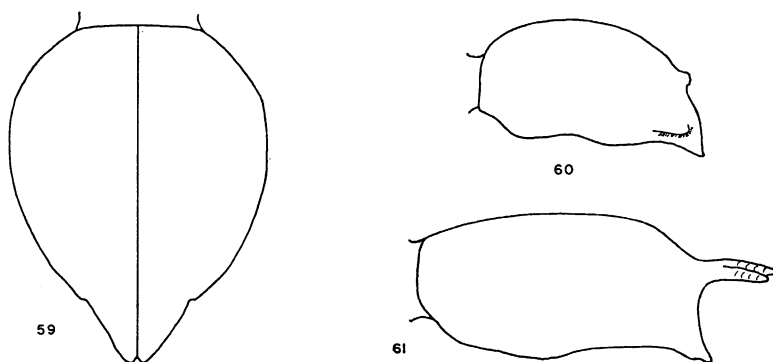
The 21 specimens examined but not designated as paratypes include some in bad condition, some taken from the extreme of the range, some examined previously but not now available, and some females that could be mistaken for females of *sulcifrons*.

Hyphantus longicauda Vaurie, new species

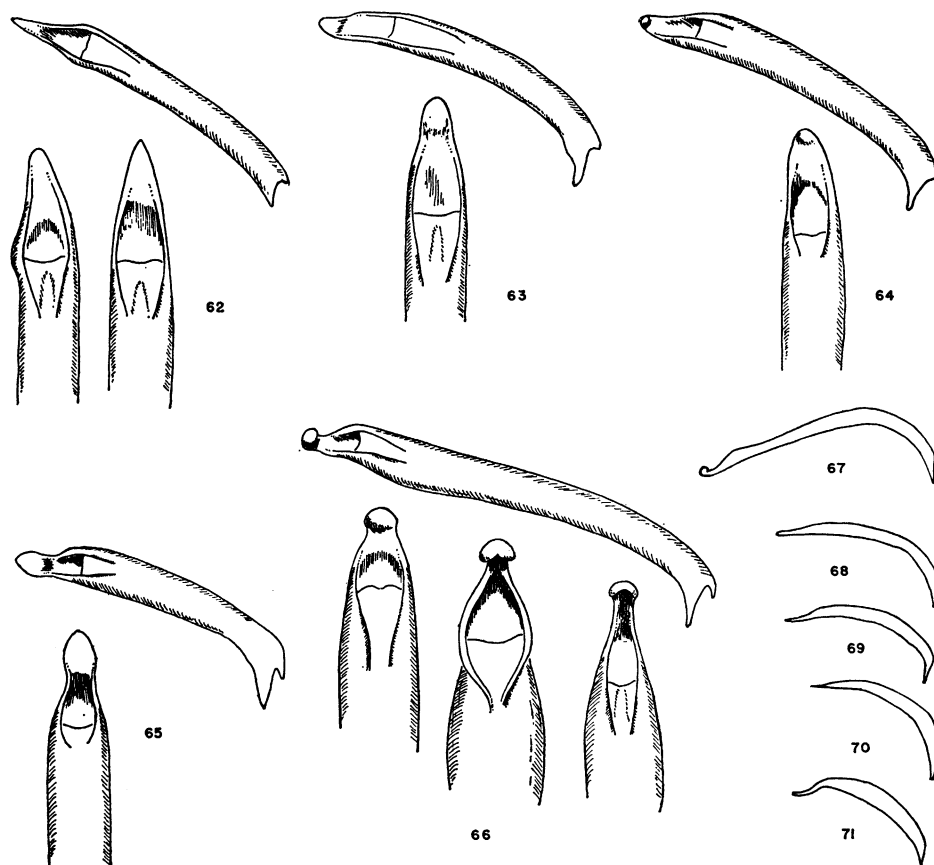
Figure 61

TYPE MATERIAL: Type, female, S[ão] Leopoldo, [Rio Grande do Sul], Brazil, December, 1927, Padre P. Buck, collector, Gregorio Bondar collection, David Rockefeller, donor, in the American Museum of Natural History.

DIAGNOSIS: With nasal plaque; elytral projections but no scales; front femur not toothed; male not known. No other species



FIGS. 59-61. Body parts of females of *Hyphantus*. 59. *H. angulatus*, outline of elytra. 60. *H. olivae*, lateral view of elytra. 61. *H. longicauda*, lateral view of elytra.



FIGS. 62-66. Male genitalia of species group *baccifer*, showing three-quarter view and one or more enlarged dorsal views of apex. 62. *Hyphantus distinguendus*. 63. *H. baccifer* (Espírito Santo). 64. *H. baccifer* (Rio de Janeiro). 65. *H. montanus*. 66. *H. teretirostris*.

FIGS. 67-71. Simple profiles of genitalia of species group *baccifer*. 67. *Hyphantus teretirostris*. 68. *H. distinguendus*. 69. *H. baccifer* (Rio de Janeiro). 70. *H. baccifer* (Espírito Santo). 71. *H. montanus*.

has a long forked "tail" of outward-curving spines (fig. 61).

RANGE: Known only from the type locality.

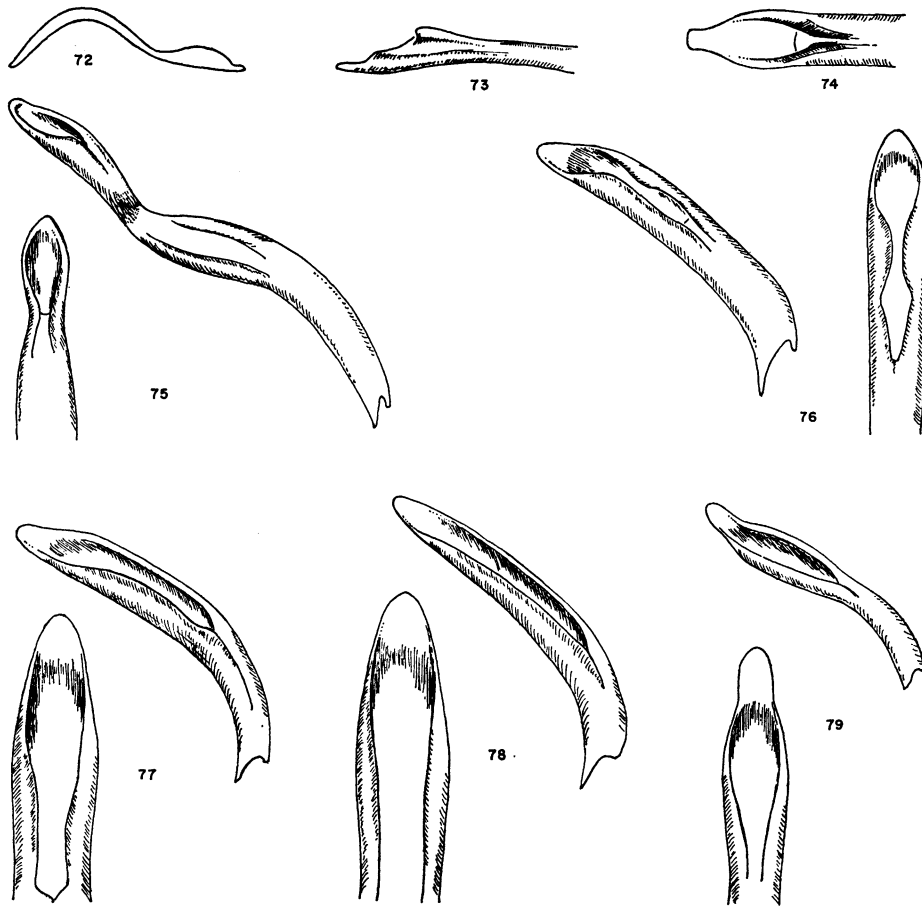
DESCRIPTION OF TYPE, FEMALE: Length, 9 mm. Beak, antennae, eyes, and head as described for *sulcifrons*, but beak appearing longer, not quite so wide across apex, lateral carinae of beak indistinct, median carina not touching nasal plaque, and under side of beak straight.

Pronotum as described for *sulcifrons*, except for length which is about one-half of length of elytra. Elytra at widest part slightly wider than pronotum, with normal setae, no additional hairs, sides gently

arcuate to just before apex, whence somewhat constricted, thence oblique to apex; tubercles and striae as described for *sulcifrons*; slope of declivity with two long (longer than beak), tubular projections emerging from suture, contiguous in basal half, curving outward in apical half; sutural area on disc slightly concave.

Legs and abdomen as described for *sulcifrons*, except for absence of denticulations on front tibia, normal, not toothed hind femur, and straight hind tibia.

REMARKS: Bondar intended to describe this unusual, fork-tailed species from the present specimen. In his manuscript he states that the collector, Padre Buck, had already



FIGS. 72-74. Male genitalia of species group *baccifer*. 72. *Hyphantus serpentis*, profile. 73. *H. carinatus*, profile of apex, showing keel. 74. *H. carinatus*, dorsal view of apex.

FIGS. 75-79. Male genitalia in three-quarter view, and dorsal view of apex. 75. *Hyphantus serpentis*. 76. *H. maculifer*. 77. *H. titan*, dorsal view, enlarged; characteristic also of *H. bondari*, but *bondari* has more pointed apex and narrower dorsal borders. 78. *H. bracteatus*, dorsal view, enlarged. 79. *H. gnomus*, dorsal view, enlarged.

distributed additional specimens to various collectors, but I have as yet seen no others among some 900 specimens examined.

Possibly this specimen is the female of *lanceolatus*, described from three males, as the only differences that I can find between them may be sexual, i.e., the elytral projections of *longicauda* and, in *lanceolatus*, the inner spine on the front tibia. I think it best to describe *longicauda*, however, as there is some slight doubt as to whether *lanceolatus* is one species or a composite.

A discussion of other species that have projections on the elytral declivity is given under the species *pyramis*. In none of the

others are the projections nearly as long as those of *longicauda*.

Hyphantus lanceolatus Vaurie, new species

Figures 9, 88, 91

TYPE MATERIAL: Type, male, Santa Cruz, Rio de Janeiro, Brazil, Hensel, collector, in the Zoologisches Museum, Berlin; one male paratype, São Paulo, Brazil, "Exc. Dr. Studt G." in the American Museum of Natural History, and one male paratype, Nova Petrópolis, Rio Grande do Sul, Brazil, January, 1925, in the collection of E. L. Sleeper.

DIAGNOSIS: With nasal plaque; no sub-

rostral tooth; no elytral scales or projections; front femur not toothed; female not known. Differing from all known species by having a spine or spur on inner edge of front tibia (fig. 9).

RANGE: Eastern Brazil from Rio de Janeiro south to Rio Grande do Sul.

DESCRIPTION OF TYPE, MALE: Length, 6.5 mm. Beak, antennae, eyes, head, and pronotum as described for *sulcifrons*, but beak not so wide across apex, median carina not reaching nasal plaque, and lateral carinae obsolete. Elytra as described for *sulcifrons*, but sides gently arcuate from base to apex, not so parallel-sided, and apical declivity more elongate.

Legs as described for *sulcifrons*, except for front and hind tibia, and hind femur, front tibia beyond middle with forward-pointing, straight spine (about as long as tarsal claws) on inner side, apical part of tibia narrower, slightly curving inward, and denticulate (fig. 9), hind tibia straight, hind femur not toothed. Abdomen as described for *sulcifrons*, except for somewhat longer apical segment (longer than two preceding segments combined).

Genitalia with apex triangularly acuminate, orifice about one-half or more of whole (figs. 88, 91).

VARIATIONS FROM TYPE: The two paratypes are 7 and 8 mm. long. The paratype from the south (Rio Grande do Sul) has what appear to be proportionately longer genitalia which are also more sinuous in profile view, but in every other respect it seems to agree with the type and the other paratype. The apex of the genitalia is more pointed than that of the type, but it is also rather pointed in the other paratype from São Paulo.

REMARKS: As stated under *longicauda*, that species and *lanceolatus* may be the same species, but each is separable from all other species on a distinctive character. This character, however, may be a secondary sexual character. The caudal projections of *longicauda* are present, but are not of the same shape and length, as secondary sexual characters of females of a number of species. If the spine on the front tibia of *lanceolatus* is a secondary sexual character of males, then this species is probably the male of *longi-*

cauda. The large male from Rio Grande do Sul seems, in fact, to have a slight tumidity on the elytral declivity at about the spot where the forked "tail" of *longicauda* emerges (*longicauda* is also from Rio Grande do Sul). This specimen may be the male of *longicauda* and may be a different species from the type, which is from Rio de Janeiro and which differs slightly in the genitalia (figs. 88, 91).

Hyphantus olivae Vaurie, new species

Figures 60, 80

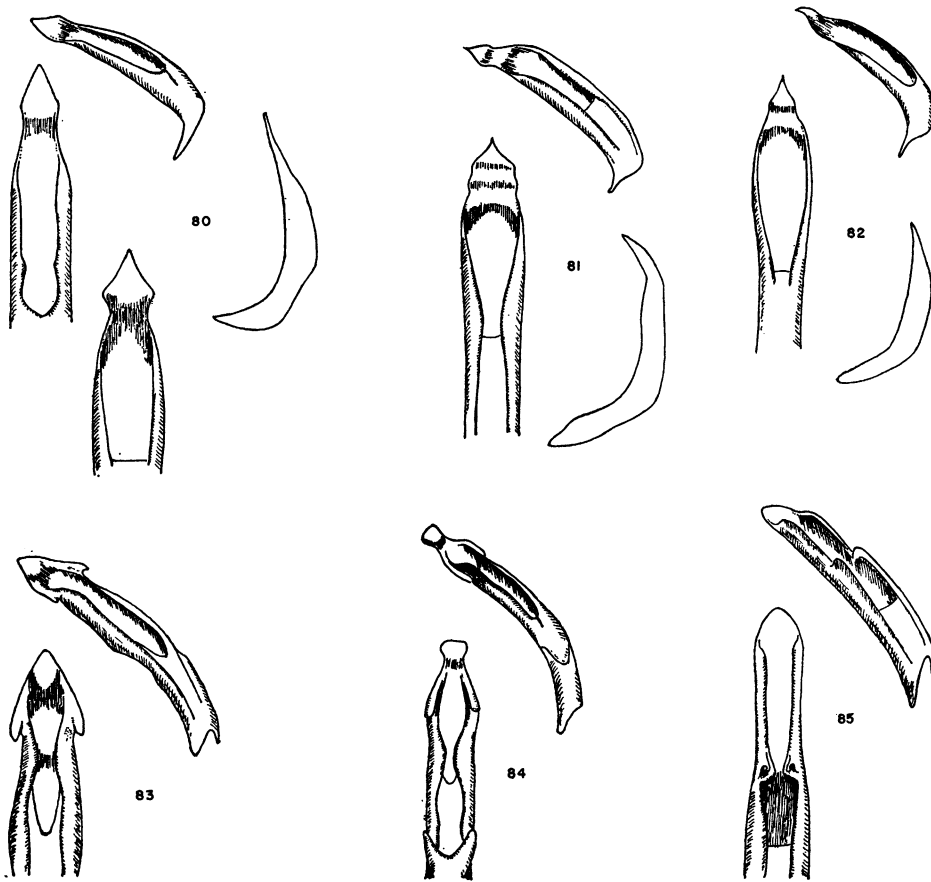
TYPE MATERIAL: Type, male, Vila Oliva, Rio Grande do Sul, Brazil, February, 1946, Buck, collector, Gregorio Bondar collection, David Rockefeller, donor, in the American Museum of Natural History, and 41 paratypes as follows: Vila Oliva, Padre Buck, collector, but various dates from 1946 to 1951, 18 males, 20 females, in the American Museum of Natural History, the Museum Frey, Munich, and the Chicago Natural History Museum; São Francisco de Paula, Rio Grande do Sul, September, 1959, Hudepohl, collector, one female, in Museum Frey, and January 28, 1938, Buck, collector, two females, in Chicago Natural History Museum.

DIAGNOSIS: With nasal plaque; no subrostral tooth; elytral projections but no scales; front femur not toothed. Differing from other species of group by having abundant hairs between tubercles of pronotum and elytra, by having tubercles of pronotum irregularly spaced, not touching, pronotum less flat, and elytra with distinct tubercles; females differing further by having short, paired tubercles on suture of elytral declivity (fig. 60), these present, but even smaller, in males.

RANGE: Rio Grande do Sul, most southern state of Brazil.

DESCRIPTION OF TYPE, MALE: Length, 6 mm. Beak, eyes, and head as described for *sulcifrons*, but beak slightly longer, not so wide across apex, with virtually obsolete carinae and straight under side. Antennae as described for *sulcifrons*, but first two segments of funicle about equal in length.

Pronotum as described for *sulcifrons*, except as follows: convex, not flat, sides arcuate, more convergent to narrower base; tubercles



FIGS. 80-82. Male genitalia of *Hyphantus* in three-quarter view, enlarged dorsal views, and profile. 80. *H. olivae*; characteristic also, with very slight differences, of *H. conicus*, *hypercalus*, *squamosus*, *tibialis*, *uncinatus*. 81. *H. argentinensis*. 82. *H. minutus*.

FIGS. 83-85. Male genitalia of species group *argentinensis*, showing three-quarter view and enlarged dorsal view. 83. *H. hustachei*. 84. *H. parvulus*. 85. *H. subminutus*.

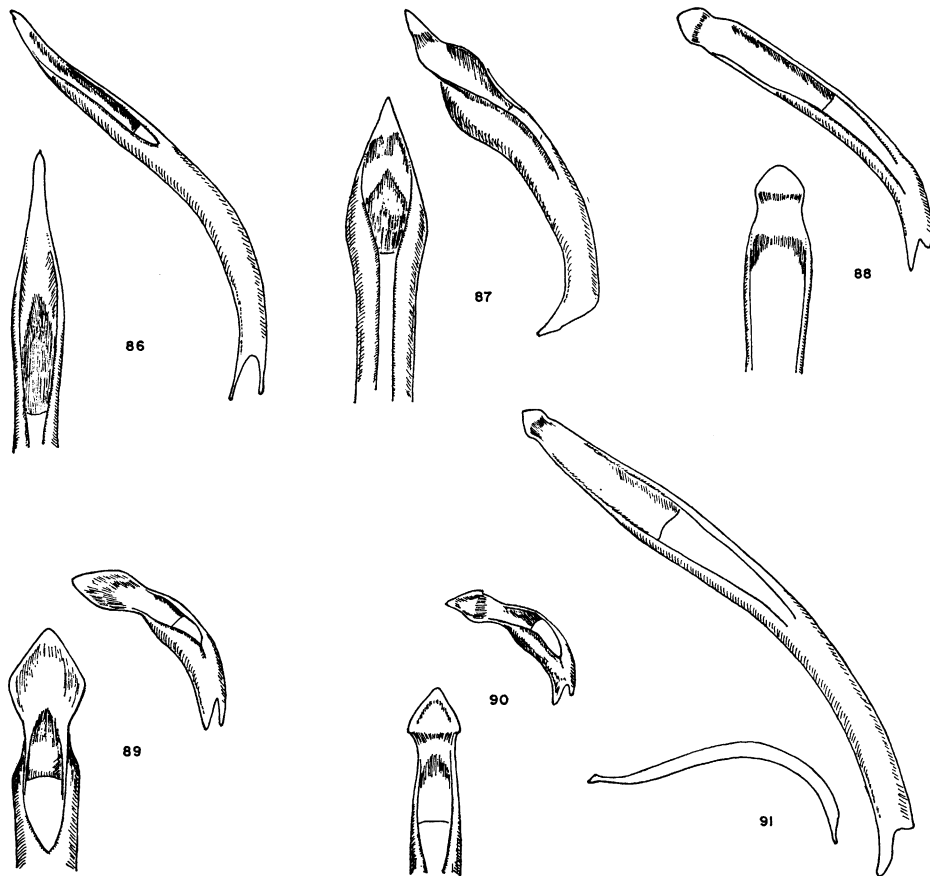
round, convex, sparse, separated by as much as their diameter on some parts of pronotum; yellow, elongate hairs present among tubercles; outline of profile arcuate. Elytra at widest part slightly wider than pronotum, with clusters of yellowish hairs of same elongate shape as setae emerging from tubercles, sides gently arcuate to rounded-truncate apex, with slight constriction at apical fifth; tubercles convex, spaced widely, irregularly, separated longitudinally by twice or more their diameters, rows of tubercles alternating with densely punctate striae, suture with fewer and smaller tubercles than other rows, but slope of declivity at suture

with paired tubercles scarcely larger than other tubercles, sides of apex slightly constricted and tumid; in profile rather flat on top, whence gently arcuate to apex.

Legs and abdomen as described for *sulcifrons*, except denticulations on front tibia absent, hind femur normal, not toothed, hind tibia straight, and all tibiae appearing longer and narrower.

Genitalia with apex triangularly acuminate, orifice longer than one-half of whole (fig. 80).

SEXUAL DIMORPHISM: Males have the elytra slightly wider than the pronotum; females have it generally distinctly wider.



FIGS. 86-90. Male genitalia of *Hyphantus* in three-quarter view and enlarged dorsal view. 86. *H. angulatus*. 87. *H. gibbosus*. 88. *H. lanceolatus* (type, Rio de Janeiro); characteristic also of *H. chryseus*, but orifice shorter in *chryseus*. 89. *H. simulans*. 90. *H. sulcifrons*.

FIG. 91. *H. lanceolatus* (Rio Grande do Sul), showing profile view and enlarged three-quarter view.

Males have the apex of the abdomen truncate; females have it pointed. Females have the basal half of the sutural rows of the elytra flat or rather depressed and smooth, the sutural paired tubercles on the declivity about twice as large as those of males and readily visible in profile, the sides of the elytra near the apex strongly constricted and undercut (fig. 60).

VARIATIONS FROM TYPE: Females differ as stated. The size range in the paratypes is from 5.5 to 7 mm. Some specimens have the pronotum more densely tuberculate, but there is some space between the tubercles in all. Many individuals have the beak dis-

tinctly tricarinate, some have the median carina only, some have the carinae more or less obsolete as in the type. Some females have the elytra almost as narrow as those of males; some males have the sutural tubercles too small to be seen in profile.

REMARKS: This species possesses the most important characters of the group (flat abdomen and absence of the femoral tooth), but it differs from other species of the group as stated in the diagnosis. In tuberculation and pubescence it resembles some species of the *argentinensis* group, notably *bondari*, from which it differs as stated under that species and also by having sharply pointed

genitalia in the male. The genitalia, dissected from four specimens, are of the same type as those of *squamosus*, also of the *argentinensis* group, and of *tibialis* and *uncinatus* and *hypercalus* of the *maculifer* group. The genitalia are not very different from those of *minutus* and *argentinensis*, both of which differ from *olivae* by lacking swellings or protuberances on the elytral declivity.

Bondar, in his manuscript on *Hyphantus*, said that he had 15 specimens sent to him by "Padre Buck, Porto Alegre, Rio Grande do

Sul" to whom he wished to dedicate the species. If Porto Alegre was the actual locality of the specimens (and not merely the locality where Padre Buck lived), then it should be added to the range of the species. However, I have seen most of Bondar's specimens, and they are all from Vila Oliva. I have also many other specimens from Vila Oliva collected by Padre Buck, so perhaps Bondar failed to mention this part of the locality. It is probable that Vila Oliva, which I cannot find, is close to Porto Alegre.

APPENDIX: SPECIMENS EXAMINED

FOR CONVENIENCE, the species, as well as the countries under each species, are listed alphabetically. The specimens that I examined of species that are not listed here are enumerated in the text (see also table 1). The names in parentheses are those of the collector or collectors.

Hyphantus argentinensis Hustache

Argentina: Buenos Aires: (Bruch), 1 ♀; Luján (Maristes), 1 ♀. Misiones: Río Paraná, Territoire des Missions, 1 ♀; Haut Paraná, San Ignacio, Missions, 1 ♀ [type]. Entre Ríos: Santa Elena, Jan., 1912 (Bryant), 1 ♀. *French Guiana*: St. Laurent du Maroni, 1 ♀ [this locality doubtful]. *Paraguay*: 1 ♂; Asunción, 1 ♂; Sapucay, 1 ♀. *Locality illegible*: December 5, 1915, 1 ♂.

Hyphantus baccifer Germar

Brazil: 5 ♂ [including type]. Espírito Santo: 5 ♂, 3 ♀; Tirol, 1 ♀; Victoria, 2 ♂, 7 ♀; Tijuco Preto, Oct., Nov., Dec., 1948 (A. Maller), 2 ♂, 1 ♀. Rio de Janeiro: 4 ♂; Macahé (Fry), 3 ♂; Teresópolis, Nov., 1955 (G. Barb. Frey), 1 ♂. Santa Catarina: 1 ♂, 2 ♀. *State?*: Lagoa Santa, 1 ♂. *No locality*: 6 ♂, 4 ♀.

Hyphantus dehiscens Desbrochers des Loges

Brazil: 2. Rio de Janeiro: Rio de Janeiro, 1 ♀. São Paulo: Itapeperica, Oct. 17, 1944 (F. Lane), 1 ♀; Cananea, Nov. 11, 1934, 1 ♀. Santa Catarina: 1 ♀; Corupá, Oct., 1944, 1945, Jan., 1946, 3 ♀; Corupá (Reitter), 1 ♀. *No locality*: 2 ♀ [including the type].

Hyphantus distinguendus Desbrochers des Loges

Brazil: 3 ♂, 8 ♀. Bahia: 1 ♂. Rio de Janeiro: 3, 1 ♀ [type]. B[arra] de Pirahy, Nov., 3 ♀; Corcovado, May, 1912 (G. Bryant), 4 ♂; Teresópolis, Nov., 1955 (G. Barb. Frey), 3 ♂; Tijuca, Nov., 1955 (G. Barb. Frey), 39; Tijuca, Apr., 1913 (Burr), 1 ♂. Santa Catarina (A. Maller), 1 ♂. São Paulo: 2; Aug. 7, 1922, 1 ♂. Campos do Jordão, Sept., 1200 m., 1 ♀; Caraguatatuba "Res. Flor.," 680 m., 6; Cantareira, Feb., 1 ♂, 1 ♀; Diadema [not located], Feb., 5; Est.[ação] Biol.[ógica] Boraceia, Salesópolis, Feb., Oct., Nov., 10; Monte Alegre, Fazenda Santa Maria, Nov., 1 ♂, 1 ♀; Mogy das Cruzes, Nov., Dec., 3 ♂; Osasco, Apr., Dec., 2 ♂, 2 ♀; Ypiranga, Apr., 1 ♂, 1 ♀.

Hyphantus minutus Vaurie, new species

In addition to the type and paratypes from the

state of São Paulo, listed in the text, the following specimens have been examined:

Argentina: Buenos Aires: Isla Martín García, 1938 (Viana), 1 ♂, 1 ♀. Entre Ríos: May 10, 1911 (Bruch), 1 ♂. Misiones: Río Paraná, Territoire des Missions, 1 ♀. *Brazil*: Santa Catarina: 1 ♂. São Paulo: Campos do Jordão, 1906 (Luederwaldt), 1 ♂, 2 ♀; Caraguatatuba "Res. Flor.," 680 m. Apr. 2, 1962 (Martins, Reichardt, Silva), 1 ♀; Diadema [not located], Mar. 5, 1961 (Werner), 1 ♂, Feb. 12, 25, 1961 (Reichardt, Werner), 1 ♂, 4 ♀; Itú, Faz.[enda] Pau d'Alho, Sept. 9, 10, 1961 (L. R. Silva), 1 ♀; Paranapiacaba, 1911 (Garbe), 1 ♀; São Paulo (Fischer), 1 ♂, 1 ♀. *French Guiana*: St. Laurent du Maroni, Le Moul collection, 1 ♂ [this locality doubtful].

Hyphantus simulans Vaurie, new species

In addition to the type from Santa Catarina, Brazil, and the paratypes from Argentina, listed in the text, the following specimens have been seen:

Argentina: Buenos Aires: 5 ♀; Chacabuco, 1911, 1 ♀; Palermo, Jan., 1918, 1 ♀. Entre Ríos: Concordia, 3 ♀. Salta: Río Salado, 1 ♂. Misiones: Territoire des Missions, 4 ♀; Río Paraná, Territoire des Missions, 1 ♂. *Brazil*: 1955 (Brancsik), 1 ♀; Rio Grande do Sul: Bom Retiro, Jan., 1925, 1 ♀. *French Guiana*: St. Laurent du Maroni, 2 ♂ [this locality doubtful]. *Uruguay*: Montevideo (Tremoleras), 1 ♀.

Hyphantus sulcifrons Boheman

Argentina: 1 ♂, 3 ♀. Buenos Aires: 4 ♂, 3 ♀; Mar., 1950, 1 ♂; Oct., 1951, 2 ♂, 3 ♀; Isla Martín García, 1938 (M. J. Viana), 1 ♂; Chacabuco, Dec., 1911, 1 ♂. Entre Ríos: Concordia, 2 ♂. Tucumán: Mar., 1944, 1 ♂. *Brazil*: 4 ♂ [including type], 3 ♀ [including allotype]. Paraná: Foz do Iguaçu, Nov., 1955 (G. Barb. Frey), 2 ♂. Rio Grande do Sul: 1 ♂, 4 ♀. Serro Azul, 1 ♂, 1 ♀; Jan., 1944, 1950 (Buck), 3 ♂, 1 ♀; Porto Alegre, 1940–1952 (Buck), 44 ♂, 29 ♀; Oct.–Dec., 1958 (Hudepohl), 4 ♂, 3 ♀; Vila Oliva, Feb., 1948 (Buck), 6 ♂, 2 ♀; São Leopoldo, Oct., 1947, 1950 (Buck), 6 ♂, 9 ♀; M.[orro do] Sabia, near Caxias, Oct., 1949 (Buck), 6 ♂, 7 ♀; Torres, Jan., 1960 (Hudepohl), 2 ♂, 4 ♀; São Francisco de Paula, Nov., 1959 (Hudepohl), 2 ♂; Quinta, Sept. 28, 1919, 1 ♂; Marcelino Ramos, Jan., 1924, 1 ♂; Cocherira [not located = Cachoeira?], Jan., Dec., 1925, 1 ♂, 2 ♀; Bom Retiro, Jan., 1925, 1 ♀. *Uruguay*: Montevideo: 1 ♂, 1 ♀; La Plata, 1 ♂; Cerro, 1 ♂.

Hyphantus teretirostris Desbrochers des Loges

Brazil: 9. Minas Gerais: T. Oto [rest illegible] Nov., 1909 (Garbe), 1 ♀. Paraná: 5 ♂. Jan., 1960 (Hudepohl), 1 ♂. Ponta Grossa, 3 ♂. Rio de Janeiro: (Fry), 1 ♂. Santa Catarina: 1 ♂. Hansa [Humboldt] (Maller), 1 ♀; Corupá, Jan., 1946, 1949, 2 ♂, 1 ♀. São Paulo: 5 ♂, 1 ♀. Alto da Serra, Feb., Mar., 1912 (Bryant), 8 ♂, 3 ♀; (Stanzel-Lachnit), 1 ♀; Dec. 27, 1924, 1 ♂, 1 ♀; Sept., 1909 (Luederwaldt), 1 ♀; Nov. 25, 1940 (F. Lane), 1 ♂, 1 ♀; Ipiranga, Oct., 1908 (Luederwaldt), 1 ♂; Itapecerica, Oct. 18, 1949 (F. Lane), 1 ♂; Alecrim, Nov., 1937 (K. Sakay), 1 ♂, Alecrim, Linha Juquia, Nov., 1 ♀; Cantareira, Nov., 1910 (Luederwaldt), 1 ♀; Paranapiacaba, Dec., 1900, July, 1926, Nov., 1951, 1 ♂, 2 ♀; Est.[ação]

Biológica Paranapiacaba, Nov., 1961 (Reichardt, Werner), 4 ♂, 2 ♀; Est.[ação] Boraceia, Salesópolis, Feb., Oct., Nov., 1960, 1961, 2 ♂, 3 ♀; Caraguatatuba "Res. Flor.," 680 m., Apr., 1962, 1 ♂. *No locality*: 1 ♀ [type].

Hyphantus uncinatus Desbrochers des Loges

Brazil: 1 ♀ [type]. Espírito Santo: 1 ♀. Tijuco Preto, Nov., 1948 (A. Maller), 1 ♀. Rio de Janeiro: (Fry), 1 ♂, 1 ♀. Macahé, (Fry), 1 ♂, 2 ♀. Santa Catarina: Hansa Humboldt (Reitter), 2 ♀.

Hyphantus verrucifer Boheman

Brazil: 9 ♀ [including type and allotype]. Rio de Janeiro: 1 ♀; Macahé, 2 ♀. *No locality*: 1 ♀.

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