TWO NEW SPECIES OF *LEPIDOCYRTUS* FROM PARAMO DE MUCUBAJI MERIDA, VENEZUELA (COLLEMBOLA: ENTOMOBRYIDAE)

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RESUMEN

Se describen las especies nuevas *Lepidocyrtus atratus* y *L. balteatus* a partir da ejemplares colectados en Páramo de Mucubají, Estado de Mérida, Venezuela. Los individuos fueron encontrados entre hojas muertas a lo largo del tallo de frailejones *(Espeletia schultzii,* Compositae). Se distingue las especies nuevas de sus parientes más cercanos y se detalla alguna de la variación intraspecífica. Treinta y dos figuras complementan las descripciones.

INTRODUCTION

Dozens of *Lepidocyrtus* species thrive in Venezuela but only one, *L. summersii* (MacGillivray) 1894, has been described or reported from this country. During a recent visit to Mérida the author collected at Páramo de Mucubají, a wet-type paramo located about 50 kms northeast of the city of Mérida. Dead leaves along the stem of *Espeletia schultzii* (Composite) were separated and the springtails collected with an aspirator. The specimens thus obtained represent two new species described below.

The holotype and one paratype of each species have been deposited in the British Museum (Natural History), London. All other specimens remain in the author's collection.

Lepidocyrtus balteatus new species

Length to 1.5 mm (x=1.4, n=10). Background color light yellow to ochre. Deep blue-violet pigment distributed as in Fig. 1; uninterrupted band extends from posterior margin of Th. 3 to posterior margin of Abd. 3. Atennae, legs and furcula unpigmented except for apex of Ant. 3. Small V-shaped spot of pigment on midline in front of eye patches. Scales absent from antennae, legs and dorsum of manubrium. Apex of Ant. 4 with large bilobed papilla (Fig. 14,15). Eyes 8 + 8, g and h smallest. Chaetotaxy of ocular region as in Fig. 24. Head devoid of macrochaetae; distribution of setae along antennal base, and setulae as in Fig. 16. Labral chaetotaxy follows formula 4;5,5,4. Prelabral setae strongly ciliate, setae of 1st 2 labral rows slender, smooth; setae of apical row stout, distally bifurcated (Fig. 6). Labral papillae toothless (Fig. 5). Setae of maxillary palp as in Fig. 18. Differentiated seta of outer labial papilla not reaching apex of its papilla by 0.4× to 0.9× its length (Fig. 10-13). Labial chaetotaxy (Fig. 23) follows formula a_1-a_5, $MrEL_1L_2$(r very small, sometimes absent). Five ciliated setae along each side of ventral cephalic groove between labium and posterior margin of head (Fig. 22). Inner margin of unguis (Fig. 7,8) with proximal pair of subequal teeth and 2 unpaired teeth; apical tooth sometimes very small. Unguiculus slightly truncate, 1 outer lamella with 2-4 very small teeth. Tenent hair clavate. Ratio length of smooth seta opposite tenent hair of metahoracic leg/length of unguiculus ≅ 1.10

(n=8). Trochanteral organ as in Fig. 9; ventral arm with 3-4 setae, posterior arm with 3 setae. Distribution of pseudopores and body macrochaetae as in Fig. 3; Abd. 4 with 1 macrochaeta between pseudopore and bothriotrichum. Arrangement of setae associated with bothriotricha of Abd. 2-4 as in Fig. 19, 20, and 21 respectively. Dental lobe with apically rounded tubercle (Fig. 17). Mucro (Fig. 4) with 2 teeth and basal spine.

Material Examined. Venezuela, Mérida State, Páramo de Mucubají, 3535 m., under dead leaves of *Espeletia schultzii,* 15.vii. 1981, J. A. Mari Mutt and A. Díaz, col, holotype and and 11 paratypes (4 in alcohol). As preceding but 9.vii. 1981, Robinson, col., 21 paratypes (19 small in alcohol).

Diagnosis. Color pattern readily distinguishes *L. balteatus* from all North American and African species, and from all but one South American form. *Lepidocyrtus gisini* Izarra 1972, described from Isla Victoria, Argentina, possesses similar pigmentation but it has scales on dorsum of Ant. 1, smooth prelabral setae, labral papillae with conspicuous apical spines, labial seta r well developed, and Abd. 4 with 3 median macrochaetae.

Lepidocyrtus balteatus is closely related to *L. atratus* n. sp. but several characters separate both. Aside from pigmentation (Fig. 1,2), *L. balteatus* has apically bifurcated setae on the distal labral row, retractile bulb on apex of Ant. 4, Abd. 2 with a very small seta near the inner macrochaeta and 2 feathered setae above the second bothriotrichum (Fig. 19,28), Abd. 3 with 8 feathered setae surrounding the outer bothriotricha (Fig. 20,25), trochanteral organ with 3 setae in posterior arm and up to 4 setae in ventral arm, and length of smooth seta opposite tenent hair of methoracic legs/length of unguiculus = (0.7 in *L. atratus).*

Comments. Labial seta r is absent in 4 of the 10 specimens studied. An individual has this minute seta on the left labial base but lacks it on the right side. One specimen lacks the posterior pair of setae along the ventral cephalic groove, resulting in 4 + 4 setae instead of the usual 5 + 5 arrangement. One individual has 3 setae instead of the usual 4 within the rough circle defined by ocelli c, d, f, g and h; another specimen has 4 setae on the left eye patch and 3 on the right patch. A single specimen has accesory seta s only on the left side of Abd. 4 (Fig. 21); all other specimens lack this hair.

Lepidocyrtus atratus new species

Length to 1.4 mm (x=1.3, n=5). Deep violet pigment evenly distributed over whole animal (Fig. 2). Ant. 4 without apical papilla (Fig. 31). Setae of distal labral row not bifurcated (Fig. 32). Ratio length of smooth seta opposite tenent hair of metathoracic leg/length of unguiculus≅0.54 (n=7); compare Fig. 8 and Fig. 27. Trochanteral organ as in Fig. 29, ventral arm with 4-5 setae, posterior arm with 5 setae. Abd. 4 (Fig. 26) with 2 macrochaetae between pseudopore and bothriotrichum. Arrangement of setae associated with bothriotricha of Abd. 2-3 as in Fig. 28 and 25 respectively. All other characters mentioned under *L. balteatus* are present and identical in this species.

Material Examined. As in first locality under *Lepidocyrtus balteatus.* Holotype and 7 paratypes (2 in alcohol).

Diagnosis. This is the only Neotropical species with the body uniformly pigmented in violet. Most Latin American species are pale or possess limited blue bands. A superficial resemblance exists with the deeply pigmented Holarctic *L. paradoxus* Uzel 1891, but according to Christiansen and Bellinger (1980) Uzel's species has pale legs, scales on antennae and legs, no basal dental tubercle, labial seta M_1, unisetaceous labral papillae, and three median macrochaetae on Abd. 4.

A similar pigmentation occurs in the African *L. congolensis* Marlier 1945 and the Seychelles' *L. silvestris* Carpenter 1916. The former has a retractile papilla on Ant. 4; the latter's description is so incomplete by modern standars that no further meaningful comparison is possible.

Comments. One specimen has labial seta M_1 but only on the left labial triangle (Fig. 30). Another specimen has a feathered seta substituting a tipycally smooth seta of Abd. 3 (Fig. 25).

LITERATURE CITED

CARPENTER, G. H. 1916. The Apterygota of the Seychelles. Proc. R. Irish Acad, 33:1-70 + 18 pl.

CHRISTIANSEN , K. AND P. BELLINGER 1980. The Collembola of North America north of the Rio Grande. Grinnell College, Iowa, 1322 p.

IZARRA, O. C. DE 1972. Fauna colembológica de Isla Victoria (Provincia de Neuquen, Argentina). III. Familias Isotomidae y Entomabryidae. Physis 31:373-362.

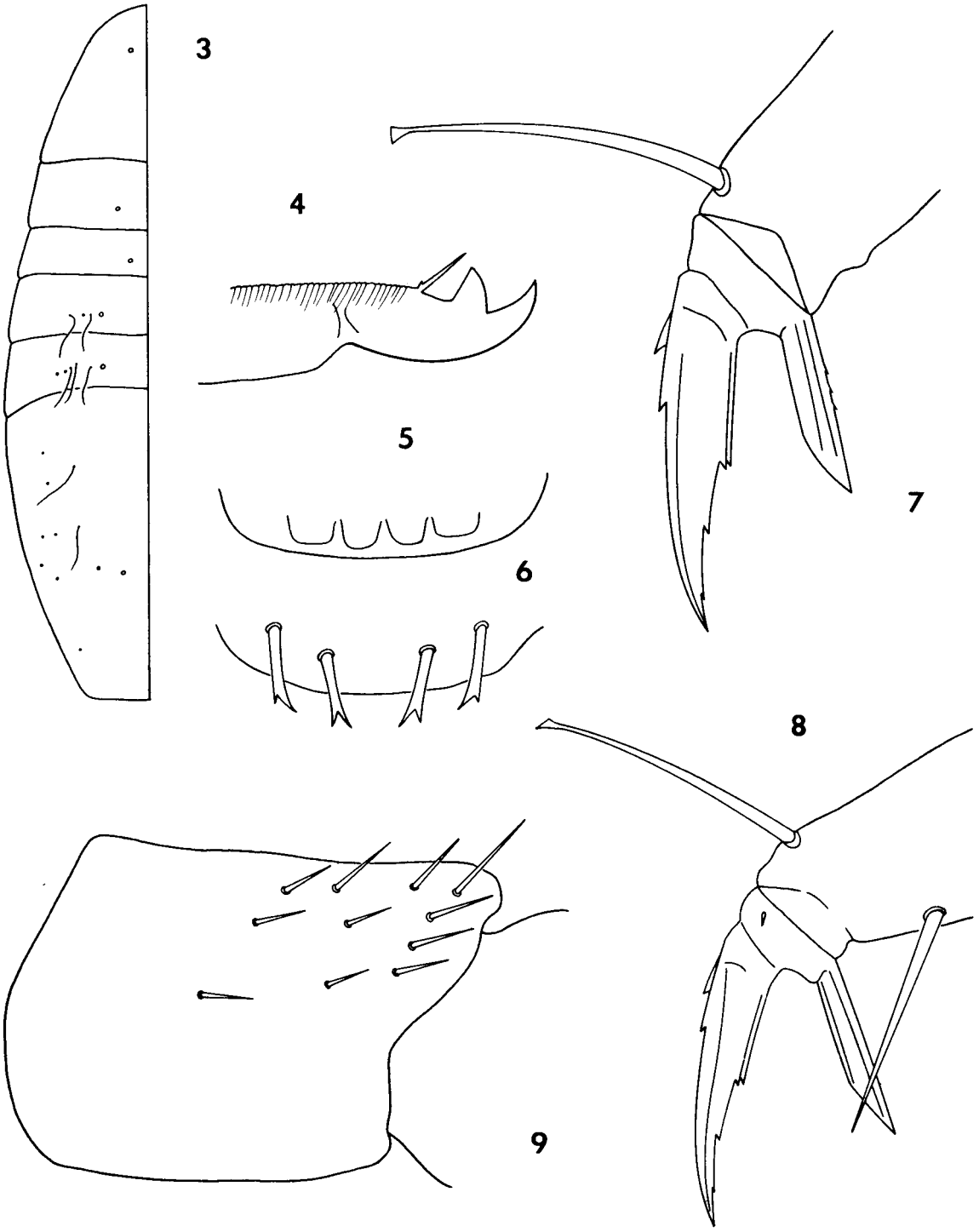
MACGILLIVRAY, A. D. 1694. North American Thysanura-V. Can. Entomol. 26:105-110.

MARLIER, G. 1945. Collemboles du Congo belge. Rev. Zool. Bot. Afr. 38:252-264.

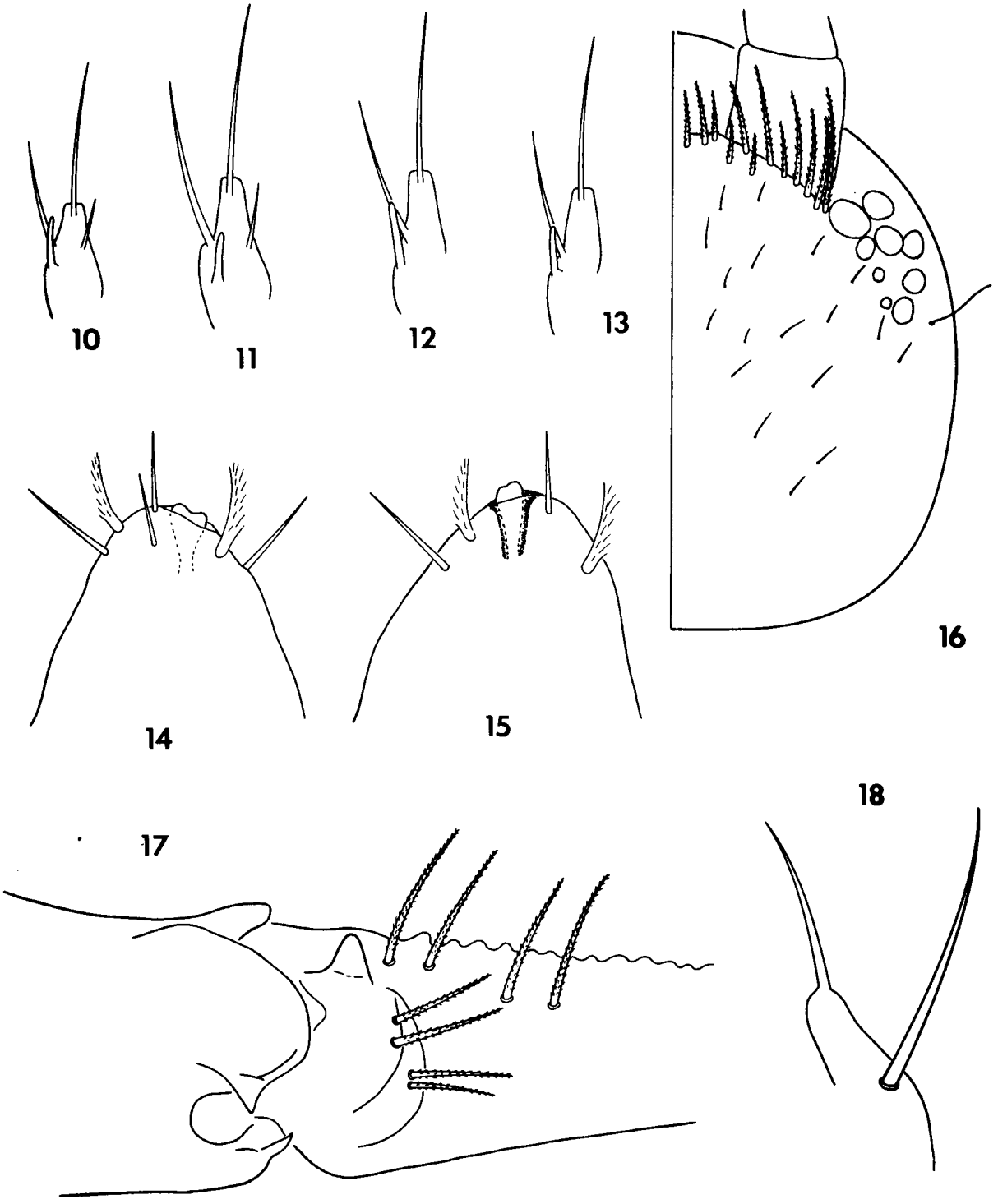
UZEL, J. 1981. Thysanura Bohemiae. Sbar. K. böhm. Ges. Wiss., math.-naturw. Kl. 2:3-82.

FIGURE 1. *Lepidocyrtus belteatus.*

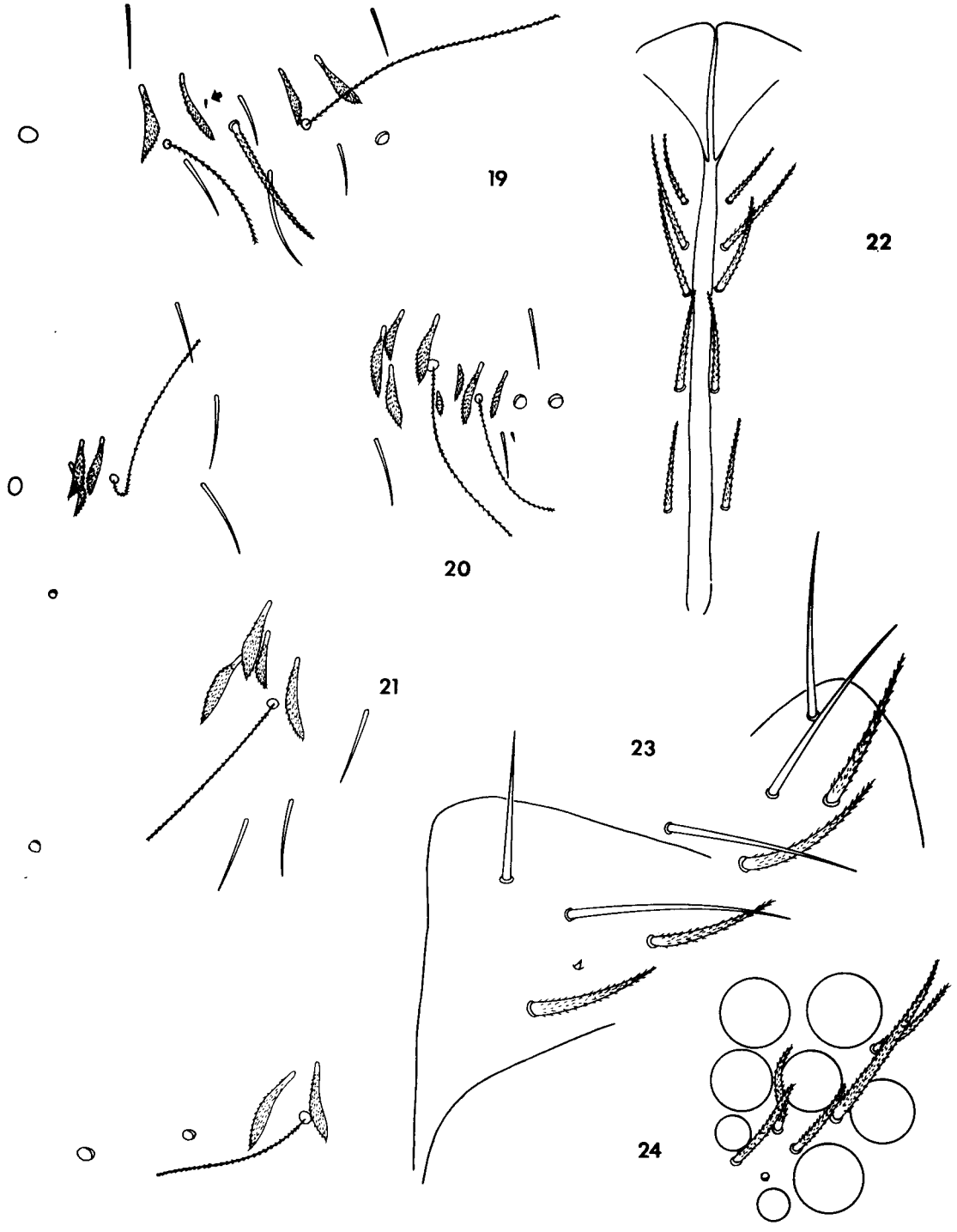
FIGURE 2. *Lepidocyrtus atratus*



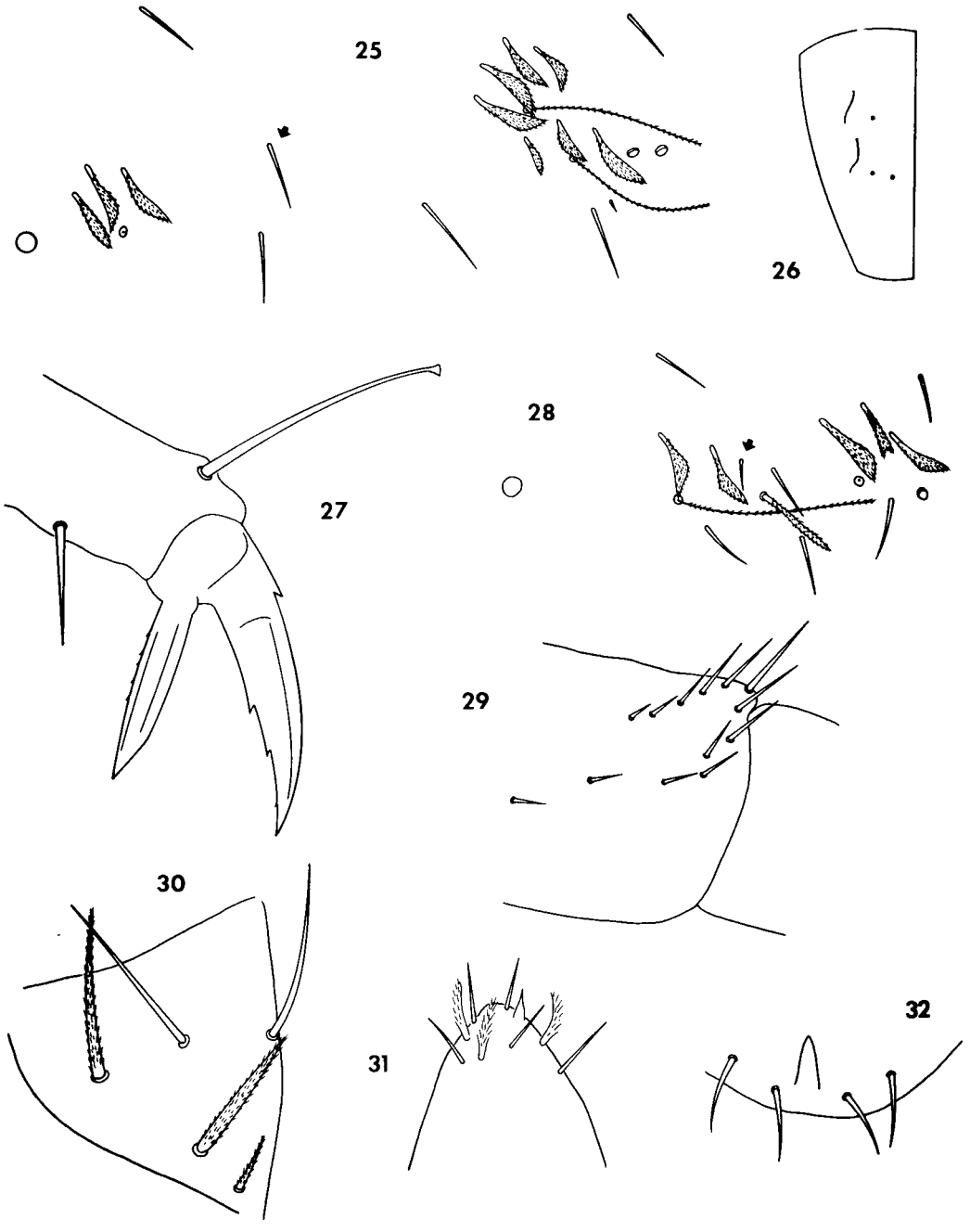
FIGURES 3-9. *L. balteatus.* 3. distribution of bothriotricha, macrochaetae (dots) and pseudopores (circles) on body. 4. mucro. 5. labral papillae. 6. apical row of labral setae. 7. meaothoracic claws. 8. metathoracic claws. 9. trochanteral organ.



FIGURES 10-18. *L. balteatus.* 10-13 outer labial papilla with its differentiated seta. 14-15 apex of Ant. 4. 16. distribution of setae along antennal basa and satulae on dorsum of head. 17. lataral view of dens showing a pically rounded tubercle on dental lobe. 18. maxillary palp.



FIGURES 19-24. *L. balteatus.* 19. setae associated with bothriotricha of Abd. 2. 20. as·proceding, Abd. 3. 21. As preceding, Abd. 4. 22. setae along ventral cephalic groove. 23. labial chaetotaxy. 24. eye patch showing relative size of eyes g and h, and distribution of ocular setae.



FIGURES 25-32. *L. atratus.* 25. setae associated with bothriotricha of Abd. 3. 26. distribution of bothriotricha, mecrochaetaa (dots) and pseudopores (circles) on Abd. 4. 27. metathoacic claws. 26. as Fig. 27, Abd. 2. 29. trochanteral organ. 30. labial chaetotaxy of the only specimen with seta M_1 (short ciliate seta), this individual lacks seta r. 31. apex of Ant. 4. 32. apical row of labral setae.