

THE PSEUDOSCORPION GENUS *MEXOBISIUM* IN MIDDLE AMERICA
(ARACHNIDA, PSEUDOSCORPIONIDA)

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The genus *Mexobisium* was described recently on the basis of a single specimen found in a cave in Veracruz, México, in 1967 (Muchmore, 1972). In the relatively short time since then, representatives of five new forms belonging to this group have come to light, leading to a somewhat better understanding of the characteristics and distribution of the genus. It is now evident that the individual species may be quite varied in form and that they are widely distributed over México, Central America and the Antilles in both epigeal and hypogean habitats.

Types of the new species described below are deposited in the collection of the American Museum of Natural History, except where noted otherwise.

I wish to acknowledge a great debt of gratitude to Robert W. Mitchell, Stewart B. Peck and James R. Reddell for furnishing me with most of the specimens considered herein. I also acknowledge the invaluable assistance of Charlotte H. Alteri in studying the material and preparing the illustrations. The work was supported in part by a research grant (GB 17964) from the National Science Foundation.

Genus *Mexobisium* Muchmore

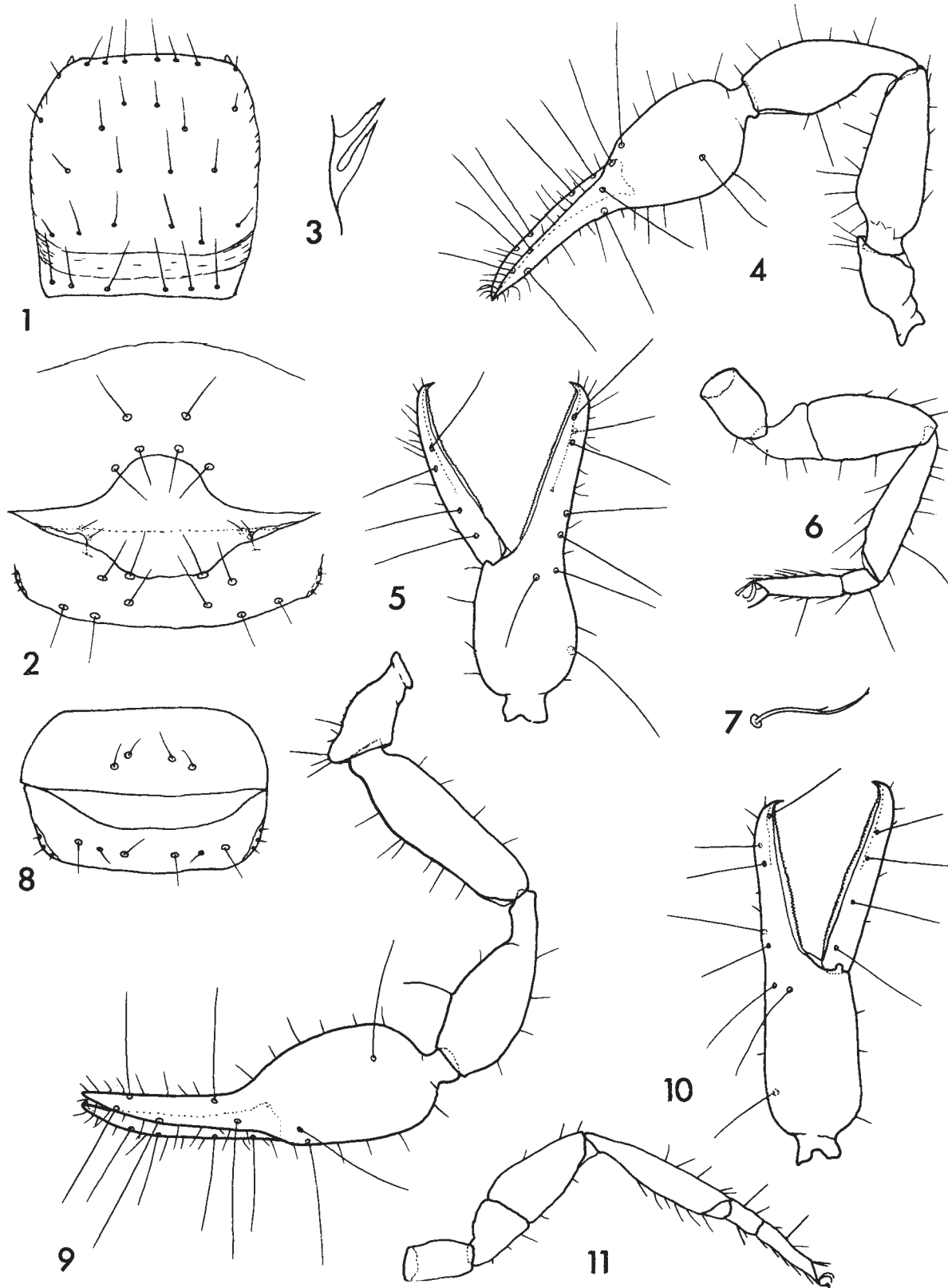
Mexobisium Muchmore, 1972, p. 272.

Type-Species—*Mexobisium paradoxum* Muchmore, 1972.

Based on study of the five new species described below, including both sexes and several nymphs, a more satisfactory definition of the genus is now

possible.

Diagnosis—A neobisioid genus showing strong similarities to *Leucohya* and *Paravachonium*. Carapace with or without an epistome; each anteroventral corner usually with a small, but prominent, conical protuberance; a distinct transverse furrow or membranous band near posterior edge in most species; no eyes or eyespots present; vestitural setae of carapace numbering 28-38; palpal coxa with two large apical setae set close together; pleural membranes of abdomen longitudinally granulo-striate, each granule usually with an apical spinule; anal operculum with four setae (dorsal and ventral) or only two setae (dorsal); anterior genital operculum of female usually with only four small setae, occasionally with more (eight); chelicera about half as long as carapace; cheliceral flagellum of two (or one) short, sparsely denticulate (or simple) setae; seta *es* of cheliceral hand short; palpal chela with venedens and venom apparatus well developed in both fingers, venom ducts quite long; chela with 12 trichobothria, *ib* on dorsum of hand proximad of middle, *it* proximad of *et*, and *ist* far proximad of *est*; femoral sutures of legs III and IV located about one-third length of femur from proximal end and slightly oblique to transverse axis; tarsi of all legs of adults divided into metatarsus and telotarsus, in tritonymphs (three examples) only tarsi III and IV so divided, and in deutonymphs (one example) none of the tarsi divided; all tarsi of nymphs distinctly swollen basally; telotarsi of legs I, II and III each with a heavy, sharp spine at base of posterior seta on outer distal angle, telotarsus IV with a small,



Figs. 1-8. *Mexobisium pecki*, new species. 1. Carapace. 2. Genital opercula of male. 3. Cheliceral flagellum. 4. Right palp, dorsal view. 5. Left chela, lateral view. 6. Leg IV, anterior view. 7. Subterminal tarsal seta. 8. Genital opercula of female.

Figs. 9-11. *Mexobisium cubanum*, new species. 9. Left palp, dorsal view. 10. Right chela, lateral view. 11. Leg IV, anterior view.

blunt projection in corresponding position; subterminal tarsal setae finely denticulate laterally and terminally (or simple); arolia shorter than claws, which are long and slender.

Remarks—The relations of this genus are still far from clear. It is certainly closely allied to *Leucohya* Chamberlin (1946) and *Apohya* Muchmore (1973), which belong to the Leucohyinae Chamberlin (though the close relationship of these to the Hyinae is dubious). On the other hand, *Mexobisium* also shows many strong similarities to *Paravachonium* Beier (1956), which has been considered a member of the Vachoniidae Chamberlin (see Beier 1956; Muchmore, 1972). A major difference between *Mexobisium* and *Paravachonium* is the striking modification of the tip of the fixed chelal finger in the latter, with concomitant reduction in the venom apparatus. It is conceivable that this modification in *Paravachonium* is closely cave-related and is not of significance at the family level of classification. However, much more study of these and other, related genera is necessary before any firm conclusions can be drawn.

***Mexobisium pecki*, new species**

Figs. 1-8

Material—Holotype male (WM2522.02004) and 18 paratypes (16 males, 2 females) from a locality 10 km S Valle Nacional, Oaxaca, México, 2000 ft elevation, 19 May 1971. Specimens obtained by Berlese separation of 42 liters of leaf litter "from ravine, piles of moist leaves on rock ledges and in deep rock crevices and ravine bottoms, moist while surroundings are dry. The region is one of tropical evergreen forest vegetation. A very good rich sample." (S. Peck). Other pseudoscorpions present were many specimens of an unidentified species of *Tyrannochthonius* and six specimens of an unidentified ideoroncid.

Diagnosis—The smallest known species in the genus, *M. pecki* is further characterized by the lack of an epistome, the lack of setae on the ventral anal plate, and the possession of five setae on the cheliceral hand (see key).

Because this is the first known epigeal species of the genus and is represented by relatively abundant material, a complete description is given.

Description of Male—(Based on the holotype and nine paratypes, mounted on slides.) Carapace, chelicerae and palps reddish brown, other parts slightly lighter. Carapace about as long as broad; anterior margin without an epistome and slightly concave at center; each anteroventral corner with a small, but prominent, conical protuberance; a distinct transverse furrow or membranous band near posterior

edge (see Fig. 1); surface smooth; chaetotaxy 8-6-4-6-6=30. Coxal chaetotaxy 2-5-2:4-2:4-2:3-2:3-5; palpal coxa with two large apical setae set close together. Tergites and sternites smooth; pleural membranes longitudinally granulo-striate, the granules with prominent apical spinules. Tergal chaetotaxy 9:9:9:9:9:9:9:9:7:T1T:2. Sternal chaetotaxy $\frac{2}{4}$:[2-2]:(3)19 (3):(3)10(3):14:15:15:15:14:11:T1T1T1T:0; there is some slight variation in numbers of setae on the sternites and on the spiracular plates; genital opercula as in Figure 2.

Chelicera with five setae on hand; fingers with 8-10 irregular teeth; serrula exterior of 20-21 blades; galea a long straight stylet; flagellum of two short setae, apparently denticulate terminally (Fig. 3).

Palps moderately long and slender; femur 0.82-0.93 and chela 1.36-1.50 times as long as carapace. Proportions of segments as in Figure 4; trochanter 2.25-2.45, femur 2.7-2.95, tibia 2.25-2.4, and chela (without pedicel) 3.0-3.3 times as long as broad; hand (without pedicel) 1.3-1.45 times as long as deep; movable finger 1.38-1.43 times as long as hand; surfaces smooth. Trichobothria on chela as in Figure 5; *ib* on dorsum of hand proximad of middle, *it* proximad of *et*, and *ist* far proximad of *est*. Fixed finger with 51-52 slightly spaced, retroconical marginal teeth; movable finger with 41-46 low, quadrangular teeth. Each finger with well developed venedens and venom apparatus, the ducts long; nodus ramosus in movable finger nearly at level of trichobothrium *sb*, that in fixed finger between *est* and *ist*, but nearer the latter.

Legs relatively stout; leg IV (Fig. 6) with entire femur 2.8-3.1 and tibia 4.4-4.75 times as long as deep; femoral suture of leg IV located about one-third the length of femur from proximal end and slightly oblique to transverse axis. Spines well developed on telotarsi I, II and III, only a small, blunt projection in corresponding position on leg IV. Subterminal tarsal setae finely denticulate laterally and terminally (Fig. 7). Arolia shorter than claws, which are long and slender. Leg IV with long tactile setae on metatarsus 0.33-0.42 and on telotarsus 0.30-0.40 length of segment from proximal end.

Female—(Based on the two mounted paratypes.) Generally similar to male but slightly larger. Genital operculum as in Figure 8; anterior operculum with four small setae, posterior operculum with six, including two small ones. Cheliceral galea longer than that of male and gently curved. Palpal chela larger and stouter than that of male, 2.9 times as long as broad; movable finger 1.31 times as long as hand. Movable finger with 46-47 and fixed finger with

58-59 marginal teeth.

Measurements (in mm)—Male: Body length 1.66-1.84. Carapace length 0.46-0.49. Chelicera 0.235-0.25 by 0.12-0.125. Palpal trochanter 0.235-0.27 by 0.10-0.12; femur 0.385-0.445 by 0.135-0.15; tibia 0.34-0.39 by 0.15-0.17; chela (without pedicel) 0.64-0.725 by 0.205-0.23; hand (without pedicel) 0.28-0.31 by 0.20-0.22; pedicel 0.05-0.06 long; movable finger 0.385-0.445 long. Leg I: basifemur 0.19-0.22 by 0.08-0.09; telofemur 0.13-0.155 by 0.075-0.08; tibia 0.23-0.26 by 0.05-0.06; metatarsus 0.065-0.08 by 0.04-0.045; telotarsus 0.16-0.20 by 0.04. Leg IV: entire femur 0.38-0.42 long; basifemur 0.15-0.16 by 0.12-0.135; telofemur 0.265-0.30 by 0.13-0.15; tibia 0.33-0.37 by 0.075-0.08; metatarsus 0.08-0.10 by 0.05-0.055; telotarsus 0.19-0.21 by 0.045-0.05.

Female: Body length 1.89, 2.04. Carapace length 0.51, 0.52. Chelicera 0.28, 0.29 by 0.14. Palpal trochanter 0.29, 0.30 by 0.125; femur 0.465, 0.47 by 0.16-0.17; tibia 0.42, 0.435 by 0.18, 0.20; chela (without pedicel) 0.78, 0.79 by 0.265, 0.27; hand (without pedicel) 0.35, 0.355 by 0.26, 0.27; movable finger 0.46, 0.47 long. Leg IV: entire femur 0.435, 0.46 by 0.15, 0.155.

Etymology—This species is named for Stewart Peck, who has collected many new and important pseudoscorpions in México.

Mexobisium cubanum, new species

Figs. 9-11

Material—Holotype female (WM1812.01001) from Jatibonico, Cuba, on 22 September 1931 (L.D. Christenson), and two paratype tritonymphs taken at the same place by the same person on 3 September 1931 and 30 October 1931; all found "in sugar cane soil." (Types in collection of National Museum of Natural History, Washington, D. C.)

Diagnosis—A small epigeal species distinguished from *M. pecki* by larger size, the presence of six setae on the cheliceral hand, and the presence of two setae on the anal sternite (see key).

Description of Female—With the characteristics of the genus as defined above and with the following noteworthy features. Anterior margin of carapace with a small triangular epistome; each anteroventral corner with a small, but prominent conical protuberance; no eyes; 32 vestitural setae with eight at anterior and six at posterior margin.

Pleural membranes longitudinally granulo-striate, the granules with apical spinules. Tergal chaetotaxy 9:9:9:9:11:11:9:9:7:T1T:2. Sternal chaetotaxy 4:(3)9(3):(3)12(2):12:12:11:10:13:9:T1T1T1T:2.

Cheliceral hand with six setae; fingers each with

about five marginal teeth; galea long, curved; serrula exterior with 22 blades; flagellum of two small, apparently acuminate setae, set very close together.

Palps moderately slender; femur 0.96 and chela 1.55 times as long as carapace. Proportions of segments as shown in Figure 9; trochanter 2.3, femur 3.3; tibia 2.55, and chela (without pedicel) 3.1 times as long as broad; hand (without pedicel) about 1.5 times as long as deep; movable finger 1.18 times as long as hand. Trichobothria of chela as shown in Figure 10. Fixed finger with 56 contiguous, retroconical teeth, and movable finger with 47 similar, but less pointed, teeth. Both fingers with well developed venom apparatus.

Legs moderately slender (Fig. 11); leg IV with entire femur 3.0 and tibia 5.1 times as long as deep. Spines well developed on tarsi I, II and III, only a small, conical projection in corresponding position of Leg IV. Subterminal tarsal setae apparently acuminate. Arolia slightly shorter than claws. Leg IV with tactile setae on tibia 0.76, on metatarsus 0.42, and on telotarsus 0.33 length of segment from proximal end.

Male—Unknown.

Tritonymph—Generally very similar to female but smaller and with tarsi of legs I and II not divided. Anterior margin of carapace without an epistome and slightly emarginate; transverse furrow not apparent; 32 vestitural setae. Chelicera with six setae on hand; galea long, curved; flagellum of two small, apparently acuminate setae. Palps with no unusual features. Fixed finger with 42-44 and movable finger with 34-35 marginal teeth; both fingers with well developed venom apparatus. Legs unusual only in fact that tarsi of legs I and II are undivided, while those of legs III and IV are divided as in adult, and all tarsi swollen basally.

Measurements (in mm)—Figures given first for female holotype, followed in parentheses by those for the two tritonymphs. Body length 2.18 (1.89-2.06). Carapace length 0.64 (0.48-0.495). Chelicera 0.31 (0.25-0.255) by 0.21 (0.155-0.17). Palpal trochanter 0.35 (0.24-0.25) by 0.15 (0.12); femur 0.615 (0.43-0.44) by 0.185 (0.13-0.14); tibia 0.535 (0.36-0.39) by 0.21 (0.15-0.155); chela (without pedicel) 0.99 (0.68-0.72) by 0.32 (0.22-0.23); hand (without pedicel) 0.465 (0.31-0.32) by 0.265 (0.175); pedicel 0.075 (0.05) long; movable finger 0.55 (0.36-0.395) long. Leg I: tibia 0.315 (0.205-0.22) by 0.07 (0.06); metatarsus 0.09 by 0.05; telotarsus 0.20 by 0.04 (tarsus 0.19-0.21 by 0.05). Leg IV: entire femur 0.485 (0.335-0.35) by 0.16 (0.12); tibia 0.435 (0.28-0.29) by 0.085 (0.07-0.075); metatarsus 0.12 (0.08-0.09) by 0.055 (0.055-0.06); telotarsus 0.225 (0.155-0.17) by 0.055 (0.06-0.07).

Etymology—The species is named for Cuba, the country in which it lives.

Mexobisium maya, new species

Figs. 12-17

Material—Holotype female (WM2726.01001) and paratype tritonymph from Grutas de Coconá, 3 km NE Teapa, Tabasco, México, on 29 December 1971 (D. McKenzie).

Diagnosis—General conformation similar to that of *M. pecki*, but larger and with more attenuated appendages (see key).

Description of Female—Carapace 1.3 times as long as broad; no epistome; surface slightly reticulated; membranous furrow near posterior edge of carapace broad and distinct; vestitural setae 8-4-4-4-6-6=32. Tergal chaetotaxy 8:8:8:8:9:9:9:9:6:T1T:2. Sternal chaetotaxy 4:(3)8(3):(3)11(3):16:14:15:17:12:11:T1T1T1T:2; genital opercula as shown in Figure 12.

Chelicera with five setae on hand; flagellum of two small, close-set setae, subterminally denticulate; serrula exterior of 27 or 28 blades; serrula interior of 22 blades; fingers without distinct teeth, but with "dental" margins irregularly roughened.

Palps as in Figure 13. Femur 1.08 and chela 1.75 times as long as carapace. Trochanter 2.5, femur 4.2, tibia 3.35 and chela (without pedicel) 3.75 times as long as broad; hand (without pedicel) 1.75 times as long as deep; movable finger 1.30 times as long as hand. Trichobothria of chela as in Figure 14. Fixed finger with 109 retroconical teeth; movable finger with 105 retroconical and quadrangular teeth. Venom apparatus well developed in both fingers; nodus ramusus in fixed finger about midway between trichobothria *est* and *ist*, that in movable finger just proximal of *st*.

Legs moderately slender (Fig. 15); leg IV with femur 3.9 and tibia 7.2 times as long as deep. Spines well developed on telotarsi I, II and III, only a small, blunt projection in corresponding position on leg IV. Subterminal tarsal setae laterally and terminally denticulate. Leg IV with tactile setae on tibia 0.52, on metatarsus 0.39 and on telotarsus 0.49 length of segment from proximal end.

Male—Unknown.

Tritonymph—Generally similar to female but smaller and lighter and with tarsi of legs I and II not divided. Carapace without a transverse membranous band or furrow; vestitural setae 8-4-4-4-6-5=31. Tergal chaetotaxy 7:8:8:9:9:9:9:9:7:T1T:2. Sternal chaetotaxy 0:(2)4(2):(2)9(2):13:13:13:11:11:10:T1T1T1T:2.

Cheliceral hand with five setae; flagellum of two short, terminally denticulate setae; galea a long, curved stylet; fingers without distinct teeth, but with "dental" margins irregularly roughened.

Palps with trochanter 2.2, femur 3.75, tibia 2.85, and chela (without pedicel) 3.8 times as long as broad; hand (without pedicel) 1.7 times as long as deep; movable finger 1.34 times as long as hand. Fixed finger without trichobothrium *ist*, and movable finger lacking *sb* (probably). Fixed finger with 82 and movable finger with 78 marginal teeth. Venom apparatus well developed in both fingers.

Tarsi of legs I and II undivided (Fig. 16); those of legs III and IV distinctly divided, as in the adult (Fig. 17). Tarsi swollen near proximal ends. Spines characteristically developed on tarsi I, II and III.

Measurements (in mm)—Figures given first for holotype female, those of tritonymph in parentheses. Body length 3.61 (2.45). Carapace length 1.09 (0.78). Chelicera 0.49 (0.38) by 0.235 (0.185). Palpal trochanter 0.605 (0.41) by 0.245 (0.185); femur 1.175 (0.79) by 0.28 (0.21); tibia 1.09 (0.67) by 0.325 (0.235); chela (without pedicel) 1.915 (1.29) by 0.51 (0.34); hand (without pedicel) 0.86 (0.58) by 0.495 (0.34); pedicel 0.12 (0.08) long; movable finger 1.12 (0.78) long. Leg IV: entire femur 0.95 (0.665) long; basifemur 0.35 (0.265) by 0.23 (0.16); telofemur 0.67 (0.465) by 0.245 (0.17); tibia 0.895 (0.605) by 0.125 (0.10); metatarsus 0.19 (0.14) by 0.09 (0.075); telotarsus 0.48 (0.36) by 0.08 (0.09).

Etymology—The name *maya*, referring to the early people of the region, is used as a noun in apposition.

Mexobisium guatemalense, new species

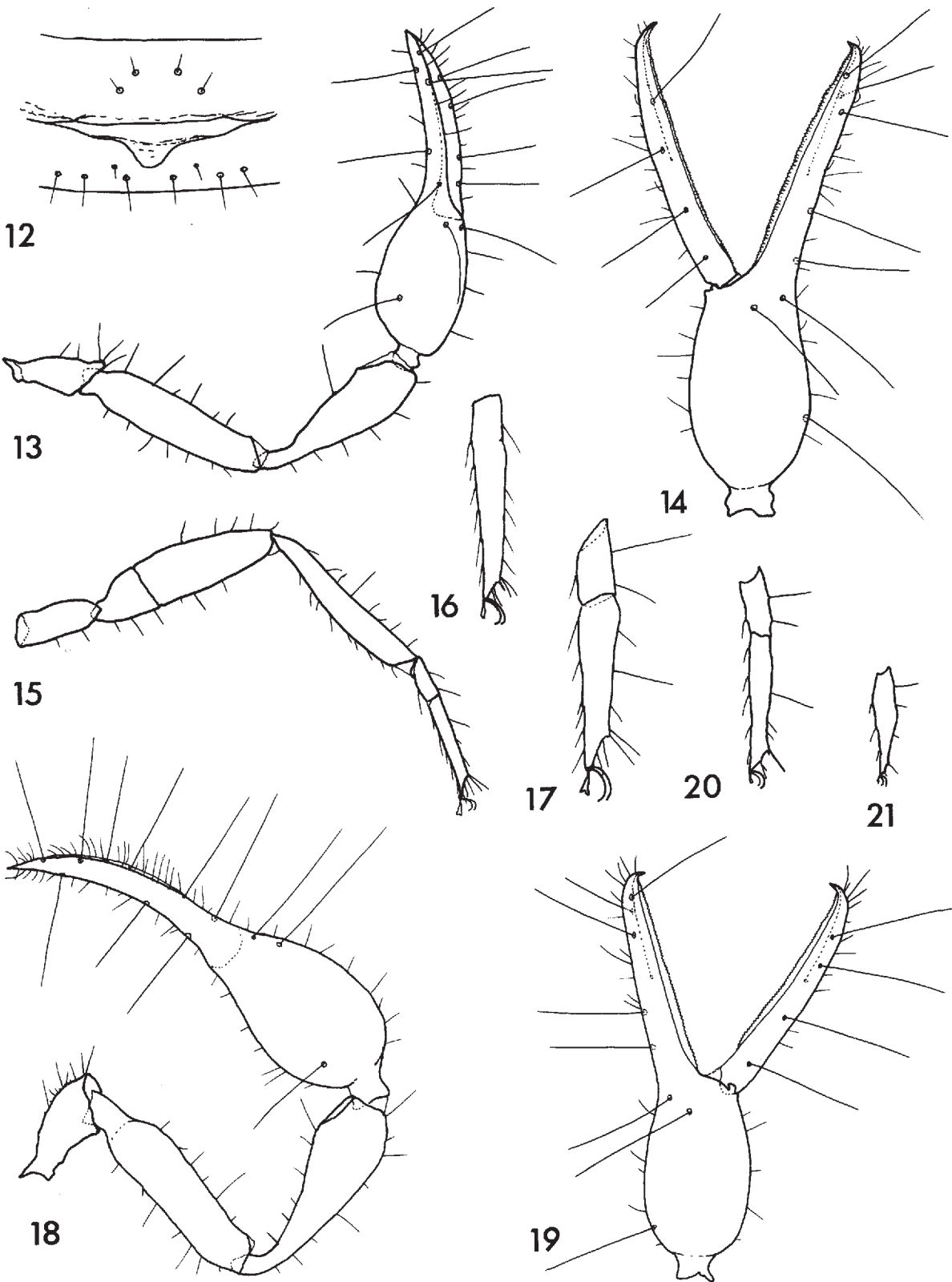
Figs. 18-21

Material—Holotype female (WM1904.01001) and paratype deutonymph from Cueva Lanquin, Alta Verapaz, Guatemala, on 28 August 1969 (S. and J. Peck).

Diagnosis—Moderately large species, with an epistome and with six setae on the cheliceral hand (see key).

Description of Female—With the characteristics of the genus as defined above and with the following noteworthy features. Carapace about 1.3 times as long as broad; anterior margin with prominent triangular epistome; each anteroventral corner with a prominent conical protuberance; no eyes or eyespots; 35 vestitural setae, including eight at anterior and six at posterior margin; transverse furrow indistinct.

Abdominal tergites and sternites smooth; pleural membranes longitudinally granulo-striate, the granules with long, apical spinules. Tergal chaetotaxy



8:8:9:9:9:9:9:9:7:TT:2. Sternal chaetotaxy 4:(3)10(3):(2)12(2):16:17:18:16:14:11:T1T1T1T:2.

Cheliceral hand with six setae; fingers each with about eight teeth of various sizes; galea long, slender and curved; serrula exterior with 33 and serrula interior with 27 blades; flagellum of two small, terminally denticulate setae set close together.

Palps long and rather slender; femur 1.08 and chela 1.73 times as long as carapace. Proportions of segments as in Figure 18; trochanter 2.3, femur 4.3, tibia 3.0, and chela (without pedicel) 3.7 times as long as broad; hand 1.55 times as long as deep; movable finger 1.41 times as long as hand. Surfaces smooth. Trichobothria of chela as shown in Figure 19. Fixed finger with 104 contiguous, retroconical teeth; movable finger with 98 rather similar, but lower, teeth; both fingers with well developed venom apparatus.

Legs slender; leg IV with entire femur 4.2 and tibia 8.7 times as long as deep. All tarsi divided (Fig. 20). Spines well developed on telotarsi I, II and III, only a small, blunt projection in corresponding position on leg IV. Arolia shorter than claws. Leg IV with tactile setae on tibia 0.74, on metatarsus 0.43 and on telotarsus 0.43 length of segment from proximal end.

Male—Unknown.

Deutonymph—Generally similar to the adult, but smaller, less heavily sclerotized and with tarsi of all legs undivided. Carapace without epistome; with anteroventral protuberances; without eyes; 28 vestitural setae, including 6 at anterior and 4 at posterior margin; no transverse furrow evident.

Pleural membranes of abdomen longitudinally granulate, granules with apical spinules. Tergal chaetotaxy 6:6:6:6:7:7:7:7:7:7:TT:1. Sternal chaetotaxy 0:(1)4(1):(1)7(1):9:9:9:9:9:7:TTTT:2.

Cheliceral hand with 5 setae; serrula exterior with 18, and serrula interior with 16 blades; flagellum of 2 small, terminally denticulate setae.

Palps not as long or slender as those of female; femur 0.96 and chela 1.68 times as long as carapace; trochanter 2.25, femur 3.5, tibia 2.9, and chela 4.0 times as long as broad; hand 1.55 times as long as deep; movable finger 1.73 times as long as hand. Movable chelal finger with two and fixed finger with six trichobothria, as is usual for deutonymphs. Movable finger with 51 and fixed finger with 61 marginal teeth.

Legs generally similar to those of adult, but with no division of tarsi; instead, each tarsus is noticeably

swollen just distal to point where suture would be expected (Fig. 21). Spines on tarsi as in adult. Leg IV with tactile setae on tibia 0.64, and on tarsus 0.17 and 0.55 length of segment from proximal end.

Measurements (in mm)—Figures for female followed in parentheses by those of deutonymph. Body length 3.55(2.03). Carapace 1.11(0.55) long. Chelicera 0.54(0.29) by 0.26(0.15). Palpal trochanter 0.605(0.28) by 0.26(0.125); femur 1.205(0.525) by 0.28(0.15); tibia 1.07(0.465) by 0.36(0.16); chela (without pedicel) 1.925(0.925) by 0.525(0.23); hand (without pedicel) 0.82(0.34) by 0.525(0.22); pedicel 0.11(0.05) long; movable finger 1.155(0.59) long. Leg I: basifemur 0.58(0.265) by 0.16(0.09); telofemur 0.35(0.155) by 0.15(0.08); tibia 0.71(0.295) by 0.095(0.065); metatarsus 0.20 by 0.07; telotarsus 0.415 by 0.065 (tarsus 0.30 by 0.06). Leg IV: entire femur 0.96(0.465) long; basifemur 0.355(0.18) by 0.215(0.11); telofemur 0.67(0.30) by 0.23(0.11); tibia 0.955(0.39) by 0.11(0.065); metatarsus 0.22 by 0.085; telotarsus 0.435 by 0.08 (tarsus 0.35 by 0.06).

Etymology—This species is named for Guatemala, the country in which it lives.

Mexobisium goodnighti, new species

Figs. 22-25

Material—Holotype female (WM2945.01001) from a cave near Augustine, Belize (British Honduras), on 20 July 1972 (Charles Goodnight).

Diagnosis—A very large species with attenuated appendages and well colored sclerotic parts; no transverse furrow on carapace, and eight setae on anterior genital operculum of female (see key).

Description of Female—With the characteristics of the genus as defined above and with the following special features. Carapace 1.5 times as long as broad; epistome small, triangular; surface distinctly reticulated; no transverse furrow present; vestitural setae 38, with six at anterior and six at posterior margins. Abdominal pleural membranes longitudinally granulo-striate, dorsalmost granules with very long apical spinules. Tergal chaetotaxy 8:8:9:9:9:9:9:9:7:TTT T:2. Sternal chaetotaxy 8:(3)10(3):(3)13(3): $\frac{2}{18}$: $\frac{4}{20}$: $\frac{4}{18}$: $\frac{2}{18}$:17:11:TT:2; setae of anterior sternites as shown in Figure 22.

Chelicera with six setae on hand; flagellum of two small, apparently simple, setae, well separated at their

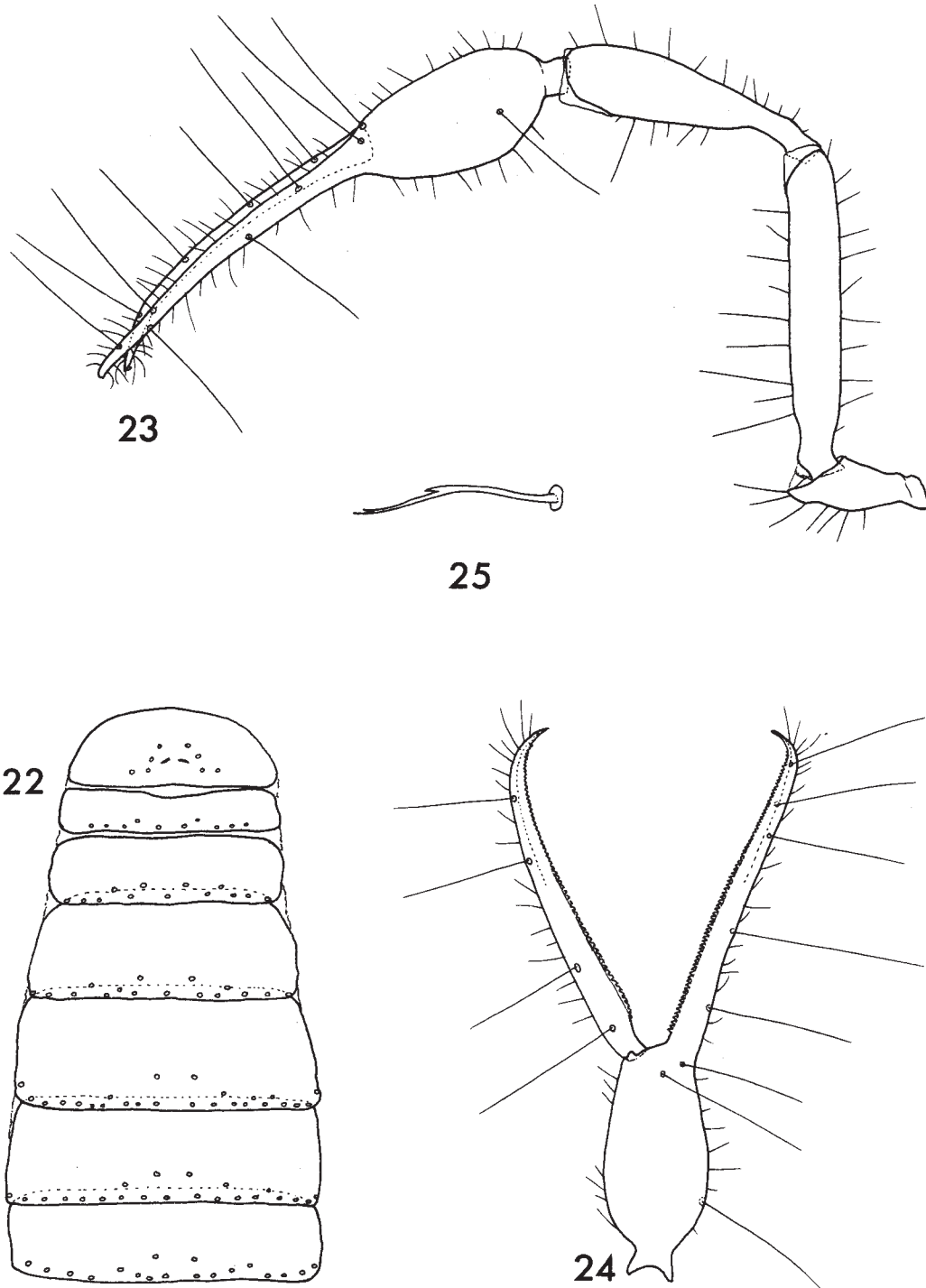
← Figs. 12-17. *Mexobisium maya*, new species. 12. Genital opercula of holotype female. 13. Right palp, dorsal view. 14. Left chela, lateral view. 15. Leg IV, anterior view. 16. Tarsus of leg I of tritonymph. 17. Metatarsus and telotarsus of leg IV of tritonymph.

← Figs. 18-21. *Mexobisium guatemalense*, new species. 18. Right palp of holotype female, dorsal view. 19. Right chela, lateral view. 20. Metatarsus and telotarsus of leg IV. 21. Tarsus of leg IV of deutonymph.

bases; serrula exterior with 33 and serrula interior with 26 blades.

Palps as in Figure 23; femur 1.25 and chela 2.11 times as long as carapace. Trochanter 2.6, femur 6.0, tibia 3.85, and chela (without pedicel) 5.1 times as

long as broad; hand (without pedicel) 1.9 times as long as deep; movable finger 1.83 times as long as hand. Chela with trichobothria as in Figure 24. Chelal fingers strongly curved at distal ends; fixed finger with 137 retroconical teeth; movable finger with 116



Figs. 22-25. *Mexobisium goodnighti*, new species. 22. Sternites 2-8, showing bases of setae. 23. Right palp, dorsal view. 24. Left chela, lateral view. 25. Subterminal tarsal seta.

teeth, the distal six or seven greatly flattened, the others similar to those of fixed finger but more depressed; venom apparatus well developed in both fingers.

Legs quite slender; leg IV with entire femur 6.65 and tibia 11.7 times as long as deep. Spines well developed on telotarsi of legs I, II and III, only a small projection in corresponding position on leg IV. Subterminal tarsal setae laterally and terminally denticulate (Fig. 25). Tibia and both tarsal segments of legs III and IV with a number of long, heavy setae along outer margins.

Male—Unknown.

Measurements (in mm)—Body length 4.40. Carapace length 1.40. Chelicera 0.68 by 0.31. Palpal trochanter 0.77 by 0.295; femur 1.75 by 0.29; tibia 1.48 by 0.385; chela (without pedicel) 2.96 by 0.585; hand (without pedicel) 1.04 by 0.555; pedicel 0.16 long; movable finger 1.91 long. Leg IV: entire femur 1.46 long; basifemur 0.495 by 0.22; telofemur 1.02 by 0.215; tibia 1.52 by 0.13; metatarsus 0.26 by 0.10; telotarsus 0.805 by 0.095.

Etymology—The species is named for Charles Goodnight, who collected the type specimen.

Remarks—This species is peculiar in several respects which distinguish it clearly from other members of the genus. Though it is large and well sclerotized, it shows no trace of a transverse furrow on the

carapace; there are eight setae on the anterior genital operculum of the female rather than four as in other species; there are 38 setae on the carapace, the largest number in the genus; and the large number and placement of setae on the abdominal sternites is unique for the genus. These features might be considered sufficient for generic distinction; but in view of the wide variation in a number of characteristics among other species, it seems best at the moment to place this species in *Mexobisium*.

Mexobisium paradoxum Muchmore

Mexobisium paradoxum Muchmore, 1972, p. 273.

Reexamination of the holotype female in comparison with the species described above reveal some interesting facts. This species is unique in several respects: there is only a single seta in the cheliceral flagellum; the pleural granules do not possess apical spinules, at most a thickening of the apices; there are no protuberances at the anteroventral corners of the carapace. And it shares a couple of peculiar features with other species: as in *M. goodnighti*, there is no transverse furrow on the carapace; and as in *M. pecki*, there are no setae on the ventral anal plate.

It is obvious that there are a considerable number of morphological differences among the several spe-

Key to Species of *Mexobisium* (adults only)

1. Cheliceral flagellum consisting of a single, simple seta; appendages greatly attenuated—palpal femur 7.1 times as long as broad; from a cave in Veracruz, México *M. paradoxum* Muchmore
 Cheliceral flagellum consisting of two finely denticulate or acuminate setae; appendages not so slender—palpal femur not more than 6 times as long as broad 2
2. Very large—palpal chela nearly 3 mm long; carapace without a transverse furrow; anterior genital operculum of female with 8 setae; from cave in Belize *M. goodnighti*, new species
 Smaller—palpal chela no more than 2 mm long; carapace with a more or less distinct transverse furrow; anterior genital operculum of female with only 4 setae 3
3. Palpal chela about 2 mm long, femur about 1.2 mm long; cavernicolous forms 4
 Palpal chela 1 mm or less in length, femur less than 0.7 mm long; epigeal forms 5
4. Carapace with prominent triangular epistome; hand of chelicera with 6 setae; cheliceral fingers with about 8 distinct teeth; from cave in Guatemala *M. guatemalense*, new species
 Carapace without epistome; hand of chelicera with 5 setae; cheliceral fingers without distinct teeth; from cave in Tabasco, México *M. maya*, new species
5. Ventral anal plate with 2 small setae; hand of chelicera with 6 setae; palpal chela about 1 mm long; from Cuba *M. cubanum*, new species
 Ventral anal plate without setae; hand of chelicera with 5 setae; palpal chela less than 0.8 mm long; from Oaxaca, México *M. pecki*, new species

cies assigned to the genus *Mexobisium*. At present it seems best to keep all these species in one genus, although it is recognized that further knowledge of them may very well demand separation into two or more genera.

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