

NEW *BASILIA* SPECIES FROM THAILAND, MEXICO AND BRAZIL (Diptera: Nycteribiidae)¹

By T. C. Maa²

Abstract: Females of *Basilias benkingi*, *B. traubi* and *B. producta* n. spp. are described from Thailand, Mexico and Brazil respectively. The first of these species belongs to the *Eileenae* group, while the other 2, to the *Ferruginea* group.

The 3 following new *Basilias* species were received from the Migratory Animal Pathological Survey, Dr Robert Traub and the Genova Natural History Museum. I am indebted to Drs H. E. McClure, R. Traub and D. Guiglia for the privilege of studying and reporting on these interesting forms, and to C. T. Lin, Miss S. M. Kwang and Miss P. Y. Hu for the preparation of slides and drawings. Relative measurements in the description are all at the magnification of 31 micrometric units=1 mm.

Basilias benkingi Maa, new species Fig. 1-7.

Material. 1♀. THAILAND: Chiangmai, Doi Phahompok, 1300 m, ex bat (M 106), XII.1965, Ben King. Holotype (BISHOP 7564) in Bishop Mus.

Affinities. A member of the *Eileenae* group and closely related to *eileenae* Scott of Ceylon, *borneensis* Theod. of Borneo and *pectinata* Theod. of Java and lower Thailand. In relative length of posterior marginal setae of tergite 1, *benkingi* is near *eileenae* and *borneensis* and differs from *pectinata* in having these setae almost uniform in length; its tergite 2 is similar in shape to that in *eileenae* and is posteriorly more broadly rounded than in *borneensis* and *pectinata*; its 1st 2 rows of bristles on abdominal dorsum are stronger than in any of those 3 species (*pectinata* has no such bristles on membrane between tergite 2 and 1st pair of submedian plates). The submedian plates in *benkingi* are shorter, wider in proportion and the setation on lateral connexivum, stronger than in any of those related species. Details of sternites 5-7 are also different. Sternite 5 in *benkingi* has no interstitial setae between the 2 side-pieces as found in *eileenae* and no preapical setae as found in *borneensis* but there are more numerous setae on hind margin. Sternite 6 is less significantly wider than sternite 7 in *benkingi* and the setae on these 2 sternites are subequal in length to the sternites themselves, thus distinctly longer than in *eileenae* etc. In short, chief characteristics of *benkingi* are the relative size and shape of the various plates and relative length and robustness of the various setae-bristles mentioned above. This new species is named in honor of Mr Ben King, formerly of the Migra-

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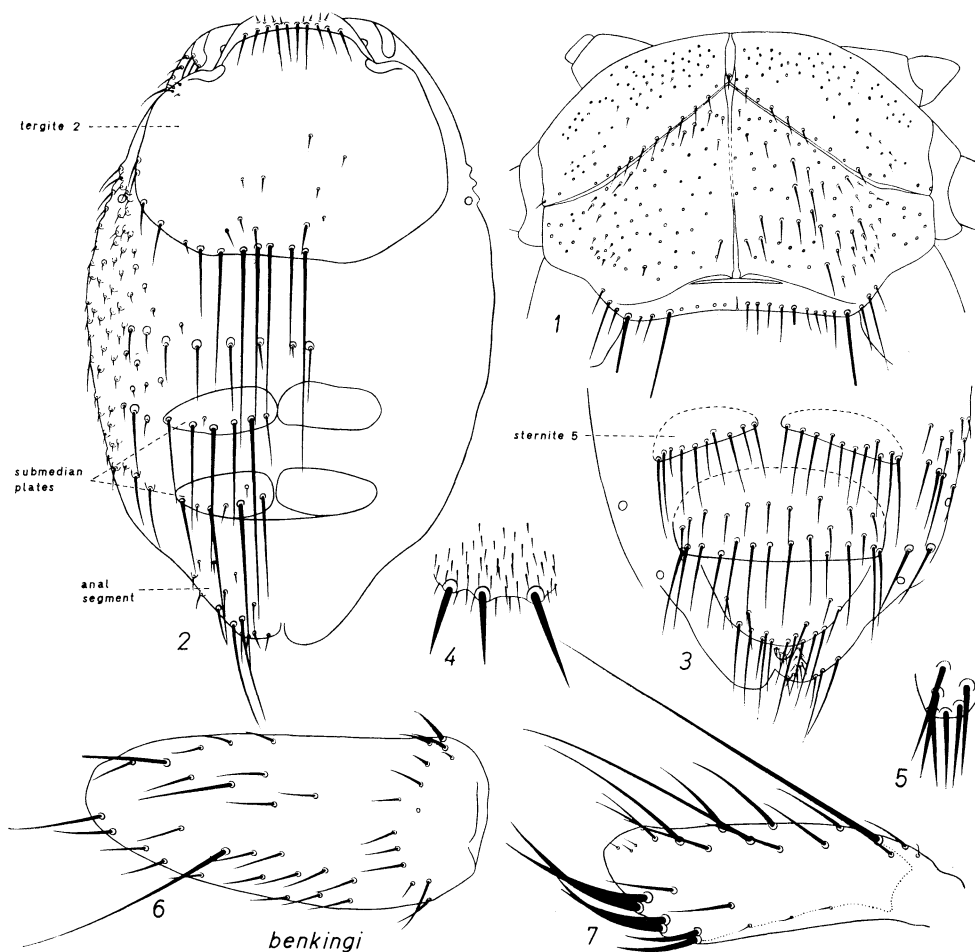


Fig. 1-7. *Basilia benkingi* n. sp., holotype ♀. 1, thoracic sternal plate; 2, abdomen, dorsal; 3, abdominal apex, ventral; 4, postgenital plate; 5, infra-anal plate; 6, fore femur, anterior surface; 7, hind tibia, with dotted line indicating outline of fore tibia. Figs. 1-3 in same scale as each other; fig. 4 in same scale as 5; fig. 6, as 7.

tory Animal Pathological Survey, who collected many interesting Diptera Pupipara in Thailand in 1964-66.

Description. ♀. Body light brownish, 2.1 mm long. **Head** moderately bilaterally compressed, with 8 setae on anterodorsal margin, 1-2 on surface of gena, $10 \pm$ (in single series) on genal margin; no setae on surface of vertex. Eye prominent, 2-faceted. Palpus ca $1/3$ as long as its terminal bristle. Labial theca longer than wide, ca $2.5 \times$ as long as labella. **Thorax** unusually short; notum hardly widened caudad; 7 notopleural setae. Sternal plate (fig. 1) 21×28.5 , with straight and parallel lateral margins; median furca weakened at intermediate $1/3$, hind section not widened; oblique sutures clearly reaching lateral margins and jointly forming at middle an angle of $90 \pm$ degrees; mesosternum more finely and densely setose than metasternum; posterior metasternal margin fringed with, in addition to $8 \pm$ pairs of short setae, 4 long bristles reaching

level of abdominal ctenidium. Legs unusually short, sparsely setose; relative lengths of femora 1-3 and tibiae 1-3 as 9.5 : 12.5 : 14.5 and 13 : 15 : 15 respectively; anterior (inner) surface of femur 1 (fig. 6) unevenly setose, its pale ring situated at a point of basal 1/4; anterior surface of femora 2-3 largely bare, lacking groups of sensory pores; tibiae (fig. 7) strongly bilaterally compressed, scalpel-shaped (in profile ca 2.5-3 \times as long as wide), ventrally each with 3 rows of bristles, all very close to tibial apex, bristles of 2nd and 3rd rows apically much surpassing level of tibial apex; basitarsus 3 subequal in length to its 3 succeeding tarsomeres together. *Abdomen* (figs. 2-3) with 2 pairs of submedian plates and 4 rows of long bristles; 1st, 3rd and 4th bristle-rows on or very near hind margins of tergite 2 and submedian plates, 2nd row on membrane between tergite 2 and anterior pair of submedian plates. Tergite 1 small, with 4-6 setulae (in 2 groups) on disc and 10 \pm moderately long setae on hind margin. Tergite 2 large, with few scattered small setae over surface, with very broadly rounded hind margin. All submedian plates transverse, similar in size and shape to one another, with practically bare surface. Anal segment short, gently narrowed apicad, surface with few small setae, lateral and posterior margins with few moderately long bristles. Laterite 1 with 3-4 setae and several setulae. Lateral connexivum with very short small setae on upper half and moderately long ones on lower half; a few long setae lined at levels of 2nd, 3rd and 4th dorsal bristle-rows. Synsternite 1+2 twice as wide as long, anterior margin weakly notched at middle, surface with 2-3 setal rows, lateral area more extensively setose; ctenidium composed of 49 slender pointed teeth, not flanked by strong setae.

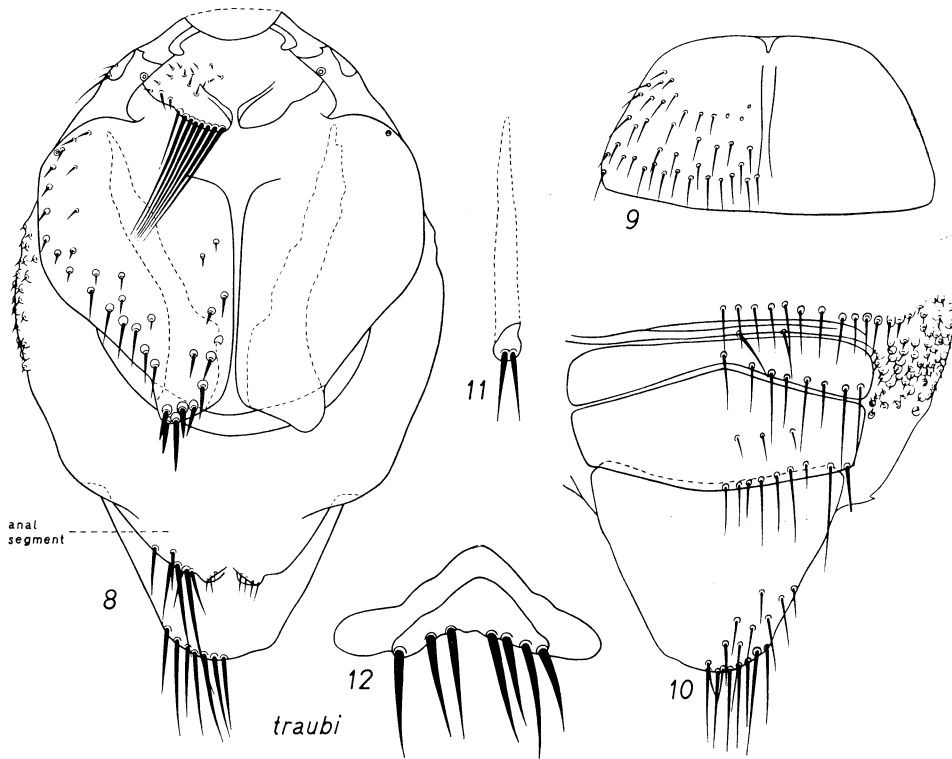


Fig. 8-12. *Basilia traubi* n. sp., holotype ♀. 8, abdomen, dorsal; 9, synsternite 1+2, omitting ctenidium; 10, abdominal apex, ventral; 11, infra-anal plate; 12, postgenital plate. Fig. 8-10 in same scale as each other; fig. 11 in same scale as 12.

Sternite 3 represented by 5-6 setal rows, setae of 1-2 anteriormost rows very short, setae on lateral area similar in length and robustness to those on median and submedian areas. Sternite 4 represented by 2 rows of small setae and 1 row of long ones; sternite 5 with 1, sternite 6 with 2 rows of setae; no interstitial setae between side-pieces of sternite 5. Sternite 7 entire, fairly large, posterior margin strongly convex, with 2 rows of setae. Postgenital plate as in fig. 4; infra-anal plate (fig. 5) roundish, with 5 small setae; adanal plate not definable. ♂ unknown.

Basilia traubi Maa, new species Fig. 8-14, 17-19.

Material. 4♂♂. MEXICO: Oaxaca, 8 km W of Chiltepec, ex *Myotis* sp. (B 58809), VIII. 1962, M. D. Tuttle. Holotype ♀ (BISHOP 7565); paratypes in Bishop Mus. and U.S. Nat. Mus.

Affinities. A member of the Ferruginea group and closely related to *wenzeli* Guim. et d'Andr. of Venezuela and Colombia, *ortizi* Machado-Allison of Venezuela and *bequaerti* Guim. et d'Andr. of Paraguay, Colombia and Venezuela. The ♀ sex shares with that of

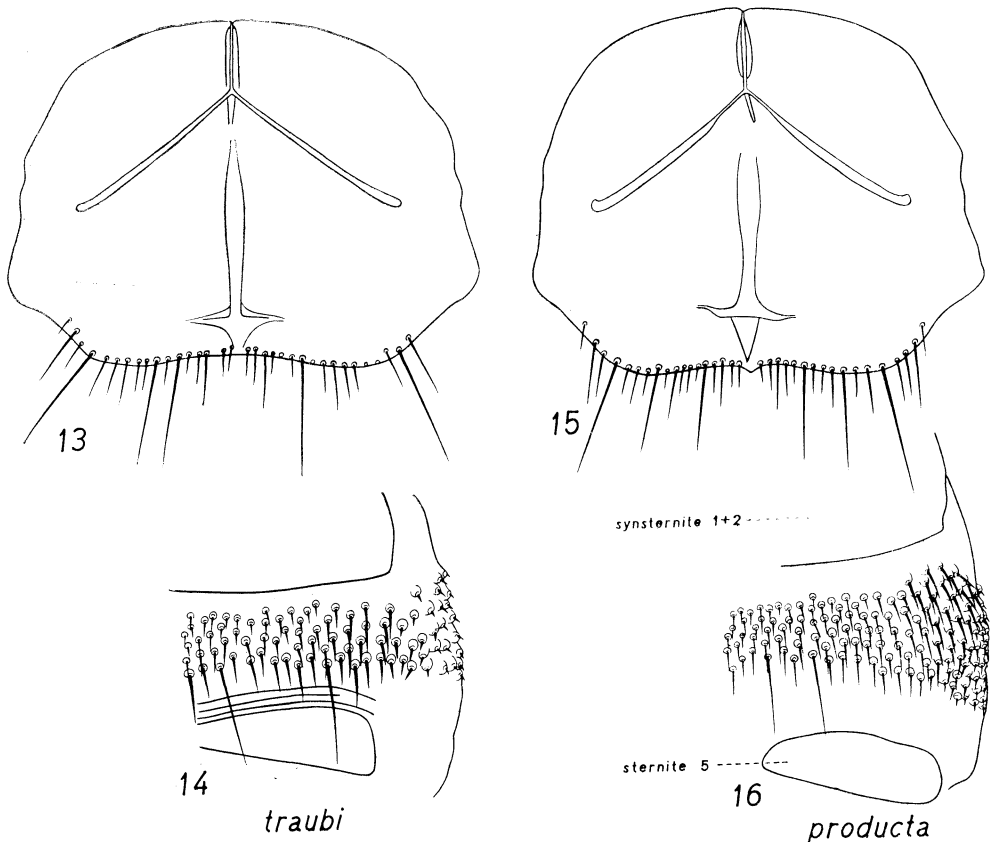


Fig. 13-16. *Basilia traubi* and *B. producta* n. spp., holotypes ♀♀. 13, 15, thoracic sternal plate, drawn to same scale, omitting setae on surface; 14, 16 left halves of sternites 3, showing unevenness of setae, omitting setae and teeth on sternites 1+2, 4 and 5.

these species in having very significant vertical posteromedian process of notum and very short setae on lateral connexivum. It differs from them chiefly by short heavy apical spines on tergite 2, posteriorly strongly narrowed anal segment and less significantly, by longer labella and posteriorly broadly rounded sternite 7. It can further be distinguished from *wenzeli* by much stronger apical bristles on tergite 1, shorter broader apical lobes of tergite 2, less richly setose sternites 6-7 and lacking a row of moderately long setae on lateral connexivum at about level of sternite 5; from *ortizi*, by tergite 2 with much broader apical lobes and sternite 7 lacking posteromedian lobe; from *bequaerti*, by much shorter apical lobes of tergite 2, distinctly convex posterior margin of sternite 6 and relatively shorter sternite 7. The species is named in honor of Dr Robert Traub as a humble token of gratitude for his encouragement and help to my studies in batflies.

Description. ♀. Body brown, 2.4-2.5 mm long. *Head* bilaterally compressed, in profile ca 1/2 longer than wide, with 4 setae on anterodorsal margin, 2 on vertex between eyes, 3-4 on surface of gena, 7-8 on genal margin. Eye prominent, 2-faceted. Palpus ca 1/3 as long as its terminal bristle. Labial theca ca as long as wide, and subequal in length to labella. *Thorax* moderately long; notum widest slightly behind midlength, posterior end strongly upraised to form a narrow significant vertical process; 8-10 notopleural setae. Sternal plate (fig. 13) 27×36, widest at a point between coxae 2 and 3, thence suddenly narrowed caudad; median furca weakly widened at intermediate section; oblique sutures jointly forming at middle an angle of 100± degrees, posterior ends not reaching lateral sternal margins; mesosternum with slightly shorter setae than in metasternum; posterior metasternal margin very weakly concave, fringed with short fine setae plus 2-3 pairs of moderately long bristles. Legs (figs. 17-19) slender, moderately long; relative lengths of femora 1-3 and tibiae 1-3 as 28.5 : 34 : 34 and 23 : 25 : 25 respectively; anterior surface of femur 1 evenly setose, its pale ring situated at a point of basal 1/3; anterior surface of femur 2 slightly less setose than in femur 3, both lacking sensory pores; tibiae each with a large group of pre-apical setulae and 3 ventral rows of bristles, 1st bristle-row arising from midlength (in tibia 1) or slightly basad to midlength (in tibiae 2-3), bristles of 3rd row apically slightly surpassing level of tibial apex; basitarsus 3 ca 3× as long as its 3 succeeding tarsomeres together. *Abdomen* (figs. 8-10, 14) with long bristles and short heavy spines fringing posterior margins of tergites 1 and 2 respectively. Tergite 1 fairly long, with 15± discal setulae (in 2 groups) and 8± posterior bristles, latter almost reaching midlength of tergite 2. Tergite 2 large, broader than long, with pair of oblique darkened stripes, with fairly heavy setae on disc, few finer setae on lateral area; lateral margin curved in S-shape, with moderately long setae. Tergite 3 not definable. Anal segment shorter than wide, strongly narrowed apicad, laterally with strong marginal setae. Laterite 1 strongly setose. Lateral connexivum uniformly covered with short setae each arising from fairly large basal papilla. Synsternite 1+2 (fig. 9) shorter in proportion (16×29) than in *producta*; anterior margin distinctly notched at middle, surface sparsely setose; ctenidium composed of 56± slender pointed teeth and not flanked by strong setae. Sternite 3 (fig. 14) represented by 4-5 rows of short and 1 row of long setae, setae on lateral area distinctly stouter than those of corresponding rows on median and submedian area. Sternite 4 represented by single row of long setae; sternite 5 similarly setose, its side pieces not well definable from each other. Sternite 6 moderately large, both anterior and posterior margins weakly convex, surface with few discal setae, posterior margin with long setae. Sternite 7 large, posteriorly rotundate, surface with strong setae on posterolateral area, posterior margin with strong bristles. Postgenital plate as in fig. 12; infra-anal plate (fig. 11) longitudinally linear, with 2 apical setae; adanal plate ca 2× as wide as infra-anal plate, anteriorly narrowed, posteriorly with 2 setae. ♂ unknown.

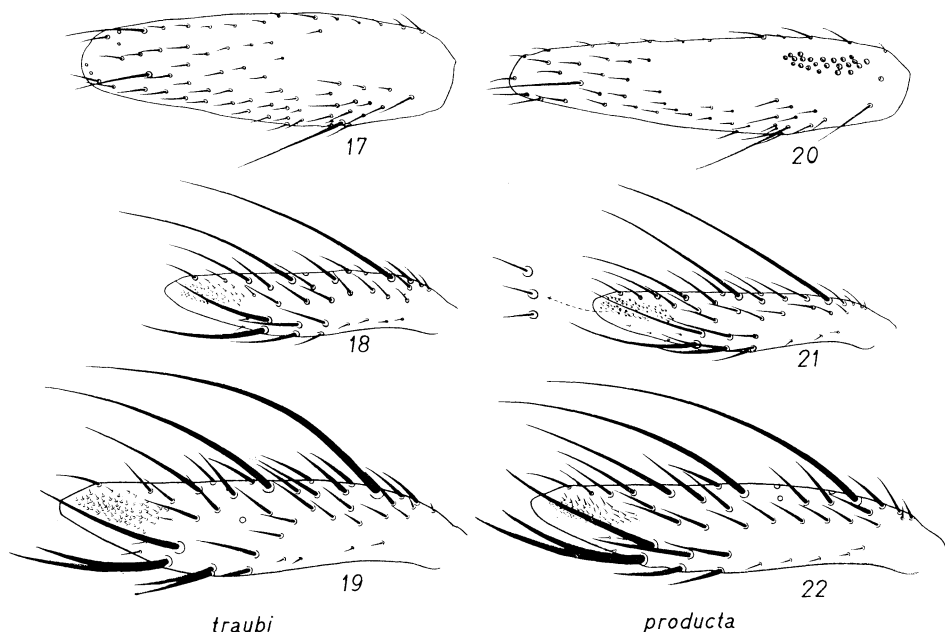


Fig. 17-22. *Basilia traubi* (17-19) and *B. producta* (20-22), ♀♀, hind femora (17, 20), hind tibiae (18, 21) and fore tibiae (19, 22). Figs. 19 and 22 slightly more enlarged, remaining ones in same scale.

***Basilia producta* Maa, new species** Fig. 15-16, 20-27.

Material. 3♀♀. BRAZIL: State of Parana, Palmeira, ex *Myotis albescens*, 1903, G. F. Grillo, removed from preserved bats by T. C. Maa. Holotype and 1 paratype in Genova Mus., 1 paratype in Bishop Mus.

Affinities. A member of the Ferruginea group and closely related to *plaumanni* Scott of Brazil, Argentina and Paraguay and in less extent to *bequaerti* Guim. et d'Andr. of Paraguay, Colombia and Venezuela and *ortizi* Machado-Allison of Venezuela. Readily recognizable from the 2 latter species by the absence of posteromedian vertical process of notum. Chiefly characterized by long bristles on posterior margins of tergite 2 as well as sternite 7, distinct posteromedian extensions of thoracic sternal plate as well as sternite 6 and group of sensory pores on femora 2-3. In allusion to the 2nd character, the name *producta* is suggested. The 3rd character has not previously been noted in the entire family and may not be unique for the new species. In Guimaraes & d'Andretta's (1956) and Theodor's (1967) keys, *producta* runs to *plaumanni* from which it can easily be distinguished by the much longer bristles and setae fringing posterior margin of tergite 1, lateral margins of tergite 2 and posterior margin of sternite 7, the less significant anteromedian but more significant posteromedian lobe of sternite 6, and the comparatively more elongate tergite 2 and fewer setae on sternites 4 and 6.

Description. ♀. Body brown, 2.5-2.6 mm long. *Head* bilaterally compressed, in profile ca 1/2 longer than wide, with 6-8 closely arranged setae on anterodorsal margin, 2 setae on vertex be-

tween eyes, 6-8 on surface of gena, 7-8 (in single series) on genal margin. Eye prominent, 2-faceted. Palpus ca $1/3$ as long as its terminal bristle. Labial theca longer than wide, ca $2\times$ as long as labella. *Thorax* moderately long; notum widest slightly behind midlength, posterior margin reflexed, but not forming distinct median process; 8-10 notopleural setae. Sternal plate (fig. 15) 28×34 , widest at a point between coxae 2 and 3, from there suddenly narrowed caudad; median furca distinctly widened at intermediate section; oblique sutures jointly forming at middle an angle of $100\pm$ degrees, posterior ends not reaching lateral sternal margins; mesosternum similarly setose as metasternum; posterior metasternal margin very weakly, angulately produced at middle and fringed with short fine setae plus 3 pairs of moderately long bristles. Legs (figs. 20-22) slender, moderately long; relative lengths of femora 1-3 and tibiae 1-3 as $28 : 35 : 36$ and $25 : 27 : 27$ respectively; anterior surface of femur 1 evenly setose, its pale ring situated at a point of basal $1/3$; anterior surface of femora 2-3 largely bare, with group of sensory pores near base; tibiae each with a large patch of setulae and 3 rows of ventral bristles near apex, 1st bristle-row arising from midlength (in tibia 1) or slightly basad to midlength (in tibiae 2 and 3), bristles of 3rd row apically slightly surpassing level of tibial apex; basitarsus 3 ca $3\times$ as long as its 3 succeeding tarsomeres together. *Abdomen* (figs. 16, 23-25) with strong bristles fringing tergites 1-2. Tergite 1 fairly long, with $15\pm$ discal setulae (in 2 groups) and $8\pm$ posterior bristles, latter nearly reaching midlength of tergite 2. Tergite 2 very large, longer than wide, with pair of oblique darkened stripes, with fairly heavy setae on disc, few finer ones on lateral area;

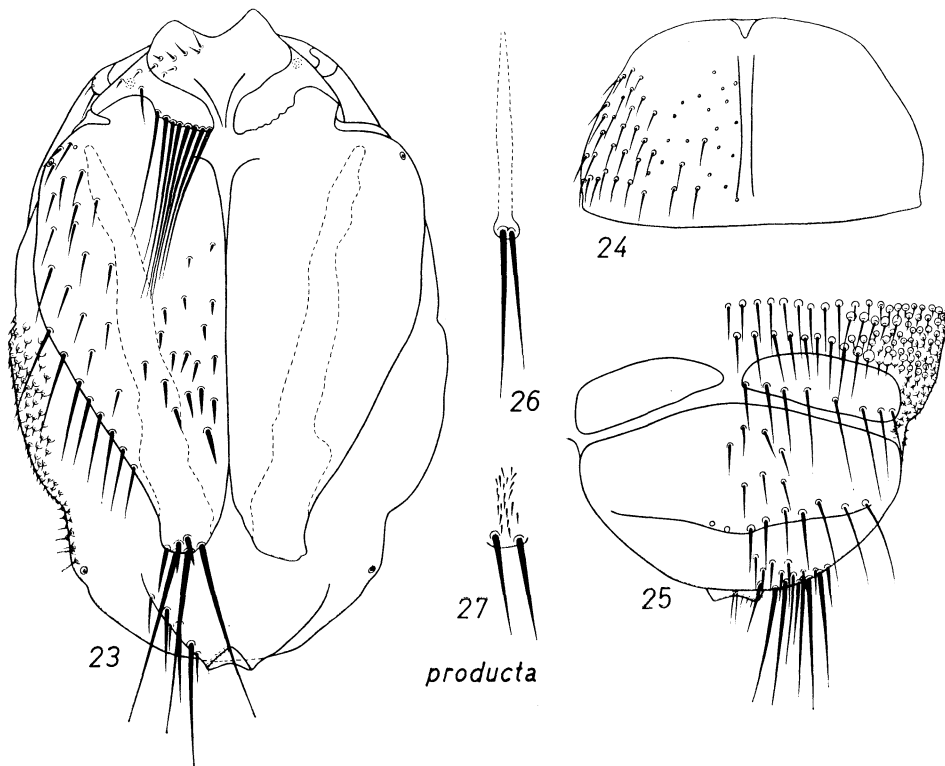


Fig. 23-27. *Basilia producta* n. sp., holotype ♀. 23, abdomen, dorsal; 24, synsternite 1+2, omitting ctenidium; 25, abdominal apex, ventral; 26, infra-anal plate; 27, postgenital plate. Fig. 23-25 in same scale as each other; fig. 26 in same scale as 27.

lateral margin gently curved in S-shape, with long strong setae; posterior lobe slightly narrower than in *plumanni*, with heavy setae and bristles in 2 rows, bristles ca as long as but distinctly heavier than those of tergite 1. Tergite 3 not definable. Anal segment short, strongly narrowed apicad, laterally fringed with long strong setae. Laterite 1 rather finely setose. Lateral connexivum covered with uniformly short setulae each arising from fairly large basal papilla, setulae at level of sternite 6 slightly longer and with slightly smaller basal papillae. Synsternite 1+2 (fig. 24) moderately short, 18×29, anterior margin distinctly notched at middle, surface sparsely setose; ctenidium composed of 60± slender pointed teeth, and not flanked by strong setae. Sternite 3 (fig. 16) represented by 5± rows of small setae and 1 row of long ones; setae on anterolateral corner distinctly longer than on anteromedian area and posterolateral corner. Sternite 4 represented by single row of long setae but its lateral area with 2-3 additional rows of small setae. Sternite 5 with single row of long setae, no interstitial setae between its side-pieces. Sternite 6 moderately large, anterior margin very gently convex, posterior margin distinctly produced at middle and fringed with long setae, surface largely bare, with only few discal setae. Sternite 7 wide, with stronger marginal setae than on sternite 6, posterior margin very gently convex. Postgenital plate as in fig. 27; infra-anal plate (fig. 26) with 2 apical setae; adanal plate ca 3× as wide as infra-anal plate, with 3-4 apical setae.