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CHELODESMID STUDIES V.

SOME NEW, REDEFINED, AND RESURRECTED BRASILIAN GENERA

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ABSTRACT

A semirevisionary treatment of four large and nomenclatorially important chelodesmid genera of southeastern Brasil, based upon material received from the Museu de Zoologia, Universidade de São Paulo, and the recent examination of many type specimens in European museums. Leptodesmus *(de Saussure, 1859) is redefined in a more exclusive sense to include 21 species, with the new forms* L. acuminatus *(Goiás),* L. cochranae *(RJ), and* L. defensus *(Goiás); several established species are redescribed; the better-known forms are tentatively dispersed among six subgeneric groups.* Goyazodesmus *(Schubart, 1952) is regarded as a junior subjective synonym.*

Eurydesmus *(de Saussure, 1860) is considered in a broad sense to include as synonyms* Chelodesmus *Cook, 1895,* Pseudoeurydesmus *Schubart, 1944,* Pseudoeurydesmella *Schubart, 1951,* Peltoeurydesmus *Schubart, 1956, and* Aneurydesmus *Schubart, 1956; variations in ozopore formula being dismissed as generic or subgeneric characters. The status of the old names* E. angulatus *and* Leptodesmus biconicus *is discussed in detail;* Polydesmus zebratus *Gervais is brought into* Eurydesmus *with* E. ruidus *Schubart as a junior synonym; the new name* E. brolemanni *is proposed for specimens from São Paulo incorrectly identified by Attems as* E. angulatus. *The 17 accredited names are tentatively arranged into four subgeneric groups.*

The subgeneric name Brasilodesmus *(Brölemann, 1929) is revised as the valid designation for a group of ten species chiefly from São Paulo with* B. paulistanus *as the type, the gonopods of this species and those of* B. corrugatus *and* B. centropus *are illustrated; taxonomic notes are provided for most of the recognized forms.*

A new generic name, Henrisaussurea, *is proposed for a group of species related to the type* H. corcovadis *(Brölemann); the remarkable history of the latter is discussed in detail with* L. biconicus *Attems,* L. cerasinus *Attems, and* L. jawlowskii *Schubart considered as junior synonyms.*

INTRODUCTION

Knowledge of the diplopod fauna of Brasil, from its humble beginnings in the papers of Perty (1833), Mikan (1834), and Brandt (1833-40) increased slowly and sporadically for seven decades to a brilliam pinnacle in the great work of Brölemann in 1902, which described many new species in a most exemplary fashion. Regdettably, except for a few short papers by Brölemann and Attems, no further interest in Brasilian millipeds was evidenced until the end of the 1930's when Otto Schubart — already an outstanding student of European forms — took up resi-

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dence in São Paulo and contributed a large number of important studies spanning a time period of nearly 30 years.

Most of Schubart's work on the polydesmoid forms might be regarded as notably conservative with respect to generic concepts. No doubt this philosophy can be attributed to two factors: (1) early training and experience in connection with the relatively well-known Palearctic fauna most of the genera of which had already been defined and named by K. W. Verhoeff, and (2) the fact that most of the existing literature on Brasilian millipeds was itself quite reactionary. From his early practice of following both Brölemann and Attems in the very broadest concept of such names as *Leptodesmus*, Schubart eventually realized the practical necessity for finer division and more homogeneous groupings, but his untimely and lamented death in 1962 intervened before more than a mere start had been made in refinement of classification.

In recent years it has been my priviledge to examine numerous collections of millipeds from many parts of Brazil, collected and autopsied in connection with helminthological studies commenced by Prof. Lauro Travassos and continued by Dr. G. R. Kloss of the Museu de Zoologia. The heterogeneity of such names as *Leptodesmus* in the current sense — long suspected from only the study of literature sources — now became fully confirmed, and I found it necessary to devote considerable time and energy to an evaluation of the family Chelodesmidae and its internal classification.

Some preliminary results of this work have appeared in the first four parts of the present series of papers. In the latest contribution I wish to provide the validation of some new species noted in the autopsied specimens sent for identification, as well as the clarification of the taxonomic status of several important Brasilian genera. As will be readily apparent, only a start is made toward an eventual resolution of the many existing problems and allocation of species which remain at the present uncertain as regards their generic affinities.

Nonetheless, it is hoped that this paper will be followed in due time by others of the same kind, as well as more detailed accounts of various genera, and that some practical end will be served by the restoration of many valid but forgotten names to their correct status. The following discussions will doubtless make quite clear the fact that far too often the principles of nomenclature have been sacrificed to the interests of expediency. A good example is the practice, now fortunately very rare, of declaring any briefly defined name a *nomen nudum* and thus disposing of nomenclatorial difficulties. Like sweeping dirt under the rug, the procedure did not really dispose of anything, it only postponed and intensified the trouble for later workers!

Much of the early work on diplopod classification was done by entomologists who were accustomed to basing both specific and generic names upon external modification of their specimens. Although such celebrated myriapod specialists as Graf Attems, Silvestri, Cook, and others of this century fully realized the basic importance of male genitalia in diplopod classification, they — and many of the younger workers in-

fluenced by them — continued to establish genera upon minor deviations from the body form which they considered typical of a given genus. In many cases, such generic separations were made solely on the basis of a single character even though full agreement obtained in all other parts of the organisms. In particular, the characters of ozopore distribution and the degree of development of the paranota of polydesmoids have been flagrantly misused. It is now the opinion of most recent specialists upon Diplopoda that variation in these two features carries only specific value and that generic concepts in particular must be drawn almost exclusively from gonopodal structures.

In the past few decades most specialists interested in polydesmoids have appreciated the importance of uniform orientation of the gonopods during illustration and description, the medial view being that commonly employed. However, it is now becoming increasingly necessary that gonopod anatomy be studied and accounted in considerable detail, in particular the course and direction of the seminal groove and the presence and structure of sternal remnants between the coxae.

Additional clues about relationships may be drawn in many cases from rather subtle details such as the occurrence and distribution of macrosetae on the gonopod coxa, which appear to be remarkably constant even when the telopodite structure is highly modified and obscured as to homology.

It must be recalled, also, that rather considerable changes in the higher classification of the polydesmoids have been made since the publication of Graf Attems' monumental treatment of the order in *Das Tierreich,* lief. 68-70 (1937-1940). The family Leptodesmidae in the sense of Attems and also of Schubart is now divided into several distinct families, and the fragment containing the South American forms is now properly called Chelodesmidae, a valid name having several years priority over Leptodesmidae.

Although the Chelodesmidae, as presently conceived, is endemic to South and Middle America, it encompasses a great variety of forms that reflect large-scale evolution. Certainly a number of subfamilies and tribes must be eventually defined; possibly some of the chelodesmid genera of northern South America will be found not confamilial with the more typical members of the family. I think it is obvious that a satisfactory suprageneric classification will be constructed from the base upwards, and can not be achieved until the genera themselves are worked out, although I have gone so far as to adapt an existing group name (Telonychopidae Verhoeff) to denote tribal rank for several related genera.

I have to acknowledge the importance of financial aid from the National Science Foundation in making possible visits to European museums for the study of old type specimens, and to those in charge of these collections for their unfailing courtesy and aid during researches. The importance of material sent from the Museu de Zoologia will be apparent from the numerous citations in virtually every specific account.

NOTES ON TAXONOMIC CHARACTERS

Ozadenes. In the great majority of polydesmoid species, glands capable of secreting a volatile defensive fluid are located in the metazona of segments 5, 7, 9, 10, 12, 13, 15, 16, 17, 18, and 19. However, various departures from this "normal" distribution occur. Sometimes these glands occur also in segments 8, 11, and 14 (they are still unknown in segment 6), and often occur in a greatly reduced sequence on only four segments, or one, and are ocasionally missing completely. Hitherto the presence, absence, or sequence of the glands have been awarded a high order of importance in taxonomic studies, and the slightest variation from a previous known pattern considered as of at least generic value.

Interestingly enough, despite this considerable emphasis, the glands have so far been given only vernacular designations: *Wehrdrüsen; glandes repugnatoires;* repugnatorial glands; even "stink glands". The external openings of these glands are referred to in the literature as *foramina repugnatoria, Saftlöcher,* repugnatorial pores, or merely as "pores". In the belief that short anatomical terms with a classical origin are preferable to awkward or even silly vernacular names, I have recently introduced the term *ozopore,* and now wish to complete the terminology with the addition of *ozadene* to refer to the gland itself (from the Greek *ozo-*, a prefix meaning "a bad smell" + *adenos,* a gland).

In my view, the importance of these structures in taxonomy has been greatly exagerated. The literature is replete with "genera" which can be distinguished only by the presence or absence of the glands (and pores) from a given segment, and it seems ill advised to attach such inordinate value to a single, serially homononymous character when other parts of the animals concerned may be virtually identical in detail.

Further, I would suggest that variation in the pore distribution be accorded at most specific importance, or not even that, if no correlated differences in gonopod structure or body form is evident. On the other hand, it appears that the *position* of the ozopore upon the metazonal surface is potentially of considerable significance, as different expressions of this variable appear to be constant at the family or subfamily level at least in polydesmoids. It appears to me generally that any so-called genus based upon a single character, whether it be pore formula, segment number, scobinae, antennal sensory cones, presence or absence of paranota, or small details of gonopod structure, should be regarded with suspicion.

Gonopod coxal setae. In various previous papers I have remarked the apparent systematic value of sternal and coxal morphology among polydesmoid milllipeds, including reference to the fact that the families Chelodesmidae and Xystodesmidae can be easily distinguished by a difference in the position of the solenite on the distal end of the coxa. Apparently coxosternal structure is considerably more stable and characteristic within suprageneric categories than the form of the telopodite which differs with each species. This fact has of course been appreciated by previous authors who have distinguished genera or subgenera by coxal characters, but has certainly not been fully exploited by recent students

who still look only at the telopodites. In working with Brasilian material, I find that the distribution of the larger coxal setae offers remakable clues about affinities of chelodesmid species that might be extremely difficult to detect if only the very plastic telopodites were taken into account.

The common arrangement is the occurrence of only two macrosetae, placed on the dorsal side of the coxa near its distal end and usually adjacent to the base of the coxal apophysis, if one be present. But other situations occur. In some forms the normal number of dorsal setae is replaced by a small cluster of a dozen or more such hairs; in others, such as *Arthrosolenomeris,* setation is profuse also on the lateral side of the coxa. A number of species are known to have a field of setae on the median side, just below the base of the solenite, suggesting the condition that characterizes the African group Prepodesmidae. Finally, certain forms show a median series of typically four macrosetae in an oblique row.

Now obviously, the disposition of coxal setae in itself is no generic criterion, but does constitute an indication of some kind of affinity that may be confirmed by other gonopodal characters. As a point of fact, the present concept of *Leptodesmus* was derived largely in this way. When the gonopods of all species having four median setae were compared collectively, it became immediately apparent that the form of the prefemoral process and termination of the seminal groove were likewise similar in structure. With the nucleus of a group thus established, it was easy to add still other forms which although obviously related, may differ in one or two characters. That such groupings are homogeneous is, I think, easily provable to anyone who wishes to check out the original illustrations against the genera treated in this and later parts of the "Chelodesmid Studies". Whether the groups are generic or subgeneric in value will of course have to be established by a concensus at some far distant time.

Leptodesmus de Saussure

Leptodesmus de Saussure, 1859: 323 (Proposed as a subgenus of *Polydesmus,* with five new species); Pocock, 1909: 161.
Leptodesmus, Groups c and f; Schubart, 1946: 187, 188.
Goyazodesmus Schubart, 1952b: 447 (Proposed with one new species). *Syn. n.*

Type-species: Of *Leptodesmus, Polydesmus* (*Leptodesmus*) *carneus* de Saussure, 1859, by subsequent designation of Pocock, 1909; of *Goyazodesmus, G. cuspidatus* Schubart, 1952, by monotypy and original designation.

Diagnosis: A genus of small to moderately large chelodesmids (ca. 30-70 mm. in length), the body widest at segment 2 (or 2 and 3), thereafter nearly parallel-sided back to about 15th segment. Paranota moderate to relatively large in size, set high on sides of body and im-

parting a nearly flat dorsal surface especially in males, those of anterior third of body usually in contact or slightly overlapping; anterior corners rounded, posterior corners either rectangular on most segments or becoming produced beyond the anterior third of body. Metaterga smooth and polished. Peritremata moderate in size, continuous with scapulorae and not set off by anterior notch or other interruption. Antennae long and slender, longer than maximum body width; 7th article with distinct rounded sensory organ on outer side. Sterna moderately broad and elevated, sparsely setose or glabrous, unmodified or produced into low subcoxal lobes; sternum of 5th segment with a pair of paramedian knobs, often present also on segment 4. Anterior legs of males with tibial pads and small distal prefemoral knobs, sometimes all or most of the legs are so modified. Pleurosternal lateral carinae usually prominent as far back as midbody segments.

Gonopod aperture moderately large, extending into ventral part of prozonite, and transversely oval, its caudolateral edge usually elevated just in front of the 8th legs. Gonopods variable in relative size, those of the larger species elongated and prominent, extending forward over sternum of 6th segment. Coxae moderate to large in size, subglobose, with elongate and prominent coxal apophysis projecting laterad along base of prefemur, normally four macrosetae in a row on distomedial face but a few species with more numerous setae in an irregular field; no median sternal remnant but lateral elements fused with coxae, and robust trachial apodemes, are distinct. Telopodite set against coxa at a right angle, the prefemur short and densely setose as usual, with a prefemoral process of very variable size and complexity, normally as long as acropodite or nearly so, and usually with a short, truncate, retrorse basal projection on the medial side. Acropodite variable in structure, only as long as prefemur in small species but relatively much longer in the large forms, seminal groove basically median in its course, running directly up the telopodite to a termination between two distal folds of the telopodite; sometimes the folds are so closely appressed as to conceal the end of the groove but normally there is an evident small terminal chamber into which the groove debauches (occasionally on a minute projection, as in *L. carneus* (fig. 6) ; telopodite normally without accessory branches or other modification; and no evidence of torsion occurs in the genus.

Notes: The name *Leptodesmus* has endured over a century of nomenclatorial vicissitudes without any evident amelioration down to the present time. Originally proposed as a subgenus of *Polydesmus*, it included five species of which only two remain chelodesmids, the others being referable to the families Xystodesmidae, Rachodesmidae, and Platyrachidae. None of the five members was designated as type-species until 1909, although both Brölemann and Silvestri had earlier listed *L. sallei* de Saussure, 1860, as the type. By its own author, *Leptodesmus* was regarded as a junior synonym of the (preoccupied) name *Oxyurus* Koch, 1847.

Generally, however, the name was associated by workers of the last century with the group of polydesmoids now included in the family Chelo-

desmidae, and more or less accidentally happened to become fixed upon a Brasilian genus. By the time that Pocock finally secured the typification of the name in 1909, more than a hundred species had been described in *Leptodesmus* or its synonyms *Odontopeltis* and *Oxyurus,* 56 such names being credited to Brasil alone by Brölemann in 1909.

Little attempt was made to distinguish subgroups of this great melange until 1929, when Brölemann proposed a subgenus *Brasilodesmus* (see page 260) for his "*paulistus* group" of species. In 1931, Graf Attems proposed to recognize two allied genera, *Leptodesmus* and *Pseudoleptodesmus,* the former to include species having a "normal" gonopod coxa, the latter defined for those in which the "Gonopodenhüfte lateral weit vorragend, so dass das Femur ganz oder zum grosten Teil verdeckt ist." *Leptodesmus* was in turn divided into two subgenera, *Leptodesmus s.s.* in which a dorsal apophysis is present on the gonopod coxa, and *Desmoleptus* in which the apophysis is lacking. *Pseudoleptodesmus* was rendered into a nominate subgenus for species lacking the coxal apophysis, and *Brachyurodesmus* for those in which it is present. In 1938, Attems combined all four of these "subgenera" into a single genus *Leptodesmus,* comprising 50 known and 34 uncertain species. I have previously expressed the opinion that this arrangement is one of the most arbitrary and indefensible ever proposed as a generic group although at least it represented an attempt to break "*Leptodesmus*" down into smaller units.

In his generally excellent work on Brasilian chelodesmids, Schubart set up some new genera from time to time for species which did not "key out" to *Leptodesmus* in Attems' 1938 work, but in general he never seriously questioned the homogeneity of the Attemsian generic concept. In 1946, he published a new classification of *Leptodesmus* in which subgenera were ignored, and the species dispersed amongst 11 groups which he maintained for the remainder of his career, except for group "e" which he raised to subgeneric rank in 1958 under the name *Oncoleptodesmus,* and group "d" which became the subgenus *Gonioleptodesmus* in the same paper. In his last years Schubart adopted a more analytical approach to his studies, and it seems likely that he would have continued the process of isolating and naming the Brasilian species-groups in the Chelodesmidae.

On numerous occasions I have expressed the belief that in the early stages of taxonomy in any group, an ultra-conservative approach creates far more confusion and inertia than any amount of "splitting." It is far easier to recombine small or monotypic genera than to analyze a huge unwieldy melange, and if a few names are found to be redundant, no great harm is done. It seems to me that people are more inclined to pay attention to named aggregations of species than to groups merely designated by letters or numbers! Perhaps as a reaction to the previously-mentioned state of confusion in "*Leptodesmus*", I propose to continue the application of a very stringent concept to the chelodesmids generally, with the observation that the resulting categories still appear to be as soundly based as the majority of genera in most other animal groups.

The examination of a considerable number of species of Brasilian chelodesmids has made it possible to utilize literature accounts and illustrations with some degree of confidence, although inevitably a number of species must remain uncertain until they can be restudied. In the present instance, on the basis of the diagnostic characters set forth in a preceeding paragraph, it is possible to recognize a genus *Leptodesmus* which although rather narrowly defined still contains no less than 21 species and which will probably be at least tripled in size by future discoveries.

The typification of this genus remains a little uncertain, since we are not absolutely certain of the identity of the type-species *L. carneus*. The name was based (1859) upon specimens labeled only "Brésil" in the Geneva Museum, in the following year de Saussure recorded the species also from Bahia. In 1872, Humbert & de Saussure listed *carneus* from Rio de Janeiro.

J. Carl published a redescription in 1903, including drawings of the gonopod, made from two males in the Geneva Museum which he stated to be "Originalexemplare von Saussure." This was later challenged by Pocock (1909: 162) who claimed that the original types were a female and immature male from Bahia. Apparently Pocock was unaware of the 1859 paper, and presumed that the name was first published in 1860 and based on the Bahia material. It appears reasonable to me to assume that Carl had good reasons for using the term "Originalexemplare" and to question not his usage of the name, but rather that of de Saussure in 1860. Until something more definite can be shown about the background in this case, I find no reason to doubt Carl's authority, and here propose to follow his precedent.

Through the kindness of the late Dr. H. Gisin, I was able to re-examine the material studied by Carl, and present here some new drawings of the gonopod structure to show especially the distal end of the seminal groove. *L. carneus* is the largest known member of the genus, and shows its characteristics in a very clear way. Superficially there appears little resemblence between *carneus* and the much smaller forms placed by Schubart in *Goyazodesmus*, but I think there is a complete spectrum of intermediate forms between these two extremes.

Species: 21, listed in alphabetical order as follows:

Leptodesmus acuminatus, sp. n.

(Figs. 1, 2)

Type-specimens: Male holotype (MZUSP 1313), from Fazenda Aceiro, near Jataí, Goiás, Brasil, collected in November, 1962, by members of the Departamento de Zoologia Expedition. Male topoparatype (RLH) with the same data.

Diagnosis: Closely related to *L. cuspidatus* Schubart, likewise from Goiás, in size, general appearance, and gonopod structure, but differing in details of coloration, in the more elongate and curved gonopod telo-

podite with a shorter prefemoral process, and in a much shorter series of tibial pads.

Description of holotype: Adult male, 39 mm in length; the widths of selected segments (across paranota) as follows:

Segment 1	4.7 mm	Segment 10	4.7 mm
2	5.3 mm	12	4.6 mm
4	4.9 mm	14	4.4 mm
6	4.6 mm	16	4.4 mm
8	4.5 mm	18	3.0 mm

Width/length ratio (at segment 10): 12%. Depth of segment 12, 3.7 mm; depth/width ratio at this segment: 80.4%.

Coloration dominantly uniform reddish, probably bright red in life, with legs, antennae, bases of mandibles, edges of genae, caudolateral tips of paranota, apex of epiproct, and entire margin of collum, bright yellow. Anterior segments likewise with a broad transverse yellow stripe on edge of metazonite, on midbody and posterior segments this band becomes a broad sublunate median spot not in contact with the yellow paranotal spots. Concealed part of prozonites yellowish-white; dorsal red coloration more intense in the stricture. Sides and podosterna paler reddish.

Dorsally the segments are smooth and polished, without microsculpture or setation even on posterior metazonites. Paranota of anterior segments wide, nearly transverse, and overlapping, those posterior to 5th becoming progressively smaller and more widely separated, the anterior corner strongly rounded off; poreless paranota all slightly narrower than the adjacent poriferous paranota. Stricture distinct but not sharply edged dorsally, no distinct suture or costulation evident. Surface of prozonites minutely textured, a little duller in appearance than the metazonites.

Head smooth and polished, width across genae 3.7 mm, latter scarcely convex and without median depression, narrowly margined laterally. Labrum slightly depressed but not otherwise set off. Facial setae as follows: epicranial not evident (perhaps rubbed off); interantennal 1-1; subantennal 1-1; genal about 5-5; lower facial setae more irregular but about 4-4 frontals, merging into genal series; 10-10 clypeals; 18-18 labrals, merging laterally into lower end of genal series. Epicranial suture prominent, impunctate, forked between antennae. Surface of head not prominently rugulose behind antennal sockets.

Antennae moderately long (ca. 7.3 mm) and slender, extending back to middle of 3rd paranota; antennomeres 2-6 similar in size and proportions, each slightly clavate distally; lengths as follows: lst, 0.5 mm, 2nd, 1.4 mm, 3rd, 1.3 mm, 4th, 1.3 mm, 5th, 1.3 mm, 6th, 1.2 mm, 7th, 0.3 mm. 7th antennomere semiglobose with a small but distinct convex sensory organ on the outer side; distal edge of 7th inturned as usual separating the four sensory cones into two unequal diads. Antennae

nearly glabrous at base, the articles becoming relatively thickly setose beyond the 3rd.

Collum wider than the head, lateral ends depressed; the surface overall smooth and polished, no setae or sockets evident. Anterior edges set off by distinct fine marginal groove up to level of mandibular base. Segments 2-5 with rather broad, transverse, subquadrate paranota, posterior to 5th the latter become smaller and widely separated, the anterior corners sharply rounded off and oblique, posterior corners rectangular back to about the 15th segment posterior to which they are produced into small acute lobes; scapulorae submarginal on paranota posterior to 5th, merging into rather smal, short, pyriform peritrematic swellings which on poriferous segments project prominently when seen in dorsal aspect.

Limbus narrow and unmodified.

Epiproct relatively elongated and subcylindric, with the usual whorls of setae; paraprocts nearly flat, smooth, and unmodified, the margins compressed and elevated as usual. Hypoproct broad, subtriangular, unmodified, with a moderate apical projection and two small, flattened setiferous tubercules at its base, these not attaining the margin.

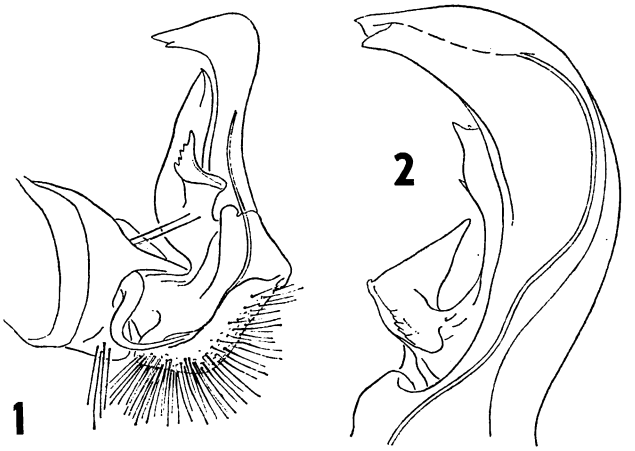
Sides of body unmodified except for the presence of prominent pleurosternal carinae on anterior segments, beginning on segment 2, largest and sharpest on segment 7, thence becoming smaller and no longer evident beyond segment 12. Coxal condyles small, projecting. Stigmata small, similar in size and appearance, elongate-oval, not distinctly elevated above surface; posterior stigmata located about midway between the dorsal coxal condyles. Stricture sharply defined down sides and across ventrum, the prozonite forming an overhanging edge.

Legs attached to moderately elevated podosterna with a shallow longitudinal median impression and somewhat deeper transverse groove, the subcoxal fields thus formed sparsely invested with short brown setae, but not produced at bases of legs. Sternum of 2nd pair of legs loosely pivoted upon sockets at ends of the pleurotergum of 3rd segment, coxae of these legs subconically produced with opening of the vasa deferentia on the inner face of the cones. Coxae of 3rd pair of legs set close together, separated by two paramedian sternal folds. Sternum of segment 5 with two pairs of low, indistinct paramedian processes between the legs; of segment 6 with two processes in front and shallowly excavated behind to accomodate apices of gonopods.

Gonopod aperture relatively large (2.0 mm wide) and transversely oval, extending forward into the prozonite and caudally between bases of 8th pair of legs, lateral and posterior edges elevated, anterior edge flush with prozonal surface.

Legs moderately long and slender, the podomeres setose dorsally and ventrally; prefemora of all legs with a small but distinct, subacute convexity at ventral end of prefemora; relative lengths of podomeres $8 > 5 > 6 = 4 = 2 > 1$. Small tibial pads present back to about middle of body. Tarsal claws nearly straight. Anterior legs without femoral glands or other modifications.

Gonopods relatively short and massive, similar to those of *cuspidatus* and *tridentatus* in the shortened and distally unmodified telopodite. Coxae large, subcylindric to slightly compressed dorsoventrally, with the usual slender apophysis projecting laterally to the prefemur; two dorsal macrosetae and a group of four median setae below the solenite. No trace of sternal remnant, the coxae in contact medially and attached by connective tissue only. Prefemur relatively large, nearly half length of telopodite, bent into nearly a 60° arc as seen in medial aspect; prefemoral process simple, laminate, distally acute with a few small terminal denticles, its basal process large, transverse, with an elongate distally directed termination, denticulate on the medial and dorsal edges. Acropodite not sharply set off from prefemur, simple, unmodified, its distal fourth abruptly bent dorsolaterad and drawn out into an acuminate ending, the seminal groove concealed distally by a very thin overlapping fold visible only with high magnification and nearly tangential illumination.



Leptodesmus acuminatus, sp. n.: 1, left gonopod, medial aspect; 2, distal half of same gonopod, much enlarged, ventral aspect, showing termination of the seminal groove.

Relationships: Both geographically and structurally, this species is related clearly with *cuspidatus* and *tridentatus* and thus referable to a group that was considered by Schubart to be a separate genus called by him *Goyazodesmus*. It appears to me, however, that these forms are connected with *Leptodesmus* by a series of intermediate species as will be mentioned in a later discussion on page 232.

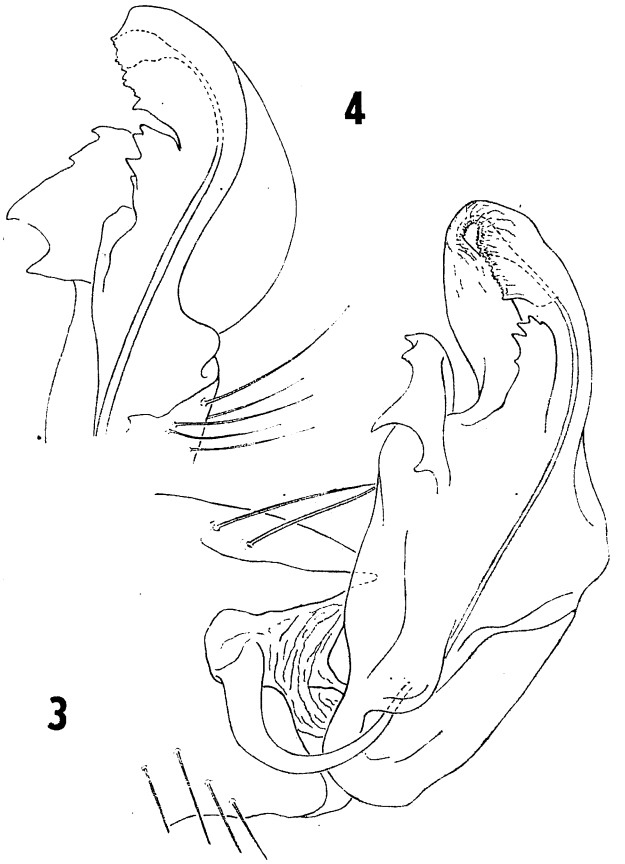
Leptodesmus badius Attems

(Figs. 3, 4)

Leptodesmus badius Attems, 1944: 224, fig. 4. [Holotype, ♂, Naturh. Mus. Wien, from "St. Luis" (presumably a Brasilian locality but not yet identified precisely)].

Attems' description and illustration of this species are generally accurate, as I could verify by a reexamination of the type in 1964. New gonopod drawings are given here for comparison with other species. Although *badius* is quite clearly a member of *Leptodesmus,* it occupies a somewhat disjunct position and I cannot place it confidently in a group with any other known to me. The extremely short acropodite of the gonopod is distinctive, as well as the dentate basal process on the medial side. Attems' drawing shows the seminal groove to end just beyond this process and with good cause — only after protracted study with strong magnification (90 X) was I finally able to detect that the groove runs beneath a very thin overlapping fold of the dorsomedial margin as shown in figure 4.

The coxal setae are likewise unusual in forming an axial series rather than an obliquely transverse row.



Leptodesmus badius Attems: 3, Left gonopod of male lectotype, medial aspect; 4, distal half of same gonopod, much enlarged, to show termination of seminal groove, ventromedial aspect.

The species remains known only from the type-series, of which a male was isolated and labeled as "lectotype" by me in 1964. These specimens were collected by the Austrian arachnologist Reimoser, and perhaps a clue to the location of "St. Luis" can be found among his publications.

Leptodesmus bidenticulatus Schubart

Leptodesmus bidenticulatus Schubart, 1960b: 458, fig. 8 [Holotype, ♂, Museu de Zoologia, São Paulo, from Fazenda São José de Varjão (Mun. Monte Aprazível), São Paulo].

Leptodesmus carneus (de Saussure)

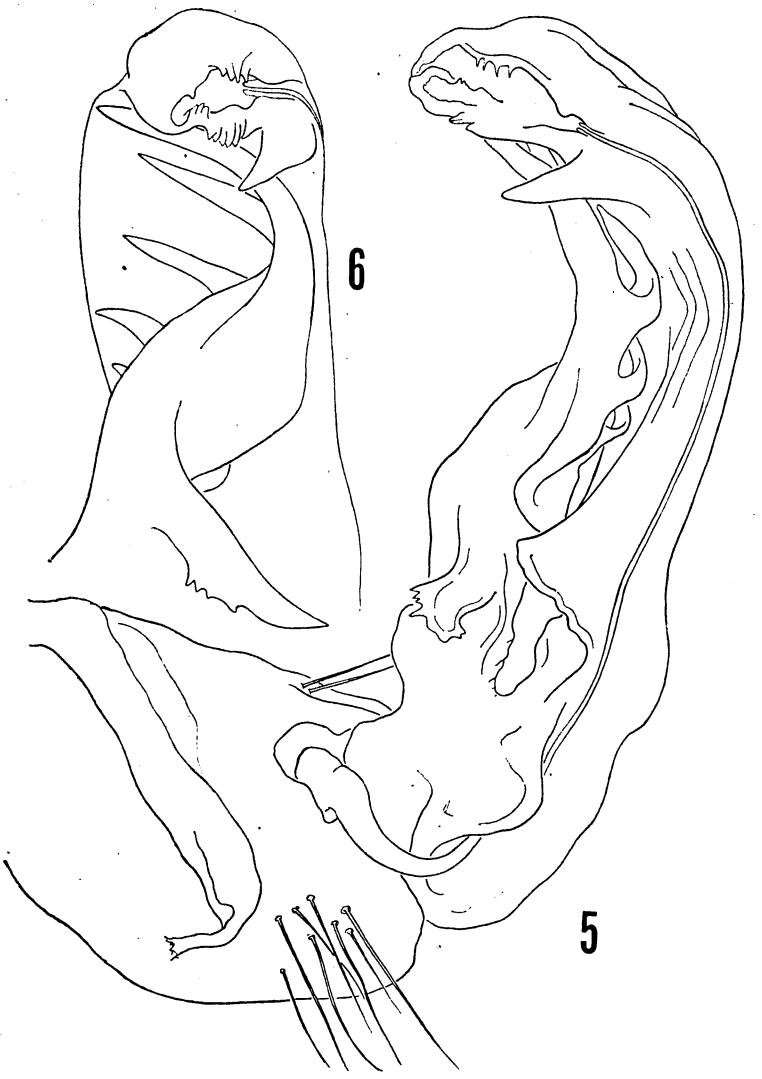
(Figs. 5, 6)

Polydesmus (*Leptodesmus*) *carneus* de Saussure, 1859: 324.

Leptodesmus carneus; Carl, 1903: 547, figs. 7, 8, 9, 12 (redescription of the "Originalexemplare" of de Saussure); Pocock, 1909: 162; Schubart, 1946: 190; Chamberlin, 1952: 568 (recorded for Teresópolis, RJ).

The history of this species has been reviewed under the generic heading, and may be omitted here. Carl's redescription of the types is entirely satisfactory and his gonopod illustrations are accurate except that the basal cristate lobe of the prefemoral process is shown inaccurately on figure 8 as projecting distally, whereas the correct orientation is proximally as clearly indicated in his figure 7. In 1964 I had the opportunity to restudy the same material and present here two new drawings to show the detailed structure more clearly. The edges of the distal end of the telopodite are rolled together to form a chamber into the base of which the seminal groove discharges, but in *carneus* this chamber is considerably more open than in the other members of the genus, and in dorsal aspect (figure 6) it is possible to look directly inside. However this is a matter of degree only and I think that the structural relationships are the same as occur in the smaller species. The basal lobe of the prefemoral process certainly seems to be homologous to the structure present in the same location in many of the other species referred to this genus, including *L. cuspidatus* which Schubart made the type of *Goyazodesmus*.

So far this majestic animal has been found only at "Rio de Janeiro" (Humbert & de Saussure, 1872) and Teresópolis (Chamberlin, 1952), and such apparent scarcity is certainly remarkable. Considering the fact that *carneus* was not found again around Rio by Schubart, Wygodzinsky, and other Brasilian collectors, it seems possible that it may really be endemic to the Organ Mountains, and the indication for "Rio de Janeiro" may have been based upon an indifferently-labeled sample.



Leptodesmus carneus de Saussure: 5, left gonopod, medial aspect; 6, the same gonopod, dorsal aspect of telepodite and prefemoral process, from male presumed to be a syntype (Mus. Genève).

Leptodesmus cochranae, sp. n.

(Figs. 7-10)

Type-specimen: Male holotype (U. S. Nat. Mus.) from Petrópolis (Mun. Petrópolis), Rio de Janeiro, collected on April 15, 1935, by Doris M. Cochran.

Diagnosis: A large member of the genus (exceeded only by *L. carneus*) characterized by the gonopod structure (Figs. 7-10); the telopodite is long and slender with the setose prefemur less than one-fourth total length; seminal groove running up the mesal side to terminate on a small projection at the entry of a distal chamber, this area subtended by an acute subtriangular mesal spur, telopodite otherwise unmodified. Prefemoral process robust, nearly as long as telopodite, distally bifid, with a prominent apically cristate lobe at about the midlength of the mesal side. Coxa large and robust, the two connected by a small sternum. Coxosternal elements (=*brides trachiennes* of Brölemann) large and prominent, partly occluding the internal coxal opening (Fig. 10); medial field of setae composed of about eight macrosetae in nearly an oblique series. Dorsal coxal apophysis acute and prominent as usual. All of the walking legs with distal prefemoral and tibial processes. Pleurosternal carinae not developed beyond 8th segment. Sterna broad, glabrous, produced into small subcoxal conicles.

Description of holotype: Adult male, 67.0 mm in length (approximate, the specimen fragmented); widths of selected segments across paranota as follows:

Segment 1	11.0 mm	Segment 10	12.1 mm
2	12.8 mm	12	12.1 mm
4	12.8 mm	14	11.4 mm
6	12.6 mm	16	10.6 mm
8	12.1 mm	18	7.5 mm

Width/length ratio at segment 6: 18.8%. Depth of segment 12, 9.0 mm, depth/width ratio at this segment: 74.3%.

Coloration uniformly light reddish-brown, ventral surface paler as usual; legs and antennae probably bright yellow in life.

Dorsum nearly horizontal, the paranota set high, rather narrow (less than 1/4th diameter of body cylinder), at least partially overlapping on most segments. Stricture without distinct transverse suture. Surface of prozonites virtually smooth, of metazonites, very prominently coriaceous.

Head completely smooth and polished, width across genal apices 7.0 mm, genae without evident median impression. Labrum depressed, colorless, set off by a distinct transverse labroclypeal ridge. Facial setae as follows: epicranial and supra-antennal not evident; interantennal 1-1, subantennal 1-1; genal 3-3, frontal 2-2, clypeal about 10-10, labral about 14-14. Epicranial suture distint, crossed by numerous fine transverse ridges; not forked between the antennae.

Antennae long (13.2 mm), extending back to middle of 4th paranota, slightly longer than greatest body width. Antennal articles slender, slightly clavate distally, articles 1-3 sparsely setose, the distalmost for increasingly setose toward the end; articles 2-6 similar in size and appearance, actual lengths as follows: lst, 1.2 mm; 2nd, 2.5 mm; 3rd,

2.4 mm; 4th, 2.3 mm; 5th, 2.3 mm; 6th, 2.2 mm; 7th, 0.4 mm. 7th article semiglobose, with a rounded sensory organ on the outer side, the distal edge inturned and separating the sensory cones into two unequal diads, distinct transverse sensory areas on outer ends of 5th and 6th articles.

Collum wider than head, lateral ends depressed; surface smooth and polished. Anterior edge set off by a fine lateral rim as usual, posterior edge continuous with surface.

Most body segments moderately convex dorsally, paranota continuing slope of middorsal region; only slightly directed cephalad, anterior corners of all segments rounded; posterior corners rectangular on anterior segments, becoming increasingly produced posterior to segment 10. Paranota of segments 17-19 becoming abruptly smaller, those of 19th merely small lobes just large enough to contain the pores, and set lower on sides than those of 18th.

Scapulorae of anterior and midbody segments distinctly marginal, anterior surface largely concealed in dorsal aspect. Peritremata moderately large and elongate-oval, occupying slightly more than half of paranotal ridge; pores located in prominent depression of posterior half of each peritreme. Limbus narrow and unmodified.

Distal half of epiproct broken. Paraprocts moderately convex and marked with profuse vertical striation. Hypoproct broad, semicircular, unmodified, with a blunt median projection and two paramedian setiferous tubercules.

Sides of segments unmodified except for an oblique longitudinal tuberculate ridge above bases of the legs of segments 2 through 8. Stigmata elongated vertical slits, distinctly raised above segmental surface, the anterior only slightly larger than posterior, latter distinctly separated from posterior coxal condyle. Stricture sharply defined down sides and across ventrum, prozonite forming a slightly overhanging edge.

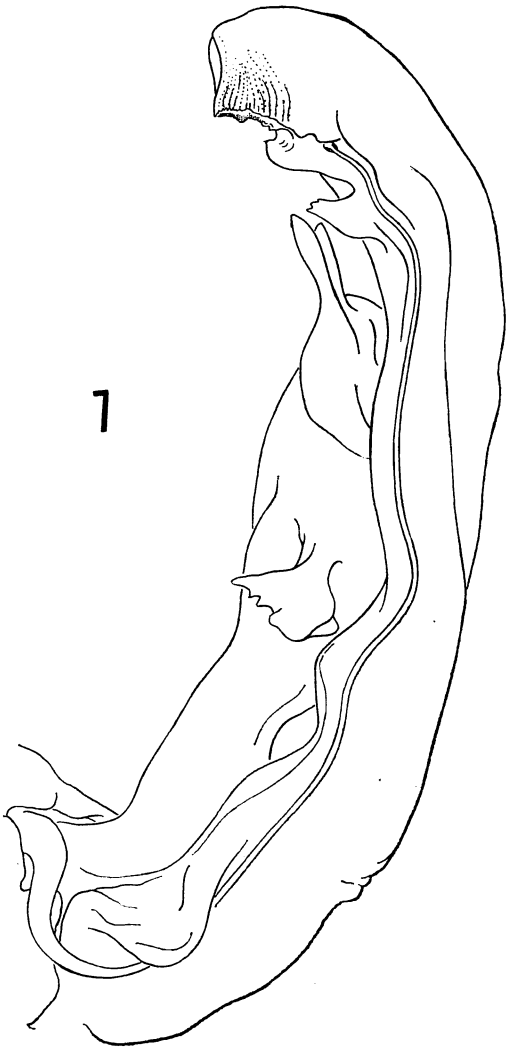
Legs attached to moderately developed, completely glabrous podosterna which are produced into small and indistinct subcoxal cones. Sternum of 2nd pair of legs moveably attached to pleurotergum of 3rd segment as usual, the coxae opening through short, acutely subconical seminal lobes.

Sternum of segment 5 with two elongated subcylindric, digitiform, medially contiguous processes between the anterior pair of legs; sterna between posterior pair of legs globosely inflated at base of each coxa and with a prominent deep longitudinal depression. Sternum of segment 6 convexly bilobed between anterior pair of legs; deeply excavated between the posterior.

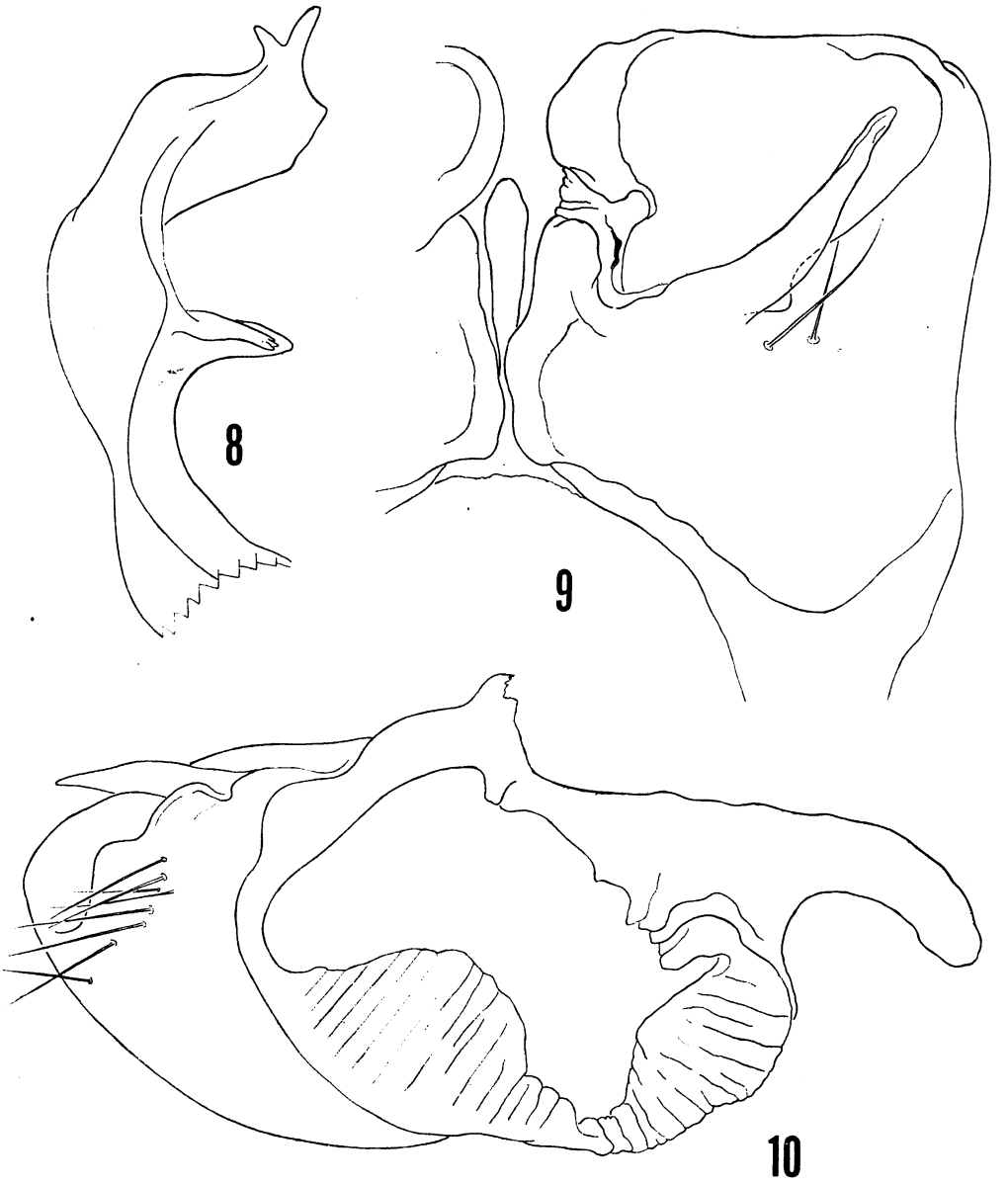
Legs slender, somewhat longer than greatest body width, vestiture reduced to a few sparse microsetae, a whorl of larger setae at the end of podomeres 3, 4, and 5, and about two dozen procumbent macrosetae on dorsal side of tarsus; coxae and prefemora each with an elongated median seta on ventral side; tarsal claw long, slender, nearly straight. Prefemora virtually cylindrical, not strongly convex dorsally. Relative lengths of podomeres: $3 > 6 > 5 > 2 > 4 = 1$. All legs with distal prefemoral knob and tibial pads, both becoming smaller caudally.

Gonopod aperture moderately large, extending partly into prozonite, and transversely oval, its edge strongly elevated in front of each leg and deeply emarginate between them, the sternal surface between the coxae considerably reduced and completely vertical.

Gonopods large and robust, extending forward between legs of 6th segment; of the form described under the specific diagnosis and illustrated in figures 7-10. Especially notable is the prominent distomedian projection of the telopodite subtending the end of the seminal groove, obviously homologous with a similar process in *L. carneus*. Median



Leptodesmus cochranae, sp. n.: 7, telepodite of left gonopod, medial aspect, from holotype.



Leptodesmus cochranae, sp. n.: 8, prefemoral process of left gonopod of holotype, dorsal aspect; 9, coxa of right gonopod, dorsal aspect, the solenite removed, showing the median sternal remnant; 10, coxa in medial aspect, to show the unusually prominent development of the sternal elements surrounding base of coxa.

cristate lobe of the prefemoral process large and located at about the midlength instead of near the base as in most species of the genus.

It gives me great pleasure to name this striking species for its collector, a longtime friend and an outstanding authority on the herpetology of tropical America.

Leptodesmus cristulatus Schubart

Leptodesmus cristulatus Schubart, 1955: 517, figs. 8, 9, 11 [Holotype, ♂, Museu de Zoologia, São Paulo, from Bueno de Andrade (Mun. Araraquara), São Paulo].

Leptodesmus cuspidatus (Schubart), comb. n.

Goyazodesmus cuspidatus Schubart, 1952b: 448, figs. 1-3 [holotype, ♂, Museu de Zoologia, São Paulo, from Inhumas (Mun. Inhumas), Goiás].

Leptodesmus defensus, sp. n.

(Figs. 11-14)

Type-specimens: Male holotype (MZUSP 1310) and two female topoparatypes (MZUSP 1311-1312), from Fazenda Aceiro, near Jataí, Goiás, Brasil, collected in November, 1962, by members of the Departamento de Zoologia Expedition.

Description of holotype: Adult male, ca. 40 mm in length (last three segments missing); segmental widths across paranota as follows:

Segment 1	4.4 mm	Segment 10	4.6 mm
2	4.8 mm	12	4.5 mm
4	4.7 mm	14	4.4 mm
6	4.7 mm	16	4.4 mm
8	4.6 mm	18	—

Depth of segment 12, 4.0 mm; depth/width ratio at this segment, 88.9%.

Coloration basically uniform reddish, probably bright red in life, with legs, antennae, bases of mandibles, edges of genae, caudolateral edges of paranota (chiefly the peritremes), bright yellow; no trace of transverse yellow bands on collum or following segments. Sides and podosterna nearly white.

Structurally very similar to *L. acuminatus* (see page 232), differing chiefly in the following points:

Paranota somewhat smaller and more depressed, yielding a relatively high D/W ratio of 89%. Peritremata smaller, less evidently pyriform in shape, and not projecting when seen in dorsal aspect, the pos-

terior corners rectangular only back to segment 7, thereafter becoming acutely produced but at the same time smaller so they do not project caudally behind posterior edge of tergites. Stricture not sharply defined dorsally and laterally, but with fine, distinct costulation.

Head of the usual appearance, smooth, polished, the epicranial suture not so sharply defined and not punctate, scarcely a trace of interantenal bifurcation. Genae evenly convex to the edge, no trace of lateral margins. Antennae somewhat longer in proportion to body size, extending back to middle of 4th paranotum, the actual length about 7.1 mm.

Legs attached to relatively high podosterna, these completely smooth and glabrous and without surficial impressions, but produced into small but distinct acute subconical tubercules immediately behind each ventral coxal condyle. Podomeres similar to those of *acuminatus* but the relative lengths slightly different: $3 > 6 = 5 > 2 > 4 = 1$. Tibial pads and prefemoral distal knobs small but evident as far back as 17th segment and probably occur on all legs.

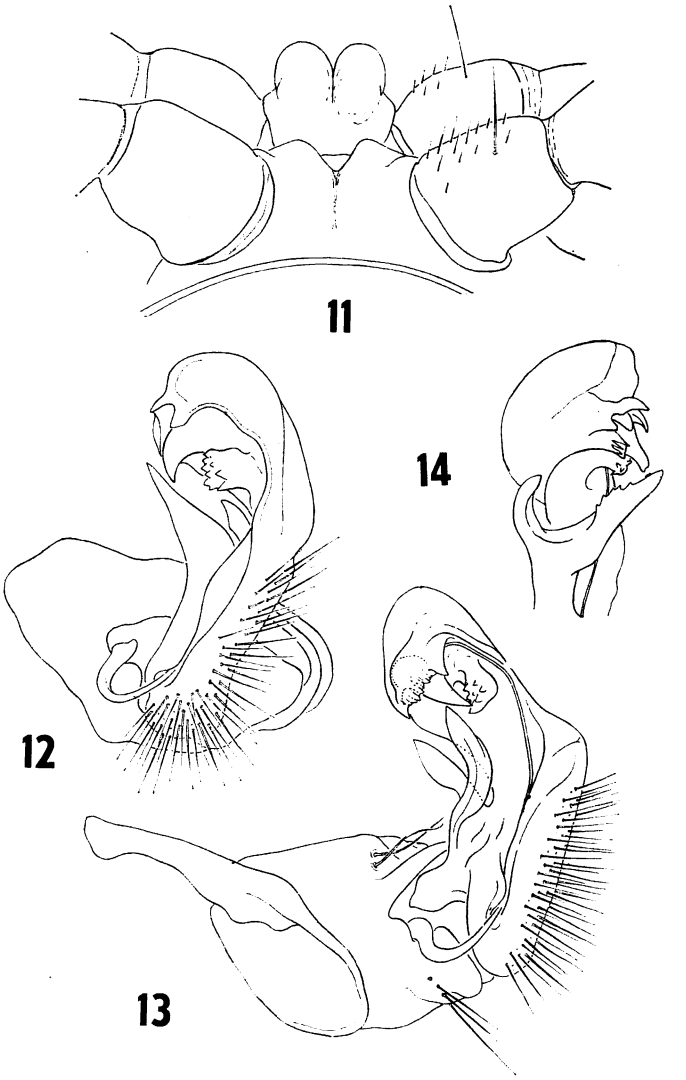
Sternal processes of anterior segments similar to those of *acuminatus* but relatively larger and more prominent, especially the anterior pair of segment 5, as illustrated in Figure 11.

Gonopod aperture large, transversely oval, the front edge flush with the prozonal surface, lateral and posterior edges prominently elevated, sternal surface between 8th pair of legs nearly vertical.

Gonopods of the form illustrated in figures 12-14. Telepodite relatively short and massive, the prefemur and acropodite forming an obtuse angle of about 135°; prefemur slightly more than half the telopodite length. Prefemoral process short, bifid, the medial branch larger with its dorsolateral edge denticulate, the lateral branch much shorter and simply curved arcuately. Inner surface of the acropodite with a short, bulky distally dentate lobe arising at the base of a thin falcate lamella the apex of which is recurved proximad toward the prefemur. Seminal groove visible most of its length in medial aspect, but the terminal part of the course concealed and the groove discharging into an internal chamber easily detected with reflected light and indicated by the dotted line in Figure 13.

Relationships: *L. defensus* is not easy to associate with other members of the genus. In general outline the gonopod suggests that of species in Group B, but the occurrence of the strongly dentate lobe on the inner side of the acropodite may reflect some affinity with *L. badius* as well. For the present time, *defensus* is referred to a position near *badius*, but with the suspicion that probably a special group should be set up for it.

Although superficially similar to *L. acuminatus*, with which it appears to be sympatric (there may be some local differences in the ecotypes of these forms), *L. defensus* can be easily separated by the very different gonopods as well as by non-sexual characters: absence of yellow metatergal crossbars, less strongly reduced anterior corners of the paranota, and by the glabrous, unimpressed sterna which are produced into subcoxal spines.



Leptodesmus defensus, sp. n.: 11, sternum and coxae of segment 5, posterior-ventral aspect; 12, left gonopod, ventromedial aspect; 13, left gonopod, medial aspect; 14, distal half of left gonopod and prefemoral process, dorsal aspect.

Leptodesmus dentellus Schubart

Leptodesmus dentellus Schubart, 1946: 173, fig. 5 [Holotype, ♂, Museu de Zoologia, São Paulo, from Nova Odessa (Mun. Americana), São Paulo]; 1952a: 404 (records for Muns. Leme, Analândia, Rio Claro and Pirassununga); 1955: 516, figs. 5, 6 (records for Muns. Analândia, Leme, Pirassununga and Campinas).

Leptodesmus forceps Brölemann

Leptodesmus forceps Brölemann, 1902: 61, figs. 30-33 [Syntypes, presumably in Museu de Zoologia, São Paulo, from Itapetininga and Alto da Serra (= Paranapiacaba), São Paulo].

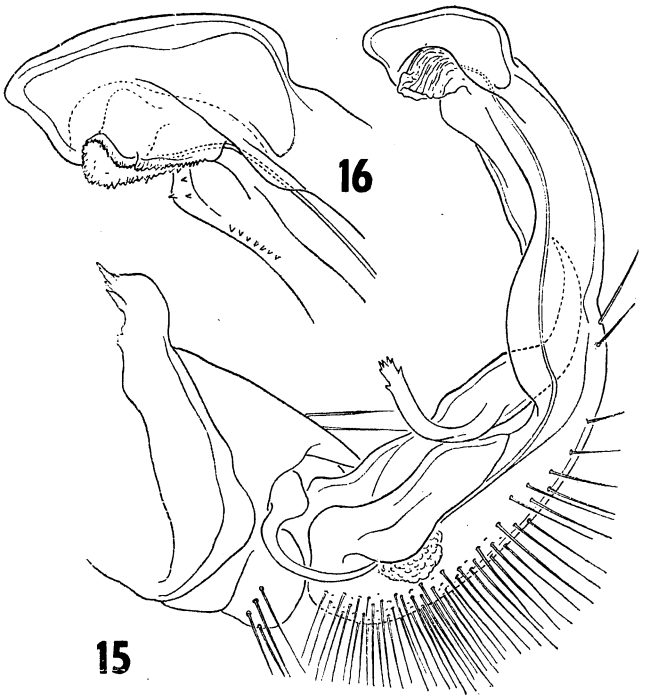
Leptodesmus geniculatus Schubart

Leptodesmus (*? Brachyurodesmus*) *geniculatus* Schubart, 1943: 150, figs. 51-54 (Holotype, ♂, Museu de Zoologia, São Paulo, from Ilha Sêca, São Paulo); 1955: 516 (records for Muns. Araçatuba and Anhangaí, S.P.).

Leptodesmus godoii Schubart

(Figs. 15, 16)

Leptodesmus godoii Schubart, 1946: 169, fig. 3 [Holotype, ♂, Museu de Zoologia, São Paulo, from Rio Sapucaí, Corredeira Alegre (Mun. Barra de São Joaquim), São Paulo].



Leptodesmus godoii Schubart: 15, left gonopod, medial aspect; 16, the same gonopod, distal end shown much enlarged in greater detail. Specimen from Orlândia, S.P.

This species has so far been recorded only from the type-locality and from Município Frutal, Minas Gerais. Material recently received from Dr. Kloss for identification included 2 ♂♂ and 1 ♀ of *godoii*, from Orlândia (Mun. Orlândia), São Paulo, collected in November, 1962, by an expedition of the Departamento de Zoologia.

The gonopod of one of the males has been drawn, showing general agreement with the original illustration by Schubart. Notable in this species is the rather short, simple, falcate prefemoral process with an unusually long and slender basal branch. The enlarged drawing of the telopodite ending shows clearly the hood-like structure characteristic of this genus.

Leptodesmus limbatus Schubart

Leptodesmus limbatus Schubart, 1955: 517, figs. 7, 10 [Holotype, ♂, Museu de Zoologia, São Paulo, from Novo Horizonte (Mun. Novo Horizonte), São Paulo].

Leptodesmus piraputangus Chamberlin

Leptodesmus piraputangus Chamberlin, 1952: 569, fig. 18 (cited as figure 16, but the numbers inadvertantly transposed and Fig. 16 on Plate III of this paper actually represents the gonopod of *Euphallus dybasi;* Holotype, ♂, Chicago Nat. Hist. Mus., from Piraputango, Mato Grosso).

This species is characterized especially by the strongly-developed prefemoral process which is both larger and longer than the rather abbreviated acropodite, the latter of the proportion seen also in *L. badius.*

Leptodesmus rostratus Schubart

Leptodesmus rostratus Schubart, 1955: 518, figs. 15, 16 [Holotype, ♂, Museu de Zoologia, São Paulo, from Franca (Mun. Franca), São Paulo].

Leptodesmus rubicundus Schubart

Leptodesmus rubicundus Schubart, 1960b: 456, figs. 6, 7 [Holotype, ♂, Museu de Zoologia, São Paulo, from a garden of the Departamento de Botânica, São Paulo (capital), São Paulo]

This is a rather disjunct species referred to this genus because of the series of medial coxal setae and Schubart's remark "Na construção dos gonopodios existe uma grande semelhança com as espécies *L. dentellus, limbatus, cristulatus,* etc..." The original drawings do not show

the end of the telopodite in sufficient detail, and the shortened, broadly laminate form of the prefemoral process alone justifies the allocation of *rubicundus* to a monospecific group.

Leptodesmus serrulatus Schubart

Leptodesmus serrulatus Schubart, 1955: 518, figs. 12-14 [Holotype, ♂, Museu de Zoologia, São Paulo, from Olímpia (Mun. Olímpia), São Paulo].

Leptodesmus stimulatus Schubart

Leptodesmus stimulatus Schubart, 1960b: 459, fig. 9 [Holotype, ♂, Museu de Zoologia, São Paulo, from Feiticeiro (Mun. Sto. Anastácio), São Paulo].

Leptodesmus triangularis Schubart

Leptodesmus triangularis Schubart, 1960a: 444, figs. 7-9 (Holotype, ♂ Museu de Zoologia, São Paulo, from the Posto de Piscicultura, Uberlândia, Minas Gerais).

Considered by Schubart to be related to *L. godoii*, but the original gonopod drawing suggests that the seminal groove runs out on a small distal branch not enclosed in a terminal chamber, and this point requires a restudy of the type. If this is found to be actually the case, probably *triangularis* should be referred to a different generic position. The prefemoral process is likewise unsual in being displaced completely to the lateral side of the telopodite in contrast to its normal dorsal location.

Leptodesmus tridentatus (Schubart), comb. n.

Goyazodesmus tridentatus Schubart, 1960a: 443, fig. 6 (Holotype, ♂, Museu de Zoologia, São Paulo, from Uberlândia, Minas Gerais).

Leptodesmus vagans Schubart

Leptodesmus vagans Schubart, 1944: 356, figs. 27-29 [Holotype, ♂, Museu de Zoologia, São Paulo, from Fazenda Pedra Branca (Mun. Pirassununga), São Paulo].

SPECIES GROUPS

At the present time, with most of the species of *Leptodesmus* known to me only through the publications of Schubart, it is not easy to draw up a classification of the genus that is entirely satisfactory. The general facies of body form and proportion can not be fully apreciated from even the best verbal descriptions, so that groupings must be made on the

basis of gonopod structure chiefly. In most cases the published drawings have been made from cleared microscopic preparations which do not show the fine structure of the telopodite at all clearly; for example in Schubart's illustrations the course of the seminal groove is rarely depicted accurately — the groove being shown to cross over projecting lobes and across sutures in a way anatomically impossible. However, by making comparisons on the basis of general overall appearance, and taking into account the factors of size, secondary sexual features of the males, and geographic distribution, one can develop a rendition of the genus into a number of groups which appear to be homogeneous. It must be emphasized that none of these groups are defined by exactly equivalent characteristics, however.

Group A. Very large species with elongated gonopods; coxal setae 8 or more in a distomedial field rather than a series of only 4; a prominent triangular lobe on inner side of telopodite just below ending of seminal groove; latter opening into a partially open terminal chamber.

L. carneus de Saussure. Rio de Janeiro, (?Organ Mountains).
L. cochranae, sp. n. Rio de Janeiro (Petrópolis).

Group B. Moderate-sized species with relatively short and massive gonopods, the acropodite only subequal in length to the prefemur, with which it forms usually an obtuse angle; prefemoral process laminate, one edge usually serrulate, basal lobe present or absent.

L. dentellus Schubart, São Paulo.
L. limbatus Schubart. São Paulo.
L. serrulatus Schubart. São Paulo.
L. cristulatus Schubart. São Paulo.
L. bidenticulatus Schubart. São Paulo.
L. piraputangus Chamberlin. Mato Grosso.
L. vagans Schubart. São Paulo.
L. forceps Brölemann. São Paulo.

Group C. Basically similar in structure to members of the preceeding group but the gonopod telopodite with a prominent slender outer lobe (?parasolenomerite).

L. geniculatus Schubart. São Paulo.
L. stimulatus Schubart. São Paulo.

Group D. Small species (25-40 mm in length), the gonopod telopodite apically simple and the usual terminal hood-like structure largely suppressed and difficult to see; prefemoral process with a large cristatedentate basal lobe.

L. cuspidatus (Schubart). Goiás.
L. tridentatus (Schubart). Minas Gerais.
L. acuminatus, sp.n. Goiás.

Group E. Medium sized species in which the telopodite of the gonopod is extended as a large prominent lobe beyond the distal chamber in which the seminal groove terminates; prefemoral process unusually broad and laminate, curving around the lateral side of the acropodite base, without a cristate basal lobe on the medial side.

L. rubicundus Schubart. São Paulo.

Group F. Moderate to large-sized species, the acropodite of the gonopod shorter than the prefemur and with a prominent, distally dentate prejection on its inner basal side. Prefemoral process variable, but without cristate basal lobe.

L. badius Attems. [State unknown].
L. defensus, sp. n. Goiás.

Group G. Moderate sized species with long and slender gonopod telopodite, the acropodite section considerably longer than prefemur and not forming an obtuse angle with it; prefemoral process relatively short, slender, acuminate, its medial basal lobe unusually long and slender, terminally cristate as usual.

L. godoii Schubart. São Paulo.

Group H. Small species with relatively long and slender gonopod, acropodite longer than prefemur, the telopodite narrowest at midlength, becoming much broader distally; prefemoral process elongate, slender, distally acuminate, without medial basal lobe; structure of terminal chamber of telopodite not entirely clear from the original drawings but seeming to differ from the condition typical for this genus and perhaps warranting separate generic status; in other respects the gonopod is fairly typical for *Leptodesmus.*

L. triangularis Schubart. Minas Gerais.

Eurydesmus de Saussure

Eurydesmus de Saussure, 1860: 335; Carl, 1903: 544; Schubart, 1945a: 78; 1951a: 2; 1956b: 456.
Chelodesmus Cook, 1895: 5.
Pseudoeurydesmus Schubart, 1944: 361. *Syn. n.*.
Pseudoeurydesmella Schubart, 1951a: 12. *Syn. n.*.
Peltoeurydesmus (as subgenus of *Eurydesmus*) Schubart, 1956b: 456. *Syn. n.*.
Aneurydesmus (as subgenus of *Eurydesmus*) Schubart, 1956b: 456. *Syn. n.*.

Type species: Of *Eurydesmus, E. angulatus* de Saussure, 1860, by monotypy; of *Chelodesmus, C. marxi* Cook, 1895, by monotypy and ori-

nal designation; of *Pseudoeurydesmus, P. baguassuensis* Schubart, 1944, by original designation; of *Pseudoeurydesmella, P. bella* Schubart, 1951, by monotypy and original designation; of *Peltoeurydesmus, Eurydesmus alipioi* Schubart, 1945, by original designation; of *Aneurydesmus, Eurydesmus ruidus* Schubart, 1945, by original designation.

Until 1945, only one species was recognized in *Eurydesmus* although published accounts of *E. angulatus* from various Brasilian localities suggested that more than one species was confused under that name. In 1945, Schubart described six new species from the vicinity of Rio de Janeiro, and in later papers the number was increased to ten, dispersed among three subgenera.

The known range of the genus extends from Espírito Santo southward to Santa Catarina chiefly along the coast; one species is known from Minas Gerais (Mun. Viçosa) and several from inland parts of São Paulo (Mun. Monte Alegre do Sul). Unquestionably many new forms remain to be discovered and considerable revisionary work is yet to be done as regards the status of some existing names. Some preliminary notes and ideas are presented in the following pages, constituting the first serious attempt to reconcile both older and newer names based upon members of the genus.

The association of *Chelodesmus* with *Eurydesmus* was first formalized in 1950, even though Cook suspected the relationship as long ago as 1899. The following paragraphs treating *E. angulatus* contain a brief resume of the generic synonymy of these two names.

As discussed in a preceeding section, I cannot attach much systematic value to the variability of such characters as the distribution of ozopores, particularly when "genera" set up on such bases are not homogeneous in gonopod structure, or when groups so defined agree with established genera in all characters except one. In the present case, Schubart set up a genus *Pseudoeurydesmus* in 1944 for a single species having gonopods similar to those of typical *Eurydesmus* but in which the pores occurred on segments 5, 7, 9, 10, 12, 13, 15-19 instead of on 5, 7, 9-19. Later on, five additional small chelodesmids having the "normal" pore distribution were added to *Pseudoeurydesmus*, but in several cases the gonopods of these forms were more similar to those of various species of *Eurydesmus*, in the strict sense, than to those of the type-species *Pseudoeurydesmus baguassuensis*.

In 1956, Schubart proposed to divide *Eurydesmus* into three subgenera on the basis of gonopodal characters, as follows:

Peltoeurydesmus (type *E. alipioi* Sch.) was set up for a species in which there is a rounded lobe on the mesal side of the femur, and the prefemur is produced lateral into a prominent, setose, conical spur.

Aneurydesmus (type *E. ruidus* Verh. & Sch.) included two species in which the prefemoral process of the gonopod lacks a spinose basal branch characteristic of all other species.

Eurydesmus (type *angulatus* de Saussure) retained all of the species lacking the preceeding characters, and would also embrace *"Pseudoeurydesmella" bella.*

Now although there is no antecedent objection to the recognition of subgenera, it appears to me that *Eurydesmus* is still a sufficiently small and homogeneous ensemble that no practical end is really served by the introduction of these formal names. Admittedly the name *Peltoeurydesmus* appears to be based upon a rather divergent species, but my personal preference is for a series of species groups based on the overall appearance of the gonopods instead of genera or subgenera founded upon single and somewhat arbitrary characters of dubious systematic importance.

An additional generic name was established by Schubart in 1951 for a single species having a "normal" pore distribution, but differing from *Pseudoeurydesmus* in that prefemoral process of the gonopod is provided with a large, spinose basal branch similar to that of typical *Eurydesmus*. This new genus, *Pseudoeurydesmella,* seems to me unjustifiable on the basis of its originally stipulated characters, although the gonopod structure is unsual enough that the name may be someday be revived.

Likewise, if *Pseudoeurydesmus* is to be given any formal recognition, it must be on account of the gonopod characters and would have to include at least *Eurydesmus acutatus* and probably also *E. lomatus*. Conversely, some of the species placed by Schubart in *Pseudoeurydesmus* would have to transferred to *Eurydesmus* in the strict sense. But such reallocations can be accomplished if and when their desireability becomes apparent.

Only a limited amount of material has been available to me for study, yet it seems that a preliminary synthesis of *Eurydesmus* is possible on the basis of published information. Naturally the arrangement presented below will have to be confirmed by later studies, hopefully to be undertaken by a resident Brasilian student of the Diplopoda.

A major point of uncertainty afflicting this rather distinctive genus is the status of its type-species, as discussed below. I think that a somewhat arbitrary decision about the identity of *E. angulatus* will provide a basis for provisional stability, although of course it is always possible that some future changes may be forthcoming. The species of *Eurydesmus* are mostly conspicuous members of the Brasilian polydesmoid fauna because of their relatively broad and compact body form, in which the ratio of width divided by length may be as high as 26%. The majority of the known forms occurs in the coastal region between Rio de Janeiro and Pôrto Alegre, with no less than five species recorded by Schubart (1945) from the tiny state of Guanabara alone. In this area of sympatry the species tend to be readily distinguishable in size, shape, and coloration so that, I believe, identifications can be made with some degree of confidence even in the absence of male specimens.

Eurydesmus acuminatus (Schubart), comb. n.

Pseudoeurydesmus acuminatus Schubart, 1954a: 117, figs. 27, 28 (Holotype, ♂, Mus. Paranaense from Parque Nacional de Iguaçu, Paraná).

Eurydemus acutatus Schubart

Eurydesmus acutatus Schubart, 1951b: 91, figs. 1-6 [Holotype, ♂, Museu de Zoologia, São Paulo, from Bairro da Vitória (Mun. Monte Alegre do Sul), São Paulo].

Eurydesmus aguirrei (Schubart), comb. n.

Pseudoeurydesmus aguirrei Schubart, 1945b: 308, fig. 7 (Holotype, ♂, Museu de Zoologia, São Paulo, from Poços de Caldas (Minas Gerais).

Eurydesmus alcatrazensis (Schubart), comb. n.

Pseudoeurydesmus alcatrazensis Schubart, 1945b: 310, fig. 8 (Holotype, ♂, Museu de Zoologia, São Paulo, from Ilha dos Alcatrazes, São Paulo).

Eurydesmus angulatus de Saussure

Eurydesmus angulatus de Saussure, 1860: 335, pl. 4, fig. 25 (Holotype, ♀, Mus. hist. nat. Genève, from "Brésil"); de Saussure & Humbert 1872: 55; Carl, 1903: 544, figs. 1-6 (Description of male sex).
Chelodesmus marxi Cook, 1895: 4. *Syn. n.*.
Eurydesmus marxi; Hoffman, 1950: 186, fig. 1 (Redescription of type-specimen, ♂, U. S. Nat. Mus., from "Therezopolis", Brasil, Goeldi leg.); Schubart, 1956b: 456.
Eurydesmus agrestis Schubart 1945a: 68, figs. 58-61 [Holotype, ♂, Museu de Zoologia, São Paulo, from Fazenda Bonfim (Mun. Petrópolis), Rio de Janeiro]. *Syn. n.*.

The nomenclatorial history of this species has been unfortunately confused since its beginning. The original description by de Saussure was based upon a female specimen in the Muséum d'histoire naturelle, Genève, and although accompanied by good illustrations, the species name became a fountainhead of misconceptions by many subsequent authors.

An additional source of difficulty was introduced in 1895, in a footnote to the family name "Chelodesmidae" in O. F. Cook's new classification of the Diplopoda. Cook proposed both the genus and species *Chelodesmus marxii* in a very brief "diagnosis" that indicated little more than the pore formula and characters of the anterior male sterna. Not even a locality was cited for the species, and it is no wonder that European systematists completely ignored the name *marxii* as well as the generic and family group-names based upon it. In 1950 I was able to locate the type-specimen in the U. S. National Museum and in that year published a redescription of it as well as a partly inaccurate gonopod drawing. It was shown beyond the slightest possibility of doubt

that *Chelodesmus* was in fact based upon the same group of species as was the much earlier name *Eurydesmus* and that the species *marxii* appeared to be conspecific with *E. agrestis* Schubart, 1945. Cook himself suspected that the two generic names might be synonymous, as indicated by a footnote remark in this 1899 paper on Gomphodesmidae: "...I now strongly suspect that it [*Eurydesmus*] is in reality not widely different from *Chelodesmus.*"

Eurydesmus was treated briefly in Graf Attems' great monograph of 1898-1899, in which was published a redescription of *"angulatus"* based upon a female taken at Rio de Janeiro and thought to be conspecific with de Saussure's type. The description of the coloration of this specimen however, indicates that quite a different form was involved, as will be discussed in a subsequent paragraph. In the same work, Attems described a true *Eurydesmus* under the name *Leptodesmus biconicus*, and this name has itself been the agent of considerable confusion (see discussion under *Henrisaussurea corcovadis*, p. 268).

In 1902, H. W. Brölemann recorded from Alto da Serra (=Paranapiacaba), São Paulo, a species that he identified as *E. angulatus.* Schubart, in his 1945 paper on polydesmoids of the Distrito Federal, considered Brölemann's determination as correct although this partiality could be only arbitrary.

The following year J. Carl (1903) published a redescription of *angulatus* on the basis of a male specimen in the Genève Museum that he considered conspecific with the female type, and likewise from "Brésil": "Ein ♂ unsere Sammlung erweist sich bei Vergleich mit dem weiblichen Originalexemplar als hierhergehörig. Er stimmt äusserlich mit dem Weibchen in den wesentlichsten Punkten überein." The gonopod structure of this male, as illustrated by Carl, is very similar to that of *E. agrestis* Schubart (maybe this is why Schubart prefered Brölemann's identification of *angulatus* with a different species). Through the kindness of Dr. Emil Dottrens (Mus. Genève), I could restudy a male identified by Carl and can confirm that it is in fact conspecific with the millipeds that were named *marxii* by Cook and *agrestis* by Schubart.

If Carl's association of the male with the female type-specimen is correct, then the name *Eurydesmus angulatus* must be applied to the population occuring in the Serra dos Orgãos, and not to others extending as far south as Santa Catarina. Unfortunately, the type female could not be recently located at Genève, but it must be recalled that Dr. Carl rrely "lumped" distinctive species and I am perfectly satisfied to accept the results of his direct comparison of material even if of two sexes. The species of *Eurydesmus* tend to be rather characteristic in external appearance, and it is entirely implausible to me that Carl would have matched up the male with a female of, for instance, *E. biconicus* (the other large reddish-brown eurydesmid of Rio de Janeiro). Although there is no information on the provenance of the *angulatus* type, we can easily imagine its having been picked up at either Petrópolis or Teresópolis, both of which were popular sites for early naturalists visiting Rio de Janeiro.

A description and drawings of "*E. angulatus*", based upon a male from Santa Catarina in the Wien Museum, was published in 1931 by Count Attems and repeated in his 1938 work. This form was later renamed *Eurydesmus anticipatus* by Schubart (1954).

The must important single treatment of the genus is that of Schubart in 1945, in which he described five new species from Tijuca and a sixth from Petrópolis. In 1951 he published additional records for four of these species from the same general region, and in 1956 proposed to divide the genus into three subgenera on the basis of gonopod characters. In this last paper, Schubart took a rather strong objection to my revival of Cook's names, justifying what seems to have been a personal aversion by simply acclaiming them *nomina nuda*. Now although the way in which *Chelodesmus marxii* was proposed is deplorable enough, the names themselves are not *nomina nuda*, but really *nomina inquirenda*, an important distinction that was never admitted by either Schubart or by Graf Attems. The inability to recognize a particular taxon from its original description is certainly not an absolute value, but only a reflection of temporary inadequacy and may be moreover entirely a subjective failure! Schubart even went so far as to credit me with having validated the name *marxii* in 1950, although he allowed Cook the proposal of *Chelodesmus* in 1895!

A restudy of the type of *marxii* in 1966 shows that my first drawing was in fact incorrect, having been made with the use of transmitted light from below the specimen so that the gonopod appeared translucent and misled me into various small errors of interpretation. The appendage in fact agrees perfectly with the drawings given by Schubart for *E. agrestis* and I am convinced the two names are synonyms. The type of *marxii* come from Teresópolis, that of *agrestis* from Petrópolis only a few kilometers distant. The species apparently does not occur in the vicinity of Rio de Janeiro.

Material examined: "Amérique méridionale", 2 ♂♂ without further data (Mus. Genève); one specimen has the gonopods removed, presumably by Carl, the other is intact. Both agree completely with Carl's description and the existing gonopods match perfectly with the drawings published by Carl for *angulatus* and Schubart for *agrestis*. Presumably the dissected male is that upon which Carl's account was based. *Rio de Janeiro*: Mun. Teresópolis, 1 ♂, Dr. E. Goeldi leg. (U. S. Nat. Mus., holotype of *Chelodesmus marxii* Cook).

Eurydesmus angustus Schubart

Eurydesmus angustus Schubart, 1945a: 76 (Holotype, ♀, Museu Nacional, from Jacarepaguá, Maciço da Tijuca, Guanabara).

The unusually small size of this species, known so far only from the unique female holotype not only assures its specific distinctness but suggests that it may possibly be referable to a presently undefined genus

of Chelodesmidae. The collection of topotype males is greatly to be desidered!

Eurydesmus anticipatus Schubart

Eurydesmus angulatus Attems (not of de Saussure, 1860), 1931: 54, figs. 76-80.

Eurydesmus anticipatus Schubart, 1954a: 96 (New species name based upon Attems' 1931 description of "*angulatus*", holotype, ♂, Naturh. Mus. Wien, from Santa Catarina).

There can be no doubt that Schubart was correct in setting up a specific name for this far-southern member of the genus. In my view, the gonopods bear a striking resemblence to those of *E. bellus* from Rio de Janeiro, especially in the basally-located dorsal process of the prefemoral process, and I therefore venture to refer both of the species to the same species-group.

Eurydesmus argutus Schubart

Eurydesmus argutus Schubart, 1956a: 355, fig. 1 [Holotype, ♂ Museu de Zoologia, São Paulo, from Viçosa (Mun. Viçosa), Minas Gerais].

Eurydesmus armatus armatus Schubart

Eurydesmus armatus Schubart, 1945a: 72, figs. 65-68 (Holotype, ♂, Museu Nacional, from Excelsior, Maciço da Tijuca, Guanabara).

Eurydesmus armatus aciculatus Schubart, stat. n.

Eurydesmus aciculatus Schubart, 1956b: 453, figs. 1, 2 [Holotype, ♂, Museu de Zoologia, São Paulo, from Parati (Mun. Parati), Rio de Janeiro].

The similarity in gonopod structure between the two nominal species *armatus* and *aciculatus*, as well as apparent conformity in size, color, and sculpture, suggests to me that the relationship is only subspecific. The relative taxonomic importance of the shortened and truncated prefemoral macrosetae described for *armatus* is yet unknown, but cannot be assigned much importance in light of the great similarity of the gonopods in all other respects. The type-localities of the two forms are about 130 km apart along the Brasilian coast.

Eurydesmus assimilis Schubart

Eurydesmus assimilis Schubart, 1945a: 71, figs. 62-64 (Holotype, ♂, Museu Nacional, from Encantado, Maciço da Tijuca, Guanabara).

Eurydesmus baguassuensis (Schubart), comb. n.

Pseudoeurydesmus baguassuensis Schubart, 1944: 362, figs. 32-34 [Holotype, ♂, Museu de Zoologia, São Paulo, from Baguassu (Mun. Pirassununga), São Paulo].

Eurydesmus bellus (Schubart), comb. n.

Pseudoeurydesmella bella Schubart, 1951a: 13, fig. 8 (Holotype, ♂, Museu Nacional, from Cabo Frio, Rio de Janeiro).

Eurydesmus biconicus (Attems), comb. n.

Leptodesmus biconicus Attems, 1898: 379 (Holotype, ♀, Naturh. Mus. Wien, from Corcovado, Guanabara). [not *Leptodesmus biconicus* Attems, 1901: 94; 1938: 22; Schubart, 1945a: 53; 1951a: 7. These references are all based upon *Henrisaussurea corcovadis*, see discussion of that species, p. 268].

Eurydesmus alipioi Schubart, 1945a: 65, figs. 55-57 (Holotype, ♂, Museu de Zoologia, São Paulo, from Jacarepaguá, Maciço da Tijuca, Guanabara); 1951a: 2 (record for Corcovado, Guanabara). *Syn. n.*.

The strange history of the name *biconicus* is discussed in full elsewhere in this paper. Originally based upon a female eurydesmid, the name subsequently became attached to a male specimen belonging to another genus and used incorrectly by Attems and Schubart down to the present time. The account of *Leptodesmus biconicus* in Das Tierreich, lief. 69, 1938, is a remarkable composite: the description of the body form is taken from the 1899 original, the remarks on the gonopods and the illustration are from a male of the other species and genus.

Unfortunately the female holotype is not presently available for a restudy. I did not see it at Vienna during visits in 1960 and 1964, nor could my colleague Dr. G. Pretzmann find anything by the name *biconicus* in response to a recent request for a special search for it. However the description is fairly complete, and I have been able to match it with complete confidence with a virtually topotypic female *Eurydesmus* from Guanabara. There seems to me to be no doubt whatever that *biconicus* represents the same species as that subsequently described as *E. alipioi* by Schubart in 1945.

Aside from obvious gonopodal characters so well illustrated by Schubart, this species is the largest and least-convex of the eurydesmids that are basically uniform reddish-brown dorsally.

So far this species is known only from the two mountain ranges of Guanabara and from the nearby Município of Mangaratiba, Est. Rio de Janeiro, an overall distribution of about 90 km east to west.

Material examined: Guanabara: Maciço da Tijuca, Açude Solidão, 1 ♀ (MZUSP); Pé do Corcovado, 1 ♂ (MZUSP).

Eurydesmus brolemanni, sp. n.

Eurydesmus angulatus (not of de Saussure, 1860) Brölemann, 1902: 93, figs. 93-96 (specimens recorded from Alto da Serra, São Paulo); Schubart, 1945a: 76, figs. 72, 73 (Copies of Brölemann's original figures; Schubart regarded this species as the "verdadeiro" *angulatus!*).

Holotype: Adult male, Museu de Zoologia, São Paulo, from "Alto da Serra" (now Paranapiacaba), Mun. Sto. André, São Paulo.

Diagnosis: A large member of the genus (42 mm long, 9.4 mm wide), easily recognized by the unusually massive, uniformly spinulose basal branch of the prefemoral process. In other respects Brölemann's figures are somewhat schematic but it seems clear that the species is related to *E. armatus* and *E. angulatus.*

Eurydesmus herteli (Schubart), comb. n.

Pseudoeurydesmus herteli Schubart, 1954a: 115, figs. 25, 26 [Holotype, ♂, Mus. Paranaense, from Volta Grande (Mun. Piraquara), Paraná].

Eurydesmus lomatus (Schubart), comb. n.

Pseudoeurydesmella lomata Schubart, 1955a: 530, fig. 30 [Holotype, ♂, Museu de Zoologia, São Paulo, from Paranapiacaba (Mun. Sto. André), São Paulo].

In gonopod characters this species is generally quite similar to *E. acutatus* Schubart, a slightly smaller form described from Mun. Monte Alegre do Sul, S.P. The two share a prominent dentate projection from the base of the femur on the ventral side, and in both the prefemoral process is produced on its medial side into a triangular lobe that overlaps on the midlength of the acropodite. *E. lomatus* has a small and simple basal spinose branch from the prefemoral process that is lacking in *acutatus,* but I would subordinate such a difference in favor of the overall similarities in estimating lines of affinity in this genus.

Eurydesmus zebratus (Gervais), comb. n.

Polydesmus zebratus Gervais, 1836: 379 [Holotype (present location and status unknown) from "Brésil"]; 1847: 111.

Eurydesmus angulatus (not of de Saussure) Attems, 1899: 264 (♀, Rio de Janeiro).

Eurydesmus ruidus Verhoeff & Schubart, in Schubart, 1945a: 74, figs. 69-71 (Holotype, ♂, Museu de Zoologia, São Paulo, from Furnas,

Maciço da Tijuca, Guanabara); Schubart, 1951a: 3 (Record for Corcovado, Rio de Janeiro, Guanabara). *Syn. n.*.

This species is easily recognized by the gonopod structure and also by the remarkable coloration: the animal is basically sulphur-yellow with the collum, lateral edges of the paranota, and a band on the caudal margin of each metatergite reddish-maroon.

Nothing else remotely like this has been recorded among the Brasilian polydesmoids, and the brief description of color pattern given by Gervais for his aptly-named species can apply to no other form: "Jaune clair avec une bande etroite de couleur vineuse au bord posterior des anneaux, et une ligne de meme teinte sur le bord des carenes laterales;..."

The specimen reported as *E. angulatus* by Attems in 1899 is clearly the same species and obviously not the uniformly reddish-brown *angulatus* in the strict sense. Attems wrote: "Farbe das Kopfes, der Antennen, Beine und Unterseite scherbengelb. Prozoniten und vordere Hälfte der Metazoniten ebenso. Hinterrand der Metazoniten kastanienbraum. Halsschild ringsherum kastanienbraun gesaunt, die Flache braungelb."

My friend and colleague M. Jean-Paul Mauries very kindly checked through the collection of the Muséum National de Histoire Naturelle (Paris) and reported that the type of *zebratus* is not among the specimens of that museum. It may still be extant among the dried material of some other European museum, or, of course, possibly lost or destroyed.

SPECIES GROUPS

The attempt by Dr. Schubart to distinguish subgenera of *Eurydesmus* has been discussed in a preceding paragraph. Although his arrangement was at least in part justifiable [in recognizing the peculiarities of *E. alipioi* (= *biconicus*)], I feel that perhaps a better grouping of species may be achieved by disregarding such criteria as pore formula and single "present or absent" features of gonopod structure, and basing the classification upon overall similarity of these appendages to each other. It seems clear to me that the evaluation of the collective habitus of these rather complicated structures will give a better basis for association than reliance on one or two easily defineable characters. It is of course necessary in this procedure to compare accurate drawings made from a uniform orientation.

Each group contains a species upon which a generic name has been based; these names are included parenthetically for the benefit of those who prefer to recognize subgenera in *Eurydesmus* (or perhaps, even separate genera!):

Grou A (=*Peltoeurydesmus*). Prefemur of gonopod produced laterally into a prominent, conical, densely setose spur; prefemoral process with only an indistinct obliquely-transverse flange, located far up

and partly concealing the solenomerite; femur with a rounded, peltate lobe on the median side.

E. biconicus (Attems)	Guanabara; southern Rio de Janeiro

Group B (=*Pseudoeurydesmella*). Prefemoral process with an unusually massive secondary spinose branch originating from its base and creating the effect of an additional prefemoral process; this basal branch is directed distad parallel to the true prefemoral process.

E. anticipatus Schubart	Santa Catarina
E. bellus (Schubart)	Rio de Janeiro (Cabo Frio)

Group C ((*Pseudoeurydesmus*). Femur of gonopod with an acute, projecting spur at its base on the median side; prefemoral process produced ventromedially into a triangular lobe that overlaps the midlength of the acropodite, but not thickened into a prominent obliquely transverse flange. This group is only doubtfully distinct from the next.

E. acuminatus (Schubart)	Paraná
E. acutatus Schubart	São Paulo (Monte Alegre do Sul)
E. aguirrei (Schubart)	São Paulo (Monte Alegre do Sul)
E. baguassuensis (Schubart)	São Paulo (Pirassununga)
E. lomatus (Schubart)	São Paulo (Sto. André)

Group D (=*Eurydesmus*). Prefemoral process distally expanded, somewhat peltate, the medial side with a prominent, thickened, oblique flange just below level of the solenomerite; spinose branch of this process, if present, originating closer to the oblique flange than to the base.

E. alcatrazensis (Schubart)	São Paulo (Ilha dos Alcatrazes)
E. armatus armatus Schubart	Guanabara
E. armatus aciculatus Schubart	Rio de Janeiro (Parati)
E. argutus Schubart	Minas Gerais (Viçosa)
E. assimilis Schubart	Guanabara
E. brolemanni, sp. n.	São Paulo (Sto. André)
E. herteli (Schubart)	Paraná
E. langei (Schubart)	Paraná
E. zebratus (Gervais)	Guanabara

Brasilodesmus Brölemann

Brasilodesmus Brölemann, 1929: 35 (Proposed as a subgenus of *Leptodesmus* with 12 species, two of them new).

Type-species: *Leptodesmus paulistus* Brölemann, 1902, by original designation.

Diagnosis: A genus of small to moderate sized chelodesmids (30-70 mm in length), widest at segment 2 or 3, the body virtually parallel-si-

ded between segments 5 and 17 (at least in males). Paranota well developed, set high on sides and nearly horizontal, the anterior corners rounded and with marginal scapulorae, posterior corners rectangular on anterior segments, becoming increasingly acute and projecting on posterior half of body, segment 19 strongly reduced in size and its paranota virtually missing, only large enough to contain the ozopore. Metaterga smooth to moderately coriaceous, stricture distinct but not shraply defined. Head smooth, with a few scattered macrosetae in the facial region; antennal sockets set close together, antennae long, extending caudad to front of 5th segment in males, each longer than maximum body width. Sterna unmodified, moderately broad and elevated between legs; anterior sterna of males without or with only rather small intercoxal processes. Legs of males with tibial pads and with or without prefemoral knobs.

Gonopod aperture oval, its lateral ends and posterior edge elevated, only slightly extending into the prozonite. Gonopods relatively small, not projecting forward between legs of 6th segment, their coxae connected only by membrane, with a small dorsal field of setae and at least several distomedian setae near the arc of the solenite. A moderately prominent coxal apophysis present. Solenite unmodified. Telopodite set on coxa at nearly a right angle, with a prominent prefemoral process that is usually larger and longer than the telopodite, the latter nearly straight, its apex rotated about 180° and with a prominent lateral subterminal lobe. Seminal groove running up the median face of the telopodite except at its distal extremity where abruptly twisted around to the lateral side.

Notes: With the present redefinition of *Leptodesmus* and restriction of that name to an easily recognized group of Brasilian species, it now becomes necessary to consider the status of many other forms which have for years languished in undeserved obscurity under the dark mantle of *"Leptodesmus"* in the sense of previous workers. Obviously, with generic characters now being derived from structures which were either overlooked in the past or at best only inadequately accounted, it will be a long time before all of these various species can be sorted out into homogeneous generic groupings, but it seems best that a start be made at once.

The species originally referred by Brölemann to his subgenus *Brasilodesmus* shared at least one character, that the seminal groove terminated on a special distal branch of the telopodite. If these species constituted a homogeneous group in the light of present criteria, *Brasilodesmus* could not stand as a valid name, since the subgenus as originally conceived included the type-species of an older available name, *Leptodesmus* (*Strongylosomides*) *petropolis* Attems, 1901. But as I hope to point out at a later time, *Strongylosomides petropolis* represents a distinctive group of small chelodesmoids and is not congeneric with *B. paulistus*. Furthermore, by its inclusion of *L. cognatus*, *Brasilodesmus* would likewise have to be considered a junior synonym of the earlier *Erythrodesmus* Silvestri, 1902, except that here, too, *cognatus* is considered not conge-

neric with *paulistus*. So with the appropriate eliminations of various species of this sort, we arrive at a small group of rather closely allied forms occurring chiefly in the southeastern part of São Paulo, Paraná, and Santa Catarina, as well as in Paraguay.

Although I have been able to associate 10 names (nine proposed as species, one as a subspecies) with the present concept of *Brasilodesmus*, it has been possible to examine material representing only three of them. Existing literature accounts are mostly quite inadequate, and obviously a good revision of this genus is yet a long way in the future. Hopefully some Brasilian investigator, with abundant material especially from Santa Catarina, can someday bring this case to a close. For the present I can only give an annotated list of the names that seem to be based upon specimens of *Brasilodesmus*. Even a tentative key seems impractical, and for making identifications the student must in all cases refer to the original descriptions.

Brasilodesmus catharinensis (Brölemann)

Leptodesmus (*Brasilodesmus*) *catharinensis* Brölemann, 1929: 27, figs. 38-44 (Holotype, ♂, Mus. Nat. Hist. natur., Paris, from Jararaca, Santa Catarina).

Leptodesmus catharinensis; Attems, 1938: 27, fig. 27; Schubart, 1954a: 106 (Records for Taió and Rio Negro, S.C.); 1955: 520 (Record for São Paulo, presumably an introduction).

Dr. Schubart has quite correctly noted the great similarity of this species to *centropus* and *paulistus* and in his 1955 work cited above gave a verbal contrast between the gonopods of *catharinensis* and *paulistus*. In his 1954 paper he showed a considerable variation in body size among three populations sampled.

In my opinion, however, the greater similarity lies between *catharinensis* and the other species known from the same region: *centropus, nudipes, caulleryi,* and *paulistoides*. Of these, *nudipes* apparently remains known only from the original description, which was accompanied by an inadequate gonopod drawing. I have not seen the type-specimen during two visits to the Vienna Museum, and it may be lost.

In his 1954 key, Schubart separated some of these species on the basis of non-gonopodal features, including coloration. Perhaps *catharinensis* does have a distinctive color pattern, in that the dorsum is basically brown, becoming much lighter medially to a clear brown or orange. In length the species is known to range between 25 and 40 mm.

Brasilodesmus caulleryi Brölemann

Leptodesmus (*Brasilodesmus*) *caulleryi* Brölemann, 1929: 32, figs. 45-47 (Holotype, ♂, Mus. Nat. hist. nat., Paris, from Mun. Jararaca, S.C.).

Leptodesmus caulleryi; Attems, 1938: 28, fig. 28; Schubart, 1954a: 108.

Brasilodesmus centropus (Attems)

(Fig. 19)

Leptodesmus centropus Attems, 1899: 378, figs. 122-123 [Holotype, ♂, Naturh. Mus. Wien, from Santa Catarina (precise locality unknown but possibly from the vicinity of Blumenau)]; 1931: 21 (in key to the species of *Desmoleptus!*); Schubart, 1954a: 107.
Leptodesmus centropus + *L. corrugatus;* Attems, 1938: 19.
Leptodesmus (*Brasilodesmus*) *centropus;* Brölemann, 1929: 35.

Through the kind cooperation of Frl. Dr. G. Rack, I have been able to examine the holotype of this species in the Hamburg Zoological Museum, and give here a new drawing of the gonopod in mesal aspect. The specimen carries the label "Sta. Catharina, Möller, 3-8-XI-1894" and is about 60 mm in length with a maximum width of 10 mm. Attems studied this specimen within a few years of its collection, and gave the following notes on color: "Schwarzbraun, die hinteren zwei Drittel jedes Kielrandes roth, Unterseite der Metazoniten dunkelbraun. Ventralplatten lichtbraun. Antennen und Beine gelb."

Brasilodesmus corrugatus (Attems), comb. n.

(Fig. 20)

Leptodesmus corrugatus Attems, 1931: 14, figs. 9-13 (Holotype, ♂, Naturh. Mus Wien, from the Itapocu River, S.C.); Verhoeff, 1943: 277 (Comparison with his new species *Pseudoleptodesmus ruidus*); Schubart, 1954a: 107 (As synonym of *L. centropus*).
Leptodesmus centropus; Attems, 1938: 19 (Synonymizes *corrugatus* under *centropus,* without comment).

During a visit to the Vienna Natural History Museum in 1964, I was able to restudy the type of *corrugatus,* and present here a drawing of the gonopod to compare with that of *centropus.* The type-specimen is labeled rather illegibly in manuscript and I could not decipher the collector's name, the other data are "Sta. Catharina" and "18-6-1903".

Attems (1931) gave the color as follows: "Farbe sehr dunkel rotbraun, Randwulst der Seitenflugel rosenrot, Antennen und Beine gelb, Halsschild vorn schmal rot gesäumt." Interesting enough, in this paper Attems described *corrugatus* in the nominate subgenus *Leptodesmus,* while *centropus* was referred to his new subgenus *Desmoleptus!* He subsequently decided that the two names were based on the same species, and united them in his 1938 work.

But are the two in fact synonymous? Attems was notably conservative in his philosophy, and it has been said of him that if Attems ever recorded a given species from two localities, it is likely that two different species were involved! A comparison of the drawings made from the two type specimens shows some small differences in relative propor-

tions that may reflect geographic variation, and the recorded colorations certainly seem to be different:

B. centropus: Brownish-black with the posterior two-thirds of the paranota red.

B. corrugatus: Dark reddish-brown, the peritremata purplish-red.

It seems likely to me that *corrugatus* will be found retainable at least to denominate a geographic race of *centropus*.

? Brasilodesmus decipiens (Brölemann), comb. n.

Leptodesmus decipiens Brölemann, 1902: 77, figs. 66-69 (Holotype, ♂, Museu de Zoologia, São Paulo, from Paraná); Attems, 1938: 18, fig. 14; Schubart, 1954a: 108, fig. 23 (Paraná: Mun. Piraquara; Santa Catarina: Mun. Florianópolis); 1955: 521, fig. 17.

This generic allocation is made with some reticence, as the two cited drawings published by Schubart show the seminal groove running entirely up the median side of the solenomerite. In most other respects the species however looks very much like *paulistus, centropus,* etc., and I think the gonopod structure should be rechecked as regards the course of the groove. If Schubart's interpretation is shown to be correct, *decipiens* must of course be excluded from *Brasilodesmus*.

Brasilodesmus lamellosus (Brölemann), comb. n.

Leptodesmus lamellosus Brölemann, 1902: 80, figs. 75-79 (Holotype, ♂, Museu de Zoologia, São Paulo, from Itatiba, Mun. Itatiba, São Paulo; Schubart, 1955: 526 (São Paulo: Mun. São Paulo, Mun. Sto. André; Minas Gerais: Mun. Pouso Alegre).

Brasilodesmus nudipes (Attems), comb. n.

Leptodesmus nudipes Attems, 1898: 380, fig. 148 (Holotype, ♂, Naturh. Mus. Wien, from "Paraguay").

The gonopod drawing given for this species is made from, apparently, the dorsal aspect of a preparation-mounted appendage, and difficult to compare with other species. However, by turning the free gonopod of *B. paulistus* into nearly the same position, sufficient similarity is noted to justify the assignment of *nudipes* to the same genus.

The specific status of the name is another matter. The type is described as being 52 mm in length and 8.75 mm in width, thus in the same size range as *centropus* and related forms. The coloration was given as dark chestnut brown, the posterior half of each metazonite lighter, legs and apex of paranota yellow. Whether the name is a junior

synonym of one of Silvestri's earlier ones based on Paraguayan species cannot even be guessed at this time.

I did not see the type of *nudipes* at the Wiener Naturhistorisches Museum in 1964.

Brasilodesmus paulistoides (Schubart), comb. n.

Leptodesmus paulistoides Schubart, 1954a: 105, figs. 17, 18 (Holotype, ♂, Mus. Paranaense, from Alto da Serra, Mun. Piraquara, Paraná).

The gonopod drawing given for this species shows the seminal groove to run entirely up the median side of the solenomerite, but I feel sure that this is an error of observation, and that a restudy will show torsion of the distal part of the gonopod. Although the name is supposed to reflect a close similarity with *B. paulistus*, the present species is notably smaller and with a differently shaped peritreme, as well as being quite distinctive in gonopod structure.

Brasilodesmus paulistus paulistus (Brölemann)

(Figs. 17-18)

Leptodesmus paulistus Brölemann, 1902: 59, figs. 20-29 [Male holotype, Museu de Zoologia, São Paulo, from Alto da Serra (= Paranapiacaba), Mun. Sto André, São Paulo]; Schubart, 1955: 519 (Cites known localities for the species, in the following municípios of São Paulo: Prainha, Jacupiranga, Itanhaém, Santo André, Mogi das Cruzes, Itapecerica da Serra, Salesópolis, Amparo and Brotas).

Leptodesmus (*Brasilodesmus*) *paulistus;* Brölemann, 1929: 36.

Leptodesmus (*Leptodesmus*) *paulistus;* Attems, 1938: 19.

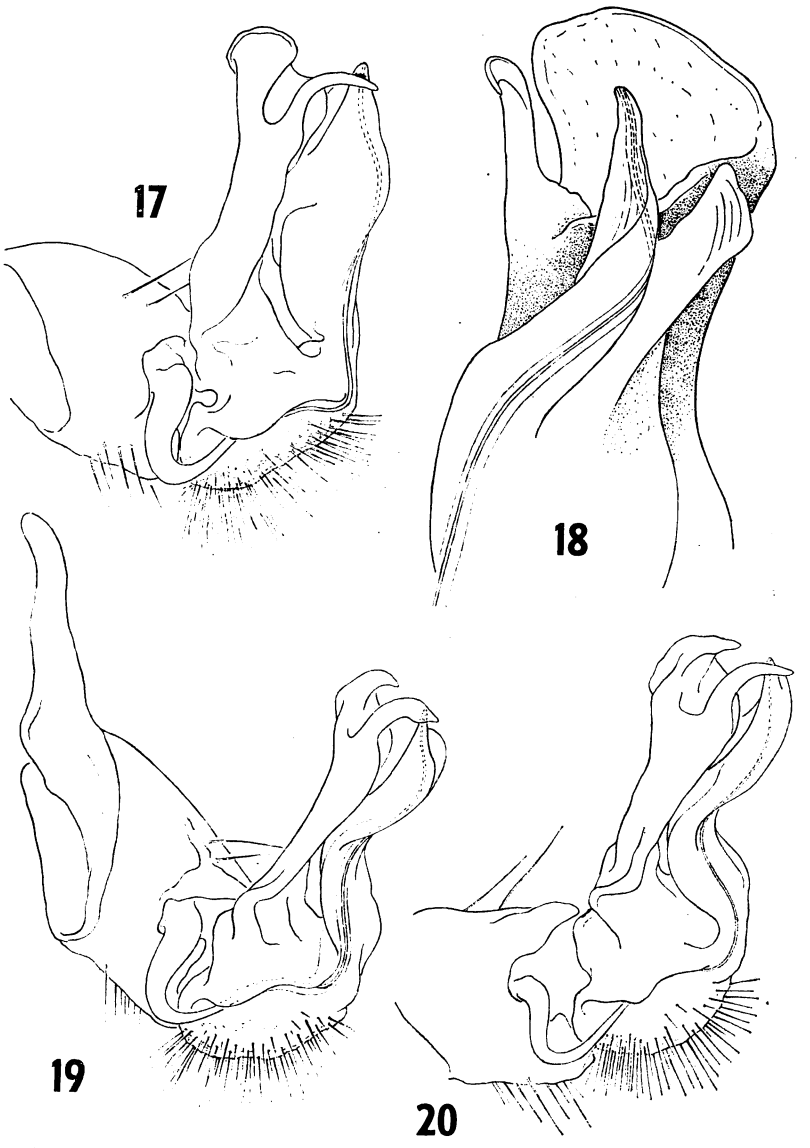
This common and widespread species has been adequately described and illustrated by Brölemann, but I provide here two additional drawings of the gonopod structure, one of the entire appendage in medial aspect for comparison with drawings of *B. centropus* and *B. corrugatus*, and another showing the apex of the telopodite at greater magnification to indicate the torsion of that part. These two drawings are made from a topotype (MZUSP 882) collected at Paranapiacaba in September, 1962, by Werner Bockermann and J. C. Britto Costa.

Brasilodesmus paulistus meridionalis (Schubart), comb. n.

Leptodesmus paulistus meridionalis Schubart, 1954a: 104 (Holotype, ♂, Mus. Paranaense, from Banhado, Mun. Piraquara, Paraná).

This southern form was distinguished from the nominate subspecies by the absence of yellow paranotal spots, the gonopods apparently

indistinguishable from those of *paulistus*. It is recorded from the municípios of Guaratuba, Morretes, Piraquara, and Curitiba, in the Serra do Mar region of eastern Paraná.



Gonopods of *Brasilodesmus* species. 17, left gonopod of *B. paulistus* (Brölemann), medial aspect, specimen from Paranapiacaba; 18, the same gonopod, distal half of telepodite, much enlarged, ventral aspect to show torsion of the solenomerite; 19, left gonopod of *B. centropus* (Attems), from holotype; 20, left gonopod of *B. corrugatus* (Attems), holotype.

Brasilodesmus triseriatus (Attems), comb. n.

Leptodesmus triseriatus Attems, 1931: 11, figs. 5, 6 (Holotype, ♂, Naturh. Mus. Wien, from "Santa Catharina"); 1938: 15, fig. 10; Schubart, 1954a: 109 (Record for Canavieiras, Mun. Florianópolis, Santa Catarina).

This species was described as uniformly reddish-brown dorsally, with the antennae and legs light pink. The specimens recorded by Schubart yielded a range in length from 40 to 45 mm.

Although Attems' drawings of the gonopods do not show the course of the seminal groove, the overall appearance of these appendages suggests that the species is congeneric with *paulistus* in the present restricted sense. As suggested by the name, *triseriatus* is said to be distinguished by the prominence of the normal three transverse rows of metatergal tubercules.

B. triseriatus is apparently the southernmost known member of its genus.

Henrisaussurea, gen. n.

Type-species: *Lentodesmus corcovadis* Brölemann, 1903, from Guanabara.

Diagnosis: A genus of small to moderate-sized chelodesmoids, the body widest at the 3rd segment, tapering abruptly to the 5th, thence nearly parallel-sided back to the 16th segment. Antennae long and slender, reaching back to the 3rd or 4th metazonite.

Dorsum moderately convex medially, the paranota only slightly depressed; anterior corners rounded, posterior corners rectangular or acute on all segments; metatergal surface very finely coriaceous, nearly smooth, without transverse sulcus. Stricture distinct around body, not sharply defined posteriorly. Lateral edges of paranota marginate, poriferous segments with broadened but not abruptly set-off peritremata; pores small, opening laterally or dorsolaterally near posterior end of peritreme. Pore formula normal.

Terminal segment without pecularities, the epiproct rather short and narrowly conical, slightly depressed distally.

Sides of segments unmodified except for the presence of prominent pleurosternal carinae on anterior half of body, these largest and cristate on the anteriormost segments, becoming abruptly smaller posterior to the 7th.

Sterna moderately elevated, glabrous or sparsely setose, unmodified or very slightly produced at the base of the posterior pair of legs of each segment.

Legs relatively long and slender, extending far beyond sides of body; males with prefemoral knob and tibial pads on at least the anterior legs. Anterior sterna with paramedian processes of varying size between legs of the 4th-6th pairs.

Gonopod aperture small, transversely oval, not extending laterad beyond level of coxal articulation, its front edge not in contact with the stricture which continues down sides and across ventrum in a straight line. Lateral and caudal edges of aperture slightly elevated; surface of sternum sloping upward from aperture to caudal edge of metazonite, with a small low tubercle just posterior to coxal articulation. Gonopods (figs. 21-22) small, not extending to 6th segment; coxae in close contact (fig. 21) without median sternal remnants although paramedian strips and vestigial trachial aperture visible at base of trachial apodemes. Coxae elongate, semicylindrical, with prominent apophysis, dorsal side with 2 or 3 setae, median side with 10-12 macrosetae of variable lengths. No lateral prolongation of coxa, the prefemur entirely exposed. Telopodite set on same axis as coxa, but distal elements standing perpendicular; prefemoral process about as long as acropodite and somewhat more massive, distally clavate, and with an arcuate ventrally curved subprocess on the median side at the midlength. Acropodite long, slender, nearly straight, its basal region convoluted and forming a distal cingulum on the lateral side. Seminal groove running directly up median side, terminating on a distinct slender and laminate solenomerite on the medial side of a larger peltate tibiotarsal region.

As defined above, this group contains at least six species whose range centers around the state of Rio de Janeiro although extending south into São Paulo and northeastward into Bahia. Doubtless other already described forms will be later referred here when better-studied. The several taxa listed below are all fairly closely related, and no attempt is here made to recognize species-groups in the genus.

Henrisaussurea corcovadis (Brölemann), comb. n.

(Figs. 21-22)

? Julus dentosus Mikan, 1834: 744 ("Mandiocco Estate, Rio de Janeiro").

Leptodesmus biconicus (not *L. biconicus* Attems, 1898) Attems, 1901: 94, fig. 12 (♂, Petrópolis, Rio de Janeiro); 1938: 22, fig. 21; Schubart, 1945a: 53, figs. 43-44 (Maciço da Tijuca, Guanabara); 1951a: 7 (Petrópolis and Teresópolis, Escola Nacional de Agronomia, Rio de Janeiro).

Leptodesmus corcovadis Brölemann, 1903: 675, figs. XXV-XXVII (Holotype, ♀, Mus. nat. hist. natur. Paris, from Corcovado, Guanabara).

Leptodesmus cerasinus Attems, 1931: 12, figs. 7, 8 (Holotype, ♂, Zool. Mus. Hamburg, from Petrópolis, Rio de Janeiro).

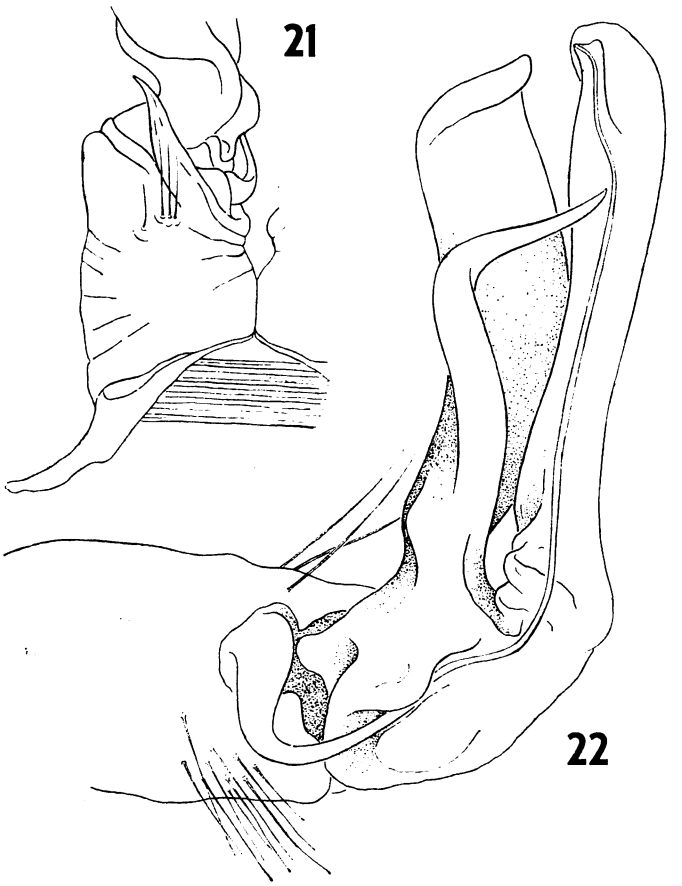
Leptodesmus jawlowskii Schubart, 1945a: 59, figs. 49-51 (Holotype, ♀, Museu Nacional, from Maciço da Tijuca, Guanabara).

The somewhat involved synonymic history of this common species is deplorably representative of the nomenclatorial tangles that infest the literature on Diplopoda.

For many years I had been puzzled by the striking similarity of the gonopods of *Leptodesmus cerasinus* and *L. biconicus* as figured by

Attems in the "Tierreich" particularly since both species were recorded from Petrópolis. In his key to the species of the subgenus *Leptodesmus*, Attems placed *cerasinus* in a section characterized by the presence of a tibial tylus, *biconicus* in a second group in which it is absent. Could such a prominent difference exist between two forms with identical gonopod structure? Examination of the "Tierreich" descriptions revealed still further major differences in body form, sculpture, coloration. So an investigation of the entire literature was made, with the following, somewhat surprising, results:

The original description of *Leptodesmus biconicus* (Attems, 1898: 159) was based upon a single female from Mount Corcovado, Rio de Janeiro, collected by the "Saida" Expedition and preserved in the Vienna Museum. This description clearly portrays a large, compact, and robust



Henrisaussurea corcovadis (Brölemann): 21, coxa and base of telopodite of left gonopod, anterior or dorsal aspect, specimen from Rio de Janeiro (Zool. Mus. Hamburg); 22, left gonopod, medial aspect, drawn on much larger scale, specimen from Rio de Janeiro (MZUSP 2723).

animal nearly 25% as broad as long, widest at segment 6, with narrow, depressed paranota, laterally located ozopores, densely rugulose metazonites, and with the broad sterna produced into prominent acute subcoxal spurs ("Die Form der Ventralplatte errinert ganz an die von *Eurydesmus!*").

Attems subsequently studied some specimens from Petrópolis, belonging to the Hamburg Zoological Museum, and identified them as *biconicus*. I have restudied the material and cannot comprehend how Attems arrived at this conclusion: the specimens have none of the characters mentioned in the original description! They are much more slender (about 18% as broad as long), widest at segment 3, with well developed, nearly horizontal paranota and dorsolateral ozopores, the metazonites are smooth and the sterna unmodified, in fact there is perfect agreement with the description of *Leptodesmus cerasinus* published in 1931, and based upon a Petrópolis specimen!

My conclusions on the matter were that *L. biconicus* Attems, 1898, is in fact referable to *Eurydesmus*, of which genus several species are known from Rio de Janeiro, and that the specimens reported from Petrópolis under this name in 1901 belong to a entirely different genus and species for which the name *cerasinus* appeared to be the correct one.

The matter was not so readily settled, however, as I then recalled that the Petrópolis species, *cerasinus*, had been recorded from the mountains around Rio by Schubart (1945, 1951) still under the name *biconicus* in the sense of Attems 1901 and 1938. To add further difficulty, Schubart named a slightly variant female specimen as *Leptodesmus jawlowskii* in his 1945 paper, but later withdrew it as synonym of "*biconicus*". During the midst of this search through literature and personal memoranda I came across the name *Leptodesmus corcovadis* (Brölemann, 1902:675) based upon a female and hence thereafter disregarded as unidentifiable by Attems and Schubart. But the occurrence of such a striking species known — if only from a female — from the midst of "*cerasinus*" territory was too much to be brushed aside lightly. Brölemann's detailed original description and figures match perfectly with specimens having "*cerasinus*" type gonopods, from the vicinity of Rio de Janeiro. Finally, through the generous cooperation of my colleague M. Jean-Paul Mauries, I was able to borrow the type of *L. corcovadis* from the Museum national d'histoire naturelle and a direct comparison establishes beyond the slightest chance of doubt that it is conspecific with specimens identifiable as *L. cerasinus*.

The difficulties and inconsistancies mentioned in reference to the 1938 treatment by Attems are now explained in light of the fact that he had confused members of two very different genera under the name *biconicus*. The description of the body pertains to the female sex of *Eurydesmus biconicus*, the gonopod figure and notes are drawn from a male of *corcovadis*.

With the present clarification of the status of the names *Leptodesmus* and *Brasilodesmus*, it is now obvious that *corcovadis* is referable

to no currently established genus and for it and several congeneric species the name *Henrissaussurea* is proposed. It is regrettable that the final word can not yet be written in the history of this much-misunderstood species. It seems entirely likely that so large and conspicuous a member of the Rio de Janeiro milliped fauna would have been noticed by the earlier collectors, and in fact there is reason to believe that it was one of the first Brasilian species to be described. Among the 13 new species published by Mikan in 1834 from the vicinity of Rio, one is diagnosed in terms which althrough brief appear to apply quite well to *D. corcovadis;* the entire description is quoted below:

"9) J. dentosus. J. pedibus utrinque 30, corpore plano, glabro, atropurpureo; pedibus elongatis antennisque filiformibus, flavis; corporis segmentis latere marginatis et utrinque dente retrorsum acuto munitis, segmento ultimo mucronato.
Zwischen Mandiocca und Correga secco, unter faulem Holze.
Meistens 3 Zoll. lang."

The locality "Mandiocca" is explained by Mikan as an estate belonging to the Russian consul-general von Langsdorf, across the bay from Rio de Janeiro. Seven of his 13 new species are from "Mandiocca", and if the locality is still extant, the collection of topotypes would be a matter of the greatest value in settling the status of the various Mikan species. I presume that "Mandiocca" was in or just north of the present city of Niteroi.

Schubart (1951) has mentioned that the specimens from Petrópolis are somewhat smaller than those around Rio, perhaps as a results of the higher elevation.

Material examined. *Guanabara*: Usina da Tijuca, Rio de Janeiro, 1 ♂, May 1, 1962, P. Bürnheim leg. (MZUSP 17971); Tijuca, 1 ♂, 1 ♀, May 1964, W. Bokermann leg. (MZUSP 2723-24); vicinity of Rio de Janeiro, 1 ♂, 2 ♂, Oct. 6, 1933, Mendes leg. (Zool. Mus. Hamburg); Mount Corcovado, by the aquaduct of St. Sylvestre, 1 ♀, date and collector unknown (Mus. nat. hist. natur., holotype of *L. corcovadis* Bröl.); *Rio de Janeiro*: Petrópolis, 1 ♂, Ohaus leg. (Zool. Mus. Hamburg, holotype of *L. cerasinus* Att.), 1 ♂, Ohaus leg. (Zool. Mus. Hamburg, identified and recorded by Attems, 1901, as *L. biconicus*).

Henrisaussurea bidens (Brölemann), comb. n.

Leptodesmus bidens Brölemann, 1902: 66, figs. 45-49 (Holotype, ♂, Museu de Zoologia, São Paulo, from Piquete, São Paulo); Schubart, 1946: 193.

Henrisaussurea deerrans (Brölemann), comb. n.

Leptodesmus deerans Brölemann, 1902: 78, figs. 70-74 [Holotype, ♂, Museu de Zoologia, São Paulo, from Alto da Serra (= Paranapiacaba), Mun. Sto. André, São Paulo]; Schubart, 1946: 194.

Henrissussurea deserticola (Brölemann), comb. n.

Leptodesmus deserticola Brölemann, 1903: 662, figs. 14-16, pl. 6, figs. 11-15 (Holotype, ♂, Mus. nat. hist. natur., Paris, from Santo Antonio da Barra, Bahia).

Henrisaussurea gibba (Brölemann), comb. n.

Leptodesmus gibbus Brölemann, 1903: 657, figs. 4-6, pl. 6, figs. 6-10 (Holotype, ♂, Mus. nat. hist. natur., Paris, from Santo Antonio da Barra, Bahia).

Henrisaussurea ramosa (Schubart), comb. n.

Leptodesmus ramosus Schubart, 1944: 359, figs. 30, 31 (Holotype, ♂, Museu de Zoologia, São Paulo, from Fazenda Retiro das Sete Lagoas, Mun. Mogi Guassu, São Paulo).

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