A NEW NUEVOBIUS, WITH REVIEW OF THE GENUS* (CHILOPODA: LITHOBIOMORPHA: LITHOBIIDAE)

By R. E. Crabill, Jr.[1]

The lithobiid genus *Nuevobius* was proposed by R. V. Chamberlin in 1941 for the reception of a single new species, *cavicolens,* which had been collected within a cave in the northeastern Mexican State of Nuevo Leon. The long, slender legs and extraordinarily long, multisegmental antennae of the typical specimen appear to reflect a habitus common to many cave-dwelling chilopods, including members of each of the four orders. Indeed, the possession of elongate appendages seems to be manifest in many different kinds of cavernicolous arthropods, so that one might suppose that the phenomenon reflects a form of adaptation imposed or facilitated by life in caves.

The Chamberlin genus is of particular interest for at least two other reasons. First, it bears a distinct resemblance to *Sozibius,* whose species are very commonly encountered in the midwestern and southeastern United States. In this regard, Chamberlin himself admitted that maintaining the separate generic identities of *Nuevobius* and *Sozibius* might eventually prove to be untenable. It is true enough that *Nuevobius* seems to represent a special variant of the rather distinctive *Sozibius* pattern. However, the supraspecific structure of the whole complex to which both are referable is presently so poorly understood that a meaningful realignment at the generic level would be impossible at that time.

I should also like to alert the reader to the existence of a third important generic entity which manifests subtle but, I believe, convincing evidence of being closely akin to the foregoing genera. I refer to the widespread southeastern and midwestern genus *Neolithobius* (*sensu* Chamberlin), which appears to me to represent a kind of precursive *Sozibius.* If we discount the tergital productions, which are not actually so meaningful for generic characterization as we once believed them to be (Crabill and Lorenzo, 1957, p. 431), we are left with a group of characters which individually and as a group clearly imply fairly close kinship with the other two genera. Aspects of these relationships are explored in more detail

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in the concluding section of this paper.

Finally, *Nuevobius* may now be shown to have an heretofore unsuspected distributional significance, inasmuch as the second species of the genus, here proposed as new, was recently collected in a cave in southern Tennessee.

This interesting example of apparent distributional discontinuity is reminiscent of the parallel case of *Nyctunguis pholeter* Crabill, a schendylid that was also discovered in a Tennessee cave (Crabill, 1958, p. 154). As is true of the new *Nuevobius,* the affinities of *pholeter* seem to be with the far Southwest. Perhaps it is significant that *Nyctunguis,* which is represented by a number of species in Mexico and in the far western United States, is without known representation in the central Continent, while in the East it is known from a single species, a cavernicole. Both cases seem to lend support to the idea that faunal connections linking the North American Southeast with the Southwest and with lands to the south were once more pronounced than they are today. Possibly the post-Pliocene topographic and related climatic changes of the continent impoverished or interrupted many existing faunal continua, with the result that certain groups in the East were able to survive only sporadically, under particularly suitable conditions, such as those that caves offered.

Nuevobius cottus,[1] n. sp.

Sharing the distinctive criteria that signalize their genus, *cottus* and *cavicolens* obviously differ in many important respects. These are listed below: those believed to have particular diagnostic value are preceded by an asterisk.

Nuevobius cavicolens: (1) Tergites 11 and 13 "well produced". (2) Color amber yellow. (3) 15th leg pretarsus without accessory claws. *(4) 14th leg pretarsus without accessory claws. *(5) 15D = 10310; 14D = 10311. *(6) Spur series VPM beginning on first leg.

Nuevobius cottus: (1) Tergites 11 and 13 very weakly produced. (2) Color predominantly reddish-brown and dilute. (3) 15th leg pretarsus with a minute (setiform) accessory claw. *(4) 14th leg pretarsus with a prominent setiform and a large unguiform accessory claw. *(5) 15D = 10321, i.e. series DFA and DTiP continuing posteriorly to and occur on leg 15 (both stopping short of 15 in *cavicolens*); 14D = 10322, i.e. DFA and DTiA present on 14 in

[1] In allusion to Cottus, one of the trio of "hundred-handed" monsters slain by Hercules.

cottus, absent on 14 in *cavicolens*. *(6) Spur series VPM beginning posterior to legs of midbody; in *cavicolens* VPM beginning on leg 1.

Holotype ♂.—Tennessee: Blount County, Tuckaleechee Caverns, near Townsend, April 18, 1959 (Thomas C. and Catherine Barr). U.S. N.M. Myriapod Catalogue Number 2673; Myriapod Collection Number 148.

Introductory.—Length, 23 mm. Color: Tergites dilute reddish-brown, their margins somewhat darker, the underlying musculature discernible; cephalic plate deep red-brown, opaque; legs very pale red-brown on outer surfaces, inner surfaces shading to hyaline, the underlying musculature plainly discernible.

Antennae.—Each about 18 mm. long; when pulled posteriorly, reaching the end of the 10th tergite, thus well exceeding midbody length. Each with 42 articles; the articles of the proximal two-thirds notably elongate, each much longer than wide. The first 3–4 articles sparsely clothed with longer setae, thereafter the setae increasing in density and decreasing in length.

Cephalic plate—(Fig. 2.).—Greatest length, 2.7 mm., greatest width, 3.0 mm., thus somewhat wider than long. The limbus (Note A) posterocentrally distinctly procurved and wider and higher than elsewhere; laterally distinctly disjunct; anterior to disjuncture limbus is narrow and lower but continuous to ocellar area. Head surface very smooth, lustrous; setae sparse, long. Frontal and antennocellar sutures (Note B) pronounced, interconnecting, complete.

Ocellar area—(Fig. 2a).—With prominent, multiseriate ocelli disposed in some five irregular horizontal rows, e.g., from bottom to top approximately, 1 + 56655. Ocelli of upper two rows ovate, larger than those below; those of lower series subovate to subcircular, their rows very poorly defined. The major ocellus (Note C) distinctly separated from the minor ocelli, most widely from those of the lower 4 series, and distinctly much larger than the largest of the minor ocelli. Organ of Tömösvary situated in the lower anterior corner of the ocellar area; well separated from all minor ocelli, small in size, not larger than the nearest minor ocellus, subcircular in shape.

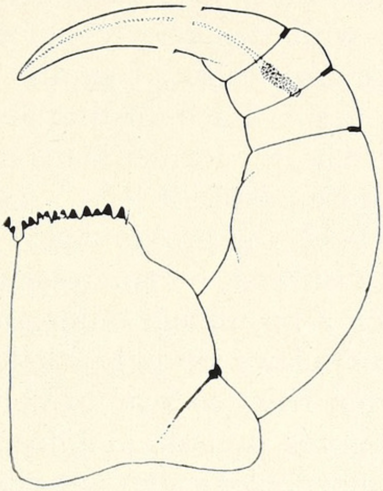
Prehensorial segment.—(Figs. 1, 3).—Prosternal dentition, right 9, left 11, the teeth relatively long and acute; central diastema distinctly U-shaped, narrow; porodonts lateral and very slightly ventral to their respective dental rows, delicate, very fine, distinctly thinner than neighboring setae. Prehensors relatively thin and long, their ungulae notably so; approximately the apical third of each ungula is curved somewhat posteriorly.

Tergites.—The 11th and 13th weakly but distinctly produced; the productions of the 11th very slight, those of the 13th more pronounced; the 9th tergite without discernible productions. Each tergite with complete, raised lateral margins, these margins becoming higher and more prominent on the more posterior tergites of the body, particularly on the 10th, 12th, and 14th. Rear margins of the 14th and 16th tergites subtruncate. The following tergites distinctly wider than long: 1,2,4,6,9,11,13,15. The following tergites distinctly longer than wide: 3,5,8,10,12,14,16. The 7th tergite only slightly wider than long; the 15th concealed beneath the 14th and nearly vestigial, but its discrete, flanking catapleurites well-developed. First tergite lustrous, those following becoming successively more roughened, the more posterior tergites very weakly papulate.

Explanation of Plate

Figs. 1–4, 6, Holotype, *Nuevobius cottus*, n. sp. Fig. 5, *Sozibius tuobukus* (Chamberlin) from Russellville, Tennessee, one of the localities from which the original series of the species was drawn. Fig. 1, Left side of prosternum, with left prehensor *in situ*. (Ventral aspect; setae deleted). Poison calyx with emergent poison canal shown in stipples. Fig. 2, Left side of cephalic plate. (Dorsal aspect; setae deleted). a——ocellar area, b——major ocellus, c——posterior portion of antennocellar suture, d——frontal or transverse suture, its left end meeting the antennocellar suture, e——extension of the limbus anterior to the disjuncture, f——disjuncture of the limbus, g——posterior, raised portion of the limbus. Fig. 3, Extreme left end of the prosternal denture. (Ventral aspect; all setae shown). Porodont shown to the viewer's lower right left of outermost tooth. Fig. 4, Left ultimate leg. (Inner surfaces shown, the dorsal side rotated very slightly away from the observer; setae deleted). Dense porosity of distoprefemoral articles represented in stipples. a——densely porous (cribrose) inner surface of femur, b——nearly poreless ventral surface, c——spur VFM, its tip approximately trident, d——spur VFP, its tip plain, not trident, e——spur DFP, its tip approximately trident, f——greatest length of cephalic plate, showing extraordinary length of rear leg. Fig. 5, Tarsus of 12th leg, *S. tuobukus*. (Inner surface; setae deleted). Note conspicuous tarsal division and relative lengths of tarsal articles. Cf. Fig. 6. Fig. 6, Tarsus of 12th leg, *N. cottus*. (Inner surface; setae deleted). a——proximotarsus, b——tarsal division, a true dorsal condyle absent, c——distitarsus, d——inner (unguiform) accessory claw of pretarsus.

CRABILL



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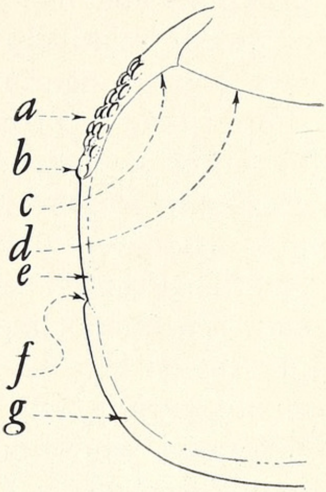

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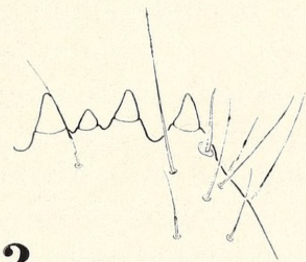

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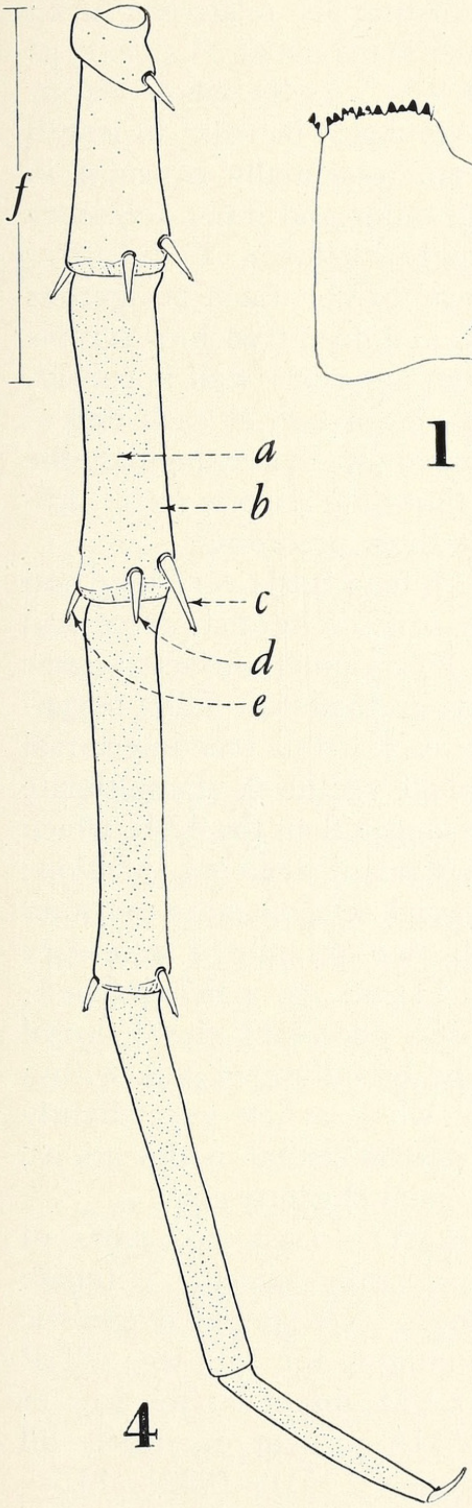

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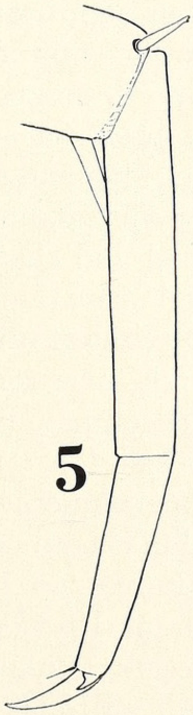

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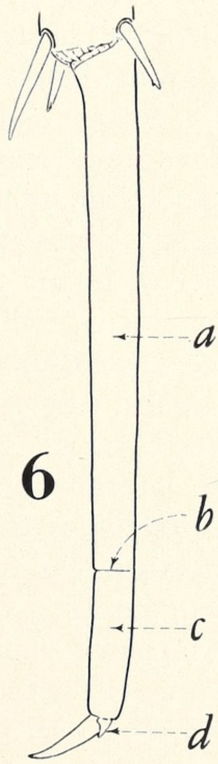

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Cursipeds.—(Fig. 6, Note D).—Each tarsus distinctly biarticulate but none with a true dorsal interarticular condyle. Each proximo- and distitarsus with two poorly-defined pectines. The cursipeds relatively longer than those of similar lithobiids, chiefly owing to elongation of tarsi. Each distitarsus relatively much shorter than its proximotarsus, the former being about ⅓ as long as the latter on each of the more posterior legs. As the whole leg increases in length on legs 1–12, the proximotarsi increase in length proportionately, but the distitarsi remain essentially constant in length. Pretarsi each with a prominent outer and inner accessory claw, the inner (unguiform) claws strongly falciform. *Coxal pores* present on legs 12–15, from front to rear 6775. Each porigerous coxa ventrally with coxal pores situated in a deep trench or scrobis (Note E) whose outer (morphologically, anterior) wall is considerably extended. Coxal pores (except one or two at each end of each row) very strongly elliptical to narrowly subrectangular, the long axis of each pore being at least 4 times the narrow axis. Porigerous coxae notably more setose than those preceding.

Tenacipeds.—(Fig. 4, Note E).—Both tenacipeds very long and thin; neither inflated as a whole or in part. The distiprefemoral articles of each densely cribrose (Note F) on inner surfaces; inner surfaces not midlongitudinally sulcate as in *Sozibius.* Each tenaciped with a complete intertarsal division; each with a true intertarsal dorsal condyle; neither with ventrotarsal pectines. Penultimate leg: length, 9.4 mm. (thus significantly longer than the 12th, which is 7.6 mm. long) ; entirely without general or regional inflation; totally without lobes, knobs, ridges, special setal clusters or other similar appurtenances; pretarsus with two prominent accessory claws. Ultimate leg very long and thin, 11 mm.; no article inflated; pretarsus small, with a vestigial setiform accessory claw; dorsal surface of femur flattened and shallowly, broadly excavate, with a vague sulcus within the excavation, the whole article very slightly bowed ventrally, totally without other special sexual modifications, e.g. knobs, ridges, mounds, extensions, setal clusters, etc.

Plectrotaxy.—(See accompanying chart).—Last two pairs of coxae laterally armed; last four pairs dorsally armed. Ultimate leg dorsally without supernumerary spurs. Of special diagnostic importance: DFA and DFP both continuing to the 15th leg; DTiP present on 15, DTiA present on 14; VPM absent on the legs of anterior body (present on 10–15) ; VTiA present on nearly all legs; VTiP wholly absent. Quantitatively: 15D = 10321, 14D = 10322; 15V = 01332, 14V = 01332.

Postpedal segments.—Male gonopods knoblike, very small, uniarticulate. Gonopods and intervening sternite densely clothed with long setae.

PLECTROTAXY OF HOLOTYPE

	DORSAL				VENTRAL			
Leg	*C*	*P*	*F*	*Ti*	*Tr*	*P*	*F*	*Ti*
1.		amp	a	a		p	am	m
2.		amp	a	a		p	amp	am
3.		amp	ap	a		p	amp	am
4.		amp	ap	a		p	amp	am
5.		amp	ap	ap		p	amp	am
6.		amp	ap	ap		p	amp	am
7.		amp	ap	ap		p	amp	am
8.		amp	ap	ap		p	amp	am
9.		amp	ap	ap		p	amp	am
10.		amp	ap	ap		mp	amp	am
11.		amp	ap	ap		mp	amp	am
12.	a	amp	ap	ap		amp	amp	am
13.	a	amp	ap	ap		amp	amp	am
14.	a	amp	ap	ap	m	amp	amp	am
15.	a	amp	ap	p	m	amp	amp	am

Paratype ♂.—With the collection data of holotype.

The paratype, evidently in the pseudomaturus stadium, agrees very closely with the holotype, differing from it in the following notable particulars. Length, 19 mm. Antennae: right with 43, left with 42 articles; 14 mm. long. Prosternal teeth: right 11, left 11; 3 on each side of the diastema are small and supernumerary. Coxae: last 2 laterally, last 4 dorsally armed. VPM beginning on 8. Last two pairs of legs missing.

CONCERNING NUEVOBIUS CHAMBERLIN

Nuevobius Chamberlin, 1941, p. 188.

Type-species: *Nuevobius cavicolens* Chamberlin, 1941. (Monotypic and original designation).

The following characterization of the genus is based upon the information presented in Chamberlin's original description in conjunction with that gained from the study of the types of *cottus*.

With two known species: *N. cavicolens* Chamberlin, 1941, p. 188, type locality, Mexico, State of Nuevo Leon, Villa Santiago (Hacienda Vista Hermosa), Horsetail Falls, "in dung of bat cave, one-quarter mile from entrance"; *N. cottus,* n. sp., Tennessee, Blount

County, Tuckaleechee Caverns, near Townsend.

Distinguishing characteristics.—(Also see key, following).—In combination: prosternal teeth numerous, 6–11 on a side. Antennae multiarticular (articles more than 40) and very long, extending beyond midbody length. Tergites 11 and 13 at least shortly produced. All legs long and thin. Male penult legs not inflated, without special appurtenances, without sulci on inner surfaces; on each the femur dorsally excavate but not otherwise modified. 15D = 10310 or 10321.

Affinities.—*Nuevobius* belongs to that complex of medium to large lithobiids having: (a) higher antennal and prosternal numbers; (b) specially modified ultimate femora in the males; (c) biarticulate cursipedal tarsi; and (d) a complete or nearly complete representation of spur series (although VTiP may or may not be present). In addition, at least some of the tergites are produced, if only weakly. In the eastern United States this generic ensemble includes *Nuevobius, Sozibius, Neolithobius,* and, if it is generically distinct, *Serrobius.* These four genera are compared in a key following this section.

Of these, *Nuevobius* is surely closest in general structure to *Sozibius,* with which it may merge should the discovery of additional species warrant such an amalgamation. Apart from the overall similarity of the two, it seems clear that they resemble one another in a number of critical individual characters as well, specifically:

(1) The antennal number is high, always exceeding the 20–25 range, which is usually diagnostically critical in American lithobiids and ethopolyids. That is, the vast majority of species fall into one of two groups in this regard: in a given species the antennal number is either 20, intraspecifically varying from about -1 or -2 to $+2$ (as much as $+5$ being very uncommon), or else the antennal number exceeds 25, usually being much higher, in which case intraspecific variation increases in range approximately proportionately with increase in mode. In the high-count category it is possible to distinguish subcategories, but they are usually rather unstable. The most practical gross division distinguishes between: (A) species with 20 (-2 to $+5$) articles, and (B) species with at least 25 and usually more than 30 articles.

(2) In each genus the prosternal number is always greater than 2 per side, being 4–11 per side in known adults. The prosternal number of 2 per side is specified because it too represents a diagnostic point of departure. That is, in the majority of North American species known to me an adult prosternal formula of $2+2$ is

absolutely stable intraspecifically, whereas any higher number tends to be variable within the species. In addition, the higher the modal number, the greater the range of intraspecific variability. For example, every known specimen of *Nadabius pullus* (Bollman) has an unvarying number of 2 per side, i.e. full formula, 2 + 2, and the same can be said of scores of other species, e.g. *Nampabius dendrophilus* Chamberlin, *Pokabius bilabiatus* (Wood), *Garibius opicolens* Chamberlin, *Sigibius puritanus* Chamberlin; numerous other examples could be offered in evidence. On the other hand, in *Nadabius aristeus* Chamberlin the prosternal number is 3 to 4 per side, an adventitious fifth being seen in rare cases; in *Sozibius proridens* (Bollman) the number per side varies from 5 to 7; in *Lithobius forficatus* (Linnaeus) it varies from 5 to 10 or even more.

(3) In *Nuevobius* and in all but two species of *Sozibius* tergite 9 is never produced, 11 and 13 being very weakly to moderately produced.

(4) In both genera the limbus is pronounced and is laterally distinctly broken, the depth of the disjuncture varying interspecifically.

(5) In both genera the tarsi of the cursipeds are biarticulate but lack true intertarsal condyles, which, however, always occur on the tenacipeds.

(6) In both, the inner surfaces of the distiprefemoral articles of the tenacipeds are densely cribrose.

(7) In both, the interdental diastema of the prosternum is U-shaped.

(8) In both, the ultimate male femur is dorsally excavate and more or less bowed ventrally.

(9) In both, at least some of the posterior coxae are laterally armed.

Admitting that our knowledge of both, particularly of *Nuevobius*, is as yet limited, on the basis of existing information it is possible to suggest that the two differ significantly as follows:

Sozibius: (1) Antennae do not reach midbody length; antennal articles are relatively shorter than in *Nuevobius*. (2) Major tergites are shorter, more nearly quadrate. (3) Prehensorial ungula is shorter, somewhat more robust. (4) Porodont is about as long and robust as adjacent setae. (5) Each of the rear porigerous coxae is flat or nearly flat ventrally, scrobes being absent; the coxal pores are circular to subcircular. (6) The distitarsi of the rear cursipeds are about half as long as their proximotarsi. (7) Inner surfaces of distiprefemoral articles of tenacipeds are distinctly midlongitudinally sulcate. (8) Male ultimate femur inflated as a whole and usually regionally in addition; typically with high mounds or extensions; always with special setal clusters; in some species the prefemur is also regionally inflated and bears special setal clusters. (9) DFA never extends to 15, only to 11 or 12; DTiA extends to 11 or 12; VPM extends in all species from 1 through 15.

Nuevobius: (1) Antennae reach beyond midbody length, at least to level of 10th tergite; articles are relatively longer. (2) Major tergites are longer, more rectangular. (3) Prehensorial ungula is longer, thinner. (4) Porodont (at least in *cottus*) is much finer and shorter than neighboring setae. (5) Each of the rear porigerous coxae ventrally is deeply scrobate; within each scrobis the pores, particularly the more central ones, are extremely elongate and narrow. (6) The distitarsi of the rear cursipeds are about ⅓ as long as their proximotarsi. (7) Inner surfaces of the distiprefemoral articles of tenacipeds are not sulcate. (8) Male ultimate femur is not at all inflated and lacks projections, mounds, and setal clusters; prefemur is entirely unmodified. (9) DFA extends from 1 through 15; DTiA extends through 14; VPM is variable but commences well toward the rear of the body.

Key to Genera

The following key includes those eastern North American genera having the following characteristics in combination: prosternal teeth more numerous than 2+2; antennal articles more numerous than 28; ultimate leg of male with pronounced sexual modifications.

1a. Tergites 7–9–11–13 distinctly produced. Spur series VTiP present in some species
Neolithobius Stuxberg (*sensu* Chamberlin)

1b. Tergite 7 never produced. In most, tergites 11 and 13 are not produced or are weakly produced. Tergite 9 is weakly produced in *Sozibius texanus* Chamberlin, and it is strongly produced in an as yet undescribed species of the genus. VTiP evidently never present 2

2a. Antennae very long, reaching as far as, or to the end of tergite 10. On legs 10–12 the distitarsi are very short in relation to the proximotarsi, being about ⅓ as long. Coxal pores very strongly elongate and set into deep coxal scrobes. Ultimate leg of male very long and slender, no article inflated, not compressed laterally; femur dorsally excavate and shallowly sulcate, without setal clusters or special appurtenances; prefemur without supernumerary spurs dorsally; inner surfaces of articles not sulcate (cavernicolous forms)
Nuevobius Chamberlin

2b. Antennae shorter, not reaching as far as tergite 10. On legs 10–12 the distitarsi are longer in relation to the proximotarsi, being about half as long. Coxal pores usually subcircular, at most being weakly subelliptical; usually on the flat ventral coxal surface, at most in very shallow depressions. Male ultimate leg notably inflated as a whole and relatively shorter, compressed laterally; femur always strongly inflated, the prefemur in some species inflated; femur dorsally excavate, with pronounced elevations anteriorly and posteriorly or at one end or the other, with special setal clusters, often strongly ridged on outer side; prefemur sometimes strongly inflated and with special setal clusters; with supernumerary dorsal spurs (only in *Sozibius pulchellus* (Causey)[2]; inner surfaces deeply to weakly sulcate 3

3a. 15th coxa said to be armed with a ventral spur *Pearsobius* Causey[3]

3b. 15th coxa ventrally without a spur . . . . . . *Sozibius* Chamberlin

Appendix Notes

A. New Term. Limbus, pl. limbi: a second-declension Latin masculine noun meaning border, rim, margin. Here it is applied restrictively to the lateral and posterior raised margin of the cephalic plate as it occurs in most Lithobiomorpha and many Scolopendromorpha. Adjective, limbate. See Fig. 2, e, g.

B. New Term. The antennocellar suture is here defined as that sinuous anterolateral suture on each side of the head that passes from the antennal socket, where it arises in the vicinity of the dorsal

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[2] New Combination. The Causey species was proposed (1942, p. 79) as the type-species of a new genus, *Serrobius,* which here is regarded as a subjective junior synonym of *Sozibius.*

[3] The generic distinctiveness of *Pearsobius carolinus* Causey (1942, p. 80), the type-species of *Pearsobius,* rests in some doubt. Dr. Causey's original description called particular attention to the presence of a ventral coxal spur on leg 15, which is indeed a distinctive characteristic, if it is constant and not a phenotypic anomaly. I have seen specimens from North Carolina and Virginia that agree closely with *carolinus* in every feature but this one. If the ventral coxal armature of *carolinus* is anomolous, then it would come within *Sozibius.* Under the circumstances I should not feel justified in formalizing such a merger without first studying the types, which are unavailable.

articular processes, posteriorly to meet the lateral end of the frontal suture, whence it curves backward to delineate the dorsomesal and posterior limits of the ocellar area. See Fig. 2, c.

C. Major ocellus is intended to specify the large, often discrete, posterior-most ocellus of the ocellar area. In the familiar ocellar formula it is cited to the left of the plus sign, e.g. 1 + vwxyz. The smaller, seriate ocelli, which are always anterior to and usually well separated from the major ocellus, may then be termined the minor or *seriate ocelli.* See Fig. 2, b.

D. New Terms. Cursipeds, tenacipeds. Cursiped is a new term devised to specify any one of the first 13 pairs of legs. The word is based upon the Latin words *pes,* foot, and *cursus,* the perfect past participle of *currere,* to run. Tenaciped refers to the 14th or the 15th leg and is formed from *pes* and *tenax* (genitive, *tenacis*), meaning holding firmly, gripping.

Etymologically, they are suggestive of an essential division of labor manifest within the anteroposterior series of body legs. The legs of at least the anterior two-thirds of the body are concerned primarily with locomotion. The more posterior legs, notably the last two pairs, but not necessarily these alone, although possibly instrumental in effecting locomotion to some extent, are primarily anchoring and raptorial devices. It is not suggested that this functional division is absolute, only that it is valid within limits, and that in any event the present designatory device is useful and expedient.

Thus for descriptive and diagnostic purposes it is convenient to treat the legs as if they were divisible into two groups, one comprising legs 1–13, the other, legs 14 and 15. A number of pedal characteristics justifies this somewhat artificial grouping.

(1) Proceeding from front to rear, we see that the legs manifest at least two gradual changes: they become longer; their long axes swing posteriorly, successively forming a smaller angle with the longitudinal axis of the body. In other words, each successive leg tends more closely to approach being parallel to the body's long axis. In the Lithobiinae and Ethopolyinae the 14th and 15th legs are usually disproportionately slightly longer and more parallel to the body's long axis than the preceding legs. (2) In the Lithobiinae (but not in the Ethopolyinae) all species known to me to have biarticulate tarsi lack true intertarsal condyles on legs 1–13. In these the circumarticular suture is simply interrupted dorsally by unmodified exoskeleton. But in all Lithobiinae each of legs 14 and 15 has a biarticulate tarsus and a true intertarsal condyle. Note that the tenacipeds have true condyles whether or not the cursipeds have

biarticulate tarsi. (3) When tarsal pectines are present, they occur only on the cursipeds, never on the tenacipeds. (4) In all species known to me the cursipeds invariably have two pretarsal accessory claws, but one or both tenacipeds may have one or the other, both, or no accessory claws. (5) Male secondary sexual modifications, when present, occur on one or the other, or on both of the tenacipeds; they are rarely, if ever, present on the cursipeds. (6) Several plectrotaxic criteria lend weight to this division. When VTiP is present on some or on all of the cursipeds, it rarely, if ever, occurs on the tenacipeds. When VCM is present, it nearly always occurs only on 15, or on 14 and 15. DTiA, which is common on the cursipeds, is uncommon on 14 and rarely occurs on 15. (7) It is well known that certain articles of the last two legs have densely porous inner surfaces, whereas in the majority of known species the homologous cursiped leg surfaces are often described as being non-porous. This, however, is in error, for careful examination shows that the cursipeds too are porous, though their pores are so sparse and small that they readily escape detection. Therefore, the distinction should properly be drawn between (a) *densely* porous (or better, cribrose) leg articles and (b) *sparsely* porous (or non-cribose) leg articles. The new designation, *cribose,* is introduced here to specify only those leg surfaces that are densely porous. The reader should be warned, however, that whereas many lithobiids conform to this pattern (i.e. 1–13 non-cribose, 14 and 15 cribose), some do not. For instance, in several species of *Tidabius* legs 13–15 are cribrose; in a number of neotropical gosibiids many of the cursipeds anterior to the 13th are cribrose. Once thoroughly studied, this subtle character will probably prove very useful in specific and supraspecific diagnoses. Cf. Figs. 4, a and 6, a.

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